U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Subject: OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION

Date: DRAFT
Initiated by: AAS-100

AC No: 150/5370-2F
Change:

1. THE PURPOSE OF THIS ADVISORY CIRCULAR (AC). This AC sets forth guidelines for operational safety on airports during construction.

2. WHAT THIS AC CANCELS. This AC cancels AC 150/5370-2E, Operational Safety on Airports During Construction, dated January 17, 2003.

3. WHOM THIS AC AFFECTS. This AC assists airport operators in complying with Title 14 Code of Federal Regulations (CFR), part 139, Certification of Airports, and with the requirements of airport construction projects receiving funds under the Airport Improvement Program or the Passenger Facility Charge Program. While we do not require non-certificated airports without grant agreements to adhere to these guidelines, we recommend that they do so to help these airports maintain a desirable level of operational safety during construction.

4. PRINCIPAL CHANGES.

a. Construction activities are prohibited in safety areas while the associated runway or taxiway is open to aircraft.

b. Guidance is provided in incorporating Safety Risk Management.

c. Recommended checklists are provided for writing Construction Safety and Phasing Plans and for daily inspections.

5. READING MATERIAL RELATED TO THIS AC. Appendix 1 contains a list of reading material on airport construction, design, and potential safety hazards during construction, as well as instructions for obtaining these documents.

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

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CHAPTER 1. PLANNING FOR AN AIRFIELD CONSTRUCTION PROJECT

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, some of the methods and procedures described may also enhance the day-to-day airport maintenance operations.

2. PLANNING. 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. The result of this coordination is the project Construction Safety and Phasing Plan (CSPP). Development of the CSPP will be an iterative process, as the steps below are interdependent.

a. Identification of areas affected. 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.

b. Description of 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 Airplane Reference Code (ARC) for each runway; Airplane Design Group (ADG) for each affected taxiway; designated approach visibility minimums; available approach and departure procedures; most demanding aircraft; declared distances; available air traffic control services; airport Surface Movement Guidance and Control System plan; etc. The applicable seasons, days and times for certain operations may also be identified as applicable.

c. Allowable temporary changes to operations. In consultation with airport users, Aircraft Rescue and Fire Fighting personnel, FAA Air Traffic Organization (ATO) personnel, determine the extent to which current operations can be maintained, and changes to procedures available and necessary to maintain aircraft operations to the extent practicable. Allowable changes may 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, etc. An example of a table showing temporary operations versus current operations is shown in Appendix C.

d. Measures required to conduct revised operations. Once the level and type of aircraft operations to be maintained are identified, it will be possible to determine what steps will be necessary to conduct the planned operations. These measures will result in associated costs, which can be broadly interpreted to include not only direct construction costs, but also time and loss of revenue. Analysis of costs may indicate a need to reevaluate allowable changes to operations. As aircraft operations and allowable changes will vary so widely among airports, this AC can only present general guidance on those subjects. Therefore, this AC supports implementation of safety management systems and focuses on measures that maintain operations and those required for safety and security.. For federally funded projects, consult with the appropriate FAA Airports District or Regional Office regarding costs.

e. Safety Risk Management. Certain airport projects may require the airport operator to provide a project proposal summary to help the FAA to determine the appropriate level of Safety Risk Management (SRM) documentation. 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 SRM documentation. See FAA order 5200.11 for more information. If the FAA requires SRM documentation, 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.

3. THE 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.

a. Requirement. A CSPP must be developed, specific to each on-airfield construction project. As per FAA Order 5200.11, *FAA Airports (ARP) Safety Management System (SMS)*, such projects 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 2.e above).

b. The Safety Plan Compliance Document (SPCD). Certain safety plan details, such as specific hazard equipment and lighting, contractor's points of contact, and construction equipment heights cannot be determined during the development of the CSPP. The successful contractor must define such details by preparing a Safety Plan Compliance Document (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 specification.

c. Responsibility. It is the intent of this AC that the airport operator establishes the CSPP as opposed to delegating this action to the construction contractor. Only those details the airport operator determines cannot be addressed before contract award should be developed by the contractor and submitted for approval as part of the SPCD.

4. WHO IS RESPONSIBLE FOR SAFETY DURING CONSTRUCTION?

a. Establishing A Safety Culture. Airport operators, or tenants having construction on their leased properties, should use predesign, prebid, and preconstruction conferences to introduce the subject of airport operational safety during construction (see AC 150/5300-9, Predesign, Prebid, and Preconstruction Conferences for Airport Grant Projects). The airport operator, tenants, and construction contractors should integrate operational safety requirements into their planning and work schedules as early as practical. Operational safety should be a standing agenda item for discussion during progress meetings throughout the project. The contractor and airport operator should carry out onsite safety inspections throughout the project and immediately remedy any deficiencies, whether caused by negligence, oversight, or project scope change.

b. 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) Develop a CSPP that complies with the safety guidelines of Chapter 2, "Construction Safety and Phasing Plans," and Appendix F, "Airport Construction Safety Planning Guide," of this AC. 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.

(2) Require, review and approve the SPCD by the contractor indicating how it will comply with the CSPP.

(3) Convene a preconstruction meeting with the construction contractor, consultant, airport employees, FAA 1, and, if appropriate, tenant sponsor and other tenants to review and discuss project safety before beginning construction activity. See AC 150/5300-9, Predesign, Prebid, and Preconstruction Conferences for Airport Grant Projects. 1 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.

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

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

(6) Notify users, especially aircraft rescue and fire fighting (ARFF) personnel, of construction activity 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.

(7) Ensure that construction personnel know of any applicable airport procedures and of changes to those procedures that may affect their work.

(8) Ensure that construction contractors and subcontractors undergo training required by the CSPP.

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

(10) At certificated airports, ensure that each CSPP and SPCD is consistent with 14 CFR part 139, Certification of Airports.

(11) Conduct frequent inspections 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.

(12) Resolve safety deficiencies immediately.

(13) At airports subject to 49 CFR part 1542, Airport Security, ensure construction access complies with the security requirements of that regulation.

(14) Notify appropriate parties when conditions exist that invoke provisions of the CSPP and SPCD (e.g., implementation of low-visibility operations).

(15) Ensure prompt submittal of 7460-1 form for purpose of conducting an aeronautical study of potential obstructions such as tall equipment (cranes, concrete pumps etc), stock piles, and haul routes. The FAA encourages online submittal of forms for expediency.

(16) 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.

(17) Coordinate with appropriate local and other federal government agencies, such as EPA, OSHA, TSA, and the state environmental agency.

c. Construction contractor's responsibilities. The contractor is responsible for complying with the CSPP. The contractor must:

(1) Submit a Safety Plan Compliance Document (SPCD) to the airport operator on how it will comply with the requirements of the CSPP. The SPCD must include a certification statement by the contractor that indicates it understands the operational safety requirements of the CSPP and it asserts it will not deviate from the approved CSPP unless written approval is granted by the airport operator. Any construction practice proposed by the contractor that does not conform to the CSPP may impact the airport's operational safety and will require a revision to the CSPP and re-coordination with the airport operator and the FAA in advance.

(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.

(3) Ensure that construction personnel are familiar with safety procedures and regulations on the airport.

(4) 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.

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

(6) Conduct frequent 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.

(7) 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.

(8) 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.

(9) Ensure prompt submittal through the airport operator of 7460-1 form for purpose of conducting an aeronautical study of contractor equipment such as tall equipment (cranes, concrete pumps etc), stock piles, and haul routes. The FAA encourages online submittal of forms for expediency.

d. Tenant's responsibilities if planning construction activities on leased property. Airport tenants sponsoring construction, such as airline operators, fixed base operators, and FAA ATO/Technical Operations must:

(1) Develop, or have a consultant develop, a project specific CSPP and submit it to the airport operator for certification and subsequent approval by the FAA. The approved CSPP must be made part of any contract awarded by the tenant for construction work.

(2) In coordination with its contractor, develop an SPCD and submit it to the airport operator for approval prior to issuance of a Notice to Proceed.

