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SYSTEM REQUIREMENTS SPECIFICATION

NAS SR-1000

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DEPARTMENT OF TRANSPORTATION
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1 INTRODUCTION

1.1 Purpose and Scope

The Federal Aviation Administration (FAA) Act of 1958 charges the FAA with providing safe and efficient air traffic control service to the public. This document is the compilation of high-level requirements that describe the operational capability requirements to achieve the provisions of the act for the National Airspace System (NAS) as the NAS exists today and is envisioned to exist by the year 2017. In that context, it includes those existing and transitional system capabilities needed for the 2017 system. This document is intended primarily for use as an internal FAA management tool to support the NAS enterprise architecture engineering, and acquisition activities and to manage and control change to the NAS.

This document relates requirements for the Air Traffic Service Group and reflects the services that are provided by the NAS and are captured in the NAS Service Based Enterprise Architecture. These services, referred to as the NAS Service Architecture, include lower level “capabilities” that each service will deliver as discussed in the Overview section.

The requirements are allocated to the appropriate service and capability. This relationship allows an association with defined functionalities and promotes the identification and assignment of performance and reliability, maintainability and availability attributes. This set of high-level requirements establishes both the baseline of the current NAS and also identifies future needs for the NAS.

1.2 Background

The FAA has established specific goals for modernization of the National Airspace System over the next decade as outlined in the FAA Flight Plan. Two of the goals described in the Flight Plan are reflected in this document to 1. “Work with local governments and airspace users to provide capacity in the United States airspace system that meets projected demand in an environmentally sound manner” and 2. “To achieve the lowest possible accident rate and constantly improve safety”. The requirements identified in this document provide the baseline of today’s operating NAS and the future NAS in support of these goals.

In conjunction with the FAA Flight Plan, the FAA has prepared operational and system engineering management documents to assist in the orderly development and integration of systems in support of the NAS and to identify high level NAS requirements which are then defined in lower level specification and design documents.

The NAS Architecture represents the proposed implementation of the requirements which are consistent with policy and operations guidance documents to include the:

- FAA Flight Plan
- NAS Operational Evolution Plan (OEP)
- Capital Investment Plan (CIP)

- National Aviation Research Plan (NARP)
- Target System Description (TSD)

The Architecture also provides the framework for the work being performed by the Joint Planning and Development Office (JPDO), which is currently developing a national plan through the year 2025.

The resulting requirements are presented in this document as a management tool to facilitate modernization and implementation of the NAS Architecture and to provide a forum for extensive coordination and validation of associated requirements.

The mission of the FAA includes the central objective of providing for the safe and efficient use of the nation's airspace, while minimizing constraints on its use. The NAS requires direct services to meet the needs of all users, in order to support aircraft operations under varying conditions of weather, demand on the system, and emergency situations. Flight planning, aircraft separation, air defense, law enforcement, control, and monitoring capabilities are required along with surveillance, navigation, and communication capabilities supporting the oceanic, remote, en route, terminal, and aerodrome operations. Additionally, maintenance support and system effectiveness requirements are imposed. (19320)

1.2.1 Document Structure

Section 2 of this document gives an overview of the nine services and their corresponding capabilities. These services and capabilities form the high level structure for the organization of the requirements.

Requirements for the Services and Capabilities are in Section 3. Section 3 also contains Enabling Service Requirements that supplement the services the NAS provides.

Section 4 contains a Glossary of the terms that are used in the document. Section 5 lists all of the acronyms that are used in the document. Section 6 list the action verbs used in the requirements.

2 OVERVIEW

2.1 Service Groups

Service Groups are comprised of related Services. Services are high-level activities, performed by the FAA for the aviation community, that contribute to the flow of aircraft through the NAS.

2.2 Service Group - Air Traffic

Air Traffic Services is a function of the FAA that is dependent upon capabilities found in the Architecture.

2.2.1 Service - Flight Planning

The Flight Planning Service provides both flight plan support and flight plan data processing to support the safe and efficient use of the nation's airspace through the development and use of coordinated flight plans. This includes preparing and conducting pre-flight and in-flight briefings, filing flight plans and amendments, managing flight plan acceptance and evaluation, preparing flight planning broadcast messages, and maintaining flight-planning data archives. This service offers preparation to conduct a flight within the NAS and allows changes to flight profiles while operating within the NAS.

2.2.1.1 Capability- Flight Plan Support

Flight plan support provides NAS users essential weather and aeronautical information. Flight planning requires such information as expected route, altitude, time of flight, available navigation systems, available routes, special use airspace (SUA) restrictions, daily demand conditions, and anticipated flight conditions, including weather and sky conditions (e.g., volcanic ash, smoke, or birds). There is an exchange of a variety of data to support flight planning including NAS operational and maintenance status, weather, and FAA facility status, with numerous NAS users. These include, fixed base operators, pilots and flight planners, airline operations centers personnel, and Department of Defense (DoD) operations offices personnel. Planning and preflight briefings contain current and forecast weather, including winds and temperatures, surface conditions, and any significant meteorological condition. Aeronautical information includes notices to airmen containing information concerning establishment of, condition of, or change in any NAS component (facility, service, or procedure, or hazard in the NAS). The timely knowledge of this information is essential to flight.

2.2.1.2 Capability- Flight Data Management

Flight Data Management maintains the knowledge of a flight within the NAS from activation until flight plan cancellation or closing. Flight Data Management accepts, processes, and validates flight plan data from all users (e.g., general aviation, commercial, military, Customs, law enforcement, etc.). Flight Data Management provides processing and evaluation of preflight and in-flight flight plan amendments, cancellations, and flight plan closures for Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) flights. Flight plans for domestic and international flights are evaluated, and users are notified of any problems. Implementation of flight data

management occurs at or near the start of a planned flight. It includes flight plan activation following issuance of a clearance for flight; distributing flight plans to appropriate ATC facilities along the route of flight, updates based on current position, and updates along the route of flight based on in-flight amendments. The NAS disseminates flight plan information to all users as necessary. Information associated with the flight before, during, and after the flight remains available.

2.2.2 Service - ATC-Separation Assurance

The separation assurance service ensures that aircraft maintain a safe distance from other aircraft, vehicles, terrain, obstacles, and certain airspace not designated for routine air travel. Separation assurance involves the application of separation standards to ensure safety. Standards are defined for aircraft based on aircraft type, size, equipment, and for operating in different environments.

2.2.2.1 Capability- Aircraft to Aircraft Separation

Aircraft are separated from other known aircraft in the terminal, en route, and oceanic environments. Separation assurance involves the application of separation standards to ensure aircraft remain an appropriate minimum distance or altitude from other known aircraft. Standards are defined for aircraft based on aircraft type, size, equipment, and for operating in different environments.

2.2.2.2 Capability- Aircraft -Terrain-Obstacle Separation

Aircraft are separated from terrain and obstacles using published safety zones and processing position and intent information. Aircraft positions are derived from navigational systems, surveillance information, visual orientation, and position reports to ensure an aircraft's trajectory maintains a minimum safe distance from terrain and obstacles. Aircraft to terrain/obstacle separation capability provides ground and obstacle avoidance instructions to aircraft to ensure aircraft maintain a safe distance from the ground, mountainous terrain, and man-made obstacles.

2.2.2.3 Capability- Aircraft-Airspace Separation

Aircraft are separated from airspace for special use such as prohibited, restricted, and warning areas. The SUA is designed to ensure safety for unique aircraft operations or to prohibit flight within a specified area. Separation standards ensure aircraft remain an appropriate minimum distance from the airspace. The standards are applied via methods including regulatory publications and specific control instructions.

2.2.2.4 Capability- Surface Separation

Aircraft are separated from vehicle movements on the airport movement area, taxiing aircraft, water vehicles, and from designated critical zones, etc. Standards are employed to ensure safe operation on the surface. Surface separation of aircraft while they are operating on the airport surface is a shared responsibility.

2.2.3 Service - ATC-Advisories

Air traffic control and other facilities provide advice and information to assist pilots in the safe conduct of flight and aircraft movement. These advisories include providing weather information, traffic, and NAS status information to pilots, flight planners, and the general public. These advisories and information are either directed to a specific location or broadcast to any user in the area.

2.2.3.1 Capability- Weather Advisories

ATC Advisories - Weather information is available either automatically or manually through communication with ATC and other facilities. For example, pilots receive weather advisories from automated surface observing systems and other systems, ATC facilities, and aircraft operations centers (AOCs). Advisories provide both routine and hazardous weather information and/or flight conditions at airports or along a flight path.

2.2.3.2 Capability- Traffic Advisories

Traffic advisories are provided to alert aircraft to potential conflicts with others on the surface or in-flight. For example, traffic advisories are provided to aircraft or other flight objects that are in the proximity of hot air/gas balloons, missile launches, or other potential hazards. Traffic advisories for aircraft on the surface include the number, type, position, and intent of the ground traffic.

2.2.3.3 Capability- NAS Status Advisories

Information about NAS status that has changed or was not readily available during flight planning is provided to in-flight aircraft. This includes updates concerning the operational status of airspace, airports, nav aids, in-flight or ground hazards, traffic management directives, and other information that is essential to the safety and efficiency of aircraft.

2.2.4 Service - TM-Synchronization

Traffic synchronization supports expeditious flight for the large number of aircraft using the NAS during any given period of time. NAS processes operate to maximize efficiency and capacity in response to weather, NAS infrastructure, runway availability or other conditions. Traffic synchronization is the tactical portion of traffic management providing sequencing, spacing, and routing of aircraft. Traffic synchronization activities are accomplished while maintaining separation assurance and implementing strategic flow management directives. The traffic synchronization service provides tactical instructions to optimize operations while airborne and on the surface.

2.2.4.1 Capability- Airborne Synchronization

Airborne synchronization or spacing and sequencing of air traffic safely maximize the efficiency and capacity of the NAS throughout the cruise, arrival, and departure phases of flight. Maximum efficiency, predictability and capacity are obtained through the application of processes, which reduce variability in achieving the defined separation standards. Traffic synchronization is provided to aircraft during cruise, through metering

at fixes/waypoints, and modifying traffic flow patterns to meet operational objectives and accommodate user preferences.

2.2.4.2 Capability- Surface Synchronization

The surface is managed by formulating taxi sequences and communicating instructions to pilots and vehicle operators for the safe and efficient flow of traffic on the airport surface. Surface synchronization involves processes intended to maximize surface efficiency, predictability, and capacity. It includes such activities as assigning runways, taxi sequences and providing movement instructions.

2.2.5 Service - TM-Strategic Flow

The strategic flow service provides for orderly flow of air traffic from a system perspective. NAS demand and capacity is analyzed and balanced to minimize delays, avoid congestion, and maximize overall NAS throughput, flexibility, and predictability. Actual and predicted demand is compared to the current and predicted capacity of the NAS airspace, airports and infrastructure to plan the overall NAS strategy. When necessary, traffic flow management (TFM) plans are developed collaboratively to optimize the flow of traffic while accommodating user requests and schedules, airspace, infrastructure, weather constraints, and other variables. The strategic flow service is comprised of long-term planning (more than one day in advance), flight-day traffic management (current 24-hour period) and performance assessment capabilities.

2.2.5.1 Capability- Long Term Planning

Long term planning works to maximize efficiency by developing predictions of capacity and demand more than one day in advance. Inputs include capacity and demand models based on airport use data, airspace for special use schedules, airline flight schedules, infrastructure status, and historical flight traffic demand information. It also includes activities designed for continual improvement in the predictive capabilities such as model validation, assessment of specific planned and executed strategies trend analysis and recommended changes.

2.2.5.2 Capability- Flight Day Management

Flight day traffic management optimizes NAS traffic flow for the current 24-hour period. Demand profiles are compared with projections of NAS capacity for the current day and identify periods and locations where predicted demand exceeds predicted capacity. Specific responses to maximize efficiency are developed and implemented through collaboration across the NAS.

2.2.5.3 Capability- Performance Assessment

Performance assessment provides institutional memory by archiving information to support post-flight analyses of NAS traffic flow. The effectiveness of NAS performance is analyzed to propose future improvements. Air traffic trends and activities are analyzed, problems identified and alternatives for improvement developed and evaluated. Long-term improvements to NAS performance include recommended changes to schedules, airspace design, ATC procedures, and the NAS infrastructure.

2.2.6 Service - Emergency and Alerting

The emergency and alerting service monitors the NAS for distress or urgent situations, evaluates the nature of the distress, and provides an appropriate response to the emergency. Applicable situations include those that occur on the ground or in-flight. Emergency services include emergency assistance and alerting support.

2.2.6.1 Capability- Emergency Assistance

Emergency assistance provides direct support in the protection of individuals and property both in the air and on the ground. ATC services range from assisting an aircraft low on fuel to the nearest airport, aircraft involved in a hijacking, to alerting rescue coordination agencies that an aircraft is overdue or missing. NAS ATC facilities provide: urgent/distress declarations, aircraft, weather and traffic flow information, and flight plan information to support emergency situations.

2.2.6.2 Capability- Alerting Support

Alerting support provides indirect assistance for those events/circumstances in which the response is external to the system. For example, when information is received that an aircraft is overdue or missing, ELT signals are received, or search and rescue services may be required, alerting support provides the relevant information and coordinates with the appropriate international, military, federal, state, and local agencies. The appropriate organization(s) then provide direct response(s).

2.2.7 Service - Navigation

The Navigation service provides electronic signals-in-space to enable suitably equipped NAS users to determine aircraft position and to operate safely and efficiently under most weather conditions. Avionics onboard the aircraft receive and process the signals to provide current position, distance from a predefined or selected position, course selection, and course deviation. The Navigation service includes both ground- and space-based networks of electronic navigation aids (NAVAIDS), as well as visual NAVAIDS, in accordance with international standards. The network of NAVAIDS enables users to navigate during airborne operations (such as cruise, approach, and landing) and during surface operations.

2.2.7.1 Capability- Airborne Guidance

NAS provides signals in space through space-based mechanisms and ground based aids for point-in-space navigation through a variety of operating environments. These environments include structured routes, random routings and transitions. Guidance is provided for position determination in both vertical and lateral planes in all phases of flight. Additionally, visual aids provide guidance to aircraft transitioning to and from the surface. Visual NAVAIDS provide approach and landing guidance to aircraft in addition to electronic type NAVAIDS. Visual references are particularly important during the transition from instrument to visual flying just prior to landing.

2.2.7.2 Capability- Surface Guidance

NAS provides mechanisms and aids for maneuvering on the airport surface safely and efficiently. Airport surface guidance is provided by electronic and visual means to aircraft maneuvering on the airport surface. Surface guidance includes taxiway lighting and markings, runway markings, and identification of any obstacles in the vicinity.

2.2.8 Service - Airspace Management

The airspace management service ensures the safe and efficient organization and use of the national airspace resource. Airspace management includes two aspects: design, and organization and implementation. Airspace design establishes the guidelines for airspace structures in order to accommodate the different types of air activity, volume of traffic, and differing levels of service. Airspace organization and implementation is the process by which the airspace design options are selected and applied to meet the needs of the ATM community.

2.2.8.1 Capability- Airspace Design

Airspace design criteria establish the conditions for designing structures in the airspace to support safety of flight and efficient flow of traffic. Design criteria include the standards and guidelines for establishing classes of airspace, designation of volumes of airspace for the provision of separation (sectors, special use, etc.), waypoints, published routes etc. The criteria include identification of those structures, which require rulemaking, publication, environmental evaluations, procedure development actions, etc. The guidelines also include criteria to support the design process - objectives in the design to meet demand, performance criteria for evaluating the efficiency of the design, infrastructure coverage criteria and constraints, etc.

2.2.8.2 Capability- Airspace Management

Airspace for special use provides support to the national defense mission, fosters the development of commercial space enterprises, protects sensitive areas, and ensures the protection of other natural resources. Designation and management of airspace for special use ensures optimal access, flexibility and predictability for airspace users.

2.2.9 Service - Infrastructure/Information Management

Infrastructure management ensures a safe and efficient NAS through management and operation of the infrastructure and optimal use of resources. Infrastructure resources include systems such as radar, communication links, navigation aids and automation, while infrastructure management includes monitoring and maintenance of the NAS.

2.2.9.1 Capability- Monitoring and Maintenance

Monitoring and maintenance includes the activities necessary to monitor the NAS status, detect and isolate failures and outages, and perform corrective and preventive maintenance to ensure the operational readiness of the NAS. Maintaining, operating, and managing the infrastructure requires a variety of planning, engineering, analysis, repair, and maintenance functions. It also includes monitoring status, real time assessments and systems implementations in the NAS.

2.2.9.2 Capability- Spectrum Management

Spectrum management secures, protects, and manages the radio spectrum for the FAA and the U.S. Aviation community. It is the focal point for management policy and plans, engineering, frequency assignment, radio interference resolution, radiation hazard, obstruction evaluation, electronic counter measures, and other National/International spectrum activities.

2.2.9.3 Capability- Government-Agency Support

Government/agency support provides information and coordination services. Examples of the agencies and organizations supported include military air defense operations, law enforcement, government land management, drug interdiction, state aviation, Customs, the National Transportation Safety Board, and Homeland Security among others.

2.2.10 Enabling Services Requirements

The FAA is responsible for providing air traffic control services within the United States and Oceanic areas as delegated. Those Services include: Flight Planning, Separation Assurance, ATC Advisory Services, Traffic Synchronization, Traffic Flow, Emergency Services, Navigation, Airspace Management, and Monitoring and Maintenance. To provide these services at the highest level, overarching technology and operational information is enabled by automation, communications and security protection.

2.2.10.1 Automation

Automation enables information presentation, configuration and availability. This technology allows information to be requested, stored, archived and retrieved. Automation will present/retrieve information in various formats, display these formats in a range of presentation options (written, graphically, numerically, etc.) to enhance safety and capacity of the NAS.

Automation is a key enabler of flight plan support and management, retrieval and display of separation assurance information, collation of weather, and ATC advisories across the NAS. Automation supports both Traffic Synchronization and Strategic Flow by providing a collaborative system view of current and projected traffic flow to traffic management specialist and users defining traffic scenarios.

2.2.10.2 Communication

Communications enables the NAS to exchange information with users, specialists, ATC facilities, and other Government agencies. Communications enables air traffic control operations within the NAS by employing appropriate technologies to exchange voice and data. This information is transported over landlines and wireless connectivity utilizing government and commercial assets.

Communications defines how data is moved across the NAS to accomplish flight planning, control functions and navigation services for ground and space based systems. This enabler provides end-to-end service to pilots to include disseminating and coordinating the flight plan and defines how controllers provide service throughout the

flight while coordinating with other facilities and government agencies. The communications enabler supports collaboration between users and specialists for traffic synchronization and flow services. Communications support the exchange of navigation and surveillance information across the NAS. Information includes electronic signals emanating from ILS, VOR and space based systems and aircraft transmitted beacon code data.

2.2.10.3 Security

Security is integral to the NAS and is addressed within each service and the automation and communication enablers. Security is essential to assure the availability, integrity, and confidentiality of operations. Security for the NAS is a balance of functional performance and appropriate protection of NAS components from external and internal threats. NAS security protection includes: Physical (facilities, systems); Personnel (personal access identification); and Information (software, hardware, communications, etc.).

Security protection includes processing, storage, and communication (data or voice) of air traffic control information, mission support information and controls, and administrative information. Security assures integrity and availability, access control, identification and authentication, confidentiality, malicious code repudiation, and recovery.

2.2.11 Performance Requirements

Performance requirements define the maximum satisfactory response time to be experienced for each exchange of data. Performance requirements may also define the response time that is minimally acceptable, the typical throughput required, and the size and timing of maximum-throughput periods. These requirements will be added to the official SR-1000 document at a later date.

