U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

National Policy

ORDER 6480.4C

Effective Date:
09/18/2025

SUBJ: Siting of Airport Traffic Control Towers (ATCT)

This order prescribes the criteria for siting new and replacement Airport Traffic Control Towers (ATCTs) to ensure safety within the National Airspace System. It prescribes policy, delegates authority, and assigns responsibility for providing the lowest-cost ATCT that meets all the siting criteria. This order also defines a method for reporting, evaluating, and approving siting results.

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Table of Contents

List of Tables

List of Figures

Chapter 1. General

1. Purpose of This Order. This order establishes the policy for siting Airport Traffic Control Towers (ATCTs), including determining site location, tower height, and cab orientation.

The order defines a method for reporting and approving siting results. Approval of a siting report does not imply the approval or the availability of funding for the ATCT new/replacement project.

This order does not apply to the siting of temporary, mobile, or remote towers. Siting of temporary and mobile towers is covered in Federal Aviation Administration (FAA) Order JO 7110.315, Mobile Airport Traffic Control Tower Siting Criteria.

This order does not apply to the camera mast/nest siting for remote tower operations.

2. Audience. This order applies to personnel involved in the siting of ATCTs where any Federal funds are received for the purpose of constructing a new facility, including FAA-operated towers, FAA Contract Towers (FCTs) and approved Candidates, and Non-Federal Control Towers (NFCTs), whether they are built by the FAA or Airport Sponsor directly or through Other Transaction Agreements (OTAs).

3. Where Can I Find This Order? You can find an electronic copy of this order on the Directives Management System (DMS) website: https://www.faa.gov/regulations_policies/orders_notices/. Or go to the MyFAA Employee website, select "Tools and Resources," then select "Orders and Notices."

4. Cancellation. This revision replaces Order 6480.4B, Airport Traffic Control Tower Siting Process, dated August 13, 2018.

5. Explanation of Policy Changes. This order authorizes siting ATCTs via a 3-Dimensional (3-D) model using Virtual Reality (VR) and provides for the siting of ATCTs regardless of the modeling technology used to develop an airport model. This order has been revised to clarify the roles and responsibilities of siting team organizations, streamline the siting assessment and reporting processes, and move procedures to appendices, retaining policy in the body of the document. The changes include:

a. Moved Chapter 2, Siting Criteria, and Appendix D, Visibility Performance Analysis, to Chapter 4, Siting Criteria.

b. Moved Chapter 4, Airport Facilities Terminal Integration Laboratory, to Chapter 6, Data Requirements, and revised content to reflect required data exclusive of modeling technology.

c. Moved Chapter 5, Siting Team Composition, to Chapter 3, Siting Team Composition.

d. Moved Chapter 6, Roles and Responsibilities, to Chapter 2, Roles and Responsibilities.

e. Combined Chapter 7, Siting Process, and Chapter 8, Alternate Siting Process, into one procedural appendix, Appendix A, Siting Procedures, applicable to all ATCTs.

f. Moved Appendix B, Sample Safety Risk Management Document, to Appendix C, Siting Report Requirements, and revised content to streamline the siting report.

g. Moved Appendix C, ATCT Siting Hazards, to Appendix H, Preliminary Hazard List, and removed guidance on Hazard Matrices and revised the Preliminary Hazard List (PHL).

h. Added Chapter 6, Siting Report Safety Requirements and Approval.

i. Added Chapter 8, Siting Report Renewal Process.

j. Added Appendix D, Sample Airport Concurrence Letter.

k. Added Appendix E, Sample Airport Letter Certifying Model Accuracy.

l. Added Appendix F, Pre-Site Requirements.

m. Added Appendix G, Airport Sponsor Physical Space Requirements for Siting Assessments.

n. Moved Appendix E, Administrative Information, to Chapter 9, Administrative Information.

o. Added Appendix I, Comparative Environmental Resource Screening.

6. Implementation. The requirements of this order are applicable to the establishment of new, replacement of existing, and modernization of (where the overall structure height is changed) ATCT facilities in the National Airspace System (NAS). The requirements apply equally whether the ATCT is a stand-alone structure or is part of another airport facility. The requirements apply to all ATCTs regardless of whether they are FAA or sponsor owned.

7. Siting Priority. Terminal Facilities determines the priority for siting assessments. The FCT/NFCT Airport Sponsor must submit a written request (for example, e-mail) for a siting assessment to the applicable Terminal Facilities Planning & Controls Service Area Lead.

8. Execution Methodology. Terminal Facilities determines the execution method for siting assessments on a case-by-case basis. Siting assessments may be conducted by the FAA's Airport Facilities Terminal Integration Laboratory (AFTIL) at the William J. Hughes Technical Center in Atlantic City, New Jersey, or by other Terminal Facilities-approved resources.

Chapter 2. Roles and Responsibilities

1. General. This chapter outlines the roles and responsibilities for each Line of Business (LOB) required to participate in the ATCT siting process.

2. Obligations.

a. National Coordinator (NC). The NC is obligated to use the latest approved Airport Layout Plan (ALP) for all siting activities and to include appropriate stakeholders in siting activities. Any planned airport improvements not on the latest approved ALP must be approved for use by the Terminal Facilities Team Siting Lead and Terminal Facilities Planning & Controls.

b. Airports Regional and District Offices and/or Airport Sponsor. The Airports Regional and District Offices and/or Airport Sponsors are obligated to notify the NC of any current, proposed, planned, or envisioned projects that will be constructed on or adjacent to airport property that could possibly impact the Line of Sight (LOS) from any of the preferred and/or recommended ATCT sites.

c. Siting Team Members. All Siting Team Members are obligated to participate in the Safety Management System (SMS) process per the Air Traffic Organization (ATO) SMS Manual and in accordance with FAA Order JO 1000.37, Air Traffic Organization Safety Management System.

3. Roles and Responsibilities. Representatives from the following LOBs must participate in the ATCT siting process. If a representative is unavailable, each LOB must designate an alternate representative. Refer to Table 3-1 for siting team composition.

a. Technical Operations – Facilities & Engineering Services – Facilities & Security Services Group – Terminal Facilities Siting Team Lead. The Terminal Facilities Siting Team Lead ensures compliance with the ATCT siting process and determines that the intent of this order has been satisfied by performing the following:

(1) Plan and coordinate the overall ATCT siting process.

(2) Designate NCs to facilitate the siting process on behalf of Terminal Facilities.

(3) Outline the funding profile for all siting activities.

(4) Coordinate funding with the appropriate service areas.

(5) Authorize or deny exceptions to any planned airport improvements not on the latest approved ALP.

(6) Determine and approve siting team members' travel.

(7) Assist in the development of siting reports, as applicable, to include:

(a) FAA ATCTs and FAA-Owned FCTs: Develop the initial draft of the Airport Concurrence Letter and submit to the Terminal Engineering – Lead Project Engineer and Terminal Facilities Planning & Controls for coordination.

(b) Coordinate FAA Headquarters Siting Report approval.

(c) Upload final siting reports and supporting documents to the approved electronic document management system (refer to Appendix A, Siting Procedures, for additional information).

(d) Maintain configuration control of siting assessment records (for example, ALP used; latitude, longitude, and elevation of all locations; siting reports; and other associated historical data).

b. National Coordinator (NC). As the delegated facilitator, the NC has the following responsibilities:

(1) Facilitate ATCT siting assessments, to include performing NC procedures identified in Appendix A, Siting Procedures.

(2) Coordinate with Terminal Planning & Controls, the Program Implementation Manager (PIM), and other LOBs as applicable to develop the siting participants list.

(3) Validate cab size requirements with Technical Operations – Engineering Services, as applicable.

(4) Obtain the latest approved ALP and other data as required by Chapter 6, Data Requirements. Coordinate with the local Airports Regional and District Office to ensure that the ALP used is the approved version. Coordinate with the Terminal Facilities Siting Team Lead and Planning & Controls for approval to include any airport improvements not shown on the approved ALP.

(5) FAA-Owned ATCTs Only: Conduct the Human Factors Analysis using the FAA's Tower Visibility Toolkit (TVT) (https://towervistool.faa.gov).

(6) Sponsor-Owned FCTs/NFCTs Only: Ensure that the Human Factors Analysis is accomplished.

(7) Ensure pre-sites are coordinated by the Terminal Engineering – Lead Project Engineer and in accordance with Appendix F, Pre-Site Requirements.

(8) Ensure that the Technical Operations Engineering Support Group (OESG) Technical Operations Point of Contact (POC) receives the pre-site data to conduct a preliminary assessment via a Technical Operations Preliminary Review (TOPR).

(9) Ensure that the Operations Support Group (OSG) Flight Procedures Team Service Area POC receives the pre-site site data for use in preliminary Terminal Instrument Procedures (TERPS) analysis.

(10) Coordinate the renewal of the siting reports in accordance with Chapter 7, Siting Report Renewal Process.

c. Safety Risk Management (SRM) Panel Facilitator. Refer to the ATO SMS Manual for SRM Panel Facilitator responsibilities. The SRM Panel Facilitator will:

(1) Facilitate the safety analysis for siting assessments in accordance with the ATO SMS Manual and Appendix H, Preliminary Hazard List.

(2) Document all analysis findings in an SRM Document in accordance with the ATO SMS Manual.

(3) Coordinate required reviews and signatures and submit the final signed safety analysis to the Terminal Engineering – Lead Project Engineer, if applicable, and the NC.

(4) (If the Quality Control Group (QCG) SRM Specialist facilitates an SRM Panel) Review the safety analysis and ensure that identified hazards, safety requirements, and monitoring plans, including safety performance targets, are accurate, complete, and documented.

d. Technical Operations – Engineering Services – Facilities & Security Services Group – Planning & Controls Service Area Lead. As applicable, the Planning & Controls Service Area Lead will:

(1) Notify the Terminal Facilities Siting Team Lead to conduct tower siting assessments.

(2) Assist the NC in identifying siting team participants (refer to Table 3-1).

(3) Provide the number and operational function of the approved positions in the cab.

(4) Authorize or deny exceptions to any planned airport improvements not on the latest approved ALP.

(5) Coordinate with the Terminal Engineering – Lead Project Engineer to develop the final draft of the Airport Concurrence Letter. Sign the Airport Concurrence Letter and coordinate the Airport Sponsor's signature.

e. Technical Operations – Engineering Services (FAA ATCTs and FAA-Owned FCTs).

(1) Terminal Engineering – Lead Project Engineer responsibilities:

(a) Coordinate pre-sites in accordance with Appendix F, Pre-Site Requirements, and provide to the NC.

(b) Ensure that preferred ATCT sites provide adequate space for required FAA facilities.

(c) Coordinate the cab size and tower shaft design and provide to the NC 12 weeks before the assessment.

(d) Prepare and submit FAA Form 7460-1, Notice of Proposed Construction or Alteration, for a final determination letter for the recommended site and for a feasibility study for each of the preferred sites. A designated representative may submit FAA Form 7460-1 on behalf of the Terminal Engineering – Lead Project Engineer.

(e) (Upon receipt of a final determination letter for the recommended site) Notify Technical Operations – OESG to enter the final recommended site data into the appropriate database [for example, the Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) database] to provide future protection of the site.

(f) Coordinate with the appropriate Technical Operations – Engineering Services Environmental and Occupational Safety and Health (EOSH) Center to obtain a Phase I Environmental Site Assessment (ESA) (per the latest version of ASTM International [formerly American Society for Testing and Materials] Standard E1527, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process) for each of the preferred sites.

(g) Coordinate with the appropriate Technical Operations – Engineering Services EOSH Center to obtain the results of the Comparative Environmental Resource Screening (CERS) for each of the preferred sites (refer to Appendix I).

(h) Coordinate physical security requirements in accordance with FAA Order 1600.69, FAA Facility Security Management Program, and potential mitigations with the facility Servicing Security Element (SSE).

(i) Prepare comparative cost estimates for each of the preferred sites. Identify potential construction cost drivers, including utility and access road routing, base building configuration, and impacts to operational facilities.