(3) Ensure that construction personnel are familiar with safety procedures and regulations on the airport.

(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 employee(s) responsible for monitoring compliance with the CSPP and SPCD during construction. At least one of these employees must be on-site whenever 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 or erecting temporary fencing, or providing escorts, as appropriate, and as specified in the safety plans.

(8) Ensure prompt submittal through the airport operator of 7460-1 form for purpose of conducting an aeronautical study of contractor equipment such as tall equipment (cranes, concrete pumps etc), stock piles, and haul routes. The FAA encourages online submittal of forms for expediency.

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CHAPTER 2. CONSTRUCTION SAFETY AND PHASING PLANS

Section 1. Basic Considerations

1. OVERVIEW. Aviation safety is the primary consideration at airports, especially during construction. The primary tools to ensure safety compliance when coordinating construction activities with airport operations are two documents separate and distinct from other project specifications and drawings. These are the project Construction Safety and Phasing Plan (CSPP) and the contractor's Safety Plan Compliance Document (SPCD). 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 all 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. RESPONSIBILITY. The airport operator has final approval authority and responsibility for the CSPP and SPCD. Coordination will vary from formal predesign conferences to informal contacts throughout the duration of the construction project. Details of the CSPP, and requirements for a contractor-developed SPCD, must be discussed at the predesign and preconstruction conferences. Airport operators must coordinate safety issues with the air carriers, FAA ATO, and other airport tenants before the design phase of the project. The airport operator should identify project safety concerns, requirements, and impacts before making arrangements with contractors and other personnel to perform work on an airport. These safety concerns will serve as the foundation for the CSPP. The airport operator should determine the level of complexity of the CSPP that is necessary for each construction project and its phases.

3. SCHEDULING. Construction Safety and Phasing Plans that require FAA approval should be prepared and submitted early during the design phase of the project, preferably at 25 – 30% completion. The project bidding documents and specifications must incorporate the requirements of the CSPP and must also require the contractor to develop a SPCD for review and approval by the airport operator. The bidding documents should contain sufficient information to allow the contractor to develop and determine the costs associated with the CSPP and SPCD. Mitigating safety issues may result in significant costs, so clear CSPP requirements in the construction project bid documents will allow additional costs to be incorporated into the total cost of the project.

4. REQUIREMENTS.

a. The CSPP should address the following as outlined in Chapter 2 and Appendix C of this AC, as appropriate.

(1) Construction Sequencing (Phasing).

(2) Actions necessary before starting construction, including defining and assigning responsibilities.

(3) Basic responsibilities and procedures for disseminating instructions about airport procedures to the contractor's personnel.

(4) Means of separating construction areas from the air operations area to the extent possible.

(5) Navigational aid (NAVAID) requirements and associated weather limitations placed on the contractor.

(6) Plans for temporary marking and lighting, including illustrations.

(7) Protection of runway safety areas (RSA), taxiway safety areas (TSA), obstacle free zones (OFZ), object free areas (OFAs), NAVAID critical areas and approach/departure surfaces.

(8) Methods of coordinating significant changes in airport operations with all the appropriate parties.

(9) Airport security.

(10) Protection of underground utilities.

(11) Aircraft Rescue and Fire Fighting (ARFF) access.

(12) Foreign Object Debris (FOD) prevention.

(13) Erosion control.

b. The Safety Plan Compliance (SPCD) document should address the following as appropriate:

(1) Proposed construction schedule.

(a) Duration of each phase

(b) Daily start and finish of construction, including "night only" construction.

(c) Duration of construction activities during which:

(i) there are no operational changes to runway(s)

(ii) one or more runways are closed

(iii) one or more runways are partially closed

(iv) one or more runway thresholds are displaced

(v) one or more runways or taxiways are restricted to a specific Airplane Reference Code.

(vi) there are no operational restrictions on taxiways

(vii) one or more taxiways are closed

(viii) portions of taxiway(s) are closed

(2) Contractor points of contact.

(3) Contractor emergency contact.

(4) Details on how the contractor will maintain integrity of airport security fence (gate guards, daily log of construction personnel etc).

(5) Listing of individuals requiring driver training (Part 139 airports).

(6) Listing of tall vehicles proposed for use on the airport and the timeframe for submitting 7460-1 forms.

(7) Radio communications.

(a) Types of radios and backup capabilities.

(b) Who will be monitoring radios.

(c) Whom to contract if ATCT cannot reach the contractor's designated person by radio.

(8) Details on how the contractor will escort material delivery vehicles

(9) Equipment and methods for control of FOD, including construction debris and dust.

(10) Equipment and methods for covering signage and airfield lights.

(11) Equipment and methods for temporary closure markings (paint, fabric, etc).

(12) Types of temporary VGSI.

(13) Equipment and methods for maintaining Taxiway Safety Area standards.

(14) Batch plant details including 7460-1 submittal.

(15) Equipment and methods for separation of construction operations from aircraft operations, including details of barricades.

(16) Equipment and methods for identifying excavation areas and areas subject to jet blast.

(17) Equipment and methods for responding to hazardous spills.

(18) Contractor acknowledgement of penalties for non-compliance with the CSPP and SPCD.

Section 2. Plan Requirements

5. OVERVIEW. To the extent applicable, the CSPP must address the each of the following issues. Any specifics that cannot be determined before contract award must be addressed in the SPCD.

6. COORDINATION. Airport operators, or tenants having construction on their leased properties, should use predesign, prebid, and preconstruction conferences to introduce the subject of airport operational safety during construction (see AC 150/5300-9, Predesign, Prebid, and Preconstruction Conferences for Airport Grant Projects). Operational safety should be a standing agenda item for discussion during progress meetings throughout the project. Changes in the scope or duration of a project may necessitate revisions to the CSPP and review and approval by the airport operator and the FAA.

7. PHASING. Once it has been determined what types and level of aircraft operations must be maintained, the most efficient order of events from a purely construction perspective will often not be feasible. In such a case, the CSPP will include a phasing plan, which should be coordinated with local FAA air traffic manager and airport users. The CSPP should specify the sequenced phases of the proposed construction as specified in the contract and depicted on project drawings.

a. For each phase the CSPP should detail:

- areas closed to aircraft operations
- duration of closures
- taxi routes
- ARFF access routes
- construction staging areas
- construction access and haul routes
- impacts to NAVAIDS
- impacts to instrument approach procedures
- lighting and marking changes
- available runway length,
- declared distances (if applicable)
- and required hazard marking and lighting
- lead times for required notifications

b. NAVAIDS. Relocation or adjustments to NAVAIDs, or changes to final grades in critical areas, may require a flight check prior to re-commissioning the NAVAID and associated IAPs. Flight checks must be coordinated well in advance of the need to re-commission affected NAVAIDs to minimize downtime. Relocation or adjustments to FAA owned NAVAIDs or related facilities (cable, transformers, power supply, power control units, etc.), required due to construction activities, are typically designed and constructed by FAA through a reimbursable agreement. Flight checks may also require a reimbursable

agreement. Reimbursable agreements must be coordinated with FAA a minimum of 12 months prior to construction.

8. AREAS AND OPERATIONS AFFECTED BY THE CONSTRUCTION ACTIVITY. Runways and taxiways should remain in use by aircraft to the maximum extent possible. Thoughtful phasing of a project can minimize disruptions to aircraft operations. Pre-meetings with the FAA Air Traffic Organization (ATO) will support operational simulations.

a. Identification of affected areas. Identifying areas and operations affected by the construction will help to determine possible safety problems. Of particular concern are:

(1) Closing, or partial closing, of runways, taxiways and aprons.

(2) Closing of Aircraft Rescue and Fire Fighting access routes.

(3) Closing of access routes used by airport and airline support vehicles.

(4) Interruption of utilities, including water supplies for fire fighting.

(5) Approach/departure surfaces affected by heights of objects.