2.2.12 Reliability, Maintainability, and Availability

RMA requirements define what percentage of time services will be available to the user. These requirements will be added to the official SR-1000 document at a later date.

2.3 Other Service Groups

The Regulation, Licensing, and Certification Services Group provide standardized operating policies and requirements for National Airspace System (NAS) users within the aerospace community.

The NAS is required to aid in the management of airport systems. This includes reviewing their compliance with federal regulations, engineering standards, financial assistance, and environmental impact assessments. The NAS is also responsible for aiding in planning, infrastructure and information development, and aircraft operations and support.

The NAS also provides Safety Services to provide a safe and efficient operating environment that maintains the aviation and aerospace communities and the public's

high confidence when flying.

Security services protect users against terrorist and criminal acts to protect the NAS facilities, equipment, and employees. These services include providing physical security for air traffic and airport facilities, security for passengers, and information security of communications and other NAS functional areas.

3 ATS SERVICE REQUIREMENTS

3.1 Flight Planning Services

3.1.1 Flight Plan Support

Safe and efficient use of the nation's airspace requires the provision of flight planning capabilities. Flight planning requires information such as expected route, altitude, and time of flight, as well as the anticipated flight conditions including weather, navigation systems, available routes, special use airspace, and flow control conditions.

3.1.1.1 Accept proposed flight plans

The NAS shall accept VFR flight plans. (00340)

The NAS shall accept IFR flight plans. (00350)

The NAS shall accept flight plans up to 24 hours in advance of proposed departure time. (00380)

The NAS shall accept proposed flight plans from external interfaces. (00430)

The NAS shall accept flight plans from specialist. (00550)

The NAS shall accept proposed flight plans from specialists. (00190)

The NAS shall accept amendments to proposed flight plans from users. (00200)

The NAS shall accept amendments to proposed flight plans from specialists. (00210)

The NAS shall acquire flight plan reservations from military users. (16060)

The NAS shall acquire requests for special movement activities by military aircraft. (16270)

The NAS shall accept flight plans in NAS format. (00260)

The NAS shall accept flight plans in ICAO format. (00290)

3.1.1.1.1 Accept altitude reservation requests

The NAS shall accept altitude reservation requests. (15740)

The NAS shall acquire altitude reservations. (15760)

The NAS shall store altitude reservations. (15770)

The NAS shall display altitude reservations. (15780)

The NAS shall approve altitude reservations. (15790)

The NAS shall disseminate altitude reservations. (15810)

The NAS shall accept entry of trial altitude reservations. (15820)

The NAS shall coordinate requested altitude reservations with traffic management coordinators affected by the reservation request. (15850)

3.1.1.1.2 Acquire requests for airspace reservation

The NAS shall acquire requests for airspace reservations based on emergency order of precedence. (16300)

The NAS shall respond to requests for airspace reservations based on emergency order of precedence. (16310)

3.1.1.1.3 Accept route proposals

The NAS shall accept route proposals. (29030)

The NAS shall accept route proposals for military aircraft conducting special interest flights. (16540)

The NAS shall reject route proposals based on military requirements. (16580)

3.1.1.1.3.1 Process Route

The NAS shall process route proposals based on military special requirements. (01550)

The NAS shall validate route proposals based on military requirements. (16560)

The NAS shall accept route proposals based on military requirements. (16570)

The NAS shall store route proposals based on military requirements. (16550)

The NAS shall store 1000 or more low-level routes for military users. (16170)

3.1.1.1.3.2 Accept proposals for presidential flights

The NAS shall accept route proposals for presidential flights. (16460)

The NAS shall approve route proposals for presidential flights. (16480)

3.1.1.1.3.3 Accept route proposals for military aircraft

The NAS shall accept route proposals for military aircraft conducting special refueling operations. (16500)

The NAS shall approve route proposals for military aircraft conducting special refueling operations. (16520)

The NAS shall accept route proposals for military aircraft carrying hazardous cargo. (16420)

The NAS shall approve route proposals for military aircraft carrying hazardous cargo. (16440)

3.1.1.1.4 Accept Proposed Flight Plans

The NAS shall accept proposed flight plans from users. (00180)

The NAS shall accept flight plans containing user-preferred routes. (00490)

The NAS shall accept flight plans defining user preferred speed profiles. (00500)

The NAS shall accept flight plans defining user preferred altitude profiles. (00510)

The NAS shall accept flight plans from users. (00540)

The NAS shall accept recurring flight plans from users. (00390)

The NAS shall accept flight plan information from users via external data interfaces. (00420)

The NAS shall accept multiple flight plans from users. (00360)

The NAS shall accept flight plans with multiple flight segments from users. (00370)

The NAS shall accept user corrections of errors in a proposed flight plan. (00580)

3.1.1.1.4.1 Accept proposed flight plans from users via external interfaces

The NAS shall accept proposed flight plans from users via external interfaces. (00220)

The NAS shall accept flight plan information from users via air-ground voice communications. (00940)

The NAS shall accept flight plan information via users air-ground data communications. (00950)

The NAS shall accept inputs via user supplied, external data interfaces. (00920)

3.1.1.1.5 Accept amendments to proposed flight plans from external interfaces

The NAS shall accept amendments to proposed flight plans from external interfaces. (00440)

The NAS shall accept proposed flight plan amendments from users via external interfaces. (00240)

3.1.1.1.6 Accept specialist correction to errors

The NAS shall accept specialist correction to errors. (00600)

The NAS shall accept user corrections of identified error(s) without having to re-input the entire flight plan. (00660)

The NAS shall accept specialist corrections without having to re-input the entire flight plan. (00670)

3.1.1.1.7 Acquire classified flight plans from military scheduling activities

The NAS shall acquire classified flight plans from military scheduling activities. (16350)

The NAS shall accept classified flight plans with security clearances up to and including SECRET from military scheduling activities. (01490)

The NAS shall acquire classified flight plans with security classifications up to SECRET from military scheduling activities. (16320)

The NAS shall accept classified route proposals with security clearances up to and including SECRET from military scheduling activities. (01500)

The NAS shall acquire classified route proposals with security classifications up to SECRET from military scheduling activities. (01370)

The NAS shall accept classified flight plans with security classifications up to and including secret. (16360)

The NAS shall accept route proposals with security classifications up to and including secret. (16370)

3.1.1.1.8 Approve military user requests

The NAS shall approve military user requests for special movement activities within 24 hours. (16280)

3.1.1.1.9 Acquire unclassified flight plans from military scheduling activities

The NAS shall acquire unclassified flight plans from military scheduling activities. (01330)

The NAS shall accept unclassified flight plans from military scheduling activities. (01460)

The NAS shall acquire unclassified flight plans from military scheduling activities. (01360)

The NAS shall accept unclassified route proposals from military scheduling activities. (01470)

The NAS shall acquire unclassified route proposals from military scheduling activities. (01380)

The NAS shall acquire 1000 or more low-level routes for military users. (16160)

3.1.1.2 Evaluate Proposed Flight Plans

The NAS shall evaluate proposed flight plans. (29040)

The NAS shall notify users when a flight plan has been accepted. (00680)

The NAS shall notify users when an amendment has been accepted (00690)

The NAS shall notify specialists when a flight plan has been accepted. (00700)

The NAS shall notify specialists when an amendment has been accepted (00710)

The NAS shall process user proposed flight plans. (23040)

The NAS shall process user amendments to proposed flight plans. (23060)

The NAS shall process specialist proposed flight plans. (23080)

The NAS shall process specialist amendments to proposed flight plans. (23100)

The NAS shall validate flight plans from users. (00560)

The NAS shall validate flight plans from specialists. (00570)

The NAS shall validate user proposed flight plans. (23050)

The NAS shall validate user amendments to proposed flight plans. (23070)

The NAS shall validate specialist proposed flight plans. (23090)

The NAS shall validate specialist amendments to proposed flight plans. (23110)

The NAS shall validate classified flight plans with security classifications up to and including secret. (16380)

The NAS shall validate flight plans in NAS format. (00270)

The NAS shall validate flight plans in ICAO format. (00300)

The NAS shall evaluate a proposed flight plan prior to acceptance. (00620)

The NAS shall evaluate an amendment prior to acceptance. (00630)

The NAS shall assign flight plans that adhere to metering restrictions. (02930)

The NAS shall assign flight plans that adhere to flow restrictions. (02940)

The NAS shall assign flight plans that avoid severe weather problems. (02950)

The NAS shall assign flight plans based on airspace restrictions. (02960)

The NAS shall schedule low-level routes for use by military users. (16180)

The NAS shall process and validate user proposed flight plans within a means response time of 4.0 seconds of receipt. (01010)

The NAS shall process and validate user proposed flight plans within a 99th percentile response time of 6.0 seconds of receipt. (23020)

The NAS shall process and validate user proposed flight plans within a within a maximum response time of 12.0 seconds of receipt. (23030)

The NAS shall process and validate user amendments to proposed flight plans within a means response time of 4.0 seconds of receipt. (01030)

The NAS shall process and validate user amendments to proposed flight plans within a 99th percentile response time of 6.0 seconds of receipt. (23120)

The NAS shall process and validate user amendments to proposed flight plans within a maximum response time of 12.0 seconds of receipt. (23130)

The NAS shall process and validate specialist proposed flight plans within a means response time of 4.0 seconds of receipt. (01040)

The NAS shall process and validate specialist proposed flight plans within a 99th percentile response time of 6.0 seconds of receipt. (23140)

The NAS shall process and validate specialist proposed flight plans within a maximum response time of 12.0 seconds of receipt. (23150)

The NAS shall process and validate specialist amendments to proposed flight plans within a means response time of 4.0 seconds of receipt. (01020)

The NAS shall process and validate specialist amendments to proposed flight plans within a 99th percentile response time of 6.0 seconds of receipt. (23160)

The NAS shall process and validate specialist amendments to proposed flight plans within a maximum response time of 12.0 seconds of receipt. (23170)

The NAS shall store flight plans in ICAO format. (00310)

The NAS shall convert ICAO flight plans into NAS format. (00320)

The NAS shall convert NAS flight plans into ICAO format (00330)

The NAS shall store classified flight plans with security classifications up and including to secret. (16400)

The NAS shall store classified route proposals with security classifications up to and including secret. (16410)

The NAS shall store unclassified flight plans from military scheduling activities. (01390)

The NAS shall store unclassified route proposals from military scheduling activities. (01400)

The NAS shall compare proposed flight plans against known NAS constraints. (27100)

3.1.1.2.1 Detect Errors in Flight Plans

The NAS shall detect errors in flight plans. (00610)

The NAS shall notify users of problems with proposed flight plans. (29050)

The NAS shall notify the specialist with the reason(s) for rejection of a flight plan. (00650)

The NAS shall notify the user with the reason(s) for rejection of a flight plan. (00640)

The NAS shall notify specialists of errors in a proposed flight plan. (00590)

3.1.1.2.2 Validate classified flight plans from military scheduling activities

The NAS shall validate classified flight plans from military scheduling activities. (01340)

The NAS shall validate classified flight plans from military scheduling activities. (01410)

3.1.1.2.3 Validate unclassified flight plans from military scheduling activities

The NAS shall validate unclassified flight plans from military scheduling activities. (01350)

The NAS shall validate unclassified flight plans from military scheduling activities. (01420)

3.1.1.2.4 Validate low level routes for military users

The NAS shall validate more than 1000 low level routes for military users. (01320)

The NAS shall validate no less than 1000 low-level routes for military users. (16190)

3.1.1.2.5 Process pre-filed flight plans in time sequence

The NAS shall process pre-filed flight plans in time sequence. (00870)

The NAS shall store pre-filed flight plans in time sequence. (00880)

3.1.1.2.6 Store classified flight plans

The NAS shall store classified flight plans with security clearances up to and including SECRET from military scheduling activities. (01530)

The NAS shall store classified route proposals with security clearances up to and including SECRET from military scheduling activities. (01540)

3.1.1.3 Assist preparations for conducting flight

The NAS shall assist preparations for conducting flight. (27110)

The NAS shall disseminate formatting information to allow users to file flight plans via external data interfaces. (00450)

The NAS shall establish formatting information to allow users to file flight plans. (00460)

The NAS shall disseminate formatting information to allow users to file flight plans via external data interfaces. (00470)

The NAS shall disseminate NAS preferred routes. (00480)

The NAS shall store recurring flight plans. (00400)

The NAS shall store the original flight plan request. (00780)

The NAS shall store pre-filed flight plans. (00860)

The NAS shall establish direct access with users within 5 seconds after connection has been made. (01000)

The NAS shall prepare preflight and in-flight briefings. (27120)

The NAS shall conduct preflight and in-flight briefings. (27130)

The NAS shall disseminate aeronautical information to users to support flight planning. (27160)

3.1.1.3.1 Provide a method to utilize commonly used flight plan information

The NAS shall provide a method to utilize commonly used flight plan information (e.g. preferred routes and standard aircraft profiles) without re-entering such information for every flight plan. (19420)

The NAS shall store repetitive information when a user is submitting multiple flight plans. (00520)

The NAS shall access repetitive information when a user is submitting multiple flight plans. (00530)

3.1.1.3.2 Disseminate proposed flight information to traffic management specialists

The NAS shall disseminate active flight information to traffic management specialists at the Air Traffic Control Systems Command Center (ATCSCC). (00080)

The NAS shall notify users of the schedules for airspace usage. (01430)

The NAS shall notify specialists of the schedules for airspace usage. (01440)

3.1.1.3.3 Disseminate weather information to users to support flight planning

The NAS shall disseminate weather information to users to support flight planning. (27150)

The NAS shall disseminate weather information from reporting stations within the specified corridor of the requested route. (06720)

The NAS shall disseminate weather information specific to pre-defined areas less than or equal to 100 miles from a specific location or other predefined identifier. (06730)

The NAS shall retrieve route-oriented weather information for corridors up to 200 miles wide. (06700)

The NAS shall disseminate route-oriented weather information for corridors up to 200 miles wide. (06710)

3.1.2 Flight Data Management

The NAS shall maintain flight-planning data archives (27520)

3.1.2.1 Process flight plan data

The NAS shall process flight plan data from all users. (27200)

The NAS shall acquire validated flight plans and amendments from NAS facilities including Flight Service Stations, Air Route Traffic Control Centers, Air Traffic Control Towers, Military Base Operations, and users. (19490)

The NAS shall process flight plan information to meet required NAS response times during peak demand. (01090)

The NAS shall process identification information received from aircraft in remote areas. (25070)

The NAS shall accept opening of a flight plan by authorized specialists. (00740)

The NAS shall accept the activation of a flight plan by authorized specialists. (00750)

The NAS shall acquire flight plan information for each controlled aircraft in controlled airspace. (01230)

The NAS shall acquire flight plan information for each controlled aircraft about to enter controlled airspace within a locally adaptable time or distance. (01240)

The NAS shall activate flight plans following the issuance of a clearance for flight. (27420)

3.1.2.1.1 Validate and process active flight plans

The NAS shall validate and process active flight plans within a maximum time of 6.0 seconds. (01070)

The NAS shall validate and process active flight plans within a means time of 1.5 seconds. (01050)

The NAS shall validate and process active flight plans within a 99th percentile time of 3.0 seconds. (01080)

The NAS shall validate and process active flight plans route amendments within a means time of 0.6 seconds. (01060)

The NAS shall validate and process active flight plans route amendments within a 99th percentile time of 1.2 seconds. (23180)

The NAS shall validate and process active flight plans route amendments within a maximum time of 3.0 seconds. (23190)

The NAS shall validate and process active flight plan probe trial-amendments within a means time of 0.6 seconds. (23200)

The NAS shall validate and process active flight plan probe trial-amendments within a 99th percentile time of 1.2 seconds. (23210)

The NAS shall validate and process active flight plan probe trial-amendments within a maximum time of 3.0 seconds. (23220)

The NAS shall validate and process active flight plan amendments (excluding route amendments and probe trial-amendments) within a means time of 1.5 seconds. (23230)

The NAS shall validate and process active flight plan amendments (excluding route amendments and probe trial-amendments) within a 99th percentile time of 3.0 seconds. (23240)

The NAS shall validate and process active flight plan amendments (excluding route amendments and probe trial-amendments) within a maximum time of 6.0 seconds. (23250)

3.1.2.1.2 Accept flight plans

The NAS shall accept flight plans. (27210)

3.1.2.1.2.1 Accept all departure requests

The NAS shall accept all departure requests. (01140)

The NAS shall validate all departure requests. (01150)

The NAS shall validate departure requests. (01180)

The NAS shall process departure requests. (01200)

The NAS shall accept pre-flight departure requests from specialists. (10260)

The NAS shall accept pre-flight departure requests from users. (10270)

The NAS shall process pre-flight departure requests from specialists. (10280)

The NAS shall process pre-flight departure requests from users. (10290)

The NAS shall evaluate pre-flight departure requests from specialists. (10300)

The NAS shall evaluate pre-flight departure requests from users. (10310)

The NAS shall disseminate pre-flight departure requests information to users. (10320)

The NAS shall disseminate pre-flight departure requests information to specialists. (10330)

3.1.2.1.2.2 Acquire NAS flight plan information

The NAS shall acquire NAS flight plan information. (00140)

The NAS shall disseminate flight plan clearances to users. (02900)

The NAS shall acquire ICAO flight plan information. (00100)

The NAS shall store ICAO flight plan information. (00110)

3.1.2.1.3 Accept flight plans from users

The NAS shall accept flight plans from all users. (27300)

The NAS shall exchange ICAO flight plan information with users. (00120)

The NAS shall exchange ICAO flight plan information with specialists. (00130)

The NAS shall exchange NAS flight plan information with users. (00160)

The NAS shall assign flight plans based on preferential routes. (02920)

The NAS shall exchange NAS flight plan information with specialists. (00170)

The NAS shall exchange flight plan information with users through external user data interfaces. (00910)

The NAS shall accept automated flight plan information from adjacent non-NAS ATC facilities. (00840)

The NAS shall convert international flight plan information to other agreed upon formats. (00900)

The NAS shall accept automated hand-offs from adjacent non-NAS ATC facilities. (00850)

The NAS shall process flight plans submitted by search and rescue agencies. (01270)

The NAS shall process flight plans submitted by search and rescue aircraft. (01280)

3.1.2.1.4 Validate flight plans

The NAS shall validate flight plans. (27400)

The NAS shall validate flight plan data from all users. (27410)

3.1.2.2 Distribute flight plans

The NAS shall distribute flight plans to appropriate ATC facilities along the route of flight. (29060)

The NAS shall disseminate flight information to users. (00010)

The NAS shall disseminate flight plans to users. (02160)

The NAS shall disseminate flight data summaries to specialists. (00060)

The NAS shall disseminate flight data summaries to users. (00070)

The NAS shall alert the specialist of any amendments to flight plans prior to handoff acceptance. (00770)

3.1.2.2.1 Disseminate flight information

The NAS shall disseminate flight information to specialists. (00020)

The NAS shall display flight plan information for more than 100 aircraft per oceanic sector. (02790)

The NAS shall display flight plan information for at least 50 aircraft per non-oceanic sector. (02780)

3.1.2.2.2 Disseminate flight plan information to NAS facilities

The NAS shall disseminate flight plan information to all NAS facilities that provide control/support to the flight. (00790)

The NAS shall disseminate flight plan information to affected Military air traffic control facilities. (00820)

The NAS shall disseminate flight plan information to affected NAS air traffic control facilities. (00810)

3.1.2.2.3 Disseminate flight plan information to adjacent non-NAS ATC facilities

The NAS shall disseminate flight plan information to adjacent non-NAS ATC facilities that provide control/support to the flight. (00800)