(j) Coordinate with Terminal Facilities Planning & Controls Service Area Lead to develop the Airport Concurrence Letter.

(k) Author the siting report with the assistance of the Terminal Facilities Siting Team Lead.

(l) (Prior to the design phase) Notify the NC of any proposed changes to the ALP that impact the recommended site location. In addition, ensure that the Air Traffic Manager has the opportunity to review the planned approved equipment list placement in the ATCT cab and make operational adjustments as necessary.

(m) (Upon authorization of a design project, construction phase, or facility commissioning) Notify the NC to coordinate an SRM Panel, if required, in accordance with the ATO SMS Manual.

(2) Terminal Engineering – Electronics Project Engineer responsibilities:

(a) Review the approved number of authorized positions.

(b) Coordinate with the Air Traffic Manager and 3-D Modeler to develop a cab layout based on validated positions. Submit scaled ATCT cab layout drawings to the NC 12 weeks prior to the siting assessment, as appropriate.

(c) Coordinate with the Terminal Facilities Siting Team Lead and Terminal Engineering – Lead Project Engineer to determine the appropriate cab size.

(d) Coordinate with the 3-D Modeler to document the outcome of the cab size evaluation.

(3) EOSH Center – Environmental Engineer/Environmental Protection Specialist responsibilities:

(a) Review pre-sites to identify potential environmental issues in coordination with the Terminal Engineering – Lead Project Engineer and in accordance with Appendix F, Pre-Site Requirements.

(b) Provide a Phase I ESA (per the latest version of ASTM International Standard E1527) for each of the preferred sites, along with a technical conformance statement and recommendations, to the Terminal Engineering – Lead Project Engineer.

(c) Provide results from the CERS, along with recommendations, to the Terminal Engineering – Lead Project Engineer (refer to Appendix I).

(d) Provide general environmental recommendations and advice to the siting team, as needed.

f. Airports Regional and District Offices. As applicable, the Airports Regional and District Offices will:

(1) Ensure that the tower siting effort and long-term airport development plans are not in conflict.

(2) Verify that the NC has received the most current and approved ALP, including all pen and ink actions, for siting activities.

(3) Provide knowledge of:

(a) Airport operations and development (for example, ALPs).

(b) Known environmental issues.

(c) FAA planning and design policy/procedures that can impact existing and/or proposed airport development and surrounding airport environments.

(d) Airport safety and design standards under varying development scenarios for proposed ATCT locations.

(4) Assist with the 14 Code of Federal Regulations (CFR) Part 77 preliminary evaluation of pre-sites (refer to Appendix F, Pre-Site Requirements).

(5) Verify with the Airport Sponsor that the proposed preferred site(s) location and the final recommended site location are accurate. Upon completion of the siting assessment, ensure that the recommended site is added to the ALP.

(6) Participate in the siting report renewal process.

g. Flight Standards Service. The Flight Standards Service will:

(1) Provide the NC with either a national POC or an individual service area POC to participate in the siting process.

(2) Evaluate the proposed ATCT site heights and locations based on ground and flight operations safety considerations, the analysis provided by OSG Flight Procedures Team, and the analysis of objects affecting navigable airspace (14 CFR Part 77 surfaces).

(3) Report the potential adverse impacts to the siting team in collaboration with the Flight Standards Service operations specialist.

h. Service Center QCG SRM Specialist(s). Refer to the ATO SMS Manual for SRM Panel Co-Facilitator responsibilities. As an SRM Panel Co-Facilitator, the Service Center QCG SRM Specialist will:

(1) Participate in SMS activities and act as co-facilitator for SRM Panels, as available.

(2) (If the SMS Facilitator facilitates the SRM Panel) Review the completed safety analysis and ensure identified hazards, safety requirements, and monitoring plan, including safety performance targets, are accurate, complete, and documented.

i. Service Center OSG Flight Procedures Team. As applicable, the OSG Flight Procedures Team will:

(1) Provide the NC with either a national POC or an individual service area POC to contact during the siting process.

(2) Apply obstacle clearance standards contained in FAA Orders (8260 series) and advisory circulars to evaluate proposed ATCT locations to determine if these structures have an adverse impact on existing instrument approach procedures and planned procedures on an approved ALP. Assess the proposed sites and provide the results to the NC.

Note: During the siting assessment, TERPS results will be provided by the OSG Flight Procedures Team within the agreed-upon assessment time.

j. Service Center OSG Airspace and Procedures Team. As applicable, the OSG Airspace and Procedures Team will:

(1) Provide the NC with either a national POC or an individual service area POC to contact during the siting process.

(2) Evaluate operations from the preferred and recommended ATCT locations.

(3) Support air traffic facilities in resolving all air traffic procedural and operational issues.

k. Service Center Planning and Requirements Group (PRG).

(1) Air Traffic Requirements. As applicable, Air Traffic Requirements will:

(a) Coordinate the resolution of all operational issues.

(b) Coordinate the resolution of all equipment requirement issues.

(2) PIM. As applicable, the PIM will:

(a) Notify the Terminal Facilities Planning & Controls Service Area Lead about any pending siting assessment requests.

(b) Assist the NC in identifying siting team participants from necessary service areas (refer to Table 3-1), as required.

(c) Implement and follow SMS policies and procedures on the risks identified in the SRM Document.

(d) Coordinate funding for FAA-owned FCTs with Terminal Facilities Implementation.

(e) Coordinate siting report signatures within the service area.

(3) NAS Planning Team (NPT). As applicable, NPT will coordinate reimbursable agreements, as required.

l. Air Traffic Services.

(1) Air Traffic Manager (ATM). The ATM must identify the operational Air Traffic Control Specialist (ATCS) and support personnel, and ensure they are available to support the siting process, as applicable.

(2) Facility ATCS (for example, Front Line Manager, Certified Professional Controller, National Air Traffic Controllers Association [NATCA]). As applicable, ATCS personnel will:

(a) Verify and validate the airport model.

(b) Participate in all pre-siting meetings and in the siting assessment.

(c) Identify and evaluate the LOS of proposed ATCT sites using operational expertise and local area knowledge to determine viability and select the preferred sites and the recommended site based upon team input and siting requirements.

(d) Evaluate and modify the proposed equipment layout, as required.

(e) Participate in the siting report renewal process.

m. Airport Sponsor. The Airport Sponsor will provide a site for the ATCT facility with adequate space to accommodate a base building (as applicable), security fence with associated setbacks, electrical and mechanical equipment yards, staging area, and parking; and ensure that all 14 CFR Part 77 criteria is applied to the provided pre-sites and any subsequent new sites, etc. (refer to Appendix F, Pre-Site Requirements). As applicable, the Airport Sponsor will:

Note: The Airport Sponsor may be represented by a consultant.

(1) FCT/NFCT: Submit a written request (for example, e-mail) for a tower siting assessment to Terminal Facilities Planning & Controls.

(2) Coordinate with all leaseholders and users regarding the availability of proposed ATCT locations to ensure that the ATCT siting plans do not conflict with airport development plans.

(3) Provide the NC and Terminal Engineering – Lead Project Engineer (as applicable) with, preferably, at least three pre-site locations to help with the siting activities in accordance with Appendix F, Pre-Site Requirements.

(4) Provide knowledge of:

(a) Airport operations and development (for example, ALPs).

(b) Known environmental issues.

(c) Local issues/concerns at the airport that can impact ATCT siting team activities.

(d) Land availability.

(5) Identify the operational ATCS and support personnel, and ensure they are available to support the siting process, as applicable.

(6) Sign the Airport Concurrence Letter.

(7) Sponsor-Owned FCTs/NFCTs Only: Author the siting report and submit it to the Terminal Facilities Siting Team Lead to coordinate Siting Report approval.

(8) Protect recommended ATCT locations, including LOS, from future development.

(9) Coordinate with the users on any potential impact to approach procedures for approval of the revised procedure.

(10) Notify the NC of any proposed changes that impact the preferred sites and/or recommended site location.

(11) Participate in the siting report renewal process.

n. Technical Operations – Engineering Services – Facilities & Security Services Group – Implementation Oversee the project from a program perspective and brief Headquarters management.

o. Technical Operations – Operations Engineering Support Group. As applicable, the Technical Operations – Operations Engineering Support Group will:

(1) Provide the NC with a service area POC to contact during the siting process.

(2) Conduct a preliminary assessment of pre-sites via a TOPR.

(3) (When notified by the Terminal Engineering – Lead Project Engineer) Enter the final recommended site data into the appropriate database (for example, the OE/AAA database) to provide future protection of the site.

p. Technical Operations District Manager. The Technical Operations District Manager must identify Subject Matter Experts (SMEs), as required, to provide guidance for the maintenance of FAA facilities and equipment.

q. Security and Hazardous Materials Safety – Servicing Security Element. As applicable, Security and Hazardous Materials Safety – SSE will:

(1) Determine the Facility Security Level (FSL) and provide physical security requirements in accordance with FAA Order 1600.69.

(2) Evaluate each of the preferred sites against FAA Order 1600.69. Provide risks and associated liabilities for each of the preferred sites.

(3) Provide input to Technical Operations – Engineering Services on the security and potential mitigations of each of the preferred sites.

r. Runway Safety Group. As applicable, the Runway Safety Group will evaluate the preferred ATCT sites for issues impacting runway safety. This evaluation must include visibility of critical runway crossings, changes to the flow of airfield traffic, taxiway use changes, and any other pertinent factors.

(1) The Regional Runway Safety Program Manager (RRSPM) will provide 5 years of historical surface event data to the NC and ATCT personnel prior to the siting for use in site evaluation and safety risk analysis.

(2) The RRSPM will evaluate the preferred ATCT sites during the siting assessment for issues impacting safe surface operations, including, but not limited to:

(a) Visibility of movement areas and known airfield hot spots.

(b) Ability for air traffic control to detect potential wrong surface operations.

(c) Visibility of critical runway crossing locations.

(d) Visibility of key holding positions.

(e) Ability to monitor vehicle operations, including frequent crossing locations and runway safety area operations.

s. Policy and Portfolio Planning Branch. This organization is responsible for the gathering of real estate requirements and/or issues at each of the preferred sites and working with the Contracting Officer to ensure that all requirements are met in the most cost-effective manner. As applicable, the Policy and Portfolio Planning Branch will:

(1) Provide requirements to support land use negotiations with the Airport Sponsor.

(2) Ensure estimated lease costs and other real estate expenses are included on each of the preferred site cost estimates.

t. Real Estate Contracting. This organization is responsible for the execution of real estate requirements and/or issues at each of the preferred sites and working with the applicable LOB to ensure that all requirements are met in the most cost-effective manner. As applicable, Real Estate Contracting will:

(1) Ensure consideration is given to economic real estate factors when comparatively evaluating the recommended ATCT location.

(2) For FAA facilities to be replaced by the Airport Sponsor, coordinate lease termination activities, including any environmental site assessment, decommissioning, demolition, etc.

Chapter 3. Siting Team Composition

1. Siting Team. This chapter identifies the participants of the siting team. The siting team aids the Air Traffic Team in identifying the viable, preferred, and recommended sites based on the requirements of this order. Siting team members must be available remotely unless otherwise indicated in Table 3-1.

2. Siting Team Members' Roles and Responsibilities. Refer to Chapter 2, Roles and Responsibilities, for detailed individual roles and responsibilities.

