CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

FOR

TERMINAL APRON REHABILITATION

AT

FAA AIP Project No. 3-12-0055-034-2024
FDOT FM No. 455217-1-94-01 (G3474)

FOR

CITY OF OCALA, FLORIDA

PREPARED BY:

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FL Certificate of Authorization No. 30862

MARCH 2025

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APPLICABLE DOCUMENTS INCORPORATED BY REFERENCE (https://www.faa.gov/):

FAA AC 150/5370-2G – Operational Safety on Airports During Construction

FAA AC 150/5210-5D – Painting, Marking, and Lighting of Vehicles used on Airports

FAA AC 150/5200-18D – Airport Safety Self Inspection

Plan Sheet G1.0 – Project Layout Plan
Plan Sheet G1.1 to G1.3 – Construction Safety and Phasing Plans
Plan Sheet G1.4 to G1.5 – Construction Safety and Phasing Notes and Details

CONSTRUCTION SAFETY AND PHASING PLAN
For
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OCALA INTERNATIONAL AIRPORT

1. INTRODUCTION

This Construction Safety and Phasing Plan (CSPP) has been prepared as a supplement to the contract documents for the Terminal Apron Rehabilitation project at the Ocala International Airport to set forth requirements for operational safety during the construction phase of the project. The contractor is required to become familiar with and follow the procedures set forth in this plan. **In addition, the contractor must, after reviewing the CSPP and prior to receiving a Notice to Proceed (NTP), prepare a Safety Plan Compliance Document (SPCD) in accordance with FAA AC 150/5370-2G – Operational Safety on Airports During Construction, found at the link** https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5370-2G.pdf**, describing how the contractor will comply with the CSPP.**

2. PROJECT DESCRIPTION

The construction operations intended for this project at the Ocala International Airport (OCF) are along Terminal Apron. The existing surface PCI is 52 (poor), with cracking, spalling, and rutting. The current pavement section consists of 7.75" of asphalt over 12" of limerock base, supported by 12" of clay-stabilized subgrade. Issues with rutting in the asphalt exist due to fatigue. The project includes two bid schedules and phases. Phase one construction involves the removal of existing tie-downs, milling the existing pavement to a depth of 8", and replacing it with a 6" thick Asphalt Mix Pavement (P-403) and 2" of fuel-resistant asphalt mix (P-404) for the surface course. Additionally, two underground mini hatch pits will be installed, along with related conduit work. Phase two construction includes milling the existing asphalt in front of the terminal building to a depth of 2" and replacing it with 2" of FDOT Superpave SP12.5, as well as the installation of underground conduits for the hatch pit installed in phase one. The limits of the project area are shown in Appendix A, Sheets G1.0 and G1.1 – Project Layout Plan. The total project duration is 22 days. All work shall be performed during the day, except for the area in front of the terminal building, which shall be completed at night.

3. COORDINATION

a. Kickoff Meeting: Prior to starting work, a kickoff meeting will be held with the contractor, employees, and sub-contractors to review the important elements of safety and operations on an active airport.

b. Contractor Progress Meetings: Progress meetings shall be held on a weekly basis at the airport at which operational schedule will be discussed. Additional meetings will be held when requested by the Owner or the Contractor. The contractor's project manager and site superintendent shall be present at a minimum. Representatives of subcontractors and the Engineer will be asked to attend when the contractor or Owner requests their attendance.

c. Scope or Schedule Changes: Proposed scope and/or schedule changes will be discussed at each progress meeting along with their impact on the CSPP and the need to revise the CSPP.

d. FAA ATO Coordination: A representative of the FAA Air Traffic Control Tower (ATCT) will be invited to attend all progress meetings. The ATCT representative will be notified of all changes to schedule and upcoming NOTAMS.

4. PHASING

Contractor shall be permitted to phase the construction in a manner that suits them, provided the project progresses sequentially and control is maintained of forces by the site superintendent.

TABLE 1 – OPERATIONS EFFECTS

Project	Ocala International Airport Terminal Apron Rehabilitation
Scope of Work	Milling and Repaving
Description of Work	See Construction Safety and Phasing Plans and Notes
Impact	The airport will be open to all takeoff and landing operations.
Runway 18-36	Remains open
Runway 8-26	Remains open
Terminal Apron	Will be closed for 21 Days.

5. AREAS AND OPERATIONS AFFECTED BY CONSTRUCTION ACTIVITIES

These areas are shown on the Project Layout Plan and Phasing Plan of the construction drawings. Airport tenants will be briefed on the phasing plan and NOTAMS will be issued prior to the runway, taxiway, and apron closures if necessary. No work will occur within a Runway Object Free Zone (ROFZ) without prior closure of the affected runway. There are no permanent structures included in this project that penetrate the FAR Part 77 airspace.

6. PROTECTION OF NAVIGATION AIDS (NAVAIDS)

The ILS, PAPI's, VORTAC, and other navigational aids are located outside of the work and movement areas. Marking of utilities will be performed by sunshine one call and where the service does not provide locates, airport and City staff will assist with as-built information.

7. CONTRACTOR ACCESS

a. Contractor access will be provided from Gate 2 at the north side of the Terminal Building and Airport Tower Control.

b. Contractor's employee vehicles will be permitted to park at the staging area near Gate 2.

c. Radio Communications: The contractor will monitor Ocala CTAF 119.25 and GROUND 121.4 in the event of an accidental or emergency landing.

8. WILDLIFE MANAGEMENT

There are no wildlife issues at the airport that this project will affect. The following wildlife attractant mitigation procedures are in place:

a. The contractor will be required to immediately collect and dispose of any food scraps from construction personnel activity. All waste & trash containers must be secured and maintain a lid or closure.

9. FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT

The contractor will be required to continuously clear the project site of any and all debris capable of being blown by wind onto active airfield areas. Any debris or dirt from the project site deposited on any airfield pavement shall be cleaned immediately by a motor-driven sweeper or vacuum, which the contractor is required to have onsite at all times. Sweepers must be equipped with non-metallic bristles. A program of regular airfield pavement inspection shall be planned by the contractor and conducted with the Airport Director and the Engineer. The contractor shall utilize a water truck for the purpose of controlling dust if warranted. The contractor access road must be cleaned of FOD on a regular basis.

10. HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT

The contractor will not be required or allowed to bring hazardous materials onsite and will not be required to provide a plan for the management of such materials.

The contractor will be required to file with the FDEP a Notice of Intent (NOI) to use discharges for large and small construction projects. Any fuel or construction liquids must be cleared per OCF's SWPPP & FDEP requirements.

11. NOTIFICATION OF CONSTRUCTION ACTIVITIES

a. The Owner shall maintain and distribute a list of responsible representatives/points of contacts with phone numbers and e-mail addresses. For the Owner this shall include the Airport Director, Operations Manager, and Engineer. Contacts from the Contractor will include the Project Manager, Site Superintendent, Safety Officer, and any subcontractor representatives. It will also include representatives from the FAA ADO office, OCF ATCT, and the Engineer of Record. As required in Section 01030 "Airport Project Procedures" the Contractor's Safety Officer shall be on call 24 hours a day for emergency maintenance of airport hazard lighting, barricades, and other safety features.

b. The contractor shall be required to clean the site of FOD and have the apron ready for use by 6 AM following the 21 days of Phase 1 work and the subsequent night work of Phase 2. The actual opening of the apron will be at 7 AM, allowing time for inspection by airport staff and removal of barricades, etc. All asphalt materials must be fully cured by the deadline. Final markings shall be placed approximately 30 days after Apron pavement cures.

c. The contractor will need to call 911 and the Airport Operations Manager or Director for medical, firefighting, and police response.

d. All of the above information, including the appropriate phone numbers will be distributed at the pre-construction conference.

e. The FAA will need to be notified of equipment and operations that affects navigable airspace. Upon notice of award, the contractor will be asked to provide the Airport Manager with a list of equipment and their heights so this can be reported to the FAA using form 7460-1 and/or the FAA OE/AAA website.

f. There are no NAVAIDs affected by this project.

12. INSPECTION REQUIREMENTS

A qualified RPR employed by the EOR will perform daily inspections of the work. The Engineer of Record will make periodic inspection to verify compliance with the phasing and safety plan and as needed to resolve questions or disputes.

13. UNDERGROUND UTILITIES

Special attention shall be given to preventing unscheduled interruption of utility services and facilities. Where required due to construction purposes, the FAA shall locate all of their underground cables. The Contractor shall locate and/or arrange for the location of all the underground cables. When an underground cable is damaged due to the Contractor's negligence the Contractor shall immediately repair the cable affected at his/her own expense. Full coordination between airport staff, field inspectors, and construction personnel will be exercised to ensure that all airport power and control cables are fully protected prior to any excavation. Locations of cabling will be marked prior to beginning excavation.

14. PENALTIES

Per Section 80-08 of General Provisions of the contract documents:

Any fines or assessments levied against the Sponsor as a result of unauthorized intrusions in the AOA or other violations by the Contractor's personnel or those of his subcontractors will be passed on to the Contractor. In addition, the Contractor will be subject to a **fine of $1,000.00** per incident, assessed by the Sponsor.

RUNWAY INCURSIONS: Punitive damages will be assessed for any runway incursion as defined by the FAA. **For the first incursion a fine of $1,000 will be assessed. The second incursion will result in a $5,000 fine.** The Contractor is to include airport familiarization in weekly meetings to reduce the possibility of the occurrence of runway incursions.

15. SPECIAL CONDITIONS

The airport has not identified any special conditions requiring any special response/ mitigation plan. In the event of an aircraft emergency, the Contractor's personnel and/or equipment may be required to immediately vacate the area. The contractor will receive notification from airport operations when special conditions require the construction site to be vacated. In any event, extreme care should be exercised should construction personnel identify any ARFF (Airport Rescue and Firefighting) vehicle moving toward the Runway with emergency lights displayed. This will generally mean that an emergency situation is imminent. In the event of an emergency, the owner or the owner's representative will notify the contractor with procedural directions for vacating the site.

16. RUNWAY AND TAXIWAY VISUAL AIDS

At the time of work, all Visual Aids shall remain activated in the vault.

17. MARKING AND SIGNS FOR ACCESS ROUTES

Location of haul routes on the airport site shall be as specified in the project drawing set and as provided graphically in the attached exhibits, reference Appendix A, Sheet G1.0 to G1.1. It shall be the contractor's responsibility to coordinate off-site haul routes with the appropriate owner who has jurisdiction over the affected route. The haul routes, to the extent possible, shall be marked and signed in accordance with FAA airfield signage requirements, the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or state highway specifications.

18. HAZARD MARKING AND LIGHTING

1. Hazard marking and lighting prevent pilots from entering areas closed to aircraft and prevent construction personnel from entering areas open to aircraft. To that end, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles shall be installed and maintained by the contractor for the duration of construction operations. Airfield barricades will be required to have red flashing or steady burning lights. In the event night work is required, the Contractor's vehicles will be required to have yellow flashing beacons. Additional requirements are in AC 150/5210-5D – Painting, Marking, and Lighting of Vehicles used on Airports, attached herein as Appendix "B". The contractor's Safety Officer, as discussed in Section 11 above will be responsible for maintenance of barricades.

19. PROTECTION OF RUNWAY AND TAXIWAY SAFETY AREAS AND OBJECT FREE AREAS.

Safety area encroachments, improper ground vehicle operations, and unmarked or uncovered holes and trenches in the vicinity of aircraft operation surfaces and construction areas are the three most recurring threats to safety during construction. Protection of runway and taxiway safety areas, object-free areas, obstacle-free zones, and approach/departure surfaces shall be a standing requirement for the duration of construction operations. Reference Section 11 Notification of construction activities and Section 16 Runway and taxiway visual aids for taxiway closure requirements. Reference Section 18 Hazard marking and lighting for hazard marking. Reference Section 20 Other limitations on construction for height restrictions (as required).

Runway	*RSA Distance from Centerline (ft)*	*RSA Width (ft)*	*Length Beyond Threshold*
Runway 18-36	250	500	1000
Runway 8-26	75	150	300

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.

Runway	*ROFA Distance from Centerline (ft)*	*ROFA Width (ft)*	*Length Beyond Threshold*
Runway 18-36	400	800	1000
Runway 8-26	250	500	300

Taxilane Safety Free Area (TSA).
Construction, including excavations, is NOT permitted in the TSA/ TLSA, and Taxiway or Taxilane shall be closed before the commencement of any construction activities. Prior authorization and coordination with the airport is required 48 hours before any closure.

ADG-II Taxilane/ Taxiway	*TLSA Distance from Centerline (ft)*	*TLSA Width (ft)*
	39.5	79

Taxilane Object Free Area (TLOFA).
Construction, including excavations, may be permitted in the TOFA. However, equipment must be removed from the TOFA when not in use. The contractor shall coordinate all construction activities within the TOFA/TLOFA, with Airport Operation and RPR.

ADG-II Taxilane/ Taxiway	*TLOFA Distance from Centerline (ft)*	*TLOFA Width (ft)*
	55	100

20. OTHER LIMITATIONS ON CONSTRUCTION

Beyond the limitations previously discussed in the Phasing section the following limitations apply:

a. Prohibitions.
The following prohibitions are in effect for the duration of this project:

I. No use of open flame welding or torches unless fire safety precautions are provided and the airport operator has approved their use.

II. No use of electrical blasting caps or explosives of any kind on or within 1,000 ft (300 m) of the airport property.

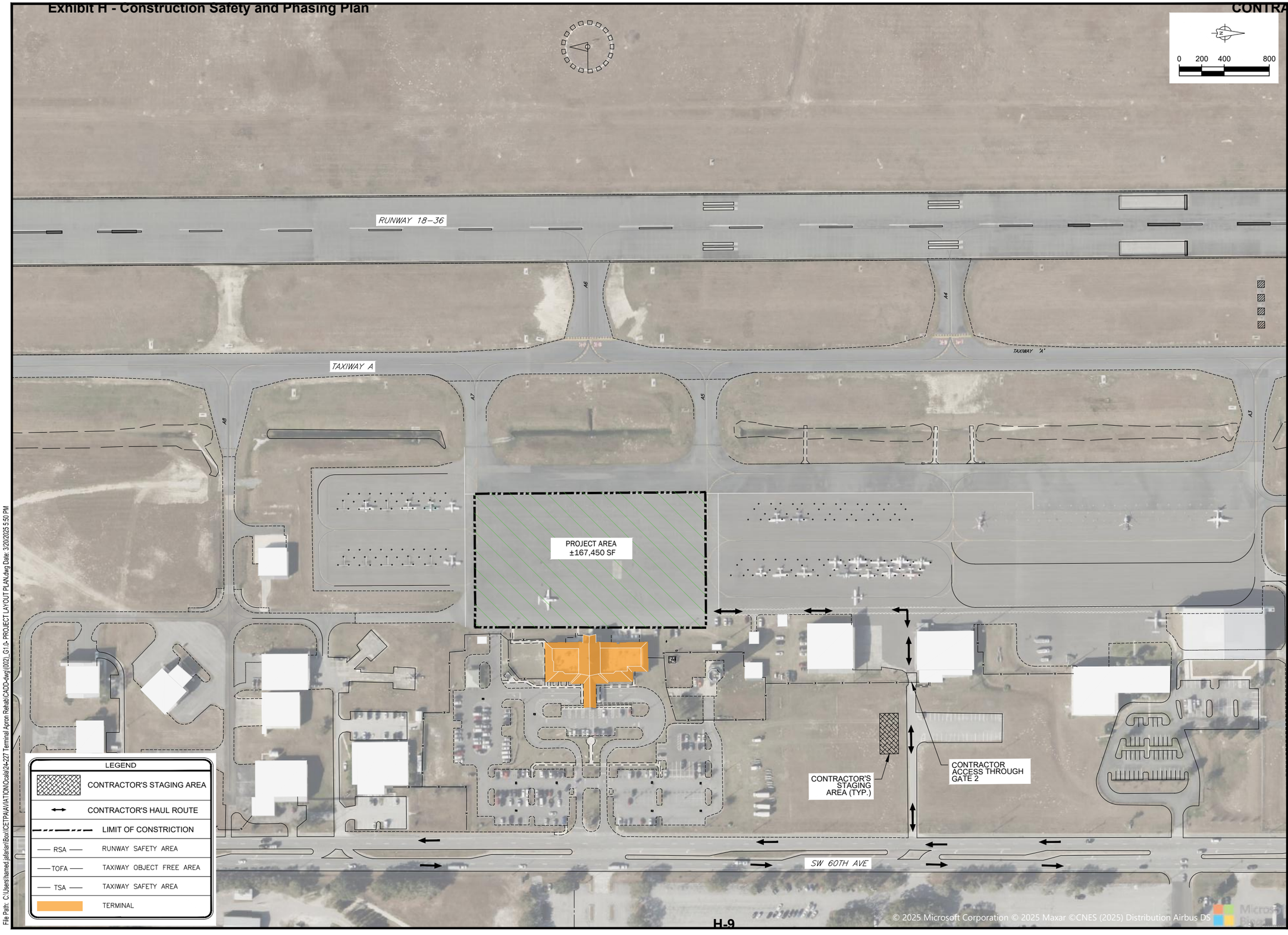
III. No use of flare pots within the AOA.

b. Restrictions.

I. Construction suspension required during specific airport operations – NA.

II. Areas that cannot be worked on simultaneously – Phase 1 & 2 simultaneous ops not allowed.

III. Day or night construction restrictions – For the performance of any night work, reference section 209.b Vehicle and pedestrian operations.



Ocala International Airport

OCALA

INFRASTRUCTURE CONSULTING & ENGINEERING
5550 WEST IDLEWILD AVE. SUITE 115
TAMPA, FLORIDA 33634 (813) 330-2701
CERTIFICATE OF AUTHORIZATION NO.: 30862

Project Name:

TERMINAL APRON REHABILITATION

Designer:	Checked By:
AN	HJ
Technician:	ICE Project Name:
AN	24-227

Engineer of Record:

NOTES:

REVISIONS

NO.	DESCRIPTION	DATE	BY

Drawing Name:

PROJECT LAYOUT PLAN

FAA A.I.P. Project No.:

3-12-0055-034-2024

FDOT Project No.:

455217-1-94-01 (G3474)

Date:	Sheet Number:
MAR 2025	G1.0

BID DOCUMENTS (NOT FOR CONSTRUCTION)

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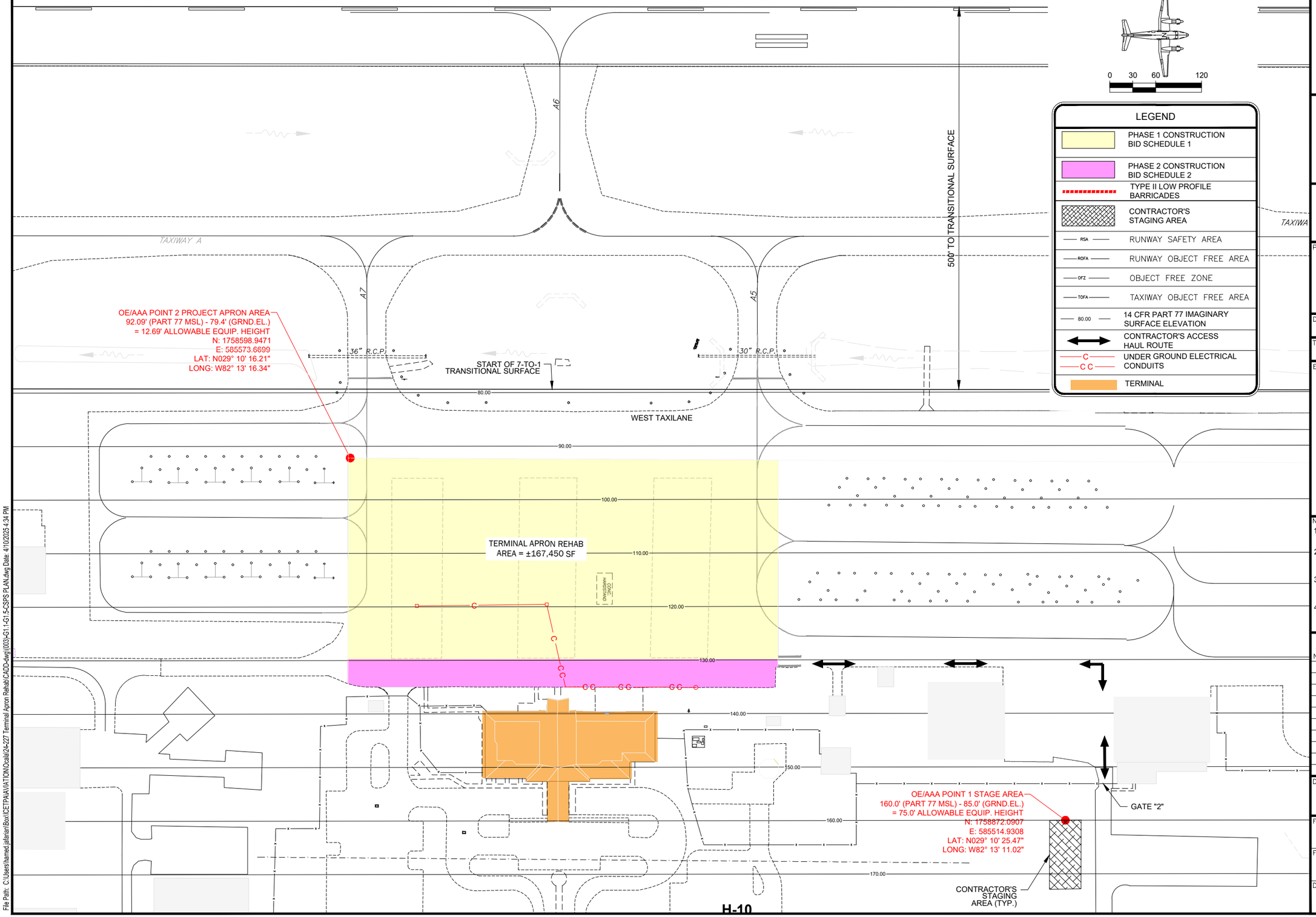
Exhibit H - Construction Safety and Phasing Plan

RUNWAY 18–36

CONTRACT# ENG/250564



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Ocala International Airport

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CERTIFICATE OF AUTHORIZATION NO.: 30862

Project Name:

TERMINAL
APRON
REHABILITATION

Designer:	Checked By:
AM	HJ
Technician:	ICE Project Name:
AM	24-227

Engineer of Record:

NOTES:

1. SEE SHEET G1.6 FOR BARRICADE DETAILS.
2. SEE SHEET G1.6 FOR ADDITIONAL SECURITY, SAFETY AND PHASING NOTES.
3. CONTRACTOR TO KEEP A SWEEPER TRUCK DURING CONSTRUCTION AT ALL TIME.
4. CONTRACTOR TO KEEP A SWEEPER TRUCK DURING CONSTRUCTION AT ALL TIME.

REVISIONS

NO.	DESCRIPTION	DATE	BY

Drawing Name:

CONSTRUCTION SAFETY & PHASING PLAN (OVERALL)

FAA A.I.P. Project No.:

3-12-0055-034-2024

FDOT Project No.:

455217-1-94-01 (G3474)

Date:	Sheet Number:
MAR 2025	G1.1

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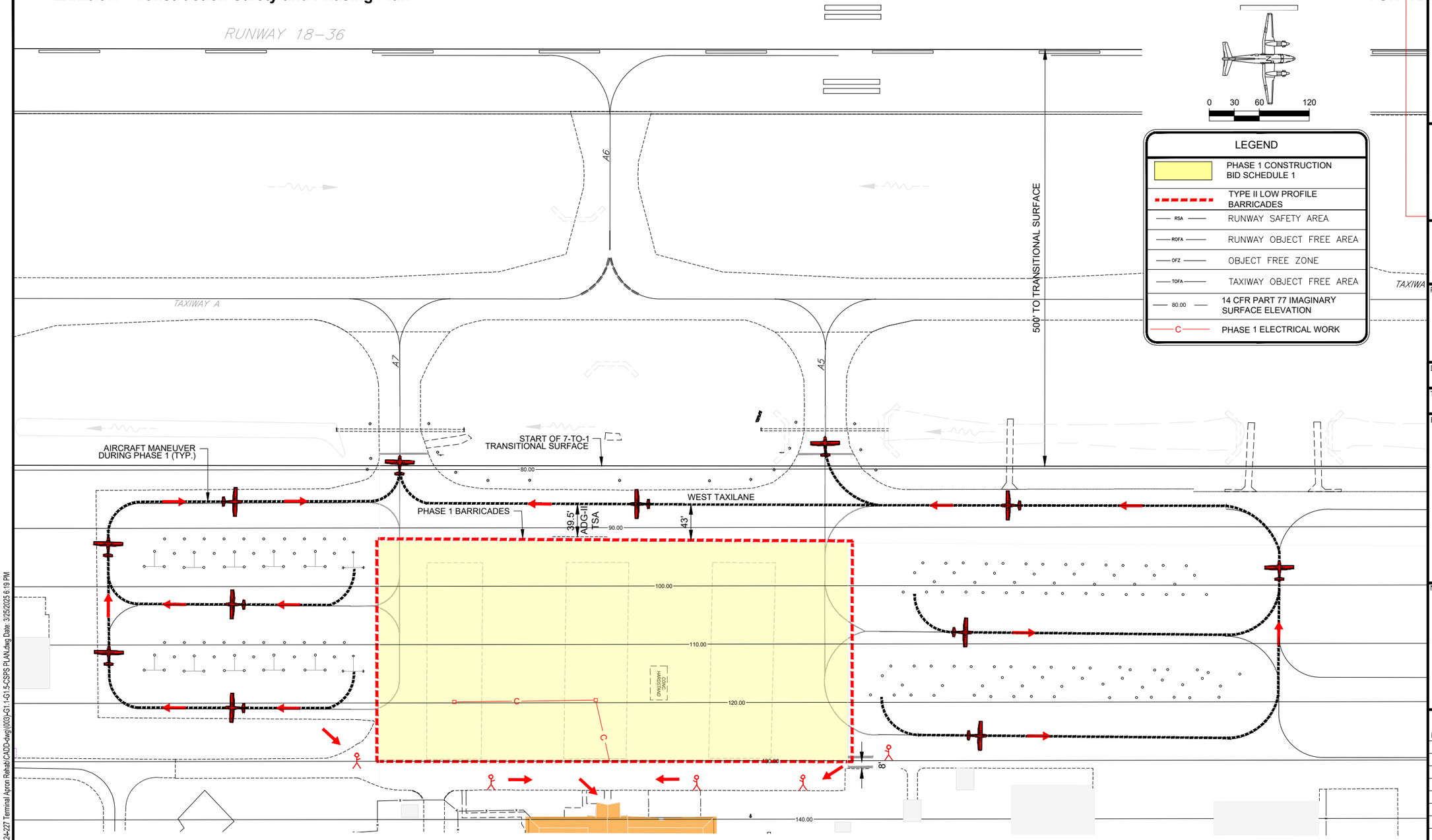

PHASING SCHEDULE

PHASE	DURATION	LIQUIDATED DAMAGES	DESCRIPTION OF WORK	IMPACT
1	21 CALENDAR DAYS	PER CONTRACT	PLACE PHASE 1 BARRICADES, CLEAN APRON, REMOVE EXIST. ASPHALT, REMOVE EXIST. TIE-DOWNS, REMOVE EXIST. CONC. PAD, REMOVE 1"-2" OF EXIST BASE, GROUT FILL TIE-DOWN REMOVALS, COMPLETE ELECTRICAL WORK, COMPACT/ ROLL EXISTING BASE, PLACE PRIME COAT, PLACE FIRST LIFT OF P- 403 OVERLAY, PLACE TACK COAT, PLACE SECOND LIFT OF P- 403 OVERLAY, PLACE TACK COAT, PLACE. FINAL LIFT OF P- 404 OVERLAY, APPLY TEMPORARY PAINT, APPLY PERMANENT PAINT PER SPECS.	AIRPORT WILL BE OPEN TO ALL TAKEOFF AND LANDING OPERATIONS ON RUNWAY "18-36" FOR PHASE 1. TAXIWAYS "A", "A5", AND "A7" SHALL REMAIN OPERATIONAL DURING THIS PHASE. CONTRACTOR MAY ONLY PERFORM WORK DURING THE HOURS OF 7:00 AM TO 5:00 PM MONDAY-FRIDAY AND 8:00 AM TO 5:00 PM ON SATURDAY, EXCLUDING, SUNDAYS, AND HOLIDAYS. ANY DEVIATION FROM THIS SCHEDULE REQUIRES PRE-APPROVAL FROM AIRPORT MANAGER.

CONSTRUCTION PHASING NOTES:

1. PROJECT DURATION IS CONTINUOUS THROUGH ALL PROJECT PHASES. THERE WILL BE NO LAPS IN TIME BETWEEN PHASES.
2. CONTRACTOR IS REQUIRED TO ENSURE CONTINUOUS ACCESS TO THE TERMINAL BUILDING THROUGHOUT THIS PHASE OF THE PROJECT.
3. CONTRACTOR TO KEEP A SWEEPER TRUCK DURING CONSTRUCTION AT ALL TIME.
4. OWNER MAY REQUIRE OCCASIONAL USE OF WEST TAXILANE. CONTRACTOR SHALL COORDINATE MILLING AND PAVING OPERATIONS IN THE AREA IMMEDIATELY ADJACENT TO THE TAXILANE WITH THE OWNER. ALL OTHER ACTIVITIES SHALL PULL BACK AND YIELD TO AIRCRAFT.

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Technician:	ICE Project Name:
AN	24-227

Engineer of Record:

NOTES:
1. SEE SHEET G1.1 FOR STAGE AREA
2. SEE SHEET G1.4 FOR BARRICADE DETAILS.
3. SEE SHEET G2.1 FOR ADDITIONAL SECURITY, SAFETY AND PHASING NOTES.
4. CONTRACTOR TO KEEP A SWEEPER TRUCK DURING CONSTRUCTION AT ALL TIME.

REVISIONS

NO.	DESCRIPTION	DATE	BY

Drawing Name:
CONSTRUCTION SAFETY & PHASING PLAN (PHASE 1)

FAA A.I.P. Project No.:
3-12-0055-034-2024

FDOT Project No.:
455217-1-94-01 (G3474)

Date:	Sheet Number:
MAR 2025	G1.2

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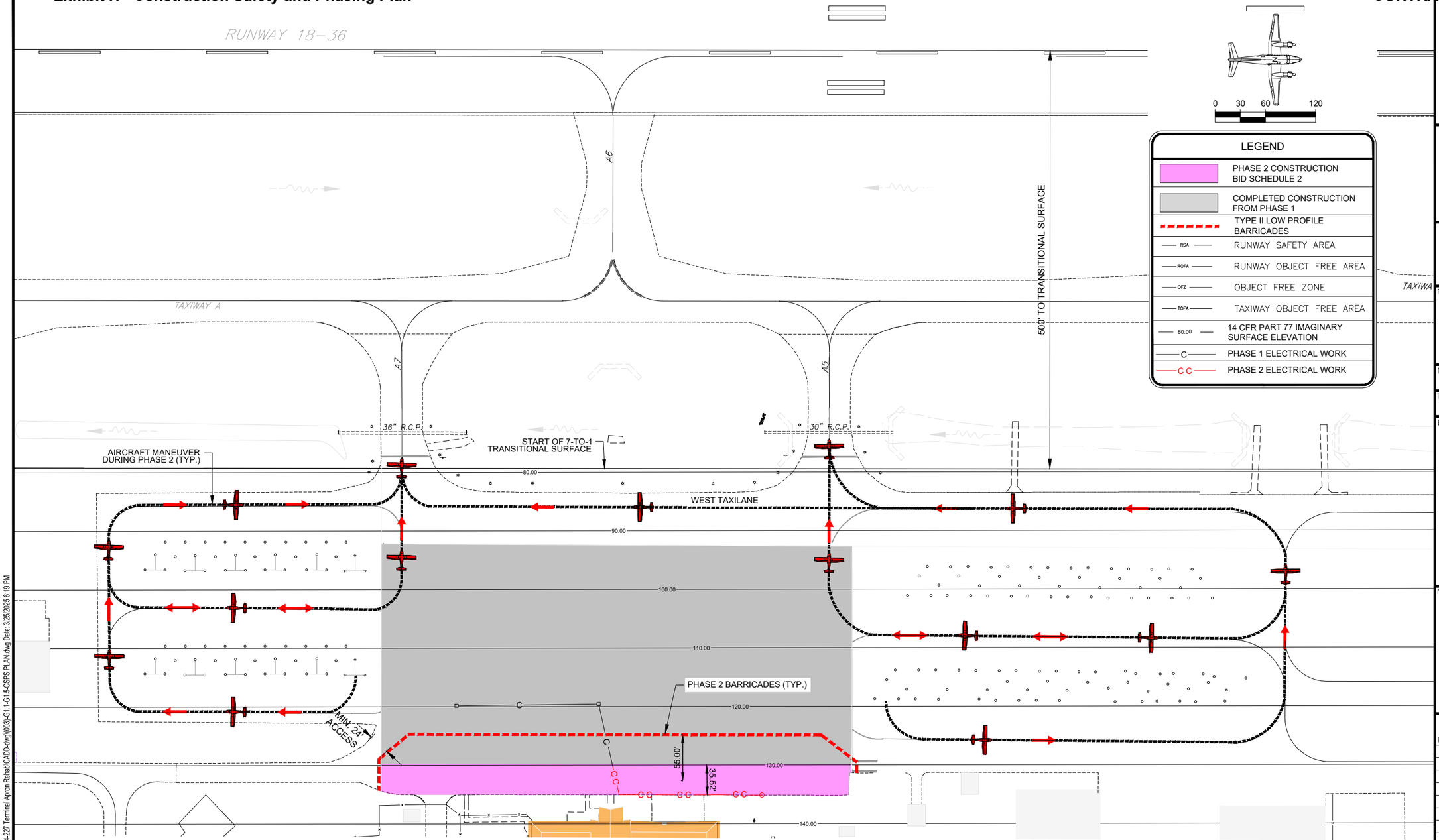

PHASING SCHEDULE

PHASE	DURATION	LIQUIDATED DAMAGES	DESCRIPTION OF WORK	IMPACT
2	1 CALENDAR DAY (NIGHT WORK)	PER CONTRACT	REMOVE PHASE 1 BARRICADES, PLACE PHASE 2 BARRICADES, CLEAN APRON, REMOVE 2" OF EXIST. ASPHALT, COMPLETE ELECTRICAL WORK, FILL & COMPACT OPEN TRENCHES, PLACE TACK COAT, PLACE 2" OF SP- 12.5 OVERLAY, APPLY TEMPORARY PAINT, APPLY PERMANENT PAINT PER SPECS.	AIRPORT WILL BE OPEN TO ALL TAKEOFF AND LANDING OPERATIONS ON RUNWAY "18-36" FOR PHASE 2. TAXIWAYS "A", "A5", AND "A7" SHALL REMAIN OPERATIONAL DURING THIS PHASE. WORK HOURS 9:00 PM TO 5:00 AM. ANY DEVIATION FROM THIS SCHEDULE REQUIRES PRE-APPROVAL FROM AIRPORT MANAGER.

CONSTRUCTION PHASING NOTES:

1. PROJECT DURATION IS CONTINUOUS THROUGH ALL PROJECT PHASES. THERE WILL BE NO LAPS IN TIME BETWEEN PHASES.
2. NO MEN OR EQUIPMENT PERMITTED IN THE RSA OR TOFA WITHOUT CLOSURES.
3. CONTRACTOR TO KEEP A SWEEPER TRUCK DURING CONSTRUCTION AT ALL TIME.
4. PLACEMENT OF CONDUIT IN PHASE 2 AREA MAY BE ACCOMPLISHED IN PHASE 1 PROVIDING ACCESS TO TERMINAL FOR VEHICLES, GOLF CARTS, AND PEDESTRIANS.

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Technician:	ICE Project Name:
AN	24-227

Engineer of Record:

NOTES:
1. SEE SHEET G1.1 FOR STAGE AREA
2. SEE SHEET G1.4 FOR BARRICADE DETAILS.
3. SEE SHEET G2.1 FOR ADDITIONAL SECURITY, SAFETY AND PHASING NOTES.
4. CONTRACTOR TO KEEP A SWEEPER TRUCK DURING CONSTRUCTION AT ALL TIME.