The NAS shall disseminate flight plan information to affected adjacent non-NAS adjacent air traffic control facilities. (00830)

The NAS shall disseminate flight plan information to adjacent non NAS ATC facilities within the time frame specified by international and bilateral agreements. (00890)

3.1.2.2.4 Disseminate departure requests

The NAS shall disseminate departure requests. (01190)

The NAS shall disseminate departure requests to specialist at an adaptable time prior departure. (01210)

The NAS shall disseminate departure requests to appropriate specialists. (01170)

The NAS shall disseminate departure request information. (01220)

3.1.2.2.5 Disseminate flight plan information to users via external data interfaces

The NAS shall disseminate flight plan information to users via external data interfaces. (00410)

The NAS shall disseminate flight plan information to users via air-ground data communications. (00970)

The NAS shall disseminate flight plan information to users via air-ground voice communications. (00960)

The NAS shall disseminate flight plan information through user external data interfaces. (27450)

3.1.2.3 Maintain knowledge of the flight plan's status

The NAS shall maintain knowledge of the flight plan's status (active, cancelled, or closed.) (27460)

The NAS shall update flight plans based on current position. (27470)

The NAS shall update flight plans based on in-flight amendments. (27480)

The NAS shall maintain knowledge of the flight plan's trajectory. (27490)

The NAS shall maintain knowledge of detected deviations from the active flight plan. (27500)

The NAS shall store NAS flight plan information. (00150)

The NAS shall store flight plans in NAS format. (00280)

The NAS shall store all departure requests. (01160)

The NAS shall store more than 1000 low level routes for military users. (01310)

The NAS shall update stored flight information within 12.0 seconds of receiving new flight information. (12130)

3.1.2.4 Process flight plan amendments

The NAS shall process flight plan amendments. (27530)

The NAS shall process airspace reservation amendments submitted by aircraft. (01260)

The NAS shall process airspace reservation amendments submitted by search and rescue agencies. (01250)

The NAS shall process a user request to transition from VFR to IFR. (05040)

The NAS shall update active flight plans when amendments are accepted immediately. (00760)

The NAS shall process flight plan amendments submitted by search and rescue agencies. (01290)

The NAS shall process flight plan amendments submitted by search and rescue aircraft. (01300)

The NAS shall notify users of any problems with flight plan amendments. (27710)

3.1.2.4.1 Provide flight following services

The NAS shall provide flight following services. (27600)

The NAS shall provide various degrees of flight following service. (19760)

3.1.2.4.1.1 Accept requests for flight following services

The NAS shall accept requests for flight following services. (08920)

The NAS shall accept requests for flight following services of aircraft out of surveillance coverage. (09080)

The NAS shall accept requests for flight following services of aircraft in surveillance coverage. (09070)

The NAS shall accept requests for flight following in all weather conditions. (09060)

3.1.2.4.1.2 Acquire the active flight plan for a user requesting flight following services

The NAS shall acquire the active flight plan if filed, for a user requesting flight following services. (01560)

The NAS shall update speed from aircraft obtaining flight following services. (09050)

The NAS shall update position from aircraft obtaining flight following services. (09040)

The NAS shall store routing information from aircraft obtaining flight following services. (09030)

The NAS shall store altitude from aircraft obtaining flight following services. (09020)

The NAS shall store speed from aircraft obtaining flight following services. (09010)

The NAS shall acquire routing information from aircraft obtaining flight following services. (09000)

The NAS shall acquire altitude from aircraft obtaining flight following services. (08990)

The NAS shall acquire speed from aircraft obtaining flight following services. (08980)

The NAS shall update routing information from aircraft obtaining flight following services. (08970)

The NAS shall update altitude from aircraft obtaining flight following services. (08960)

The NAS shall store position from aircraft obtaining flight following services. (08950)

The NAS shall acquire position from aircraft obtaining flight following services. (08940)

The NAS shall acquire identification from aircraft obtaining flight following services. (08930)

The NAS shall store identification from aircraft obtaining flight following services. (01590)

The NAS shall retrieve the active flight plan for a user requesting flight following services. (01580)

The NAS shall amend the active flight plan for a user requesting flight following services. (01570)

3.1.2.4.2 Accept flight plan amendments

The NAS shall accept flight plan amendments. (27610)

The NAS shall accept amendments from specialists on active flight plans. (00720)

The NAS shall accept proposed flight plan amendments from specialists. (00250)

The NAS shall accept proposed flight plan amendments from users. (02290)

The NAS shall accept amendments to active flight plans by authorized specialists.
(00730)

The NAS shall accept flight plan amendments submitted by search and rescue agencies.
(27620)

The NAS shall accept flight plan amendments submitted by search and rescue aircraft.
(27630)

The NAS shall accept airspace reservation amendments submitted by search and rescue agencies. (27640)

3.1.2.4.3 Evaluate flight plan amendments

The NAS shall evaluate flight plan amendments. (27650)

The NAS shall evaluate flight plan amendments submitted by search and rescue agencies. (27660)

The NAS shall evaluate flight plan amendments submitted by search and rescue aircraft.
(27670)

3.1.2.4.4 Validate flight plan amendments

The NAS shall validate flight plan amendments. (27680)

The NAS shall validate flight plan amendments submitted by search and rescue agencies.
(27690)

The NAS shall validate flight plan amendments submitted by search and rescue aircraft.
(27700)

3.1.2.5 Process flight plan cancellations

The NAS shall process flight plan cancellations. (27720)

The NAS shall accept specialists' commands to cancel flight plans. (01100)

The NAS shall accept user requests to cancel flight plans. (01110)

3.1.2.6 Process flight plan closures

The NAS shall process flight plan closures. (27730)

The NAS shall accept specialists' commands to close flight plans. (01120)

The NAS shall accept user requests to close flight plans. (01130)

3.2 ATC- Separation Assurance

3.2.1 Aircraft to Aircraft Separation

3.2.1.1 Aircraft trajectory processing

3.2.1.1.1 Collect actual flight information

The NAS shall acquire actual flight information for each controlled aircraft in US delegated airspace. (01990)

The NAS shall acquire actual flight information for each controlled aircraft in US delegated airspace. (24060)

The NAS shall acquire actual flight information for each controlled aircraft inbound towards US delegated airspace within a locally adaptable distance from the NAS boundary. (02230)

The NAS shall acquire actual flight information for each controlled aircraft inbound towards US delegated airspace within a locally adaptable distance from the NAS boundary. (24240)

The NAS shall acquire actual flight information for each controlled aircraft inbound towards US delegated airspace within a locally adaptable time from the NAS boundary. (24250)

The NAS shall acquire actual flight information for each controlled aircraft inbound towards US delegated airspace within a locally adaptable time from the NAS boundary. (24230)

The NAS shall acquire actual flight information from aircraft outside of independent surveillance coverage. (03320)

The NAS shall acquire actual flight information for each controlled aircraft inbound towards US delegated airspace within a locally adaptable distance from the NAS boundary. (24260)

The NAS shall acquire information about aircraft operating outside of independent surveillance coverage. (03250)

The NAS shall detect aircraft in the conterminous United States airspace. (24450)

3.2.1.1.1.1 Collect aircraft position information

The NAS shall acquire position reports from aircraft. (03270)

The NAS shall acquire data from approved communications media for dependent surveillance coverage. (03210)

The NAS shall update the estimated positions for aircraft operating outside of independent surveillance coverage at a minimum adapted time between updates of 1 minute. (03340)

The NAS shall update the actual flight position of each aircraft with a maximum time between updates of 13 seconds. (02210)

The NAS shall update the estimated current position of aircraft operating outside of independent surveillance coverage at a maximum adapted time between updates of 10 minutes. (25090)

The NAS shall determine the current altitude for each participating aircraft (in controlled airspace). (01610)

The NAS shall acquire the reported altitude for each controlled aircraft inside US delegated airspace to within 103 feet (68th percentile). (24200)
The NAS shall detect the position of aircraft in selected volumes of en route airspace, independent of aircraft equipage. (15590)

3.2.1.1.1.1 Collect aircraft position information in U.S. defense zones

The NAS shall detect position of aircraft operating within an ADIZ within 0.125 nmi of actual position. (17500)
The NAS shall detect position of aircraft operating within an ADIZ within 0.176 degrees azimuth. (17510)
The NAS shall detect altitude of aircraft entering an ADIZ within 5000 feet of actual altitude. (17580)
The NAS shall detect intruders operating within an ADIZ. (17300)
The NAS shall detect all aircraft entering an ADIZ within 13 seconds of penetration. (17320)
The NAS shall detect aircraft operating within an Air Defense Identification Zone (ADIZ). (17220)
The NAS shall detect aircraft in the US Air Defense Identification Zone (ADIZ). (24430)
The NAS shall acquire position information of any aircraft operating within an ADIZ. (17240)
The NAS shall acquire altitude information of any aircraft operating within an ADIZ. (17280)
The NAS shall provide detection of any aircraft throughout an Air Defense Identification Zone (ADIZ) and the conterminous United States airspace. (19540)
The NAS shall detect aircraft entering an ADIZ up to and including 100,000 feet MSL, from ground level to +30 degrees relative to an earth tangential plane at the sensor site. (17340)
The NAS shall detect aircraft entering an ADIZ up to and including surface ranges of 250 nmi, from ground level to +30 degrees relative to an earth tangential plane at the sensor site. (17360)

3.2.1.1.1.2 Collect aircraft position information from terminal airspace

The NAS shall detect the position of aircraft in terminal environments with an accuracy of 0.28 nmi (99th percentile). (24090)
The NAS shall detect aircraft in qualifying aerodromes, independent of aircraft equipage. (02480)
The NAS shall detect, to the ground, the position of aircraft in terminal areas, independent of aircraft equipage. (02510)
The NAS shall detect the position of aircraft in terminal transitions areas, independent of aircraft equipage. (24570)
The NAS shall acquire aircraft position information for separation of aircraft conducting simultaneous parallel approaches. (02460)
The NAS shall acquire position reports from properly equipped aircraft in selected terminal areas, to the ground. (24620)

The NAS shall acquire position reports from properly equipped aircraft in terminal transition areas. (24630)

The NAS shall process position reports from properly equipped aircraft in selected terminal areas, to the ground. (24640)

The NAS shall store the position of aircraft in terminal environments with an accuracy of 0.28 nmi (99th percentile). (24100)

The NAS shall store the position of aircraft in terminal areas that were detected, independent of aircraft equipage. (02550)

The NAS shall store the position of aircraft in terminal transitions area that were detected, independent of aircraft equipage. (24580)

The NAS shall store position information for aircraft that were detected independently of aircraft equipage in qualifying aerodromes. (24520)

The NAS shall determine if an aircraft is in position for takeoff on the proper runway at designated aerodromes during period of reduced visibility. (04730)

3.2.1.1.1.3 Collect Aircraft position information from en route airspace

The NAS shall detect aircraft position to within 2.04 nmi (99th percentile) of the actual position over the ground for en route aircraft. (24070)

The NAS shall detect each controlled aircraft in US delegated airspace. (02070)

The NAS shall acquire aircraft position in the en route environment. (02080)

The NAS shall acquire position reports from properly equipped aircraft in selected volumes of en route airspace. (24600)

The NAS shall store aircraft position to within 2.04 nmi (99th percentile) of the actual position over the ground for en route aircraft. (24080)

The NAS shall store the position of aircraft in selected volumes of en route airspace that were detected, independent of aircraft equipage (24540)

The NAS shall store the position of aircraft in the en route environment. (02100)

The NAS shall estimate the current position of aircraft operating outside of independent surveillance coverage. (25080)

The NAS shall process position reports received from aircraft in remote areas. (25050)

3.2.1.1.1.2 Determine aircraft ground speed

The NAS shall determine the speed of each controlled aircraft in US delegated airspace to within 20 knots (peak RMS value) of the aircraft's speed straight-line-and-level flight at constant speed. (02140)

The NAS shall determine the speed of each controlled aircraft in US delegated airspace to within 60 knots (peak RMS value) of the true speed during aircraft acceleration in level flight. (02150)

The NAS shall store the speed of each controlled aircraft in US delegated airspace to within 20 knots (peak RMS value) of the aircraft's speed during straight-line-and-level flight at constant speed. (24110)

The NAS shall store the speed of each controlled aircraft in US delegated airspace to within 60 knots (peak RMS value) of true speed during aircraft acceleration in level flight. (24120)

The NAS shall store the speed of each controlled aircraft in US delegated airspace to within 20 knots (peak RMS value) of the aircraft's true speed during straight-line-and-level flight at constant speed. (24140)

3.2.1.1.1.2.1 Determine aircraft ground speed in U.S. defense zones

The NAS shall acquire ground speed information of any aircraft operating within an ADIZ. (17260)

The NAS shall detect speed of aircraft entering an ADIZ within 20 knots of actual speed. (17540)

3.2.1.1.1.2.2 Determine aircraft ground speed in terminal airspace

The NAS shall detect the speed of each controlled aircraft in terminal areas to within 10 knots (peak RMS value) of the aircraft's true speed during straight-line-and-level flight at constant speed. (01800)

The NAS shall detect the speed of each controlled aircraft in terminal areas to within 30 knots (peak RMS value) of true speed during aircraft acceleration in level flight. (01810)

The NAS shall store the speed of each controlled aircraft in terminal areas to within 10 knots (peak RMS value) of the aircraft's true speed during straight-line-and-level flight at constant speed. (24160)

The NAS shall store the speed of each controlled aircraft in terminal areas to within 30 knots (peak RMS value) of true speed during aircraft acceleration in level flight. (24170)

3.2.1.1.1.3 Determine aircraft course

The NAS shall detect aircraft track accurate to within 5 degrees (99th percentile) of actual course. (02190)

The NAS shall store aircraft track to within 5 degrees (99th percentile) of actual course. (24220)

3.2.1.1.1.3.1 Determine aircraft course in U.S. defense zones

The NAS shall detect course of aircraft entering an ADIZ within 5 degrees of actual course. (17550)

The NAS shall acquire course information of any aircraft operating within an ADIZ. (17260)

3.2.1.1.2 Process actual flight information

The NAS shall retrieve actual flight information. (10000)

The NAS shall process actual flight information from aircraft outside of independent surveillance coverage. (25030)

The NAS shall process position reports from aircraft. (25020)

The NAS shall process position reports from properly equipped en route aircraft in selected volumes of en route airspace. (24610)

The NAS shall process en route area surveillance data within a maximum 3.0 seconds of its detection by the NAS. (24670)

The NAS shall process position reports from properly equipped aircraft in terminal transition areas. (24650)

3.2.1.1.3 Distribute actual flight information

The NAS shall disseminate aircraft flight information for each controlled aircraft to specialists. (02720)

The NAS shall display actual flight information from aircraft outside of independent surveillance coverage. (25040)

The NAS shall display aircraft flight information about controlled aircraft. (24690)

3.2.1.1.3.1 Disseminate aircraft position information

The NAS shall display identification information received from aircraft in remote areas within 15 seconds of receipt by the NAS. (03300)

The NAS shall display position reports received from aircraft in remote areas within 15 seconds of receipt by the NAS. (25060)

The NAS shall provide the capability to supply surveillance data to backup facilities for their respective backup areas. (21540)

The NAS shall display position reports from aircraft. (03290)

The NAS shall disseminate the reported altitude for each controlled aircraft inside US delegated airspace to within 103 feet (68th percentile). (02180)

3.2.1.1.3.1.1 Disseminate the position aircraft in terminal airspace

The NAS shall display the position of aircraft in terminal environments with an accuracy of 0.28 nmi (99th percentile). (02130)

The NAS shall disseminate, to specialists, the position of aircraft in terminal areas that were detected, independent of aircraft equipage. (24560)

The NAS shall disseminate, to specialists, the position of aircraft in terminal transitions areas that were detected, independent of aircraft equipage. (24590)

The NAS shall display the positions of VFR aircraft in the terminal arrival phase of flight. (04990)

The NAS shall display aircraft position information for separation of aircraft conducting simultaneous parallel approaches. (24470)

The NAS shall display position information, to specialists, for aircraft that were detected independent of aircraft equipage in qualifying aerodromes. (24530)

The NAS shall display terminal area surveillance data to specialists within a maximum of 2.2 seconds of its detection by the NAS. (02680)

3.2.1.1.3.1.2 Disseminate the position of aircraft in en route airspace

The NAS shall display en route area surveillance data to specialists within a maximum 3.0 seconds of its detection by the NAS. (02690)

The NAS shall disseminate, to specialists, the position of aircraft in selected volumes of en route airspace that were detected, independent of aircraft equipage. (24550)

3.2.1.1.3.2 Disseminate aircraft speed information

The NAS shall display the speed of each controlled aircraft in US delegated airspace to within 20 knots (peak RMS value) of the aircraft's true speed during straight-line-and-level flight at constant speed. (24130)

The NAS shall display the speed of each controlled aircraft in US delegated airspace to within 60 knots (peak RMS value) of true speed during aircraft acceleration in level flight. (24150)

3.2.1.1.3.2.1 Disseminate the speed of aircraft in terminal airspace

The NAS shall display the speed of each controlled aircraft in terminal areas to within 10 knots (peak RMS value) of the aircraft's speed over the ground during straight-line-and-level flight at constant speed. (24180)

The NAS shall display the speed of each controlled aircraft in terminal areas to within 30 knots (peak RMS value) of true speed during aircraft acceleration in level flight. (24190)

3.2.1.1.3.3 Disseminate the course of aircraft

The NAS shall display aircraft track to within 5 degrees (99th percentile) of actual course. (02200)

3.2.1.1.4 Generate aircraft trajectories

The NAS shall correlate actual flight information to flight plan information for each controlled aircraft. (02370)

The NAS shall revise the clearance-based trajectory of existing flight trajectories. (02330)

The NAS shall generate clearance-based trajectories across physical ATC facility boundaries for interfacility flights. (24290)

The NAS shall project aircraft positions by an adapted look-ahead time interval. (25130)

The NAS shall project the flight path of known traffic within US delegated airspace. (03540)

The NAS shall project the flight path of known traffic entering US delegated airspace. (03550)

3.2.1.1.4.1 Generate aircraft trajectories based on actual flight information

The NAS shall generate a flight trajectory for each controlled aircraft in US delegated airspace based on actual flight information. (24410)

The NAS shall project aircraft flight path based on actual flight information. (03570)

The NAS shall project the flight path of detected aircraft up to a maximum of two minutes into the future, based on the operational environment. (03020)

The NAS shall project each aircraft's flight path at least every 13 seconds. (24900)

The NAS shall update each aircraft's flight path at least every 13 seconds. (03000)

The NAS shall update flight path projections at least once per surveillance equipment scan interval. (25150)

3.2.1.1.4.2 Generate aircraft trajectories based on flight plan route

The NAS shall generate a flight trajectory for each controlled aircraft in US delegated based on flight plan information. (02390)

The NAS shall project a detailed four-dimensional trajectory corresponding to the entire flight plan as amended. (12180)

The NAS shall generate flight trajectories that include all segments of controlled aircraft flight plans as originally filed. (02320)

The NAS shall generate flight trajectories that include all segments of controlled aircraft flight plans as amended. (02310)

The NAS shall generate clearance-based trajectories for controlled aircraft with valid flight plans. (24300)

The NAS shall generate clearance-based trajectories for controlled aircraft that conform to all segments of an aircraft's flight plan route clearances. (02300)

The NAS shall assist specialists in generating flight plan based trajectories for flight plans as originally filed. (24330)

The NAS shall assist specialists in generating flight plan-based trajectories for flight plans as amended. (24340)

The NAS shall assist specialists in constructing flight plan-based trajectories that corresponding to each route segment of the flight plan. (24310)