Table 3-1. Siting Team Composition

Role	FAA Tower	FCT/NFCT
National Coordinator [1]	X	X
SRM Panel Facilitator [1]	X	X
Planning & Controls Service Area Lead	X	X
Terminal Engineering – Lead Project Engineer [1]	X	[2]
Terminal Engineering – Electronics Project Engineer [1]	X	[2]
EOSH Center – Environmental Engineer/Environmental Protection Specialist	X	[2]
Airports Regional and District Offices	X	X
Flight Standards Service [1]	X	X
Service Center QCG SRM Specialist(s)	X	X
Service Center OSG Flight Procedures Team	X	X
Service Center OSG Airspace and Procedures Team	X	X
Service Center PRG Air Traffic Requirements	X	X
Service Center PRG PIM	X	X
Service Center PRG NAS Planning Team	X	X
Air Traffic Manager	X	X
Facility ATCS (max. 4 Front Line Manager, Certified Professional Controller, NATCA) [3]	X	X
Airport Sponsor Representative	X	X
Terminal Facilities Implementation	X	X
Technical Operations – OESG (TOPR) [4]	X	X
Technical Operations District Manager	X	
Security and Hazardous Materials Safety – SSE	X	X
Runway Safety Group	X	X
Policy and Portfolio Planning Branch	X	X
Real Estate Contracting	X	X

[1]Expected to travel to in-person siting activities. Must be available for the designated siting activity or ensure a replacement SME is present.

[2]Required if the FCT is FAA owned.

[3]Minimum of two preferred.

[4]Participate remotely on an as-needed basis.

Chapter 4. Siting Criteria

1. General.

a. **ATCT Siting Assessment.** The ATCT siting assessment must include potential locations in diverse areas of the airport and take into consideration all potential obstructions as indicated on the ALP. The siting assessment considers criteria relating to the safety of air traffic operations for each potential ATCT site. While all siting criteria must be considered, the greatest emphasis is placed on the following items, in descending order:

(1) Impacts on Instrument Procedures (for example, TERPS) and Airport Design Standards

(2) Impacts on Communications, Navigation, Surveillance, and Weather Equipment

(3) Visibility Performance

(4) Safety Analysis

(5) Operational Requirements (to include safety risks associated with aircraft operations on the ground and in the air)

(6) Environmental Considerations

(7) Economic Considerations

b. **Preferred Sites.** Three preferred sites must be identified. If three sites cannot be identified, the final siting report must document the reason. Though a particular site may be preferable in terms of safety, operations, cost, constructability, or other criteria, it must be understood that any of the preferred sites are to be considered acceptable, as the recommended site could change based on evaluations completed after the siting activity.

2. Instrument Approach Procedures.

a. FAA Order 8260.3, United States Standard for Terminal Instrument Procedures (TERPS). TERPS for the airport must be studied to determine the impacts a new ATCT would have on instrument terminal procedures into and out of the airport. The ATCT must be sited so it does not adversely impact any current or planned terminal instrument procedures. Where any siting options would adversely impact these procedures, an assessment of impacts must be coordinated with all stakeholders. Protect all published instrument approach procedures and planned instrument approach procedures on file. Non-precision approach and circling minimums may only be adjusted to accommodate a proposed ATCT if the impacts of the adjustments are understood and agreed to by all stakeholders.

b. 14 CFR Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace; and Advisory Circular 150/5300-13A, Airport Design Standards. Standards must be reviewed and complied with as applicable. The FAA-approved ALP must be reviewed for conformance. An aeronautical study must be conducted in accordance with FAA Order JO 7400.2, Procedures for Handling Airspace Matters; 14 CFR Part 77; and OE/AAA requirements.

3. Impacts to Communications, Navigation, Surveillance, and Weather Equipment. The ATCT must be sited where it does not degrade or affect the performance of existing or planned facilities and/or equipment unless deviations are necessary to meet other siting criteria and mitigation strategies are implemented.

4. Visibility Performance Requirements.

a. General. A visibility siting requirements analysis must be conducted to address the LOS, object discrimination, LOS angle of incidence requirements, and two-point lateral discrimination.

b. Unobstructed View. Visibility from the ATCT cab must allow an unobstructed view of all runways and any other takeoff/landing areas and consider air traffic in the vicinity of the airport.

c. Visibility Analysis. Visibility from the ATCT cab must allow for viewing all taxiways and controlled movement areas. Any deviation from this requirement must be documented in the final siting report. A dynamic visibility analysis, including the evaluation of both moving and parked aircraft, must be performed.

d. Object Discrimination. A quantitative object discrimination analysis assesses an observer's probability of detection of an object on the airport surface as a function of observation range, tower height, and atmospheric and surface conditions. An object discrimination analysis must be performed using the FAA's visibility tool (https://towervistool.faa.gov/) according to Table 4-1. ATCT height and distance from critical airport locations must support requirements for object visibility from the ATCT cab. If an objection discrimination analysis results in a failure, mitigation strategies must be developed.

Table 4-1. Object Discrimination Analysis Criteria

Observation Capability Requirements	Observation Description	Front View Probability Criteria [1] Minimum
Detection	Ability to notice the presence of an object on the airport surface without regard to the class, type, or model (for example, an object such as an aircraft or vehicle). The observer knows something is present but may not recognize or identify the object.	97%

[1] Front View Probability Criteria are calculated by the FAA's visibility tool for the front view of a minivan.

e. LOS Angle of Incidence. A LOS angle of incidence analysis must be performed using the FAA's visibility tool (https://towervistool.faa.gov/) to assess the angle at which the observers' view of a distant object intersects with the airport surface. The ATCT distance from

critical airport locations and ATCT height must support requirements for viewing objects on the airport movement areas and taxiways from the ATCT cab and consider critical non-movement areas. If the determined operational elevation of the candidate site exceeds the FAA's visibility tool-identified minimum elevation, the siting team must document the need to exceed the minimum.

Table 4-2. LOS Angle of Incidence Criteria

LOS Viewing Criteria	LOS Viewing Angle of Incidence
Minimum	0.80 degrees

f. Two-Point Lateral Discrimination. Consideration must be given to the two-point lateral discrimination to ensure that ATCT location and height enhance visibility performance as much as possible. A two-point lateral discrimination analysis must be performed to ensure operations at critical points of the airport surface provide the observer sufficient lateral discrimination. Consideration must be given to laterally separating the observer's viewing angle between the two points by 0.13 degrees (8 minutes) or greater (see Figure 4-1).

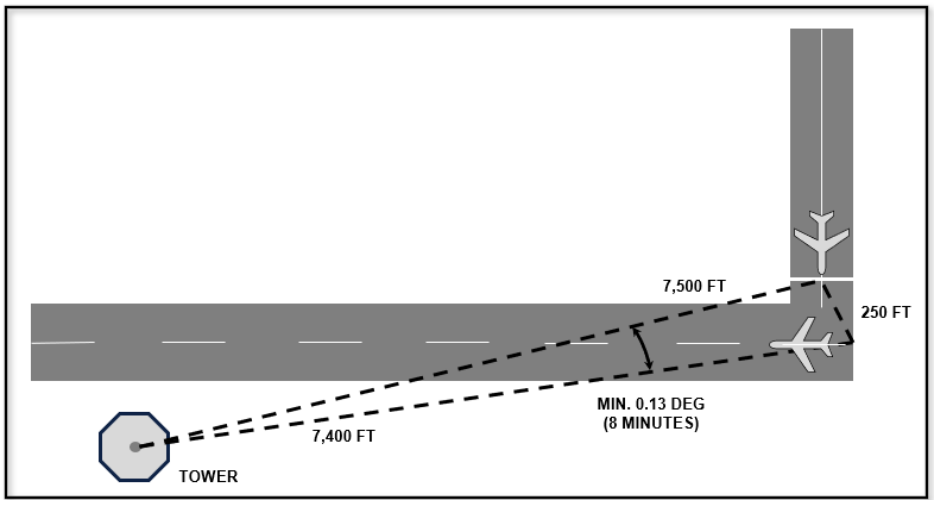
(1) Purpose. Quantify the impact of tower height on the ability to laterally separate two critical points of the airport surface operations.

(2) Question Answered by the Analysis. What improvement in discriminating between two critical points of the airport surface operations can be gained by changing the tower location?

(3) Analysis Procedure. Determine the amount of lateral separation between two points by measuring the angle between the LOS from the tower to the object at key points. Using this procedure ensures that there is sufficient lateral separation between two key points on the movement areas, especially at distant points on the airport surface.

(4) Criterion. Ensure that two objects of distant key locations provide the observer with sufficient lateral discrimination to be separated by 0.13 degrees (8 minutes) or greater.

Figure 4-1. Lateral Discrimination



5. Siting Safety Risk Management (SRM) Process. The ATO SMS requires that safety analyses be performed on changes that pertain to or could affect the provision of air traffic management and communication, navigation, and surveillance services. The SRM process, within the SMS, is composed of describing the system; identifying the hazards; and analyzing, assessing, and treating risk. All predicted residual risk(s) are verified through Safety Performance Targets and associated monitoring. Each of the siting criteria must be reviewed for potential hazards. The hazards identified for each of the preferred locations must be assessed and, if required, mitigated to an acceptable level of risk to satisfy SRM requirements. Refer to the ATO SMS Manual for a definition of risk levels.

6. Operational Requirements. For any given site and cab size, the ATCT must be constructed at the minimum height required to satisfy the criteria outlined in this order.

a. ATCT Orientation. The ATCT must be oriented where the primary operational view of the airport's movement area faces north, or alternately east, or west, or finally south, in that order of preference for an ATCT in the northern hemisphere. In areas where snow accumulates on the ground or the ATCT site is surrounded by sand or a large body of water, avoid a southern orientation when possible. In determining ATCT orientation, the following items must be considered:

(1) Direct Sun Glare

(2) Indirect Sun Glare Off Natural and Manmade Surfaces

(3) Nighttime Lighting Glare

(4) External Light Sources

(5) Thermal Distortion

b. Weather. Consideration must be given to local weather phenomena (for example, recurring fog, seasonal prevailing winds, haze, runway true winds) that impair visibility. Weather affecting the predominant flow of traffic must be considered in the siting process. Ceilings and visibility must be considered in determining ATCT height. Also consider vulnerability to hazards associated with extreme weather events.

c. Look-Down Angle. Visibility from the ATCT cab must consider the view of controlled movement areas around the base of the ATCT. The impacts of the look-down angle due to the potential of a larger cab and/or taller ATCT must be evaluated.

d. Look Across LOS. Consideration must be given to visibility from operational positions in the ATCT cab and potential impacts to LOS due to an increase in cab size and/or ATCT height. Potential LOS impacts due to the placement of operational positions in the ATCT cab must be assessed.

e. Cab Column Orientation. Consideration must be given to LOS impacts to the movement area resulting from the placement and configuration of columns (interior or perimeter) as a function of cab size. The placement of columns must be assessed to minimize LOS impacts.

If using interior columns, a minimum of four columns is required. If using perimeter columns (formerly known as mullions), the number of columns required is determined by cab size (either 8, 12, or 16).

f. Look-Up Angle. Consideration must be given to the look-up angle from the controller's perspective for potential interference with observing go-arounds, missed approaches, and other air traffic operations.

g. Construction. Consideration must be given to LOS from the existing ATCT during construction of the new ATCT and to the LOS impacts of the existing ATCT when operating from the new ATCT.

h. Non-Movement Areas. Visibility of all airport surface areas for ground operations of aircraft and of airport ground vehicles on ramps, aprons and tie-down areas, and test areas must be considered. Priority must be given to visibility of taxi lanes in non-movement areas.

i. Cab Size Evaluation. The cab must be large enough and configured to fit all approved positions and accommodate controller movement with potential space for expansion. During consolidated/slow traffic periods, controller movement and LOS throughout the cab must be considered.

7. Site Access Considerations. Access to the ATCT must avoid crossing areas of aircraft operations and avoid roads or bridges subject to closures due to high traffic volume, flash floods, storm surge, extreme heat or cold, snow, landslides, falling rocks, or other hazards when possible.

8. Environmental Considerations. The potential environmental risks associated with each of the preferred sites must be considered during the siting process for all siting activities. For FAA ATCTs and FAA-Owned FCTs, all preferred sites are subject to a Phase I ESA (per the latest version of ASTM International Standard E1527). In addition, for FAA ATCTs and FAA-Owned FCTs, the appropriate Engineering Services EOSH Center must provide the results of the CERS on all preferred sites (refer to Appendix I) so that potential environmental costs and considerations can be evaluated in determining the recommended site. Completion of the CERS satisfies the requirement for sustainable site planning and facility siting in accordance with FAA Order JO 1053.3, Air Traffic Organization Energy Efficient and Sustainable New Construction and Major Renovation.