REVISIONS

NO.	DESCRIPTION	DATE	BY

Drawing Name:
CONSTRUCTION SAFETY & PHASING PLAN (PHASE 2)

FAA A.I.P. Project No.:
3-12-0055-034-2024

FDOT Project No.:
455217-1-94-01 (G3474)

Date:	Sheet Number:
MAR 2025	G1.3

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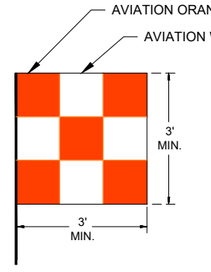
Exhibit H - Construction Safety and Phasing Plan

1. THE CONTRACTOR SHALL OBTAIN, HAVE KNOWLEDGE OF, AND INCORPORATE THE FOLLOWING SAFETY PROVISIONS INTO THE CONSTRUCTION PROJECT:
   A. OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION - AC 150/5370-2, LATEST EDITION.
   B. AIRPORT SAFETY SELF-INSPECTION - AC 150/5200-18, LATEST EDITION.
   C. PAINTING, MARKING AND LIGHTING OF VEHICLES USED ON AIRPORTS - AC 150/5210-5, LATEST EDITION.
   D. CODE OF FEDERAL REGULATIONS (CFR) PART 139
2. NOTICE TO AIRMEN (NOTAM) - THE AIRPORT WILL ISSUE ALL NOTAMS TO THE FAA FLIGHT SERVICE STATION RELATED TO THIS PROJECT IN ACCORDANCE WITH ESTABLISHED CRITERIA.
3. FOR OTHER CONDITIONS RELATED TO SAFETY, SEE SPECIFICATIONS.
4. PRIOR TO THE CLOSURE OF ANY AIRFIELD PAVEMENT, THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 3 DAYS NOTICE SO A NOTAM CAN BE ISSUED.
5. AIRCRAFT TRAFFIC SHALL HAVE THE RIGHT-OF-WAY AT ALL TIMES.
6. THE CONTRACTOR WILL NOT BE ALLOWED TO USE ANY OF THE EXISTING RUNWAYS, TAXIWAYS, OR VEHICLE PARKING AREAS AS PART OF THE HAUL ROAD UNLESS SPECIFICALLY AUTHORIZED BY THE OWNER.
7. THE CONTRACTOR SHALL CONDUCT HIS CONSTRUCTION OPERATIONS AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE OWNER TO MINIMIZE INTERFERENCE TO AIRCRAFT OPERATIONS DURING CONSTRUCTION.
8. NO CONTRACTOR VEHICLES, EQUIPMENT, OR PERSONNEL SHALL CROSS OR BE WITHIN ANY RUNWAY, TAXIWAY, OR TAXILANE OBJECT FREE AREA UNLESS SPECIFICALLY AUTHORIZED BY THE OWNER.
9. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER IN SCHEDULING ALL AIRFIELD PAVEMENT OPENINGS/CLOSINGS TO BE CONSISTENT WITH AIRFIELD OPERATIONS. WHEN THE CONTRACTOR'S OPERATIONS CROSS ACTIVE TAXIWAYS OR RUNWAYS HE SHALL BE REQUIRED TO PROVIDE A FLAGMAN ON EACH SIDE OF ACTIVE CROSSING TO DIRECT VEHICULAR TRAFFIC AND PROTECT AIRCRAFT TRAFFIC. THE CONTRACTOR SHALL ALSO HAVE SUITABLE EQUIPMENT APPROVED BY THE ENGINEER AT EACH CROSSING TO KEEP THE CROSSING CLEAN OF ALL DIRT AND DEBRIS AND SAFE FOR AIRCRAFT TRAFFIC.
10. ALL AIRFIELD PAVEMENTS SHALL BE KEPT FREE OF DIRT AND ALL OTHER DEBRIS AT ALL TIMES. ANY SPILLAGE OF EXCAVATION OF OTHER MATERIAL SHALL BE CLEANED UP IMMEDIATELY BY THE CONTRACTOR USING A VACUUM OR MOTOR-DRIVEN SWEEPER. A PROGRAM OF REGULAR INSPECTION OF AIRFIELD PAVEMENTS SHALL BE IMPLEMENTED AS PART OF THE CONTRACTOR'S SAFETY PLAN COMPLIANCE DOCUMENT.
11. ANY UNPLANNED, UNAPPROVED, OR ACCIDENTAL SHUTDOWN OR INTERRUPTION OF SERVICE TO ANY LIGHTING CIRCUIT OR NAVIGATIONAL AID REQUIRES IMMEDIATE NOTIFICATION OF THE AIRPORT MANAGER AND ENGINEER BY THE CONTRACTOR. THE COST OF MATERIALS AND LABOR REQUIRED TO REPAIR THE LIGHTING CIRCUIT SHALL BE BORNE BY THE CONTRACTOR.
12. THE CONTRACTOR SHALL PROTECT ALL NAVIGATIONAL AIDS (NAVAIDS) DURING CONSTRUCTION. CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE TO EXISTING NAVAIDS. ANY DAMAGE TO NAVAIDS MAY REQUIRE SUBMITTALS FOR REPAIR OF THE DAMAGED FACILITY TO BE APPROVED BY THE ENGINEER. THE ENGINEER SHALL BE NOTIFIED OF ANY DAMAGE AND IMMEDIATE REPAIR AT THE CONTRACTOR'S EXPENSE WILL BE REQUIRED.
13. CONTRACTOR SHALL MAINTAIN ALL AIRFIELD SAFETY DEVICES SUCH AS STAKED LIMIT LINES, FOR THE DURATION OF THE PROJECT AS REQUIRED. DAMAGED STAKES OR FLAGGING SHALL BE REPLACED IMMEDIATELY. CONTRACTOR TO SUBMIT PLAN SHOWING LOCATION OF LIMIT LINES FOR EACH PHASE AND FOR PROJECT DURATION TO THE ENGINEER FOR APPROVAL.
14. ALL ACTIVE AIRPORT OPERATIONAL AREAS WHICH ARE ADJACENT TO A CONSTRUCTION WORK AREA SHALL BE SEPARATED BY LOW PROFILE BARRICADES WITH RED FLASHING LIGHTS. THE CONTRACTOR SHALL PROVIDE, MAINTAIN, AND INSTALL THE BARRICADES.
15. BARRICADES USED TO CLOSE NON-AIRFIELD AREAS SUCH AS ROADS OR PARKING LOTS SHALL CONFORM TO FDOT INDEX 600. ACCEPTABLE OPTIONS INCLUDE PLASTIC DRUMS, TYPE I BARRICADE, TYPE II BARRICADE, OR TYPE III BARRICADE.
16. THE CONTRACTOR SHALL PROVIDE TEMPORARY R11-2, 48 x 30 "ROAD CLOSED" SIGNS TO BE USED IN CONJUNCTION WITH TRAFFIC BARRELS AT ALL LOCATIONS TO BE CLOSED TO VEHICULAR TRAFFIC.
17. CONTRACTOR MAY AT HIS OPTION PROVIDE TEMPORARY CHAIN LINK FENCE AROUND THE CONTRACTOR'S STAGING AREA. THE CITY ASSUMES NO RESPONSIBILITY FOR THE SECURITY OF EQUIPMENT, MATERIAL, OR ANY OTHER ELEMENTS RELATED TO THE CONTRACTOR'S OPERATIONS.
18. THE CONTRACTOR SHALL PROMINENTLY DISPLAY AVIATION SAFETY FLAGS ON ALL CONSTRUCTION EQUIPMENT AT THE HIGHEST POINT ON EACH PIECE OF EQUIPMENT. SEE DETAIL THIS SHEET.
19. FOR OTHER CONDITIONS RELATING TO SAFETY, SEE CONSTRUCTION SAFETY AND PHASING DOCUMENT (CSPP).

LOW PROFILE BARRICADE DETAIL
N.T.S.

NOTES:
1) ALL BARRICADES SHALL BE LINKED END TO END IN ALL LOCATIONS.
2) FRANGIBLE, LOW PROFILE BARRICADES SHALL BE USED WHERE WORK IS ADJACENT TO ACTIVE AIRCRAFT OR INSIDE OF AN ACTIVE TAXIWAY'S SAFETY AREA. CAUTION LIGHTS TO BE RED IN COLOR AND FLASHING DURING HOURS OF DARKNESS.
3) SECURE EACH BARRICADES WITH TWO SAND BAGS OR USE WATER FILLED.



CONSTRUCTION SAFETY FLAG

NOTE:
SAFETY FLAG SHALL BE PROMINENTLY DISPLAYED ON ALL CONSTRUCTION EQUIPMENT. AN AMBER FLASHING LIGHT IS REQUIRED FOR NIGHT WORK AND MAY BE SUBSTITUTED FOR THE FLAG DURING THE DAY.

TRAFFIC CONE
N.T.S.

CONTRACT# ENG/250564

Ocala International Airport
OCALA

INFRASTRUCTURE CONSULTING & ENGINEERING
5550 WEST IDLEWILD AVE. SUITE 115
TAMPA, FLORIDA 33634 (813) 330-2701
CERTIFICATE OF AUTHORIZATION NO.: 30862

Project Name:
TERMINAL APRON REHABILITATION

Designer:	Checked By:
AN	HJ
Technician:	ICE Project Name:
AN	24-227

Engineer of Record:

NOTES:

REVISIONS

NO.	DESCRIPTION	DATE	BY

Drawing Name:
NOTES & DETAILS (1 OF 2)

FAA A.I.P. Project No.:
3-12-0055-034-2024

FDOT Project No.:
455217-1-94-01 (G3474)

Date:	Sheet Number:
MAR 2025	G1.4

BID DOCUMENTS (NOT FOR CONSTRUCTION)

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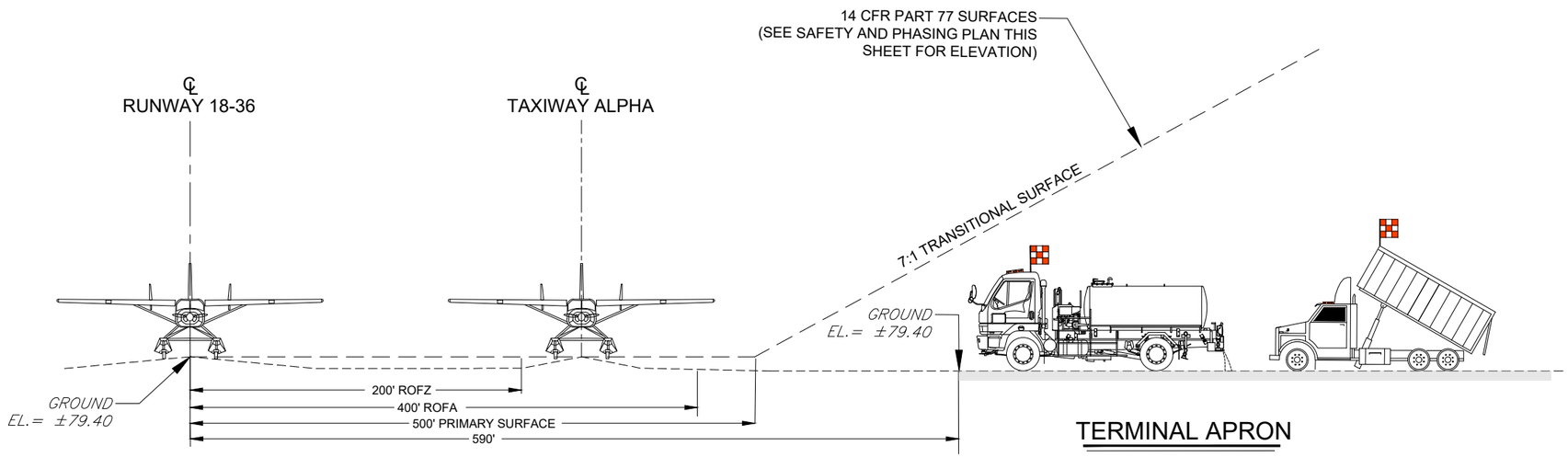

TERMINAL APRON

EQUIPMENT HEIGHT RESTRICTION	
OE/AAA POINT NO. (SEE SAFETY AND PHASING PLAN)	MAXIMUM ALLOWABLE EQUIPMENT HEIGHT AT POINT
POINT 1	75.0 (FT)
POINT 2	12.69 (FT)

SEE SHEET G1.1 FOR POINT LOCATIONS

EQUIPMENT HEIGHT NOTES

1. THE CONTRACTOR SHALL ADHERE TO THE MAXIMUM ALLOWABLE HEIGHT REQUIREMENTS SHOWN IN THE PLANS. THE CONTRACTOR SHALL COORDINATE ALL EQUIPMENT LOCATIONS WITH THE ENGINEER PRIOR TO CONSTRUCTION.
2. IF THE CONTRACTOR'S OPERATIONS WILL RESULT IN ADDITIONAL AIRSPACE IMPACTS, THE CONTRACTOR SHALL OBTAIN FAA APPROVAL BY SUBMITTING FORM 7460-1.
3. THE CONTRACTOR SHALL SUPPLY ALL INFORMATION REQUESTED BY THE ENGINEER TO PROPERLY EVALUATE WHETHER ADDITIONAL AIRSPACE IMPACTS ARE LIKELY AND WARRANT THE CONTRACTOR TO FILE A FORM 7460-1. THE ENGINEER'S DECISION SHALL BE FINAL.

EQUIPMENT HEIGHT RESTRICTION DETAIL

N.T.S.

Ocala International Airport
OCALA

INFRASTRUCTURE CONSULTING & ENGINEERING
5550 WEST IDLEWILD AVE. SUITE 115
TAMPA, FLORIDA 33634 (813) 330-2701
CERTIFICATE OF AUTHORIZATION NO.: 30862

Project Name:

TERMINAL
APRON
REHABILITATION

Designer:	Checked By:
AN	HJ
Technician:	ICE Project Name:
AN	24-227

Engineer of Record:

NOTES:

1. SEE SHEET G1.6 FOR BARRICADE DETAILS.
2. SEE SHEET G1.6 FOR ADDITIONAL SECURITY, SAFETY AND PHASING NOTES.

REVISIONS

NO.	DESCRIPTION	DATE	BY

Drawing Name:

NOTES & DETAILS (2 OF 2)

FAA A.I.P. Project No.:

3-12-0055-034-2024

FDOT Project No.:

455217-1-94-01 (G3474)

Date:	Sheet Number:
MAR 2025	G1.5

BID DOCUMENTS (NOT FOR CONSTRUCTION)

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U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Subject: Operational Safety on Airports During Construction	**Date:** 12/13/2017 **Initiated By:** AAS-100	**AC No:** 150/5370-2G **Change:**

1 **Purpose.**

This AC sets forth guidelines for operational safety on airports during construction.

2 **Cancellation.**

This AC cancels AC 150/5370-2F, *Operational Safety on Airports during Construction*, dated September 29, 2011.

3 **Application.**

This AC assists airport operators in complying with Title 14 Code of Federal Regulations (CFR) Part 139, *Certification of Airports*. For those certificated airports, this AC provides one way, but not the only way, of meeting those requirements. The use of this AC is mandatory for those airport construction projects receiving funds under the Airport Improvement Program (AIP). See Grant Assurance No. 34, *Policies, Standards, and Specifications*. While we do not require non-certificated airports without grant agreements or airports using Passenger Facility Charge (PFC) Program funds for construction projects to adhere to these guidelines, we recommend that they do so to help these airports maintain operational safety during construction.

4 **Related Documents.**

ACs and Orders referenced in the text of this AC do not include a revision letter, as they refer to the latest version. Appendix A contains a list of reading material on airport construction, design, and potential safety hazards during construction, as well as instructions for obtaining these documents.

5 **Principal Changes.**

The AC incorporates the following principal changes:

1. Notification about impacts to both airport owned and FAA-owned NAVAIDs was added. See paragraph 2.13.5.3, NAVAIDs.

2. Guidance for the use of orange construction signs was added. See paragraph 2.18.4.2, Temporary Signs.
3. Open trenches or excavations may be permitted in the taxiway safety area while the taxiway is open to aircraft operations, subject to restrictions. See paragraph 2.22.3.4, Excavations.
4. Guidance for temporary shortened runways and displaced thresholds has been enhanced. See Figure 2-1 and Figure 2-2.
5. Figures have been improved and a new Appendix F on the placement of orange construction signs has been added.

Hyperlinks (allowing the reader to access documents located on the internet and to maneuver within this document) are provided throughout this document and are identified with underlined text. When navigating within this document, return to the previously viewed page by pressing the "ALT" and " ←" keys simultaneously.

Figures in this document are schematic representations and are not to scale.

6 **Use of Metrics.**

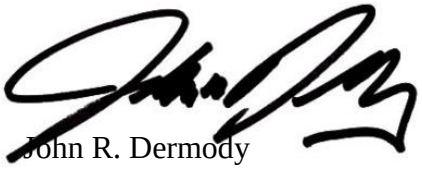
Throughout this AC, U.S. customary units are used followed with "soft" (rounded) conversion to metric units. The U.S. customary units govern.

7 **Where to Find this AC.**

You can view a list of all ACs at http://www.faa.gov/regulations_policies/advisory_circulars/. You can view the Federal Aviation Regulations at http://www.faa.gov/regulations_policies/faa_regulations/.

8 **Feedback on this AC.**

If you have suggestions for improving this AC, you may use the Advisory Circular Feedback form at the end of this AC.



John R. Dermody
Director of Airport Safety and Standards

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CHAPTER 1. PLANNING AN AIRFIELD CONSTRUCTION PROJECT

1.1 Overview.

Airports are complex environments, and procedures and conditions associated with construction activities often affect aircraft operations and can jeopardize operational safety. Safety considerations are paramount and may make operational impacts unavoidable. However, 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 airport operator must understand how construction activities and aircraft operations affect one another to be able to develop an effective plan to complete the project. While the guidance in this AC is primarily used for construction operations, the concepts, methods and procedures described may also enhance the day-to-day airport maintenance operations, such as lighting maintenance and snow removal operations.

1.2 Plan for Safety.

Safety, maintaining aircraft operations, and construction costs are all interrelated. Since safety must not be compromised, the airport operator must strike a balance between maintaining aircraft operations and construction costs. This balance will vary widely depending on the operational needs and resources of the airport and will require early coordination with airport users and the FAA. As the project design progresses, the necessary construction locations, activities, and associated costs will be identified and their impact to airport operations must be assessed. Adjustments are made to the proposed construction activities, often by phasing the project, and/or to airport operations to maintain operational safety. This planning effort will ultimately result in a project Construction Safety and Phasing Plan (CSPP). The development of the CSPP takes place through the following five steps:

1.2.1 Identify Affected Areas.

The airport operator must determine the geographic areas on the airport affected by the construction project. Some, such as a runway extension, will be defined by the project. Others may be variable, such as the location of haul routes and material stockpiles.

1.2.2 Describe Current Operations.

Identify the normal airport operations in each affected area for each phase of the project. This becomes the baseline from which the impact on operations by construction activities can be measured. This should include a narrative of the typical users and aircraft operating within the affected areas. It should also include information related to airport operations: the Aircraft Approach Category (AAC) and Airplane Design Group (ADG) of the airplanes that operate on each runway; the ADG and Taxiway Design Group (TDG)[1] for each affected taxiway; designated approach visibility minimums;

[1] Find Taxiway Design Group information in AC 150/5300-13, *Airport Design.*

available approach and departure procedures; most demanding aircraft; declared distances; available air traffic control services; airport Surface Movement Guidance and Control System (SMGCS) plan; and others. The applicable seasons, days and times for certain operations should also be identified as applicable.

1.2.3 Allow for Temporary Changes to Operations.

To the extent practical, current airport operations should be maintained during the construction. In consultation with airport users, Aircraft Rescue and Fire Fighting (ARFF) personnel, and FAA Air Traffic Organization (ATO) personnel, the airport operator should identify and prioritize the airport's most important operations. The construction activities should be planned, through project phasing if necessary, to safely accommodate these operations. When the construction activities cannot be adjusted to safely maintain current operations, regardless of their importance, then the operations must be revised accordingly. Allowable changes include temporary revisions to approach procedures, restricting certain aircraft to specific runways and taxiways, suspension of certain operations, decreased weights for some aircraft due to shortened runways, and other changes. An example of a table showing temporary operations versus current operations is shown in Appendix E.

1.2.4 Take Required Measures to Revise Operations.

Once the level and type of aircraft operations to be maintained are identified, the airport operator must determine the measures required to safely conduct the planned operations during the construction. These measures will result in associated costs, which can be broadly interpreted to include not only direct construction costs, but also loss of revenue from impacted operations. Analysis of costs may indicate a need to reevaluate allowable changes to operations. As aircraft operations and allowable changes will vary widely among airports, this AC presents general guidance on those subjects.

1.2.5 Manage Safety Risk.

The FAA is committed to incorporating proactive safety risk management (SRM) tools into its decision-making processes. FAA Order 5200.11, *FAA Airports (ARP) Safety Management System (SMS)*, requires the FAA to conduct a Safety Assessment for certain triggering actions. Certain airport projects may require the airport operator to provide a Project Proposal Summary to help the FAA determine whether a Safety Assessment is required prior to FAA approval of the CSPP. The airport operator must coordinate with the appropriate FAA Airports Regional or District Office early in the development of the CSPP to determine the need for a Safety Risk Assessment. If the FAA requires an assessment, the airport operator must at a minimum:

1. Notify the appropriate FAA Airports Regional or District Office during the project "scope development" phase of any project requiring a CSPP.
2. Provide documents identified by the FAA as necessary to conduct SRM.
3. Participate in the SRM process for airport projects.
4. Provide a representative to participate on the SRM panel.

5. Ensure that all applicable SRM identified risks elements are recorded and mitigated within the CSPP.

1.3 **Develop a Construction Safety and Phasing Plan (CSPP).**

Development of an effective CSPP will require familiarity with many other documents referenced throughout this AC. See Appendix A for a list of related reading material.

1.3.1 List Requirements.

A CSPP must be developed for each on-airfield construction project funded by the Airport Improvement Program (AIP) or located on an airport certificated under Part 139. For on-airfield construction projects at Part 139 airports funded without AIP funds, the preparation of a CSPP represents an acceptable method the certificate holder may use to meet Part 139 requirements during airfield construction activity. As per FAA Order 5200.11, projects that require Safety Assessments do not include construction, rehabilitation, or change of any facility that is entirely outside the air operations area, does not involve any expansion of the facility envelope and does not involve construction equipment, haul routes or placement of material in locations that require access to the air operations area, increase the facility envelope, or impact line-of-sight. Such facilities may include passenger terminals and parking or other structures. However, extraordinary circumstances may trigger the need for a Safety Assessment and a CSPP. The CSPP is subject to subsequent review and approval under the FAA's Safety Risk Management procedures (see paragraph 1.2.5).

1.3.2 Prepare a Safety Plan Compliance Document (SPCD).

The Safety Plan Compliance Document (SPCD) details how the contractor will comply with the CSPP. Also, it will not be possible to determine all safety plan details (for example specific hazard equipment and lighting, contractor's points of contact, construction equipment heights) during the development of the CSPP. The successful contractor must define such details by preparing an SPCD that the airport operator reviews for approval prior to issuance of a notice-to-proceed. The SPCD is a subset of the CSPP, similar to how a shop drawing review is a subset to the technical specifications.

1.3.3 Assume Responsibility for the CSPP.

The airport operator is responsible for establishing and enforcing the CSPP. The airport operator may use the services of an engineering consultant to help develop the CSPP. However, writing the CSPP cannot be delegated to the construction contractor. Only those details the airport operator determines cannot be addressed before contract award are developed by the contractor and submitted for approval as the SPCD. The SPCD does not restate nor propose differences to provisions already addressed in the CSPP.

1.4 Who Is Responsible for Safety During Construction?

1.4.1 Establish a Safety Culture.

Everyone has a role in operational safety on airports during construction: the airport operator, the airport's consultants, the construction contractor and subcontractors, airport users, airport tenants, ARFF personnel, Air Traffic personnel, including Technical Operations personnel, FAA Airports Division personnel, and others, such as military personnel at any airport supporting military operations (e.g. national guard or a joint use facility). Close communication and coordination between all affected parties is the key to maintaining safe operations. Such communication and coordination should start at the project scoping meeting and continue through the completion of the project. The airport operator and contractor should conduct onsite safety inspections throughout the project and immediately remedy any deficiencies, whether caused by negligence, oversight, or project scope change.

1.4.2 Assess Airport Operator's Responsibilities.

An airport operator has overall responsibility for all activities on an airport, including construction. This includes the predesign, design, preconstruction, construction, and inspection phases. Additional information on the responsibilities listed below can be found throughout this AC. The airport operator must:

1.4.2.1 Develop a CSPP that complies with the safety guidelines of Chapter 2, Construction Safety and Phasing Plans, and Chapter 3, Guidelines for Writing a CSPP. The airport operator may develop the CSPP internally or have a consultant develop the CSPP for approval by the airport operator. For tenant sponsored projects, approve a CSPP developed by the tenant or its consultant.

1.4.2.2 Require, review and approve the SPCD by the contractor that indicates how it will comply with the CSPP and provides details that cannot be determined before contract award.

1.4.2.3 Convene a preconstruction meeting with the construction contractor, consultant, airport employees and, if appropriate, tenant sponsor and other tenants to review and discuss project safety before beginning construction activity. The appropriate FAA representatives should be invited to attend the meeting. See AC 150/5370-12, *Quality Management for Federally Funded Airport Construction Projects.* (Note "FAA" refers to the Airports Regional or District Office, the Air Traffic Organization, Flight Standards Service, and other offices that support airport operations, flight regulations, and construction/environmental policies.)

1.4.2.4 Ensure contact information is accurate for each representative/point of contact identified in the CSPP and SPCD.

1.4.2.5 Hold weekly or, if necessary, daily safety meetings with all affected parties to coordinate activities.

1.4.2.6 Notify users, ARFF personnel, and FAA ATO personnel of construction and conditions that may adversely affect the operational safety of the airport via Notices to Airmen (NOTAM) and other methods, as appropriate. Convene a meeting for review and discussion if necessary.

1.4.2.7 Ensure construction personnel know applicable airport procedures and changes to those procedures that may affect their work.

1.4.2.8 Ensure that all temporary construction signs are located per the scheduled list for each phase of the project.

1.4.2.9 Ensure construction contractors and subcontractors undergo training required by the CSPP and SPCD.

1.4.2.10 Ensure vehicle and pedestrian operations addressed in the CSPP and SPCD are coordinated with airport tenants, the airport traffic control tower (ATCT), and construction contractors.

1.4.2.11 At certificated airports, ensure each CSPP and SPCD is consistent with Part 139.

1.4.2.12 Conduct inspections sufficiently frequently to ensure construction contractors and tenants comply with the CSPP and SPCD and that there are no altered construction activities that could create potential safety hazards.

1.4.2.13 Take immediate action to resolve safety deficiencies.

1.4.2.14 At airports subject to 49 CFR Part 1542, *Airport Security*, ensure construction access complies with the security requirements of that regulation.

1.4.2.15 Notify appropriate parties when conditions exist that invoke provisions of the CSPP and SPCD (for example, implementation of low-visibility operations).

1.4.2.16 Ensure prompt submittal of a Notice of Proposed Construction or Alteration (Form 7460-1) for conducting an aeronautical study of potential obstructions such as tall equipment (cranes, concrete pumps, other), stock piles, and haul routes. A separate form may be filed for each potential obstruction, or one form may be filed describing the entire construction area and maximum equipment height. In the latter case, a separate form must be filed for any object beyond or higher than the originally evaluated area/height. The FAA encourages online submittal of forms for expediency at https://oeaaa.faa.gov/oeaaa/external/portal.jsp. The appropriate FAA Airports Regional or District Office can provide assistance in determining which objects require an aeronautical study.

1.4.2.17 Ensure prompt transmission of the Airport Sponsor Strategic Event Submission, FAA Form 6000-26, located at https://oeaaa.faa.gov/oeaaa/external/content/AIRPORT_SPONSOR_STRATEGIC_EVENT_SUBMISSION_FORM.pdf, to assure proper coordination for NAS Strategic Interruption per Service Level Agreement with ATO.

1.4.2.18 Promptly notify the FAA Airports Regional or District Office of any proposed changes to the CSPP prior to implementation of the change. Changes to the CSPP require review and approval by the airport operator and the FAA. The FAA Airports Regional or District office will determine if further coordination within the FAA is needed. Coordinate with appropriate local and other federal government agencies, such as Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), Transportation Security Administration (TSA), and the state environmental agency.

1.4.3 Define Construction Contractor's Responsibilities.

The contractor is responsible for complying with the CSPP and SPCD. The contractor must:

1.4.3.1 Submit a Safety Plan Compliance Document (SPCD) to the airport operator describing how it will comply with the requirements of the CSPP and supply any details that could not be determined before contract award. The SPCD must include a certification statement by the contractor, indicating an understanding of the operational safety requirements of the CSPP and the assertion of compliance with the approved CSPP and SPCD unless written approval is granted by the airport operator. Any construction practice proposed by the contractor that does not conform to the CSPP and SPCD may impact the airport's operational safety and will require a revision to the CSPP and SPCD and re-coordination with the airport operator and the FAA in advance.

1.4.3.2 Have available at all times copies of the CSPP and SPCD for reference by the airport operator and its representatives, and by subcontractors and contractor employees.

1.4.3.3 Ensure that construction personnel are familiar with safety procedures and regulations on the airport. Provide a point of contact who will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the airport. Many projects will require 24-hour coverage.

1.4.3.4 Identify in the SPCD the contractor's on-site employees responsible for monitoring compliance with the CSPP and SPCD during construction. At least one of these employees must be on-site when active construction is taking place.

1.4.3.5 Conduct sufficient inspections to ensure construction personnel comply with the CSPP and SPCD and that there are no altered construction activities that could create potential safety hazards.

1.4.3.6 Restrict movement of construction vehicles and personnel to permitted construction areas by flagging, barricading, erecting temporary fencing, or providing escorts, as appropriate, and as specified in the CSPP and SPCD.

1.4.3.7 Ensure that no contractor employees, employees of subcontractors or suppliers, or other persons enter any part of the air operations area (AOA) from the construction site unless authorized.

1.4.3.8 Ensure prompt submittal through the airport operator of Form 7460-1 for the purpose of conducting an aeronautical study of contractor equipment such as tall equipment (cranes, concrete pumps, and other equipment), stock piles, and haul routes when different from cases previously filed by the airport operator. The FAA encourages online submittal of forms for expediency at https://oeaaa.faa.gov/oeaaa/external/portal.jsp.

1.4.3.9 Ensure that all necessary safety mitigations are understood by all parties involved, and any special requirements of each construction phase will be fulfilled per the approved timeframe.

1.4.3.10 Participate in pre-construction meetings to review construction limits, safety mitigations, NOTAMs, and understand all special airport operational needs during each phase of the project.

1.4.4 Define Tenant's Responsibilities.

If planning construction activities on leased property, Airport tenants, such as airline operators, fixed base operators, and FAA ATO/Technical Operations sponsoring construction are strongly encouraged to:

1. Develop, or have a consultant develop, a project specific CSPP and submit it to the airport operator. The airport operator may forgo a complete CSPP submittal and instead incorporate appropriate operational safety principles and measures addressed in the advisory circular within their tenant lease agreements.
2. In coordination with its contractor, develop an SPCD and submit it to the airport operator for approval issued prior to issuance of a Notice to Proceed.
3. Ensure that construction personnel are familiar with safety procedures and regulations on the airport during all phases of the construction.
4. Provide a point of contact of who will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the airport.
5. Identify in the SPCD the contractor's on-site employees responsible for monitoring compliance with the CSPP and SPCD during construction. At least one of these employees must be on-site when active construction is taking place.
6. Ensure that no tenant or contractor employees, employees of subcontractors or suppliers, or any other persons enter any part of the AOA from the construction site unless authorized.
7. Restrict movement of construction vehicles to construction areas by flagging and barricading, erecting temporary fencing, or providing escorts, as appropriate, as specified in the CSPP and SPCD.
8. Ensure prompt submittal through the airport operator of Form 7460-1 for conducting an aeronautical study of contractor equipment such as tall equipment (cranes, concrete pumps, other), stock piles, and haul routes. The FAA encourages online submittal of forms for expediency at https://oeaaa.faa.gov/oeaaa/external/portal.jsp.
9. Participate in pre-construction meetings to review construction limits, safety mitigations, NOTAMs, and understand all special airport operational needs during each phase of the project.

CHAPTER 2. CONSTRUCTION SAFETY AND PHASING PLANS

2.1 Overview.

Aviation safety is the primary consideration at airports, especially during construction. The airport operator's CSPP and the contractor's Safety Plan Compliance Document (SPCD) are the primary tools to ensure safety compliance when coordinating construction activities with airport operations. These documents identify all aspects of the construction project that pose a potential safety hazard to airport operations and outline respective mitigation procedures for each hazard. They must provide information necessary for the Airport Operations department to conduct airfield inspections and expeditiously identify and correct unsafe conditions during construction. All aviation safety provisions included within the project drawings, contract specifications, and other related documents must also be reflected in the CSPP and SPCD.

2.2 Assume Responsibility.

Operational safety on the airport remains the airport operator's responsibility at all times. The airport operator must develop, certify, and submit for FAA approval each CSPP. It is the airport operator's responsibility to apply the requirements of the FAA approved CSPP. The airport operator must revise the CSPP when conditions warrant changes and must submit the revised CSPP to the FAA for approval. The airport operator must also require and approve a SPCD from the project contractor.

2.3 Submit the CSPP.

Construction Safety and Phasing Plans should be developed concurrently with the project design. Milestone versions of the CSPP should be submitted for review and approval as follows. While these milestones are not mandatory, early submission will help to avoid delays. Submittals are preferred in 8.5 × 11 inch or 11 × 17 inch format for compatibility with the FAA's Obstruction Evaluation / Airport Airspace Analysis (OE / AAA) process.

2.3.1 Submit an Outline/Draft.

By the time approximately 25% to 30% of the project design is completed, the principal elements of the CSPP should be established. Airport operators are encouraged to submit an outline or draft, detailing all CSPP provisions developed to date, to the FAA for review at this stage of the project design.

2.3.2 Submit a CSPP.

The CSPP should be formally submitted for FAA approval when the project design is 80 percent to 90 percent complete. Since provisions in the CSPP will influence contract costs, it is important to obtain FAA approval in time to include all such provisions in the procurement contract.

2.3.3 Submit an SPCD.

The contractor should submit the SPCD to the airport operator for approval to be issued prior to the Notice to Proceed.

2.3.4 Submit CSPP Revisions.

All revisions to a previously approved CSPP must be re-submitted to the FAA for review and approval/disapproval action.

2.4 **Meet CSPP Requirements.**

2.4.1 To the extent possible, the CSPP should address the following as outlined in Chapter 3, Guidelines for Writing a CSPP. Details that cannot be determined at this stage are to be included in the SPCD.

1. Coordination.
    a. Contractor progress meetings.
    b. Scope or schedule changes.
    c. FAA ATO coordination.
2. Phasing.
    a. Phase elements.
    b. Construction safety drawings.
3. Areas and operations affected by the construction activity.
    a. Identification of affected areas.
    b. Mitigation of effects.
4. Protection of navigation aids (NAVAIDs).
5. Contractor access.
    a. Location of stockpiled construction materials.
    b. Vehicle and pedestrian operations.
6. Wildlife management.
    a. Trash.
    b. Standing water.
    c. Tall grass and seeds.
    d. Poorly maintained fencing and gates.
    e. Disruption of existing wildlife habitat.
7. Foreign Object Debris (FOD) management.
8. Hazardous materials (HAZMAT) management.
9. Notification of construction activities.

a. Maintenance of a list of responsible representatives/ points of contact.

b. NOTAM.

c. Emergency notification procedures.

d. Coordination with ARFF Personnel.

e. Notification to the FAA.

10. Inspection requirements.
    a. Daily (or more frequent) inspections.
    b. Final inspections.
11. Underground utilities.
12. Penalties.
13. Special conditions.
14. Runway and taxiway visual aids. Marking, lighting, signs, and visual NAVAIDs.
    a. General.
    b. Markings.
    c. Lighting and visual NAVAIDs.
    d. Signs, temporary, including orange construction signs, and permanent signs.
15. Marking and signs for access routes.
16. Hazard marking and lighting.
    a. Purpose.
    b. Equipment.
17. Work zone lighting for nighttime construction (if applicable).
18. Protection of runway and taxiway safety areas, object free areas, obstacle free zones, and approach/departure surfaces.
    a. Runway Safety Area (RSA).
    b. Runway Object Free Area (ROFA).
    c. Taxiway Safety Area (TSA). Provide details for any adjustments to Taxiway Safety Area width to allow continued operation of smaller aircraft. See paragraph 2.22.3.
    d. Taxiway Object Free Area (TOFA). Provide details for any continued aircraft operations while construction occurs within the TOFA. See paragraph 2.22.4.
    e. Obstacle Free Zone (OFZ).
    f. Runway approach/departure surfaces.
19. Other limitations on construction.
    a. Prohibitions.

b. Restrictions.

2.4.2 The Safety Plan Compliance Document (SPCD) should include a general statement by the construction contractor that he/she has read and will abide by the CSPP. In addition, the SPCD must include all supplemental information that could not be included in the CSPP prior to the contract award. The contractor statement should include the name of the contractor, the title of the project CSPP, the approval date of the CSPP, and a reference to any supplemental information (that is, "I, (Name of Contractor), have read the (Title of Project) CSPP, approved on (Date), and will abide by it as written and with the following additions as noted:"). The supplemental information in the SPCD should be written to match the format of the CSPP indicating each subject by corresponding CSPP subject number and title. If no supplemental information is necessary for any specific subject, the statement, "No supplemental information," should be written after the corresponding subject title. The SPCD should not duplicate information in the CSPP:

1. Coordination. Discuss details of proposed safety meetings with the airport operator and with contractor employees and subcontractors.
2. Phasing. Discuss proposed construction schedule elements, including:
   a. Duration of each phase.
   b. Daily start and finish of construction, including "night only" construction.
   c. Duration of construction activities during:
      i. Normal runway operations.
      ii. Closed runway operations.
      iii. Modified runway "Aircraft Reference Code" usage.
3. Areas and operations affected by the construction activity. These areas and operations should be identified in the CSPP and should not require an entry in the SPCD.
4. Protection of NAVAIDs. Discuss specific methods proposed to protect operating NAVAIDs.
5. Contractor access. Provide the following:
   a. Details on how the contractor will maintain the integrity of the airport security fence (gate guards, daily log of construction personnel, and other).
   b. Listing of individuals requiring driver training (for certificated airports and as requested).
   c. Radio communications.
      i. Types of radios and backup capabilities.
      ii. Who will be monitoring radios.
      iii. Who to contact if the ATCT cannot reach the contractor's designated person by radio.

d. Details on how the contractor will escort material delivery vehicles.

6. Wildlife management. Discuss the following:
   a. Methods and procedures to prevent wildlife attraction.
   b. Wildlife reporting procedures.
7. Foreign Object Debris (FOD) management. Discuss equipment and methods for control of FOD, including construction debris and dust.
8. Hazardous Materials (HAZMAT) management. Discuss equipment and methods for responding to hazardous spills.
9. Notification of construction activities. Provide the following:
   a. Contractor points of contact.
   b. Contractor emergency contact.
   c. Listing of tall or other requested equipment proposed for use on the airport and the timeframe for submitting 7460-1 forms not previously submitted by the airport operator.
   d. Batch plant details, including 7460-1 submittal.
10. Inspection requirements. Discuss daily (or more frequent) inspections and special inspection procedures.
11. Underground utilities. Discuss proposed methods of identifying and protecting underground utilities.
12. Penalties. Penalties should be identified in the CSPP and should not require an entry in the SPCD.
13. Special conditions. Discuss proposed actions for each special condition identified in the CSPP.
14. Runway and taxiway visual aids. Including marking, lighting, signs, and visual NAVAIDs. Discuss proposed visual aids including the following:
   a. Equipment and methods for covering signage and airfield lights.
   b. Equipment and methods for temporary closure markings (paint, fabric, other).
   c. Temporary orange construction signs.
   d. Types of temporary Visual Guidance Slope Indicators (VGSI).
15. Marking and signs for access routes. Discuss proposed methods of demarcating access routes for vehicle drivers.
16. Hazard marking and lighting. Discuss proposed equipment and methods for identifying excavation areas.
17. Work zone lighting for nighttime construction (if applicable). Discuss proposed equipment, locations, aiming, and shielding to prevent interference with air traffic control and aircraft operations.

18. Protection of runway and taxiway safety areas, object free areas, obstacle free zones, and approach/departure surfaces. Discuss proposed methods of identifying, demarcating, and protecting airport surfaces including:
    a. Equipment and methods for maintaining Taxiway Safety Area standards.
    b. Equipment and methods to ensure the safe passage of aircraft where Taxiway Safety Area or Taxiway Object Free Area standards cannot be maintained.
    c. Equipment and methods for separation of construction operations from aircraft operations, including details of barricades.
19. Other limitations on construction should be identified in the CSPP and should not require an entry in the SPCD.

2.5 **Coordination.**

Airport operators, or tenants responsible for design, bidding and conducting construction on their leased properties, should ensure at all project developmental stages, such as predesign, prebid, and preconstruction conferences, they capture the subject of airport operational safety during construction (see AC 150/5370-12, *Quality Management for Federally Funded Airport Construction Projects*). In addition, the following should be coordinated as required:

2.5.1 Progress Meetings.

Operational safety should be a standing agenda item for discussion during progress meetings throughout the project developmental stages.

2.5.2 Scope or Schedule Changes.

Changes in the scope or duration at any of the project stages may require revisions to the CSPP and review and approval by the airport operator and the FAA (see paragraph 1.4.2.17).