The NAS shall assist specialists in maintaining flight-plan based trajectories that corresponding to each route segment of the flight plan. (24320)

The NAS shall project flight trajectories for all controlled aircraft in US delegated airspace for not less than 20 minutes in advance. (10470)

The NAS shall project flight trajectories for all controlled aircraft expected to enter US delegated airspace for not less than 20 minutes in advance. (10480)

The NAS shall support flight trajectory prediction with weather conditions. (24420)

3.2.1.2 Separate Aircraft

The NAS shall separate aircraft operating outside the independent surveillance environment when this traffic is using supplemental navigation systems. (03260)

The NAS shall disseminate clearances to users to ensure that separation is maintained. (02970)

3.2.1.2.1 Continuity of aircraft separation service

The NAS shall ensure the continuity of aircraft separation services. (03200)

The NAS shall ensure continuous detection of aircraft-aircraft separation standards violations for current clearance-based trajectories. (24930)

The NAS shall transfer control responsibilities for a controlled aircraft from one jurisdiction to the next. (03150)

The NAS shall transfer control responsibilities for a controlled aircraft with no loss of separation services. (03160)

3.2.1.2.1.1 Continuity of aircraft collision avoidance service

The NAS shall support the collision avoidance capability on a continuous basis. (03110)

The NAS shall assure continuous assessment of aircraft collision risk. (24970)

3.2.1.2.2 Establish aircraft separation standards

The NAS shall establish aircraft minimum separation standards based on an aircraft's operational environment. (25100)

The NAS shall alert the specialists in sufficient time to allow them to take corrective actions to preclude breaches of separation standards. The NAS shall predict a possible

breach and alert specialists at least 80 seconds before the breach of separation occurs inside of, within 5 nautical miles of, and within 500 feet below or 500 feet above military Special Use Airspace. (19740)

The flight path projection shall be of sufficient lead-time to allow collision prediction, maneuver determination, ranking of alternatives, specialist analysis, and communications with the affected flight(s), flight crew reaction, and aircraft maneuvering. (19590)

The NAS shall project aircraft positions by look-ahead times that are sufficient to allow avoidance actions to be taken without causing further conflicts. (19580)

The NAS shall restrict the number of nuisance conflict alerts to no more than 6 percent of all alerts declared for any realistic traffic mix. (03610)

The NAS shall distinguish between designated functional category levels of altitude assignments on displays. (24710)

The NAS shall comply with separation standards for aircraft on simultaneous parallel runway approaches. (24480)

3.2.1.2.3 Separate aircraft operating under clearances

The NAS shall generate clearances that ensure appropriate separation for the type of aircraft flown. (02170)

The NAS shall generate flight plan clearances. (02610)

The NAS shall generate clearances that ensure appropriate separation of aircraft for the specific route of flight. (24870)

The NAS shall separate controlled aircraft on simultaneous parallel runway approaches. (24460)

The NAS shall detect actual compliance to simultaneous parallel approach runway separation standards by controlled aircraft. (24500)

The NAS shall detect aircraft-to-aircraft separation standards violations. (01920)

The NAS shall provide alternate clearances to participating aircraft to prevent aircraft-to-aircraft separation violation. (04390)

3.2.1.2.3.1 Separate aircraft within close proximity to military special use airspace.

The NAS shall provide aircraft-to-aircraft separation service to participating aircraft within close proximity to military special use airspace. (04320)

3.2.1.2.3.2 Inhibit separation between MARSA aircraft.

The NAS shall accept specialists request to inhibit aircraft-to-aircraft separation violation alerts between MARSA aircraft. (04470)

The NAS shall inhibit alerts associated with separation violations between military aircraft participating in the same Altitude Reservation (ALTRV) formation. (03090)

The NAS shall inhibit alerts associated with actual separation violations between military aircraft participating in the same Military Accepts Responsibility for Separation of Aircraft (MARSA) event. (03080)

The NAS shall inhibit aircraft-to-aircraft separation violation alerts between MARSA aircraft. (04480)

3.2.1.2.4 Monitor aircraft separation

The NAS shall detect all potential conflicts with an amended flight plans within a maximum time of 6.0 seconds of amendment validation. (02280)

The NAS shall detect all potential conflicts with an amended flight plans within a means time of 1.5 seconds of amendment validation. (23260)

The NAS shall detect all potential conflicts with an amended flight plans within the 99 percentile time of 3.0 seconds of amendment validation. (23270)

The NAS shall assess the risk of collision for all tracked aircraft irrespective of the surrounding airspace structure boundaries. (03100)

The NAS shall compare the flight path projection of each aircraft at least 20 minutes in advance of potential conflicts. (10500)

The NAS shall evaluate trial altitude reservations for potential conflicts with approved altitude reservations. (15830)

The NAS shall evaluate pending altitude reservations for potential conflicts with approved altitude reservations. (15840)

The NAS shall evaluate the potential for conflicts with other aircraft resulting from the execution of each resolution maneuver considered. (25240)

The NAS shall monitor participating aircraft within close proximity to special use airspace. (04310)

The NAS shall monitor all metering generated recommendations for aircraft conflicts. (09650)

The NAS shall display actual simultaneous parallel approach runway separation conformance information. (24510)

3.2.1.2.5 Detect violations of aircraft separation standards

The NAS shall detect violations of aircraft-aircraft separation standards for current clearance-based trajectories within predetermined time limits. (24940)

The NAS shall detect problems in the clearances of aircraft outside of independent surveillance coverage. (03390)

The NAS shall detect imminent collision threats between controlled aircraft and any other known aircraft. (03560)

3.2.1.2.5.1 Predicted violations of aircraft separation standards

The NAS shall detect potential violations of aircraft separation standards. (01940)

The NAS shall detect potential aircraft violations of separation standards. (24990)

The NAS shall detect potential violations of aircraft separation standards. (24910)

The NAS shall detect possible aircraft-to-aircraft separation violations by participating aircraft within close proximity to military special use airspace. (04330)

The NAS shall predict possible aircraft-to-aircraft separation violations by participating aircraft within close proximity to a military special use airspace based on the clearance-based trajectory. (04300)

The NAS shall predict possible aircraft-to-aircraft separation violations by participating aircraft within close proximity to military special use airspace based on actual flight information trajectory. (04370)

The NAS shall predict possible conflicts within a 20-minute look-ahead time along flight plan routes. (03010)

The NAS shall generate the time until aircraft violations of separation standards.
(03120)

3.2.1.2.5.2 Detect current violations of aircraft separation standards

The NAS shall detect actual violations of simultaneous parallel approach runway separation standards by controlled aircraft. (24490)

The NAS shall detect actual aircraft violations of separation standards. (24980)

The NAS shall detect current violations of aircraft separation standards. (02000)

3.2.1.2.6 Disseminate aircraft separation standards violation information

3.2.1.2.6.1 Disseminate predicted aircraft separation standards violations information

The NAS shall disseminate to specialists, the call sign of each positively identified aircraft for which a collision prediction is made. (25210)

The NAS shall disseminate the time until aircraft violations of separation standards.
(03130)

The NAS shall alert specialists when the projected flight path of a controlled aircraft and that of any other aircraft are predicted to have less than standard minimum separation.
(01910)

The NAS shall alert specialists to a potential loss of separation prior a violation of minimum separation standards. (25110)

The NAS shall alert specialists of detected violations of aircraft-aircraft separation standards. (01930)

The NAS shall alert responsible specialist immediately following the prediction of a potential collision. (25160)

The NAS shall alert specialists of imminent collisions within a mean response time of 0.6 seconds of the initial prediction. (03650)

The NAS shall alert specialists of an imminent collisions within a 99th percentile response time of 1.2 seconds of the initial prediction. (23280)

The NAS shall alert specialists of imminent collisions within a maximum response time of 3.0 seconds of the initial prediction. (23290)

The NAS shall alert specialists of predicted aircraft-to-aircraft separation violations by participating aircraft within close proximity to military special use airspace within 80 seconds of the actual violation. (04500)

The NAS shall notify all concerned specialist about actual aircraft violations of separation standards. (01960)

The NAS shall notify all concerned specialists about potential aircraft violations of separation standards. (01950)

The NAS shall display problems identified in alternate clearances to the requesting specialist. (02800)

3.2.1.2.6.1.1 Disseminate predicted en route aircraft separation standards violation information.

The NAS shall alert specialist of potential violations of aircraft separation standards in en route areas at least 80 seconds prior to the predicted event. (03030)

The NAS shall alert specialists of potential violations of aircraft separation standards in en route airspace volumes that are outside an immediate aerodrome area at least 80 seconds prior to the predicted event. (25120)

3.2.1.2.6.1.2 Disseminate predicted terminal airspace aircraft separation standards violation information.

The NAS shall alert specialist of potential violations of aircraft separation standards at least 30 seconds prior to the occurrence in terminal areas. (03040)

3.2.1.2.7 Resolve violations of separation standards

The NAS shall resolve problems in clearances of aircraft outside of independent surveillance coverage. (03420)

The NAS shall implement all conflict resolution process steps within the appropriate aircraft-position look-ahead intervals. (25140)

The NAS shall process trial flight plans. (03430)

The NAS shall generate alternate flight trajectories to resolve predicted violations of aircraft-to-aircraft separation standards. (24360)

The NAS shall generate alternate flight trajectories to resolve current violations to aircraft-to-airspace separation standards. (24370)

The NAS shall assist specialists in processing alternate clearances. (24350)

The NAS shall identify alternate clearances. (02350)

3.2.1.2.7.1 Evaluate aircraft conflict resolution alternatives

The NAS shall evaluate alternate flight trajectories for suitability to aircraft-to-aircraft separation standards. (24390)

The NAS shall evaluate the immediate threat of an imminent conflict to involved aircraft. (25230)

The NAS shall generate recommended conflict avoidance maneuvers based on the type of separation violation. (02020)

The NAS shall generate recommended conflict avoidance maneuvers based on the performance characteristics of the aircraft involved. (02030)

The NAS shall generate recommended conflict avoidance maneuvers based on the potential effects of the maneuvers on other aircraft in the system. (02040)

The NAS shall generate aircraft collision avoidance maneuvers. (02910)

The NAS shall generate resolution advisories that maintain standard separation for a minimum 2 minutes interval. (03840)

The NAS shall consider the imminence of conflict for aircraft involved in an imminent conflict. (03770)

The NAS shall consider the current maneuver status of aircraft involved in an imminent conflict. (03790)

The NAS shall consider the performance capabilities of aircraft involved in an imminent collision. (03780)

The NAS shall rank order possible maneuver(s) for each positively identified aircraft involved in a predicted collision. (03850)

The NAS shall be capable of assisting specialists in determining the impact of the avoidance actions and modifying the avoidance actions if required to maintain safe separation in the affected sectors. (19660)

The NAS shall evaluate aircraft maneuvers for collision avoidance for one or more aircraft upon prediction of a collision. (03700)

The NAS shall reject aircraft collision avoidance maneuvers that create new conflict situations. (25220)

3.2.1.2.7.2 Disseminate aircraft conflict resolution information

The NAS shall generate resolution advisories for aircraft in violation of aircraft-aircraft separation standards. (24950)

The NAS shall display resolutions identified in alternate clearances to the requesting specialist. (02810)

The NAS shall display the highest-ranking problem resolution to specialists for clearances problems of aircraft outside of independent surveillance. (03070)

The NAS shall display at least one recommended maneuvers for each aircraft involved a predicted collision. (03880)

The NAS shall select and display a recommended avoidance vector to specialist for aircraft in predicted conflicts within a maximum response time of 3.0 seconds of detection. (04960)

The NAS shall select and display a recommended avoidance vector to specialists for aircraft in predicted conflicts within a mean response time of 0.6 seconds of detection. (23300)

The NAS shall select and display a recommended avoidance vector to specialists for aircraft in predicted conflicts within a 99th percentile response time of 1.2 seconds of detection. (23310)

The NAS shall select and display recommended airspace avoidance maneuvers for aircraft predicted to penetrate special use airspace. (23320)

The NAS shall disseminate recommended collision avoidance maneuvers to users. (03690)

The NAS shall disseminate resolution advisories for aircraft in violation of aircraft-aircraft separation standards to specialists. (24960)

The NAS shall display recommended avoidance maneuvers to specialists within a mean response time of 0.6 seconds of the initial prediction of a collision. (03870)

The NAS shall display recommended avoidance maneuvers to specialists within a within a 99th percentile response time of 1.2 seconds of the initial prediction of a collision. (23330)

The NAS shall display recommended avoidance maneuvers to specialists within a maximum response time of 3.0 seconds of the initial prediction of a collision. (23340)

3.2.1.3 Monitor flight plan conformance

The NAS shall monitor clearance conformance of aircraft. (03370)

The NAS shall monitor adherence of aircraft to their clearances. (24860)

The NAS shall disseminate reminders to the specialist for each designated maneuver point in the current flight trajectory. (02430)

3.2.1.4 Detect flight plan non-conformance

The NAS shall alert specialists when a controlled aircraft's track position is outside of the preset altitude conformance bounds of its current flight trajectory model. (01880)

The NAS shall alert the specialist when a controlled aircraft's track position is outside of the preset conformance bounds of its clearance-based trajectory in the lateral direction.

(01890)

The NAS shall alert the specialist when a controlled aircraft's track position is outside of the preset lateral conformance bounds of its current clearance-based trajectory. (01870)

The NAS shall alert the specialist when a controlled aircraft's track position is outside of the preset conformance bounds of its clearance-based trajectory in the vertical direction.

(01900)

The NAS shall notify users of non-adherence to ATC clearance within 10 seconds of the detection of the deviation. (02010)

The NAS shall notify specialists when aircraft under their control deviate from their flight plan clearance by a prescribed amount. (26270)

3.2.1.5 Generate flight plan conformance resolutions

The NAS shall generate clearance re-conformance. (03380)

The NAS shall assist specialists in determining course correction necessary to reestablish lateral conformance of a controlled aircraft that have deviated from its cleared route of flight. (02420)

The NAS shall assist specialists in reestablishing clearance-based trajectory conformance when the predicted longitudinal position along the route differs from the current longitudinal position along the route by a predetermined amount. (02410)

The NAS shall notify users when their aircraft deviates from its flight plan clearance by a prescribed amount. (24850)

3.2.2 Aircraft-Terrain-Obstacle Separation

The NAS shall assist users in avoiding collisions with obstacles. (25250)

The NAS shall assist users in avoiding collisions with terrain. (25260)

The NAS shall assist users in avoiding collisions with the ground. (25270)

3.2.2.1 Maintain current terrain information

The NAS shall acquire ground elevation information for the continental U.S. in grid form, compliant with terrain, ground and obstacle information accuracy requirements.

(15310)

The NAS shall acquire ground information compliant with terrain, ground and obstacle information accuracy requirements. (25470)

The NAS shall acquire information about the ground throughout the area of NAS responsibility that is compliant with terrain, ground and obstacle information accuracy requirements. (25280)

The NAS shall acquire terrain elevation information compliant with terrain, ground and obstacle information accuracy requirements. (02590)

The NAS shall acquire terrain elevation information for the continental U.S. in grid form compliant with terrain, ground and obstacle information accuracy requirements.

(25380)

The NAS shall acquire terrain information compliant with terrain, ground and obstacle information accuracy requirements. (25480)

The NAS shall acquire information about terrain throughout the area of NAS responsibility compliant with terrain, ground and obstacle information accuracy requirements. (25300)

The NAS shall store information about the ground throughout the area of NAS responsibility compliant with terrain, ground and obstacle information accuracy requirements. (25290)

The NAS shall store ground elevation information for the continental U.S. in grid form compliant with terrain, ground and obstacle information accuracy requirements. (25360)

The NAS shall store ground information compliant with terrain, ground and obstacle information accuracy requirements. (25460)

The NAS shall store ground grid point elevation data compliant with terrain, ground and obstacle information accuracy requirements. (25410)

The NAS shall store information about terrain throughout the area of NAS responsibility compliant with terrain, ground and obstacle information accuracy requirements. (25310)

The NAS shall store terrain elevation data compliant with terrain, ground and obstacle information accuracy requirements. (25430)

The NAS shall store terrain elevation information for the continental U.S. in grid form compliant with terrain, ground and obstacle information accuracy requirements. (25390)

The NAS shall store terrain information compliant with terrain, ground and obstacle information accuracy requirements. (25490)

The NAS shall update information about the ground throughout the area of NAS responsibility compliant with terrain, ground and obstacle information accuracy requirements. (15290)

The NAS shall update ground elevation information for the continental U.S. in grid form compliant with terrain, ground and obstacle information accuracy requirements. (25370)

The NAS shall update ground grid point elevation data compliant with terrain, ground and obstacle information accuracy requirements. (25420)

The NAS shall update information about terrain throughout the area of NAS compliant with terrain, ground and obstacle information accuracy requirements. (25340)

The NAS shall update terrain elevation data compliant with terrain, ground and obstacle information accuracy requirements. (25440)

The NAS shall update terrain elevation information for the continental U.S. in grid form compliant with terrain, ground and obstacle information accuracy requirements. (25400)

3.2.2.2 Maintain current manmade obstacle information

The NAS shall acquire information on all man-made obstacles that are greater than 200 feet above the surrounding terrain, compliant with terrain, ground and obstacle information accuracy requirements. (15350)

The NAS shall acquire information about manmade obstacles throughout the area of NAS responsibility compliant with terrain, ground and obstacle information accuracy requirements. (25320)

The NAS shall acquire manmade obstacle information compliant with terrain, ground and obstacle information accuracy requirements. (25510)

The NAS shall store information on all man-made obstacles that are greater than 200 feet above the surrounding terrain compliant with terrain, ground and obstacle information accuracy requirements. (15320)

The NAS shall store manmade obstacle information compliant with terrain, ground and obstacle information accuracy requirements. (25500)

The NAS shall store information about manmade obstacles throughout the area of NAS responsibility compliant with terrain, ground and obstacle information accuracy requirements. (25330)

The NAS shall update information about manmade obstacles throughout the area of NAS compliant with terrain, ground and obstacle information accuracy requirements. (25350)

The NAS shall update information on all man-made obstacles that are greater than 200 feet above the surrounding terrain compliant with terrain, ground and obstacle information accuracy requirements. (25450)

3.2.2.3 Disseminate terrain information

The NAS shall filter ground information based on selected geographic areas. (25550)

The NAS shall filter ground information based on route of flight. (25540)

The NAS shall filter terrain information based on route of flight. (04030)

The NAS shall filter terrain information based on selected geographic areas. (04010)

The NAS shall disseminate ground information in a visual format to specialists including the minimum altitude required to clear the ground. (25620)

The NAS shall disseminate ground information compliant with terrain, ground and obstacle information accuracy requirements, to users upon request. (25520)

The NAS shall disseminate ground information compliant with terrain, ground and obstacle information accuracy requirements, to specialists upon request. (25530)

The NAS shall disseminate terrain information compliant with terrain, ground and obstacle information accuracy requirements, to users upon request. (03900)

The NAS shall disseminate terrain information compliant with terrain, ground and obstacle information accuracy requirements, to specialists upon request. (03970)

The NAS shall disseminate terrain information in a visual format to specialists including the minimum altitude required to clear terrain. (04060)

The NAS shall disseminate filtered ground information to specialists. (25600)

The NAS shall disseminate filtered ground information to users. (25570)

The NAS shall disseminate filtered terrain information to specialists. (25590)

The NAS shall disseminate filtered terrain information to users. (25560)

The NAS shall display current ground information from throughout the NAS coverage area. (24730)

The NAS shall display ground information that includes ground elevation from throughout the NAS airspace. (24760)

The NAS shall display ground information that includes landmark information from throughout the NAS airspace. (24770)