9. Economic Considerations. Consideration must be given to economic factors when evaluating ATCT sites. Comparative cost estimates must be documented for each of the preferred sites. Base the cost estimates on the following items:

a. Height. The height of the ATCT at each of the preferred sites.

b. Land Use Planning. The ATCT parcel of land offered by the landowner to the FAA must have sufficient area to accommodate the ATCT facility and base building (if applicable), parking area, security fence and associated setback, mechanical and electrical yards, staging areas, security fence, future expansion, and other requirements as identified in the draft Requirements Document Workbook (RDWB) (typically 2 to 5 acres). The parcel of land offered

by the landowner must be clear without obstructions. The FAA will not be responsible for the removal of existing structures on a parcel of land or the relocation of facilities not owned by the FAA.

c. Utilities and Cabling. Connectivity of required cabling and utilities.

d. Site Access Roadways. Any necessary new or redesigned site access roadways.

e. Security. The impacts of complying with the latest version of FAA Order 1600.69.

f. Site Grading Requirements.

g. Required Stormwater Provisions.

h. Mitigation Strategies. The fiscal impact of risk mitigation strategies identified during the safety analysis, Phase I ESA, and CERS must be considered. Potential environmental remediation and/or mitigation requirements, as identified in the Phase I ESA and CERS, must be documented as part of the construction cost estimate. Any significant impacts identified during site selection may deem a parcel of land not viable.

Chapter 5. Siting Report Safety Requirements and Approval

1. General. The siting report and SRM Document are separate entities with different approval requirements. The siting report documents the degree to which each siting criterion has been met. The SRM Document documents the results of the safety analysis and is included as an appendix to the siting report. The SRM Document identifies the hazards and mitigations associated with constructing an ATCT at each of the preferred locations. The siting report is completed in accordance with this order, and the SRM Document is completed in accordance with the ATO SMS Manual.

2. Risk Acceptance. The hazards identified during the siting process have associated risks that must be accepted before construction of the ATCT. Risk acceptance procedures are defined by the current version of the ATO SMS manual.

3. SRM Document Requirements and Approval. The SRM Document must be finalized in accordance with the ATO SMS Manual and transmitted to the NC within 90 days of completing the ATCT siting.

4. SRM Document Validation. The SRM Document is considered valid unless any of the following events occur:

a. Change or expiration of FAA Form 7460-1, Notice of Proposed Construction or Alteration.

b. Any ALP changes – The ALP changes must be reviewed by the Terminal Engineering – Lead Project Engineer to determine their impact on each of the preferred site locations.

c. Revision requirements in the latest version of the ATO SMS Manual.

Chapter 6. Data Requirements

1. General. This chapter identifies the data required to produce a full-scale 3-D model of the airport surface, containing all existing and future buildings, including the proposed ATCTs.

2. Data Requirements. The information below must be provided to the NC no later than the date identified by the NC (approximately 12 to 16 weeks before the siting assessment):

a. The NC must obtain the latest approved ALP from the Airports Regional and District Office or the Airport Sponsor. Any planned airport improvements not on the latest approved ALP must be approved as exceptions for use by the Terminal Facilities Siting Team Lead and Terminal Facilities Planning & Controls.

b. The Airport Sponsor or local Airports Regional and District Offices must provide information regarding known and approved airport construction projects that could potentially affect the visibility from the proposed ATCT locations. Proposed construction must show all pertinent elevation data.

c. Airport diagram showing designated aircraft movement (arrivals, departures, aircraft on taxiways and taxi lanes) and aircraft typical to the airport for use during the siting assessment.

d. Terrain data (to include vegetation), position (latitude and longitude), and height data of all structures validated by the Airport Sponsor and/or consultant. Terrain data and position (latitude/longitude or state plane coordinate system) and height data of all structures on the ALP (existing or planned) determined from the most recently available National Geodetic Survey (NGS)-acquired photogrammetric data. This imagery must be of a 6-inch ground sampling distance or better accuracy. If this data is not available, the airport modeler must acquire the most accurate photogrammetric data, Light Detection and Ranging (LIDAR) data, or other data available from local authorities responsible for that airport. This data must be validated by the Airport Sponsor and/or consultant.

e. Pre-site locations with coordinates and offset distances from thresholds and runway centerlines (refer to Appendix F, Pre-Site Requirements). Consider all quadrants of the airport for pre-site locations.

f. Proposed cab design with operational positions.

g. Anticipated cab size (number of sides), shaft size, square footage, or proposed architectural drawings, if available.

h. Height of each proposed cab floor (Above Ground Level [AGL]/Above Mean Sea Level, with Mean Sea Level at NAVD 88 Datum [Above Mean Sea Level (AMSL) NAVD 88] (hereafter referred to as AMSL).

3. Electronic Data Format. ALP or approved airport construction project electronic data is to be provided in AutoCAD data format (.dwg). If an ALP is not created with AutoCAD, drawings must be provided as Data Exchange (.dxf) files. Illustrate ground elevation contours and/or point data on 3-D drawings.

4. 3-D Model Requirements. The following identifies the minimum 3-D model requirements. During the siting assessment, the model must be presented using VR technology and must:

a. Include the Surrounding Structure Height (from the ALP) for Existing and Future Structures (refer to Paragraph 2.d above).

b. Include Airport Ground Terrain, including Trees and Prominent Details (Navigational Aids [NAVAIDs], as needed) (refer to Paragraph 2.d above).

c. Clearly identify (via a color scheme) existing and future structures, future taxiways and pavement, future roads and parking areas, removed areas or future removal areas, building restriction line, runway visual zone, current/future airport property line, etc.

d. Include a clear depiction of Airport Reference Markers (Runways, Taxiways, Hold Shorts, etc.).

e. Display the Cab/Tower Design, to include:

(1) Stair Location/Orientation.

(2) Columns (Interior and Perimeter, as applicable).

(3) Control Sectors with clearly identified reference points within the cab.

(4) Consoles (Traditional and Slat-Wall).

f. Show Aircraft Movement (arrivals, departures, aircraft on taxiways and taxi lanes, aircraft in the pattern for each runway) for Aircraft Typical to the Airport.

g. Show Weather Typical of the Geographic Location.

h. Show Sunrise to Sunset Views Accurate to the Geographic Location (for example, by month and time of day).

i. Show lighting/glare during daytime/nighttime, to include taxiway lights, runway lights, rotating beacon, and off airport lights (as applicable).

j. Have the capability to provide a binocular view (that is, zoom feature).

k. Have the capability to manipulate the simulation in real time as follows:

(1) Adjust the height of the cab for the best LOS in 1-foot increments.

(2) Rotate the cab for the best LOS in 1-degree increments for a full 360 degrees.

(3) Toggle Future Structures on/off.

(4) Toggle Vegetation (for example, trees) on/off.

(5) Toggle Airport Reference Markers on/off.

(6) Toggle Column Selection (Interior and Perimeter).

(7) Stair location and/or orientation (right/left ingress/egress).

(8) Change Control Sector identification to any available controller position.

(9) Move a tower to another location.

(10) Add a new tower.

l. Have the capability to show an overhead view of the airport (to include the entire ALP).

m. Display the following real-time site data:

(1) Latitude/Longitude.

(2) Cab Floor Height (AGL).

(3) Cab Rotation.

(4) Column (Perimeter or Interior) Selection.

(5) Furthest Runway Distance.

(6) Site name.

n. Have the capability to export site data (for example, latitude, longitude, height, cab rotation, column section) to a standard file type (for example, .txt, .doc).

5. Accuracy. Data must be acquired from an ALP displaying an engineer's or surveyor's stamp/signature certifying the data (preferred) or that this data is compliant with the NAD-83 standard. All other operational surfaces, including runways, taxiways and ramp areas, and all areas of terrain that might impede a controller's view of aircraft movement, must be within ±1 foot vertical and ±2 feet horizontal of actual location.

6. Airport Sponsor-Developed Model (if authorized). With prior approval, the Airport Sponsor may retain a third-party 3-D Model representative to develop the model. To utilize an Airport Sponsor-developed 3-D model, the Airport Sponsor must demonstrate that their modeling technologies meet the requirements identified in Paragraph 4 above prior to FAA approval for use in the siting process. Subsequently, the model developed for a particular airport siting assessment must be presented to the NC a minimum of 4 weeks before the siting assessment for model validation. Any adjustments necessary to the model or the Airport Sponsor's modeling technologies may impact the siting schedule.

The Airport Sponsor 3-D Model representative must develop the model in accordance with the specifications identified in Paragraph 4 above. The Airport Sponsor must include, in the Siting Report, a signed and sealed letter from a Professional Licensed Surveyor (PLS) or Professional

Engineer (PE) certifying that the model is developed in accordance with the required accuracy (within ±6 inches vertical/±1 foot horizontal), as well as the signature of the engineer and the appropriate seal (refer to Appendix E, Sample Airport Sponsor Letter Certifying Model Accuracy). All existing and proposed buildings and structures depicted in the model must be within this tolerance.

Chapter 7. Siting Report Renewal Process

1. General. The siting report will be valid unless/until either or both events in Paragraph 2 and Paragraph 3 occur.

2. ALP Changes. Airports Regional and District Offices coordinate on-airport development projects per JO 7400.2. If a proposed project impacts the current ATCT, preferred sites, and/or recommended site location, then the Terminal Engineering – Lead Project Engineer will notify the NC so mitigations can be determined, and appropriate actions implemented.

3. FAA Form 7460-1 Expiration. The siting report will remain valid until the FAA Form 7460-1 changes or expires. FAA Form 7460-1 must be renewed prior to expiration for the siting report to remain valid as signed. If the FAA Form 7460-1 identifies a new issue, the siting report must be revised and resubmitted for signature.

4. Report Renewal Process. The NC will coordinate with the core stakeholders to renew the siting report results. This includes the following:

a. Determining if there are any changes to the ALP that will impact the recommended site or preferred sites.

b. Notifying the Terminal Engineering – Lead Project Engineer or Airport Sponsor, as applicable, to resubmit the FAA Form 7460-1, as appropriate.

c. Preparing a Memorandum of Record to confirm the validation of the siting report. The memorandum will be uploaded to the approved electronic document management system.

Chapter 8. Administrative Information

1. Distribution. This order will be distributed electronically at https://employees.faa.gov/tools_resources/orders_notices/.

2. Definitions.

Air Traffic Team – The combination of the Air Traffic Services ATM and Facility ATCS personnel supporting the siting assessment.

Airport Sponsor – Individual or entity that organizes and is committed to the development of a program or project.

AMSL – Above Ground Level [AGL] and Above Mean Sea Level, with Mean Sea Level at NAVD 88 Datum [AMSL NAVD 88].

Candidate Site – Refers to any potential siting area for an ATCT.

CERS – Comparative Environmental Resource Screening (CERS). Compares the relative risk of potential environmental resources present at each preferred site to assist in determining the most appropriate location for a proposed new ATCT.

Column – Refer to Interior Columns and Perimeter Columns.

ESA – Environmental Site Assessment. A systematic investigation conducted in compliance with ASTM International Standard E1527 of real property to determine the presence or likely presence of Recognized Environmental Conditions on or near a subject property due to current or past activities involving hazardous materials or petroleum products and which may have resulted in environmental contamination.

Eye Level Height – See Observer's Height.

FAA Contract Tower – An ATCT (either FAA owned or sponsor owned) providing air traffic control services, staffed by contracted ATCSs.

Glazing Mullion – A vertical member used to retain glass.

Human Factors Analysis – Establishes the minimum height required to meet the 0.8-degree angle of incidence recommended (refer to TVT).

Interior Column – Structural column that is inboard and not integral to the glazing system (formerly known as mullion).

Movement Area – The runways, taxiways, and other areas of an airport/heliport which are used for taxiing/hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas.