(6) Instrument Approach Procedures (IAP) affected by construction by temporarily displaced thresholds, and work in NAVAID critical areas.

(7) Construction areas, storage areas, and access routes near runways, taxiways, aprons, or helipads.

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

(1) Temporary changes to runway and/or taxi operations.

(2) Detours for ARFF and other airport vehicles.

(3) Maintenance of essential utilities.

(4) Temporary changes to air traffic control procedures. Such changes must be coordinated with the ATO.

See Appendix C for an example of a table showing temporary operations versus current operations.

9. NAVAIDs. 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 14.e(3) below). 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 14.b below). Construction activities and materials/equipment storage near a NAVAID may also obstruct access to the equipment and instruments for maintenance.

10. 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:

a. 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 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 19.b below). 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. See paragraphs 11and 12 below.

b. 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, and detail associated training requirements.

(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) Construction equipment parking. Contractor employees must park and service all construction vehicles in an area designated by the airport operator outside the OFZs and never in a runway or taxiway safety area or on a closed taxiway or runway. Employees should also park construction vehicles outside the OFA when not in use by construction personnel (e.g., 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 navigational 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, and on NAVAIDs and IAPs (see paragraph 14.e(1) below for further information).

(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.

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

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

(6) Required escorts.

(7) Training requirements for vehicle drivers to ensure compliance with the airport operator's vehicle rules and regulations. Specific training should be provided to those vehicle operators providing escorts. See AC 150/5210-20, Ground Vehicle Operations on Airports, for information on training and records maintenance requirements.

(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.

(9) Two-way radio communication procedures.

(a) 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 ATCTs. 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:

(i) Airport operations

(ii) ATCT

(iii) The Common Traffic Advisory Frequency (CTAF), which may include UNICOM, MULTICOM.

(b) 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.

(c) Frequencies to be used. The airport operator will specify the frequencies to be used by the contractor, which may include the CATF 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.

(d) Proper radio usage, including read back requirements.

(e) Proper phraseology, including the International Phonetic Alphabet.

(f) 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.

(10) Maintenance of the secured area of the airport, including:

(a) 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.

(b) Badging requirements.

(c) 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.

11. WILDLIFE MANAGEMENT. The CSPP and SPCD must be in accordance with the airport operator's wildlife hazard management plan, if applicable. See also 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:

a. Trash. Food scraps must be collected from construction personnel activity.

b. Standing water.

c. 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 USDA 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.

d. Poorly maintained fencing and gates (see paragraph 10.b(10)(a) above).

e. 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.

12. 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) 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.)

13. HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT. See AC 150/5320-15, Management of Airport Industrial Waste.

14. 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.

a. Maintenance of a list of responsible representatives/points of contact for all involved parties, and procedures for contacting each of them, including after hours.

b. 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 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.

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

d. Coordination with aircraft rescue and fire fighting personnel. The CSPP must detail procedures for coordinating through the airport sponsor with aircraft rescue and fire fighting (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.

e. Notification to the FAA.

(1) Part 77. Any person proposing 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, must notify the FAA. This includes construction equipment and proposed parking areas for this equipment (i.e., cranes, graders, etc.) 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) 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.

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

(a) Airport owned. If construction operations require a shutdown of an airport owned NAVAID for more than 24 hours or in excess of 4 hours daily on consecutive days, provide a 45-day minimum notice to FAA ATO/Technical Operations prior to facility shutdown.

(b) FAA owned.

(i) General. 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 via a Strategic Event Coordination Submission Form. (Impacts to FAA equipment covered by a Reimbursable Agreement (RA) do not have to be reported by the airport operator.) The form, including contact information, is shown in Appendix G.

(ii) 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. In addition, provide seven days notice to schedule the actual shutdown.

(4) Instrument Approach Procedures. The CSPP should identify any instrument approach procedures that will be affected by the project. FAA review of the CSPP will include coordination with the Regional Airspace and Procedures Team (RAPT) (see FAA Order 8260.43, Flight Procedures Management Program).

15. INSPECTION REQUIREMENTS.

a. Daily inspections. Daily inspections should be conducted to ensure conformance with the CSPP. A sample checklist is provided in Appendix E. See also AC 150/5200-18, Airport Safety Self-Inspection.

b. 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).

16. 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 escorting vehicles and personnel.

17. PENALTIES. The CSPP should detail penalty provisions for noncompliance with airport rules and regulations and the safety plans (e.g., if a vehicle is involved in a runway incursion.

18. 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 (e.g., low-visibility operations, snow removal, aircraft in distress, aircraft accident, security breach, VPD's, and other activities requiring construction suspension/resumption).

19. RUNWAY AND TAXIWAY VISUAL AIDS - MARKING, LIGHTING, SIGNS, AND VISUAL NAVAIDS. The CSPP must ensure that construction areas, including closed runways, are clearly and visibly separated from areas where aircraft will be operating and that hazards, facilities, cables, and power lines are identified prominently for construction contractors. 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 remain in place and operational. The CSPP must address the following, as appropriate:

a. 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, or other wind currents; and constructed of materials that would minimize damage to an aircraft in the event of inadvertent contact. Figures XX – YY in Appendix ZZ show typical marking, lighting, and signs for construction projects.

b. Markings. Markings must be in compliance with the standards of AC 150/5340-1, Standards for Airport Markings. 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 19.b(1)(b) below).

(1) Closed Runways and Taxiways.

(a) Permanently Closed Runways. For runways, obliterate the threshold marking, runway designation marking, and touchdown zone markings, and place "X's" at each end and at 1,000-foot (300-m) intervals.

(b) Temporarily Closed Runways. For runways that have been temporarily closed, place an "X" at the each end of the runway directly on or as near as practicable to the runway designation numbers.

(c) 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. When threshold markings are needed to identify the temporary beginning of the runway that is available for landing, markings must comply with AC 150/5340-1. An "X" is not used on a partially closed or displaced runway threshold

(i) Partially Closed Runways. Pavement markings for temporary closed portions of the runway consist of a runway threshold bar and yellow chevrons to identify pavement areas that are unsuitable for takeoff or landing (see AC 150/5340-1).). Consider the installation of a "TORA" sign in

accordance with AC 150/5340-18, *Standards for Airport Sign Systems*. See AC 150/5300-13 for guidance on declared distances, including Takeoff Run Available (TORA).

(ii) Displaced Thresholds. Pavement markings for a displaced threshold consist of a runway threshold bar 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).

(d) Taxiways.

(i) Permanently Closed Taxiways. 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.

(ii) 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, leading to the closed section.

(e) Temporarily Closed Airport. When the airport is closed temporarily, mark all the runways as closed.

(f) 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.

(g) 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.

(h) If it is not possible to install threshold bars, chevrons, and arrows on the pavement, temporary outboard markings may be used. Locate them outside of the runway pavement surface on both sides of the runway. The dimension along the runway direction must be the same as if installed on the pavement. The lateral dimension must be at least one-half that of on-pavement markings. If the markings are not discernable on grass or snow, apply a black background with appropriate material over the ground to ensure they are clearly visible.

(i) The application rate of the paint to mark a short-term temporary runway threshold 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.

c. Lighting and Visual NAVAIDs. This paragraph refers to standard runway and taxiway lighting systems. See below for hazard lighting. Lighting must be in conformance with AC 150/5340-30, Design and Installation Details for Airport Visual Aids, and AC 150/5345-50, Specification for Portable Runway and Taxiway Lights. When disconnecting runway and taxiway lighting fixtures, disconnect the associated isolation transformers. 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.

(1) Permanently Closed Runways and Taxiways. For runways and taxiways that have been permanently closed, disconnect the lighting circuits.

(2) Temporarily Closed Runways. If available, use a "Lighted X" placed at each end of the runway facing the approach. 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.

(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

(a) Partially Closed Runways. Disconnect edge and threshold lights on that part of the runway at and behind the threshold (i.e., the portion of the runway that is closed). Alternately, cover the light fixture in such a way as to prevent light leakage.