The NAS shall display terrain information that includes landmark information from throughout the NAS airspace. (24780)

The NAS shall display current terrain information from throughout the NAS coverage area. (02840)

The NAS shall display terrain information that includes terrain elevation from throughout the NAS. (02850)

The NAS shall display geographical structure information to within .26 nmi (99th percentile) of its actual position. (02880)

The NAS shall display geographic information. (02820)

3.2.2.4 Disseminate manmade obstacle information

The NAS shall disseminate manmade obstacle information compliant with terrain, ground and obstacle information accuracy requirements, to users upon request. (03940)

The NAS shall disseminate manmade obstacle information compliant with terrain, ground and obstacle information accuracy requirements, to specialists upon request. (03990)

The NAS shall disseminate manmade obstacle information in a visual format to specialists including the minimum altitude required to clear the obstacle. (25630)

The NAS shall disseminate filtered manmade obstacle information to users. (25580)

The NAS shall disseminate filtered manmade obstacle information to specialists. (25610)

The NAS shall filter manmade obstacle information based on route of flight. (04040)

The NAS shall filter manmade obstacle information based on selected geographic areas. (04020)

The NAS shall display current obstacle information from throughout the NAS coverage area. (24750)

The NAS shall display information about obstacles that affect minimum IFR vectoring altitudes. (24790)

The NAS shall display information about obstacles that constitute a hazard to aviation. (02860)

The NAS shall display aircraft position information in relation to displayed geographical structure information. (02890)

3.2.2.5 Ensure continuity of aircraft-to-terrain/obstacle separation service

The NAS shall ensure continuous detection of aircraft-ground separation standards violations. (26240)

The NAS shall ensure continuous detection of aircraft-terrain separation standards violations. (26250)

The NAS shall ensure continuous detection of aircraft-obstacle separation standards violations. (26260)

3.2.2.6 Establish aircraft separation standards from fixed obstructions

The NAS shall establish minimum en route safe altitudes for participating aircraft with flight plan clearances. (29620)

The NAS shall establish minimum safe altitudes in proximity to airport approach area for participating aircraft with flight plan clearances. (29630)

The NAS shall establish minimum safe altitudes for participating aircraft in airport departure areas. (29640)

The NAS shall predict aircraft encounters with manmade obstacles in time to prevent actual aircraft-obstacle separation violations. (25660)

3.2.2.7 Detect violations of terrain/obstacle separation standards

The NAS shall use current data on the altitude of terrain within the area of NAS responsibility to determine proximity of aircraft to terrain and obstacles. (04920)

The NAS shall use current data on the altitude of obstructions within the area of NAS responsibility to determine proximity of aircraft to terrain and obstacles. (04930)

3.2.2.7.1 Predict violations of aircraft-to-terrain/obstacle separation standards

The NAS shall predict aircraft encounters with the ground in time to prevent actual aircraft-ground separation violations. (25650)

The NAS shall predict aircraft encounters with terrain in time to prevent actual aircraft-terrain separation violations. (25640)

The NAS shall predict aircraft- ground separation standards violations based on current clearance based trajectories. (25740)

The NAS shall predict aircraft- terrain separation standards violations based on current clearance based trajectories. (25730)

The NAS shall predict aircraft- obstacle separation standards violations based on current clearance based trajectories. (25750)

The NAS shall predict aircraft- terrain separation standards violations based on imminent trajectories. (25760)

The NAS shall predict aircraft - ground separation standards violations based on imminent trajectories. (25770)

The NAS shall predict aircraft-obstacle separation standards violations based on imminent trajectories. (25780)

3.2.2.7.1.1 Predict violations of aircraft-to-terrain/obstacle separation standards in terminal airspace.

The NAS shall predict aircraft encounters with the ground in terminal airspace in advance of the actual violation of separation standards. (25670)

The NAS shall predict aircraft encounters with terrain in terminal airspace in advance of the actual violation of separation standards. (25680)

The NAS shall predict manmade obstacle encounters in terminal airspace in advance of the actual violation of separation standards. (25690)

3.2.2.7.1.2 Predict violations of aircraft-to-terrain/obstacle separation in en route airspace.

The NAS shall predict aircraft encounters with the ground in en route airspace in advance of the actual violation of separation standards. (25700)

The NAS shall predict aircraft encounters with terrain in en route airspace in advance of the actual violation of separation standards. (25710)

The NAS shall predict aircraft encounters with manmade obstacle in en route airspace in advance of the actual violation of separation standards. (25720)

3.2.2.7.2 Detect current violations of aircraft-to-terrain/obstacle separation standards in en route airspace.

The NAS shall detect aircraft failures to maintain minimum safe altitude above the ground. (24890)

3.2.2.7.3 Disseminate information on violations of aircraft-to-terrain/obstacle separation standards

The NAS shall alert users to predicted aircraft-ground separation standards violations. (25820)

The NAS shall alert users to predicted aircraft - terrain separation standards violations. (25830)

The NAS shall alert users to predicted aircraft -obstacle separation standards violations. (25840)

The NAS shall alert participating aircraft to predicted conflicts with obstructions within 10 seconds of prediction. (09170)

The NAS shall alert specialists to predicted aircraft - terrain separation standards violations. (25860)

The NAS shall alert specialists to predicted aircraft - ground separation standards violations. (25850)

The NAS shall alert specialists to predicted aircraft - obstacle separation standards violations. (25870)

The NAS shall disseminate aircraft identification with predicted aircraft- ground separation standards violation alerts. (26000)

The NAS shall disseminate aircraft identification with predicted aircraft - terrain separation standards violation alerts. (26010)

The NAS shall disseminate aircraft identification with predicted aircraft - obstacle separation standards violation alerts. (26020)

The NAS shall indicate the action priority of the alarm associated with predicted aircraft - ground separation standards violations. (26030)

The NAS shall indicate the action priority of the alarm associated with predicted aircraft - obstacle separation standards violations. (26050)

The NAS shall indicate the action priority of the alarm associated with predicted aircraft - terrain separation standards violations. (26040)

3.2.2.7.3.1 Disseminate information on violations of aircraft-to-terrain/obstacle separation standards in terminal airspace

The NAS shall alert users of predicted aircraft-ground separation standards violations in terminal airspace at least 30 seconds in advance of the actual violation of separation standards. (26060)

The NAS shall alert users of predicted aircraft- terrain separation standards violations in terminal airspace at least 30 seconds in advance of the actual violation of separation standards. (26070)

The NAS shall alert users of predicted aircraft-obstacle separation standards violations in terminal airspace at least 30 seconds in advance of the actual violation of separation standards. (26080)

The NAS shall alert appropriate specialists of predicted aircraft- ground separation standards violations in terminal airspace at least 40 seconds in advance of the actual violation of separation standards. (25880)

The NAS shall alert appropriate specialists of predicted aircraft-terrain separation standards violations in terminal airspace at least 40 seconds in advance of the actual violation of separation standards. (25890)

The NAS shall alert appropriate specialists of predicted aircraft-obstacle separation standards violations in terminal airspace at least 40 seconds in advance of the actual violation of separation standards. (25900)

3.2.2.7.3.2 Disseminate information on violations of aircraft-to-terrain/obstacle separation standards in en route airspace.

The NAS shall alert users of predicted aircraft-ground separation standards violations in en route airspace at least 30 seconds in advance of the actual violation of separation standards. (26090)
(26090)

The NAS shall alert users of predicted aircraft-terrain separation standards violations in en route airspace at least 65 seconds in advance of the actual violation of separation standards. (26100)

The NAS shall alert users of predicted aircraft-obstacle separation standards violations in en route airspace at least 65 seconds in advance of the actual violation of separation standards. (26110)

The NAS shall alert appropriate specialists of predicted aircraft-ground separation standards violations in en route airspace at least 75 seconds in advance of the actual violation of separation standards. (25910)

The NAS shall alert appropriate specialists of predicted aircraft- terrain separation standards violations in en route airspace at least 75 seconds in advance of the actual violation of separation standards. (25920)

The NAS shall alert appropriate specialists of predicted aircraft-obstacle separation standards violations in en route airspace at least 75 seconds in advance of the actual violation of separation standards. (25930)

3.2.2.7.4 Generate resolutions to aircraft-to-terrain/obstacle separation violations

The NAS shall evaluate alternate clearance-based trajectories for potential aircraft-ground separation standards violations. (25790)

The NAS shall evaluate alternate clearance-based trajectories for potential aircraft - terrain separation standards violations. (25800)

The NAS shall evaluate alternate clearance-based trajectories for potential aircraft - obstacle separation standards violations. (25810)

The NAS shall consider local environment when generating avoidance maneuvers for predicted aircraft-ground separation standards violations. (26150)

The NAS shall consider local environment when generating avoidance maneuvers for aircraft-terrain separation standards violations. (26160)

The NAS shall consider local environment when generating avoidance maneuvers for predicted aircraft-obstacle separation standards violations. (26170)

The NAS shall generate aircraft maneuvers to avoid predicted aircraft-ground separation standards violations. (26120)

The NAS shall generate aircraft maneuvers to avoid predicted aircraft-terrain separation standards violations. (26130)

The NAS shall generate aircraft maneuvers to avoid predicted aircraft-obstacle separation standards violations. (26140)

3.2.2.7.5 Disseminate resolutions to aircraft-to-terrain/obstacle separation violations

The NAS shall disseminate one or more recommended avoidance maneuver scenarios to specialists, for any aircraft predicted to violate aircraft-ground separation standards. (26180)

The NAS shall disseminate one or more recommended avoidance maneuver scenarios to specialists, for aircraft predicted to violation aircraft-terrain separation standards. (26190)

The NAS shall disseminate one or more recommended avoidance maneuver scenarios to specialists, for aircraft predicted to violate aircraft-obstacle separation standards. (26200)

The NAS shall disseminate recommended separation violation avoidance maneuver to specialists, within 5 seconds of a predicted violation of aircraft-ground separation standard. (26210)

The NAS shall disseminate recommended separation violation avoidance maneuvers to specialists within 5 seconds of a predicted violation of aircraft-terrain separation standards. (26220)

The NAS shall disseminate recommended separation violation avoidance maneuvers to specialists within 5 second of a predicted violation of aircraft-obstacle separation standards. (26230)

3.2.3 Aircraft-to-Airspace Separation

3.2.3.1 Disseminate airspace structure information

The NAS shall display current special use airspace information from throughout the NAS coverage area. (24740)

3.2.3.2 Monitor aircraft in close proximity to unauthorized airspace

The NAS shall monitor all metering generated recommendations for aircraft to airspace conflicts. (09660)

The NAS shall notify the controller when known traffic approaches special use airspace. (05020)

3.2.3.3 Predict aircraft-to-airspace separation violations

The NAS shall analyze sequencing and spacing plans for aircraft intrusion into special use airspace. (10050)

The NAS shall predict a possible breach of separation standards with Military Special Use Airspace no less than 80 seconds before the breach occurs. (22360)

The NAS shall detect aircraft intrusion into special use airspace. (24880)

The NAS shall detect current clearance-based trajectories that are in noncompliance with airspace restrictions. (22040)

The NAS shall notify specialists of the time at which an aircraft is predicted to enter controlled airspace. (03180)

3.2.3.4 Disseminate information on airspace separation violations

3.2.3.4.1 Disseminate information on predicted airspace separation violations

The NAS shall alert receiving specialist that a tracked aircraft is within a system-adapted time from the specialist's airspace. (25000)

The NAS shall alert receiving specialist that a tracked aircraft is within a system-adapted distance from the specialist's airspace. (25010)

The NAS shall alert participating aircraft to predicted conflicts with special use airspace within 10 seconds of prediction. (09180)

3.2.3.5 Resolve airspace separation violations

The NAS shall transfer track control upon acknowledgment by the receiving controller of acceptance of the transfer of control. (03190)

The NAS shall evaluate alternate flight trajectories for compliance to aircraft-to-airspace separation standards. (24380)

The NAS shall evaluate alternate flight trajectories for suitability to aircraft-to-airspace separation standards. (24400)

3.2.3.5.1 Resolve airspace separation violation by military aircraft.

The NAS shall disseminate altitude alternatives to military mission planners for resolution of possible airspace conflicts. (16240)

The NAS shall evaluate altitude alternatives to resolve possible airspace conflicts among military operations. (16230)

The NAS shall disseminate departure time alternatives to military mission planners for resolution of possible airspace conflicts. (16260)

The NAS shall evaluate departure time alternatives to resolve possible airspace conflicts among military operations. (16250)

The NAS shall disseminate route of flight alternatives to military mission planners for resolution of possible airspace conflicts. (16220)

The NAS shall evaluate route of flight alternatives to resolve possible airspace conflicts among military operations. (16210)

3.2.4 Surface Separation

The NAS shall filter airport display information at designated aerodromes based controller request. (04790)

3.2.4.1 Fixed objects on airport surfaces

The NAS shall use map outlines of runways that are accurate to within 12 feet of the actual edges of the runways. (04800)

The NAS shall use map outlines of taxiways that are accurate to within 12 feet of the actual edges of the taxiways. (04810)

The NAS shall disseminate taxiway area outlines to specialists. (24810)

The NAS shall disseminate runway area outlines to specialists. (24820)

The NAS shall disseminate landing area outlines to specialists. (24800)

3.2.4.2 Moving objects on airport surfaces

The NAS shall establish independent surveillance environments covering all surface movement areas of aerodromes. (04640)

3.2.4.2.1 Collect information on surface vehicles

The NAS shall identify vehicles on airport movement areas at designated aerodromes within specified weather conditions. (04570)

The NAS shall determine the position of vehicles on airport movement areas at designated aerodromes within specified weather conditions. (04590)

The NAS shall store vehicle movement information for movement areas at designated aerodromes. (04610)

The NAS shall update vehicle movement information for movement areas at designated aerodromes. (04620)

The NAS shall distinguish classes of vehicles on aerodrome surface when they are separated by 40 feet in range, or 80 feet in azimuth at a range of up to 12,000 feet. (04660)

3.2.4.2.2 Disseminate information on surface vehicles

The NAS shall disseminate vehicle movement information for movement areas at designated aerodromes. (04630)

The NAS shall display position data for vehicles on airport movement areas at designated aerodromes. (04770)

The NAS shall display alphanumeric data with the position of vehicles at designated aerodromes. (04750)

The NAS shall display the position of any vehicle to within 20 feet of its actual position on the airport movement areas of designated aerodromes. (04670)

3.2.4.2.3 Collect information on aircraft on airport surface

The NAS shall determine the position of aircraft on airport movement areas at designated aerodromes within specified weather conditions. (04580)

The NAS shall detect all aircraft on movement areas at designated aerodromes in conditions up to 16 millimeters of precipitation per hour. (04600)

The NAS shall identify aircraft on airport movement areas at designated aerodromes within specific weather conditions. (04560)

3.2.4.2.4 Disseminate information about aircraft on airport surface

The NAS shall display alphanumeric data with the position of an aircraft at designated aerodromes. (04740)

The NAS shall display the position of any aircraft to within 20 feet of its actual position on the airport movement areas of designated aerodromes. (04670)

The NAS shall display position data for aircraft on airport movement areas at designated aerodromes. (04760)

The NAS shall display aircraft position and related data in relation to map outline data for the airport movement area at designated aerodromes. (04780)

The NAS shall distinguish classes of aircraft on aerodrome surface when they are separated by 40 feet in range, or 80 feet in azimuth at a range of up to 12,000 feet. (04650)

3.2.4.2.5 Separate aircraft from surface obstacles

The NAS shall separate aircraft from other aircraft on the movement areas of designated aerodromes in all weather conditions. (04530)

The NAS shall separate aircraft from vehicles on the movement areas of designated aerodromes in all weather conditions. (04540)

The NAS shall separate aircraft from obstacles on the movement areas of designated aerodromes in all weather conditions. (04550)

3.3 ATC-Advisories

3.3.1 Weather Advisories

3.3.1.1 Provide Weather Information

The NAS shall provide weather information. (30240)

The NAS shall provide forecast weather information in a compatible form to the systems performing the projection function. (27060)

The NAS shall provide current weather information in a compatible form to the systems performing the projection function. (19520)

The NAS shall provide forecast weather for trajectory development within 30 seconds of weather-product delivery to the NAS. (19510)

The NAS shall have the capability for the specialist to independently select at least 6 levels of precipitation. (27040)

The NAS shall provide flexible and convenient access to required weather information to users. (19380)

3.3.1.1.1 Acquire Weather Information

3.3.1.1.1.1 Detect Weather

The NAS shall detect non-convective turbulence. (05420)

3.3.1.1.1.1.1 Detect the presence of wind shear

The NAS shall detect the presence of wind shear within terminal areas. (08490)

The NAS shall acquire surface wind speed within terminal areas. (08500)

The NAS shall acquire surface wind direction within terminal areas. (08510)

The NAS shall acquire wind gust information within terminal areas. (08520)

The NAS shall update surface wind speed within terminal areas. (08530)

The NAS shall update surface wind direction within terminal areas. (08540)

The NAS shall update wind gust information within terminal areas. (08550)

The NAS shall store surface wind speed within terminal areas. (08560)

The NAS shall store surface wind direction within terminal areas. (08570)

The NAS shall store wind gust information within terminal areas. (08580)

The NAS shall retrieve surface wind speed within terminal areas. (08590)

The NAS shall retrieve surface wind direction within terminal areas. (08600)

The NAS shall retrieve wind gust information within terminal areas. (08610)

The NAS shall disseminate surface wind speed within terminal areas. (08620)

The NAS shall disseminate surface wind direction within terminal areas. (08630)

The NAS shall disseminate wind gust information within terminal areas. (08640)

The NAS shall display surface wind speed within terminal areas. (22880)

The NAS shall display surface wind direction within terminal areas. (22890)

3.3.1.1.1.1.2 Identify weather hazardous to aviation

The NAS shall identify those weather conditions that are potentially hazardous to aviation. (06270)

3.3.1.1.1.2 General Weather**3.3.1.1.1.2.1 Acquiring and maintaining weather information**

The NAS shall acquire weather information covering the airspace delegated to the United States for the provision of Air Traffic Control (ATC) (US delegated airspace). (05050)

The NAS shall store weather information covering US delegated airspace. (05060)

The NAS shall archive weather information covering US delegated airspace. (05070)

The NAS shall update weather information covering US delegated airspace. (05080)

The NAS shall retrieve weather information covering US delegated airspace. (05090)

3.3.1.1.1.2.2 Acquire weather for the entire NAS airspace

The NAS shall acquire information on the presence of hazardous weather in a defined airspace. (08120)

The NAS shall acquire hazardous weather information for the terminal area. (06960)

The NAS shall acquire current weather data for the airspace delegated to the NAS geographic and oceanic area. (07700)

The NAS shall store current weather data for the airspace delegated to the NAS geographic and oceanic area. (07710)

The NAS shall disseminate current weather data for the airspace delegated to the NAS geographic and oceanic area. (07720)

The NAS shall acquire forecast weather data for the airspace delegated to the NAS geographic and oceanic area. (07730)

The NAS shall store forecast weather data for the airspace delegated to the NAS geographic and oceanic area. (07740)

The NAS shall disseminate forecast weather data for the airspace delegated to the NAS geographic and oceanic area. (07750)

3.3.1.1.1.2.3 Acquire graphical weather information

The NAS shall acquire graphical weather information. (06320)

The NAS shall disseminate graphical weather information to ground users. (06300)

The NAS shall disseminate graphical weather information to airborne users. (06310)

The NAS shall store graphical weather information. (06330)

The NAS shall update graphical weather information. (06340)

The NAS shall retrieve graphical weather information. (06350)

The NAS shall disseminate graphical weather information to specialists. (06360)