Mullion – Refer to Interior Column.

National Coordinator – Individual(s) designated by the Terminal Facilities Siting Team Lead to facilitate ATCT siting assessments in accordance with this order. The NC does not represent a specific LOB but acts on behalf of Terminal Facilities in this role.

Non-Federal Control Tower – An ATCT that is not staffed by FAA or FAA-contracted controllers. An NFCT is not associated with the FCT Program or funded by the FAA.

Observer Height – Working elevation for visibility performance requirements. For the purposes of tower siting, the observer height is 5 feet above cab floor elevation.

Operational Elevation – Minimum ATCT elevation determined by the siting team to meet operational requirements.

Parcel Area – The land designated for the ATCT, to include the tower, base building, parking lot, and setbacks.

Perimeter Column – Structural column that is adjacent to and interior of the glazing system (typically fewer in number than interior columns, and larger [12 inches × 14 inches]).

Preferred Site – Refers to the viable sites selected by the Air Traffic Team as the optimal sites for an ATCT location. Preferred sites are further evaluated before one is selected as a recommended site.

Pre-Site – Initial candidate site(s) used to initiate the siting process.

Recommended Site – Refers to the preferred site selected by the Air Traffic Team.

Requirements Document – Document that defines the validated parameters of a new/ replacement ATCT project, including staffing, equipment, space, cost, schedule, risk, and special considerations.

Safety Analysis – A formal process used to determine risk introduction or change to the current risk level of the NAS in accordance with the current ATO SMS Manual.

Safety Risk Management – Per the ATO SMS Manual, SRM is a process within the SMS composed of describing the system; identifying the hazards; and analyzing, assessing, and treating risk. One of the four components of the SMS, SRM includes processes to define strategies for monitoring the safety risk of the NAS. SRM complements Safety Assurance.

Safety Risk Management (SRM) Panel – Per the ATO SMS Manual, an SRM Panel is a meeting of a diverse group of SRM Panel Members, SMEs, Observers, and facilitators from the various organizations affected by the NAS change or existing safety issue. They objectively identify potential hazards and effects associated with the NAS change or existing safety issue and provide findings and recommendations to decision-makers, which are captured in an SRM Document.

Safety Risk Management Document (SRM Document) – Per the ATO SMS Manual, an SRM Document is a document that records the SRM panel attendees' determinations for NAS changes and existing safety issues. It presents evidence supporting whether the NAS change and/or risk

management strategies should be accepted by ATO or FAA management officials from a safety risk perspective.

Siting Report – Final report generated as a result of all siting activities; includes the SRM Document (safety analysis) as an appendix.

Safety Management System (SMS) Facilitator – Individual(s) designated by the Terminal Facilities Siting Team Lead to facilitate ATCT SRM Panels in accordance with this order and the ATO SMS Manual. SMS Facilitators do not represent a specific LOB, but act on behalf of Terminal Facilities in this role.

Sponsor – See Airport Sponsor.

Supplemental Data – This is required siting data and results that the lead project engineer will collect for inclusion in the final siting report. Refer to Appendix C, Siting Report Requirements, for additional information.

Terminal Facilities – The Program Office responsible for the establishment, replacement, and modernization of terminal facilities, to include ATCTs and Terminal Radar Approach Control facilities (TRACONs).

TERPS – United States Standard for Terminal Instrument Procedures (FAA Order 8260.3). The criteria, along with associated directives, used for the development of instrument flight procedures in the United States.

Top of Tower – Height of tower, to include appurtenances.

TOPR – A quick-look analysis of the potential impacts of the proposed ATCT on the NAS facilities typically analyzed under the FAA Form 7460-1 process. The TOPR does not take the place of the actual FAA Form 7460-1 process.

TVT – Tower Visibility Toolkit (https://towervistool.faa.gov/) – Refers to the FAA's Human Factors, which establishes the minimum height required to meet the 0.8-degree angle of incidence recommended by Human Factors Analysis.

Viable Site – Refers to any potential siting area for an ATCT that meets all criteria outlined in Chapter 4. A viable site is an area that has passed all technical evaluations and would be an operationally acceptable ATCT location.

Virtual Reality – A three-dimensional, computer-generated environment that can be explored and interacted using virtual reality headsets that simulate a user's physical presence in a virtual environment.

3. Acronyms.

.dwg	AutoCAD File Format
.dxf	Data Exchange File Format
3-D	3-Dimensional
AFTIL	Airport Facilities Terminal Integration Laboratory
AGL	Above Ground Level
ALP	Airport Layout Plan
AMSL	Above Mean Sea Level
AOA	Area of Operations
ASTM	ASTM International, formerly known as American Society for Testing and Materials
ATCS	Air Traffic Control Specialist
ATCT	Airport Traffic Control Tower
ATM	Air Traffic Manager
ATO	Air Traffic Organization
CEQ	Council on Environmental Quality
CERS	Comparative Environmental Resource Screening
CFR	Code of Federal Regulations
DMS	Directives Management System
EOSH	Environmental and Occupational Safety and Health
DoD	Department of Defense
ESA	Environmental Site Assessment
FAA	Federal Aviation Administration
FCT	FAA Contract Tower
FSL	Facility Security Level

HDMI	High-Definition Multimedia Interface
IT	Information Technology
KSN	Knowledge Sharing Network
LAN	Local Area Network
LIDAR	Light Detection and Ranging
LOB	Line of Business
LOS	Line of Sight
Mbps	megabits per second
MSL	Mean Sea Level
NAD	North American Datum
NAS	National Airspace System
NATCA	National Air Traffic Controllers Association
NAVAID	Navigational Aid
NC	National Coordinator
NEPA	National Environmental Policy Act
NFCT	Non-Federal Contract Tower
NGS	National Geodetic Survey
NPT	NAS Planning Team
OE/AAA	Obstruction Evaluation/Airport Airspace Analysis
OESG	Operations Engineering Support Group
OSG	Operations Support Group
OTA	Other Transaction Agreement
PE	Professional Engineer
PHL	Preliminary Hazard List
PLS	Professional Licensed Surveyor

POC	Point of Contact
PIM	Program Implementation Manager
PRG	Planning Requirements Group
QCG	Quality Control Group
RDWB	Requirements Document Workbook
RRSPM	Regional Runway Safety Program Manager
SME	Subject Matter Expert
SMS	Safety Management System
SRM	Safety Risk Management
SSE	Servicing Security Element
TERPS	Terminal Instrument Procedures
TOPR	Technical Operations Preliminary Review
TRACON	Terminal Radar Approach Control
TVT	Tower Visibility Toolkit
U.S.	United States
VR	Virtual Reality

4. Related Publications.

- 14 CFR Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace
- 40 CFR Part 1500–1508, National Environmental Policy Act Implementing Regulations
- Advisory Circular 150/5300-13, Airport Design
- Advisory Circular 150/5300-16, General Guidance and Specifications for Aeronautical Surveys: Establishment of Geodetic Control and Submission to the National Geodetic Survey
- Advisory Circular 150/5300-17, Standards for Using Remote Sensing Technologies in Airport Surveys
- Advisory Circular 150/5300-18, General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collection and Geographic Information System (GIS) Standards

- ASTM E1527, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process
- ATO Safety Management Systems (SMS) Manual
- FAA Form 7460-1, Notice of Proposed Construction or Alteration
- FAA Order 1050.1, Environmental Impacts: Policies and Procedures
- FAA Order 1600.69, FAA Facility Security Management Program
- FAA Order 6480.7, Airport Traffic Control Tower (ATCT) and Terminal Radar Approach Control (TRACON) Design Policy
- FAA Order 8000.369, Safety Management System
- FAA Order 8040.4, Safety Risk Management Policy
- FAA Order 8260.3, United States Standard for Terminal Instrument Procedures (TERPS) and associated directives
- FAA Order 8260.19, Flight Procedures and Airspace
- FAA Order JO 1000.37, Air Traffic Organization Safety Management System
- FAA Order JO 1030.1, Air Traffic Organization Safety Guidance
- FAA Order JO 1053.3, Air Traffic Organization Energy Efficient and Sustainable New Construction and Major Renovation
- FAA Order JO 7110.315, Mobile Airport Traffic Control Tower Siting Criteria
- FAA Order JO 7210.78, FAA Contract Tower (FCT) New Start and Replacement Tower Process
- FAA Order JO 7400.2, Procedures for Handling Airspace Matters

Appendix A. Siting Procedures

1. General. The following procedures must be used when determining the optimum location for a new or replacement ATCT. All items in Chapter 4, Siting Criteria, must be considered and/or assessed, and impacts documented. At a minimum, document the controller eye height, cab floor height, top of tower height (to include appurtenances), cab orientation (NEWS), airport quadrant, stair location (right/left egress/ingress), control positions, column selection, and any issues that require mitigation. Three preferred sites must be identified. If three preferred sites cannot be identified, the final siting report must document the reason. Though a particular site may be preferable in terms of safety, operations, cost, constructability, or other criteria, it must be understood that any of the preferred sites would be acceptable as the recommended site.

> **Note:** Siting assessments may be conducted in one or more sessions as needed on a case-by-case basis.

> **Note:** Refer to the space requirements in Appendix G, Airport Sponsor Physical Space Requirements for Siting Assessment if the siting will be conducted on-site at an Airport Sponsor facility.

2. Project Initiation.

a. (Sponsor-Owned Towers Only) (Airport Sponsor) Submit a request for a siting assessment to Terminal Facilities Planning & Controls.

b. (Planning & Controls) Notify the Terminal Facilities Siting Team Lead to conduct a siting assessment.

c. (NC) Coordinate with Terminal Planning & Controls and the PIM, and other LOBs, as applicable, to develop the siting participants list in accordance with Table 3-1.

3. Procedures. The following procedures must be complied with to conduct siting assessments. Although the following siting procedures are presented in sequential format, procedures may be performed concurrently as operationally feasible.

a. Initial Notification. (NC) Initiate contact with the Airport Sponsor, Air Traffic Manager, Airports Regional and District Office, Terminal Engineering – Lead Project Engineer (as applicable), Air Traffic Requirements, and other siting team members as needed to discuss receipt of the ALP, requirements for pre-sites, and siting procedures.

(1) Request the latest approved ALP from the Airports Regional and District Office or the Airport Sponsor. Planned improvements not on the ALP must be reviewed and approved for use by the Terminal Facilities Siting Team Lead and Terminal Facilities Planning & Controls.

(2) Request pre-sites from the Airport Sponsor (refer to Appendix F, Pre-Site Requirements). Pre-sites must be coordinated with the Terminal Engineering – Lead Project Engineer, the appropriate EOSH Center (for FAA ATCTs and FAA-Owned FCTs only), Airports Regional and District Offices, Airport Sponsor, and the NATCA ATCS representative (if

applicable), and provided to the NC by the date identified by the NC (approximately 12 to 16 weeks before the siting assessment)

b. Pre-Siting Telecon(s). (NC) Conduct pre-siting telecons as needed to:

(1) Outline the roles and responsibilities of the siting team.

(2) Outline the siting process.

(3) Establish a schedule for the entire siting process.

(4) Distribute a current copy of the siting order to all participants.

(5) Identify data requirements.

(6) Validate pre-sites.

(7) Verify the accuracy of the 3-D model.

(8) Facilitate discussion on the agenda and process for the siting assessment and determine if the team is ready for the siting assessment. If the team is not ready, mitigations must be determined by the team.

c. Data Collection. (Airport Sponsor) Provide the required data in accordance with Chapter 6, Data Requirements.

d. Develop Airport Model. (FAA or Airport Sponsor [if authorized, Sponsor-Owned facilities only]) Develop the airport model in accordance with Chapter 6, Data Requirements.

e. Visibility Performance Analysis. (NC or Airport Sponsor, as applicable) Conduct a visibility analysis on the pre-sites using the FAA's visibility tool (https://towervistool.faa.gov/). This tool provides the lowest ATCT eye height based upon the minimum required look-down angle. The minimum heights from the assessment will be used as a starting eye height for each pre-site.

f. Preliminary TERPS Assessment. (NC) Obtain a preliminary TERPS assessment on each of the pre-sites to identify the maximum allowable height of the ATCT structure, including all top of tower equipment.

g. TOPR Assessment. (NC) Obtain a TOPR assessment for each of the pre-sites by providing the site data to the OESG POC to include, at a minimum, the location (latitude/longitude for the center of ATCT) and height (site AMSL, cab floor AMSL, and top of tower AMSL). The provided TOPR will include any potential impacts to NAS facilities that are typically analyzed during the FAA Form 7460-1 process.