(b) Displaced Thresholds. Edge lighting in the area of the displacement emits red light in the direction of approach and yellow light in the opposite direction. Centerline lights are blanked out in the direction of approach if the displacement is 700 feet or less. 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.

(c) 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.

(d) A temporary threshold on an unlighted runway may be marked by retroreflective, elevated markers in addition to markings noted in paragraph 19.b(1)(c) above. Markers seen by aircraft on approach are green. Markers at the rollout end of the runway are red. See AC 150/5345-39, FAA Specification L-853, Runway and Taxiway Retroreflective Markers. 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.

(e) Temporary threshold lights and 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 inches (7.6cm) above ground. 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).

(f) 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, Specification for Portable Runway and Taxiway Lights, 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.

(g) Reconfigure yellow lenses (caution zone), as necessary. If the runway has centerline lights, reconfigure the red lenses, as necessary, or place the centerline lights out of service.

(h) Relocate the visual glide slope indicator (VGSI), such as VASI and PAPI; other airport lights, such as 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.

(i) Issue a NOTAM to inform pilots of temporary lighting conditions.

(4) Temporarily Closed Taxiways. If possible, deactivate the taxiway lighting circuits. When deactivation is not possible (e.g. other taxiways on the same circuit are to remain open), cover the light fixture in such a way as to prevent light leakage.

d. 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. Any time a sign does not serve its normal function, it must be covered or removed to prevent misdirecting pilots. For long term construction projects, consider relocating signs, especially runway distance remaining signs.

20. MARKING AND SIGNS FOR ACCESS ROUTES. The CSPP must indicate that pavement markings and signs intended for construction personnel should be in conformance 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.

21. HAZARD MARKING AND LIGHTING.

a. Purpose. Hazard marking and lighting serves to prevent pilots from entering areas closed to aircraft, and 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.

b. Equipment.

(1) Barricades and 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 vehicles, gaps between barricades must be smaller than the width of the excluded vehicles, generally 4 feet. If barricades are intended to exclude pedestrians, they must be continuously linked.

(2) 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. 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.

(3) Air Operations Area – General. Barricades are not permitted in any active runway safety area. Within a runway or taxiway object free area, taxiway safety area, and on aprons, use orange traffic cones, flashing or steady burning red lights as noted above, collapsible barricades marked with diagonal, alternating orange and white stripes; and/or signs to separate all construction/maintenance areas from the movement area. Indicate construction locations in which no part of an aircraft may enter by using barricades that are marked with diagonal, alternating orange and white stripes. Barricades may be supplemented with alternating orange and white flags at least 20 by 20 inches (50 by 50 cm) square and securely fastened to eliminate jet engine ingestion. All barricades, temporary markers, and other objects placed and left in areas adjacent to any open runway, taxiway, taxilane, or apron must be as low as possible to the ground, and no more than 18" high. 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, or 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 inches (7.6cm) above the ground.

(4) 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.

(5) 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.

(6) 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.

22. PROTECTION OF RUNWAY AND TAXIWAY SAFETY AREAS, OBJECT-FREE AREAS, OBSTACLE-FREE ZONES, AND APPROACH/DEPARTURE SURFACES. Runway and taxiway safety areas, obstacle-free zones (OFZs), object free areas (OFAs), and approach surfaces are described in AC 150/5300-13, Airport Design. 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 14.e above) 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.

a. 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, Airport Design). Construction activities within the existing RSA are subject to the following conditions:

(1) No construction may occur within the 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, Tables 3-1 through 3-3). 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. See AC 150/5300-13 for guidance on the use of declared distances..

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

(3) The CSPP and SPCD must provide procedures for ensuring adequate distance for blast protection, if required by operational considerations.

(4) Excavations.

(a) Open trenches or excavations are not permitted within the RSA while the runway is open. If possible, backfill trenches before the runway is opened. If the runway must be opened before excavations are backfilled, cover the excavations appropriately. Coverings for open trenches or excavations must be of sufficient strength to support the weight of the heaviest aircraft operating on the runway.

(b) 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.

(5) Erosion Control. Soil erosion must be controlled to maintain RSA standards, i.e. 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 firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

b. 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 if possible, 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.

c. Taxiway Safety Area (TSA). 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, Airport Design). Construction activities within the TSA are subject to the following conditions:

(1) 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 (see AC 150/5300-13, Table 4-1).

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

(3) The CSPP and SPCD must provide procedures for ensuring adequate distance for blast protection, if required by operational considerations.

(4) Excavations.

(a) Open trenches or excavations are not permitted within the TSA while the taxiway is open. If possible, backfill trenches before the taxiway is opened. If the taxiway must be opened before excavations are backfilled, cover the excavations appropriately. Coverings for open trenches or excavations must be of sufficient strength to support the weight of the heaviest aircraft operating on the taxiway.

(b) 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.

(5) Erosion Control. Soil erosion must be controlled to maintain TSA standards, i.e. 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.

d. Taxiway Object Free Area (TOFA). Except as provided below, no construction may occur within the taxiway object free area while the taxiway is open for aircraft operations.

(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.

(2) Offset taxiway pavement markings may be used as a temporary measure to provide the required taxiway object free area. Where offset taxiway pavement markings are provided, centerline lighting or reflectors are required.

(3) Construction activity may be accomplished closer to a taxiway, subject to the following restrictions:

(a) Appropriate NOTAMs are issued.

(b) Marking and lighting meeting the provisions of paragraphs 19 and 21 above are implemented.

(c) 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 pavement), then it will be necessary to move personnel and equipment for each passing aircraft. In these situations, flaggers must be used to direct construction equipment, and wing walkers will be necessary to guide aircraft. Wing walkers should be airline/aviation personnel rather than construction workers

e. 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 FAA through the appropriate FAA Airports Regional or District Office.

f. Runway Approach/Departure Areas and Clearways. All personnel, materials, and/or equipment must remain clear of the applicable threshold siting surfaces, as defined in Appendix 2, "Threshold Siting Requirements," of 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 FAA through the appropriate FAA Airports Regional or District Office.

(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 closures 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. In addition, any instrument approach procedures affected will require coordination with the FAA Airports Regional or District Office and issuance of appropriate NOTAMs (see paragraph 14.e above).

(2) Caution regarding partial runway closures: When filing a NOTAM for a partial runway closure, clearly state to OCC personnel 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). Example NOTAM: "North 1,000 feet of Runway 18/36 is closed; 7,000 feet remain available on Runway 18 and Runway 36 for arrivals and departures." There may be situations where the portion of closed runway is available for taxiing only. If so, the NOTAM must reflect this condition).

(3) Caution regarding 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, etc. 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.

23. OTHER LIMITATIONS ON CONSTRUCTION. The CSPP must specify any other limitations on construction, including but not limited to:

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

b. No use of flare pots within the AOA at any time.

c. No use of electrical blasting caps on or within 1,000 feet (300m) of the airport property (see AC 150/5370-10, Standards for Specifying Construction of Airports).