The NAS shall disseminate graphical weather information to meteorologists. (06370)

The NAS shall acquire time-sequenced animated graphical weather information. (06380)

The NAS shall store time-sequenced animated graphical weather information. (06390)

The NAS shall update time-sequenced animated graphical weather information. (06400)

The NAS shall retrieve time-sequenced animated graphical weather information. (06410)

The NAS shall present time-sequenced animated graphical weather information to specialists. (06420)

The NAS shall present time-sequenced animated graphical weather information to meteorologists. (06430)

The NAS shall overlay graphical weather products for analysis by specialists. (06440)

The NAS shall retrieve specialist annotations to graphical weather products. (06450)

The NAS shall display specialist annotations to graphical weather products. (06460)

The NAS shall overlay graphical weather products for analysis by meteorologists. (06470)

The NAS shall acquire specialist annotations to graphical weather products. (06480)

The NAS shall store specialist annotations to graphical weather products. (06490)

The NAS shall update specialist annotations to graphical weather products. (06500)

3.3.1.1.2.4 Acquire trend weather information

The NAS shall determine trend surface observation weather information for the past 3 hours. (05620)

The NAS shall store trend weather information for weather conditions aloft for the past 3 hours. (05630)

The NAS shall update trend weather information for weather conditions aloft for the past 3 hours. (05640)

The NAS shall retrieve trend weather information for weather conditions aloft for the past 3 hours. (05650)

3.3.1.1.3 International Weather

3.3.1.1.3.1 Acquire international weather for flow control use

The NAS shall acquire forecast international weather data for flow control use. (07630)

The NAS shall store forecast international weather data for flow control use. (07640)

The NAS shall disseminate forecast international weather data to local traffic management coordinators. (07650)

3.3.1.1.3.2 Acquire foreign terminal forecasts at major international aerodromes

The NAS shall acquire general foreign forecast weather data. (22820)

The NAS shall acquire general foreign current weather data. (22830)

The NAS shall store general foreign forecast weather data. (22840)

The NAS shall store general foreign current weather data. (22850)

The NAS shall disseminate general foreign forecast weather data. (22860)

The NAS shall disseminate general foreign current weather data. (22870)

3.3.1.1.3.3 Acquire Weather information bordering US airspace

The NAS shall acquire weather information for areas bordering delegated U.S. airspace. (05100)

The NAS shall store weather information for areas bordering delegated U.S. airspace. (05110)

The NAS shall update weather information for areas bordering delegated U.S. airspace. (05120)

The NAS shall retrieve weather information for areas bordering delegated U.S. airspace. (05130)

The NAS shall acquire current weather information from designated public and private sources. (05140)

3.3.1.1.1.4 Forecast Weather

3.3.1.1.1.4.1 Acquire terminal forecast weather

The NAS shall acquire terminal aerodrome forecast (TAF) weather information for designated terminals. (05660)

The NAS shall store terminal aerodrome forecast weather information for designated terminals. (05670)

The NAS shall update terminal aerodrome forecast weather information for designated terminals. (05680)

The NAS shall update terminal weather forecasts at least once every 6 hours. (05810)

The NAS shall acquire Terminal Aerodrome Forecasts (TAFs) that cover a 24 hour forecast period. (05820)

3.3.1.1.1.4.2 Acquire area forecast weather

The NAS shall acquire area forecast weather information. (05690)

The NAS shall update area forecasts at least once every 12 hours. (05830)

The NAS shall acquire area forecasts that cover a 24 hour area forecast period. (05840)

The NAS shall store area forecast weather information. (05700)

The NAS shall update area forecast weather information. (05710)

The NAS shall acquire winds aloft forecast weather information. (05720)

The NAS shall store winds aloft forecast weather information. (05730)

The NAS shall update winds aloft forecast weather information. (05740)

The NAS shall forecast non-convective turbulence for a 6-hour period. (05430)

3.3.1.1.1.4.3 Acquire near term (4 to 12 hours) forecasts

The NAS shall acquire near term (4 to 12 hours) forecasts.

The NAS shall acquire near term (4 to 12 hours) forecasts specific to a designated volume of airspace. (05970)

The NAS shall store near term (4 to 12 hours) forecasts specific to a designated volume of airspace. (05980)

The NAS shall update near term (4 to 12 hours) forecasts specific to a designated volume of airspace. (05990)

The NAS shall retrieve near term (4 to 12 hours) forecasts specific to a designated volume of airspace. (06000)

The NAS shall disseminate near term (4 to 12 hours) forecasts specific to a designated volume of airspace. (06010)

The NAS shall display near term (4 to 12 hours) forecasts specific to a designated volume of airspace. (06020)

The NAS shall disseminate special 4 to 12 hour forecasts to local traffic management coordinators. (07880)

3.3.1.1.1.4.4 Acquire forecast weather from public and private sources

The NAS shall acquire forecast weather information from designated public and private sources. (05150)

The NAS shall acquire weather conditions aloft for all U.S. delegated airspace. (05410)

The NAS shall acquire surface aviation weather observations, hourly. (05160)

The NAS shall store surface aviation weather observations. (05170)

The NAS shall update surface aviation weather observations upon receipt of new data. (05180)

The NAS shall retrieve surface aviation weather observations. (05190)

3.3.1.1.1.5 Surface Weather**3.3.1.1.1.5.1 Acquiring surface aviation weather**

The NAS shall automatically acquire selected elements of surface aviation weather observation data at designated aerodromes. (05200)

The NAS shall automatically calculate elements of surface aviation weather observation data at designated aerodromes. (05210)

The NAS shall monitor surface weather conditions for designated aerodromes. (07940)

The NAS shall accept surface aviation weather observation data entered by qualified specialists at designated aerodromes. (05220)

The NAS shall disseminate surface aviation weather observation data. (05230)

The NAS shall display surface aviation weather observation data to specialists. (05240)

The NAS shall consider surface weather conditions in calculating runway capacity projection at designated aerodromes. (07950)

The NAS shall update automated weather observations once per hour. (05250)

The NAS shall update automated weather observations upon receipt of a significant change to the current observations. (05260)

The NAS shall disseminate automated weather observations once per minute to designated interfaces. (05270)

The NAS shall display automated weather observations. (05280)

3.3.1.1.1.5.2 Acquire Special surface weather observations

The NAS shall acquire special surface weather observations (SPECIs). (05290)

The NAS shall display SPECIs. (05330)

The NAS shall disseminate SPECIs to designated interfaces. (05320)

The NAS shall update SPECIs. (05310)

The NAS shall store SPECIs. (05300)

3.3.1.1.1.5.3 Acquire Runway visibility measurements

The NAS shall acquire runway visibility measurements for designated runways with precision approach procedures. (05340)

The NAS shall store runway visibility measurements for designated runways with precision approach procedures. (05350)

The NAS shall archive runway visibility measurements for designated runways with precision approach procedures. (05360)

The NAS shall update runway visibility measurements for designated runways with precision approach procedures. (05370)

The NAS shall retrieve runway visibility measurements for designated runways with precision approach procedures. (05380)

The NAS shall disseminate runway visibility measurements for designated runways with precision approach procedures. (05390)

The NAS shall display runway visibility measurements for designated runways with precision approach procedures. (05400)

3.3.1.1.1.6 Weather Aloft

The NAS shall monitor winds aloft for designated aerodromes. (09760)

The NAS shall update ARTCC weather conditions aloft every 5 minutes. (05460)

The NAS shall update forecast models of weather conditions aloft. (05470)

The NAS shall provide accurate weather information such as temperatures aloft to support flight path prediction. (27050)

The NAS shall provide accurate weather information such as real-time winds and temperatures aloft to support flight path prediction. (19500)

3.3.1.1.1.7 Predict Weather

3.3.1.1.1.7.1 Predict storm cells for a forecast period of time

The NAS shall predict the development and movement of storm cells for a forecast period of 6 hours. (06030)

The NAS shall update storm cell predictions every 5 minutes. (06040)

The NAS shall acquire the location of storm cells. (06050)

The NAS shall store the location of storm cells. (06060)

The NAS shall update the location of storm cells. (06070)

The NAS shall archive the location of storm cells. (06080)

The NAS shall retrieve the location of storm cells. (06090)

3.3.1.1.1.7.2 Predict movement of gust fronts

The NAS shall predict the movement of gust fronts for a forecast period of 6 hours. (06100)

The NAS shall update gust front predictions every 5 minutes. (06110)

The NAS shall acquire the location of gust fronts. (06120)

The NAS shall store the location of gust fronts. (06130)

The NAS shall update the location of gust fronts. (06140)

The NAS shall archive the location of gust fronts. (06150)

The NAS shall retrieve the location of gust fronts. (06160)

3.3.1.1.1.8 Acquire intensity levels of weather

The NAS shall acquire intensity levels of weather. (08210)

The NAS shall store intensity levels of weather. (08220)

The NAS shall update intensity levels of weather. (08230)

The NAS shall retrieve intensity levels of weather. (08240)

The NAS shall disseminate intensity levels of weather by route of flight to specialists.
(08250)

The NAS shall disseminate intensity levels of weather by route of flight to users.
(08260)

The NAS shall display intensity levels of weather by route of flight to specialists.
(08270)

The NAS shall display intensity levels of weather by route of flight to users. (08280)

The NAS shall disseminate intensity levels of weather by geographic area to specialists.
(08290)

The NAS shall disseminate intensity levels of weather by geographic area to users.
(08300)

The NAS shall display intensity levels of weather by geographic area to users. (08310)

The NAS shall display intensity levels of weather by geographic area to specialists.
(08320)

3.3.1.1.1.9 Acquire Pilot Reports

The NAS shall acquire pilot reports (PIREP). (05530)

The NAS shall store pilot reports (PIREP). (05540)

The NAS shall update pilot reports (PIREP). (05550)

The NAS shall acquire pilot reports (PIREP) from pilots on the ground. (05560)

The NAS shall acquire pilot reports (PIREP) from airborne pilots. (05570)

The NAS shall acquire pilot reports (PIREP) from airline dispatch offices. (05580)

The NAS shall retrieve pilot reports (PIREP) by planned routes of flight. (05590)

The NAS shall retrieve pilot reports (PIREP) by planned altitudes of flight. (05600)

The NAS shall retrieve pilot reports (PIREP) by local area. (05610)

3.3.1.1.1.10 Acquire Unscheduled Short-Term Advisory Weather Information

The NAS shall acquire unscheduled short-term advisory weather information. (05750)

The NAS shall store unscheduled short-term advisory weather information. (05760)

The NAS shall update unscheduled short-term advisory weather information. (05770)

The NAS shall acquire unscheduled short-term forecast weather information. (05780)

The NAS shall store unscheduled short-term forecast weather information. (05790)

The NAS shall update unscheduled short-term forecast weather information. (05800)

The NAS shall acquire short-term (up to 2 hours) forecasts specific to a designated volume of airspace. (05900)

The NAS shall store short-term (up to 2 hours) forecasts specific to a designated volume of airspace. (05910)

The NAS shall update short-term (up to 2 hours) forecasts specific to a designated volume of airspace. (05920)

The NAS shall archive short-term (up to 2 hours) forecasts specific to a designated volume of airspace. (05930)

The NAS shall retrieve short-term (up to 2 hours) forecasts specific to a designated volume of airspace. (05940)

The NAS shall disseminate short-term (up to 2 hours) forecasts specific to a designated volume of airspace. (05950)

The NAS shall display short-term (up to 2 hours) forecasts specific to a designated volume of airspace. (05960)

The NAS shall disseminate wind information using a pre-defined format. (06510)

The NAS shall disseminate temperature information using a pre-defined format. (06520)

The NAS shall disseminate precipitation weather information using a pre-defined format. (06530)

The NAS shall disseminate cloud cover information in accordance with FAA Order 7900.5 or FMH-1. (06540)

The NAS shall disseminate weather information for a geographical area specified. (06550)

The NAS shall disseminate horizontal depictions of weather conditions. (06560)

The NAS shall disseminate vertical depictions of weather conditions. (06570)

The NAS shall acquire current domestic weather data for flow control use. (07510)

The NAS shall store current domestic weather data for flow control use. (07530)

The NAS shall disseminate current domestic weather data to local traffic management coordinators. (07540)

The NAS shall disseminate current domestic weather data to traffic management specialists. (07550)

The NAS shall acquire forecast domestic weather data for flow control use. (07560)

The NAS shall store forecast domestic weather data to local traffic management coordinators. (07570)

The NAS shall disseminate forecast domestic weather data to traffic management specialists. (07580)

The NAS shall disseminate forecast domestic weather data for flow control use. (07590)

The NAS shall disseminate 24 hour weather forecasts. (07690)

The NAS shall broadcast the current information on hazardous weather conditions via communications media in use by NAS facilities and aircraft in flight. (09390)

The NAS shall disseminate selected weather information directly to appropriately equipped aircraft. (09420)

The NAS shall accept requests for weather information from airborne aircraft via voice. (09540)

The NAS shall accept requests for weather information from airborne aircraft via data link communications. (09550)

The NAS shall acquire weather data for the NAS geographic area. (11320)

The NAS shall acquire weather data for the entire NAS oceanic area. (11330)

The NAS shall acquire weather data for the selected major international aerodromes (11340)

The NAS shall distribute graphical 24 hours forecast data to the local Traffic Management Coordinators. (11400)

The NAS shall distribute graphical 24 hours Terminal forecast data to the local Traffic Management Coordinators. (11410)

The NAS shall distribute forecast updates every four hours to the local the Traffic Management Coordinators. (11420)

The NAS shall acquire satellite-generated environmental data (11430)

The NAS shall store satellite-generated environmental data. (11440)

The NAS shall distribute satellite-generated environmental data to the ATCSCC no less than every 30 minutes. (11450)

The NAS shall acquire national weather radar mosaic data. (11460)

The NAS shall store national weather radar mosaic data. (11470)

The NAS shall distribute national weather radar mosaic data to the ATCSCC every 10 minutes or upon request. (11480)

The NAS shall distribute ARTCC related weather products to the ATCSCC specialist. (11490)

The NAS shall archive surface aviation weather observations. (12260)

3.3.1.1.2 Disseminate Weather Information

3.3.1.1.2.1 Disseminate international weather data

The NAS shall disseminate forecast international weather data to traffic management specialists. (07660)

The NAS shall acquire current weather data at major international aerodromes. (07820)

The NAS shall store current weather data at major international aerodromes. (07830)

The NAS shall disseminate current weather data at major international aerodromes. (07840)

The NAS shall acquire forecast weather data for major international aerodromes. (07850)

The NAS shall store forecast weather data for major international aerodromes. (07860)

The NAS shall disseminate forecast weather data for major international aerodromes. (07870)

3.3.1.1.2.2 Disseminate requested weather information to specialists

The NAS shall disseminate requested current weather information to specialists within a means response time of 3.0 seconds of the request. (07670)

The NAS shall disseminate requested current weather data to specialists within a 99th percentile response time of 5.0 seconds of the request. (23450)

The NAS shall disseminate requested current weather data to specialists within a maximum response time of 10.0 seconds of the request. (23460)

The NAS shall disseminate requested forecast weather data to specialists within a means response time of 3.0 seconds of the request. (07680)

The NAS shall disseminate requested forecast weather data to specialists within a 99th percentile response time of 5.0 seconds of the request. (23470)

The NAS shall disseminate requested forecast weather data to specialists within a maximum response time of 10.0 seconds of the request. (23480)

3.3.1.1.2.3 Disseminate updated aerodrome and terminal weather information using media accessible to aircraft in flight

The NAS shall broadcast the latest approved aerodrome conditions on communications media accessible by aircraft in flight. (09330)

The NAS shall broadcast the latest approved aerodrome conditions on communications media accessible by aircraft on the ground. (09340)

The NAS shall broadcast the latest approved terminal area conditions on communications media accessible by aircraft in flight. (09350)

The NAS shall broadcast the latest approved terminal area conditions on communications media accessible by aircraft on the ground. (09360)

The NAS shall respond to user requests for weather information from NAS facilities through common carrier communications networks. (09370)

The NAS shall respond to specialist requests for weather information from NAS facilities through common carrier communications networks. (09380)

3.3.1.1.2.4 Disseminate weather directly to pilots

The NAS shall disseminate weather advisories via direct specialist to pilot communications. (09290)

The NAS shall disseminate weather advisories to users in response to a request. (09300)

The NAS shall disseminate weather advisory information at designated general aviation aerodromes with instrument approach procedures and terminal areas 7 days per week. (09310)

The NAS shall disseminate weather advisory information at designated general aviation aerodromes with instrument approach procedures and terminal areas continuously. (09320)

3.3.1.1.2.5 Weather Dissemination Methods

The NAS shall disseminate weather information to users via voice. (06580)

The NAS shall disseminate weather information to users via telephone. (06590)

The NAS shall disseminate weather information to users via UHF radio. (06600)

The NAS shall disseminate weather information to users via VHF radio. (06610)

The NAS shall disseminate weather information via commercially available voice communication interfaces. (06620)

The NAS shall disseminate weather information via commercially available data communication interfaces. (06630)

The NAS shall establish standards for interactive on-line support to users requesting weather data. (06640)

3.3.1.1.2.6 Hazardous Weather

3.3.1.1.2.6.1 Disseminate hazardous weather information

3.3.1.1.2.6.1.1 Disseminate Hazardous Weather

The NAS shall disseminate hazardous weather information before routine weather information. (06280)

The NAS shall disseminate hazardous weather information in graphical format represented to at least 3 levels of intensity. (08080)

The NAS shall disseminate hazardous weather information for airspace within 100 nmi of designated airspace. (08040)

The NAS shall broadcast hazardous weather notices until hazardous weather has dissipated. (09280)

The NAS shall disseminate hazardous weather information in textual format. (08100)

The NAS shall disseminate an aural alert upon receipt of significant change to the content of the Hazardous Weather message. (08110)

3.3.1.1.2.6.1.2 Requests for Hazardous Weather

The NAS shall disseminate a requested summary of hazardous weather for any airspace in the continental United States within a mean response time 3.0 seconds of the request. (08060)

The NAS shall disseminate a requested summary of hazardous weather for any airspace in the continental United States within a maximum response time of 10.0 seconds of the request. (23520)

The NAS shall disseminate information on the presence of hazardous weather by route of flight upon request. (08200)

The NAS shall disseminate information on the presence of hazardous weather by altitude upon request. (08190)

The NAS shall disseminate information on the presence of hazardous weather by airspace upon request. (08180)

3.3.1.1.2.6.1.3 Disseminate thunderstorm information

The NAS shall disseminate the location and intensity of thunderstorms. (06230)

The NAS shall acquire the location and intensity of thunderstorms. (06170)

The NAS shall store the location and intensity of thunderstorms. (06180)

The NAS shall update the location and intensity of thunderstorms. (06190)

The NAS shall archive the location and intensity of thunderstorms. (06200)

The NAS shall retrieve the location and intensity of thunderstorms. (06210)

The NAS shall predict the location and intensity of thunderstorms for a forecast period of 6 hours. (06220)

The NAS shall disseminate the location and intensity of thunderstorms forecasts. (06240)

The NAS shall display the location and intensity of thunderstorms. (06250)

The NAS shall display the location and intensity of thunderstorm forecasts. (06260)

The NAS shall store the location and intensity of thunderstorms forecasts. (21940)

The NAS shall update the location and intensity of thunderstorms forecasts. (21950)

The NAS shall retrieve the location and intensity of thunderstorms forecasts. (21960)

3.3.1.1.2.6.1.4 Hazardous Weather to Specialists

The NAS shall disseminate Terminal area hazardous weather information to specialists within 1 minute of detection. (06950)