2.5.3 FAA ATO Coordination.

Early coordination with FAA ATO is highly recommended during the design phase and is required for scheduling Technical Operations shutdowns prior to construction. Coordination is critical to restarts of NAVAID services and to the establishment of any special procedures for the movement of aircraft. Formal agreements between the airport operator and appropriate FAA offices are recommended. All relocation or adjustments to NAVAIDs, or changes to final grades in critical areas, should be coordinated with FAA ATO and may require an FAA flight inspection prior to restarting the facility. Flight inspections must be coordinated and scheduled well in advance of the intended facility restart. Flight inspections may require a reimbursable agreement between the airport operator and FAA ATO. Reimbursable agreements should be coordinated a minimum of 12 months prior to the start of construction. (See paragraph 2.13.5.3.2 for required FAA notification regarding FAA-owned NAVAIDs.)

2.6 **Phasing.**

Once it has been determined what types and levels of airport operations will be maintained, the most efficient sequence of construction may not be feasible. In this case, the sequence of construction may be phased to gain maximum efficiency while allowing for the required operations. The development of the resulting construction phases should be coordinated with local Air Traffic personnel and airport users. The sequenced construction phases established in the CSPP must be incorporated into the project design and must be reflected in the contract drawings and specifications.

2.6.1 Phase Elements.

For each phase the CSPP should detail:

- Areas closed to aircraft operations.
- Duration of closures.
- Taxi routes and/or areas of reduced TSA and TOFA to reflect reduced ADG use.
- ARFF access routes.
- Construction staging, disposal, and cleanout areas.
- Construction access and haul routes.
- Impacts to NAVAIDs.
- Lighting, marking, and signing changes.
- Available runway length and/or reduced RSA and ROFA to reflect reduced ADG use.
- Declared distances (if applicable).
- Required hazard marking, lighting, and signing.
- Work zone lighting for nighttime construction (if applicable).
- Lead times for required notifications.

2.6.2 Construction Safety Drawings.

Drawings specifically indicating operational safety procedures and methods in affected areas (i.e., construction safety drawings) should be developed for each construction phase. Such drawings should be included in the CSPP as referenced attachments and should also be included in the contract drawing package.

2.7 **Areas and Operations Affected by Construction Activity.**

Runways and taxiways should remain in use by aircraft to the maximum extent possible without compromising safety. Pre-meetings with the FAA ATO will support operational simulations. See Appendix E for an example of a table showing temporary operations versus current operations. The tables in Appendix E can be useful for coordination among all interested parties, including FAA Lines of Business.

2.7.1 Identification of Affected Areas.

Identifying areas and operations affected by the construction helps to determine possible safety problems. The affected areas should be identified in the construction safety drawings for each construction phase. (See paragraph 2.6.2.) Of particular concern are:

2.7.1.1 **Closing, or Partial Closing, of Runways, Taxiways and Aprons, and Displaced Thresholds.**

When a runway is partially closed, a portion of the pavement is unavailable for any aircraft operation, meaning taxiing, landing, or takeoff in either direction on that pavement is prohibited. A displaced threshold, by contrast, is established to ensure obstacle clearance and adequate safety area for landing aircraft. The pavement prior to the displaced threshold is normally available for take-off in the direction of the displacement and for landing and takeoff in the opposite direction. Misunderstanding this difference, may result in issuance of an inaccurate NOTAM, and can lead to a hazardous condition.

2.7.1.1.1 Partially Closed Runways.

The temporarily closed portion of a partially closed runway will generally extend from the threshold to a taxiway that may be used for entering and exiting the runway. If the closed portion extends to a point between taxiways, pilots will have to back-taxi on the runway, which is an undesirable operation. See Figure 2-1 for a desirable configuration.

2.7.1.1.2 Displaced Thresholds.

Since the portion of the runway pavement between the permanent threshold and a standard displaced threshold is available for takeoff and for landing in the opposite direction, the temporary displaced threshold need not be located at an entrance/exit taxiway. See Figure 2-2.

2.7.1.2 Closing of aircraft rescue and fire fighting access routes.

2.7.1.3 Closing of access routes used by airport and airline support vehicles.

2.7.1.4 Interruption of utilities, including water supplies for fire fighting.

2.7.1.5 Approach/departure surfaces affected by heights of objects.

2.7.1.6 Construction areas, storage areas, and access routes near runways, taxiways, aprons, or helipads.

Figure 2-1. Temporary Partially Closed Runway

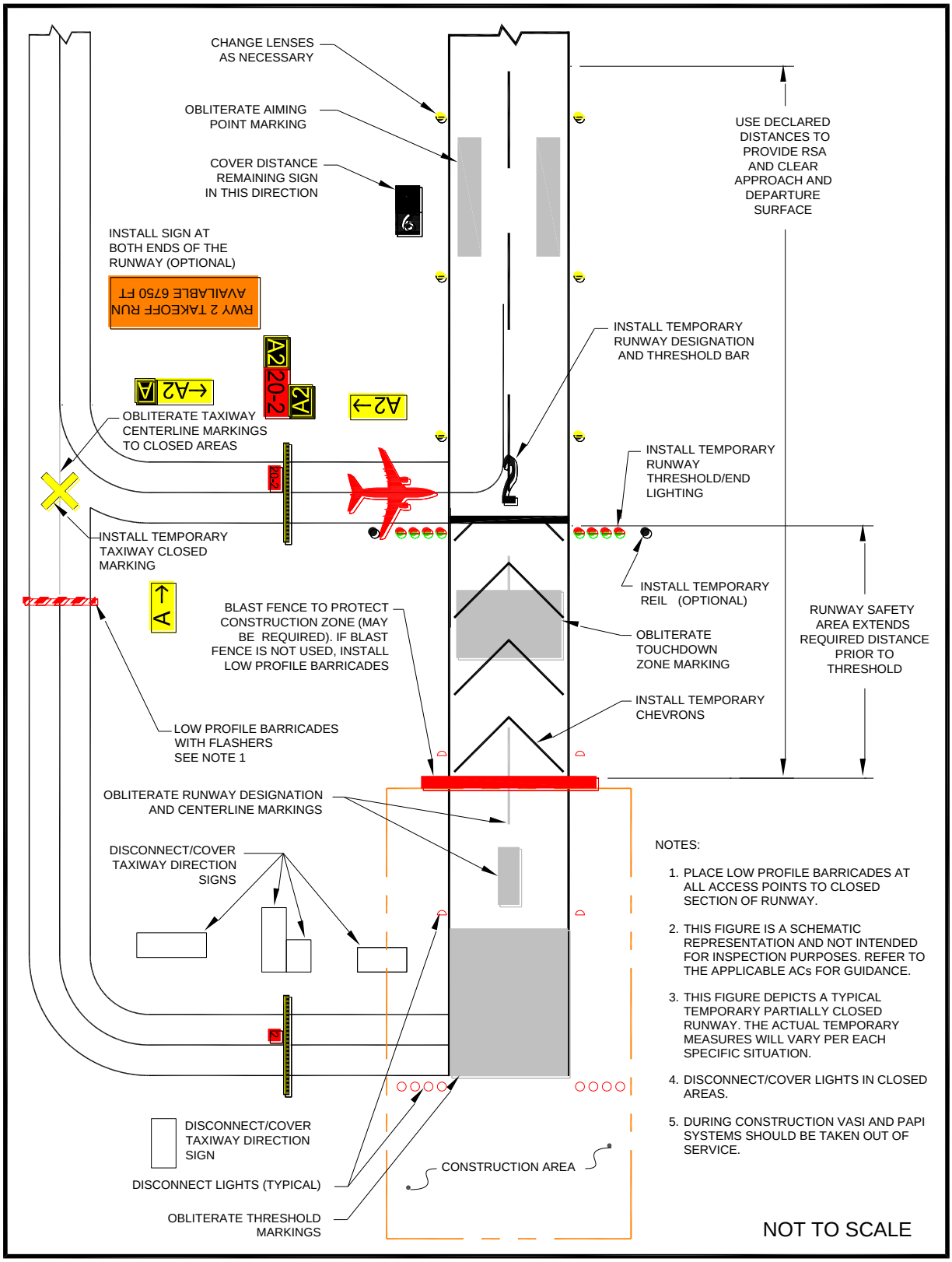
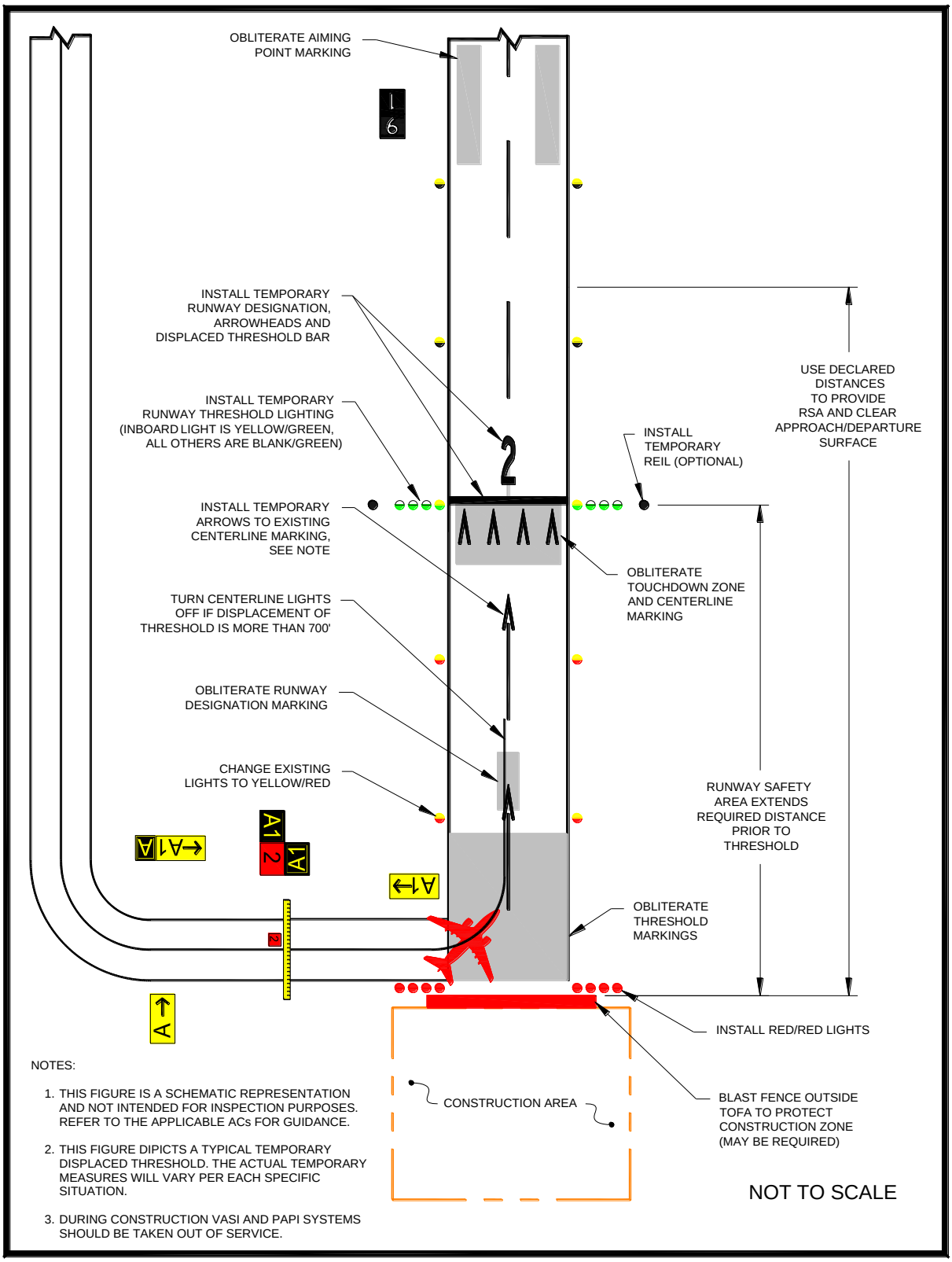


Figure 2-2. Temporary Displaced Threshold



Note: See paragraph 2.18.2.5.

2.7.2 Mitigation of Effects.

Establishment of specific procedures is necessary to maintain the safety and efficiency of airport operations. The CSPP must address:

2.7.2.1 Temporary changes to runway and/or taxi operations.

2.7.2.2 Detours for ARFF and other airport vehicles.

2.7.2.3 Maintenance of essential utilities.

2.7.2.4 Temporary changes to air traffic control procedures. Such changes must be coordinated with the ATO.

2.8 Navigation Aid (NAVAID) Protection.

Before commencing construction activity, parking vehicles, or storing construction equipment and materials near a NAVAID, coordinate with the appropriate FAA ATO/Technical Operations office to evaluate the effect of construction activity and the required distance and direction from the NAVAID. (See paragraph 2.13.5.3.) Construction activities, materials/equipment storage, and vehicle parking near electronic NAVAIDs require special consideration since they may interfere with signals essential to air navigation. If any NAVAID may be affected, the CSPP and SPCD must show an understanding of the "critical area" associated with each NAVAID and describe how it will be protected. Where applicable, the operational critical areas of NAVAIDs should be graphically delineated on the project drawings. Pay particular attention to stockpiling material, as well as to movement and parking of equipment that may interfere with line of sight from the ATCT or with electronic emissions. Interference from construction equipment and activities may require NAVAID shutdown or adjustment of instrument approach minimums for low visibility operations. This condition requires that a NOTAM be filed (see paragraph 2.13.2). Construction activities and materials/equipment storage near a NAVAID must not obstruct access to the equipment and instruments for maintenance. Submittal of a 7460-1 form is required for construction vehicles operating near FAA NAVAIDs. (See paragraph 2.13.5.3.)

2.9 Contractor Access.

The CSPP must detail the areas to which the contractor must have access, and explain how contractor personnel will access those areas. Specifically address:

2.9.1 Location of Stockpiled Construction Materials.

Stockpiled materials and equipment storage are not permitted within the RSA and OFZ, and if possible should not be permitted within the Object Free Area (OFA) of an operational runway. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval. The airport operator must ensure that stockpiled materials and equipment adjacent to these areas are prominently marked and lighted during hours of restricted visibility or darkness. (See paragraph 2.18.2.) This includes determining and

verifying that materials are stabilized and stored at an approved location so as not to be a hazard to aircraft operations and to prevent attraction of wildlife and foreign object damage from blowing or tracked material. See paragraphs 2.10 and 2.11.

2.9.2 Vehicle and Pedestrian Operations.

The CSPP should include specific vehicle and pedestrian requirements. Vehicle and pedestrian access routes for airport construction projects must be controlled to prevent inadvertent or unauthorized entry of persons, vehicles, or animals onto the AOA. The airport operator should coordinate requirements for vehicle operations with airport tenants, contractors, and the FAA air traffic manager. In regard to vehicle and pedestrian operations, the CSPP should include the following, with associated training requirements:

2.9.2.1 **Construction Site Parking.**

Designate in advance vehicle parking areas for contractor employees to prevent any unauthorized entry of persons or vehicles onto the AOA. These areas should provide reasonable contractor employee access to the job site.

2.9.2.2 **Construction Equipment Parking.**

Contractor employees must park and service all construction vehicles in an area designated by the airport operator outside the OFZ and never in the safety area of an active runway or taxiway. Unless a complex setup procedure makes movement of specialized equipment infeasible, inactive equipment must not be parked on a closed taxiway or runway. If it is necessary to leave specialized equipment on a closed taxiway or runway at night, the equipment must be well lighted. Employees should also park construction vehicles outside the OFA when not in use by construction personnel (for example, overnight, on weekends, or during other periods when construction is not active). Parking areas must not obstruct the clear line of sight by the ATCT to any taxiways or runways under air traffic control nor obstruct any runway visual aids, signs, or navigation aids. The FAA must also study those areas to determine effects on airport design criteria, surfaces established by 14 CFR Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace (Part 77), and on NAVAIDs and Instrument Approach Procedures (IAP). See paragraph 2.13.1 for further information.

2.9.2.3 **Access and Haul Roads.**

Determine the construction contractor’s access to the construction sites and haul roads. Do not permit the construction contractor to use any access or haul roads other than those approved. Access routes used by contractor vehicles must be clearly marked to prevent inadvertent entry to areas open to airport operations. Pay special attention to ensure that if construction traffic is to share or cross any ARFF routes that ARFF right of way is not impeded at any time, and that construction traffic on haul

roads does not interfere with NAVAIDs or approach surfaces of operational runways. Address whether access gates will be blocked or inoperative or if a rally point will be blocked or inaccessible.

2.9.2.4 Marking and lighting of vehicles in accordance with AC 150/5210-5, *Painting, Marking, and Lighting of Vehicles Used on an Airport.*

2.9.2.5 Description of proper vehicle operations on various areas under normal, lost communications, and emergency conditions.

2.9.2.6 Required escorts.

2.9.2.7 **Training Requirements for Vehicle Drivers to Ensure Compliance with the Airport Operator's Vehicle Rules and Regulations.**

Specific training should be provided to vehicle operators, including those providing escorts. See AC 150/5210-20, *Ground Vehicle Operations on Airports*, for information on training and records maintenance requirements.

2.9.2.8 **Situational Awareness.**

Vehicle drivers must confirm by personal observation that no aircraft is approaching their position (either in the air or on the ground) when given clearance to cross a runway, taxiway, or any other area open to airport operations. In addition, it is the responsibility of the escort vehicle driver to verify the movement/position of all escorted vehicles at any given time. At non-towered airports, all aircraft movements and flight operations rely on aircraft operators to self-report their positions and intentions. However, there is no requirement for an aircraft to have radio communications. Because aircraft do not always broadcast their positions or intentions, visual checking, radio monitoring, and situational awareness of the surroundings is critical to safety.

2.9.2.9 **Two-Way Radio Communication Procedures.**

2.9.2.9.1 General.

The airport operator must ensure that tenant and construction contractor personnel engaged in activities involving unescorted operation on aircraft movement areas observe the proper procedures for communications, including using appropriate radio frequencies at airports with and without ATCT. When operating vehicles on or near open runways or taxiways, construction personnel must understand the critical importance of maintaining radio contact, as directed by the airport operator, with:

1. Airport operations
2. ATCT

3. Common Traffic Advisory Frequency (CTAF), which may include UNICOM, MULTICOM.
4. Automatic Terminal Information Service (ATIS). This frequency is useful for monitoring conditions on the airport. Local air traffic will broadcast information regarding construction related runway closures and "shortened" runways on the ATIS frequency.

2.9.2.9.2 Areas Requiring Two-Way Radio Communication with the ATCT.

Vehicular traffic crossing active movement areas must be controlled either by two-way radio with the ATCT, escort, flagman, signal light, or other means appropriate for the particular airport.

2.9.2.9.3 Frequencies to be Used.

The airport operator will specify the frequencies to be used by the contractor, which may include the CTAF for monitoring of aircraft operations. Frequencies may also be assigned by the airport operator for other communications, including any radio frequency in compliance with Federal Communications Commission requirements. At airports with an ATCT, the airport operator will specify the frequency assigned by the ATCT to be used between contractor vehicles and the ATCT.

2.9.2.9.4 Proper radio usage, including read back requirements.

2.9.2.9.5 Proper phraseology, including the International Phonetic Alphabet.

2.9.2.9.6 Light Gun Signals.

Even though radio communication is maintained, escort vehicle drivers must also familiarize themselves with ATCT light gun signals in the event of radio failure. See the FAA safety placard "Ground Vehicle Guide to Airport Signs and Markings." This safety placard may be downloaded through the Runway Safety Program Web site at http://www.faa.gov/airports/runway_safety/publications/ (see "Signs & Markings Vehicle Dashboard Sticker") or obtained from the FAA Airports Regional Office.

2.9.2.10 **Maintenance of the secured area of the airport, including:**

2.9.2.10.1 Fencing and Gates.

Airport operators and contractors must take care to maintain security during construction when access points are created in the security fencing to permit the passage of construction vehicles or personnel. Temporary gates should be equipped so they can be securely closed and locked to prevent access by animals and unauthorized people. Procedures should be in place to ensure that only authorized persons and vehicles have access to the AOA and to prohibit "piggybacking" behind another person or vehicle. The Department of Transportation (DOT) document DOT/FAA/AR-

00/52, *Recommended Security Guidelines for Airport Planning and Construction*, provides more specific information on fencing. A copy of this document can be obtained from the Airport Consultants Council, Airports Council International, or American Association of Airport Executives.

2.9.2.10.2 Badging Requirements.

Airports subject to 49 CFR Part 1542, *Airport Security*, must meet standards for access control, movement of ground vehicles, and identification of construction contractor and tenant personnel.

2.10 **Wildlife Management.**

The CSPP and SPCD must be in accordance with the airport operator's wildlife hazard management plan, if applicable. See AC 150/5200-33, *Hazardous Wildlife Attractants On or Near Airports,* and CertAlert 98-05, *Grasses Attractive to Hazardous Wildlife.* Construction contractors must carefully control and continuously remove waste or loose materials that might attract wildlife. Contractor personnel must be aware of and avoid construction activities that can create wildlife hazards on airports, such as:

2.10.1 Trash.

Food scraps must be collected from construction personnel activity.

2.10.2 Standing Water.

2.10.3 Tall Grass and Seeds.

Requirements for turf establishment can be at odds with requirements for wildlife control. Grass seed is attractive to birds. Lower quality seed mixtures can contain seeds of plants (such as clover) that attract larger wildlife. Seeding should comply with the guidance in AC 150/5370-10, *Standards for Specifying Construction of Airports,* Item T-901, Seeding. Contact the local office of the United Sates Department of Agriculture Soil Conservation Service or the State University Agricultural Extension Service (County Agent or equivalent) for assistance and recommendations. These agencies can also provide liming and fertilizer recommendations.

2.10.4 Poorly Maintained Fencing and Gates.

See paragraph 2.9.2.10.1.

2.10.5 Disruption of Existing Wildlife Habitat.

While this will frequently be unavoidable due to the nature of the project, the CSPP should specify under what circumstances (location, wildlife type) contractor personnel should immediately notify the airport operator of wildlife sightings.

2.11 **Foreign Object Debris (FOD) Management.**

Waste and loose materials, commonly referred to as FOD, are capable of causing damage to aircraft landing gears, propellers, and jet engines. Construction contractors must not leave or place FOD on or near active aircraft movement areas. Materials capable of creating FOD must be continuously removed during the construction project. Fencing (other than security fencing) or covers may be necessary to contain material that can be carried by wind into areas where aircraft operate. See AC 150/5210-24, *Foreign Object Debris (FOD) Management.*

2.12 **Hazardous Materials (HAZMAT) Management.**

Contractors operating construction vehicles and equipment on the airport must be prepared to expeditiously contain and clean-up spills resulting from fuel or hydraulic fluid leaks. Transport and handling of other hazardous materials on an airport also requires special procedures. See AC 150/5320-15, *Management of Airport Industrial Waste.*

2.13 **Notification of Construction Activities.**

The CSPP and SPCD must detail procedures for the immediate notification of airport users and the FAA of any conditions adversely affecting the operational safety of the airport. It must address the notification actions described below, as applicable.

2.13.1 List of Responsible Representatives/points of contact for all involved parties, and procedures for contacting each of them, including after hours.

2.13.2 NOTAMs.

Only the airport operator may initiate or cancel NOTAMs on airport conditions, and is the only entity that can close or open a runway. The airport operator must coordinate the issuance, maintenance, and cancellation of NOTAMs about airport conditions resulting from construction activities with tenants and the local air traffic facility (control tower, approach control, or air traffic control center), and must either enter the NOTAM into NOTAM Manager, or provide information on closed or hazardous conditions on airport movement areas to the FAA Flight Service Station (FSS) so it can issue a NOTAM. The airport operator must file and maintain a list of authorized representatives with the FSS. Refer to AC 150/5200-28, *Notices to Airmen (NOTAMs) for Airport Operators,* for a sample NOTAM form. Only the FAA may issue or cancel NOTAMs on shutdown or irregular operation of FAA owned facilities. Any person having reason to believe that a NOTAM is missing, incomplete, or inaccurate must notify the airport operator. See paragraph 2.7.1.1 about issuing NOTAMs for partially closed runways versus runways with displaced thresholds.

2.13.3 Emergency notification procedures for medical, fire fighting, and police response.

2.13.4 Coordination with ARFF.

The CSPP must detail procedures for coordinating through the airport sponsor with ARFF personnel, mutual aid providers, and other emergency services if construction requires:

1. The deactivation and subsequent reactivation of water lines or fire hydrants, or
2. The rerouting, blocking and restoration of emergency access routes, or
3. The use of hazardous materials on the airfield.

2.13.5 Notification to the FAA.

2.13.5.1 **Part 77.**

Any person proposing construction or alteration of objects that affect navigable airspace, as defined in Part 77, must notify the FAA. This includes construction equipment and proposed parking areas for this equipment (i.e., cranes, graders, other equipment) on airports. FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, can be used for this purpose and submitted to the appropriate FAA Airports Regional or District Office. See Appendix A to download the form. Further guidance is available on the FAA web site at oeaaa.faa.gov.

2.13.5.2 **Part 157.**

With some exceptions, Title 14 CFR Part 157, *Notice of Construction, Alteration, Activation, and Deactivation of Airports*, requires that the airport operator notify the FAA in writing whenever a non-Federally funded project involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport. Notification involves submitting FAA Form 7480-1, *Notice of Landing Area Proposal*, to the nearest FAA Airports Regional or District Office. See Appendix A to download the form.

2.13.5.3 **NAVAIDs.**

For emergency (short-notice) notification about impacts to both airport owned and FAA owned NAVAIDs, contact: 866-432-2622.

2.13.5.3.1 Airport Owned/FAA Maintained.

If construction operations require a shutdown of 24 hours or greater in duration, or more than 4 hours daily on consecutive days, of a NAVAID owned by the airport but maintained by the FAA, provide a 45-day minimum notice to FAA ATO/Technical Operations prior to facility shutdown, using Strategic Event Coordination (SEC) Form 6000.26 contained within FAA Order 6000.15, *General Maintenance Handbook for National Airspace System (NAS) Facilities*.

2.13.5.3.2 FAA Owned.

1. The airport operator must notify the appropriate FAA ATO Service Area Planning and Requirements (P&R) Group a minimum of 45 days prior to implementing an event that causes impacts to NAVAIDs, using SEC Form 6000.26.
2. Coordinate work for an FAA owned NAVAID shutdown with the local FAA ATO/Technical Operations office, including any necessary reimbursable agreements and flight checks. Detail procedures that address unanticipated utility outages and cable cuts that could impact FAA NAVAIDs. Refer to active Service Level Agreement with ATO for specifics.

2.14 **Inspection Requirements.**

2.14.1 Daily Inspections.

Inspections should be conducted at least daily, but more frequently if necessary to ensure conformance with the CSPP. A sample checklist is provided in Appendix D, Construction Project Daily Safety Inspection Checklist. See also AC 150/5200-18, *Airport Safety Self-Inspection.* Airport operators holding a Part 139 certificate are required to conduct self-inspections during unusual conditions, such as construction activities, that may affect safe air carrier operations.

2.14.2 Interim Inspections.

Inspections should be conducted of all areas to be (re)opened to aircraft traffic to ensure the proper operation of lights and signs, for correct markings, and absence of FOD. The contractor should conduct an inspection of the work area with airport operations personnel. The contractor should ensure that all construction materials have been secured, all pavement surfaces have been swept clean, all transition ramps have been properly constructed, and that surfaces have been appropriately marked for aircraft to operate safely. Only if all items on the list meet with the airport operator's approval should the air traffic control tower be notified to open the area to aircraft operations. The contractor should be required to retain a suitable workforce and the necessary equipment at the work area for any last minute cleanup that may be requested by the airport operator prior to opening the area.

2.14.3 Final Inspections.

New runways and extended runway closures may require safety inspections at certificated airports prior to allowing air carrier service. Coordinate with the FAA Airport Certification Safety Inspector (ACSI) to determine if a final inspection will be necessary.

2.15 **Underground Utilities.**

The CSPP and/or SPCD must include procedures for locating and protecting existing underground utilities, cables, wires, pipelines, and other underground facilities in excavation areas. This may involve coordinating with public utilities and FAA ATO/Technical Operations. Note that "One Call" or "Miss Utility" services do not include FAA ATO/Technical Operations.

2.16 **Penalties.**

The CSPP should detail penalty provisions for noncompliance with airport rules and regulations and the safety plans (for example, if a vehicle is involved in a runway incursion). Such penalties typically include rescission of driving privileges or access to the AOA.

2.17 **Special Conditions.**

The CSPP must detail any special conditions that affect the operation of the airport and will require the activation of any special procedures (for example, low-visibility operations, snow removal, aircraft in distress, aircraft accident, security breach, Vehicle / Pedestrian Deviation (VPD) and other activities requiring construction suspension/resumption).

2.18 **Runway and Taxiway Visual Aids.**

This includes marking, lighting, signs, and visual NAVAIDs. The CSPP must ensure that areas where aircraft will be operating are clearly and visibly separated from construction areas, including closed runways. Throughout the duration of the construction project, verify that these areas remain clearly marked and visible at all times and that marking, lighting, signs, and visual NAVAIDs that are to continue to perform their functions during construction remain in place and operational. Visual NAVAIDs that are not serving their intended function during construction must be temporarily disabled, covered, or modified as necessary. The CSPP must address the following, as appropriate:

2.18.1 General.

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

2.18.2 Markings.

During the course of construction projects, temporary pavement markings are often required to allow for aircraft operations during or between work periods. During the design phase of the project, the designer should coordinate with the project manager,

airport operations, airport users, the FAA Airports project manager, and Airport Certification Safety Inspector for Part 139 airports to determine minimum temporary markings. The FAA Airports project manager will, wherever a runway is closed, coordinate with the appropriate FAA Flight Standards Office and disseminate findings to all parties. Where possible, the temporary markings on finish grade pavements should be placed to mirror the dimensions of the final markings. Markings must be in compliance with the standards of AC 150/5340-1, *Standards for Airport Markings*, except as noted herein. Runways and runway exit taxiways closed to aircraft operations are marked with a yellow X. The preferred visual aid to depict temporary runway closure is the lighted X signal placed on or near the runway designation numbers. (See paragraph 2.18.2.1.2.)

2.18.2.1 **Closed Runways and Taxiways.**

2.18.2.1.1 Permanently Closed Runways.

For runways, obliterate the threshold marking, runway designation marking, and touchdown zone markings, and place an X at each end and at 1,000-foot (300 m) intervals. For a multiple runway environment, if the lighted X on a designated number will be located in the RSA of an adjacent active runway, locate the lighted X farther down the closed runway to clear the RSA of the active runway. In addition, the closed runway numbers located in the RSA of an active runway must be marked with a flat yellow X.

2.18.2.1.2 Temporarily 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. For a multiple runway environment, if the lighted X on a designated number will be located in the RSA of an adjacent active runway, locate the lighted X farther down the closed runway to clear the RSA of the active runway. In addition, the closed runway numbers located in the RSA of an active runway must be marked with a flat yellow X. See Figure 2-3. See also paragraph 2.18.3.3.

2.18.2.1.3 Partially Closed Runways and Displaced Thresholds.

When threshold markings are needed to identify the temporary beginning of the runway that is available for landing, the markings must comply with AC 150/5340-1. An X is not used on a partially closed runway or a runway with a displaced threshold. See paragraph 2.7.1.1 for the difference between partially closed runways and runways with displaced thresholds. Because of the temporary nature of threshold displacement due to construction, it is not necessary to re-adjust the existing runway centerline markings to meet standard spacing for a runway with a visual approach. Some of the requirements below may be waived in the cases of low-activity airports and/or short duration changes that are measured in days rather than weeks. Consider whether the presence of an airport traffic

control tower allows for the development of special procedures. Contact the appropriate FAA Airports Regional or District Office for assistance.

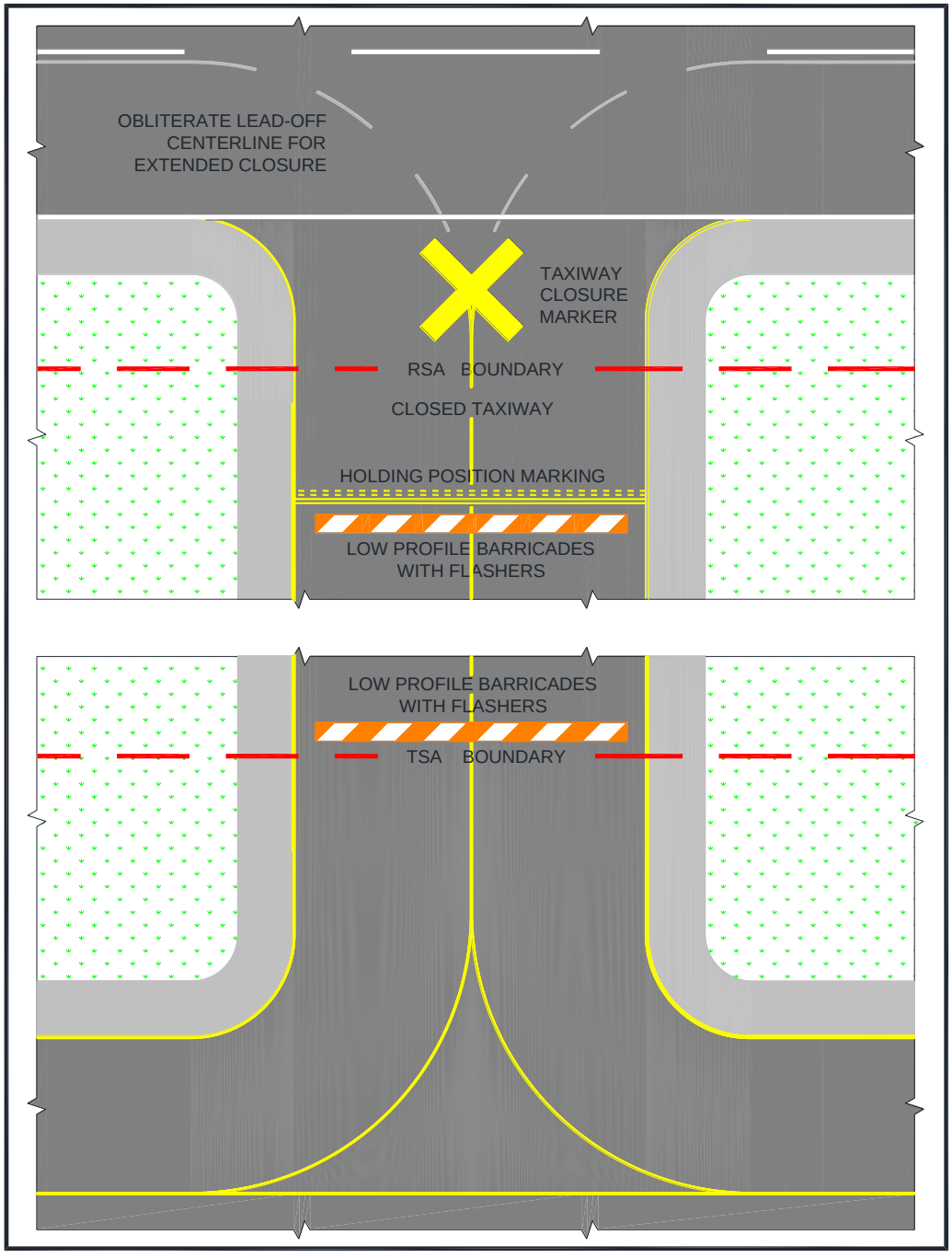
Figure 2-3. Markings for a Temporarily Closed Runway

1. **Partially Closed Runways.** Pavement markings for temporary closed portions of the runway consist of a runway threshold bar, runway designation, and yellow chevrons to identify pavement areas that are unsuitable for takeoff or landing (see AC 150/5340-1). Obliterate or cover markings prior to the moved threshold. Existing touchdown zone markings beyond the moved threshold may remain in place. Obliterate aiming point markings. Issue appropriate NOTAMs regarding any nonstandard markings. See Figure 2-4.
2. **Displaced Thresholds.** Pavement markings for a displaced threshold consist of a runway threshold bar, runway designation, and white arrowheads with and without arrow shafts. These markings are required to identify the portion of the runway before the displaced threshold to provide centerline guidance for pilots during approaches, takeoffs, and landing rollouts from the opposite direction. See AC 150/5340-1. Obliterate markings prior to the displaced threshold. Existing touchdown zone markings beyond the displaced threshold may remain in place. Obliterate aiming point markings. Issue appropriate NOTAMs regarding any nonstandard markings. See Figure 2-2.

2.18.2.1.4 Taxiways.

1. **Permanently Closed Taxiways.** AC 150/5300-13 *Airport Design*, notes that it is preferable to remove the pavement, but for pavement that is to remain, place an X at the entrance to both ends of the closed section. Obliterate taxiway centerline markings, including runway leadoff lines, leading to the closed taxiway. See Figure 2-4.

Figure 2-4. Temporary Taxiway Closure



2. **Temporarily 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. If the taxiway will be closed for an extended period, obliterate taxiway centerline markings, including runway leadoff lines and taxiway to taxiway turns, leading to the closed section. Always obliterate runway lead-off lines for high speed exits, regardless of the duration of the closure. If the centerline markings will be reused upon reopening the taxiway, it is preferable to paint over the marking. This will result in less damage to the pavement when the upper layer of paint is ultimately removed. See Figure 2-4.

2.18.2.1.5 Temporarily Closed Airport.

When the airport is closed temporarily, mark all the runways as closed.

2.18.2.2 If unable to paint temporary markings on the pavement, construct them from any of the following materials: fabric, colored plastic, painted sheets of plywood, or similar materials. They must be properly configured and appropriately secured to prevent movement by prop wash, jet blast, or other wind currents. Items used to secure such markings must be of a color similar to the marking.