APPENDIX A. RELATED READING MATERIAL

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

a. AC 150/5200-28, Notices to Airmen (NOTAMs) for Airport Operators. Provides guidance for the use of the NOTAM System in airport reporting.

b. AC 150/5200-30, Airport Winter Safety and Operations. Provides guidance to airport owners/operators on the development of an acceptable airport snow and ice control program and on appropriate field condition reporting procedures.

c. AC 150/5200-33, Hazardous Wildlife Attractants On or Near Airports. Provides guidance on locating certain land uses having the potential to attract hazardous wildlife to public-use airports.

d. AC 150/5210-5, Painting, Marking, and Lighting of Vehicles Used on an Airport. Provides guidance, specifications, and standards for painting, marking, and lighting vehicles operating in the airport air operations areas.

e. AC 150/5210-20, Ground Vehicle Operations on Airports. Contains guidance to airport operators on developing ground vehicle operation training programs.

f. AC 150/5310-24, Airport Foreign Object Debris Management. Provides guidance for developing and managing an airport foreign object debris (FOD) program.

g. AC 150/5220-4, Water Supply Systems for Aircraft Fire and Rescue Protection. Provides guidance for the selection of a water source and standards for the design of a distribution system to support aircraft rescue and fire fighting service operations on airports.

h. AC 150/5320-15, Management of Airport Industrial Waste. Provides basic information on the characteristics, management, and regulations of industrial wastes generated at airports. Provides guidance for the development of a Storm Water Pollution Prevention Plan (SWPPP) that applies best management practices to eliminate, prevent, or reduce pollutants in storm water runoff associated with particular airport industrial activities

i. AC 150/5340-1, Standards for Airport Markings. Contains FAA standards for markings used on airport runways, taxiways, and aprons.

j. AC 150/5340-18, Standards for Airport Sign Systems. Contains FAA standards for the siting and installation of signs on airport runways and taxiways.

k. AC 150/5345-28, Precision Approach Path Indicator (PAPI) Systems. Contains the FAA standards for PAPI systems, which provide pilots with visual glide slope guidance during approach for landing.

l. AC 150/5345-30, Design and Installation Details for Airport Visual Aids. Provides guidance and recommendations on the installation of airport visual aids.

m. AC 150/5345-44, Specification for Runway and Taxiway Signs. Contains the FAA specifications for unlighted and lighted signs to be used on taxiways and runways.

n. AC 150/5345-53, Airport Lighting Certification Program. Describes the Airport Lighting Equipment Certification Program (ALECP).

o. AC 150/5345-50, Specification for Portable Runway and Taxiway Lights. Contains the 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.

p. AC 150/5300-13, Airport Design. Contains 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.

q. AC 150/5370-10, Standards for Specifying Construction of Airports. Provides standards for construction of airports. Items covered include earthwork, drainage, paving, turfing, lighting, and incidental construction.

r. FAA Order 5200.11, FAA Airports (ARP) Safety Management System (SMS). Provides the basis for implementing SMS within ARP. It describes the roles and responsibilities of ARP management and staff as well as other FAA lines of business that will contribute to the ARP SMS.

s. FAA Certalert 98-05, Grasses Attractive to Hazardous Wildlife. Provides guidance on grass management and seed selection.

2. Obtain the latest version of the following free publications from the FAA Regulatory and Guidance Library on its web site at: http://www.airweb.faa.gov.

a. FAA Order 8260.43, Flight Procedures Management Program. Provides guidance on coordination of changes to instrument approach procedures.

b. Other Orders.

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

a. Title 14 CFR part 139, Certification of Airports

b. Title 49 CFR part 1542, Airport Security

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

APPENDIX B. DEFINITIONS OF TERMS USED IN THE AC

1. AIR OPERATIONS AREA (AOA). Any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operations area includes such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runways, taxiways, or aprons.

2. CONSTRUCTION. The presence and movement of construction-related personnel, equipment, and materials in any location that could infringe upon the movement of aircraft.

3. CONSTRUCTION SAFETY AND PHASING PLAN (CSPP). 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.

4. CERTIFICATED AIRPORT. An airport that has been issued an Airport Operating Certificate by the FAA under the authority of 14 CFR part 139, Certification of Airports, or its subsequent revisions.

5. 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.

6. FAA 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 oeaaa.faa.gov). The form may be downloaded at http://www.faa.gov/airports/resources/forms/, or filed electronically at: https://oeaaa.faa.gov.

7. FAA 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/.

8. 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).

9. 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.

10. 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.

11. OBSTRUCTION. Any object/obstacle exceeding the obstruction standards specified by 14 CFR part 77, subpart C.

12. OBJECT-FREE AREA (OFA). An area on the ground centered on the runway, taxiway, or taxilane 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, Airport Design, for additional guidance on OFA standards and wingtip clearance criteria).

13. OBSTACLE-FREE ZONE (OFZ). The airspace below 150 feet (45m) 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.

14. RUNWAY SAFETY AREA (RSA). 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.

15. SAFETY PLAN COMPLIANCE DOCUMENT (SPCD). 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.

16. TAKEOFF RUN AVAILABLE (TORA). 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.

17. 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.

18. 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.

19. THRESHOLD. The beginning of that portion of the runway available for landing. In some instances, the landing threshold may be displaced.

20. TORA. See Takeoff Run Available.

21. VISUAL GLIDE SLOPE INDICATOR (VGSI). This device provides a visual glide slope indicator to landing pilots. These systems include precision approach path indicators (PAPIs), visual approach slope indicators (VASIs), and pulse light approach slope indicators (PLASIs).

APPENDIX C. GUIDELINES FOR WRITING A CSPP

1. The CSPP is a standalone document written to correspond with the Safety/Phasing Plan Checklist in Appendix D. Each section in the checklist must have a corresponding description in the CSPP. CSPP section numbers and titles should match those listed in the checklist. With the exception of the Scope of Work, only subjects specific to operational safety during construction should be addressed.

2. 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. Since many provisions of the CSPP will address multiple concepts (e.g., a requirement for ground vehicle operators to communicate with the Airport Traffic Control Tower when driving on the airfield addresses both the issue of construction vehicles entering restricted areas without clearance ( )proper vehicle operations on various areas (paragraph 10.b(5)), and two-way radio communication procedures (paragraph 10.b(9)). Thus, the CSPP must be considered as a whole, with no need to duplicate responses to related issues.

3. When a graphical representation will aid in supporting written statements, a drawing should be attached as a reference. References to any specific drawing attachment may be made in multiple sections.

4. 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.

5. COORDINATION. Include in this section a detailed description of conferences and meetings both before and during the project. Include appropriate information from AC 150/5300-9, Predesign, Prebid, and Preconstruction Conferences for Airport Grant Projects.

6. 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 section 7 below, as appropriate

7. AREAS AND OPERATIONS AFFECTED BY THE CONSTRUCTION ACTIVITY. 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 sections below as appropriate. Attach drawings as necessary to graphically describe affected areas and mechanisms proposed. Tables and charts such as the following may be helpful in highlighting issues to be addressed.

Sample Operations Effects

Project:	Runway 15-33 Reconstruction	
Phase:	Phase II: Reconstruct Runway 15 End	
Scope of Work:	Reconstruct 1,000 feet of north end of Runway 15-33 with Portland Cement Concrete (PCC).	
Operational Requirements	Normal	Phase II
Runway 15-33 ARC:	C-IV	C-IV

Runway 15 Approach Visibility Minimums:	¾ mile	1 mile
Runway 33 Approach Visibility Minimums:	¾ mile	1 mile
Runway 15 Declared Distances	TORA: 7,820	TORA: 6,420
	TODA: 7,820	TODA: 6,420
	ASDA: 7,820	ASDA: 6,420
	LDA: 7,820	LDA: 6,420
Runway 33 Declared Distances	TORA: 8,320	TORA: 6,920
	TODA: 8,320	TODA:6,920
	ASDA: 8,320	ASDA: 6,920
	LDA: 7,820	LDA: 6,420
Runway 15 Approach Procedures:	ILS	LOC only
	RNAV	
	VOR	
Runway 33 Approach Procedures:	ILS	Visual only
	RNAV	
	VOR	
Taxiway G ADG:	IV	IV (N/A between T/W H and R/W 15 end)
Taxiway E ADG:	IV	IV (N/A between x and R/W 15 end
ATCT (hours open)	06:00 – 24:00 local	06:00 – 24:00 local
ARFF Index	D	D
Special Conditions:	ANG military operations	Military operations relocated to alternate ANG Base
	Airline XYZ requires VGSI	Airline XYZ requires VGSI

Complete the following chart to determine the area that must be protected along the runway edges:

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

Complete the following chart to determine the area that must be protected before the 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	
_____	_____	_____	_____: FEET	_____: FEET	_____: 1
_____	_____	_____	_____: FEET	_____: FEET	_____: 1
_____	_____	_____	_____: FEET	_____: FEET	_____: 1
_____	_____	_____	_____: FEET	_____: FEET	_____: 1

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

8. NAVAIDs. 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. Outline in detail procedures to protect each NAVAID facility remaining in service from interference by construction activities. Include a reference to section 13 below for the issuance of NOTAM's as required. Include a reference to section 15 below 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 section 18 below. Attach drawings to graphically indicate the affected NAVAIDS and the corresponding critical areas.