The NAS shall disseminate requested hazardous weather information to specialists within 100 nmi of his/her service area within a 99th percentile response time of 3.0 second of the request. (23490)

The NAS shall disseminate requested hazardous weather information to specialists within 100 nmi of his/her service area within a maximum response time of 6.0 seconds. (23500)

The NAS shall disseminate a requested summary of hazardous weather for any airspace in the continental United States within a 99th percentile response time of 5.0 seconds of the request. (23510)

The NAS shall disseminate requested hazardous weather information to specialists within 100 nmi of his/her service area within a mean response time of 1.5 seconds of the request. (08050)

The NAS shall notify specialists affected by the presence of hazardous weather within 2 minutes of acquisition. (08160)

3.3.1.1.2.6.1.5 Hazardous Weather to Users

The NAS shall notify users affected by the presence of hazardous weather within 2 minutes of acquisition. (08170)

The NAS shall disseminate hazardous weather information with sufficient accuracy and emphasis in sufficient time to assist the user in avoiding the hazard. (06870)

The NAS shall disseminate hazardous weather information to airborne users for the volume of airspace within 100 nmi horizontal distance from the aircraft's current position. (08020)

The NAS shall disseminate hazardous weather information to the user with sufficient accuracy and emphasis in sufficient time before the aircraft is affected by the hazard. (06880)

The NAS shall disseminate Terminal area hazardous weather information to users within one minute of detection. (06990)

The NAS shall disseminate hazardous weather information to airborne users for the volume of airspace extending from the surface to an altitude of 60,000 feet MSL. (08010)

3.3.1.1.2.6.1.5.1 Alert Specialists and Users of hazardous weather

The NAS shall alert users to the presence of hazardous weather. (06890)

The NAS shall alert the specialist upon receipt of hazardous weather information. (07030)

The NAS shall alert specialists to the presence of hazardous weather. (08000)

3.3.1.1.2.6.2 Update Hazardous Weather Information

The NAS shall update hazardous weather information within 2 minutes. (06920)

The NAS shall update hazardous weather broadcasts within 5 minutes of a significant change. (09410)

The NAS shall update national hazardous weather information within 30 minutes. (06930)

The NAS shall update hazardous weather information until the hazard has dissipated. (06940)

The NAS shall update Terminal area hazardous weather information within one minute of receiving an update. (07000)

The NAS shall update Terminal area hazardous weather information until the hazard has dissipated. (07020)

The NAS shall update hazardous weather broadcasts at least once every 30 minutes. (09400)

3.3.1.1.2.6.3 Assist users in avoiding hazardous weather

The NAS shall determine recommended aircraft actions to avoid hazardous weather.
(08330)

The NAS shall assist users in avoiding hazardous weather conditions. (07990)

The NAS shall consider the hazardous weather intensity when recommending avoidance actions. (08350)

The NAS shall consider extent of hazardous weather when recommending avoidance actions. (08360)

The NAS shall consider hazardous weather direction of movement when recommending avoidance actions. (08370)

The NAS shall consider aircraft type when recommending hazardous weather avoidance actions. (08380)

The NAS shall consider amount of fuel remaining when recommending hazardous weather avoidance actions. (08390)

The NAS shall consider alternate aerodromes when recommending hazardous weather avoidance actions. (08400)

The NAS shall consider alternate routes when recommending hazardous weather avoidance actions. (08410)

The NAS shall consider air traffic when recommending hazardous weather avoidance actions. (08420)

3.3.1.1.2.6.3.1 Weather Avoidance Recommendations

The NAS shall disseminate hazardous weather avoidance recommendations to specialists within 1 minute of request. (08430)

The NAS shall disseminate hazardous weather avoidance recommendations to users within 1 minute of request. (08440)

The NAS shall communicate aircraft actions to specialists within 1 minutes of implementing a weather avoidance plan. (08450)

The NAS shall communicate aircraft actions to users within 1 minutes of implementing a weather avoidance plan. (08460)

The NAS shall disseminate recommendations for hazardous weather avoidance via data-link. (08480)

The NAS shall disseminate recommendations for hazardous weather avoidance via voice communications. (08470)

The NAS shall disseminate recommended aircraft actions to avoid hazardous weather. (08340)

3.3.1.1.2.7 User and Specialist Requests

3.3.1.1.2.7.1 Support specialists requesting weather data

The NAS shall maintain interactive on-line support to specialists requesting weather data. (06650)

The NAS shall disseminate weather information for altitudes of interest by users. (06740)

The NAS shall disseminate weather information for altitudes of interest by specialists. (06750)

The NAS shall disseminate weather information by reporting station. (06760)

The NAS shall disseminate weather information by weather type as specified by users. (06770)

The NAS shall disseminate weather information by weather type as specified by specialists. (06780)

3.3.1.1.2.7.2 Retrieve weather information based on user or specialist parameters

The NAS shall retrieve weather information based on user or specialist-defined parameters.

The NAS shall retrieve weather information by route of flight. (06660)

The NAS shall retrieve weather information by area. (06670)

The NAS shall retrieve weather information by location. (06680)

The NAS shall retrieve weather information by phase of flight. (06690)

The NAS shall retrieve weather information by phase of flight. (06790)

The NAS shall retrieve weather information by departure route. (06800)

The NAS shall retrieve weather information by destination. (06810)

The NAS shall retrieve weather information by en-route phase of flight. (06820)

The NAS shall retrieve weather information by weather type. (06830)

The NAS shall retrieve weather information by altitude of flight. (06840)

The NAS shall retrieve weather information by duration of flight. (06850)

The NAS shall retrieve weather information by time of flight. (06860)

The NAS shall retrieve weather information by content of weather information. (21970)

3.3.1.1.3 Display Weather Information

3.3.1.1.3.1 Display weather information to specialists

The NAS shall display Terminal area hazardous weather information to the specialist within 1 minute of detection. (06980)

The NAS shall display graphic weather data to the specialists with at least 6 levels of precipitation intensity. (19530)

The NAS shall display requested routine strategic weather information to the specialists within a mean response time of 3.0 seconds of the request. (23350)

The NAS shall display requested routine strategic weather information to the specialists within a 99th percentile response time of 5.0 seconds of the request. (23360)

The NAS shall display requested routine strategic weather information to the specialists within a maximum response time of 10.0 seconds of the request. (23370)

The NAS shall display requested routine weather information to the user within a mean response time of 3.0 seconds of the request. (23380)

The NAS shall display requested routine weather information to the user within a 99th percentile response time of 5.0 seconds of the request. (23390)

The NAS shall display requested routine weather information to the user within a maximum response time of 10.0 seconds of the request. (23400)

The NAS shall display requested routine weather information to the specialists within a mean response time of 3.0 seconds from the time of the request. (06910)

The NAS shall display requested routine weather information to specialists within a 99th percentile response time of 5.0 seconds from the time of the request. (23430)

The NAS shall display requested routine weather information to specialists within a maximum response time of 10.0 seconds from the time of the request. (23440)

The NAS shall categorize observed weather conditions into distinguishable levels of intensity. (19640)

The NAS shall store information in weather phenomena, which pose a hazard to VFR aircraft to TBD reliability. (09460)

The NAS shall store current domestic weather data for flow control use. (07520)

The NAS shall disseminate weather information to airborne users for pictorial display. (06290)

3.3.1.1.3.2 Display gridded forecasts

The NAS shall display hourly gridded forecasts. (22810)

The NAS shall update hourly gridded forecasts covering CONUS from the surface up to 100 millibars level at least once every hour. (05850)

The NAS shall acquire hourly gridded forecasts covering a forecast period of twelve hours. (05860)

The NAS shall update 6-hour gridded forecasts at least once every 6 hours. (05870)

The NAS shall acquire 6-hour gridded forecasts covering all 8 octants of the globe. (05880)

The NAS shall acquire 6-hour gridded forecasts covering a forecast period of 72 hours. (05890)

The NAS shall display 6 -hour gridded forecasts. (22800)

3.3.1.1.3.3 Display wind information

The NAS shall accurately display wind information. (08750)

The NAS shall acquire real-time wind information for the air traffic control tower operational area. (08650)

The NAS shall display real-time wind information for the air traffic control tower operational area. (08660)

The NAS shall acquire wind speed for designated points on the aerodrome surface. (08670)

The NAS shall acquire wind direction for designated points on the aerodrome surface. (08680)

The NAS shall store wind speed for designated points on the aerodrome surface. (08690)

The NAS shall store wind direction for designated points on the aerodrome surface. (08700)

The NAS shall detect variations in wind speed for designated points on the aerodrome surface. (08710)

The NAS shall detect variations in wind direction for designated points on the aerodrome surface. (08720)

The NAS shall display wind speed for designated points on the aerodrome surface. (08730)

The NAS shall display wind direction for designated points on the aerodrome surface. (08740)

3.3.1.1.3.4 Display Hazardous Weather upon request

The NAS shall display requested hazardous weather information to specialists within a mean response time of 3.0 seconds of the request. (06900)

The NAS shall display requested hazardous weather information to specialists within a 99th percentile time of 5.0 seconds from the time of the request. (23410)

The NAS shall display requested hazardous weather information to the specialists within a maximum response time of 10.0 seconds from the time of the request. (23420)

3.3.1.1.4 Provide Weather Products**3.3.1.1.4.1 Provide weather information that is hazardous to VFR flights**

The NAS shall detect weather phenomena that pose a hazard to VFR aircraft. (09430)

The NAS shall determine the location of weather phenomena that pose a hazard to VFR aircraft. (09440)

The NAS shall store information on weather phenomena, which pose a hazard to VFR aircraft. (09450)

The NAS shall monitor weather phenomena that pose a hazard to VFR aircraft. (09470)

The NAS shall access information on weather phenomena that pose a hazard to VFR aircraft. (09480)

The NAS shall disseminate information on weather phenomena that pose a hazard to VFR aircraft. (09490)

The NAS shall update the position and intensity of weather phenomena that may affect VFR flight operations. (09500)

The NAS shall update the position and intensity of weather phenomena that may affect VFR flight operations. (09510)

The NAS shall disseminate the position and intensity of weather phenomena that may affect VFR flight operations. (09520)

The NAS shall disseminate the position and intensity of weather phenomena that may affect VFR flight operations. (09530)

3.3.1.1.4.2 Provide weather information for areas bordering designated U.S. airspace

The NAS shall acquire current weather data for areas bordering designated U.S. Airspace. (07760)

The NAS shall store current weather data for areas bordering designated U.S. Airspace. (07770)

The NAS shall disseminate current weather data for areas bordering designated U.S. Airspace. (07780)

The NAS shall acquire forecast weather data for areas bordering designated U.S. Airspace. (07790)

The NAS shall store forecast weather data for areas bordering designated U.S. Airspace. (07800)

The NAS shall disseminate forecast weather data for areas bordering designated U.S. Airspace. (07810)

3.3.1.1.4.3 Provide weather information for flow control use

The NAS shall acquire current international weather data for flow control use. (07600)

The NAS shall store current international weather data for flow control use. (07610)

The NAS shall disseminate current international weather data for flow control use.
(07620)

3.3.1.1.4.4 Provide continuous weather information service

The NAS shall acquire weather information to meet required response times during periods of peak demand. (07040)

The NAS shall store weather information to meet required response times during periods of peak demand. (07050)

The NAS shall update weather information to meet required response times during periods of peak demand. (07060)

The NAS shall retrieve weather information to meet required response times during periods of peak demand. (07070)

The NAS shall disseminate weather information sufficient to meet required response times during periods of peak demand. (07080)

3.3.1.1.4.5 Provide weather information service with sufficient communication capacity

The NAS shall maintain communication links adequate to avoid user delay in gaining access. (07090)

The NAS shall disseminate weather information to users continuously. (07110)

The NAS shall disseminate current weather effect along the users proposed flight path.
(07470)

The NAS shall disseminate forecast weather in effect along the users proposed flight path. (07480)

3.3.1.1.4.6 Provide 24-hour weather forecasts

The NAS shall acquire 24-hour weather forecasts (11310)

The NAS shall disseminate requested forecast weather data within a mean time of 3 seconds of ATCSCC specialists' request. (11290)

The NAS shall disseminate requested forecast weather data within a 99-percentile time of 5.0 seconds of ATCSCC specialists' request. (23530)

The NAS shall disseminate requested forecast weather data within a maximum of 10 seconds of ATCSCC specialists' request. (23540)

The NAS shall disseminate forecast weather data within a mean time of 3 seconds of local traffic management coordinator request. (11300)

The NAS shall disseminate forecast weather data within a 99-percentile time of 5.0 seconds of local traffic management coordinator request. (23550)

The NAS shall disseminate forecast weather data within a maximum of 10 seconds of local traffic management coordinator request. (23560)

3.3.1.1.4.7 Provide weather information to specialists at the ATCSCC

The NAS shall disseminate weather information to specialists at the ATCSCC. (32360)

The NAS shall disseminate Textual weather information for foreign weather to specialists at the ATCSCC. (11350)

The NAS shall disseminate Textual weather information for NAS terminal weather to specialists at the ATCSCC. *(11360)*

The NAS shall disseminate Forecast information in graphic form for up to 24 hours in advance to specialists at the ATCSCC. *(11370)*

The NAS shall disseminate graphical presentations of the weather anywhere in the NAS coverage to specialists at the ATCSCC. *(11390)*

The NAS shall disseminate Textual forecast information for foreign weather to specialists at the ATCSCC. *(21980)*

The NAS shall disseminate Textual forecast information for NAS terminal weather to specialists at the ATCSCC. *(21990)*

3.3.1.1.4.8 Store Weather

3.3.1.1.4.8.1 Store Weather Aloft

The NAS shall store weather conditions aloft. *(05500)*

The NAS shall archive weather conditions aloft. *(05480)*

The NAS shall store weather conditions aloft (except thunderstorm data) on 50nmi by 50nmi grids. *(05490)*

The NAS shall store weather conditions aloft from 6000 ft AGL to 60,000 ft MSL in U.S. designated airspace. *(05440)*

The NAS shall store weather conditions aloft from ground to 10,000 ft AGL within 45nmi of qualifying aerodromes. *(05450)*

3.3.1.1.4.8.2 Store Hazardous Weather

The NAS shall store terminal area hazardous weather information. *(06970)*

The NAS shall archive terminal area hazardous weather information. *(07010)*

The NAS shall store thunderstorm data on a 10nmi by 10nmi or smaller grid. *(05510)*

The The NAS shall store thunderstorm data in a minimum of three altitude bands. *(05520)*

3.3.1.1.4.8.2.1 Retrieve Hazardous Weather Information

The NAS shall retrieve hazardous weather information for airspace within 100 nmi of designated airspace. *(08030)*

The NAS shall retrieve hazardous weather information in graphical format represented to at least 3 levels of intensity. *(08070)*

The NAS shall retrieve hazardous weather information in textual format. *(08090)*

The NAS shall retrieve information on the presence of hazardous weather by airspace affected. *(08130)*

The NAS shall retrieve information on the presence of hazardous weather by altitude. *(08140)*

The NAS shall retrieve information on the presence of hazardous weather by route of flight. *(08150)*

3.3.2 Traffic Advisory

The NAS shall display position of VFR aircraft in the terminal departure and arrival phases of flight. *(09200)*

3.3.2.1 Monitor and disseminate traffic advisories.**3.3.2.1.1 Provide traffic advisories to airborne aircraft**

The NAS shall provide traffic advisories to aircraft in the air. (30260)

The NAS shall monitor the progress of aircraft in selected low altitude environments receiving flight following services. (09090)

The NAS shall update the progress of aircraft in selected remote environments receiving flight following services. (09100)

Flight following service shall be available regardless of weather conditions. (19770)

The NAS shall provide traffic advisories to aircraft on the surface. (30270)

The NAS shall determine when a potential traffic conflict exists between a requesting VFR aircraft and other aircraft. (09270)

The NAS shall disseminate traffic advisories to pilots when applying VFR separation services. (19780)

The NAS shall disseminate traffic advisories upon user request. (09120)

3.3.2.2 Provide safety advisories

The NAS shall provide safety advisories. (30250)

The NAS shall disseminate safety advisories to participating aircraft when situations occur involving proximity to other aircraft. (09160)

The NAS shall disseminate safety advisories to participating aircraft when situations occur involving proximity to terrain. (09130)

The NAS shall disseminate safety advisories to participating aircraft when situations occur involving proximity to obstructions. (09140)

The NAS shall disseminate safety advisories to participating aircraft when situations occur involving proximity to special use airspace. (09150)

The NAS shall disseminate the relative position of primary collision threat(s) to affected users. (03680)

3.3.2.3 Issue advisories

The NAS shall disseminate advisories to aircraft approaching special use airspace. (09210)

The NAS shall update the boundaries of special use airspace. (09260)

The NAS shall provide traffic alerts to participating aircraft within 5 nmi, 500 feet below and 500 above special use airspace. (04350)

The NAS shall monitor non-participating aircraft within 5 nmi, 500 feet below and 500 above special use airspace. (04340)

The NAS shall notify specialist when known traffic approaches special use airspace. (09230)

The NAS shall monitor progress of aircraft operating within designated hazardous areas. (09110)

3.3.3 NAS Status Advisory

The NAS shall disseminate NAS Status information to designated military officials. (07980)

The NAS shall disseminate future delay advisories in effect along the users proposed flight path. (07500)

The NAS shall disseminate airway usage information to users. (00030)

The NAS shall disseminate route usage information to specialists. (00040)

The NAS shall disseminate route usage information to users. (00050)

The NAS shall disseminate airway usage information to specialists. (00090)

The NAS shall discontinue the transmittal of a navigation aid's identification signal whenever the operation of the navigation aid has been discontinued. (14110)

The NAS shall discontinue the transmittal of a navigation aid's identification signal during maintenance. (14120)

The NAS shall discontinue the transmittal of a navigation aid's identification signal during testing. (14130)

3.3.3.1 Provide aeronautical information

The NAS shall disseminate aeronautical information per user request. (07130)

The NAS shall retrieve aeronautical data by user requested flight path. (07140)

The NAS shall retrieve aeronautical information by user requested location. (07150)

The NAS shall retrieve aeronautical information by user requested area. (07160)

The NAS shall retrieve aeronautical information by user requested time. (07170)

The NAS shall acquire aeronautical information from any source concerned with operations of the NAS. (07200)

The NAS shall store aeronautical information for all phases of flight. (07180)

The NAS shall acquire aeronautical information for total geographic area of NAS responsibility. (07190)

The NAS shall acquire aeronautical information from any source concerned with components of the NAS. (07210)

The NAS shall verify aeronautical information from any source concerned with operations of the NAS. (07220)

The NAS shall verify aeronautical information from any source concerned with components of the NAS. (07230)

The NAS shall store verified aeronautical information from any source concerned with operations of the NAS. (07240)

The NAS shall store verified aeronautical information from any source concerned with components of the NAS. (07250)

The NAS shall segregate unverified aeronautical information from sources concerned with operations of the NAS. (07260)

The NAS shall segregate unverified aeronautical information from sources concerned with components of the NAS. (07270)

The NAS shall disseminate aeronautical information upon user request continuously. (07340)

The NAS shall disseminate aeronautical information to users via external data interfaces. (07430)

The NAS shall disseminate aeronautical information to users via air-ground data communications. (07440)

The NAS shall disseminate aeronautical data for a maximum of 8 specified locations per request. (07400)

The NAS shall disseminate requested aeronautical information to users within a maximum response time of 10.0 seconds of the request. (23600)

The NAS shall disseminate requested aeronautical information to users within a mean response time of 3.0 seconds of the request. (23580)

The NAS shall disseminate requested aeronautical information to users within a 99th percentile response time of 5.0 second of the request. (23590)