Note: Detailed engineering analysis or mitigation options are not a part of the TOPR and will only be conducted during the official FAA Form 7460-1 process. The TOPR is a

quick look at possible impacts and does not take the place of the FAA Form 7460-1 process.

h. Model Validation. (NC) Validate the airport model with the Airport Sponsor, Air Traffic Manager, Terminal Engineering – Lead Project Engineer (if applicable), Airports Regional and District Offices, Air Traffic Requirements, and air traffic control personnel. The model will be modified and documented as determined during this exercise, and a model validation statement must be signed prior to commencing the ATCT siting assessment. This validation includes, at a minimum:

(1) Validating that the airport model, to include buildings, existing and future pavements, etc., is accurate per the ALP and Airport Diagram as viewed from the existing tower and/or pre-site locations.

(2) Confirming the latitude and longitude of pre-sites(s).

(3) Confirming the floor height of cab at pre-site(s) (the lowest ATCT eye height based upon the minimum required look-down angle).

i. Siting Assessment In-Brief. (NC) At the beginning of the siting assessment, brief the team on the siting goals and process, and introduce siting participants. During the in-brief, members will have the opportunity to discuss approved ALP impacts of siting on future land usage, development, demolition of buildings, etc. Provide an overview of the model and the LOS from the existing tower, to include latitude and longitude of tower, floor height of cab, surrounding structure height (ALP), airport diagram, including existing and future pavements, and cab/tower design.

Note: Viable sites are selected by the Siting Team from sites that have passed technical evaluations (TERPS, TOPR, 14 CFR Part 77, and the visibility performance analysis) and are operationally acceptable. If no sites pass the technical evaluations or are operationally acceptable, the team will evaluate additional sites and repeat the process until viable sites can be identified.

j. Evaluate LOS. (Siting Team) Evaluate the LOS for each pre-site. The purpose of this assessment is to determine the cab floor height, optimal cab orientation, and location of operational positions. All items in Chapter 4, Siting Criteria, must be considered and/or assessed, and impacts documented. Any previously conducted operational assessments and subsequent recommendations/mitigations must be evaluated during the assessment. Sites that do not provide an operationally acceptable LOS will be eliminated. Additional sites will be selected if required. The following is the recommended sequence of evaluation for each site:

(1) Determine the minimum cab floor height required to satisfy the criteria outlined in this order.

(2) Locate operational positions.

(3) Position stairs.

(4) Introduce column (interior or perimeter) configurations and determine the best orientation.

(5) Evaluate Cab Size – The cab must be large enough and configured to fit all positions and accommodate controller movement, with potential space for expansion. During consolidated/slow traffic periods, controller movement and LOS throughout the cab must be considered.

(6) Document the cab floor height as well as the top of the tower using both MSL/AMSL and AGL heights, and recommended cab orientation and column configuration.

(7) Eliminate sites that are deemed operationally unacceptable by the siting team.

(8) Repeat for all sites under consideration.

k. Determine Preferred Sites. A minimum of three preferred sites must be selected, as a site(s) may be disqualified due to environmental or other reasons. If three preferred sites cannot be identified, the final siting report must document the reason. Though a particular site may be preferable in terms of safety, operations, cost, constructability, or other criteria, it must be understood that any of the preferred sites would be acceptable as the recommended site.

(1) **(Siting Team Members)** Provide inputs on the advantages and disadvantages of each of the viable sites through discussion.

(2) **(Air Traffic Team)** Select the preferred sites based on team discussion.

l. Conduct SRM Panel. (SMS Facilitator or Service Center QCG SRM Specialist, as applicable) Conduct an SRM Panel on the preferred sites in accordance with the current version of the ATO SMS Manual and Appendix H, Preliminary Hazard List. The SRM Document must document any of the preferred sites that are determined to be non-viable as a result of the SRM Panel.

m. Identify Recommended Site.

(1) **(Siting Team Members)** Provide analysis and feedback (for example, technical, financial, economic considerations), as desired, to the Air Traffic Team for consideration.

(2) **(Air Traffic Team [and Airport Sponsor, if a Sponsor-Owned FCT/NFCT])** Identify the Air Traffic-recommended site based on overall siting team discussions of the operational advantages and disadvantages of the preferred sites.

> **Note:** If the recommended site is not supported by a majority of the siting team or if the comparative cost estimate for the recommended site is higher than the comparative cost estimate for the preferred sites, the Air Traffic Manager must submit written justification for the recommended site selection, to include detailed rationale. This written justification must be signed by the District Manager, Air Traffic Requirements, and the Service Area, and then be submitted to Terminal Facilities Implementation to coordinate resolution no later than 60 days after the conclusion of the siting assessment.

n. Siting Assessment Out-Brief.

(1) (**NC**) Conduct the out-brief, which consists of:

(a) Reviewing the siting outcome;

(b) Summarizing the SRM Panel findings;

(c) Reviewing the post-siting actions; and

(d) Signing the Memorandum of Record.

(2) **(Air Traffic Team)** Provide a summary of the advantages and disadvantages of the recommended site and document the reasons for its selection. If resources are available, the ATCS may narrate a video of the advantages and disadvantages of the recommended site.

o. Meeting Minutes. (NC) Ensure meeting minutes are generated and distributed to all participants within 2 weeks after the conclusion of the siting and post to the Terminal Engineering Design Siting Knowledge Sharing Network (KSN) available at https://ksn2.faa.gov/AJW/AJW244F/siting/default.aspx. The meeting minutes must include:

(1) Recommended Site

(2) Advantages/Disadvantages and Other Pertinent Information for Each Preferred Site, to Include Aerial Views

(3) Site Comparison Chart

(4) Reports (for example, Human Factors Analysis and preliminary TERPS/TOPR/ Part 77)

(5) Drawings/Screenshots (for example, ALP, cab layout, cab size, cab orientation, screenshots from operational positions looking out the cab glass)

(6) Memorandum of Record

(7) Post-Siting Action Items

p. Service Area Coordination and Issue Resolution.

(1) **(Siting Team Members)** Resolve issues within their area of expertise identified during the siting.

(2) **(Terminal Engineering – Lead Project Engineer)** If applicable, provide the follow-up coordination as needed.

q. Submit FAA Form 7460-1 for Preferred Sites. (Terminal Engineering – Lead Project Engineer or designated representative, or Airport Sponsor, as applicable) Submit

Notice of Proposed Construction or Alteration (FAA Form 7460-1) for the recommended site to obtain a final determination letter and for each of the preferred sites to obtain a feasibility study (refer to the OE/AAA Web site).

r. Submit Recommended Site to Technical Operations – OESG. (Terminal Engineering – Lead Project Engineer or designated representative) Upon receipt of the final determination letter for the recommended site, notify Technical Operations – OESG to enter the recommended site data into the appropriate database (for example, the OE/AAA database) to provide future protection of the site.

s. Prepare Phase I ESAs (FAA ATCTs and FAA-Owned FCTs Only). (Terminal Engineering – Lead Project Engineer) Coordinate with the appropriate Technical Operations – Engineering Services EOSH Center to obtain a Phase I ESA (per the latest version of ASTM International Standard E1527, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process) on each of the preferred sites.

t. Prepare Comparative Environmental Resource Screening (FAA Towers and FAA-Owned FCTs Only). (Terminal Engineering – Lead Project Engineer) Coordinate with the appropriate Technical Operations – Engineering Services EOSH Center to obtain the results from the CERS on each of the preferred sites (refer to Appendix I).

u. Develop Siting Report. Siting Team members provide input and assistance in developing the report, as needed. The report must identify the items contained in Appendix C, Siting Report Requirements, and must be formatted and approved in accordance with this order. Obtain siting report approval no later than 6 months after the siting assessment.

(1) **(FAA ATCTs and FAA-Owned FCTs/NFCTs) (Terminal Engineering – Lead Project Engineer)** Develop the siting report in accordance with Appendix C, Siting Report Requirements. Submit the draft of the siting report to all participants for comment and resolve comments prior to submitting for Service Area signature.

(2) **(Sponsor-Owned FCTs/NFCTs Only) (Airport Sponsor)** Develop the siting report in accordance with Appendix C, Siting Report Requirements. Deliver the draft of the siting report to all participants for comment. After all comments are resolved, submit the final draft of the report to the Terminal Facilities Siting Team Lead for review and coordination of signatures no later than 5 months after the siting assessment.

> **Note:** If the Airport Sponsor developed the model, the Airport Sponsor must include, in the siting report, a signed and sealed letter from a PLS or PE certifying the model is developed in accordance with the required accuracy (within ±6 inches vertical/±1 foot horizontal), as well as the signature of the engineer and the appropriate seal (refer to Appendix E, Sample Airport Sponsor Letter Certifying Model Accuracy).

v. Service Area Siting Report Approval. The siting report must be signed by the Service Area Director of Air Traffic Operations and the Service Area Director of Technical Operations.

(1) **(Terminal Facilities Siting Team Lead)** Submit the final siting report to the PIM to obtain the Service Area signature.

(2) **(PIM)** Coordinate with the applicable service area for signature and submit the signed siting report to the Terminal Facilities Siting Team Lead.

w. FAA Headquarters Siting Report Approval. (Terminal Facilities Siting Team Lead) Coordinate Director of Facilities & Engineering Services signature.

x. Issue Final Siting Report. (Terminal Facilities Siting Team Lead) Post the final Siting Report to the Terminal Engineering and Design Siting KSN, which is available at https://ksn2.faa.gov/AJW/AJW244F/siting/default.aspx, and provide notification to siting participants.

y. Update Airport Layout Plan. (Airport Sponsor) Coordinate with the Airports Regional and District Office to add the recommended site to the ALP to ensure protection of the LOS.