9. CONTRACTOR ACCESS. This will necessarily be 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:

a. Location of stockpiled construction materials. Describe in this section specific locations for stockpiling material. Note any height restrictions on stockpiles. Include a reference to section 20 below for hazard marking and lighting devices used to identify stockpiles. Include a reference to section 10 below for provisions to prevent stockpile material from becoming wildlife attractants. Include a reference

to section 11 below for provisions to prevent stockpile material from becoming FOD. Attach drawings to graphically indicate the stockpile locations.

b. 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, i.e. 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 Hazardous Material (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.

c. Include a special section on two-way radio communications. It should identify all individuals who are required to maintain communications with Air Traffic (AT) at airports with active towers, or monitor Common Traffic Advisory Frequencies (CTAF) at airports without or with closed ATCT's. 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 (i.e. light signals, telephone numbers, etc.) must be included. All radio frequencies should by identified (Tower, Ground Control, CTAF, Unicom, ATIS, etc.).

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

10. 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 Section 9.d above for security (wildlife) fence integrity maintenance as required.

11. FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT. In this section, discuss methods to control and monitor FOD: worksite housekeeping, ground vehicle tire inspections, runway sweeps, etc. Include a reference to Section 14 below for inspection requirements as required.

12. HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT. Describe in this section HAZMAT management procedures: fuel deliveries, spill recovery procedures, Material Safety Data Sheet (MSDS) availability, etc. Any specific airport HAZMAT restrictions should also be identified. Include a reference to Section 9.b above for HAZMAT vehicle identification requirements. Quote from, rather than incorporate by reference, AC 150/5320-15.

13. 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 individual(s) 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 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. The methods used to issue and cancel each type of NOTAM, such as eNOTAM's, should also be identified. Detail notification methods for police, fire fighting, and medical emergencies. This may include 911, but should also include direct phone numbers of local police department(s) and nearby hospital(s). 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 Section 9.c above. 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.

14. INSPECTION REQUIREMENTS. Describe in this section inspection requirements to ensure airfield safety compliance. Include a requirement for routine inspections by the resident engineer (RE) and the construction contractor(s). If the engineering consultant(s) and/or contractor(s) 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.

15. 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 Section 13 above for notification of utility owners of accidental utility disruption as required

16. PENALTIES. Describe in this section specific penalties imposed for noncompliance with airport rules and regulations, including the CSPP: SIDA violations, Vehicle/Pedestrian Deviations (VPD's), etc.

17. 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's, and other activities requiring construction suspension/resumption. Include a reference to Section 9 above for compliance with airport safety and security measures and for radio communications as required. Include a reference to Section 13 above for emergency notification of all involved parties, including police/security, ARFF, and medical services.

18. RUNWAY AND TAXIWAY VISUAL AIDS - 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 installed, altered, obliterated, or shut down. Identify required temporary visual NAVAIDs such as REIL or PAPI, and TORA signage (if appropriate). Quote from, rather than incorporate by reference, AC 150/5340-1 and AC 150/5340-30 as required. Attach drawings to graphically indicate proposed marking, lighting, signs, and visual NAVAIDs.

19. MARKING AND SIGNS FOR ACCESS ROUTES. Detail plans for marking and signs for vehicle access routes. Signs should be in conformance with the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or State highway specifications, not hand lettered. Detail any modifications the guidance in the MUTCD necessary to meet frangibility requirements.

20. HAZARD MARKING AND LIGHTING. Specify all marking and lighting equipment and 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 section 13 above. Attach drawings to graphically indicate the placement of hazard marking and lighting equipment.

21. PROTECTION OF RUNWAY AND TAXIWAY SAFETY AREAS, OBJECT-FREE AREAS, OBSTACLE-FREE ZONES, AND APPROACH SURFACES. 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, etc. Reference AC 150/5300-13 as required. Include a reference to 9.b above for procedures regarding vehicle and personnel movement within safety areas. Include a reference to Section 9.a above for material stockpile restrictions as required. Detail requirements for trenching, excavations, and backfill. Include a reference to Section 20 above 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 adequate Runway Safety Area, include a reference to Sections 13 and 18 above. Detail procedures for protecting the runway OFZ's, runway OFA's, taxiway OFA's and runway approach surfaces including those altered by the construction: methods of demarcation, limit of cranes, storage of equipment, etc. Quote from, rather than incorporate by reference, AC 150/5300-13 as required. Include a reference to Section 0 below 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.

22. 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, etc. Include a reference to Section 6 above for project phasing requirements based on construction limitations as required.

APPENDIX D. AIRPORT CONSTRUCTION SAFETY AND PHASING PLAN CHECKLIST

This appendix is keyed to Section 2. Plan Requirements. In the electronic version of this AC, (control?) 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.

COORDINATION	Reference	Addressed	Remarks
Requirements for predesign, prebid, and preconstruction conferences to introduce the subject of airport operational safety during construction are specified.	6	☐ ☐ ☐ Yes No N/A	
Operational safety is a standing agenda item for construction progress meetings.	6	☐ ☐ ☐ Yes No N/A	
Scheduling of the construction phases is properly addressed.	7	☐ ☐ ☐ Yes No N/A	
AREAS AND OPERATIONS AFFECTED BY THE CONSTRUCTION ACTIVITY			
Drawings showing affected areas are included.	8.a	☐ ☐ ☐ Yes No N/A	
Closed or partially closed runways, taxiways, and aprons are depicted on drawings.	8.a(1)	☐ ☐ ☐ Yes No N/A	
Access routes used by ARFF vehicles affected by the project are addressed.	8.a(2)	☐ ☐ ☐ Yes No N/A	
Access routes used by airport and airline support vehicles affected by the project are addressed.	8.a(3)	☐ ☐ ☐ Yes No N/A	
Underground utilities, including water supplies for fire fighting and drainage.	8.a(4)	☐ ☐ ☐ Yes No N/A	
Approach/departure surfaces affected by heights of temporary objects are addressed.	8.a(5)	☐ ☐ ☐ Yes No N/A	
Instrument Approach Procedures (IAP) affected by temporarily displaced thresholds and work in NAVAID critical areas are	8.a(6)	☐ ☐ ☐ Yes No N/A	

addressed.			
Construction areas, storage areas, and access routes near runways, taxiways, aprons, or helipads are properly depicted on drawings.	8.a(7)	☐ ☐ ☐ Yes No N/A	
Temporary changes to taxi operations are addressed.	8.b(1)	☐ ☐ ☐ Yes No N/A	
Detours for ARFF and other airport vehicles are identified.	8.b(2)	☐ ☐ ☐ Yes No N/A	
Maintenance of essential utilities and underground infrastructure is addressed.	8.b(3)	☐ ☐ ☐ Yes No N/A	
Temporary changes to ATC procedures are addressed.	8.b(4)	☐ ☐ ☐ Yes No N/A	
NAVAIDS			
Critical areas for NAVAIDs are depicted on drawings.	9	☐ ☐ ☐ Yes No N/A	
Effects of construction activity on the performance of NAVAIDS, including unanticipated power outages, are addressed.	9	☐ ☐ ☐ Yes No N/A	
Protection of NAVAID facilities is addressed.	9	☐ ☐ ☐ Yes No N/A	
The required distance and direction from each NAVAID to any construction activity is depicted on drawings.	9	☐ ☐ ☐ Yes No N/A	
Procedures for coordination with FAA ATO/Technical Operations, including identification of points of contact, are included.	9, 14.a, 14.e(3)(a), 19.a	☐ ☐ ☐ Yes No N/A	
CONTRACTOR ACCESS			
The CSPP addresses areas to which contractor will have access and how the areas will be accessed.	10	☐ ☐ ☐ Yes No N/A	
The application of 49 CFR part 1542 Airport Security, where appropriate, is	10	☐ ☐ ☐ Yes No N/A	