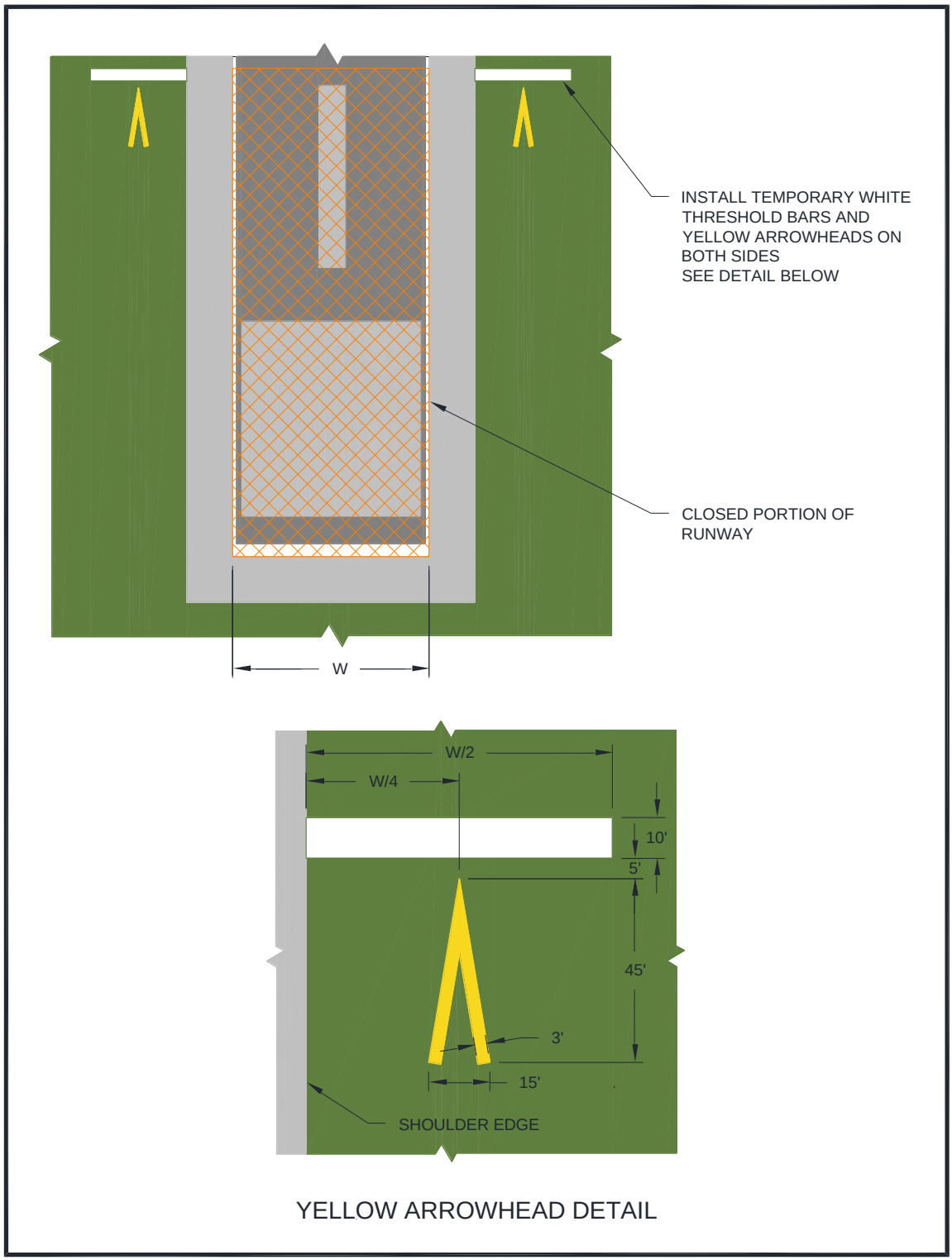
2.18.2.3 It may be necessary to remove or cover runway markings, including but not limited to, runway designation markings, threshold markings, centerline markings, edge stripes, touchdown zone markings and aiming point markings, depending on the length of construction and type of activity at the airport. When removing runway markings, apply the same treatment to areas between stripes or numbers, as the cleaned area will appear to pilots as a marking in the shape of the treated area.

2.18.2.4 If it is not possible to install threshold bars, chevrons, and arrows on the pavement, "temporary outboard white threshold bars and yellow arrowheads", see Figure 2-5, may be used. Locate them outside of the runway pavement surface on both sides of the runway. The dimensions must be as shown in Figure 2-5. If the markings are not discernible on grass or snow, apply a black background with appropriate material over the ground to ensure they are clearly visible.

2.18.2.5 The application rate of paint to mark a short-term temporary runway and taxiway markings may deviate from the standard (see Item P-620, "Runway and Taxiway Painting," in AC 150/5370-10), but the dimensions must meet the existing standards. When applying temporary markings at night, it is recommended that the fast curing, Type II paint be used to help offset the higher humidity and cooler temperatures often experienced at night. Diluting the paint will substantially increase cure time and is not recommended. Glass beads are not recommended for temporary markings. Striated markings may also be used for certain temporary markings. AC

150/5340-1, *Standards for Airport Markings*, has additional guidance on temporary markings.

Figure 2-5. Temporary Outboard White Threshold Bars and Yellow Arrowheads



2.18.3 Lighting and Visual NAVAIDs.

This paragraph refers to standard runway and taxiway lighting systems. See below for hazard lighting. Lighting installation must be in conformance with AC 150/5340-30, *Design and Installation Details for Airport Visual Aids,* and fixture design in conformance with AC 150/5345-50, *Specification for Portable Runway and Taxiway Lights.* When disconnecting runway and taxiway lighting fixtures, disconnect the associated isolation transformers. See AC 150/5340-26, *Maintenance of Airport Visual Aid Facilities*, for disconnect procedures and safety precautions. Alternately, 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 above ground temporary wiring in conduit to prevent electrocution and fire ignition sources. Maintain mandatory hold signs to operate normally in any situation where pilots or vehicle drivers could mistakenly be in that location. At towered airports certificated under Part 139, holding position signs are required to be illuminated on open taxiways crossing to closed or inactive runways. If the holding position sign is installed on the runway circuit for the closed runway, install a jumper to the taxiway circuit to provide power to the holding position sign for nighttime operations. Where it is not possible to maintain power to signs that would normally be operational, install barricades to exclude aircraft. Figure 2-1, Figure 2-2, Figure 2-3, and Figure 2-4 illustrate temporary changes to lighting and visual NAVAIDs.

2.18.3.1 **Permanently Closed Runways and Taxiways.**

For runways and taxiways that have been permanently closed, disconnect the lighting circuits.

2.18.3.2 **Temporarily Closed Runways and New Runways Not Yet Open to Air Traffic.**

If available, use a lighted X, both at night and during the day, placed at each end of the runway on or near the runway designation numbers facing the approach. (Note that the lighted X must be illuminated at all times that it is on a runway.) The use of a lighted X is required if night work requires runway lighting to be on. See AC 150/5345-55, *Specification for L-893, Lighted Visual Aid to Indicate Temporary Runway Closure.* 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. For runways that will be opened periodically, coordinate procedures with the FAA air traffic manager or, at airports without an ATCT, the airport operator. Activate stop bars if available. Figure 2-6 shows a lighted X by day. Figure 2-7 shows a lighted X at night.

Figure 2-6. Lighted X in Daytime

Figure 2-7. Lighted X at Night

2.18.3.3 **Partially Closed Runways and Displaced Thresholds.**

When a runway is partially closed, a portion of the pavement is unavailable for any aircraft operation, meaning taxiing and landing or taking off in either direction. A displaced threshold, by contrast, is put in place to ensure obstacle clearance by landing aircraft. The pavement prior to the displaced threshold is available for takeoff in the direction of the displacement, and for landing and takeoff in the opposite direction. Misunderstanding this difference and issuance of a subsequently inaccurate NOTAM can result in a hazardous situation. For both partially

closed runways and displaced thresholds, approach lighting systems at the affected end must be placed out of service.

2.18.3.3.1 Partially Closed Runways.

Disconnect edge and threshold lights on that part of the runway at and behind the threshold (that is, the portion of the runway that is closed). Alternately, cover the light fixtures in such a way as to prevent light leakage. See Figure 2-1.

2.18.3.3.2 Temporary Displaced Thresholds.

Edge lighting in the area of the displacement emits red light in the direction of approach and yellow light (white for visual runways) in the opposite direction. If the displacement is 700 feet or less, blank out centerline lights in the direction of approach or place the centerline lights out of service. If the displacement is over 700 feet, place the centerline lights out of service. See AC 150/5340-30 for details on lighting displaced thresholds. See Figure 2-2.

2.18.3.3.3 Temporary runway thresholds and runway ends must be lighted if the runway is lighted and it is the intended threshold for night landings or instrument meteorological conditions.

2.18.3.3.4 A temporary threshold on an unlighted runway may be marked by retroreflective, elevated markers in addition to markings noted in paragraph 2.18.2.1.3. Markers seen by aircraft on approach are green. Markers at the rollout end of the runway are red. At certificated airports, temporary elevated threshold markers must be mounted with a frangible fitting (see 14 CFR Part 139.309). At non-certificated airports, the temporary elevated threshold markings may either be mounted with a frangible fitting or be flexible. See AC 150/5345-39, *Specification for L-853, Runway and Taxiway Retroreflective Markers.*

2.18.3.3.5 Temporary threshold lights and runway end lights and related visual NAVAIDs are installed outboard of the edges of the full-strength pavement only when they cannot be installed on the pavement. They are installed with bases at grade level or as low as possible, but not more than 3 inch (7.6 cm) above ground. (The standard above ground height for airport lighting fixtures is 14 inches (35 cm)). When any portion of a base is above grade, place properly compacted fill around the base to minimize the rate of gradient change so aircraft can, in an emergency, cross at normal landing or takeoff speeds without incurring significant damage. See AC 150/5370-10.

2.18.3.3.6 Maintain threshold and edge lighting color and spacing standards as described in AC 150/5340-30. Battery powered, solar, or portable lights that meet the criteria in AC 150/5345-50 may be used. These systems are intended primarily for visual flight rules (VFR) aircraft operations but may

be used for instrument flight rules (IFR) aircraft operations, upon individual approval from the Flight Standards Division of the applicable FAA Regional Office.

2.18.3.3.7 When runway thresholds are temporarily displaced, reconfigure yellow lenses (caution zone), as necessary, and place the centerline lights out of service.

2.18.3.3.8 Relocate the Visual Glide Slope Indicator (VGSI), such as Visual Approach Slope Indicator (VASI) and Precision Approach Path Indicator (PAPI); other airport lights, such as Runway End Identifier Lights (REIL); and approach lights to identify the temporary threshold. Another option is to disable the VGSI or any equipment that would give misleading indications to pilots as to the new threshold location. Installation of temporary visual aids may be necessary to provide adequate guidance to pilots on approach to the affected runway. If the FAA owns and operates the VGSI, coordinate its installation or disabling with the local ATO/Technical Operations Office. Relocation of such visual aids will depend on the duration of the project and the benefits gained from the relocation, as this can result in great expense. See FAA JO 6850.2, *Visual Guidance Lighting Systems,* for installation criteria for FAA owned and operated NAVAIDs.

2.18.3.3.9 Issue a NOTAM to inform pilots of temporary lighting conditions.

2.18.3.4 **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 a way as to prevent light leakage.

2.18.4 Signs.

To the extent possible, signs must be in conformance with AC 150/5345-44, *Specification for Runway and Taxiway Signs*, and AC 150/5340-18, *Standard for Airport Sign Systems.*

2.18.4.1 **Existing Signs.**

Runway exit signs are to be covered for closed runway exits. Outbound destination signs are to be covered for closed runways. Any time a sign does not serve its normal function or would provide conflicting information, it must be covered or removed to prevent misdirecting pilots. Note that information signs identifying a crossing taxiway continue to perform their normal function even if the crossing taxiway is closed. For long term construction projects, consider relocating signs, especially runway distance remaining signs.

2.18.4.2 **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. Temporary signs must meet the standards for such signs in Engineering Brief 93, *Guidance for the Assembly and Installation of Temporary Orange Construction Signs.* Many criteria in AC 150/5345-44, *Specification for Runway and Taxiway Signs,* are referenced in the Engineering Brief. Permissible sign legends are:

1. CONSTRUCTION AHEAD,
2. CONSTRUCTION ON RAMP, and
3. RWY XX TAKEOFF RUN AVAILABLE XXX FT.

Phasing, supported by drawings and sign schedule, for the installation of orange construction signs must be included in the CSPP or SPCD.

2.18.4.2.1 Takeoff Run Available (TORA) signs.

Recommended: Where a runway has been shortened for takeoff, install orange TORA signs well before the hold lines, such as on a parallel taxiway prior to a turn to a runway hold position. See EB 93 for sign size and location.

2.18.4.2.2 Sign legends are shown in Figure F-1.

Note: See Figure E-1, Figure E-2, Figure E-3, Figure F-2, and Figure F-3 for examples of orange construction sign locations.

2.19 **Marking and Signs for Access Routes.**

The CSPP should indicate that 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. Signs adjacent to areas used by aircraft must comply with the frangibility requirements of AC 150/5220-23, *Frangible Connections,* which may require modification to size and height guidance in the MUTCD.

2.20 Hazard Marking, Lighting and Signing.

2.20.1 Hazard marking, lighting, and signing prevent pilots from entering areas closed to aircraft, and prevent construction personnel from entering areas open to aircraft. The CSPP must specify prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles. Hazard marking and lighting must also be specified to identify open manholes, small areas under repair, stockpiled material, waste areas, and areas subject to jet blast. Also consider less obvious construction-related hazards and include markings to identify FAA, airport, and National Weather Service facilities cables and power lines; instrument landing system (ILS) critical areas; airport surfaces, such as RSA, OFA, and OFZ; and other sensitive areas to make it easier for contractor personnel to avoid these areas.

2.20.2 Equipment.

2.20.2.1 **Barricades.**

Low profile barricades, including traffic cones, (weighted or sturdily attached to the surface) are acceptable methods used to identify and define the limits of construction and hazardous areas on airports. Careful consideration must be given to selecting equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subjected to typical winds, prop wash and jet blast. The spacing of barricades must be such that a breach is physically prevented barring a deliberate act. For example, if barricades are intended to exclude aircraft, gaps between barricades must be smaller than the wingspan of the smallest aircraft to be excluded; if barricades are intended to exclude vehicles, gaps between barricades must be smaller than the width of the excluded vehicles, generally 4 feet (1.2 meters). Provision must be made for ARFF access if necessary. If barricades are intended to exclude pedestrians, they must be continuously linked. Continuous linking may be accomplished through the use of ropes, securely attached to prevent FOD.

2.20.2.2 **Lights.**

Lights must be red, either steady burning or flashing, and must meet the luminance requirements of the State Highway Department. Batteries powering lights will last longer if lights flash. Lights must be mounted on barricades and spaced at no more than 10 feet (3 meters). Lights must be operated between sunset and sunrise and during periods of low visibility whenever the airport is open for operations. They may be operated by photocell, but this may require that the contractor turn them on manually during periods of low visibility during daytime hours.

2.20.2.3 **Supplement Barricades with Signs (for example) As Necessary.**

Examples are “No Entry” and “No Vehicles.” Be aware of the increased effects of wind and jet blast on barricades with attached signs.

2.20.2.4 **Air Operations Area – General.**

Barricades are not permitted in any active safety area or on the runway side of a runway hold line. Within a runway or taxiway object free area, and on aprons, use orange traffic cones, flashing or steady burning red lights as noted above, highly reflective collapsible barricades marked with diagonal, alternating orange and white stripes; and/or signs to separate all construction/maintenance areas from the movement area. Barricades may be supplemented with alternating orange and white flags at least 20 by 20 inch (50 by 50 cm) square and securely fastened to eliminate FOD. All barricades adjacent to any open runway or taxiway / taxilane safety area, or apron must be as low as possible to the ground, and no more than 18 inches high, exclusive of supplementary lights and flags. Barricades must be of low mass; easily collapsible upon contact with an aircraft or any of its components; and weighted or sturdily attached to the surface to prevent displacement from prop wash, jet blast, wing vortex, and other surface wind currents. If affixed to the surface, they must be frangible at grade level or as low as possible, but not to exceed 3 inch (7.6 cm) above the ground. Figure 2-8 and Figure 2-9 show sample barricades with proper coloring and flags.

Figure 2-8. Interlocking Barricades

Figure 2-9. Low Profile Barricades

2.20.2.5 **Air Operations Area – Runway/Taxiway Intersections.**

Use highly reflective barricades with lights to close taxiways leading to closed runways. Evaluate all operating factors when determining how to mark temporary closures that can last from 10 to 15 minutes to a much longer period of time. However, even for closures of relatively short duration, close all taxiway/runway intersections with barricades. The use of traffic cones is appropriate for short duration closures.

2.20.2.6 **Air Operations Area – Other.**

Beyond runway and taxiway object free areas and aprons, barricades intended for construction vehicles and personnel may be many different shapes and made from various materials, including railroad ties, sawhorses, jersey barriers, or barrels.

2.20.2.7 **Maintenance.**

The construction specifications must include a provision requiring the contractor to have a person on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The contractor must file the contact person's information with the airport operator. Lighting should be checked for proper operation at least once per day, preferably at dusk.

2.21 **Work Zone Lighting for Nighttime Construction.**

Lighting equipment must adequately illuminate the work area if the construction is to be performed during nighttime hours. Refer to AC 150/5370-10 for minimum illumination levels for nighttime paving projects. Additionally, it is recommended that all support equipment, except haul trucks, be equipped with artificial illumination to safely

illuminate the area immediately surrounding their work areas. The lights should be positioned to provide the most natural color illumination and contrast with a minimum of shadows. The spacing must be determined by trial. Light towers should be positioned and adjusted to aim away from ATCT cabs and active runways to prevent blinding effects. Shielding may be necessary. Light towers should be removed from the construction site when the area is reopened to aircraft operations. Construction lighting units should be identified and generally located on the construction phasing plans in relationship to the ATCT and active runways and taxiways.

2.22 **Protection of Runway and Taxiway Safety Areas.**

Runway and taxiway safety areas, OFZs, OFAs, and approach surfaces are described in AC 150/5300-13. Protection of these areas includes limitations on the location and height of equipment and stockpiled material. An FAA airspace study may be required. Coordinate with the appropriate FAA Airports Regional or District Office if there is any doubt as to requirements or dimensions (see paragraph 2.13.5) as soon as the location and height of materials or equipment are known. The CSPP should include drawings showing all safety areas, object free areas, obstacle free zones and approach departure surfaces affected by construction.

2.22.1 Runway Safety Area (RSA).

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 (see AC 150/5300-13). Construction activities within the existing RSA are subject to the following conditions:

2.22.1.1 No construction may occur within the existing RSA while the runway is open for aircraft operations. The RSA dimensions may be temporarily adjusted if the runway is restricted to aircraft operations requiring an RSA that is equal to the RSA width and length beyond the runway ends available during construction. (See AC 150/5300-13). The temporary use of declared distances and/or partial runway closures may provide the necessary RSA under certain circumstances. Coordinate with the appropriate FAA Airports Regional or District Office to have declared distances information published, and appropriate NOTAMs issued. See AC 150/5300-13 for guidance on the use of declared distances.

2.22.1.2 The airport operator must coordinate the adjustment of RSA dimensions as permitted above with the appropriate FAA Airports Regional or District Office and the local FAA air traffic manager and issue a NOTAM.

2.22.1.3 The CSPP and SPCD must provide procedures for ensuring adequate distance for protection from blasting operations, if required by operational considerations.

2.22.1.4 **Excavations.**

2.22.1.4.1 Open trenches or excavations are not permitted within the RSA while the runway is open. Backfill trenches before the runway is opened. If backfilling excavations before the runway must be opened is impracticable, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the runway across the trench without damage to the aircraft.

2.22.1.4.2 Construction contractors must prominently mark open trenches and excavations at the construction 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.

2.22.1.5 **Erosion Control.**

Soil erosion must be controlled to maintain RSA standards, that is, the RSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and fire fighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

2.22.2 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. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval.

2.22.3 Taxiway Safety Area (TSA).

2.22.3.1 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. (See AC 150/5300-13.) Since the width of the TSA is equal to the wingspan of the design aircraft, no construction may occur within the TSA while the taxiway is open for aircraft operations. The TSA dimensions may be temporarily adjusted if the taxiway is restricted to aircraft operations requiring a TSA that is equal to the TSA width available during construction. Give special consideration to TSA dimensions at taxiway turns and intersections. (see AC 150/5300-13).

2.22.3.2 The airport operator must coordinate the adjustment of the TSA width as permitted above with the appropriate FAA Airports Regional or District Office and the FAA air traffic manager and issue a NOTAM.

2.22.3.3 The CSPP and SPCD must provide procedures for ensuring adequate distance for protection from blasting operations.

2.22.3.4 **Excavations.**

1. Curves. Open trenches or excavations are not permitted within the TSA while the taxiway is open. Trenches should be backfilled before the taxiway is opened. If backfilling excavations before the taxiway must be opened is impracticable, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the taxiway across the trench without damage to the aircraft.
2. Straight Sections. Open trenches or excavations are not permitted within the TSA while the taxiway is open for unrestricted aircraft operations. Trenches should be backfilled before the taxiway is opened. If backfilling excavations before the taxiway must be opened is impracticable, cover the excavations to allow the safe passage of ARFF equipment and of the heaviest aircraft operating on the taxiway across the trench without causing damage to the equipment or aircraft. In rare circumstances where the section of taxiway is indispensable for aircraft movement, open trenches or excavations may be permitted in the TSA while the taxiway is open to aircraft operations, subject to the following restrictions:
   a. Taxiing speed is limited to 10 mph.
   b. Appropriate NOTAMs are issued.
   c. Marking and lighting meeting the provisions of paragraphs 2.18 and 2.20 are implemented.
   d. Low mass, low-profile lighted barricades are installed.
   e. Appropriate temporary orange construction signs are installed.
3. Construction contractors must prominently mark open trenches and excavations at the construction 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.

2.22.3.5 **Erosion control.**

Soil erosion must be controlled to maintain TSA standards, that is, the 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 snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

2.22.4 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 taxiway object free area while the taxiway is open for aircraft operations.

2.22.4.1 The taxiway object free area dimensions may be temporarily adjusted if the taxiway is restricted to aircraft operations requiring a taxiway object free area that is equal to the taxiway object free area width available. Give special consideration to TOFA dimensions at taxiway turns and intersections.

2.22.4.2 Offset taxiway centerline and edge pavement markings (do not use glass beads) may be used as a temporary measure to provide the required taxiway object free area. Where offset taxiway pavement markings are provided, centerline lighting, centerline reflectors, or taxiway edge reflectors are required. Existing lighting that does not coincide with the temporary markings must be taken out of service.

2.22.4.3 Construction activity, including open excavations, may be accomplished without adjusting the width of the taxiway object free area, subject to the following restrictions:

2.22.4.3.1 Taxiing speed is limited to 10 mph.

2.22.4.3.2 NOTAMs issued advising taxiing pilots of hazard and recommending reduced taxiing speeds on the taxiway.

2.22.4.3.3 Marking and lighting meeting the provisions of paragraphs 2.18 and 2.20 are implemented.

2.22.4.3.4 If desired, appropriate orange construction signs are installed. See paragraph 2.18.4.2 and Appendix F.

2.22.4.3.5 Five-foot clearance is maintained between equipment and materials and any part of an aircraft (includes wingtip overhang). If such clearance can only be maintained if an aircraft does not have full use of the entire taxiway width (with its main landing gear at the edge of the usable pavement), then it will be necessary to move personnel and equipment for the passage of that aircraft.

2.22.4.3.6 Flaggers furnished by the contractor must be used to direct and control construction equipment and personnel to a pre-established setback distance for safe passage of aircraft, and airline and/or airport personnel. Flaggers must also be used to direct taxiing aircraft. Due to liability issues, the airport operator should require airlines to provide flaggers for directing taxiing aircraft.

2.22.5 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. Coordinate with the FAA through the appropriate FAA Airports Regional or District Office.

2.22.6 Runway Approach/Departure Areas and Clearways.

All personnel, materials, and/or equipment must remain clear of the applicable threshold siting surfaces, as defined in AC 150/5300-13. Objects that do not penetrate these surfaces may still be obstructions to air navigation and may affect standard instrument approach procedures. Coordinate with the FAA through the appropriate FAA Airports Regional or District Office.

2.22.6.1 Construction activity in a runway approach/departure area may result in the need to partially close a runway or displace the existing runway threshold. Partial runway closure, displacement of the runway threshold, as well as closure of the complete runway and other portions of the movement area also require coordination through the airport operator with the appropriate FAA air traffic manager (FSS if non-towered) and ATO/Technical Operations (for affected NAVAIDS) and airport users.

2.22.6.2 **Caution About Partial Runway Closures.**

When filing a NOTAM for a partial runway closure, clearly state that the portion of pavement located prior to the threshold is not available for landing and departing traffic. In this case, the threshold has been moved for both landing and takeoff purposes (this is different than a displaced threshold). There may be situations where the portion of closed runway is available for taxiing only. If so, the NOTAM must reflect this condition).

2.22.6.3 **Caution About Displaced Thresholds.**

Implementation of a displaced threshold affects runway length available for aircraft landing over the displacement. Depending on the reason for the displacement (to provide obstruction clearance or RSA), such a displacement may also require an adjustment in the landing distance available and accelerate-stop distance available in the opposite direction. If project scope includes personnel, equipment, excavation, or other work within the existing RSA of any usable runway end, do not implement a displaced threshold unless arrivals and departures toward the construction activity are prohibited. Instead, implement a partial closure.

2.23 **Other Limitations on Construction.**

The CSPP must specify any other limitations on construction, including but not limited to:

2.23.1 Prohibitions.

2.23.1.1 No use of tall equipment (cranes, concrete pumps, and so on) unless a 7460-1 determination letter is issued for such equipment.

2.23.1.2 No use of open flame welding or torches unless fire safety precautions are provided and the airport operator has approved their use.

2.23.1.3 No use of electrical blasting caps on or within 1,000 feet (300 meters) of the airport property. See AC 150/5370-10.

2.23.2 Restrictions.

2.23.2.1 Construction suspension required during specific airport operations.

2.23.2.2 Areas that cannot be worked on simultaneously.

2.23.2.3 Day or night construction restrictions.

2.23.2.4 Seasonal construction restrictions.

2.23.2.5 Temporary signs not approved by the airport operator.

2.23.2.6 Grades changes that could result in unplanned effects on NAVAIDs.

CHAPTER 3. GUIDELINES FOR WRITING A CSPP

3.1 General Requirements.

The CSPP is a standalone document written to correspond with the subjects outlined in paragraph 2.4. The CSPP is organized by numbered sections corresponding to each subject listed in paragraph 2.4, and described in detail in paragraphs 2.5 - 2.23. Each section number and title in the CSPP matches the corresponding subject outlined in paragraph 2.4 (for example, 1. Coordination, 2. Phasing, 3. Areas and Operations Affected by the Construction Activity, and so on). With the exception of the project scope of work outlined in Section 2. Phasing, only subjects specific to operational safety during construction should be addressed.

3.2 Applicability of Subjects.

Each section should, to the extent practical, focus on the specific subject. Where an overlapping requirement spans several sections, the requirement should be explained in detail in the most applicable section. A reference to that section should be included in all other sections where the requirement may apply. For example, the requirement to protect existing underground FAA ILS cables during trenching operations could be considered FAA ATO coordination (Coordination, paragraph 2.5.3), an area and operation affected by the construction activity (Areas and Operations Affected by the Construction Activity, paragraph 2.7.1.4), a protection of a NAVAID (Protection of Navigational Aids (NAVAIDs), paragraph 2.8), or a notification to the FAA of construction activities (Notification of Construction Activities, paragraph 2.13.5.3.2). However, it is more specifically an underground utility requirement (Underground Utilities, paragraph 2.15). The procedure for protecting underground ILS cables during trenching operations should therefore be described in 2.4.2.11: "The contractor must coordinate with the local FAA System Support Center (SSC) to mark existing ILS cable routes along Runway 17-35. The ILS cables will be located by hand digging whenever the trenching operation moves within 10 feet of the cable markings." All other applicable sections should include a reference to 2.4.2.11: "ILS cables shall be identified and protected as described in 2.4.2.11" or "See 2.4.2.11 for ILS cable identification and protection requirements." Thus, the CSPP should be considered as a whole, with no need to duplicate responses to related issues.

3.3 Graphical Representations.

Construction safety drawings should be included in the CSPP as attachments. When other graphical representations will aid in supporting written statements, the drawings, diagrams, and/or photographs should also be attached to the CSPP. References should be made in the CSPP to each graphical attachment and may be made in multiple sections.

3.4 **Reference Documents.**

The CSPP must not incorporate a document by reference unless reproduction of the material in that document is prohibited. In that case, either copies of or a source for the referenced document must be provided to the contractor. Where this AC recommends references (e.g. as in paragraph 3.9) the intent is to include a reference to the corresponding section in the CSPP, not to this Advisory Circular.

3.5 **Restrictions.**

The CSPP should not be considered as a project design review document. The CSPP should also avoid mention of permanent ("as-built") features such as pavements, markings, signs, and lighting, except when such features are intended to aid in maintaining operational safety during the construction.

3.6 **Coordination.**

Include in this section a detailed description of conferences and meetings to be held both before and during the project. Include appropriate information from AC 150/5370-12. Discuss coordination procedures and schedules for each required FAA ATO Technical Operations shutdown and restart and all required flight inspections.

3.7 **Phasing.**

Include in this section a detailed scope of work description for the project as a whole and each phase of work covered by the CSPP. This includes all locations and durations of the work proposed. Attach drawings to graphically support the written scope of work. Detail in this section the sequenced phases of the proposed construction. Include a reference to paragraph 3.8, as appropriate.

3.8 **Areas and Operations Affected by Construction.**

Focus in this section on identifying the areas and operations affected by the construction. Describe corresponding mitigation that is not covered in detail elsewhere in the CSPP. Include references to paragraphs below as appropriate. Attach drawings as necessary to graphically describe affected areas and mechanisms proposed. See Appendix F for sample operational effects tables and figures.

3.9 **NAVAID Protection.**

List in this section all NAVAID facilities that will be affected by the construction. Identify NAVAID facilities that will be placed out of service at any time prior to or during construction activities. Identify individuals responsible for coordinating each shutdown and when each facility will be out of service. Include a reference to paragraph 3.6 for FAA ATO NAVAID shutdown, restart, and flight inspection coordination. Outline in detail procedures to protect each NAVAID facility remaining in service from interference by construction activities. Include a reference to paragraph 3.14 for the

issuance of NOTAMs as required. Include a reference to paragraph 3.16 for the protection of underground cables and piping serving NAVAIDs. If temporary visual aids are proposed to replace or supplement existing facilities, include a reference to paragraph 3.19. Attach drawings to graphically indicate the affected NAVAIDS and the corresponding critical areas.

3.10 **Contractor Access.**

This will necessarily be the most extensive section of the CSPP. Provide sufficient detail so that a contractor not experienced in working on airports will understand the unique restrictions such work will require. Due to this extent, it should be broken down into subsections as described below:

3.10.1 Location of Stockpiled Construction Materials.

Describe in this section specific locations for stockpiling material. Note any height restrictions on stockpiles. Include a reference to paragraph 3.21 for hazard marking and lighting devices used to identify stockpiles. Include a reference to paragraph 3.11 for provisions to prevent stockpile material from becoming wildlife attractants. Include a reference to paragraph 3.12 for provisions to prevent stockpile material from becoming FOD. Attach drawings to graphically indicate the stockpile locations.

3.10.2 Vehicle and Pedestrian Operations.

While there are many items to be addressed in this major subsection of the CSPP, all are concerned with one main issue: keeping people and vehicles from areas of the airport where they don't belong. This includes preventing unauthorized entry to the AOA and preventing the improper movement of pedestrians or vehicles on the airport. In this section, focus on mechanisms to prevent construction vehicles and workers traveling to and from the worksite from unauthorized entry into movement areas. Specify locations of parking for both employee vehicles and construction equipment, and routes for access and haul roads. In most cases, this will best be accomplished by attaching a drawing. Quote from AC 150/5210-5 specific requirements for contractor vehicles rather than referring to the AC as a whole, and include special requirements for identifying HAZMAT vehicles. Quote from, rather than incorporate by reference, AC 150/5210-20 as appropriate to address the airport's rules for ground vehicle operations, including its training program. Discuss the airport's recordkeeping system listing authorized vehicle operators.

3.10.3 Two-Way Radio Communications.

Include a special section to identify all individuals who are required to maintain communications with Air Traffic (AT) at airports with active towers, or monitor CTAF at airports without or with closed ATCT. Include training requirements for all individuals required to communicate with AT. Individuals required to monitor AT frequencies should also be identified. If construction employees are also required to communicate by radio with Airport Operations, this procedure should be described in detail. Usage of vehicle mounted radios and/or portable radios should be addressed. Communication procedures for the event of disabled radio communication (that is, light

signals, telephone numbers, others) must be included. All radio frequencies should by identified (Tower, Ground Control, CTAF, UNICOM, ATIS, and so on).

3.10.4 Airport Security.

Address security as it applies to vehicle and pedestrian operations. Discuss TSA requirements, security badging requirements, perimeter fence integrity, gate security, and other needs. Attach drawings to graphically indicate secured and/or Security Identification Display Areas (SIDA), perimeter fencing, and available access points.

3.11 **Wildlife Management.**

Discuss in this section wildlife management procedures. Describe the maintenance of existing wildlife mitigation devices, such as perimeter fences, and procedures to limit wildlife attractants. Include procedures to notify Airport Operations of wildlife encounters. Include a reference to paragraph 3.10 for security (wildlife) fence integrity maintenance as required.

3.12 **FOD Management.**

In this section, discuss methods to control and monitor FOD: worksite housekeeping, ground vehicle tire inspections, runway sweeps, and so on. Include a reference to paragraph 3.15 for inspection requirements as required.

3.13 **HAZMAT Management.**

Describe in this section HAZMAT management procedures: fuel deliveries, spill recovery procedures, Safety Data Sheet (SDS), Material Safety Data Sheet (MSDS) or Product Safety Data Sheet (PSDS) availability, and other considerations. Any specific airport HAZMAT restrictions should also be identified. Include a reference to paragraph 3.10 for HAZMAT vehicle identification requirements. Quote from, rather than incorporate by reference, AC 150/5320-15.

3.14 **Notification of Construction Activities.**

List in this section the names and telephone numbers of points of contact for all parties affected by the construction project. We recommend a single list that includes all telephone numbers required under this section. Include emergency notification procedures for all representatives of all parties potentially impacted by the construction. Identify individual representatives – and at least one alternate – for each party. List both on-duty and off-duty contact information for each individual, including individuals responsible for emergency maintenance of airport construction hazard lighting and barricades. Describe procedures to coordinate immediate response to events that might adversely affect the operational safety of the airport (such as interrupted NAVAID service). Explain requirements for and the procedures for the issuance of Notices to Airmen (NOTAMs), notification to FAA required by 14 CFR Part 77 and Part 157 and in the event of affected NAVAIDs. For NOTAMs, identify an individual, and at least one alternate, responsible for issuing and cancelling each specific type of Notice to

Airmen (NOTAM) required. Detail notification methods for police, fire fighting, and medical emergencies. This may include 911, but should also include direct phone numbers of local police departments and nearby hospitals. Identify the E911 address of the airport and the emergency access route via haul roads to the construction site. Require the contractor to have this information available to all workers. The local Poison Control number should be listed. Procedures regarding notification of Airport Operations and/or the ARFF Department of such emergencies should be identified, as applicable. If airport radio communications are identified as a means of emergency notification, include a reference to paragraph 3.10. Differentiate between emergency and nonemergency notification of ARFF personnel, the latter including activities that affect ARFF water supplies and access roads. Identify the primary ARFF contact person and at least one alternate. If notification is to be made through Airport Operations, then detail this procedure. Include a method of confirmation from the ARFF department.

3.15 **Inspection Requirements.**

Describe in this section inspection requirements to ensure airfield safety compliance. Include a requirement for routine inspections by the resident engineer (RE) or other airport operator's representative and the construction contractors. If the engineering consultants and/or contractors have a Safety Officer who will conduct such inspections, identify this individual. Describe procedures for special inspections, such as those required to reopen areas for aircraft operations. Part 139 requires daily airfield inspections at certificated airports, but these may need to be more frequent when construction is in progress. Discuss the role of such inspections on areas under construction. Include a requirement to immediately remedy any deficiencies, whether caused by negligence, oversight, or project scope change.

3.16 **Underground Utilities.**

Explain how existing underground utilities will be located and protected. Identify each utility owner and include contact information for each company/agency in the master list. Address emergency response procedures for damaged or disrupted utilities. Include a reference to paragraph 3.14 for notification of utility owners of accidental utility disruption as required.

3.17 **Penalties.**

Describe in this section specific penalties imposed for noncompliance with airport rules and regulations, including the CSPP: SIDA violations, VPD, and others.

3.18 **Special Conditions.**

Identify any special conditions that may trigger specific safety mitigation actions outlined in this CSPP: low visibility operations, snow removal, aircraft in distress, aircraft accident, security breach, VPD, and other activities requiring construction suspension/resumption. Include a reference to paragraph 3.10 for compliance with airport safety and security measures and for radio communications as required. Include

a reference to paragraph 3.14 for emergency notification of all involved parties, including police/security, ARFF, and medical services.

3.19 **Runway and Taxiway Visual Aids.**

Include marking, lighting, signs, and visual NAVAIDS. Detail temporary runway and taxiway marking, lighting, signs, and visual NAVAIDs required for the construction. Discuss existing marking, lighting, signs, and visual NAVAIDs that are temporarily, altered, obliterated, or shut down. Consider non-federal facilities and address requirements for reimbursable agreements necessary for alteration of FAA facilities and for necessary flight checks. Identify temporary TORA signs or runway distance remaining signs if appropriate. Identify required temporary visual NAVAIDs such as REIL or PAPI. Quote from, rather than incorporate by reference, AC 150/5340-1, *Standards for Airport Markings;* AC 150/5340-18, *Standards for Airport Sign Systems;* and AC 150/5340-30, as required. Attach drawings to graphically indicate proposed marking, lighting, signs, and visual NAVAIDs.

3.20 **Marking and Signs for Access Routes.**

Detail plans for marking and signs for vehicle access routes. To the extent possible, signs should be in conformance with the Federal Highway Administration MUTCD and/or State highway specifications, not hand lettered. Detail any modifications to the guidance in the MUTCD necessary to meet frangibility/height requirements.

3.21 **Hazard Marking and Lighting.**

Specify all marking and lighting equipment, including when and where each type of device is to be used. Specify maximum gaps between barricades and the maximum spacing of hazard lighting. Identify one individual and at least one alternate responsible for maintenance of hazard marking and lighting equipment in the master telephone list. Include a reference to paragraph 3.14. Attach drawings to graphically indicate the placement of hazard marking and lighting equipment.

3.22 **Work Zone Lighting for Nighttime Construction.**

If work is to be conducted at night, specify all lighting equipment, including when and where each type of device is to be used. Indicate the direction lights are to be aimed and any directions that aiming of lights is prohibited. Specify any shielding necessary in instances where aiming is not sufficient to prevent interference with air traffic control and aircraft operations. Attach drawings to graphically indicate the placement and aiming of lighting equipment. Where the plan only indicates directions that aiming of lights is prohibited, the placement and positioning of portable lights must be proposed by the Contractor and approved by the airport operator’s representative each time lights are relocated or repositioned.

3.23 **Protection of Runway and Taxiway Safety Areas.**

This section should focus exclusively on procedures for protecting all safety areas, including those altered by the construction: methods of demarcation, limit of access, movement within safety areas, stockpiling and trenching restrictions, and so on. Reference AC 150/5300-13, as required. Include a reference to paragraph 3.10 for procedures regarding vehicle and personnel movement within safety areas. Include a reference to paragraph 3.10 for material stockpile restrictions as required. Detail requirements for trenching, excavations, and backfill. Include a reference to paragraph 3.21 for hazard marking and lighting devices used to identify open excavations as required. If runway and taxiway closures are proposed to protect safety areas, or if temporary displaced thresholds and/or revised declared distances are used to provide the required Runway Safety Area, include a reference to paragraphs 3.14 and 3.19. Detail procedures for protecting the runway OFZ, runway OFA, taxiway OFA and runway approach surfaces including those altered by the construction: methods of demarcation, limit of cranes, storage of equipment, and so on. Quote from, rather than incorporate by reference, AC 150/5300-13, as required. Include a reference to paragraph 3.24 for height (i.e., crane) restrictions as required. One way to address the height of equipment that will move during the project is to establish a three-dimensional "box" within which equipment will be confined that can be studied as a single object. Attach drawings to graphically indicate the safety area, OFZ, and OFA boundaries.