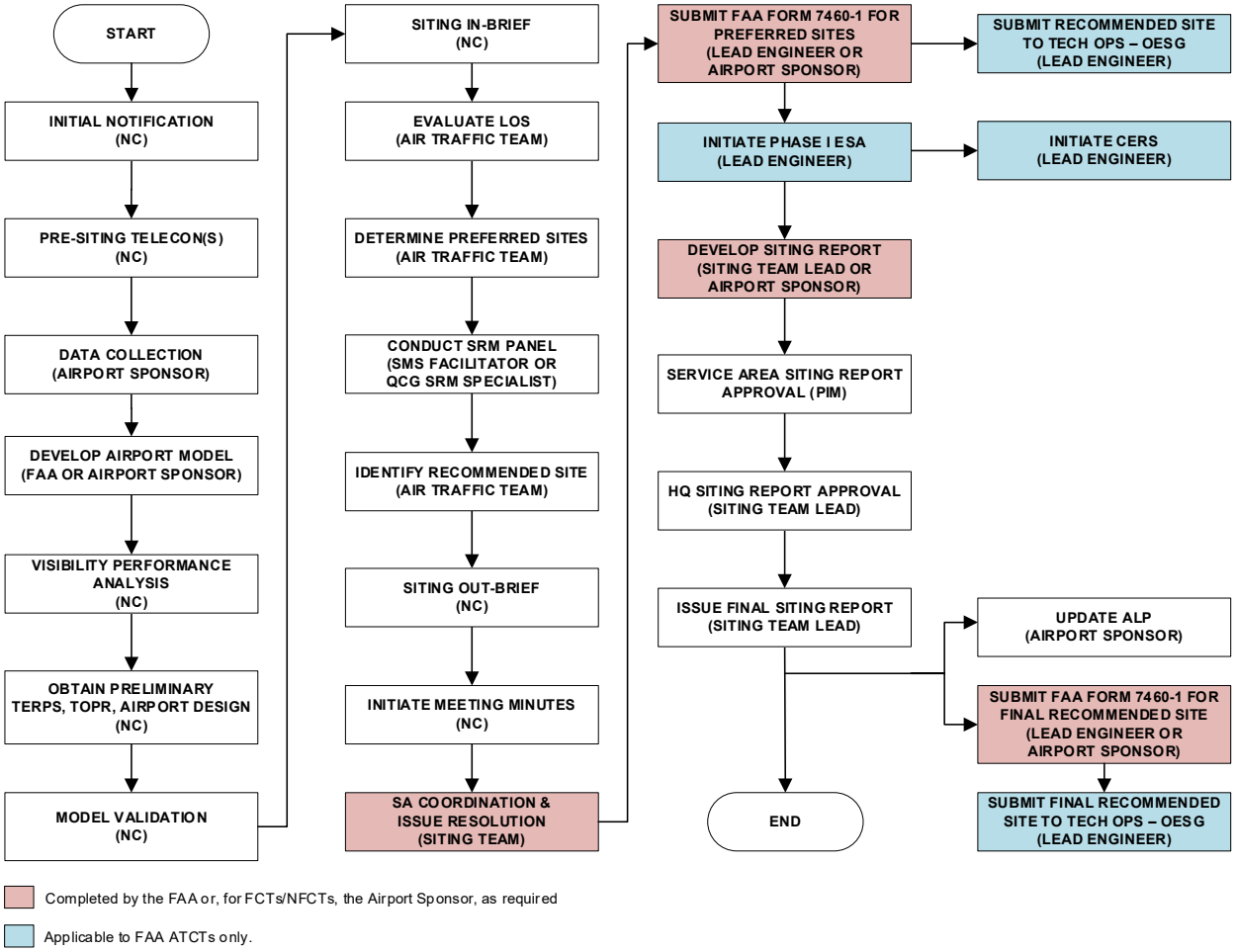
z. Submit FAA Form 7460-1 for Final Recommended Site. (Technical Operations – Facilities & Engineering Services or the Airport Sponsor, as applicable) Submit FAA Form 7460-1 to protect the LOS of the final recommended site.

aa. Submit the Final Recommended Site to Technical Operations – OESG. (Terminal Engineering – Lead Project Engineer or designated representative) Upon receipt of the final determination letter for the recommended site, notify Technical Operations – OESG to enter the final recommended site data into the appropriate database (for example, the OE/AAA database) to provide future protection of the site.

Appendix B. Siting Process Flowchart

Although the flowchart is presented in sequential format, procedures may be performed concurrently as operationally feasible.

Figure B-1. Siting Process Flowchart



Appendix C. Siting Report Requirements

1. General. The Siting Report, along with the SRM Document, must be developed in accordance with this order and the ATO SMS Manual, respectively. The intent of the siting report is to document and communicate the degree to which each siting criterion has been met. The SRM Document identifies the risks and mitigations associated with constructing an ATCT at the preferred locations. The two documents are related but separate and have different approval requirements. Once signed in accordance with the ATO SMS Manual, the SRM Document is included in the final siting report as an appendix. Complete the siting report within 6 months of completing the siting assessment.

2. Mandatory Content. The siting report must contain the content and be organized as indicated in Table C-1.

3. Siting Report Template. A siting report template is available. Contact the NC to request a copy of the template.

Table C-1. Mandatory Siting Report Contents

Heading	Placement
Cover Page	Page 1
Executive Summary Include background information and justification in a narrative format. Include a summary of the siting report findings and the final recommended site. Do not include cost data in the Executive Summary.	Page 2
Approval Signatures • Director of Air Traffic Services, [X] Service Area • Director of Technical Operations, [X] Service Area • Director of Facilities & Engineering Services, FAA Headquarters	Page 3
Table of Contents	Page 4
Preferred Sites	**Section 1**
Preferred Sites Aerial View	1.1
Site Comparison Chart See Table C-2, Sample Site Comparison Chart.	1.2
Site [X] Include the following data for all preferred sites. Additional sites are numbered as sections 1.4, 1.5, etc.	1.3
Description	1.3.1
Site Reference Data	1.3.2
Siting Criteria Evaluation	1.3.3
Terminal Instrument Procedures (TERPS)	
14 CFR Part 77, Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) Requirements	
Impacts to Communications, Navigation, and Surveillance Equipment	
Visibility Performance Requirements	
Safety Assessment	

Heading	Placement
Operational Requirements	
Economic Considerations	
Environmental	
Final Site Recommendation Include a summary of the site and the reason(s) for its selection.	**Section 2**
Cab Size and Orientation Include the size of the cab and a graphical illustration of the cab orientation.	**Section 3**
Supplemental Data List of Appendices	**Section 4**
Airport Concurrence Letter	Appendix A
Cost Estimate Provide a comparative cost estimate for each preferred site (not for budgeting purposes).	Appendix B
All Sites Evaluated Include all sites determined to be non-viable and the reasons supporting that determination.	Appendix C
Panoramic Views (Screenshots) from the Simulation/Model Include a panoramic view (screenshot) for all preferred sites.	Appendix D
Drawings (Cab Layout, Airport Layout Plan, Cab Structures, Airport Cable Drawings) Include a graphical illustration of the cab layout/orientation for all preferred sites.	Appendix E
Obstruction Evaluations/Airport Airspace Analysis (OE/AAA) Include the feasibility report for all preferred sites.	Appendix F
Environmental Documentation Include only the Executive Summary and transmittal documentation for all preferred sites. Not applicable to sponsor-owned towers.	Appendix G
Human Factors Analysis Include the human factors analysis for all preferred sites.	Appendix H
Servicing Security Element • Include acknowledgement that each preferred site has been reviewed against FAA Order 1600.69 and that any risks and associated liabilities have been identified.	Appendix I
Other Pertinent Information (for example, meeting minutes and sign-in sheets)	Appendix J
SRM Document	Appendix K

Table C-2. Sample Site Comparison Chart

Item Description	Site 1			Site 2			Site 3		
Recommended Site									
Latitude									
Longitude									
Estimated Ground Level (AMSL)									
Cab Floor Level (AGL)									
Cab Floor Level (AMSL)									
Eye-Level (AGL)									
Eye-Level (AMSL)									
Top of Tower (AGL)									
Top of Tower (AMSL)									
Maximum Distance (to farthest point on all runways and taxi ways)									
2-Point Lateral Discrimination (Deg)									
Object Discrimination (Pass/Fail) Front View (Minivan)									
Line of Sight Angle of Incidence									
ATCT Orientation Direction									
Access to ATCT Site (Yes or No)									
Land Area									
Cab Size									
Columns (Interior or Perimeter)									
Console Type (traditional, slat-wall)									
TOPR Issues									
TERPS Impacts									
14 CFR Part 77 Impacts									
ATCT Potential Impacts to Future & Existing NAVAIDs									
Environmental Issues									
Comparative Cost Estimate* ($100K per vertical foot)									
Safety Assessment Initial Risk Ranking	**L**	**M**	**H**	**L**	**M**	**H**	**L**	**M**	**H**
Safety Assessment Predicted Residual Risk Ranking	**L**	**M**	**H**	**L**	**M**	**H**	**L**	**M**	**H**

** The comparative cost estimate is not for budgetary purposes; it is for site comparison purposes only.*

Appendix D. Sample Airport Concurrence Letter

Note: The letter shown below is a sample only. Customize each Airport Concurrence Letter as needed to address the individual airport siting assessment.

U.S. Department of Transportation
Federal Aviation Administration

U.S. Department of Transportation
Federal Aviation Administration

[Name]
[Position]
[Airport]
[Airport Address Line 1]
[Airport Address Line 2]

[Insert Name]*:*

This letter is in reference to the findings regarding the proposed Airport Traffic Control Tower (ATCT) [/Terminal Radar Approach Control (TRACON)] development project at the [Airport Name (LOC ID)] in [City, State]. As agreed during the recent tower-siting efforts, the FAA is providing your office with a list of impacts to [LOC ID] if the proposed ATCT is located at Site [X], which was selected as the recommended site.

A minimum acceptable plot of land for the ATCT is approximately [X] acres. The Airport Sponsor must coordinate with all leaseholders and users regarding the availability of the proposed tower location to ensure that the tower siting plans do not conflict with airport development plans. The final layout will be determined during the design phase of the project.

Section 1. Siting Requirements

Item 1: The location of the ATCT is Site [X]

- Latitude: TBD
- Longitude: TBD

Item 2: Maximum Overall ATCT Height: TBD' AMSL (TBD' AGL).

Item 3: Cab Floor Height: TBD' AMSL (TBD' AGL).

Item 4: Visibility of all movement areas and non-movement areas, look-down, -up, and -across angles, sunrise, sunset, fog, snow, rain, ramp lighting, glare, existing obstructions around the airport, and other issues that can adversely affect the ATCS' sight have been considered for the ATCT location.

Section 2. Identified Impacts

Item 1: *The Safety Risk Management (SRM) Panel did not identify any hazards for Site [X] [or identify the hazards].*

Item 2: Sample text: *The airspace review conducted on the proposed structure [ASN XXX] provided no objections with conditions to the construction described in the proposal. Refer to the considerations provided in the attached final determination letter.*

[NOTE: If there are objections, forward the draft concurrence letter and the final determination letter to the Lead Engineer and the appropriate Terminal Facilities Planning & Controls SAL for resolution.]

The submission of this signed document constitutes concurrence and adherence to FAA siting policy concerning appropriate public notification of the airport community regarding this intent to build a new ATCT and any impacts therein concerning the use of said airfield. The submission of this document does not waive the requirement of public comment as defined in the National Environmental Policy Act (NEPA) requirements as implemented through the Council on Environmental Quality (CEQ) regulations implementing NEPA Title 40 of the United States Code of Federal Regulations (CFR), Parts 1500-1517, and other statues, orders, directives, or policies concerning environmental assessment and alternatives.

Receipt of this completed form is necessary for the FAA to continue beyond the design phase of this project.

Please let me know if you have any questions concerning these findings. I can be reached at [XXX-XXX-XXXX].

Sincerely,

[Name, Title]
[Eastern/Central/Western] Service Area Lead, Technical Operations Services
Planning and Controls, AJW-2444

Attachment: [file name]

Airport Submission

The [TBD Airport owner/operator or Airport Authority] hereby acknowledges that they have the responsibility to advise the user community of the proposed new ATCT and the effects the above impacts would have on its operations at the airport.

For the Airport Sponsor:

[TBD Airport owner/operator or Airport Authority]
[City, State]

Signature	*Date*	*Printed Name*

Title

Appendix E. Sample Airport Sponsor Letter Certifying Model Accuracy

[XYZ Airport]
[1234 Airport Blvd.]
[Any Town, ST 12345]

ALP Version: _____

CERTIFICATION: I, [Engineer Name], certify that the provided airport model was developed per the latest approved Airport Layout Plan (ALP) and that the model is accurate within ±1 foot vertical / ±2 feet horizontal. Any proposed future improvements included in the model that are not on the ALP are modeled in such a manner that the airport can be evaluated with and without those improvements.