addressed.			
The location of stockpiled construction materials is depicted on drawings.	10.a	☐ ☐ ☐ Yes No N/A	
The requirement for stockpiles in the ROFA to be approved by FAA is included.	10.a	☐ ☐ ☐ Yes No N/A	
Requirements for proper stockpiling of materials are included.	10.a	☐ ☐ ☐ Yes No N/A	
Construction site parking is addressed.	10.b(1)	☐ ☐ ☐ Yes No N/A	
Construction equipment parking is addressed.	10.b(2)	☐ ☐ ☐ Yes No N/A	
Access and haul roads are addressed	10.b(3)	☐ ☐ ☐ Yes No N/A	
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.	10.b(4)	☐ ☐ ☐ Yes No N/A	
Proper vehicle operations, including requirements for escorts, are described.	10.b(5), 10.b(6)	☐ ☐ ☐ Yes No N/A	
Training requirements for vehicle drivers are addressed.	10.b(7)	☐ ☐ ☐ Yes No N/A	
Two-way radio communications procedures are described.	10.b(9)	☐ ☐ ☐ Yes No N/A	
Maintenance of the secured area of the airport is addressed.	10.b(10)	☐ ☐ ☐ Yes No N/A	
WILDLIFE MANAGEMENT			
The airport operator’s wildlife management procedures are addressed.	11	☐ ☐ ☐ Yes No N/A	
FOREIGN OBJECT DEBRIS MANAGEMENT			

The airport operator's FOD management procedures are addressed.	12	☐ ☐ ☐ Yes No N/A	
HAZARDOUS MATERIALS MANAGEMENT			
The airport operator's hazardous materials management procedures are addressed.	13	☐ ☐ ☐ Yes No N/A	
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.	14	☐ ☐ ☐ Yes No N/A	
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.	14.a	☐ ☐ ☐ Yes No N/A	
A list of local ATO/Technical Operations personnel is included.	14.a	☐ ☐ ☐ Yes No N/A	
A list of ATCT managers on duty is included.	14.a	☐ ☐ ☐ Yes No N/A	
A list of authorized representatives to the OCC is included.	14.b	☐ ☐ ☐ Yes No N/A	
Procedures for coordinating, issuing, maintaining and cancelling by the airport operator of NOTAMS about airport conditions resulting from construction are included.	9, 14.b, 19.c(3)(i)	☐ ☐ ☐ Yes No N/A	
Provision of information on closed or hazardous conditions on airport movement areas by the airport operator to the OCC is specified.	14.b	☐ ☐ ☐ Yes No N/A	
Emergency notification procedures for medical, fire fighting, and police response are addressed.	14.c	☐ ☐ ☐ Yes No N/A	

Coordination with ARFF personnel for non-emergency issues is addressed.	14.d	☐ ☐ ☐ Yes No N/A	
Notification to the FAA under 14 CFR parts 77 and 157 is addressed.	14.e	☐ ☐ ☐ Yes No N/A	
Reimbursable agreements for flight checks and/or design and construction for FAA owned NAVAIDs are addressed.	14.e(3)(b)	☐ ☐ ☐ Yes No N/A	
Instrument Approach Procedures affected by the project are identified.	14.e(4)	☐ ☐ ☐ Yes No N/A	
INSPECTION REQUIREMENTS			
Daily inspections by both the airport operator and contractor are specified.	15.a	☐ ☐ ☐ Yes No N/A	
Final inspections at certificated airports are specified when required.	15.b		
UNDERGROUND UTILITIES			
Procedures for protecting existing underground facilities in excavation areas are described.	16	☐ ☐ ☐ Yes No N/A	
PENALTIES			
Penalty provisions for noncompliance with airport rules and regulations and the safety plans are detailed.	17	☐ ☐ ☐ Yes No N/A	
SPECIAL CONDITIONS			
Any special conditions that affect the operation of the airport or require the activation of any special procedures are addressed.	18	☐ ☐ ☐ Yes No N/A	
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.	19.a	☐ ☐ ☐ Yes No N/A	

Frangibility of airport markings, lighting, signs, and visual NAVAIDs is specified.	19.a, 19.d, 20, 21.b(3)	☐ ☐ ☐ Yes No N/A	
The requirement for markings to be in compliance with AC 150/5340-1, Standards for Airport Markings is specified.	19.b	☐ ☐ ☐ Yes No N/A	
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.	19.c	☐ ☐ ☐ Yes No N/A	
The use of a "Lighted X" is specified where appropriate.	19.b(1)(b), 19.c(2)	☐ ☐ ☐ Yes No N/A	
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.	19.d	☐ ☐ ☐ Yes No N/A	
MARKING AND SIGNS FOR ACCESS ROUTES			
The CSPP specifies that pavement markings and signs intended for construction personnel should be in conformance AC 150/5340-18 and, to the extent practicable, with the MUTC and/or State highway specifications.	20	☐ ☐ ☐ Yes No N/A	
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.	21.a	☐ ☐ ☐ Yes No N/A	
Hazard marking and lighting are specified to identify open manholes, small areas under repair, stockpiled material, and waste areas.	21.a	☐ ☐ ☐ Yes No N/A	
The CSPP considers less obvious construction-related hazards.	21.a	☐ ☐ ☐ Yes No N/A	

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.	21.b(1)	☐ ☐ ☐ Yes No N/A	
The spacing of barricades is specified such that a breach is physically prevented barring a deliberate act.	21.b(1)	☐ ☐ ☐ Yes No N/A	
Red lights meeting the luminance requirements of the State Highway Department are specified.	21.b(2)	☐ ☐ ☐ Yes No N/A	
Barricades, temporary markers, and other objects placed and left in areas adjacent to any open runway, taxiway, taxilane, or apron are specified to be as low as possible to the ground, and no more than 18" high.	21.b(3)	☐ ☐ ☐ Yes No N/A	
Barricades marked with diagonal, alternating orange and white stripes are specified to indicate construction locations in which no part of an aircraft may enter.	21.b(3)	☐ ☐ ☐ Yes No N/A	
Highly reflective barriers with lights are specified to barricade taxiways leading to closed runways.	21.b(4)	☐ ☐ ☐ Yes No N/A	
Markings for temporary closures are specified.	21.b(4)	☐ ☐ ☐ Yes No N/A	
The provision of a contractor's representative on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades is specified.	21.b(6)	☐ ☐ ☐ Yes No N/A	
PROTECTION OF RUNWAY AND TAXIWAY SAFETY AREAS, OBJECT-FREE AREAS, OBSTACLE-FREE ZONES, AND APPROACH SURFACES			
The CSPP clearly states that no construction may occur within a safety area while the associated runway or taxiway is open for aircraft operations.	22.a(1), 22.c(1)	☐ ☐ ☐ Yes No N/A	
The CSPP specifies that the airport operator coordinates the adjustment of RSA or TSA dimensions with the ATCT and the	22.a(2), 22.c(2)	☐ ☐ ☐ Yes No N/A	

appropriate FAA Airports Regional or District Office and issues a local NOTAM.			
Procedures for ensuring adequate distance for blast protection, if required by operational considerations, are detailed.	22.a(3), 22.c(3)	☐ ☐ ☐ Yes No N/A	
The CSPP specifies that open trenches or excavations are not permitted within a safety area while the associated runway or taxiway is open.	22.a(4)(a), 22.c(4)(a)	☐ ☐ ☐ Yes No N/A	
Appropriate covering of excavations in the RSA or TSA that cannot be backfilled before the associated runway or taxiway is open is detailed.	22.a(4)(a), 22.c(4)(a)	☐ ☐ ☐ Yes No N/A	
The CSPP includes provisions for prominent marking of open trenches and excavations at the construction site.	22.a(4)(b), 22.c(4)(b)	☐ ☐ ☐ Yes No N/A	
Grading and soil erosion control to maintain RSA/TSA standards are addressed.	22.a(5), 22.c(5)	☐ ☐ ☐ Yes No N/A	
The CSPP specifies that equipment is to be removed from the ROFA when not in use.	22.b	☐ ☐ ☐ Yes No N/A	
The CSPP clearly states that no construction may occur within a taxiway safety area while the taxiway is open for aircraft operations.	22.c		
Appropriate details are specified for any construction work to be accomplished in a taxiway object free area.	22.d	☐ ☐ ☐ Yes No N/A	
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.	22.e	☐ ☐ ☐ Yes No N/A	
Provisions for protection of runway approach/departure areas and clearways are included.	22.f	☐ ☐ ☐ Yes No N/A	
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.	23.a	☐ ☐ ☐ Yes No N/A	
The CSPP prohibits the use of flare pots within the AOA at any time.	23.b	☐ ☐ ☐ Yes No N/A	
The CSPP prohibits the use of electrical blasting caps on or within 1,000 feet (300m) of the airport property.	23.c	☐ ☐ ☐ Yes No N/A	

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APPENDIX E. 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.