3.24 **Other Limitations on Construction.**

This section should describe what limitations must be applied to each area of work and when each limitation will be applied: limitations due to airport operations, height (i.e., crane) restrictions, areas which cannot be worked at simultaneously, day/night work restrictions, winter construction, and other limitations. Include a reference to paragraph 3.7 for project phasing requirements based on construction limitations as required.

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APPENDIX A. RELATED READING MATERIAL

Obtain the latest version of the following free publications from the FAA on its Web site at http://www.faa.gov/airports/.

Table A-1. FAA Publications

Number	Title and Description
AC 150/5200-28	*Notices to Airmen (NOTAMs) for Airport Operators* Guidance for using the NOTAM System in airport reporting.
AC 150/5200-30	*Airport Field Condition Assessments and Winter Operations Safety* Guidance for airport owners/operators on the development of an acceptable airport snow and ice control program and on appropriate field condition reporting procedures.
AC 150/5200-33	*Hazardous Wildlife Attractants On or Near Airports* Guidance on locating certain land uses that might attract hazardous wildlife to public-use airports.
AC 150/5210-5	*Painting, Marking, and Lighting of Vehicles Used on an Airport* Guidance, specifications, and standards for painting, marking, and lighting vehicles operating in the airport air operations areas.
AC 150/5210-20	*Ground Vehicle Operations to include Taxiing or Towing an Aircraft on Airports* Guidance to airport operators on developing ground vehicle operation training programs.
AC 150/5300-13	*Airport Design* FAA standards and recommendations for airport design. Establishes approach visibility minimums as an airport design parameter, and contains the Object Free area and the obstacle free-zone criteria.
AC 150/5210-24	*Airport Foreign Object Debris (FOD) Management* Guidance for developing and managing an airport foreign object debris (FOD) program

Number	Title and Description
AC 150/5320-15	*Management of Airport Industrial Waste* Basic information on the characteristics, management, and regulations of industrial wastes generated at airports. Guidance for developing a Storm Water Pollution Prevention Plan (SWPPP) that applies best management practices to eliminate, prevent, or reduce pollutants in storm water runoff with particular airport industrial activities.
AC 150/5340-1	*Standards for Airport Markings* FAA standards for the siting and installation of signs on airport runways and taxiways.
AC 150/5340-18	*Standards for Airport Sign Systems* FAA standards for the siting and installation of signs on airport runways and taxiways.
AC 150/5345-28	*Precision Approach Path Indicator (PAPI) Systems* FAA standards for PAPI systems, which provide pilots with visual glide slope guidance during approach for landing.
AC 150/5340-30	*Design and Installation Details for Airport Visual Aids* Guidance and recommendations on the installation of airport visual aids.
AC 150/5345-39	*Specification for L-853, Runway and Taxiway Retroreflective Markers*
AC 150/5345-44	*Specification for Runway and Taxiway Signs* FAA specifications for unlighted and lighted signs for taxiways and runways.
AC 150/5345-53	*Airport Lighting Equipment Certification Program* Details on the Airport Lighting Equipment Certification Program (ALECP).
AC 150/5345-50	*Specification for Portable Runway and Taxiway Lights* FAA standards for portable runway and taxiway lights and runway end identifier lights for temporary use to permit continued aircraft operations while all or part of a runway lighting system is inoperative.
AC 150/5345-55	*Specification for L-893, Lighted Visual Aid to Indicate Temporary Runway Closure*

Number	Title and Description
AC 150/5370-10	*Standards for Specifying Construction of Airports* Standards for construction of airports, including earthwork, drainage, paving, turfing, lighting, and incidental construction.
AC 150/5370-12	*Quality Management for Federally Funded Airport Construction Projects*
EB 93	*Guidance for the Assembly and Installation of Temporary Orange Construction Signs*
FAA Order 5200.11	FAA Airports (ARP) Safety Management System (SMS) Basics for implementing SMS within ARP. Includes roles and responsibilities of ARP management and staff as well as other FAA lines of business that contribute to the ARP SMS.
FAA Certalert 98-05	*Grasses Attractive to Hazardous Wildlife* Guidance on grass management and seed selection.
FAA Form 7460-1	Notice of Proposed Construction or Alteration
FAA Form 7480-1	Notice of Landing Area Proposal
FAA Form 6000.26	National NAS Strategic Interruption Service Level Agreement, Strategic Events Coordination, Airport Sponsor Form

Obtain the latest version of the following free publications from the Electronic Code of Federal Regulations at http://www.ecfr.gov/.

Table A-2. Code of Federal Regulation

Number	Title
Title 14 CFR Part 77	Safe, Efficient Use and Preservation of the Navigable Airspace
Title 14 CFR Part 139	Certification of Airports
Title 49 CFR Part 1542	Airport Security

Obtain the latest version of the Manual on Uniform Traffic Control Devices from the Federal Highway Administration at http://mutcd.fhwa.dot.gov/.

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APPENDIX B. TERMS AND ACRONYMS

Table B-1. Terms and Acronyms

Term	Definition
Form 7460-1	Notice of Proposed Construction or Alteration. For on-airport projects, the form submitted to the FAA regional or airports division office as formal written notification of any kind of construction or alteration of objects that affect navigable airspace, as defined in 14 CFR Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*. (See guidance available on the FAA web site at https://oeaaa.faa.gov.) The form may be downloaded at http://www.faa.gov/airports/resources/forms/, or filed electronically at: https://oeaaa.faa.gov.
Form 7480-1	Notice of Landing Area Proposal. Form submitted to the FAA Airports Regional Division Office or Airports District Office as formal written notification whenever a project without an airport layout plan on file with the FAA involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport The form may be downloaded at http://www.faa.gov/airports/resources/forms/.
Form 6000-26	Airport Sponsor Strategic Event Submission Form
AC	Advisory Circular
ACSI	Airport Certification Safety Inspector
ADG	Airplane Design Group
AIP	Airport Improvement Program
ALECP	Airport Lighting Equipment Certification Program
ANG	Air National Guard
AOA	Air Operations Area, as defined in 14 CFR Part 107. Means a portion of an airport, specified in the airport security program, in which security measures are carried out. This area includes aircraft movement areas, aircraft parking areas, loading ramps, and safety areas, and any adjacent areas (such as general aviation areas) that are not separated by adequate security systems, measures, or procedures. This area does not include the secured area of the airport terminal building.
ARFF	Aircraft Rescue and Fire Fighting
ARP	FAA Office of Airports
ASDA	Accelerate-Stop Distance Available
AT	Air Traffic
ATCT	Airport Traffic Control Tower
ATIS	Automatic Terminal Information Service
ATO	Air Traffic Organization
Certificated Airport	An airport that has been issued an Airport Operating Certificate by the FAA under

Term	Definition
	the authority of 14 CFR Part 139, *Certification of Airports*.
CFR	Code of Federal Regulations
Construction	The presence of construction-related personnel, equipment, and materials in any location that could infringe upon the movement of aircraft.
CSPP	Construction Safety and Phasing Plan. The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.
CTAF	Common Traffic Advisory Frequency
Displaced Threshold	A threshold that is located at a point on the runway other than the designated beginning of the runway. The portion of pavement behind a displaced threshold is available for takeoffs in either direction or landing from the opposite direction.
DOT	Department of Transportation
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FOD	Foreign Object Debris/Damage
FSS	Flight Service Station
GA	General Aviation
HAZMAT	Hazardous Materials
HMA	Hot Mix Asphalt
IAP	Instrument Approach Procedures
IFR	Instrument Flight Rules
ILS	Instrument Landing System
LDA	Landing Distance Available
LOC	Localizer antenna array
Movement Area	The runways, taxiways, and other areas of an airport that are used for taxiing or hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading aprons and aircraft parking areas (reference 14 CFR Part 139).
MSDS	Material Safety Data Sheet
MUTCD	Manual on Uniform Traffic Control Devices
NAVAID	Navigation Aid
NAVAID Critical Area	An area of defined shape and size associated with a NAVAID that must remain clear and graded to avoid interference with the electronic signal.
Non-Movement Area	The area inside the airport security fence exclusive of the Movement Area. It is important to note that the non-movement area includes pavement traversed by aircraft.

Term	Definition
NOTAM	Notices to Airmen
Obstruction	Any object/obstacle exceeding the obstruction standards specified by 14 CFR Part 77, subpart C.
OCC	Operations Control Center
OE / AAA	Obstruction Evaluation / Airport Airspace Analysis
OFA	Object Free Area. An area on the ground centered on the runway, taxiway, or taxi lane centerline provided to enhance safety of aircraft operations by having the area free of objects except for those objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes. (See AC 150/5300-13 for additional guidance on OFA standards and wingtip clearance criteria.)
OFZ	Obstacle Free Zone. The airspace below 150 ft (45 m) above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway and for missed approaches. The OFZ is subdivided as follows: Runway OFZ, Inner Approach OFZ, Inner Transitional OFZ, and Precision OFZ. Refer to AC 150/5300-13 for guidance on OFZ.
OSHA	Occupational Safety and Health Administration
OTS	Out of Service
P&R	Planning and Requirements Group
NPI	NAS Planning & Integration
PAPI	Precision Approach Path Indicator
PFC	Passenger Facility Charge
PLASI	Pulse Light Approach Slope Indicator
Project Proposal Summary	A clear and concise description of the proposed project or change that is the object of Safety Risk Management.
RA	Reimbursable Agreement
RE	Resident Engineer
REIL	Runway End Identifier Lights
RNAV	Area Navigation
ROFA	Runway Object Free Area
RSA	Runway Safety Area. A 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, in accordance with AC 150/5300-13.
SDS	Safety Data Sheet
SIDA	Security Identification Display Area
SMS	Safety Management System

Term	Definition
SPCD	Safety Plan Compliance Document. Details developed and submitted by a contractor to the airport operator for approval providing details on how the performance of a construction project will comply with the CSPP.
SRM	Safety Risk Management
SSC	System Support Center
Taxiway Safety Area	A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway, in accordance with AC 150/5300-13.
TDG	Taxiway Design Group
Temporary	Any condition that is not intended to be permanent.
Temporary Runway End	The beginning of that portion of the runway available for landing and taking off in one direction, and for landing in the other direction. Note the difference from a displaced threshold.
Threshold	The beginning of that portion of the runway available for landing. In some instances, the landing threshold may be displaced.
TODA	Takeoff Distance Available
TOFA	Taxiway Object Free Area
TORA	Takeoff Run Available. The length of the runway less any length of runway unavailable and/or unsuitable for takeoff run computations. See AC 150/5300-13 for guidance on declared distances.
TSA	Taxiway Safety Area, or Transportation Security Administration
UNICOM	A radio communications system of a type used at small airports.
VASI	Visual Approach Slope Indicator
VGSI	Visual Glide Slope Indicator. A device that provides a visual glide slope indicator to landing pilots. These systems include precision approach path indicator (PAPI), visual approach slope indicator (VASI), and pulse light approach slope indicator (PLASI).
VFR	Visual Flight Rules
VOR	Very High Frequency Omnidirectional Radio Range
VPD	Vehicle / Pedestrian Deviation

APPENDIX C. SAFETY AND PHASING PLAN CHECKLIST

This appendix is keyed to Chapter 2. In the electronic version of this AC, clicking on the paragraph designation in the Reference column will access the applicable paragraph. There may be instances where the CSPP requires provisions that are not covered by the list in this appendix.

This checklist is intended as an aid, not a required submittal.

Table C-1. CSPP Checklist

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
General Considerations					
Requirements for predesign, prebid, and preconstruction conferences to introduce the subject of airport operational safety during construction are specified.	2.5				
Operational safety is a standing agenda item for construction progress meetings.	2.5				
Scheduling of the construction phases is properly addressed.	2.6				
Any formal agreements are established.	2.5.3				
Areas and Operations Affected by Construction Activity					
Drawings showing affected areas are included.	2.7.1				
Closed or partially closed runways, taxiways, and aprons are depicted on drawings.	2.7.1.1				
Access routes used by ARFF vehicles affected by the project are addressed.	2.7.1.2				
Access routes used by airport and airline support vehicles affected by the project are addressed.	2.7.1.3				
Underground utilities, including water supplies for firefighting and drainage.	2.7.1.4				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Approach/departure surfaces affected by heights of temporary objects are addressed.	2.7.1.5				
Construction areas, storage areas, and access routes near runways, taxiways, aprons, or helipads are properly depicted on drawings.	2.7.1				
Temporary changes to taxi operations are addressed.	2.7.2.1				
Detours for ARFF and other airport vehicles are identified.	2.7.2.2				
Maintenance of essential utilities and underground infrastructure is addressed.	2.7.2.3				
Temporary changes to air traffic control procedures are addressed.	2.7.2.4				
NAVAIDs					
Critical areas for NAVAIDs are depicted on drawings.	2.8				
Effects of construction activity on the performance of NAVAIDS, including unanticipated power outages, are addressed.	2.8				
Protection of NAVAID facilities is addressed.	2.8				
The required distance and direction from each NAVAID to any construction activity is depicted on drawings.	2.8				
Procedures for coordination with FAA ATO/Technical Operations, including identification of points of contact, are included.	2.8, 2.13.1, 2.13.5.3.1, 2.18.1				
Contractor Access					
The CSPP addresses areas to which contractor will have access and how	2.9				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
the areas will be accessed.					
The application of 49 CFR Part 1542 Airport Security, where appropriate, is addressed.	2.9				
The location of stockpiled construction materials is depicted on drawings.	2.9.1				
The requirement for stockpiles in the ROFA to be approved by FAA is included.	2.9.1				
Requirements for proper stockpiling of materials are included.	2.9.1				
Construction site parking is addressed.	2.9.2.1				
Construction equipment parking is addressed.	2.9.2.2				
Access and haul roads are addressed.	2.9.2.3				
A requirement for marking and lighting of vehicles to comply with AC 150/5210-5, *Painting, Marking and Lighting of Vehicles Used on an Airport,* is included.	2.9.2.4				
Proper vehicle operations, including requirements for escorts, are described.	2.9.2.5, 2.9.2.6				
Training requirements for vehicle drivers are addressed.	2.9.2.7				
Two-way radio communications procedures are described.	2.9.2.9				
Maintenance of the secured area of the airport is addressed.	2.9.2.10				
Wildlife Management					
The airport operator's wildlife management procedures are addressed.	2.10				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Foreign Object Debris Management					
The airport operator's FOD management procedures are addressed.	2.11				
Hazardous Materials Management					
The airport operator's hazardous materials management procedures are addressed.	2.12				
Notification of Construction Activities					
Procedures for the immediate notification of airport user and local FAA of any conditions adversely affecting the operational safety of the airport are detailed.	2.13				
Maintenance of a list by the airport operator of the responsible representatives/points of contact for all involved parties and procedures for contacting them 24 hours a day, seven days a week is specified.	2.13.1				
A list of local ATO/Technical Operations personnel is included.	2.13.1				
A list of ATCT managers on duty is included.	2.13.1				
A list of authorized representatives to the OCC is included.	2.13.2				
Procedures for coordinating, issuing, maintaining and cancelling by the airport operator of NOTAMS about airport conditions resulting from construction are included.	2.8, 2.13.2, 2.18.3.3.9				
Provision of information on closed or hazardous conditions on airport movement areas by the airport operator to the OCC is specified.	2.13.2				
Emergency notification procedures for medical, fire fighting, and police	2.13.3				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
response are addressed.					
Coordination with ARFF personnel for non-emergency issues is addressed.	2.13.4				
Notification to the FAA under 14 CFR parts 77 and 157 is addressed.	2.13.5				
Reimbursable agreements for flight checks and/or design and construction for FAA owned NAVAIDs are addressed.	2.13.5.3.2				
Inspection Requirements					
Daily and interim inspections by both the airport operator and contractor are specified.	2.14.1, 2.14.2				
Final inspections at certificated airports are specified when required.	2.14.3				
Underground Utilities					
Procedures for protecting existing underground facilities in excavation areas are described.	2.15				
Penalties					
Penalty provisions for noncompliance with airport rules and regulations and the safety plans are detailed.	2.16				
Special Conditions					
Any special conditions that affect the operation of the airport or require the activation of any special procedures are addressed.	2.17				
Runway and Taxiway Visual Aids - Marking, Lighting, Signs, and Visual NAVAIDs					
The proper securing of temporary airport markings, lighting, signs, and visual NAVAIDs is addressed.	2.18.1				
Frangibility of airport markings, lighting, signs, and visual NAVAIDs is specified.	2.18.1, 2.18.3, 2.18.4.2, 2.20.2.4				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
The requirement for markings to be in compliance with AC 150/5340-1, *Standards for Airport Markings*, is specified.	2.18.2				
Detailed specifications for materials and methods for temporary markings are provided.	2.18.2				
The requirement for lighting to conform to AC 150/5340-30, *Design and Installation Details for Airport Visual Aids;* AC 150/5345-50, *Specification for Portable Runway and Taxiway Lights;* and AC 150/5345-53, *Airport Lighting Certification Program*, is specified.	2.18.3				
The use of a lighted X is specified where appropriate.	2.18.2.1.2, 2.18.3.2				
The requirement for signs to conform to AC 150/5345-44, *Specification for Runway and Taxiway Signs;* AC 50/5340-18, *Standards for Airport Sign Systems;* and AC 150/5345-53, *Airport Lighting Certification Program*, is specified.	2.18.4				
Marking and Signs For Access Routes					
The CSPP specifies that pavement markings and signs intended for construction personnel should conform to AC 150/5340-18 and, to the extent practicable, with the MUTCD and/or State highway specifications.	2.18.4.2				
Hazard Marking and Lighting					
Prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles are specified.	2.20.1				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Hazard marking and lighting are specified to identify open manholes, small areas under repair, stockpiled material, and waste areas.	2.20.1				
The CSPP considers less obvious construction-related hazards.	2.20.1				
Equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subjected to typical winds, prop wash and jet blast is specified.	2.20.2.1				
The spacing of barricades is specified such that a breach is physically prevented barring a deliberate act.	2.20.2.1				
Red lights meeting the luminance requirements of the State Highway Department are specified.	2.20.2.2				
Barricades, temporary markers, and other objects placed and left in areas adjacent to any open runway, taxiway, taxi lane, or apron are specified to be as low as possible to the ground, and no more than 18 inch high.	2.20.2.3				
Barricades are specified to indicate construction locations in which no part of an aircraft may enter.	2.20.2.3				
Highly reflective barriers with lights are specified to barricade taxiways leading to closed runways.	2.20.2.5				
Markings for temporary closures are specified.	2.20.2.5				
The provision of a contractor's representative on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades is specified.	2.20.2.7				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Work Zone Lighting for Nighttime Construction					
If work is to be conducted at night, the CSPP identifies construction lighting units and their general locations and aiming in relationship to the ATCT and active runways and taxiways.	2.21				
Protection of Runway and Taxiway Safety Areas					
The CSPP clearly states that no construction may occur within a safety area while the associated runway or taxiway is open for aircraft operations.	2.22.1.1, 2.22.3.1				
The CSPP specifies that the airport operator coordinates the adjustment of RSA or TSA dimensions with the ATCT and the appropriate FAA Airports Regional or District Office and issues a local NOTAM.	2.22.1.2, 2.22.3.2				
Procedures for ensuring adequate distance for protection from blasting operations, if required by operational considerations, are detailed.	2.22.3.3				
The CSPP specifies that open trenches or excavations are not permitted within a safety area while the associated runway or taxiway is open, subject to approved exceptions.	2.22.1.4				
Appropriate covering of excavations in the RSA or TSA that cannot be backfilled before the associated runway or taxiway is open is detailed.	2.22.1.4				
The CSPP includes provisions for prominent marking of open trenches and excavations at the construction site.	2.22.1.4				
Grading and soil erosion control to maintain RSA/TSA standards are	2.22.3.5				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
addressed.					
The CSPP specifies that equipment is to be removed from the ROFA when not in use.	2.22.2				
The CSPP clearly states that no construction may occur within a taxiway safety area while the taxiway is open for aircraft operations.	2.22.3				
Appropriate details are specified for any construction work to be accomplished in a taxiway object free area.	2.22.4				
Measures to ensure that personnel, material, and/or equipment do not penetrate the OFZ or threshold siting surfaces while the runway is open for aircraft operations are included.	2.22.4.3.6				
Provisions for protection of runway approach/departure areas and clearways are included.	2.22.6				
Other Limitations on Construction					
The CSPP prohibits the use of open flame welding or torches unless adequate fire safety precautions are provided and the airport operator has approved their use.	2.23.1.2				
The CSPP prohibits the use of electrical blasting caps on or within 1,000 ft (300 m) of the airport property.	2.23.1.3				

APPENDIX D. CONSTRUCTION PROJECT DAILY SAFETY INSPECTION CHECKLIST

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovered holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. The list below is one tool that the airport operator or contractor may use to aid in identifying and correcting potentially hazardous conditions. It should be customized as appropriate for each project including information such as the date, time and name of the person conducting the inspection.

Table D-1. Potentially Hazardous Conditions

Item	Action Required (Describe)	No Action Required (Check)
Excavation adjacent to runways, taxiways, and aprons improperly backfilled.		
Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxi lane; in the related Object Free area and aircraft approach or departure areas/zones; or obstructing any sign or marking.		
Runway resurfacing projects resulting in lips exceeding 3 inch (7.6 cm) from pavement edges and ends.		
Heavy equipment (stationary or mobile) operating or idle near AOA, in runway approaches and departures areas, or in OFZ.		
Equipment or material near NAVAIDs that may degrade or impair radiated signals and/or the monitoring of navigation and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown.		
Tall and especially relatively low visibility units (that is, equipment with slim profiles) — cranes, drills, and similar objects — located in critical areas, such as OFZ and		

Item	Action Required (Describe)	No Action Required (Check)
approach zones.		
Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on any apron, open taxiway, or open taxi lane or in a related safety, approach, or departure area.		
Obstacles, loose pavement, trash, and other debris on or near AOA. Construction debris (gravel, sand, mud, paving materials) on airport pavements may result in aircraft propeller, turbine engine, or tire damage. Also, loose materials may blow about, potentially causing personal injury or equipment damage.		
Inappropriate or poorly maintained fencing during construction intended to deter human and animal intrusions into the AOA. Fencing and other markings that are inadequate to separate construction areas from open AOA create aviation hazards.		
Improper or inadequate marking or lighting of runways (especially thresholds that have been displaced or runways that have been closed) and taxiways that could cause pilot confusion and provide a potential for a runway incursion. Inadequate or improper methods of marking, barricading, and lighting of temporarily closed portions of AOA create aviation hazards.		
Wildlife attractants — such as trash (food scraps not collected from construction personnel activity), grass seeds, tall grass, or standing water — on or near airports.		
Obliterated or faded temporary markings on active operational areas.		
Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards.		

Item	Action Required (Describe)	No Action Required (Check)
Failure to issue, update, or cancel NOTAMs about airport or runway closures or other construction related airport conditions.		
Failure to mark and identify utilities or power cables. Damage to utilities and power cables during construction activity can result in the loss of runway / taxiway lighting; loss of navigation, visual, or approach aids; disruption of weather reporting services; and/or loss of communications.		
Restrictions on ARFF access from fire stations to the runway / taxiway system or airport buildings.		
Lack of radio communications with construction vehicles in airport movement areas.		
Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport that could be distracting, confusing, or alarming to pilots during aircraft operations.		
Water, snow, dirt, debris, or other contaminants that temporarily obscure or derogate the visibility of runway/taxiway marking, lighting, and pavement edges. Any condition or factor that obscures or diminishes the visibility of areas under construction.		
Spillage from vehicles (gasoline, diesel fuel, oil) on active pavement areas, such as runways, taxiways, aprons, and airport roadways.		
Failure to maintain drainage system integrity during construction (for example, no temporary drainage provided when working on a drainage system).		

Item	Action Required (Describe)	No Action Required (Check)
Failure to provide for proper electrical lockout and tagging procedures. At larger airports with multiple maintenance shifts/workers, construction contractors should make provisions for coordinating work on circuits.		
Failure to control dust. Consider limiting the amount of area from which the contractor is allowed to strip turf.		
Exposed wiring that creates an electrocution or fire ignition hazard. Identify and secure wiring, and place it in conduit or bury it.		
Site burning, which can cause possible obscuration.		
Construction work taking place outside of designated work areas and out of phase.		

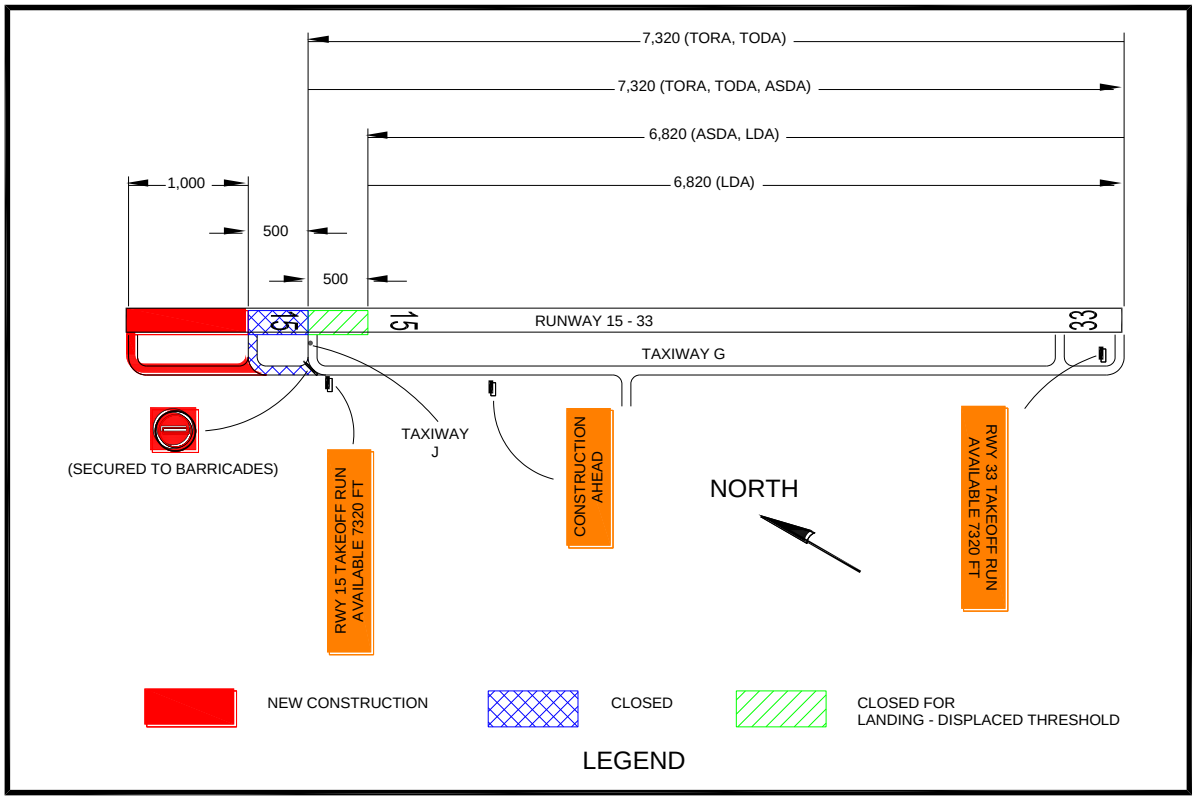
APPENDIX E. SAMPLE OPERATIONAL EFFECTS TABLE

E.1 **Project Description.**

Runway 15-33 is currently 7820 feet long, with a 500 foot stopway on the north end. This project will remove the stopway and extend the runway 1000 feet to the north and 500 feet to the south. Finally, the existing portion of the runway will be repaved. The runway 33 glide slope will be relocated. The new runway 33 localizer has already been installed by FAA Technical Operations and only needs to be switched on. Runway 15 is currently served only by a localizer, which will remain in operation as it will be beyond the future RSA. Appropriate NOTAMS will be issued throughout the project.

E.1.1 During Phase I, the runway 15 threshold will be displaced 1000 feet to keep construction equipment below the approach surface. The start of runway 15 takeoff and the departure end of runway 33 will also be moved 500 feet to protect workers from jet blast. Declared distances for runway 33 will be adjusted to provide the required RSA and applicable departure surface. Excavation near Taxiway G will require its ADG to be reduced from IV to III. See Figure E-1.

Figure E-1. Phase I Example

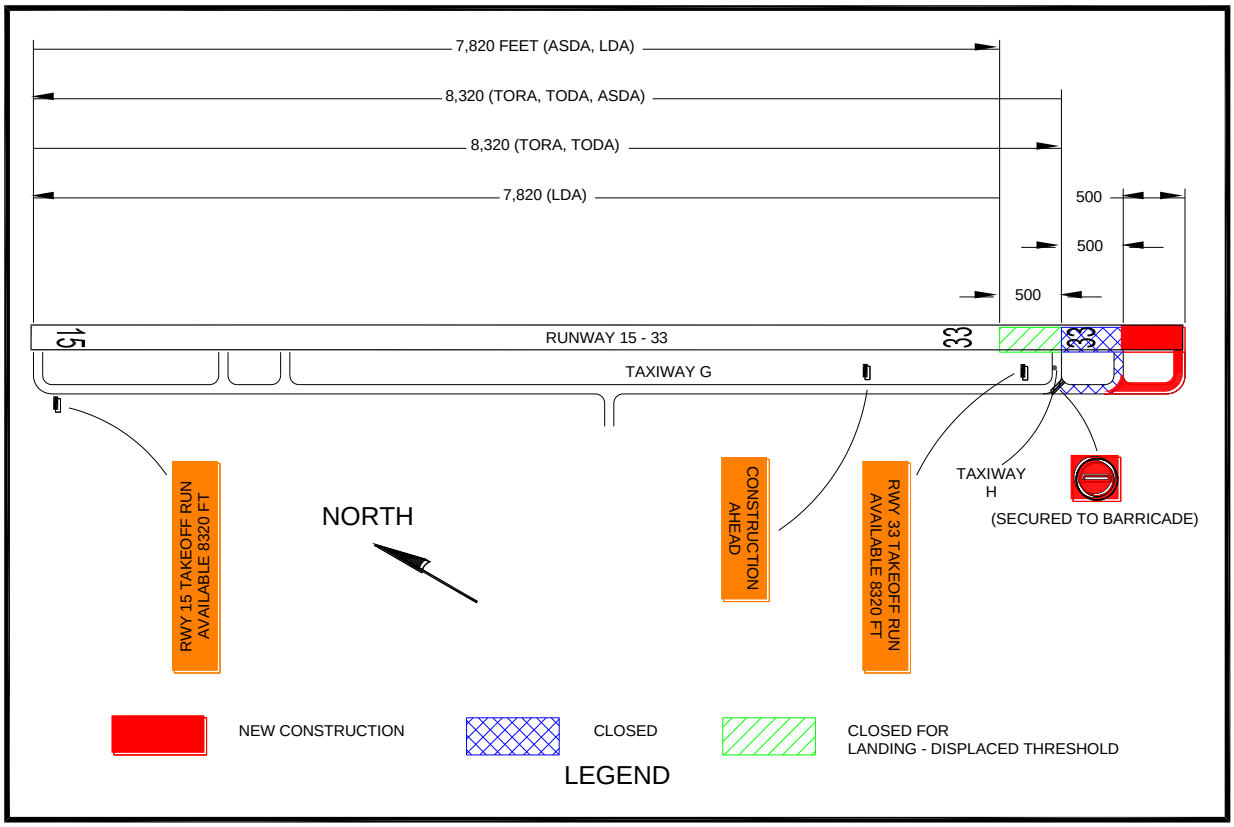


Note 1: Where hold signs are installed on both sides of a taxiway, install the TORA sign on the left side of the taxiway before the final turn to the runway intersection.

Note 2: Based on the declared distances for Runway 33 departures, the maximum equipment height in the construction area is 12.5 feet (500/40 = 12.5).

E.2 During Phase II, the runway 33 threshold will be displaced 1000 feet to keep construction equipment below the approach surface. The start of runway 33 takeoff and the departure end of runway 15 will also be moved 500 feet to protect workers from jet blast. Declared distances for runway 15 will be adjusted to provide the required RSA and applicable departure surface. See Figure E-2.

Figure E-2. Phase II Example



Note 1: Where hold signs are installed on both sides of a taxiway, install the TORA sign on the left side of the taxiway before the final turn to the runway intersection.

Note 2: Based on the declared distances for Runway 15 departures, the maximum equipment height in the construction area is 12.5 feet (500/40 = 12.5).

E.3 During Phase III, the existing portion of the runway will be repaved with Hot Mix Asphalt (HMA) and the runway 33 glide slope will be relocated. Construction will be accomplished between the hours of 8:00 pm and 5:00 am, during which the runway will be closed to operations.

Figure E-3. Phase III Example

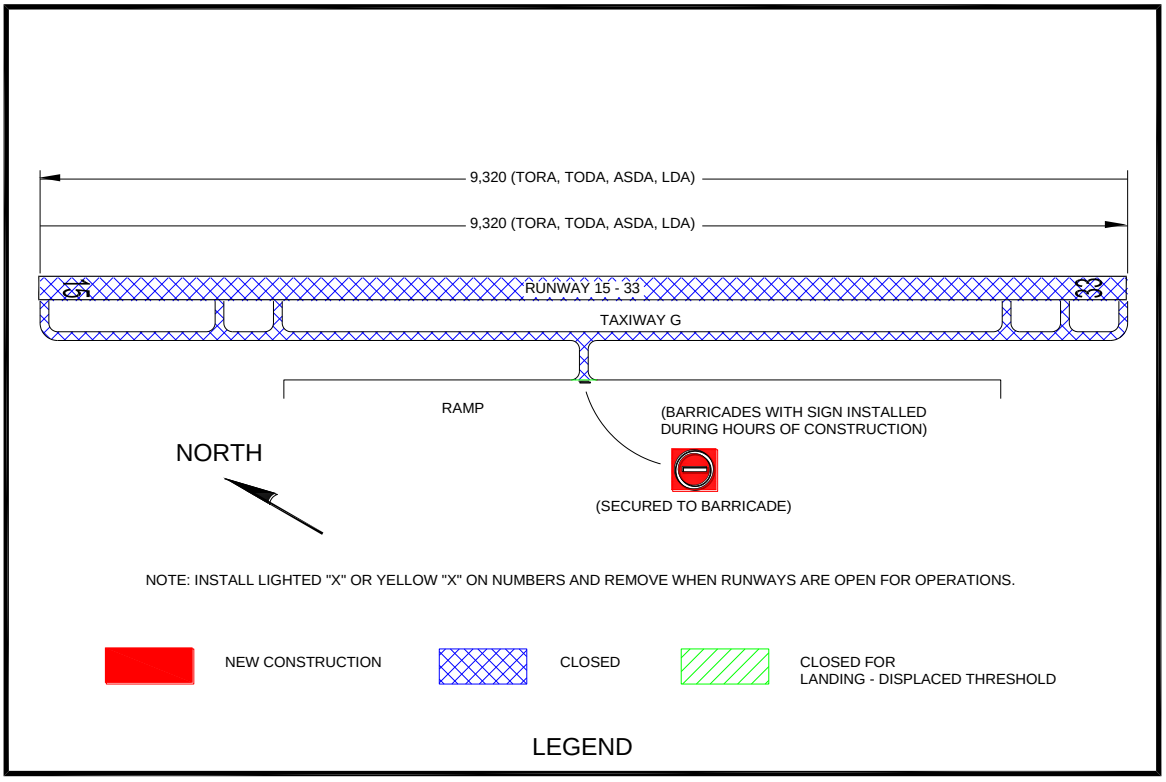


Table E-1. Operational Effects Table

Project	**Runway 15-33 Extension and Repaving**			
Phase	**Normal (Existing)**	**Phase I: Extend Runway 15 End**	**Phase II: Extend Runway 33 End**	**Phase III: Repave Runway**
Scope of Work	N/A	Extend Runway 15-33 1,000 ft on north end with Hot Mix Asphaltic Concrete (HMA).	Extend Runway 15-33 500 ft on south end with Hot Mix Asphaltic Concrete (HMA).	Repave existing runway with HMA Relocate Runway 33 Glide Slope
Effects of Construction Operations	N/A	Existing North 500 ft closed	Existing South 500 ft closed	Runway closed between 8:00 pm and 5:00 am Edge lighting out of service
Construction Phase	N/A	Phase I (Anticipated)	Phase II (Anticipated)	Phase III (Anticipated)
Runway 15 Average Aircraft Operations	Carrier: 52 /day GA: 26 /day Military: 11 /day	Carrier: 40 /day GA: 26 /day Military: 0 /day	Carrier: 45 /day GA: 26 /day Military: 5 /day	Carrier: 45 / day GA: 20 / day Military: 0 /day
Runway 33 Average Aircraft Operations	Carrier: 40 /day GA: 18 /day Military: 10 /day	Carrier: 30 /day GA: 18 /day Military: 0 /day	Carrier: 25 /day GA: 18 /day Military: 5 /day	Carrier: 20 /day GA: 5 /day Military: 0 /day
Runway 15-33 Aircraft Category	C-IV	C-IV	C-IV	C-IV
Runway 15 Approach Visibility Minimums	1 mile	1 mile	1 mile	1 mile
Runway 33 Approach Visibility Minimums	¾ mile	¾ mile	¾ mile	1 mile

Note: Proper coordination with Flight Procedures group is necessary to maintain instrument approach procedures during construction.

Project		**Runway 15-33 Extension and Repaving**			
Phase		**Normal (Existing)**	**Phase I: Extend Runway 15 End**	**Phase II: Extend Runway 33 End**	**Phase III: Repave Runway**
Runway 15 Declared Distances	**TORA**	7,820	7,320	8,320	9,320
	TODA	7,820	7,320	8,320	9,320
	ASDA	7,820	7,320	7,820	9,320
	LDA	7,820	6,820	7,820	9,320
Runway 33 Declared Distances	**TORA**	7,820	7,320	8,320	9,320
	TODA	7,820	7,320	8,320	9,320
	ASDA	8,320	6,820	8,320	9,320
	LDA	7,820	6,820	7,820	9,320
Runway 15 Approach Procedures		LOC only	LOC only	LOC only	LOC only
		RNAV	RNAV	RNAV	RNAV
		VOR	VOR	VOR	VOR
Runway 33 Approach Procedures		ILS	ILS	ILS	LOC only
		RNAV	RNAV	RNAV	RNAV
		VOR	VOR	VOR	VOR
Runway 15 NAVAIDs		LOC	LOC	LOC	LOC
Runway 33 NAVAIDs		ILS, MALSR	ILS, MALSR	ILS, MALSR	LOC, MALSR
Taxiway G ADG		IV	III	IV	IV
Taxiway G TDG		4	4	4	4
ATCT (hours open)		24 hours	24 hours	24 hours	0500 - 2000
ARFF Index		D	D	D	D

Project	**Runway 15-33 Extension and Repaving**			
Phase	**Normal (Existing)**	**Phase I: Extend Runway 15 End**	**Phase II: Extend Runway 33 End**	**Phase III: Repave Runway**
Special Conditions	Air National Guard (ANG) military operations	All military aircraft relocated to alternate ANG Base	Some large military aircraft relocated to alternate ANG Base	All military aircraft relocated to alternate ANG Base
Information for NOTAMs		Refer above for applicable declared distances. Taxiway G limited to 118 ft wingspan	Refer above for applicable declared distances.	Refer above for applicable declared distances. Airport closed 2000 – 0500. Runway 15 glide slope OTS.