Engineer Signature/Seal:	_____	(SEAL)
Printed Name:	[Engineer Name]	
Professional Surveyor #:	[Number]	
Company:	[Company Name]	
Phone:	[(XXX) XXX-XXXX]	
Date:	[Date]	

Appendix F. Pre-Site Requirements

1. General. The Terminal Engineering – Lead Project Engineer, EOSH Center – Environmental Engineer/Environmental Protection Specialist (for FAA ATCTs and FAA-Owned FCTs only), Airports Regional and District Offices, Airport Sponsor, and NATCA ATCS representative (if applicable), must coordinate pre-sites in accordance with the following:

a. Provide a pre-site parcel of land for each site proposed as shown below:

(1) Sites without a Base Building – 2 acres

(2) Sites with a Base Building – 3 to 5 acres, depending on the size of the required base building and parking lot

b. Identify a proposed site boundary line with geographical coordinates (for example, set boundary lines in an aerial view). The boundary will be used as the starting point to prepare a metes and bounds survey for a real estate transaction. The FAA will use the area inside the boundary to establish the best location for an ATCT building. Ensure the land provided is adequately zoned for use and is not in conflict with any rights of way.

c. Avoid proposing parcels of land and access routes with known environmental issues (for example, wetlands, endangered species, hazardous materials storage) unless there is an existing plan to mitigate those issues. For FAA ATCTs and FAA-Owned FCTs, coordinate with the appropriate Technical Operations Engineering Services EOSH Center to receive preliminary environmental clearance for pre-sites, as applicable.

d. Provide any known information regarding access to utilities (for example, nearest water, power, sewer, and connections) at the pre-site.

e. Identify an access route to the pre-sites.

f. Consider pre-sites outside the Area of Operations (AOA) or with easy access from outside roads, which would avoid the need for personnel and service vendors to drive in/out of the AOA and or require permitting or airport badging for daily activities. If only sites inside the AOA are available, indicate security access requirements. If there are serious security concerns and requirements, then a site on the AOA may be desirable because of the reduction in security requirements, blast protection, setbacks, etc.

g. Consider allowing for site expansion at the existing facility, when possible.

h. Consider 14 CFR Part 77 surfaces for each pre-site location, as follows.

(1) Avoid site locations that enter the primary surface, 7:1 transition slope, approach slopes, and inner horizontal surface, if possible.

(2) Preserve the primary surface, transition slopes, and approach slopes by preventing the introduction of obstacle hazards and adverse operational impacts (see 14 CFR Part 77.29, Evaluating Aeronautical Effects).

(3) The inner horizontal surface may have structural penetration with proper mitigation and waivers but is acceptable when LOS and design criteria determine the top of the tower will be greater than 150 feet AGL.

Appendix G. Airport Sponsor Physical Space Requirements for Siting Assessment

General. If the siting assessment is conducted at the airport, the Airport Sponsor must provide, at a minimum:

- A conference room with 10 feet by 10 feet of unobstructed space that can accommodate approximately 12 participants;

- An Ethernet connection to the airport Local Area Network (LAN) with an upload/download speed of at least 50 megabits per second (Mbps);

- An open port to allow remote access to equipment [Information Technology (IT) POC];

- A power outlet;

- A large high-definition screen (10-foot HDMI cable provided); and

- Headsets for participants co-located inside the conference room that are also connected via Zoom to avoid audio feedback.

Appendix H. Preliminary Hazard List

1. Direction of View. (Siting Team/SRM Panel Facilitator) Evaluate that the primary operational view of the airport movement area faces north, or alternately east, or west, or finally south, in that order of preference, for an ATCT in the northern hemisphere. Avoid a southern orientation in areas where snow accumulates on the ground or the ATCT site is surrounded by sand or a large body of water.

- North
- East
- West
- South

2. LOS/Angle of View (SRM Panel Facilitator)

a. Look-Up Angle – Evaluate the look-up angle from the controller's perspective and document any potential interference with the following:

(1) Approach Paths

(2) Departure Paths

(3) Go-Arounds

(4) Missed Approaches

(5) Patterns to All Runways

b. Look-Down Angle – Evaluate the view of the controlled movement areas around the base of the ATCT and identify any impacts (related to the potential of a larger cab and/or taller ATCT).

3. Visual Performance (SRM Panel Facilitator)

a. Visibility from the ATCT – Verify that visibility from the ATCT allows an unobstructed view of all runways and any other landing areas and considers air traffic in the vicinity of the airport.

b. Unobstructed View

(1) Verify that visibility from the cab provides an unobstructed view of the following:

- All Runways
- Other Landing Areas
- Air Traffic in the Vicinity of the Airport

(2) Visibility from the cab must consider the view of:

- All Taxi Lanes
- All Ramp Areas

(3) Perform a dynamic visibility analysis that includes evaluating:

- Moving Aircraft
- Parked Aircraft

c. Object Discrimination – Perform an object discrimination analysis to assess observers' probability of detection of an object on the airport surface according to the criteria listed in Table 4-1. If an objection discrimination analysis results in a failure, mitigation strategies must be developed.

- Furthest end of the runway/movement area
- Ability to notice the presence of an object on the airport surface (aircraft or vehicle)
- Ability to discriminate a class of objects (class of aircraft)

d. Two-Point Lateral Discrimination – Perform a two-point lateral discrimination analysis to ensure operations at critical points of the airport surface provide the observer sufficient lateral discrimination (refer to Chapter 4, Siting Criteria, Paragraph 4.f).

(1) Closely Located Movement Areas for Aircraft and Vehicles

(2) Runway to Runway

(3) Runway to Taxiway

(4) Taxiway to Taxiway

(5) Other Critical Areas

(6) Aprons (typically located adjacent to the terminal building)

(7) Tie-Down Areas

(8) Taxi Lanes

4. Lighting and Atmospheric – Primarily Day. (SRM Panel Facilitator) Evaluate the operational impact of sun glare off natural and manmade surfaces, thermal distortion, etc., as viewed from the ATCT.

a. Sun Angle

b. Sun Glare

c. Sun Shadows

d. Thermal Distortion

e. Light Changes/Contrast Eye Adaption

5. Lighting and Atmospheric Limitations. (SRM Panel Facilitator) Evaluate the operational impact of environmental lighting and atmospheric limitations associated with night as viewed from the ATCT.

a. Dawn

b. Dusk

c. Night

6. Artificial Lighting – Primarily Night. (SRM Panel Facilitator) Evaluate the impact of airport lighting/background clutter, municipal lighting, and industrial lighting on ground and airborne operations as viewed from the ATCT.

a. Airport Lighting Equipment Outages

b. Lighting Shadows

c. Airport Lighting

d. Construction Lighting

e. Residential/Industrial Lighting

f. Background Clutter

g. Rotating Beacon

7. Naturally Occurring Atmospheric Conditions. (SRM Panel Facilitator) Evaluate the impact of local weather phenomena (for example, recurring fog, seasonal prevailing winds, haze, runway true winds) that impair visibility. Consider weather affecting the predominant flow of

traffic. Consider ceilings and visibility in determining ATCT height. Evaluate any naturally occurring atmospheric conditions that create ATCT site limitations, such as:

a. Dust

b. Ash

c. Smoke

d. Haze

e. Fog

f. Rain

g. Sleet

h. Snow

i. Sun Glare Off Snow

j. Minimum Ceiling Heights (Historical Data)

8. Industrial/Municipal Discharges. (SRM Panel Facilitator) Evaluate any industrial/ municipal discharges that create ATCT site limitations.

a. Dust

b. Ash

c. Smoke

9. Access to Proposed ATCT Site. (Siting Team and/or SRM Panel Facilitator) Verify that access to the ATCT site does not cross movement (runway or taxiway) or non-movement (ramps or taxi lane) areas.

10. Interior Physical Barriers. (SRM Panel Facilitator) Verify that columns and cab equipment do not impact the LOS from the cab to critical movement areas (for example, runway approach and departure ends, runway/taxiway intersections, high-speed turnoffs).

a. Position of Controllers in ATCT Cab.

(1) Is the cab oriented with, and does each position have, an optimal view of what they need to see?

(2) Position location setup to provide a smooth flow of operation with the least distraction.

b. Position of ATCT Cab Columns. Columns are placed where they do not present any problems with LOS.

c. Position of ATCT Cab Equipment. ATCT cab equipment is placed where it does not present any problems with LOS.

11. Exterior Physical Barriers. (SRM Panel Facilitator) Verify that various exterior physical barriers do not impact ground and airborne operations as viewed from the ATCT.

a. From Existing ATCT. LOS issues created from proposed ATCT columns, including construction equipment, vehicles, cranes, and scaffolding.

b. From New ATCT.

(1) LOS issues created by existing (old) ATCT

(2) Intentions for existing (old) ATCT

(3) Removal date for (old) ATCT and LOS issues created from removal, including construction equipment, vehicles, cranes, and scaffolding

12. Cab Size Evaluation. (SRM Panel Facilitator) Evaluate the square footage of the cab and its impact on the operation of the ATCT.

a. During Peak Traffic

b. When Fully Staffed

c. During Consolidated Operations with Slowest Amount of Traffic

13. Other. (Siting Team and/or SRM Panel Facilitator) Repeat the appropriate sections of the PHL for each additional preferred sites and the associated control positions.

Appendix I. Sample Comparative Environmental Resource Screening

This CERS is one criterion of many that is used in the siting of FAA towers and FAA-owned FCTs to determine the most appropriate location for a proposed new ATCT. The intent of the screening is to compare the relative risk of the environmental resources that would likely differ between the preferred sites identified in the ATCT siting process. Completion of the CERS also satisfies the requirement for sustainable site planning and facility siting in accordance with FAA Order JO 1053.3, Chapter 3, Section 3 (b)(1).

This CERS must be completed under the aegis of the applicable Technical Operations – Engineering Services EOSH Center. The most recent version of FAA Order 1050.1 and other commonly accepted databases may be used to inform the completion of this CERS. The environmental impact professional must use professional judgement in making a determination of the likely risks posed by the presence of environmental resources to the siting and execution of a proposed new ATCT at the preferred sites.

Section 1: General Information		
Project Name/Description:		
Screener/Date:	**Title/Org:**	**E-mail/Phone Number:**
LOC/District:	**FAC:** ATCT	**JCN:**
City/County/State:		
Preferred Sites (provide site names and coordinates). Include additional Sites as appropriate.		
Site Name: **Latitude/Longitude:**	**Site Name:** **Latitude/Longitude:**	**Site Name:** **Latitude/Longitude:**

Section 2: Preferred ATCT Locations/Site Map

Section 3: Resource Review Summar

Environmental Resources	**Potential Risks Are Present**		
	Site #	**Site #**	**Site #**
Air Quality	☐	☐	☐
Biological Resources	☐	☐	☐
Climate	☐	☐	☐
Coastal Resources	☐	☐	☐
Department of Transportation Act, Section 4(f)	☐	☐	☐
Farmlands	☐	☐	☐
Hazardous Materials, Solid Waste, and Pollution Prevention	☐	☐	☐
Historical, Architectural, Archeological, and Cultural Resources	☐	☐	☐
Land Use	☐	☐	☐
Natural Resources and Energy Supply	☐	☐	☐
Noise and Compatible Land Use	☐	☐	☐
Socioeconomics, Env. Justice, and Children’s Env. Health & Safety Risks	☐	☐	☐
Visual Effects	☐	☐	☐
Water Resources	☐	☐	☐

Section 4: Screening/Findings/Resources
Air Quality **Site-Specific Findings:** **Source:**
Biological Resources **Site-Specific Findings:** **Source:**
Climate **Site-Specific Findings:** **Source:**
Coastal Resources **Site-Specific Findings:** **Source:**
Department of Transportation Act, Section 4(f) **Site-Specific Findings:** **Source:**
Farmlands **Site-Specific Findings:** **Source:**

Hazardous Materials, Solid Waste, and Pollution Prevention **Site-Specific Findings:** **Source:**
Historical, Architectural, Archeological, and Cultural Resources **Site-Specific Findings:** **Source:**
Land Use **Site-Specific Findings:** **Source:**
Natural Resources and Energy Supply **Site-Specific Findings:** **Source:**
Noise and Compatible Land Use **Site-Specific Findings:** **Source:**
Socioeconomic, Environmental Justice, and Children's Environmental Health & Safety Risks **Site-Specific Findings:** **Source:**

Visual Effects

Site-Specific Findings:

Source:

Water Resources

Site-Specific Findings:

Source:

Section 5: Conclusion (comparison of identified environmental risks at each preferred ATCT site and recommendations regarding the impact on the ATCT siting)