ITEM	ACTION REQUIRED	
	None	
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 taxilane; 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 inches (7.6cm) from pavement edges and ends.	☐	
Heavy equipment (stationary or mobile) operating or idle near AOAs, in runway approaches and departures areas, or in OFZs.	☐	
Equipment or material near NAVAIDs that may degrade or impair radiated signals and/or the monitoring of navigational 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 (i.e., equipment with slim profiles)—cranes, drills, and similar objects—located in critical areas, such as OFZs and approach zones.	☐	

Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on any apron, open taxiway, or open taxilane or in a related safety, approach, or departure area.	☐	
Obstacles, loose pavement, trash, and other debris on or near AOAs. Construction debris (gravel, sand, mud, paving materials, etc.) 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 AOAs 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 AOAs 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.	☐	
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 navigational, 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, etc.) on active pavement areas, such as runways, taxiways, aprons, and airport roadways.	☐	
Failure to maintain drainage system integrity during construction (e.g., no temporary drainage provided when working on a drainage system).	☐	
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.	☐	

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APPENDIX F. TYPICAL MARKING, LIGHTING, AND SIGNS

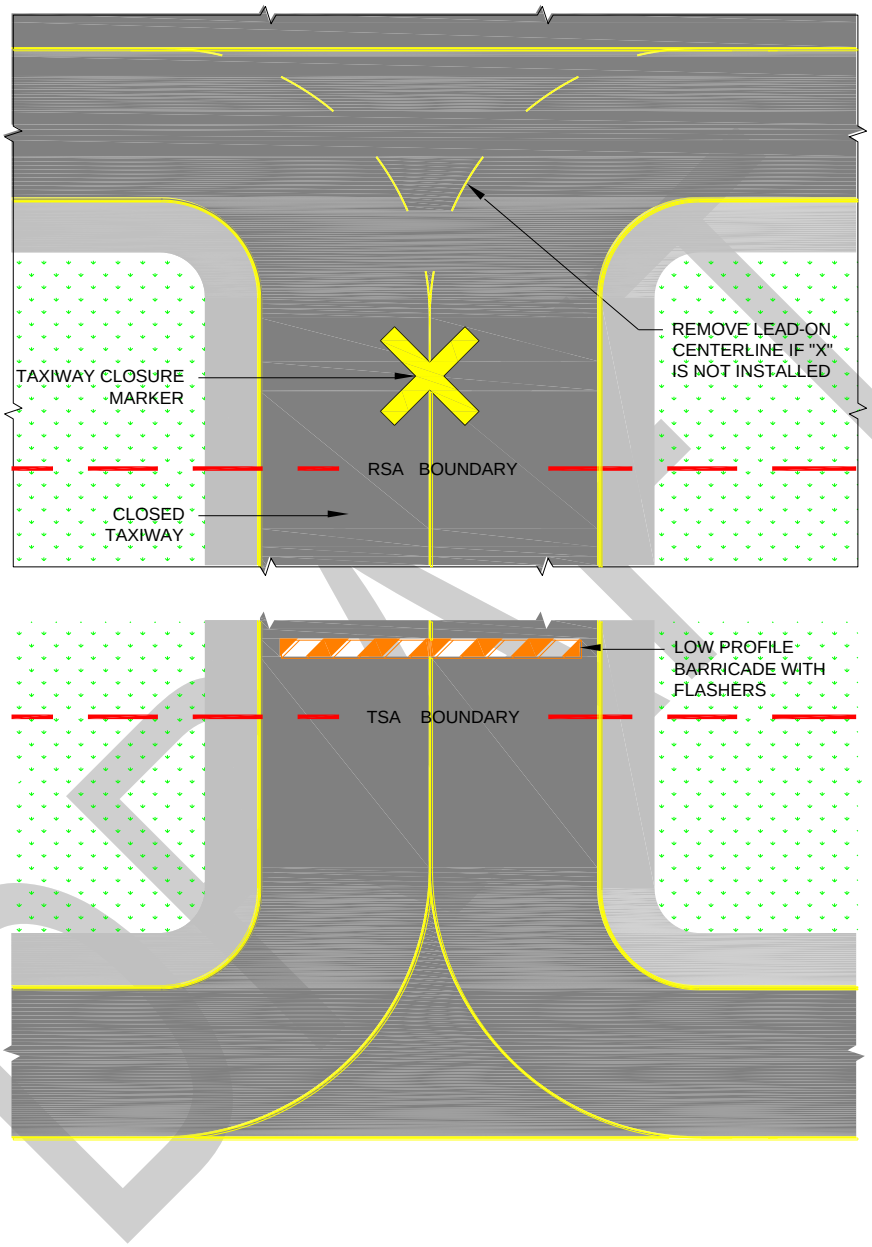

Figure F-1, Taxiway Closure

Figure F-2, Interlocking Barricades

Figure F-3, Low Profile Barricades

Figure F-4, Closed Runway Markings

Figure F-5, Lighted “X”

Figure F-6, Lighted “X”

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APPENDIX G. AIRPORT OPERATOR STRATEGIC EVENT SUBMISSION FORM

Submit this form preferably 45 days prior to the event to the Federal Aviation Administration, Air Traffic Organization, Planning and Requirements, Eastern/Central/Western Service Area

Please email form to: **9-AJV-SEC-ESA@faa.gov (Eastern Service Area)**
9-AJV-SEC-CSA@faa.gov (Central Service Area)
9-AJV-SEC-WSA@faa.gov (Western Service Area)

AIRPORT NAME_____ **LOCATION ID** _____

CITY, STATE _____

Referenced **NRA NUMBER**_____

PROJECT SCOPE (Example: Reconstruct Runway 18/26)

_____

_____

PROJECT PHASE (Example: Phase 1 of 3) _____

EVENT (Example: Runway 18/36 closure) _____

Duration: Start Date _____ End Date_____

Hours: 24 hrs a day ☐ or from: _____ to: _____ daily.

Other hours of Operation Specify: _____

FACILITIES IMPACTED:

Are any facilities impacted? Yes ☐ No ☐ If yes, list impacted facilities below along with the duration of the impacts if different than duration of the event (these facilities may be found on the NRA determination letter).

Facility: (Example: RWY 18 localizer _____ Start Date _____ End Date _____ Hours: Start/End Time _____	Facility: _____ Start Date _____ End Date _____ Hours: Start/End Time _____
Facility: _____ Start Date _____ End Date _____ Hours: Start/End Time _____	Facility: _____ Start Date _____ End Date _____ Hours: Start/End Time _____
Facility: _____ Start Date _____ End Date _____ Hours: Start/End Time _____	Facility: _____ Start Date _____ End Date _____ Hours: Start/End Time _____

Submitted by Sponsor Representative:

Print Name _____

Title _____

Signature _____ Date _____

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