Note: This table is one example. It may be advantageous to develop a separate table for each project phase and/or to address the operational status of the associated NAVAIDs per construction phase.

Complete the following chart for each phase to determine the area that must be protected along the runway and taxiway edges:

Table E-2. Runway and Taxiway Edge Protection

Runway/Taxiway	**Aircraft Approach Category*** **A, B, C, or D**	**Airplane Design Group*** **I, II, III, or IV**	**Safety Area Width in Feet Divided by 2***

*See AC 150/5300-13 to complete the chart for a specific runway/taxiway.

Complete the following chart for each phase to determine the area that must be protected before the runway threshold:

Table E-3. Protection Prior to Runway Threshold

Runway End Number	**Airplane Design Group*** **I, II, III, or IV**	**Aircraft Approach Category*** **A, B, C, or D**	**Minimum Safety Area Prior to the Threshold***	**Minimum Distance to Threshold Based on Required Approach Slope***	
			ft	ft	: 1
			ft	ft	: 1
			ft	ft	: 1
			ft	ft	: 1

*See AC 150/5300-13 to complete the chart for a specific runway.

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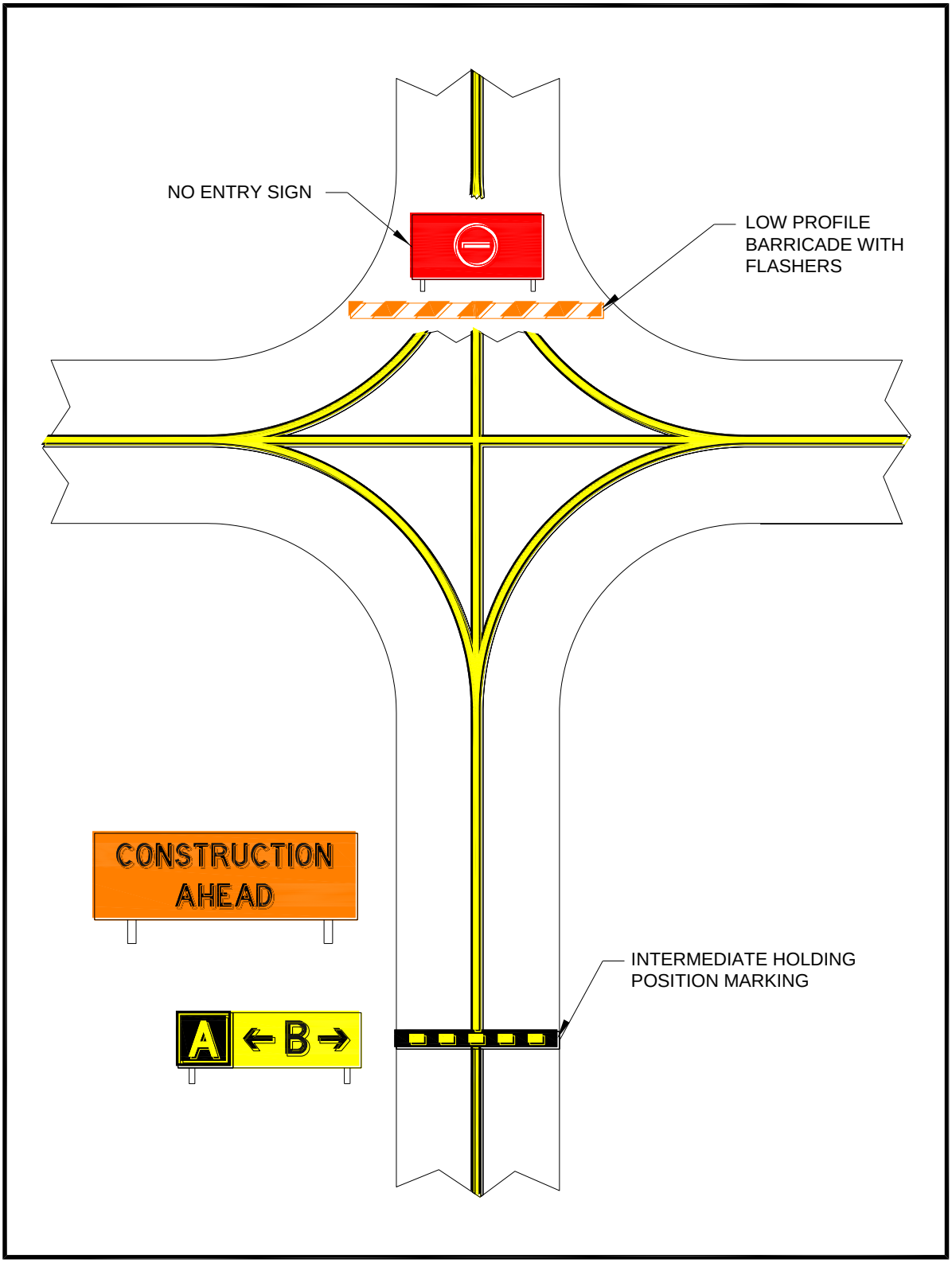
APPENDIX F. ORANGE CONSTRUCTION SIGNS

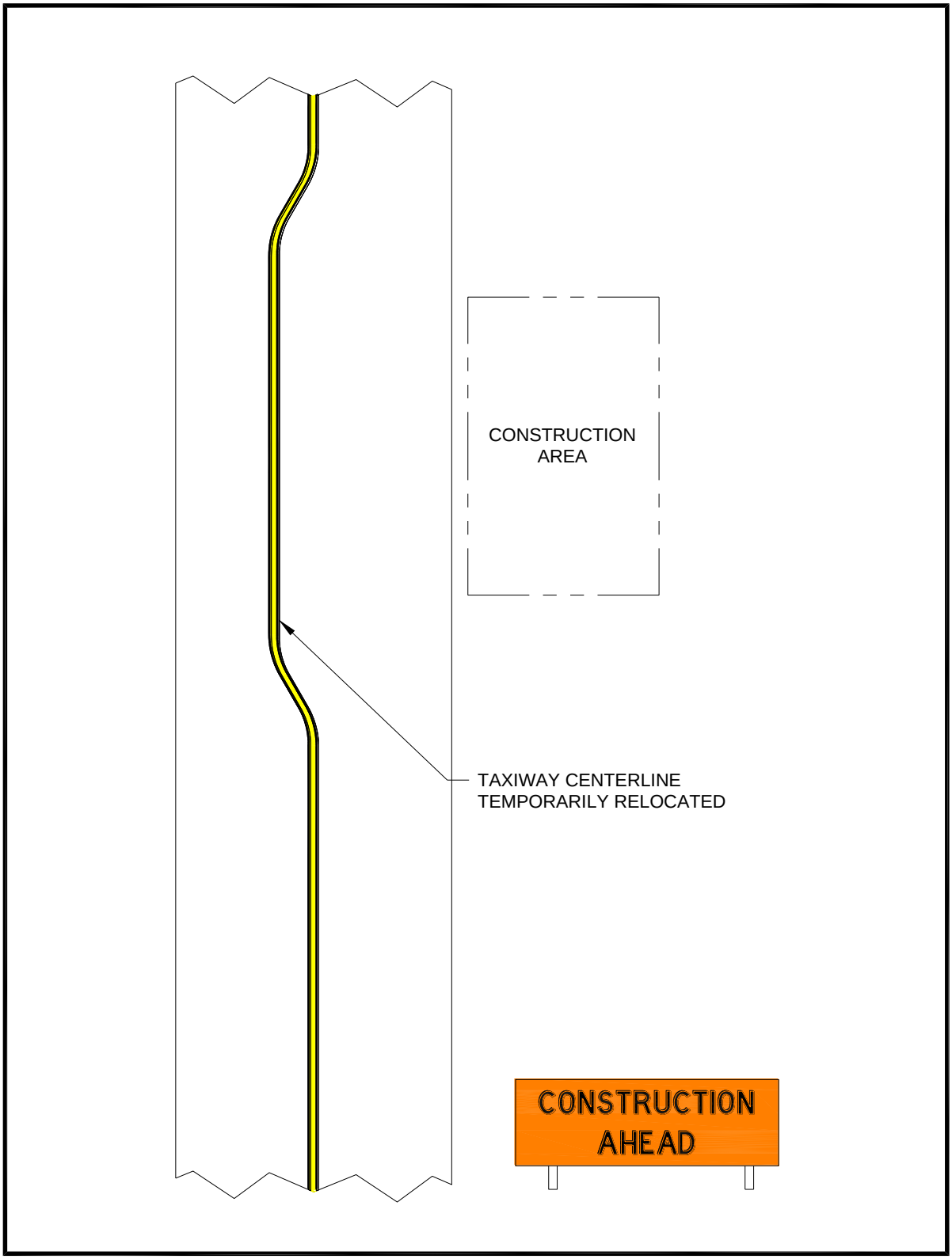
Figure F-1. Approved Sign Legends

Figure F-2. Orange Construction Sign Example 1



Note: For proper placement of signs, refer to EB 93.

Figure F-3. Orange Construction Sign Example 2



Note: For proper placement of signs, refer to EB 93.

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Advisory Circular Feedback

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by (1) mailing this form to Manager, Airport Engineering Division, Federal Aviation Administration ATTN: AAS-100, 800 Independence Avenue SW, Washington DC 20591 or (2) faxing it to the attention of the Office of Airport Safety and Standards at (202) 267-5383.

Subject: AC 150/5370-2G Date: _____

Please check all appropriate line items:

☐ An error (procedural or typographical) has been noted in paragraph _____ on page _____.

☐ Recommend paragraph _____ on page _____ be changed as follows:

_____
_____
_____

☐ In a future change to this AC, please cover the following subject:
(Briefly describe what you want added.)

_____
_____
_____

☐ Other comments:

_____
_____
_____

☐ I would like to discuss the above. Please contact me at (phone number, email address).

_____

Submitted by: _____ Date: _____

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U.S. Department of Transportation

Federal Aviation Administration

Advisory Circular

Subject: Painting, Marking, and Lighting of Vehicles Used on an Airport	**Date:** April 1, 2010	**AC No:** AC 150/5210-5D
	Initiated by: AAS-100	**Change:**

1. PURPOSE. This advisory circular (AC) provides guidance, specifications, and standards for painting, marking, and lighting of vehicles operating in the airport air operations area (AOA). The approved lights, colors, and markings herein assure the conspicuity of vehicles operating in the AOA from both the ground and the air.

2. CANCELLATION. This AC cancels AC 150/5210-5C, Painting, Marking, and Lighting of Vehicles Used on an Airport, dated August 31, 2007.

3. APPLICATION. The Federal Aviation Administration (FAA) recommends the guidelines and standards in this Advisory Circular for vehicles operating in the airport AOA. In general, use of this AC is not mandatory. ***However***, use of this AC is mandatory for vehicles funded with federal grant monies through the Airport Improvement Program (AIP) and/or with revenue from the Passenger Facility Charges (PFC) Program. See Grant Assurance No. 34, "Policies, Standards, and Specifications," and PFC Assurance No. 9, "Standard and Specifications."

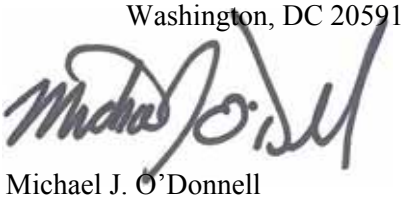
Vehicles covered by this AC that do not meet this standard may be used until the vehicle is repainted or replaced, but no later than **December 31, 2010.**

4. PRINCIPAL CHANGES. This AC contains new specifications and recommendations for the painting, marking, and lighting of Towbarless Tow Vehicles (TLTVs).

5. METRIC UNITS. To promote an orderly transition to metric units, this AC includes both English and metric dimensions. The metric conversions may not be exact equivalents, and until there is an official changeover to the metric system, the English dimensions will govern.

6. COMMENTS OR SUGGESTIONS for improvements to this AC should be sent to:

Manager, Airport Engineering Division
Federal Aviation Administration
ATTN: AAS-100
800 Independence Avenue, S.W.
Washington, DC 20591



Michael J. O'Donnell
Director of Airport Safety and Standards

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PAINTING, MARKING, AND LIGHTING OF VEHICLES USED ON AN AIRPORT

1. SOURCES OF APPLICABLE DOCUMENTS.

a. American National Standards Institute, Inc. (ANSI), 25 West 43rd St. 4th Floor, New York, NY 10036. Website: **www.ansi.org**

b. American Society for Testing & Materials (ASTM), ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959. Website: **www.astm.org**

c. The National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, Massachusetts 02169-7471. Website: **www.nfpa.org**

d. The U. S. General Services Administration (GSA), Centralized Mailing List Services, 501 West Felix Street, Whse 9, South End P.O. Box 6477, Fort Worth, Texas 76115-6477. Website: **www.gsa.gov**

e. The Superintendent of Documents, U.S. Government Printing Office, 732 North Capitol St. NW, Washington, DC 20401.

f. Society of Automotive Engineers, Inc. (SAE), 400 Commonwealth Drive, Warrendale, PA 15096-0001. Website: **www.sae.org**

g. FAA Advisory Circulars: U.S. Department of Transportation, Subsequent Distribution Office, Ardmore East Business Center, 3341 Q 75th Ave., Landover, MD 20785. Website: **www.faa.gov**

h. FAA Engineering Briefs: **www.faa.gov/airports/engineering/engineering_briefs/**

2. DEFINITIONS. The following definitions apply in this AC:

a. Vehicle – All conveyances, except aircraft, used on the ground to transport persons, cargo, equipment or those required to perform maintenance, construction, service, and security duties.

b. Air Operations Area (AOA) – The portion of airport that encompasses the landing, take off, taxiing, and parking areas for aircraft.

c. Airport Emergency Vehicles – Vehicles that are authorized in the AOA for emergency purposes (e.g., ambulances, aircraft rescue and fire fighting (ARFF) vehicles and emergency response vehicles) as authorized by the airport traffic control tower (ATCT) or an authorized on-site accident/incident commander.

d. Airport Operations Vehicles – Vehicles routinely used by airport operations personnel for airport inspection and duties associated with airfield operations (such as airfield condition reporting and Incident Command) on the AOA and Movement Area.

e. Airport Security Vehicles – Vehicles that are authorized in the AOA for security purposes, as needed (e.g. police cars).

f. Airfield Service Vehicles – Vehicles that are routinely used in the AOA for airfield service, maintenance, or construction (e.g. snow blowers, snowplows, maintenance trucks, and tractors).

g. Aircraft Support Vehicles – Vehicles that are routinely used in the AOA to support aircraft operations (e.g. aircraft pushback tractors, baggage/cargo tractors or trucks, air conditioning and aviation fuel trucks). These vehicles are typically owned by airlines, vendors, or contractors and are not eligible for Federal funding.

h. Reduced Visibility – Prevailing visibility is less than one statute mile (1609 meters) and/or the runway visual range (RVR) is less than 6,000 feet (1830 meters).

i. Movement Area – The runways, taxiways, and other areas of an airport/heliport that are used for taxiing/hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. At those airports/heliports with an operating airport traffic control tower (ATCT), specific approval for entry onto the movement area must be obtained from air traffic control (ATC).

j. Other Vehicles – Vehicles that are not routinely authorized in the AOA (e.g. construction vehicles). These vehicles are typically owned by airlines, vendors, or contractors and are not eligible for Federal funding.

k. Peak Intensity – Peak intensity, for purposes of this document, means the maximum magnitude of luminescence as measured in candela.

l. Towbarless Tow Vehicle (TLTV) – a type of aircraft support vehicle whose main purpose is to tow aircraft in the AOA by way of nose gear capture.

3. VEHICLE PAINTING.

NOTE: *Airport vehicle paint and markings are a safety of flight requirement. The approved colors/markings herein assure conspicuity of vehicles operating in the AOA from both the ground and air.*

a. Airport Emergency Vehicles.

(1) Ambulances. Ambulance vehicles are painted per the most current version of Federal Specification KKK-A-1822, *Federal Specification for the Star-of-Life Ambulance*. Ambulances are not considered vehicles routinely operating on the AOA.

(2) Aircraft Rescue and Fire Fighting (ARFF) Vehicles. Yellowish-green is the vehicle color standard. Color specifications are per Appendix A.

NOTE: *A yellowish-green color provides optimum visibility during all light levels encountered during a 24-hour day and under variations of light that result from weather and seasonal changes.*

b. Airport Operations Vehicles. Airport operations vehicles may be painted in colors designated by the airport operator. The characteristics must be coordinated with the respective ATCT and identified in the tower letter of agreement.

c. Airport Security Vehicles. Comply with specific state or local requirements.

d. Airfield Service Vehicles. Chrome yellow is the vehicle color standard. Color specifications are per Appendix A. When vehicles are equipped with bumper bars 8 inches (200 mm) or more in depth, the bars must be painted in alternate stripes 4 inches (100 mm) in width of chrome yellow and black inclined 45° to the vertical.

e. Aircraft Support Vehicles.

(1) Any color or combination of colors other than yellowish-green or chrome yellow. The bumper bar paint scheme in paragraph 3.d (of alternating chrome yellow and black stripe) is recommended.

(2) TLTVs. International orange is the vehicle color standard. Retroreflective tape covering more than 25 percent of the vehicle's vertical surfaces may be used as a temporary measure to meet this standard prior to scheduled vehicle painting.

f. Other Vehicles. Any color or combination of colors other than solid black or white.

4. VEHICLE MARKING.

a. Airport Emergency Vehicles.

(1) Ambulances. Ambulances are marked per the most current version of Federal Specification KKK-A-1822.

(2) ARFF Vehicles. Emergency rescue and fire fighting vehicles are marked with the letters "ARFF, "Fire," or "Rescue" and in accordance with 4.c.(1)-(5) of this AC.

b. Airport Operations Vehicles. Airport operations vehicles may be marked as designated by the airport operator. Marking must be coordinated with the respective ATCT and identified in the tower letter of agreement.

c. Airfield Service Vehicles and Aircraft Support Vehicles.

(1) Airport operator owned vehicles must display an identification number on each side and on the roof (the hood should be used if the vehicle has no roof).

(2) Side numbers will be a minimum of 16 inches (410 mm) in height and conspicuously located.

(3) Roof numbers will be a minimum of 24 inches (610 mm) in height and affixed with their bases toward the front of the vehicle. The identification numbers should provide sharp color contrast to the vehicle color.

(4) In addition to the identification numbers, airport operator-owned vehicles must display either the name of the airport and/or the airport insignia.

(5) To further improve night-time recognition of vehicles, a minimum 8 inch (200 mm) wide horizontal band of high gloss white paint or white reflective tape (Retroreflective, ASTM-D 4956-09, *Standard Specification for Retroreflective Sheeting for Traffic Control*, Type III & above) must be used around the vehicle's surface. Figures 1, 2, and 3 show suggested locations for the horizontal reflective band.

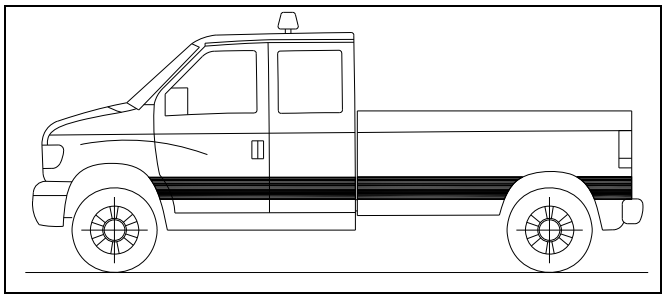

Figure 1: Suggested location for the horizontal reflective band, Option 1

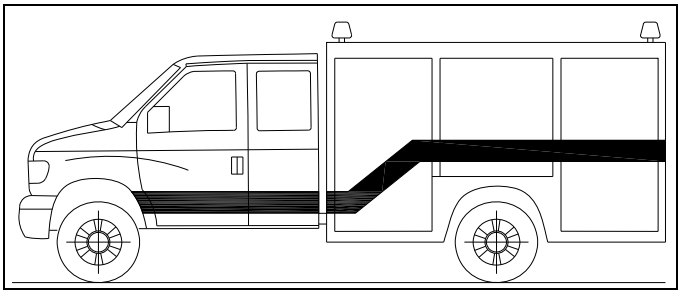

Figure 2: Suggested location for the horizontal reflective band, Option 2

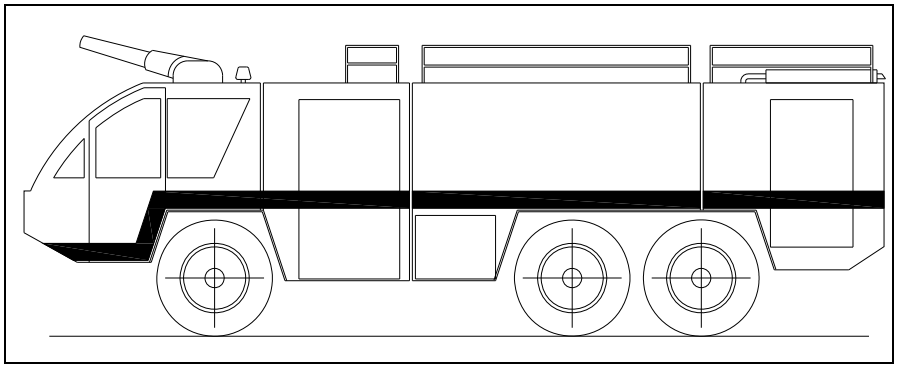

Figure 3: Suggested location for the horizontal reflective band, Option 3

(6) TLTVs. Retroreflective tape is used to outline the shape of a TLTV. If the vertical edge of the vehicle is rounded, the tape should be placed on the rounded portion to reflect light in both the horizontal and vertical planes. Where the placement of the tape may interfere with, or may be worn down by, maintenance or operational activities, tape is not required. Suggested locations for the retroreflective bands are shown in Figure 4.

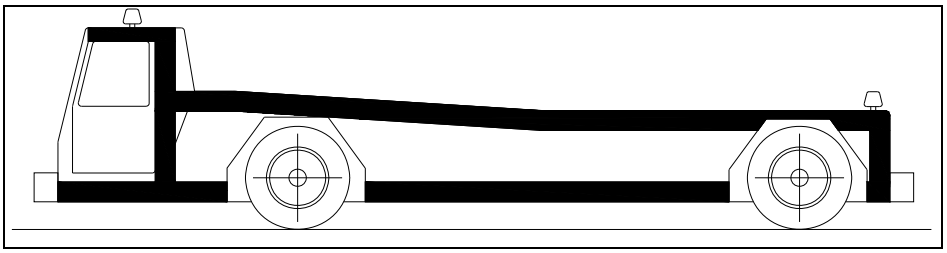

Figure 4: Suggested placement of retroreflective tape on a TLTV

d. Airport Security and Other Vehicles.

(1) Vehicles other than those that routinely traverse any portion of the AOA under the control of ATC, which are not escorted by a vehicle in constant two-way radio communication with ATC and properly equipped and authorized to operate in the AOA, must be provided with a flag on a staff attached to the vehicle so that the flag will be readily visible.

(2) At airports without air traffic control facilities, flags must be provided on all vehicles.

(3) The flag must be at least a 3-foot by 3-foot (0.9 meter by 0.9 meter) square having a checkered pattern of international orange and white squares at least 1 foot (300 mm) on each side (see Appendix A for the fabric color specification).

5. VEHICLE LIGHTING.

a. Airfield Service, Aircraft Support, and Airport Operations Vehicles.

(1) The standard for identification lighting is a yellow flashing light that is mounted on the uppermost part of the vehicle structure. A steady yellow light designates vehicles limited to non-movement areas.

(2) The light must be visible from any direction, day and night, including from the air.

(3) Color specifications for vehicle identification lights are per Appendix B.

(4) TLTVs. An LED light bar placed above the operator's cab may be used in place of the rotating yellow flashing light. In addition, a yellow flashing light (of any type) must be installed on the upper left-rear and right-rear corners of the TLTV, and must be activated when an aircraft is in tow. The size of the rear flashing lights must be large enough to meet the requirements of Section 5.c, but not so large as to interfere with the normal or towing operations of the TLTV.

b. Airport Emergency, Security, and Other Vehicles, which are not escorted by a properly lighted vehicle, must be identified during periods of low visibility by a light.

c. Characteristics of Flashing Lights:

(1) Ambulance lights must meet the specifications in the most current version of Federal Specification KKK-A-1822, and ARFF vehicles must meet NFPA, state, and local requirements.

(2) Lights must have peak intensity within the range of 40 to 400 candelas (effective) from 0^{o} (horizontal) up to 10^{o} above the horizontal and for 360^{o} horizontally. The upper limit of 400 candelas (effective) is necessary to avoid damage to night vision.

(3) From 10^{o} to 15^{o} above the horizontal plane, the light output must be $1/10^{th}$ of peak intensity or between 4 and 40 candelas (effective).

(4) Lights must flash at 75 ± 15 flashes per minute.

NOTES:

1. The effective intensity of a flashing light is equal to the intensity of a steady-burning (fixed) light of the same color that produces the same visual range under identical conditions of observation.

2. If xenon flashtubes are used, refer to AC 150/5345-43, Specification for Obstruction Lighting Equipment, for guidance concerning methods of calculating effective intensity.

d. Light Colors.

(1) Airport Emergency Vehicles.

(a) **Ambulances.** Per the most current version of Federal Specification KKK-A-1822.

(b) **ARFF Vehicles.** Red or a combination of red-and-white flashing lights per the chromaticity requirements in Appendix B.

(2) Airport Security Vehicles. Signal blue or a combination of red and signal blue flashing light per the chromaticity requirements in Appendix B.

(3) Airfield Service, Aircraft Support, Airport Operations, and Other Vehicles. Yellow flashing light per the chromaticity requirements in Appendix B.

APPENDIX A. COLOR SPECIFICATIONS

A-1. SPECIFICATIONS. Colors specified in Table A-1 are per the Commission Internationale de l'Eclairage (CIE) L*a*b* system of color specification. For a description of this system, refer to American Society for Testing & Materials (ASTM) D 2244, *Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates.*

Table A-1. Specification for vehicle and flag colors

Standard Illuminant D65 **Usage**	**Chrome Yellow**			**Yellowish-Green**			**International Orange**		
	Vehicle Paint			**Vehicle Paint**			**Vehicle Paint / Flag Fabric**		
CIELAB DATA	**L***	**a***	**b***	**L***	**a***	**b***	**L***	**a***	**b***
Centroid Color	72.8	24.4	77.6	78.3	-10.2	80.4	45.0	53.5	52.0
Point 1	72.8	31.8	82.9	78.3	-9.0	92.0	45.0	61.4	47.8
Point 2	72.8	25.5	66.7	78.3	-7.6	73.2	45.0	53.9	41.4
Point 3	72.8	18.0	69.3	78.3	-11.0	69.3	45.0	53.5	53.4
Point 4	72.8	22.4	86.0	78.3	-13.4	86.2	45.0	49.7	60.4
Light Limit	77.8			83.3			49.9		
Dark Limit	67.8			73.3			41.6		
Max ΔE	11.1			11.7			10.7		

A-2. COLOR TESTS. Acceptable colors are those that meet the gloss rating test and either a visual or an instrumental color test as follows:

NOTE: *Flag fabric colors must meet either the instrumental tests in Table A-1 or the visual method described in paragraph A-2b(1).*

a. Gloss Rating Test. This test is performed per ASTM D 523, *Standard Test Method for Specular Gloss,* on a paint sample of the color to be applied on the vehicle. An acceptable color sample is high gloss with a minimum gloss rating of 70 units, for 60° geometry.

b. Color Test Methods:

(1) Visual. Prepare a master specimen of the color (per Table A-1) and gloss (per paragraph A-2a). This specimen will be the master color and be used as the basis of comparison per ASTM D 5531-05, *Standard Guide for the Preparation, Maintenance, and Distribution of Physical Product Standards for Color and Geometric Appearance of Coatings.* To verify the paint color of a vehicle visually, vehicle paint samples must be

prepared and viewed per ASTM D 1729-96 (Reapproved 2009), *Standard Practice for Visual Appraisal of Colors and Color Differences of Diffusely-Illuminated Opaque Materials.*

(2) Instrumental. This test requires a test specimen sample and reference to Table A-1. All test specimen measurements should be conducted per ASTM E 1164-09a *Standard Practice for Obtaining Spectrometric Data for Object-Color Evaluation.* Test specimen tolerances must be per Table A-1 per the following:

(a) Plot the centroid color using the a* and b* CIELAB coordinate data from Table A-1 on graph paper or by entry of the coordinate data into a computer program. Plot and connect points 1 through 4 from the same table to form a quadrilateral; noting that the centroid color is within this figure. See Figure A-1 for plots of all three color specifications in Table A-1.

(b) Perform color sample measurements per ASTM E 1164-09a. If necessary, convert measurements to CIELAB L*, a*, and b* color space. See ASTM E 308-08, *Standard Practice for Computing the Colors of Objects by Using the CIE System,* for color space conversion formulae.

(c) An acceptable color is one that meets:

(i) the chromaticity requirements of the color samples a* and b* CIELAB coordinate data by falling within the quadrilateral;

(ii) the L* data lightness requirement by falling within the range defined by the light and dark data of Table A-1;

(iii) the total color difference (ΔE) by not exceeding the limits in Table A-1 when the CIELAB data are computed in the following formula:

$$\Delta E = (\Delta L^{*2} + \Delta a^{*2} + \Delta b^{*2})^{\frac{1}{2}}$$

where ΔL*, Δa*, and Δb* values are the differences between those values for the centroid color in Table A-1 and those of the color sample measurements.

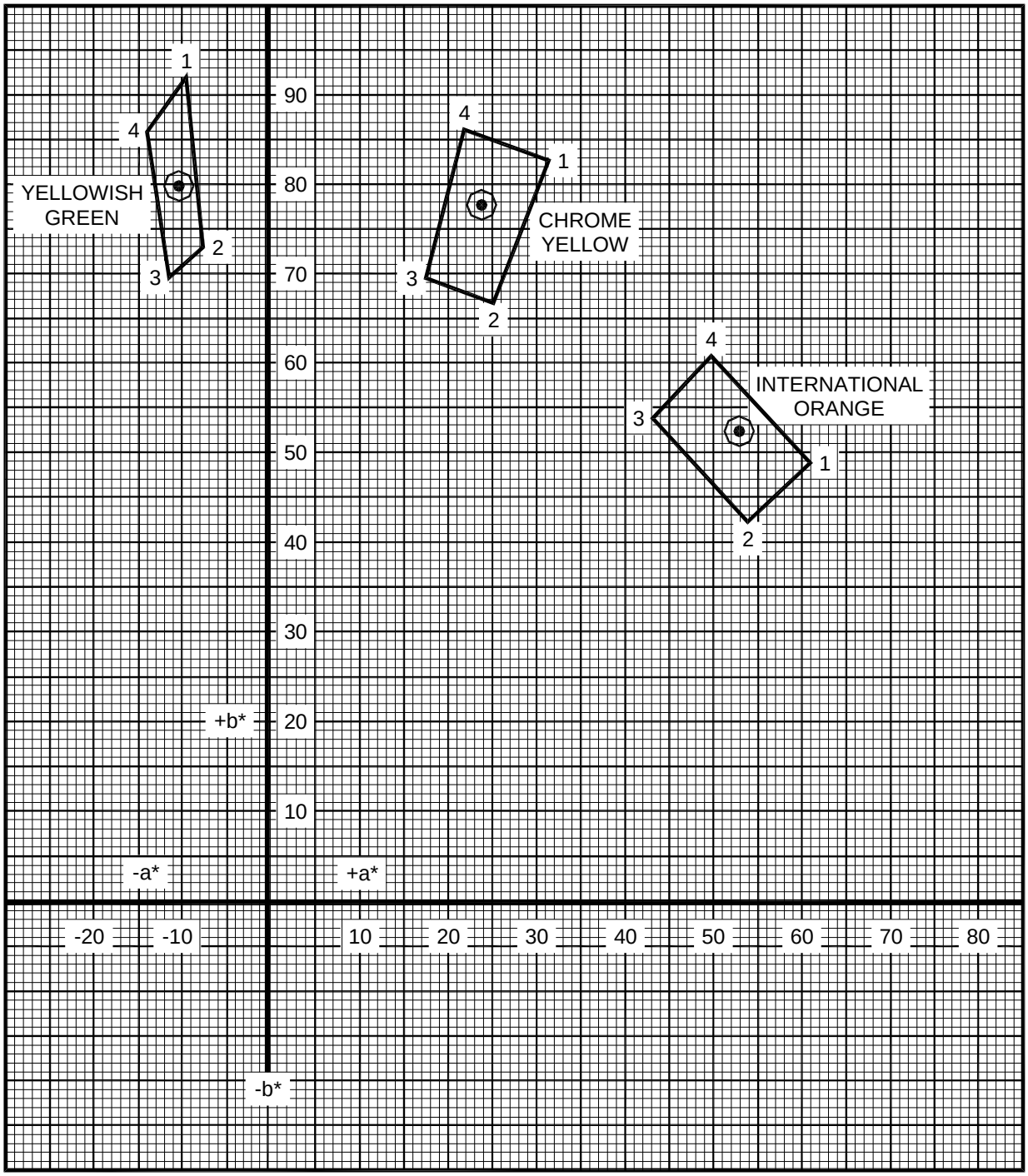

Figure A-1. Plot of selected color paint specifications

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APPENDIX B. COLOR SPECIFICATIONS FOR VEHICLE IDENTIFICATION LIGHTS

B-1. SPECIFICATIONS. The Society of Automotive Engineers (SAE) Standard J578 Revised December 2006, *Color Specification*, defines the acceptable color boundary limits and measurement of emitted red, white, signal blue, and yellow light for vehicle lights. This standard applies to the overall emitted color of light from the device in lieu of emitted light from any small area of the lens. The color of emitted light must fall within the color boundaries per SAE J578 Revised December 2006 (color boundary equations are in the standard) using color measurement methods detailed in the standard. See FAA Engineering Brief #67, Light Sources Other Than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures, for additional information and Alternative Lighting Devices.

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U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Subject: Airport Safety Self-Inspection | **Date:** 9/27/2022 | **AC No:** 150/5200-18D
Initiated By: AAS-300 | **Change:**

1 **Purpose.**
This advisory circular (AC) provides information to airport operators on airport self-inspection programs and identifies the items included in these programs.

2 **Cancellation.**
This AC cancels AC 150/5200-18C, *Airport Safety Self-Inspection,* dated April 23, 2004.

3 **Application.**
This AC provides voluntary guidance for all airport operators in developing self-inspection programs. It also provides the standards for developing and implementing self-inspection programs at airports certificated under Title 14 Code of Federal Regulations (CFR) part 139 (hereinafter referred to as part 139) which are acceptable to the Administrator. Part 139 regulations require an airport operator at a certificated airport to develop a self-inspection program acceptable to the Administrator as a means of compliance with § 139.327, Self-Inspection Program. The standards in this AC may be applicable for projects funded with federal grant monies through the Airport Improvement Program (AIP) and with revenue from the Passenger Facility Charges (PFC) Program. See Grant Assurance No. 34, "Policies, Standards, and Specifications," and PFC Assurance No. 9, "Standards and Specifications." Mandatory terms such as "must" apply only to those who conduct inspections at airports that are obligated by Federal grant funds or PFC agreements or those who seek to demonstrate compliance by use of the specific method described by this AC.

4 **Principal Changes.**
The AC incorporates the following principal changes:

a. Changed the numbering system to reflect the beta testing within the Federal Aviation Administration.

b. Added in Chapter 2, specific role definitions for the Airport Certificate Holder, Airport Manager and or Operations Director.

c. The Recommended Inspection Frequency section moved to chapter 7 "Inspection Requirements by Type."

d. Knowledge and Equipment for Self-Inspection changed to reflect changes to part 139.

e. Added record keeping requirements to Knowledge and Equipment for Self-Inspection.

f. Changed "Regularly Scheduled Inspection" to "Daily Inspection" for clarity.

g. Added part 139 references to each section.

h. Updated the checklist to reflect changes to part 139.

i. Added photos to show equipment placards and markings.

5 **Related CFR and Reference Materials.**

Appendix A lists related reference materials.

6 **Feedback on this AC.**

If you have suggestions for improving this AC, you may use the Advisory Circular Feedback form at the end of this AC.

John R. Dermody
Director of Airport Safety and Standards

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CHAPTER 1. BACKGROUND

1.1 A self-inspection program is integral to airport safety. Inspecting features that affect airside operations are critical to ensuring that components of various systems—for example, lighting, marking, and signs—are functioning properly. Additionally, an effective inspection process can identify hazards, e.g. fuel product leaks, exposed ignition sources, that represent safety risks which, when addressed early, can be mitigated successfully and at lower cost.

1.1.1 Through an airport self-inspection program, the airport operator:

1. Monitors airport conditions through a daily inspection schedule
2. Identifies specific conditions that pose a risk to airport safety
3. Takes appropriate corrective actions to address deficiencies on the airport
4. Maintains a self-inspection log (can be electronic) to note deficiencies and the date and time corrective measures were taken, and
5. Identifies trends through recurring deficiencies.

1.2 Through an airport self-inspection program, operators of certificated airports can maintain a level of airport safety by complying with the provisions of part 139. This AC identifies the components and responsibilities of each section of part 139 and provides a basis for developing a comprehensive self-inspection program for the individual airport. Sample checklists to assist airport operators are located in Appendix B.

CHAPTER 2. RESPONSIBILITIES

2.1 Airport Certificate Holder.

The Airport Certificate Holder has overall responsibility for airside safety but can delegate this responsibility to an Airport Manager, Operations Director, or other entity. This AC uses the terms airport certificate holder and airport operator interchangeably, as they are in the regulation, to denote responsibility.

2.2 The Airport Manager or Operations Director.

The Airport Manager or Operations Director authorizes Operations/Maintenance Personnel to perform inspections in the self-inspection program. At certificated airports, operations/maintenance personnel must be thoroughly familiar with part 139; they must be familiar with the airport and properly trained in vehicle/pedestrian operations; and given pertinent sections of the Airport Certification Manual (ACM), which identify their duties and responsibilities. The training must address specifically the following operational areas:

- §139.305, Paved areas
- §139.307, Unpaved areas, if applicable
- §139.309, Safety areas
- § 139.311, Marking, signs, and lighting
- § 139.323, Traffic and wind direction indicators
- § 139.325, Airport emergency plan
- § 139.327, Self-inspection plan
- § 139.329, Pedestrians and ground vehicles
- § 139.335, Public protection
- § 139.337, Wildlife hazard management
- § 139.339, Airport condition reporting
- § 139.341, Identifying, marking, and lighting construction and other unserviceable areas
- § 139.343, Non-complying conditions
- ACM WHMP (Wildlife Hazard Management Plan)
- Types of self-inspections
- Airport self-inspection procedures
- Self-inspection records

Note 1: Chapter 7 addresses each of the above part 139 subjects in more detail.

Note 2: The terms “operations personnel”, “maintenance personnel” and “inspector(s)” are used interchangeably.

CHAPTER 3. THE SELF-INSPECTION PROGRAM

3.1 The effective self-inspection program is comprehensive and thorough. However, it depends on alert and well-trained personnel who understand their duties and responsibilities and have the resources to carry them out.

3.2 Inspection Personnel can be most effective in performing inspections when they have clear instructions, checklists, and access to informational resources. ACs in the 150 Series provide the standards for certificated airports. Self-inspection personnel must have access to these resources. Inspection personnel are also responsible for developing and using techniques that preclude complacency generated by routine. For example, inspectors can vary the pattern of the inspection and view the airport from different perspectives. Avoiding a repetitive inspection pattern enables the inspector to be more aware; fixed inspection patterns, while easy to learn, generally, over time, do not provide for an adequate inspection and have the potential for missing deficiencies during the inspection process.

3.2.1 For example, runway inspections are usually conducted in both directions. During the runway inspection, when time allows, the inspector should inspect all stub taxiways up to the runway side of the runway hold position. When inspecting taxiways adjacent to a runway, the inspector should inspect all stub taxiways up to the taxiway side of the runway hold position. These areas are often overlooked. Any practices and procedures that vary the inspection pattern can greatly benefit airport safety.

3.2.2 While inspecting parallel taxiways, self-inspection personnel should check the stub taxiways and holding positions as stub taxiways are sometimes bypassed during the inspection of the movement area. During nighttime inspections, the runway inspections should be conducted in both directions to check runway lighting and signs in both directions. Some airports have a Letter of Agreement (LOA) with the ATCT addressing self-inspection routes depending on the direction of aircraft landing/takeoff operations.

3.3 Inspection of areas that have been assigned to individual air carriers, fixed base operators, or other tenants can be made the responsibility of the user. The transfer of this responsibility is usually accomplished through Letters of Agreement (LOAs) or through lease agreements, which are legally binding. However, oversight of these areas and accountability for them are within the purview of the airport operator, and, at certificated airports, the Federal Aviation Administration (FAA) holds the certificate holder ultimately responsible for operating the airport safely. Advice from airport counsel can guide the certificate holder in writing agreements and LOAs that identify user responsibilities.

NOTE: Tenants are generally only responsible for leased portions of non-movement areas with rare exceptions such as at military installations where certain taxiways or arresting gear installations are maintained by DOD.

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CHAPTER 4. TYPES OF SELF-INSPECTIONS

4.1 There are different types of inspections in an effective self-inspection program; each type is appropriate to specific activities on the airport. They are:

4.1.1 Daily inspection schedule.

The airport must be inspected daily except otherwise required by the Airport Certification Manual. Larger airports normally conduct multiple inspections daily. The Part 139 requirement to inspect daily does not mean that only one self-inspection is required each day. Typically, the first daily inspection is conducted early in the morning before the first air carrier operation. An effective self-inspection program includes a daylight inspection and a separate nighttime inspection to evaluate lighting systems and glass bead visibility. Optimally, self-inspections should occur when aircraft activity is minimal, in order to create the least impact on airport operations. Part of this inspection must occur during the hours of darkness at those airports that serve air carriers during hours of darkness. Airport operators holding an FAA Airport Operating Certificate—Class I, II, III, or IV—must conduct a daily airport inspection, to include a nighttime inspection to be in compliance. The daily airport inspection requirement, including a nighttime inspection, is required regardless of whether or not the airport receives air carrier service except as otherwise required by the ACM. Air carrier service is not a prerequisite for complying with § 139.327 (a) (1).

4.1.2 Continuous surveillance inspection.

Those activities and facilities that airport management has identified and documented in the ACM as requiring continuous surveillance are inspected whenever personnel are in these areas. Hazardous conditions can occur at any time and in a short period can pose significant safety risks.

4.1.3 Special inspection.

Special inspections of activities and facilities must take place after receipt of a complaint or when an unusual condition or unusual event occurs on the airport, such as a significant meteorological event or an accident or incident. Special inspections must also occur at the end of construction activities, at the end of a construction shift, at the end of the day, and at the end of the construction project, to ensure that there are no unsafe conditions related to the construction activity. This special inspection must occur prior to construction personnel leaving the airport, in the event that corrective actions are necessary. Document special inspections on the appropriate portions of the Airport Daily Safety Self-Inspection checklist. Some airports use a separate inspection checklists for special inspections.

4.1.4 Periodic condition inspection.

Periodic condition inspections are conducted to focus on slowly changing conditions that may not be noticed during daily inspections. For example, a periodic condition inspection of markings may be conducted in the Spring to evaluate the condition of airfield markings to determine the priority for repainting markings when weather

condition permit painting work. A periodic condition inspection of markings may also be conducted in the Fall to evaluate the condition of markings to determine if any marginal airfield markings are in need of repainting before cold weather prevents repainting of markings. Periodic condition inspections may be conducted to focus on the condition of pavement lips and safety areas, especially where turf is not yet well established after construction projects. Settling of soil can expose pavement lips and erosion in safety areas are common problems after construction projects. A periodic condition inspection may be conducted during or immediately after heavy rain to check for drainage problems that may occur from turf damming or plugged drains in safety areas. At airports with potential rubber buildup problems, periodic condition inspection are conducted with Continuous Friction Measuring Equipment (CFME) to monitor the pavement for friction problems and obscuration of the runway centerline marking.

CHAPTER 5. INSPECTION RECORDS

5.1 An effective safety self-inspection program includes procedures for capturing and tracking information about deficiencies and other phenomena from the inspection checklists. In addition, the airport operator must include a work order system so that deficiencies noted on the checklists can be corrected and documented in a timely manner.

5.2 The Inspection Log constitutes a record of conditions noted and can act as proof of follow-up corrective actions taken. Inspection logs can be electronic but the airport operator must be able to print hard copies when necessary. Information from the individual checklists is also an important administrative tool for airport management, providing a daily snapshot of the condition of the airport. Over defined periods, this information can indicate trends and identify problem areas and systems that must be addressed. This helps to direct financial planning and budgetary requirements. Certificated airports must retain checklist records for 12 consecutive calendar months [§139.301 (b) (5)]. Certificate holders are required to prepare and maintain for at least 12 consecutive calendar months, a record of each inspection, showing the conditions found and all corrective actions taken [§139.327 (c)].

5.2.1 Airports can use electronic record keeping programs specifically designed to meet self-inspection requirements. These must be available to the Administrator in an acceptable form during any inspection conducted by the FAA. The log of the regularly scheduled inspection checklists documents that safety inspection responsibilities are being met.

5.2.2 The operator must issue a Notice to Air Missions (NOTAM), as appropriate, reporting deficient conditions that could have an immediate and critical impact on the safety of aircraft operations. When corrective actions take place, the operator cancels the NOTAM. Certificated airports can use other notification systems and procedures in addition to the NOTAM system but not in lieu of NOTAMS, if acceptable to the Administrator.

CHAPTER 6. KNOWLEDGE AND EQUIPMENT FOR THE SELF-INSPECTION PROGRAM

6.1 Knowledge Requirements.

Airport inspection personnel who perform inspections must have a general knowledge of the ACM and a specific knowledge of the sections of the ACM that pertain to their duties and responsibilities [§139.303 (a)(c)]. The following areas require training at the specific airport at which they perform inspections:

1. Airport familiarization, including runway and taxiway configuration, airport marking, lighting, and sign systems, and the location and types of facilities that affect airside operations
2. Part 139 and the FAA AC standards and as applied specifically to the airport. The airport operator must provide training on these standards and provide access to these references [§139.303 (b)]
3. Procedures for conducting self-inspections and discrepancy reporting procedures as addressed in the Self-Inspection Program section of the ACM.
4. Procedures for access to, and operation in, movement areas and safety areas as specified under §139.329 at the specific airport
5. Airport communication procedures, including radio communication between air traffic control tower and personnel, use of the common traffic advisory frequency (CTAF) (aka UNICOM) as appropriate, and procedures for reporting unsafe airport conditions. During hours with no operational control tower, the operations inspector must also listen for aircraft and other vehicle operators.
6. At certificated airports, applicable sections of the approved ACM, as mentioned above, including the airport's:
7. Marking, Lighting, and Sign Plans
8. Airport Emergency Plan (AEP)
9. Wildlife Hazard Management Plan
10. Snow and Ice Control Plan (as applicable)
11. Construction Safety and Phasing Plan (CSPP) for projects (as applicable)
12. NOTAM requirements, notification, and distribution procedures (AC 150/5200-28, *Notice to Air Missions (NOTAMs) for Airport Operators)*

6.2 Records.

At certificated airports, the ACM must contain initial and recurrent training requirements for personnel conducting the airport inspections, and the certificate holder must maintain accurate records of the training received by the inspection personnel and the inspections they perform.

6.3 **Equipment.**

6.3.1 The self-inspection personnel performing inspections must have a two-way ground control radio capable of communicating with the Airport Traffic Control Tower on controlled airports and on the CTAF (aka UNICOM) at uncontrolled airports or at controlled airports when the tower is closed. Inspectors must know and use correct radio communication phraseology, procedures, and techniques, as referenced in the Aeronautical Information Manual (AIM). Airport police or others authorized to conduct all or part of the self-inspection must also know and use correct radio communication phraseology, procedures, and techniques as referenced in the AIM.

6.3.2 In addition, vehicles used during the inspection process must be equipped with:

1. A beacon for nighttime and low-visibility inspections; and
2. Either a beacon or orange-and-white checkered flag prominently posted on the vehicle for daytime inspections in order to provide maximum visibility.

6.4 **Checklists.**

Self-inspection personnel must document inspections on checklists that include all areas subject to inspection. A copy of the checklist from the previous inspection may be useful to provide information concerning deficiencies already noted/reported and/or corrective action taken. Uncorrected deficiencies should continue to be documented on inspection checklists until they are resolved. All conditions found must be documented on the inspection checklists, even if corrected during the inspection. All corrective actions must be documented, either on the checklist or on a work order.

CHAPTER 7. INSPECTION REQUIREMENTS BY TYPE

7.1 **Daily Inspection.**

The daily inspection of the airport's physical facilities concentrates on the areas described below. The inspector uses the airport diagram or an airport map and identifies deficiencies, including necessary details and locations, on it. The term "reporting" means that a comment is made on the checklist and, if applicable, marked on the airport diagram. Photographing the deficiency is an excellent method for documenting the condition in addition to noting the deficiency on the checklist.

7.1.1 §139.305, Paved Areas.

The inspection of pavement surface condition is critical to airport safety. Pavement inspection is conducted daily (e.g., in the early morning before flight operations begin). Additional inspections can be conducted as appropriate at the discretion of the airport operator to ensure pavement surfaces are clear. At airports with a history of pavement heaves, more frequent inspections are appropriate during high heat conditions. During the pavement inspection, the inspector:

7.1.1.1 Checks the pavement lips,—the area between full-strength pavement, and shoulders and between paved shoulders and safety areas. This observation has two purposes: first to check for water drainage problems due to turf damming, and, secondly, to assure that pavement lips do not exceed 3 inches. The inspection includes a check for vegetative growth along runway and taxiway edges that may impede drainage from the pavement surface.

7.1.1.2 Determines the presence of any cracks wide enough to cause loss of directional control in an aircraft. The inspector reports and marks location of cracks on the airport diagram for continued monitoring during future inspections. The inspection also includes the identification of holes that could cause directional control problems for an aircraft [Reference § 139.305 (a)(2)].

7.1.1.3 Checks the condition of pavement areas for cracks, scaling, spalling, bumps, low spots, and debris that could cause foreign object damage to aircraft.

7.1.1.4 Checks for low spots that are conducive to ponding during rainstorms and for areas where water may remain on the runway surface and cause hydroplaning.

7.1.1.5 Checks for mud, dirt, sand, loose aggregate, debris, foreign objects, rubber deposits, and other contaminants that must be removed promptly and as completely as possible.

7.1.1.6 Checks markings (see Par. 7.1.4). Refers to the ACs that contain methods and procedures for maintaining paved surfaces at the specific airport that are acceptable to the Administrator.

7.1.2 §139.307, Unpaved Areas.

At airports where applicable, the airport operator must maintain the condition of gravel, turf, or other unpaved runway, taxiway, or loading ramp and parking area on the airport, which is available for air carrier use, in a manner acceptable to the Administrator. Unpaved surfaces in the state of Alaska are predominantly involved in this Section of the regulation. During the inspection of unpaved areas, the inspector:

1. Checks the slope from the edge of the full-strength surface downward to the existing terrain and confirms that it is no steeper that 2:1.
2. Checks that the full-strength surfaces have an adequate crown or grade to assure sufficient drainage to prevent ponding.
3. Checks to ensure that the full-strength surfaces are adequately compacted and sufficiently stable to prevent rutting and loosening or build-up of surface material, which could impair directional control of aircraft or prevent drainage.
4. Checks that there are no holes or depressions that exceed 3 inches in depth or are of a breadth capable of impairing directional control or causing damage to an aircraft.
5. Checks for mud, dirt, sand, loose aggregate, debris, foreign objects, rubber deposits, and other contaminants that must be removed promptly and as completely as possible.
6. Refers to the ACs that contain methods and procedures for the maintenance and configuration of unpaved areas at the specific airport, which are acceptable to the Administrator.

7.1.3 §139.309, Safety Areas.

At certificated airports, the ACM must document the dimensions of the runway and taxiway safety areas. The inspector must know the dimensions of the runway and taxiway safety areas at the airport. During the safety area inspection, the inspector:

1. Inspects each safety area to ensure that it is cleared and graded and has no potentially hazardous ruts, humps, depressions, or other surface variations.
2. Inspects each safety area to ensure drainage by grading or storm sewers to prevent water accumulation.
3. Confirms that each safety area is capable under dry conditions of supporting aircraft rescue and firefighting (ARFF) personnel and equipment, snow removal equipment, and the occasional inadvertent aircraft excursion, without causing major damage to the aircraft.
4. Checks to ensure no object, except those fixed by function (such as runway lights, signs, or navigational aids), is located there. Objects in the safety areas must be constructed on frangibly mounted structures of the lowest practical height. At

certificated airports, the frangible point must be no higher than 3 inches above grade. Refer to Table 6-1 in AC 150/5300-13, *Airport Design*, current edition, for a list of NAVAID facilities authorized to be located in the RSA because they are fixed-by-function.

5. Determines that the base for any object located in safety areas is at grade level. This includes light fixtures, traffic and wind indicators, and NAVAIDs. This is especially important at airports subject to winter thaws. The inspector must check manhole and handhole covers to ensure they are at grade level and can support vehicles and the inadvertent aircraft excursion.

6. Identifies and documents any damage caused by wildlife. Documents evidence of wildlife activity, e.g., burrowing animals, birds, insects, mammals, etc., on the airport in accordance with part 139.337 and the ACM. Confirms wildlife hazard notification is accomplished through NOTAMS and other methods acceptable to the Administrator.

7. Notes equipment and objects, such as construction equipment or material that are temporarily located in a safety area. At certificated airports, this requires knowledge of the construction safety plan, which specifies locations of material and equipment. The inspection must confirm the airport has issued appropriate NOTAMs in accordance with §§139.309, .339, and .341.

8. Checks for any construction activity or vehicle/equipment located in the safety area. Keep in mind that during some construction projects the runway or taxiway may be restricted to small aircraft that do not need a full safety area for operations. Also keep in mind that in rare circumstances where a taxiway is indispensable for aircraft movement, a straight section of taxiway may be opened with trenches/excavations in the safety area, subject to restrictions. Self-inspection personnel should be familiar with the Construction Safety Phasing Plan (CSPP) for projects and identify any safety area issues related to construction activity that is not in accordance with the CSPP.

7.1.4 §139.311, Marking.

Airport markings provide information to pilots during takeoff, landing, and taxiing. Airport marking must be properly maintained and must comply with standards specified in AC 150/5340-1*, Standards for Airport Markings*, current edition. Part 139 regulations provide compliance with these standards is mandatory for operators of certificated airports and compliance may be required for airport operators of airports where Federal funds have been used for runway and taxiway construction/ rehabilitation and the grant assurances remain in effect. The inspector must be familiar with the appropriate marking required at the airport in the approved Marking Plan. During the inspection, the inspector:

1. Confirms that the marking of each runway meets the specifications for takeoff and landing minimums.

2. Confirms that each taxiway has a centerline and taxiway edge markings, as appropriate (AC 150/5340-1 specifies when edge marking is required).
3. Checks holding position marking for visibility and correct layout.
4. Checks ILS critical area/POFZ/APCH markings if installed on the airport.
5. Checks surface painted holding position signs (SPHPS) and enhanced taxiway centerline markings for visibility and correct layout.
6. Refers to the appropriate sections of AC 150/5340-1 for information regarding marking that differentiates movement area from non-movement area and the associated marking for operations in the non-movement area (e.g. vehicle roadways, taxi lanes, parking for fueling vehicles and other ramp marking).
7. Checks markings for correct color, peeling, blistering, chipping, fading, and obscuration because of rubber buildup and notes on the airport maps the location of any marking that is obscured, faded, or deteriorating.
8. During and after construction projects, checks new markings for compliance with marking standards.
9. Checks markings with glass beads during periods of darkness to determine if the reflectivity level is adequate at night. In addition, the inspector confirms that the glass beads are adequately embedded to avoid being ingested by aircraft engines.
10. Reports deviations from standard marking and their location on the airport map. Inspectors must monitor and document non-complying marking. New markings installed during construction projects must be checked for compliance to marking standards.

7.1.5 §139.311, Signs.

Signs provide important information to pilots while taxiing and to vehicle and equipment operators on the airport. Signs must be in accordance with the standards specified in the current versions of AC 150/5340-18*, Standards for Airport Sign Systems*, and AC 150/5345-44, *Specification for Runway and Taxiway Signs,* current editions. Part 139 regulations provide compliance with these standards is mandatory for operators of certificated airports and compliance may be required for airport operators of airports where Federal funds have been used for runway and taxiway construction/rehabilitation and the grant assurances remain in effect. The inspector must know the appropriate sign standards and specifications at the airport and ensure that signs comply with the approved Sign Plan. In addition, at Class I, II, and IV airports, the signs required by §139.311 (b)(1) must be internally illuminated. At Class III airports, the signs required by §139.311 (b)(1)(ii) and (b)(1)(iii) must be internally illuminated. During the inspection, the inspector:

1. Checks signs to ensure they are in accord with the approved Sign Plan and that they identify taxiways and runways correctly. Signs must be easy to read, located properly, and follow the color and retro-reflectivity standards.
2. Checks to ensure that all lighted signs are operational and not obscured by vegetation, dirt, snow, etc.

3. Checks to ensure that signs are properly tethered.
4. Checks signs to ensure they are frangibly mounted (the frangible mount being no greater than 3 inches above the base) and that the concrete bases are level, secure, and properly maintained at grade level.
5. Checks to see that sign panels are not missing, askew, cracked, broken, or otherwise damaged or compromised.
6. Most importantly, confirms that signs have the correct legend and arrow orientation as well as that all dividers are placed correctly and are the correct color.
7. During and after construction projects, checks new signs for compliance with sign standards and, at certificated airports, confirms they are in accordance with the approved Sign Plan.
8. During periods of darkness, checks to ensure that signs are properly illuminated and that mandatory instruction signs are illuminated with the associated runway lighting system. However, at some locations where runways are inactive, (lower priority runway during snow events or inactive runways during low visibility operations below 1200 RVR), holding position signs on taxiways crossing inactive runways may be connected to the taxiway circuit.
9. Checks signs for correct operational intensity settings and that they do not flicker or change intensity when runway light intensity is changed.
10. Check runway exit signs to ensure they are illuminated when the runway lights are illuminated. Runway exit signs are typically connected to the runway circuit, however, if they are connected to the taxiway circuit, there may be a local procedure to turn on the associated taxiway lights whenever the runway lights are turned on to meet this standard.
11. Reports non-standard signs or any sign that is not functioning properly, is faded, or is damaged. At certificated airports, the inspector ensures the airport has issued a NOTAM about any malfunctioning holding position sign or ILS critical area sign, per §139.339. Inspectors must document and monitor any non-standard sign.

7.1.6 §139.311, Lighting.

7.1.6.1 The airport operator is required to provide and maintain lighting systems for air carrier operations when the airport is open at night and during conditions below visual flight rules (VFR) minimums. Lighting is also required in Alaska during periods in which a prominent unlighted object cannot be seen from a distance of 3 statute miles or when the sun is more than six degrees below the horizon. The lighting systems required by §139.311 (c) consist of runway lighting, taxiway lighting, approach lighting (as authorized), an airport beacon, and obstruction lighting. Several ACs provide information and guidance on lighting and contain the lighting standards for certificated airports. During the inspection, the inspector checks the taxiway lighting/reflector system to ensure that they

are the proper color, oriented correctly and meet operational tolerance limits specified in AC 150/5340-26, *Maintenance of Airport Visual Aid Facilities,* current edition. Taxiway lighting consists of one of the four following systems.

1. Centerline lights,
2. Centerline reflectors,
3. Edge lights, or
4. Edge reflectors.

7.1.6.2 During the inspection (which can be accomplished over a 24-hour period), the inspector will:

1. Check each runway lighting system to ensure that it meets the specifications for takeoff and landing minimums, as authorized by the Administrator. This can include runway centerline and touchdown zone lights, displaced threshold lights, if installed, lead-on/lead-off lights, Runway End Lights (RENLs), stop bars, LAHSO and Runway Status Lights and the runway threshold/runway end lighting system.
2. Check all runway lights and threshold/end lights, to ensure they are the proper color and oriented correctly, this includes the specified lighting configuration for ILS-capable runways.
3. Check all taxiway lights and runway guard lights, if installed, (both elevated and in-pavement) for meeting operating tolerance limits.
4. Check the approach lighting system for each runway to ensure that it meets the specifications for takeoff and landing minimums, as authorized by the Administrator, unless an entity other than the certificate holder provided and/or maintains the system. However, if the inspector notes and documents a deficiency in a system not owned by the airport, the owner of the system is notified so that corrections or repairs can be made as well as documented that the deficiency has been corrected.
5. Check the operation of the airport beacon and ensure the proper color is being reflected for airport type.
6. Check obstruction lighting and marking within the airport's authority to ensure correct and effective operation.
7. Check apron edge lights, if installed.
8. Check all lights, lighting fixtures, and lighting systems to ensure that they are free of vegetation and obscuration by deposits of foreign material.
9. Check the following for proper shielding, if installed:

10. Apron lights, vehicle parking area lights, lighting in fuel storage areas, roadways, buildings
11. Floodlights used in construction areas.
12. If inspector notes a deficiency with an approach lighting system, the deficiency is documented and the owner or entity responsible for maintenance is notified so that corrections can be made. Document all fixtures missing and lights that are not working (e.g., burned out) or appear dim.
13. Check that lights function properly through the manual or radio features and that photocell controls function properly, if installed.
14. Check all light bases to ensure proper alignment, correct height, and grading to prevent erosion and ensure that fixtures are frangibly mounted, the point of which is no more than 3 inches above the base.
15. For Low Visibility Operations/Surface Movement Guidance and Control System (LVO\SMGCS) operations below RVR1200, conduct an initial inspection of stop bar lights, if installed, runway guard lights, clearance bar lights, taxiway centerline lights, and taxiway edge lights installed on the low-visibility routes in accordance with the airport's LVO/SMGCS plan.
16. For operations below RVR1200 with any LVO/SMGCS lighting systems that are not electronically monitored, periodically inspect every 2 to 4 hours during low visibility operations. The inspections must be conducted according to the airport's LVO/SMGCS plan, which is referenced in the ACM.
17. For operations below RVR600 with any LVO/SMGCS lighting systems that are not electronically monitored, inspect every 2 hours. The inspections must be conducted according to the airport's LVO/SMGCS plan, which is referenced in the ACM.

7.1.6.3 Light inspections must occur during periods of darkness in order to evaluate lighting systems effectively. This is when they provide the primary visual aid for pilots. While the inspector observes airport lighting owned and maintained by the airport operator as a priority, the inspector must also document and report immediately any lighting discrepancy owned or operated by others to the appropriate, responsible owner, in the interest of safety. In Alaska, lighting systems must be inspected during periods of darkness or during periods in which a prominent unlighted object cannot be seen from a distance of three miles or the sun is more than six degrees below the horizon.

7.1.7 §139.313, Snow and Ice Control.

7.1.7.1 Snow and Ice Control Plans (SICP) are unique to each airport. Therefore, the inspector must be familiar with the contents of the plan for the specific

airport. AC 150/5200-30, *Airport Field Condition Assessments and Winter Operations Safety*, current edition, contains guidance and procedures for snow and ice removal. At airports where snow and ice occur throughout the winter season, preparation and tabletop exercises usually begin off-season. Familiarization with the Snow and Ice Plan can begin with the airport's off-season preparation especially when new techniques, equipment, and authorized materials are involved in the snow removal and ice control processes. Many airports conduct a "Lessons Learned" session or series of sessions after the winter season. These sessions can be helpful to the Inspector as well.

7.1.7.2 During the snow and ice control inspection, the inspector, in accordance with the SICP:

1. Checks runways and taxiways to ensure that snow banks and drifts next to the runways and taxiways provide clearance for aircraft wing tips, engines, and propellers.
2. Checks to ensure that snow is not piled across the runway threshold or across runway/runway intersections.
3. Checks runway and taxiway lights and signs to ensure that they are not obscured by snow or damaged by snow removal operations.
4. Checks for foreign objects that may have been left on the pavement from snow removal operations i.e. chunks of ice or debris from the snow removal equipment.
5. Checks taxiway intersections and access routes to ensure that snow removal operations have provided adequate clearances for ARFF equipment.
6. Checks to ensure that critical areas for the operation of electronic NAVAIDs are clear.
7. Checks for and reports slippery pavement conditions, using RCAM as described in AC 150/5200-30 to determine Runway Condition Codes or a MU value from a friction measurement device. There is no correlation between friction measurement numbers and braking action reports of Good, Fair, Poor, or Nil. These reports are transmitted to the ATCT.
8. Checks for snow and /or ice accumulation that the snow and ice removal operation has missed and for any condition resulting from removal operations that creates a hazard on the airside. The inspector must report such accumulations or conditions as a deficiency requiring corrective action. At certificated airports, the inspector must ensure the operator issued NOTAMs for snow, ice, slush, or water on the movement area or loading ramps and parking areas as specified under § 139.339.

7.1.8 §§ 139.315, .317, .319 Aircraft Rescue and Fire Fighting.

Sections 139.315, .317, and .319 address Index Determination, Equipment and Agents, and Operational Requirements. During the inspection of ARFF capabilities, the inspector:

1. Checks the status of ARFF response, which includes the availability of equipment, fire fighters, and extinguishing agent (s) to meet Index if applicable, and operational readiness. At certificated airports, the inspector ensures that ARFF capabilities comply with the index and provisions of the approved ACM. The inspector must report deficiencies for corrective action.
2. Ensures alarm and emergency notification communication systems are operable and verifies that it makes all of the appropriate notifications.
3. Checks for construction or maintenance activity on the movement area, which could require ARFF or affect response routes, and ensures that notification has been given to, and received by, the appropriate ARFF official.
4. Reports and monitors ARFF vehicle(s), equipment, extinguishing agent(s), and any ARFF personnel capability that is not available or inoperative as well as any change to the airport's critical aircraft that may require a change to ARFF Index. At certificated airports, the airport operator must notify the FAA Regional Airports Division if an ARFF vehicle required for Index is inoperative and cannot be replaced immediately, as specified in §139.319(g). The airport operator must also issue a NOTAM about the unavailability of any rescue and fire fighting capability, as specified under §139.339.

7.1.9 §139.321, Handling and storing of hazardous substances and materials.

This section requires the certificate holder or airport operator who acts a cargo handling agent to establish and maintain procedures for the protection of persons and property on the airport during the handling and storing of any material regulated by the Hazardous Materials Regulations (49 CFR 171through 180). The daily inspection of aircraft fueling operations, if certified, must focus on the requirements of §139.321 as well as the local fire code. This includes fuel storage areas and facilities, mobile fuelers, fuel hydrants, fueling cabinets, load racks, self-fueling and requirements for DPF equipped fuel service vehicles and the procedures and practices of fueling personnel. The inspection must also include security, fire protection, general housekeeping, and any other fuel dispensing facilities and procedures. The certificate holder must schedule the more detailed fueling operation inspection on a quarterly basis (see Quarterly Fueling Operations under Periodic Condition Inspection). The National Fire Protection Association publishes the document cited in AC 150/5230-4 (NFPA 407), which contains information about fueling procedures and practices at fuel storage facilities, fuel dispensing, and bonding.

7.1.9.1 During the daily inspection of aircraft fueling operations, the inspector:

1. Determines that fueling personnel are performing fueling operations in a safe and secure manner, in accordance with NFPA 407 and the

local fire code including ramp operations and refilling operations at the fuel storage facility.

2. Checks to ensure that the appropriate signs for the fuel farm are installed, that Emergency Shut-Off placards are installed at both the fuel farm and on mobile fuelers and any other location where required by NFPA 407 and the ACM.
3. Checks to ensure that the fuel storage facility is properly protected, that access is secured when not occupied by an authorized user.
4. Reports and monitors any unsafe fueling practice(s) and violation(s) of part 139, the ACM, and the local fire code. At certificated airports, the inspector must document and report non-compliance items.
5. Refers to NFPA 407 for a complete understanding and application of the standards and requirements for fueling operations and the handling and storing of hazardous materials and substances.

7.1.10 §139.323, Traffic and wind direction indicators.

The inspection of NAVAIDs concentrates on the visual navigational aids owned by the airport operator. However, the inspector must also observe the condition of any navigational aids owned or operated by others, including those owned by the FAA, and report any observed problems immediately to the NAVAID owner. During the inspection of NAVAIDs, the inspector:

1. Determines that a segmented circle, if installed, should be clear of obstructing vegetation that could impair the visibility of the circle elements.
2. Determines that the airport rotating beacon is visible and working properly.
3. Checks any wind cones to ensure they are situated correctly, swing freely, do not have faded or frayed cone fabric, and, if lighted, that all lights are operating.
4. Determines whether the Runway End Lights are flashing in proper sequence and mounted on frangible couplings.
5. Checks Visual Glide Slope Indicators (VASIs, PLASIs, or PAPIs) to ensure that the lights are working and mounted on frangible couplings.
6. Determines that the Approach Lighting Systems (ALS) are functioning properly.
7. Checks all installations for proper alignment.
8. Reports any NAVAID that is malfunctioning, inoperable or misaligned, damaged, or missing, to the owner or entity responsible for maintenance.
9. Refers to the appropriate ACs on airport NAVAIDS and their maintenance.

7.1.11 §139.325, Emergency Plan.

Operations personnel must be familiar with activities for which they are responsible in the Airport Emergency Plan, e.g., communications, gate access, coordination

procedures, and their role after an event on the airport [§139.325 (g)(3)(4)]. Inspection of facilities involved in the Emergency Plan, e.g., gates and access points for mutual aid, are integral elements of the daily checklist.

7.1.12 §139.331, Obstructions.

7.1.12.1 The operations personnel must perform a visual check of obstructions shown on the airport diagram or map and determine that they are properly marked and lighted. If an object is found and thought to create an obstruction, the inspector marks its approximate position on the airport diagram or map and reports this to the airport operator so that its status may be determined or if proper notification to the FAA, such as is required through part 77 or Airport Layout Plan review, has been provided.

7.1.12.2 During the inspection of obstructions, the inspector must also determine if vegetation or trees have grown to a height that necessitates additional further action. The inspection must also include, as appropriate:

1. A check on the airport for any construction equipment that may be penetrating protected airspace for flight operations. These obstructions can include piles of material in safety areas, cranes, heavy equipment, and pick-up trucks. If the construction safety plan allows materials and equipment in the safety areas, the inspector must check to ensure that there is no obstruction or derogation of navigation signals or negative effect on aircraft landing and takeoff operations.
2. A check off-airport for construction in the vicinity that could impact operations at the airport (e.g., cranes, radio towers). The inspector monitors off-airport construction and includes a comment on the checklist to alert others to be aware of potential penetrations of the airspace around the airport; this is coordinated with the ATCT, if appropriate.
3. Reporting and monitoring of any obstruction light that is missing, inoperative, or damaged and of any object that appears to be an obstruction and is not properly marked or lighted to the entity responsible for maintenance.
4. Reference to the ACs appropriate to obstructions and the methods for marking and lighting them and addressing them as potential hazards.

7.1.13 §139.333, Protection of NAVAIDs.

This section requires the certificate holder to ensure that the operation of an electronic or visual NAVAID and air traffic control facilities on the airport are not compromised. This requirement includes the protection of NAVAIDs from vandalism and theft, and if the NAVAIDS are owned by an entity other than the certificate holder, assistance in

protecting them. The inspector must check NAVAIDs to confirm there is no derogation of signal and no impediment to a visual aid.

7.1.14 §139.335, Public protection.

7.1.14.1 During the inspection, the inspector checks gates, fencing, locks, and other safeguards that prevent inadvertent entry by unauthorized persons and vehicles onto airport property, especially onto movement area. In addition, protection from jet blast by the use of blast fencing requires inspection to ensure that the fencing is in place and is intact. The inspector reports and monitors any damaged or missing safeguard.

7.1.14.2 In accordance with the airport's security plan, the inspector must report any unauthorized persons or vehicles in the movement area. Airports regulated by the Transportation Security Administration may have additional requirements for reporting and responding to unauthorized persons and vehicles or suspicious activity.

7.1.15 §139.337, Wildlife hazard management.

7.1.15.1 Because of damage to aircraft and the potential loss of life associated with wildlife strikes, operations personnel must be vigilant in checking for evidence of insect, bird, and animal activity on the airport. During inspections of runways and taxiways and their associated safety areas, the inspector must identify and locate on the airport diagram or map any activity that indicates the presence of wildlife. If the inspector observes wildlife of a size, or in numbers, capable of causing an event described in §139.337 (b)(1-3), then the inspector must inform the airport operator and document evidence of wildlife activity, e.g., loafing, burrowing, nesting, perching, feeding, or using the airport as a throughway or flyway. This evidence should be documented in a wildlife log; in accordance with federal, state and local wildlife permit requirements as described in a Wildlife Hazard Management Plan. The inspector must also be aware of the proximity of wildlife attractants, such as landfills, parks, golf courses, construction, ponds and/or other water sources, etc., as potential sources of wildlife visits to the airport.

7.1.15.2 Evidence of wildlife activity found during the daily self-inspection must be properly documented and also reported to the appropriate authority on the airport, e.g., the wildlife biologist. All dead wildlife found and all wildlife aircraft strikes must be reported to the Regional Office Airports Division and on the FAA Form 5200-7, *Bird/Other Wildlife Strike Report.* This form may be obtained from the FAA website, http://www.faa.gov. Additionally, the inspector must check fencing and gates for wildlife accessibility to the airport and ensure that wildlife control equipment is available and operational.

7.1.16 §139.339, Airport condition reporting.

During periods of time when a condition on the airport requires notification, the inspector must monitor for changes that will require action on the part of the airport certificate holder (e.g., that snow plowing operations are being conducted in accordance with the SICP). Each certificate holder must prepare and keep, for at least 12 consecutive calendar months, a record of each dissemination of airport condition to air carriers (§139.339 (d)).

7.1.17 §139.341, Construction and other unserviceable areas.

Operations personnel must be familiar with the construction safety procedures and guidance provided in AC 150/5370-2, *Operational Safety on Airports During Construction*, current edition. At certificated airports, the inspector must also be familiar with the construction safety procedures contained in the ACM and in the specific approved Construction Safety Phasing Plan (CSPP). During the construction inspection, the inspector must:

1. Check all construction adjacent to movement areas to ensure these areas are identified with conspicuous marking and lighting.
2. Determine that stockpiled material and construction materials are properly stored and not left in safety areas or movement area unless properly secured. Any material remaining on the airside must be secure from being moved by wind, jet blast, or prop wash.
3. Determine that construction equipment (such as bulldozers, cranes, etc.) are marked and lighted and parked clear of the safety areas.
4. Ensure construction barricades are properly positioned to define the limits of construction and hazardous areas and, check to ensure lights are working properly and are positioned correctly.
5. Check to ensure that debris and foreign objects are continuously being picked up around construction areas.
6. Check for open trenches in the safety areas or adjacent to movement areas and that barricades, as required, are in place to prevent mishaps.
7. Check operation of lighting in areas adjacent to construction before the construction crews depart for the day. In particular, ensure that mandatory instruction signs remain lighted with the associated runway lights.
8. Check NOTAMs daily during construction projects to ensure they accurately reflect the conditions on the airport.
9. Verify that closed taxiways or runways are properly marked and lighted to include lighted Xs.
10. Report and monitor any dangerous condition created by construction activity, including damage to signs, lights, markings, and NAVAIDs, or equipment and supplies left in movement areas and safety areas.

7.2 **Continuous Surveillance Inspection.**

Continuous surveillance inspections are conducted any time inspection personnel are in an area designated as subject to continuous inspection in the ACM. This inspection also monitors conditions from previous inspections. It consists of a general observation of activities for compliance with part 139 and airport rules and regulations, procedures, etc., as well as to find deficiencies in the physical facilities, which are readily apparent. Appendix B contains a sample Continuous Inspection Checklist. Continuous surveillance of airport physical facilities and activities can involve any of the activities of the daily inspection but must cover at least the areas described below.

7.2.1 §139.329, Pedestrians and ground vehicles.

The inspector:

1. Determines if vehicle drivers are following the airport regulations for procedures on the airside and monitors their communications. This includes the operations of all ground vehicles, maintenance vehicles, mowing equipment, and other vehicles and equipment that may be in the safety areas. Attention to these activities is critical during construction, winter operations, special events, and unusual conditions.
2. Reports and monitors any vehicle operator who is not complying with part 139 and the airport rules and regulations.
3. Reports any ground vehicle incident or accident observed and any ground vehicle signs and markings that are damaged, missing, or obscured.

7.2.2 §139.321, Handling and storing of hazardous substances and materials.

The inspector must:

1. Observe that proper bonding is being used, deadman controls are not blocked, no smoking prohibitions are in effect (this can include a random check of vehicles to ensure that smoking trays and lighters have been removed), and aircraft are not being fueled inside hangars.
2. Check for proper parking of mobile fuelers to ensure these vehicles are at least 10 feet apart and 50 feet from buildings.
3. Check for fuel leaks or spills in the fuel storage area, in hydrants, and around mobile fuelers.
4. Determine that the fuel farm is secure and free of flammable materials, including litter and vegetation.
5. Report and monitors previously reported unsafe fueling conditions/fueling operations discussed above and other violations of the local fire code and the airport's specific fuel fire safety procedures.

7.2.3 §139.313, Snow and Ice Control.

During the continuous surveillance inspection of snow and ice removal operations, the inspector must:

1. Check snow and ice-covered pavements and reports and monitors all surfaces where snow and ice may affect the safety of aircraft operations.
2. Monitor snow and ice removal NOTAMs to ensure they remain current and issues timely corrections, as necessary. If the airport uses other means to notify tenants of snow and ice removal operations, e.g., faxed or electronic messages, the inspector monitors this information for accuracy.

7.2.4 §139.341 Identifying, marking, and lighting construction and other unserviceable areas.

Operations personnel must monitor construction projects continuously to ensure airport safety, since many construction projects include workers who are not familiar with aviation operations. The inspector must:

1. Check construction projects to ensure that the contractor is following the construction safety plan.
2. Report any of the following conditions:
3. Unauthorized use of runways, taxiways, and aprons by construction personnel and equipment.
4. Conditions that can result in runway incursions. This includes ensuring that construction areas are properly barricaded and that cones, markings, lights, etc., are properly positioned to provide warnings to pilots and vehicle operators.
5. Construction equipment that is being operated in the ILS/MLS critical area(s), unless coordinated with the ATCT.
6. Open, unlocked, and/or unattended perimeter gates; construction vehicles and personnel not following access and escort procedures.
7. Construction vehicles not properly marked or missing appropriate flags and/or beacons.
8. Foreign object debris on haul roads adjacent to movement areas, which can be tracked onto taxiways, aprons, and ramp areas.
9. Confusing or missing signs, marking, or lighting that could potentially confuse or mislead pilots or vehicle operators.

7.2.5 §139.335, Public Protection.

Operations personnel must follow instructions regarding gate closures when leaving and entering the airside, to prevent illegal “piggybacking.” They must also be more aware of activities during special airport events and construction projects. Safeguards to protect the public and to protect the airport require extra vigilance, because they are imposed at a level above the normal routine to accommodate an activity that is not part of the airport’s normal routine. The inspector must:

1. Check for unauthorized personnel, vehicles, and animals, particularly in areas reserved for aircraft passengers, when the general public is present or has access to the air carrier ramp and other portions of the movement area, e.g., remote aircraft parking locations.

2. Check for inoperable or blocked gates, particularly those that would impede access by aircraft rescue and firefighting equipment or mutual aid.
3. Check for open or unlocked gates and missing or damaged signs posted to prevent unauthorized access to the airfield.
4. Check for damaged or missing jet blast fences.

7.2.6 §139.337, Wildlife Hazard Management.

The continuous inspection is especially important with respect to the identification of wildlife hazards, and the inspector must check for and report the following conditions:

1. Any animal, bird, or condition on or adjacent to the runways, taxiways, aprons, and ramps, which serves as evidence of wildlife activity. The inspector must report any wildlife activity to the appropriate office (e.g., wildlife biologist, airport operator) for follow-up action to determine if there is a potential wildlife hazard problem.
2. Potential hazards created by existing or proposed landfills, golf courses, parks, or natural conditions and noted on the wildlife log.
3. Wildlife strikes and carcasses found on the airfield. The inspector reports these on FAA Form 5200-7, Bird/Other Wildlife Strike Report, which is available on the FAA website at www.faa.gov.

7.2.7 §139.305, .307, 309, Foreign Object Debris (FOD).

The inspector must continuously check for and remove any debris in movement areas, non-movement areas, aircraft parking areas, and loading ramps.

7.3 Periodic Condition Inspection.

Periodic condition inspections consist of specific checks of physical facilities on a regularly scheduled basis. Usually these inspections occur on a weekly or quarterly basis. Checks can require use of equipment (e.g., Walker Bar to measure VASI glide slope angles, a transit to survey approach slopes, or continuous friction measurement equipment). It can also involve checking specific features of physical facilities. Periodic inspection of airport physical facilities and activities must include at least the areas described in this section and those included in the ACM. A basic checklist is included in Appendix B.

7.3.1 §139.305, Pavement areas.

The inspector must check pavement surfaces, including grooved pavement that facilitates drainage, for rubber buildup, polishing, loose aggregate, or other items that can affect friction. The inspector must report rubber build-up that must be removed in the interest of maintaining the pavement integrity of the touchdown zone area.

7.3.2 §139.31,1 Marking, signs and lighting.

The inspector must check marking for conspicuity during daylight and hours of darkness. Marking with glass beads must be check for effectiveness and for age, when

beads can become loose and act as debris and a hazard to aircraft engines. The inspector notes pavement marking to ensure they are correct and visible and that marking on concrete or faded asphalt is outlined with a black border when conspicuity is at issue.

7.3.2.1 The inspector must check signs for accuracy, position, and to determine the integrity of the base and the frangible mount. The inspector also checks sign faces for peeling, color fading, cracks, and other deterioration. The inspector reports any deficiency for correction.

7.3.2.2 The inspector must check runway and taxiway lights for intensity and color and the integrity of the cans, the fixtures, and associated bases to ensure that electrical connections are secure and not compromised either by winter operations of mowing activities.

7.3.3 §139.321, Three month Fueling inspections.

Operations personnel at certificated airports are required to ensure that fire safety standards, contained in NFPA 407 are being observed. These inspections should be conducted every three consecutive months. During the inspections of the fueling facilities, the inspector also ensures that the local fire code is being observed as well. The fire safety standards for fueling operations must be listed in the ACM, and the three month inspections must confirm that fueling operations comply with the appropriate section of the ACM. Sample inspection checklists for fuel storage areas and mobile fuelers are included in Appendix B. Certificated airports must maintain records of the three month inspections for 12 consecutive calendar months. At fuel storage areas ("fuel farms") and loading/unloading stations, the inspector must:

1. Check fuel storage areas for adequate fencing and security to prevent unauthorized access or tampering.
2. Check for "No Smoking" placards that are clearly visible from all sides.
3. Check fuel storage areas for materials such as trash or vegetation that could contribute to the spread of fire and for equipment malfunctions, leaks, or activities that could be ignition sources.
4. Check fueling equipment to ensure that it is in good operating condition and free of fuel leaks.
5. Check piping for reasonable protection from damage by vehicles, if piping is above ground.
6. Check fuel storage areas for at least two accessible and serviceable fire extinguishers.
7. Check hoses to ensure correct procedures are being used and that abrasion of the hoses is avoided. Where the open hose discharge capacity of the equipment is more than 200 gallons per minute, at least one wheeled extinguisher with at least 125 lbs. of agent is also required.
8. Check for explosion-proof equipment, switches, and wiring that is reasonably protected from heat, abrasion, or impact, which could cause an ignition source.

9. Check for piping, filters, tanks, and pumps being electrically bonded together and interconnected to an adequate grounding rod.
10. Check for a serviceable bond/ground wire with clip at each loading/unloading facility for grounding tankers and mobile fuelers.
11. Check loading stations for deadman control features.
12. Ensure that there is boldly marked emergency cutoff placarding and that the emergency shutoff is capable of stopping all fuel flow with one physical movement. The emergency cutoff must be located outside the probable fuel spill area near the route that normally is used to leave the spill area or to reach the fire extinguishers.
13. Check for clearly visible coding and/or labeling of fuel products.

7.3.4 Mobile fuelers.

During the three month inspection, the inspector inspects all mobile fuelers or a random sample of mobile fuelers at large facilities each quarter. The inspector must track any samples used so that all mobile fuelers in a fleet are inspected in the course of a year. The inspector must:

1. Ensure they meet fire safety standards and ensure that they are in good operating condition and free of fuel leaks.
2. Check mobile fuelers for parking at least 50 feet from a building and at least 10 feet from each other. At airports with a mobile fueler maintenance building, the inspector must ensure it is compliance with directives issued by the local fire marshal.
3. Check for flammability decals on all sides (Lettering should be at least 3 inches high), check for hazardous materials placards on all sides (Hazmat number for Jet A mobile fuelers is #1863 and for 100LL mobile fuelers #1203), check the cab for a “No Smoking” sign, and confirm that ash trays, cigarette lighters, and any other smoking equipment have been removed.
4. Check for two fire extinguishers, accessible from each side of the mobile fueler. Fire extinguishers must be charged, sealed, and tagged from the last fire extinguisher inspection.
5. Check dry chemical extinguishers to ensure they are only B-C rated. (ABC rated multi-purpose dry chemical extinguishers are not to be used on mobile fuelers, as they are highly corrosive to aircraft and can cause significant damage to aircraft engines.)
6. Check emergency fuel cutoff valves to ensure markings are large and legible and the valves are operable. Emergency fuel cutoff must be accessible from both sides.
7. Check electrical equipment, switches, wiring, and tail light lens covers for explosion proof construction and reasonable protection from heat, abrasion, or impact, which could be an ignition source. Crazed lens covers indicate age and deterioration and must be replaced.

8. Check for serviceable bonding wires and clamps.
9. Check nozzles for deadman control feature.
10. Check the vehicle exhaust system for exhaust leaks and for adequate shielding if it extends under the fuel tank portion of the vehicle.
11. As appropriate, check hydrant fueling stations for product leaks and proper maintenance.

7.3.5 Hydrant Fuelers.

As appropriate, the inspector must check hydrant fueling stations for product leaks and proper maintenance.

7.4 Traffic and Wind Direction Indicators and the Protection of NAVAIDs, §139.323 and §139.333 Navigational Aids (NAVAIDs).

The inspector must check for alignment and monitor for calibration NAVAIDs on and owned by the airport, where applicable. For equipment not owned by the airport, the inspector must contact the owner and report any malfunction or problem.

7.4.1 § 139.323, Navigational Aids (NAVAIDs).

The inspector must check the aiming of Runway End Lights and Visual Glide Slope Indicators owned by the airport.

7.4.2 § 139.333, Navigational Aids (NAVAIDs).

7.4.2.1 **Lighting.**

The inspector must check lighting and lighting controls and:

1. Determine whether power generator and circuit resistance tests are being conducted, as scheduled.
2. Ensure lights with adjustable optical systems are checked for proper aiming, as scheduled.

7.5 § 139.331, Obstructions.

7.5.1 The inspector must check to ensure there is adequate protection from overhead power lines adjacent to aircraft parking areas.

7.5.2 The inspector must continually monitor trees, vegetation, and structures near the airport that could affect approach surfaces to the runways, encroach on safety areas, or penetrate part 77 surfaces.

7.6 **§ 139.317 and § 139.319 Aircraft Rescue and Fire Fighting.**

ARFF, while a special discipline in its own right, must be inspected to ensure for readiness in terms of the airport's Index and requirements under the regulation. The inspector must:

1. Periodically determine if ARFF personnel and equipment are capable of meeting response times, as required by part 139 and in accordance with the provision of the ACM.
2. Ensure that recurrent training and hot-fire drills are being conducted as required by part 139.319(i)(2) and as described in the ACM. The documentation of training must meet the requirements of § 319.301(b)(2).
3. Check to ensure that equipment, equipment changes, and additions of equipment are included in the ACM as required by part 139.

7.7 **Special Condition Inspections.**

Special condition inspections occur after a complaint is made or an unusual condition, weather, or other event occurs. See chapter 4 above in this AC. A special inspection must be conducted after an accident or incident and must be conducted prior to the end of construction activity, so that the responsible construction personnel can take corrective action can be taken by. Depending on circumstances, special condition inspections may include the inspection of any of the specific facilities or activities under the other three inspection types. A special condition inspection of airport physical facilities and activities must include at least the areas described in this section, which are also included in Appendix B.

7.7.1 §139.305, Pavement Areas.

After a rain or thunderstorm, the inspector checks the pavement areas for ponding and edge damming.

7.7.2 §139.311, Markings and Signs.

The inspector must:

1. Determine if markings are visible at night especially when the pavement is wet following heavy rain.
2. After construction or maintenance operations, ensure that new pavement markings are correct (e.g., precision vs. non-precision runway marking).

7.7.3 §139.309, Safety Areas.

The inspector must:

1. Check the storm sewer system, verify that inlets are not clogged and drainage channels are free of debris, and mark the location on the airport diagram or map of any standing water. This includes checking that all inlet covers are in place and sewer covers are at grade level.

2. Check construction and maintenance activities to ensure that no hazardous conditions have been created (equipment left in safety areas, unacceptable pavement lips created by ground alteration work, ruts from construction equipment or from mowing equipment, etc.), before reopening a runway or taxiway when the construction or maintenance activity has been performed in the adjacent safety area(s).
3. When an aircraft has left the pavement and entered a safety area, check to ensure that no ruts or holes have been made by the aircraft tires or by personnel and equipment during the recovery operation and if present, ensure that corrections are made as soon as practicable.
4. Inspect engineered materials arresting system (EMAS), if installed, for damage and for deterioration.
5. Physically drive or walk the safety areas to check for deficiencies.

7.7.4 §139.313, Snow and Ice.

Several special inspections may be needed during a winter storm until the airport is back to a normal operation. The inspector must:

1. After snow and ice removal operations, check to ensure that no foreign objects remain on the areas where snow removal operations have occurred. If a friction measurement device is used, issue the appropriate numbers obtained from the equipment. Operations personnel are not authorized to correlate friction measurement numbers with braking action reports. If a friction measurement device is not available, issue braking action reports to Air Traffic.
2. Conduct a special sign inspection after snow and ice storms for signs that are obscured by snow or ice or that may have been damaged by plows or by snow thrown by blowers.

7.8 Construction.

7.8.1 §139.341, Construction.

The inspector must:

1. Ensure that construction areas are barricaded and lighted properly.
2. Check construction equipment to ensure that they are parked within the pre-arranged areas.
3. Conduct night inspections to ensure barricades, warning lighting, and reflectors are adequate to keep aircraft away from the construction area.
4. Check the location of construction material and stockpiles to ensure that they are outside of safety areas and do not block any signs.
5. Check any movement areas adjacent to construction areas or movement areas traversed by construction vehicles to ensure there is no FOD present.

6. Check movement areas around construction sites for potentially confusing marking, lighting, and signs that could cause pilot confusion or result in a runway incursion.

7.8.2 §139.339, Condition Reporting.

The inspector must ensure that notification of airport conditions is disseminated to airport users.

7.8.2.1 The inspector ensures that appropriate NOTAMs are issued for unsafe airport conditions that are identified during an inspection but cannot be corrected immediately. After issuing NOTAMs, follow-up is required to ensure that the NOTAMs have been processed and published.

7.8.2.2 The inspector must check that NOTAMs issued are also canceled at the appropriate time.

APPENDIX A. REFERENCE AND RELATED READING MATERIAL

A.1 This AC contains safety practices for all airports. The current versions of the documents listed below provide further detail.

A.2 **Related Reading Material.**

- 14 CFR part 139, Certification of Airports, February 10, 2004 (As amended May 3, 2004 and June 4, 2004)
- 14 CFR part 77, Objects Affecting Navigable Airspace
- NFPA 407, Standards for Aircraft Fuel Servicing

A.3 **FAA Advisory Circulars.**

FAA ACs are available on the FAA website at http://www.faa.gov/regulations_policies/advisory_circulars/.

- AC 150/5200-33, *Hazardous Wildlife Attractants on or Near Airports*
- AC 150/5210-22, *Airport Certification Manual (ACM).* This reference is pertinent for certificated airports only.
- AC 150/5370-10, *Standards for Specifying Construction of Airports*

- **Airport Emergencies**
  - AC 150/5200-31, *Airport Emergency Plan*
  - AC 150/5210-13, *Airport Water Rescue Plans, and Equipment*
- **Aircraft Rescue and Fire Fighting (ARFF)**
  - AC 150/5200-12, *First Responders' Responsibility for Protecting Evidence at the Scene of an Aircraft Accident/Incident*
  - AC 150/5210-6, *Aircraft Fire and Rescue Facilities and Extinguishing Agents*
  - AC 150/5210-7, *Aircraft Rescue and Firefighting Communications*
  - AC 150/5210-13, *Airport Water Rescue Plans and Equipment*
  - AC 150/5210 14, *Aircraft Rescue Fire Fighting Equipment, Tools and Clothing*
  - AC 150/5210 15, *Aircraft Rescue and Firefighting Station Building Design*
  - AC 150/5210-17, *Programs for Training of Aircraft Rescue and Firefighting Personnel*
  - AC 150/5210-19, *Driver's Enhanced Vision System (DEVS)*
  - AC 150/5210-23, *ARFF Vehicle and High Reach Extendable Turret (HRET) Operation Training and Qualifications*
  - AC 150/5220-4, *Water Supply Systems for Aircraft Fire and Rescue Protection*

- AC 150/5220-10, *Guide Specification for Aircraft Rescue and Fire Fighting Vehicles*
- AC 150/5220-17, *Design Standards for an Aircraft Rescue and Fire Fighting (ARFF) Training Facility*

- **Ground Vehicles**
  - AC 90-67, *Light Signals from the Control Tower for Ground Vehicles, Equipment, and Personnel*
  - AC 150/5210-5, *Painting, Marking and Lighting of Vehicles Used on an Airport*
  - AC 150/5210-20, *Ground Vehicle Operations on Airports*
- **Hazardous Materials**
  - AC 20-43, *Aircraft Fuel Control*
  - AC 150/5230-4, *Aircraft Fuel Storage, Handling, and Dispensing on Airports*
- **Marking, Signs, and Lighting**
  - AC 150/5210-5, *Painting, Marking, and Lighting of Vehicles Used on an Airport*
  - AC 150/5340-1, *Standards for Airport Markings*
  - AC 150-5340-5, *Segmented Circle Airport Marker System*
  - AC 150/5340-18, *Standards for Airport Sign Systems*
  - AC 150/5340-26, *Maintenance of Airport Visual Aid Facilities*
  - AC 150/5345-28, *Precision Approach Path Indicator (PAPI) Systems*
  - AC 150/5345-43, *Specification for Obstruction Lighting Equipment*
  - AC 150/5345-44, *Specification for Taxiway and Runway Signs*

Note: ACs in the 150/5345 series provide additional detailed information about lighting.

- **Paved Areas**
  - AC 150/5210-24, *Airport Foreign Object Debris FOD Management*
  - AC 150/5320-6, *Airport Pavement Design and Evaluation*
  - AC 150/5380-6, *Guidelines and Procedures for Maintenance of Airport Pavements*
- **Safety Areas**
  - AC 150/5220-22, *Engineered Material Arresting Systems (EMAS) for Aircraft Overruns*
  - AC 150/5300-13, *Airport Design*
  - AC 150/5370-2, *Operational Safety on Airports During Construction*

- **Self-Inspection Program**
  - AC 150/5210-18, *Systems for Interactive Training of Airport Personnel*
- **Snow and Ice Control**
  - AC 150/5200-28, *Notice to Air Missions (NOTAMs) for Airport Operators*
  - AC 150/5200-30, *Airport Winter Safety and Operations*
  - AC 150/5220-20, *Airport Snow and Ice Control Equipment*
- **Traffic and Wind Direction Indicators**
  - AC 150/5340-5, *Segmented Circle Airport Marker System*
  - AC 150/5345-27, *Specification for Wind Cone Assemblies*

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APPENDIX B. SUGGESTED AIRPORT SAFETY SELF-INSPECTION CHECKLISTS

B.1 An airport safety self-inspection checklist should cover the condition of the facilities and equipment on the airport for it to be a part of a good safety inspection program. The checklist should be useful for the airport and its operation. An airfield map or airport diagram of the airport is highly recommended on the back of the checklist; it can help readily identify the location of problems found during the daily inspection.

B.2 The suggested checklists consist of a listing of facilities and equipment and a series of conditions that are inspected. Two examples of daily self-inspection checklists are provided. The first is intended to be used electronically and contains more information on conditions to be inspected that can be readily accessed on an electronic device. The second example is intended for those airport operators that use a paper checklist and it has been condensed so it can be printed on a single sheet of paper, with the airport map printed on the other side.

B.3 The blank squares indicate the conditions the inspector will evaluate for each facility. A check (√) in one of these squares indicates the condition of the facility and equipment is satisfactory. On the other hand, an "x" in one of these squares indicates the condition of the facility and equipment is unsatisfactory.

B.4 When a condition is unsatisfactory, the inspector:

1. Enters an "x" for each applicable square;
2. Provides a note in the Remark/Action Taken section;
3. The location of the condition should be identified in the airport map or diagram; and
4. Initiates appropriate follow-up action, including NOTAMs. The inspector should document corrective action on either the self-inspection checklists or on a separate work order system.

Note: These checklists are ideal for electronic conversion to PDAs and laptop computers and are available online as appendices in this AC (https://www.faa.gov/airports/resources/advisory_circulars/).

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AIRPORT DAILY SAFETY SELF-INSPECTION CHECKLIST

DATE: _____ **DAY**: _____ √ **Satisfactory**
X Unsatisfactory

Day Inspector/Time: _____ **Night Inspector/Time:** _____

FACILITIES	CONDITIONS	D	N	REMARKS	RESOLVED BY (Date/Initials)
§139.305 Paved areas	Pavement lips over 3"				
	Hole – 5" diam. 3" deep				
	Cracks/spalling/heaves				
	FOD: gravel/debris/sand				
	Rubber deposits				
	Ponding/edge dams				
	Drainage				
	Vegetative growth				
	Surface variations				
§139.307 Unpaved areas	Slope from edge				
	Full strength compaction				
	Holes, depressions				
	FOD, loose aggregate				
§139.309 Safety areas	Ruts/humps/erosion				
	Drainage/construction				
	Support equipment/aircraft				
	Frangible bases, grading				
	Unauthorized objects				
	Wildlife damage/evidence				
	Construction equipment/material				
§139.311 Marking	Clearly visible/standard				
	Runway markings Correct? Color?				
	Taxiway markings Correct? Color?				
	Holding position markings				
	Glass beads				
	Movement/non-movement area separation markings				

FACILITIES	CONDITIONS	D	N	REMARKS	RESOLVED BY (Date/Initials)
§139.311 Signs	Standard/meet sign plan location/position				
	Obscured/operable				
	Damaged/retroreflective				
	Faded, color				
	Tethers intact				
§139.311 Lighting	Obscured/dirty/operable				
	Consistent intensity				
	Damaged/missing				
	Faulty aim/adjustment				
	Runway lighting x				
	Precision runway lighting				
	Taxiway lighting				
	Pilot control lighting				
	Appropriate shielding				
139.313 Snow & ice control	Surface conditions				
	Snowbank clearances				
	Lights & signs obscured				
	NAVAIDs free and clear				
	Emergency ARFF access				
	Braking conditions				
§139.315; .317; .319 Aircraft rescue and fire fighting	Equipment/crew availability				
	Communications/alarms				
	Response routes affected				
§139.321 Handling and storing of hazardous substances and materials (Fueling Operations)	Fencing/gates/signs				
	Fuel marking/labeling				
	Fire extinguishers				
	Frayed wires				
	Fuel leaks/vegetation				
	Abraded hoses				
	Condition of mobile fuelers				
§139.331 Obstructions	Obstruction lights operable				
	Cranes/trees				
	Vegetation				

FACILITIES	CONDITIONS	D	N	REMARKS	RESOLVED BY (Date/Initials)
§139.333 Protection of NAVAIDs	Rotating beacon operable				
	Wind indicators: Number? Lighted at night?				
	RENLs/VGSI systems				
	Electronic components operational				
§139.335 Public protection	Fencing/gates/signs				
	Jet blast problems				
§139.337 Wildlife hazard management	Wildlife present/location				
	Complying with WHMP				
	Dead birds/other evidence				
§139.341 Identifying, marking, and lighting construction and other unserviceable areas	Barricades/lights				
	Equipment parking				
	Material stockpiles				
	Confusing signs/markings				
	Index capability				

Comments/Remarks: _____

Airfield map on reverse

AIRPORT DAILY SAFETY SELF-INSPECTION CHECKLIST

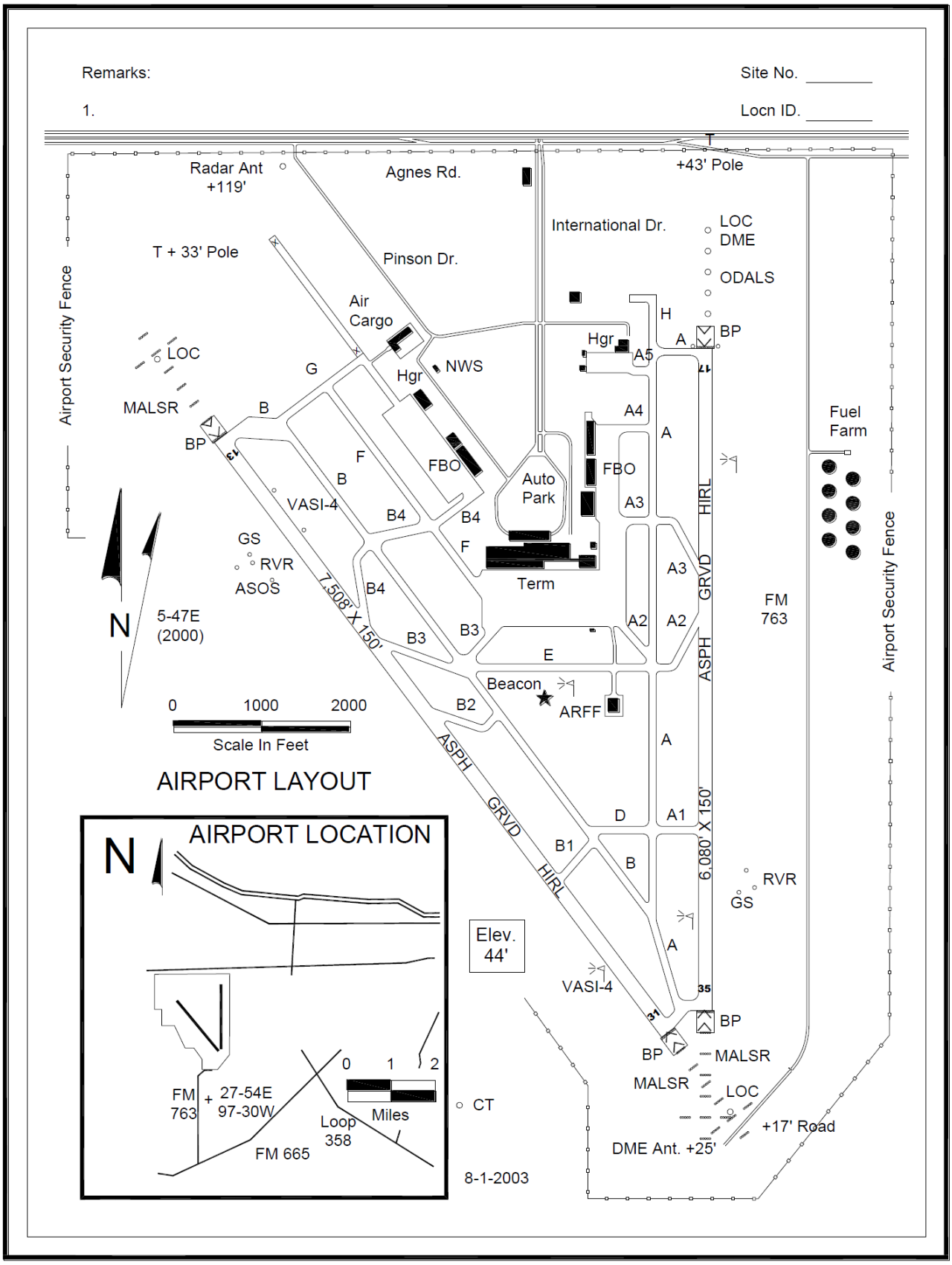
DATE:_____ **DAY**:_____ ✔ Satisfactory ✕ Unsatisfactory

Day Inspector/Time: _____ **Night Inspector/Time:** _____

FACILITIES	CONDITIONS	D	N	REMARKS	RESOLVED BY (Initial & date)
Pavement Areas	Pavement lip over 3"				
	Hole - 5" diam. 3" deep				
	Cracks/spalling/heaves				
	FOD: gravel/debris/sand				
	Ponding/edge dams				
Safety Areas	Ruts/humps/erosion				
	Drainage/construction				
	Support equipment/aircraft				
	Frangible bases				
	Unauthorized objects				
Markings	Clearly visible/standard				
	Runway markings				
	Taxiway markings				
	Holding position markings				
	SPHPS/ETCL markings				
	Glass beads				
Signs	Standard/IAW Sign Plan				
	Obscured/inoperable				
	Damaged/retroreflective				
Lighting	Obscured/dirty/inoperable				
	Damaged/missing/aiming				
	Lighting systems inoperable				
	IAW FAA standards				
	Pilot Control Lighting				
NAVAIDS	Rotating beacon inoperable				
	Wind indicators				
	VASI/PAPI/REIL systems				
	FAA ILS system/ALS/VGSI				
Obstructions	Obstruction lights operable				
	New cranes not reported				
Snow & Ice	Surface conditions				
	Snowbank clearance				
	Signs obscured				
	NAVAID interference				
	NOTAMs current				
Public Protection	Fencing/gates/signs				
	Jet blast problems				
Wildlife Hazards	Wildlife present/location				
	Complying with WHMP				

Airfield Map/Airport Diagram on Reverse

Sample Airfield Map/Airport Diagram



CONTINUOUS SURVEILLANCE INSPECTION CHECKLIST

DATE: _____ **DAY:** _____ **√ Satisfactory**
TIME: _____ **INSPECTOR:** _____ **X Unsatisfactory**

FACILITIES	CONDITIONS	√	REMARKS/ACTIONS TAKEN
§139.313 Snow & ice control	**Surface conditions**		
	Snow banks		
	NOTAMS		
§139.321 Handling and storage of hazardous substances and materials (Fueling Operations)	**Fire/explosion hazards, spills**		
	Signing/no smoking		
	Fueling equipment:		
	• **hydrants**		
	• **mobile fuelers**		
	• **fuel farm**		
	Use of bonding & deadman		
§139.335 Public protection	**Unauthorized persons**		
	Unauthorized vehicles		
	Gates secure and locked		
§139.337 Wildlife hazard management	**Birds/animals**		
	Evidence (describe)		
§139.341 Identifying, marking, and lighting construction and other unserviceable areas	**Safety plan**		
	Runway incursions		
	Runway & taxiway use		
	FOD		
Miscellaneous: **§139.329 Pedestrians and ground vehicles** **§139.335 Public protection** **§139.305; .307; .311**	**Pedestrians in movement areas**		
	Passenger Load/Unload procedures		
	Debris in movement area/safety area		

Additional Remarks: _____

_____

_____

_____

_____

_____

Airfield map on reverse

PERIODIC CONDITION INSPECTION CHECKLIST

DATE: _____ **DAY: _____** **√ Satisfactory**
TIME: _____ **INSPECTOR: _____** **X Unsatisfactory**

FACILITIES	CONDITIONS	√	REMARKS/ACTIONS TAKEN
§139.305 Paved areas	Rubber deposits – Friction deterioration		
	Pavement Polishing/Rutting		
	Pavement Lips/Turf damming		
§139.311 Marking and signs	Visible/night conspicuity/glass beads		
	Condition of markings - Runways		
	Condition of markings - Taxiways		
§139.311 Lighting	Standby Power Generator Check		
	Circuit Resistance Test		
	Aim/Adjustment of lighting fixtures		
	Condition of lenses – Cleaning needed		
§139.319 Aircraft rescue and fire fighting: Operational requirements	Response Times		
	Live Fire Drills		
	Training		
	ARFF truck maintenance		
§139.321 Handling and storing of hazardous substances and materials (Fueling Operations)	Hydraulic fluid; deicing materials – proper handling		
	Exhaust leaks		
	Fuel storage area		
	Fire extinguishers – Fuel storage area		
	Access secured		
	Hoses – no abraded		
	Fuel labeling		
	Emergency fuel shutoff		
	Mobile fuelers		
	Fire Extinguishers – Fuel trucks		
	Fuel Marking/Labeling		
	Frayed Wiring		
	Abraded hoses		
	Proper Fuel Storage Procedures		
	Fire extinguishers – Apron		
§139.333 Protection of NAVAIDS	RENLs/VGSI Aiming		
	Electronic equipment		
§139.331 Obstructions	Surveyed Trees/Structures		
	Overhead Power Lines		
	Construction cranes		
Additional Remarks:			

Airfield map on reverse

SPECIAL INSPECTION CHECKLIST

DATE:_____ **TIME:** _____ **INSPECTOR:**_____

TYPE INSPECTION: Accident Weather Maintenance Snow Wildlife

REASON FOR INSPECTION: _____

_____

Check Conditions Applicable to the Special Inspection

FACILITIES	CONDITIONS	✓ X	REMARKS	RESOLVED BY (Initial & date)
Pavement Areas	FOD/débris/Ponding			
	Cracks/heaves/blowups			
	Surface conditions			
	Snowbanks/windrows			
Safety Areas	Ruts/surface variations			
	Drainage/construction			
	Débris			
	Unauthorized objects			
Markings	Clearly visible			
	IAW FAA standards			
	Hold Positions			
	Glass beads			
Signs	Obscured/inoperable			
	Damaged/Missing			
	IAW Sign & Marking Plan			
	IAW FAA standards/spec.			
Lighting	Inoperable, damaged, or missing			
	Obscured			
	IAW FAA standards			
	Faulty aim/adjustment			
	Lighting systems operational			
	Pilot Control Lighting			
NAVAIDS	Rotating beacon			
	Wind indicators/Obst lights			
	VASI/PAPI/REIL systems			
	FAA ILS & approach lights			
Wildlife Hazards	Wildlife present/location			
	Complying with WHMP			
Fencing	Damaged/Erosion problem			
NOTAMS	Issued as appropriate/current			

Airfield Map on Reverse

CONSTRUCTION IN PROGRESS INSPECTION CHECKLIST

Airport Name:	Inspection Date:	Construction Project:
Inspector:	Inspection Time:	S=Satisfactory U=Unsatisfactory N/A = Not Applicable Remarks Required

Area: Runway	**S**	**U**	**N/A**	**REMARKS**
1. **Closed runway** - Yellow X or lighted X properly located and functional				
2. **Temporary displaced threshold** marking/lighting, marking removal is correct				
3. **Partial runway closure** marking/lighting, marking removal is correct				
4. **Runway Distance Remaining signs** relocated or covered in appropriate direction for partial runway closure				
5. **Runway Caution Zone lighting** adjusted for partial runway closure				
6. **Closed Runway Exit** – Lead-off line obliterated for high speed exit and other long term exit closure, Yellow X adjacent to runway, barricades at hold position, runway exit signs covered, taxiway lights off or covered				
7. **Barricades** – At hold position, easily collapsible, orange/white reflective, less than 18" high, 4' spacing or continuously linked, secured, red lights spacing 10' or less				
8. **Runway Object Free Area** – No parked equipment in ROFA and no stockpiled material unless necessary and FAA approved				
9. **Crossing Taxiways for Closed Runway** – Hold signs illuminated for night operations				
10. **No construction activity in RSA** of active runway, unless aircraft restriction in effect for smaller RSA				
11. **Part time runway closure** – RSA meets Part 139 requirements before opening – declared distance				
12. Construction related **NOTAMS** issued and current				
Area: Closed Taxiways	**S**	**U**	**N/A**	**REMARKS**
1. **Taxiway centerlines obliterated** to closed areas for long term closures				
2. **Barricades** are easily collapsible, have orange/white diagonal reflective stripes and are secured				
• **Barricades** are located outside TSA and are less than 18" high, not counting red lights/flags				
• **Barricade** spacing for aircraft 30 ft – minimum 3 barricades for closed taxiway where Const. not present				
• **Barricade** spacing 4' for vehicles/equipment or continuously linked to exclude pedestrians				
• **Barricade red lights** spacing 10' or less and maintained operable				
3. **Taxiway direction signs** for closed taxiways do not need to be covered as they provide info to pilots				
4. **Outbound runway destination signs** are covered for closed runways where appropriate				
5. **Orange Construction Signs** – IAW standards				
6. **No construction activity in TSA** of active taxiway, unless aircraft restriction in effect for smaller TSA				
7. **Straight Taxiway Open with excavations in TSA** Restrictions in place/no equipment or objects in TSA				
8. **Taxiway object free area** – Clear of equipment if necessary to protect aircraft wing tip clearance				
9. **Taxiway lights** are disconnected or covered in closed areas				
10. **Construction crossing points** on active taxiways are controlled by flag persons, have FOD control				
11. Construction related **NOTAMS** issued and current				

POST CONSTRUCTION INSPECTION CHECKLIST

Airport Name: ▶	Inspection Date:	Construction Project:
Inspector: ▶	Inspection Time:	S=Satisfactory U=Unsatisfactory N/A = Not Applicable Remarks Required

Area:	**S**	**U**	**N/A**	**REMARKS**
1**. Paved areas swept and free of FOD**				
2. **No pavement lips** over 3"				
3. **Pavement is sufficiently drained** to prevent ponding that could affect directional control of aircraft or obscure markings				
4. **No Potentially hazardous surface variations** present in the safety areas/ graded				
5. **No Objects in the safety areas** except those that are required and are frangibly mounted				
6. **Safety areas are adequately drained** to prevent water accumulations				
7. **No exposed concrete bases** located in the safety areas (potentially hazardous surface variation)				
8. **Old markings** which are no longer needed are removed IAW Marking AC standards				
9. **Required markings and glass beads** are provided and are IAW Marking AC standards				
10. **Required signs** are provided and are IAW Sign AC standards/Sign & Marking Plan				
11l. **Required SPHPS** are provided and are IAW Marking AC standards				
12. **Required lighting** is provided and is IAW lighting AC standards				
13. **Supplemental wind cone** is provided at the takeoff end of runways and do not have logos				
14.				
15.				
Other	**S**	**U**	**N/A**	**REMARKS**
1. **ACM/Sign & Marking Plan** updated if needed				
2. **5010 data** updated if needed				
3. **Airport Diagram Change** submitted to NFDC website if needed				
4.				
5.				

Remarks

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Advisory Circular Feedback

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by (1) mailing this form to Manager, Airport Safety and Operations Division, Federal Aviation Administration ATTN: AAS-300, 800 Independence Avenue SW, Washington DC 20591 or (2) faxing it to the attention of the Office of Airport Safety and Standards at (202) 267-5257.

Subject: AC 150/5200-18D Date: _____

Please check all appropriate line items:

☐ An error (procedural or typographical) has been noted in paragraph _____ on page _____.

☐ Recommend paragraph _____ on page _____ be changed as follows:

_____
_____
_____

☐ In a future change to this AC, please cover the following subject:
(Briefly describe what you want added.)

_____
_____
_____

☐ Other comments:

_____
_____
_____

☐ I would like to discuss the above. Please contact me at (phone number, email address).

_____

Submitted by: _____ Date: _____