3.3.3.2 Provide aeronautical information to specialists.

The NAS shall disseminate aeronautical information to specialists continuously. (07330)

The NAS shall disseminate requested aeronautical information to specialists within a mean response time of 3.0 seconds of the request. (07450)

The NAS shall disseminate requested aeronautical information to specialists within a 99th percentile response time of 5.0 second of the request. (07460)

The NAS shall disseminate requested aeronautical information to specialists within a maximum response time of 10.0 seconds of the request. (23570)

3.3.3.3 Manage aeronautical information for U.S. delegated airspace

The NAS shall store aeronautical data for U.S. delegated airspace. (07120)

The NAS shall discard aeronautical information no longer valid within 1 hour. (07310)

The NAS shall discard aeronautical information no longer relevant within 1 hour. (07320)

The NAS shall retrieve aeronautical information within 1 minute of its storage in a NAS database. (07300)

The NAS shall retrieve aeronautical data along specified routes. (07350)

The NAS shall retrieve aeronautical data for specified locations. (07360)

The NAS shall retrieve aeronautical data for specified areas. (07370)

The NAS shall retrieve aeronautical data for reporting location. (07380)

The NAS shall retrieve aeronautical data along routes with a maximum of 40 route elements. (07390)

The NAS shall retrieve aeronautical data for a maximum of 8 selected reporting locations per request. (07410)

The NAS shall disseminate preferred route information at least 24 hours prior to it becoming effective. (07280)

The NAS shall disseminate current delay advisories in effect along the users proposed flight path. (07490)

The NAS shall monitor runway conditions for designated aerodromes. (07930)

3.3.3.4 Provide status of special use airspace.

The NAS shall disseminate the status of special use airspace. (30280)

The NAS shall acquire data on the status of special use airspace. (15400)

The NAS shall disseminate special use airspace information at least 2 hours prior to it becoming effective. (07290)

The NAS shall disseminate the status of special use airspace to users. (08760)

The NAS shall disseminate the status of special use airspace to specialists. (08770)

The NAS shall disseminate current flight activity information in Restricted Areas. (08780)

The NAS shall disseminate current flight activity information in Warning Areas. (08790)

The NAS shall disseminate current flight activity information in Military Operating Areas. (08800)

The NAS shall disseminate current flight activity information in Controlled Firing Areas. (08810)

The NAS shall disseminate current flight activity information in Military Training Routes. (08820)

The NAS shall disseminate scheduled flight activity information in Restricted Areas. (08830)

The NAS shall disseminate scheduled flight activity information in Warning Areas. (08840)

The NAS shall disseminate scheduled flight activity information in Military Operating Areas. (08850)

The NAS shall disseminate scheduled flight activity information in Controlled Firing Areas. (08860)

The NAS shall disseminate scheduled flight activity information in Parachute Jump Areas. (08870)

The NAS shall disseminate scheduled flight activity information in Military Training Areas. (08880)

The NAS shall disseminate current flight activity information in military special use airspace within 1 minute of request. (08890)

The NAS shall disseminate scheduled flight activity information in military special use airspace within 1 minute of request. (08900)

The NAS shall disseminate status of military special use airspace via commercial telephone lines (08910)

The NAS shall store data on the status of special use airspace. (09240)

The NAS shall update the status of special use airspace. (09250)

The NAS shall notify users of the schedules for airspace usage. (16330)

The NAS shall notify specialists of the schedules for airspace usage. (16340)

3.3.3.5 Provide navigation status

The NAS shall alert users when a change in status of a navigation system is detected. (16950)

The NAS shall inform specialists of the status of supplemental navigation systems. (09570)

The NAS shall inform users of the status of supplemental navigation systems. (09560)

The NAS shall alert specialists within 10 seconds, of failures to navigation guidance that affect operations. (09580)

The NAS shall alert users within 10 seconds, of failures to portions of navigation guidance that affect operations. (09590)

The NAS shall alert specialists within 10 seconds, of failures to portions of navigation guidance that affect operations. (14840)

3.4 TM-Synchronization

3.4.1 Airborne Synchronization

The NAS shall receive specialists' inputs, display position data received from all sources, process this information, apply procedural standards, and issue sequencing and spacing advisories to specialists. (19480)

The NAS shall establish landing and departing sequencing at specified aerodromes. (09990)

3.4.1.1 Analyze conditions

The NAS shall analyze conditions that affect traffic management synchronization. (30290)

3.4.1.1.1 Acquire information on conditions

The NAS shall detect changes in conditions that affect traffic management synchronization. (30300)

The NAS shall detect current clearance-based trajectories that are in noncompliance with metering restrictions. (11620)

The NAS shall detect current clearance-based trajectories that are in noncompliance with preferential route restrictions. (22020)

The NAS shall detect change to flow restrictions. (10140)

The NAS shall detect change to airspace restrictions. (10150)

3.4.1.1.2 Evaluate information

The NAS shall analyze information influencing current runway selections. (10340)

The NAS shall acquire traffic conditions to determine active runway selections. (30310)

The NAS shall acquire traffic conditions to determine active runway selections. (27070)

The NAS shall retrieve NAS weather data for traffic management synchronization use. (09920)

The NAS shall analyze sequencing and spacing advisories for aircraft-aircraft conflicts. (10040)

The NAS shall analyze available information influencing selection of active runways. (10420)

The NAS shall retrieve information-influencing selection of active runways. (10410)

3.4.1.2 Provide runway selections

The NAS shall provide runway selections. (30320)

3.4.1.2.1 Future runway selection recommendations

The NAS shall provide future runway selection recommendations. (30330)

The NAS shall provide recommendations for future runway selection based on forecast weather. (10370)

The NAS shall provide recommendations for future runway selection based on forecast weather. (10380)

The NAS shall provide recommendations for future runway selection based on traffic conditions. (10390)

The NAS shall provide recommendations for future runway selection based on traffic conditions. (10400)

The NAS shall perform runway selection for future runway configuration every 2 hours. (10430)

3.4.1.2.2 Current runway selection recommendations

The NAS shall provide current runway selection recommendations. (10360)

The NAS shall disseminate recommendations for current runway selection. (10350)

The NAS shall perform runway selection immediately upon a wind change of more than +2.5 knots in speed. (10440)

The NAS shall perform runway selection immediately upon a wind change of 45 degrees in direction. (10450)

The NAS shall provide recommended runway configurations for selected airports/groups of airports based on environmental data for selected look-ahead times from 0-24 hours in 15 minute intervals. (10460)

The NAS shall provide recommended runway configurations for selected airports/groups of airports based on demand data for selected look-ahead times from 0-24 hours in 15-minute intervals. (12170)

3.4.1.3 Evaluate possible metering solutions

The NAS shall evaluate alternate clearances for sequencing and spacing problems, within specified time limits. (10230)

The NAS shall estimate metering delay with an error of no more than 1-minute difference from the actual delay. (09890)

The NAS shall evaluate metering solutions to correctly synchronize traffic. (30350)

The NAS shall evaluate possible metering solutions to synchronize traffic. (30340)

The NAS shall evaluate alternate clearances for compliance with metering restrictions. (09950)

3.4.1.3.1 Evaluate Spacing Solutions

The NAS shall evaluate spacing advisories for aircraft intrusion into special use airspace. (10130)

The NAS shall evaluate spacing advisories for aircraft-aircraft conflicts. (10110)

The NAS shall evaluate spacing advisories for clearance-based trajectories. (10090)

3.4.1.3.2 Evaluate Sequencing Solutions

The NAS shall evaluate sequencing advisories for aircraft intrusion into special use airspace. (10120)

The NAS shall evaluate sequencing advisories for aircraft-aircraft conflicts. (10100)

The NAS shall evaluate sequencing advisories against clearance-based trajectories. (10080)

3.4.1.3.3 Display Possible Metering Solutions

The NAS shall display resolutions identified in the alternate clearance given to resolve sequencing and spacing problems. (10250)

The NAS shall display problems identified in the alternate clearance given to resolve sequencing and spacing problems. (10240)

The NAS shall display surveillance information updates within 2 seconds of detection. (12140)

3.4.1.4 Generate Synchronization Solutions

The NAS shall use separation standards in the generation of plans for sequencing and spacing of air traffic. (10010)

The NAS shall monitor all metering generated recommendations for flight plan based trajectories. (09640)

3.4.1.4.1 Generate Sequencing Plans

The NAS shall generate plans for sequencing of air traffic. (10020)

The NAS shall determine alternate clearances to resolve sequencing problems. (10210)

The NAS shall analyze sequencing plans for clearance-based trajectories separation violations. (10030)

3.4.1.4.2 Generate Spacing Plans

The NAS shall generate plans for spacing of air traffic. (32370)

The NAS shall generate traffic spacing advisories. (12030)

The NAS shall analyze spacing plans for clearance-based trajectories separation violations. (32380)

The NAS shall determine alternate clearances to resolve spacing problems. (32390)

3.4.1.4.3 Generate Metering Solutions

The NAS shall generate metering solutions to address synchronization issues. (30380)

The NAS shall generate projections of predicted altitude profiles derived from aircraft specific data with an error of less than 1000 feet. (09910)

The NAS shall generate a speed advisory for metering that has less than 10 percent difference between the calculated delay absorbed and the actual delay absorbed. (09900)

The NAS shall generate a descent advisory for metering that has less than 10 percent difference between the calculated delay absorbed and the actual delay absorbed. (09900)

3.4.1.4.4 Accept Specialists' Input

The NAS shall accept specialists' air traffic sequence inputs. (10180)

The NAS shall adjust specialists' air traffic sequence based on desired sequence and time. (12120)

3.4.1.5 Implement Synchronization Solutions

The NAS shall generate synchronization solutions. (30360)

The NAS shall assign clearances based on current preferential route restrictions. (10510)

3.4.1.5.1 Implement Sequencing and Spacing Plans

The NAS shall disseminate traffic spacing advisories to specialists. (10060)

The NAS shall disseminate alternate clearances to resolve spacing problems. (32400)
 The NAS shall disseminate traffic sequencing advisories to specialists. (10070)
 The NAS shall sequence VFR aircraft in the departure phase of flight. (10550)
 The NAS shall sequence VFR aircraft in the terminal arrival phase of flight. (10530)
 The NAS shall disseminate alternate clearances to resolve sequencing problems. (10220)

3.4.1.5.1 Respond to specialists' Inputs

The NAS shall respond to specialists' spacing inputs for approach and departure within a 99th percentile response time of 1.2 seconds. (10200)
 The NAS shall respond to specialists' spacing inputs for approach and departure within a maximum response time of 3.0 seconds. (23620)
 The NAS shall respond to specialists' spacing inputs for approach and departure within a means response time of 0.6 seconds. (23610)
 The NAS shall respond to specialists' sequencing inputs for approach and departure within a 99th percentile response time of 1.2 seconds. (23630)
 The NAS shall respond to specialists' sequencing inputs for approach and departure within a maximum response time of 3.0 seconds. (23640)
 The NAS shall respond to specialists' sequencing inputs for approach and departure within a means response time of 0.6 seconds. (10190)

3.4.1.5.2 Implement Metering Solutions

The NAS shall meter traffic as required to achieve a balance between traffic demand and capacity of the NAS airspace and aerodrome resources. (09980)
 The NAS shall notify specialists controlling the affected flights upon detection of flow restrictions changes. (12100)
 The NAS shall notify specialists of changes to traffic flow restrictions. (10170)
 The NAS shall notify specialists of changes to airspace restrictions. (10160)

3.4.1.5.3 Noncompliance Issues

The NAS shall address noncompliance with metering solutions. (30370)
 The NAS shall provide advisories to the specialist to resolve noncompliance of current clearance-based trajectories with preferential route restrictions. (22030)
 The NAS shall provide advisories to the specialist to resolve noncompliance of current clearance-based trajectories with metering restrictions. (11630)
 The NAS shall detect noncompliance with current clearance-based trajectories for metering restrictions. (09940)

3.4.2 Surface Synchronization

3.4.2.1 Surface Synchronization Plans

The NAS shall establish surface synchronization plans to support the accepted traffic synchronization plan. (30450)
 The NAS shall generate surface synchronization plans based on arrival and departure sequences. (30460)
 The NAS shall review arrival and departure sequences and schedules. (30470)

3.4.2.2 Provide Taxi Clearances

The NAS shall provide taxi clearances to aircraft. (30390)

The NAS shall disseminate taxi clearances to pilots. (30400)

The NAS shall generate taxi clearances that support the surface synchronization plan. (30410)

3.4.2.3 Surface Movement Information

The NAS shall provide surface movement information to ground vehicles. (30420)

The NAS shall disseminate surface movement information to ground vehicles. (30430)

The NAS shall generate surface movement sequences that support the surface synchronization plan. (30440)

3.5 TM-Strategic Flow

Saturation of specific airspace or aerodromes may require that aircraft be delayed or diverted in order to maintain safety. Knowledge of actual or potential saturation during flight planning allows plans to be adjusted for maximum efficiency. Therefore, the flow control and delay advisory information that affects flight planning must be disseminated. (19410)

Maximum safety and efficiency in the use of airspace or aerodromes results from a flow of air traffic which matches airspace user demands with available capacity, reducing congestion and unnecessary delays, allowing delays to be taken on the ground whenever possible, and accommodating military operations and national defense requirements. Maintaining this type of traffic flow imposes a requirement for a traffic management function, which collects data on current and predicted airspace capacity and demand and compares these to detect potential and actual airspace saturation. (19440)

3.5.1 Long Term Planning**3.5.1.1 Provide Future Flight Day Situation****3.5.1.1.1 Determine Future Flight Day Situation**

The NAS shall determine future flight day situations. (30480)

The NAS shall monitor future flight day information pertinent to demand projections. (30730)

The NAS shall use future flight day information pertinent to demand projections. (30720)

The NAS shall monitor future flight day information pertinent to capacity projections. (30710)

3.5.1.1.2 Disseminate Future Flight Day Information**3.5.1.1.2.1 Disseminate Capacity Projections**

The NAS shall disseminate future flight day information pertinent to capacity projections to specialists. (29010)

The NAS shall disseminate future flight day IFR traffic capacity projections to local traffic management specialists for specified airway route segments. (30490)

The NAS shall disseminate future flight day IFR traffic capacity projections to local traffic management specialists for specified sectors. (30500)

The NAS shall disseminate future flight day IFR traffic capacity projections to ATCSCC specialists for specified aerodromes. (30510)

The NAS shall disseminate future flight day IFR traffic capacity projections to ATCSCC specialists for specified airway route segments. (30520)

The NAS shall disseminate future flight day IFR traffic capacity projections to ATCSCC specialists for specified sectors. (30530)

3.5.1.1.2.2 Disseminate Demand Projections

The NAS shall disseminate future flight day information pertinent to demand projections to specialists. (32410)

The NAS shall disseminate future flight day IFR traffic demand projections to ATCSCC specialists for specified airway route segments. (30550)

The NAS shall disseminate future flight day IFR traffic demand projections to ATCSCC specialists for specified sectors. (30560)

3.5.1.1.3 User Requests for Future Flight Day Information**3.5.1.1.3.1 User Requests for Demand Projections**

The NAS shall accept requests for future flight day demand projections. (30540)

The NAS shall accept future flight day demand projection requests from local traffic management coordinators. (30570)

The NAS shall disseminate results of future flight day demand projection requests to local traffic management coordinators in no more than 10 seconds of a request. (30580)

The NAS shall process future flight day demand projection requests from local traffic management coordinators. (30590)

The NAS shall accept future flight day demand projection requests from ATCSCC specialists. (30600)

The NAS shall disseminate results of future flight day demand projection requests to ATCSCC specialists in no more than 10 seconds of a request. (30610)

The NAS shall process future flight day demand projection requests from ATCSCC specialists. (30620)

3.5.1.1.3.2 User Requests for Capacity Projections

The NAS shall accept requests for future flight day capacity projections. (30630)

The NAS shall accept future flight day capacity projection requests from local traffic management coordinators. (30650)

The NAS shall accept future flight day capacity projection requests from ATCSCC specialists. (30680)

The NAS shall process future flight day capacity projection requests from ATCSCC specialists. (30700)

The NAS shall process future flight day capacity projection requests from local traffic management coordinators. (30670)

The NAS shall disseminate future flight day IFR traffic capacity projections to local traffic management specialists for specified aerodromes. (30640)

The NAS shall disseminate results of future flight day capacity projection requests to local traffic management coordinators in no more than 10 seconds of a request. (30660)

The NAS shall disseminate results of future flight day capacity projection requests to ATCSCC specialists in no more than 10 seconds of a request (30690)

3.5.1.2 Analyze Future Flight Day Situations

The NAS shall analyze future flight day situations. (30740)

The NAS shall input possible scenarios for future flight days. (30770)

The NAS shall analyze future flight day scenarios for imbalances in demand and capacity. (30760)

The NAS shall predict the impact of imbalances found in future flight day scenarios. (30750)

3.5.1.3 Generate Future Flight Day Strategies

The NAS shall generate future flight day strategies. (30780)

The NAS shall acquire traffic conditions information to determine future traffic patterns and active runway selection. (10520)

The NAS shall analyze the impact of developed strategies for future flight days. (30790)

The NAS shall collaborate with users on the development of traffic flow management strategy alternatives. (30800)

The NAS shall use impact assessment of possible future traffic flow management scenarios to develop new traffic flow management strategy alternatives. (30810)

3.5.2 Flight Day Management**3.5.2.1 Provide Capacity Projections**

The NAS shall provide capacity projections. (32420)

The NAS shall update capacity projections. (30820)

The NAS shall use information pertinent to current flight day capacity projections. (10710)

3.5.2.1.1 Monitor Information Pertinent to Capacity

The NAS shall monitor information pertinent to capacity projections for the current flight day. (10700)

The NAS shall monitor local acceptance rate data for each runway at designated aerodromes. (09770)

The NAS shall detect flow restrictions changes. (12080)

The NAS shall detect airspace restrictions changes. (12070)

3.5.2.1.1.1 Specialists' Inputs

The NAS shall accept specialists' inputs for aerodrome acceptance rates. (12110)

The NAS shall acquire specialists' inputs on aerodrome acceptance rates. (12020)

3.5.2.1.2 Determine Current Capacity

The NAS shall determine current capacity conditions. (30830)

The NAS shall consider runway surface conditions in calculating runway capacity projections at designated aerodromes. (09790)

The NAS shall consider winds aloft in calculating runway capacity projections at designated aerodromes. (09800)

The NAS shall consider local acceptance rate data in calculating runway capacity projections at designated aerodromes. (09810)

The NAS shall consider terminal navigation equipment status in calculating runway capacity projections at designated aerodromes. (09820)

3.5.2.1.2.1 Aerodrome Capacity

The NAS shall determine the number of IFR arrivals that can be supported by designated aerodromes. (09710)

The NAS shall determine the number of departures that can be handled on each runway for designated aerodromes. (09700)

The NAS shall determine the number of arrivals that can be handled on each runway for designated aerodromes. (09690)

The NAS shall determine the number of schedule departures that can be handled on each runway for designated aerodromes. (09680)

The NAS shall determine the number of scheduled arrivals that can be handled on each runway for designated aerodromes. (09670)

The NAS shall determine the number of IFR departures that can be supported by designated aerodromes. (09780)

3.5.2.1.2.2 Airway Route Segments Capacity

The NAS shall determine the current demand on specified airway route segments.
(10600)

The NAS shall determine the current capacity of specified airway route segments.
(10580)

3.5.2.1.2.3 Sector Capacity

The NAS shall determine the current demand on specified sectors. (10590)

The NAS shall determine the current capacity of specified sectors. (10570)

3.5.2.1.3 Determine Future Capacity

The NAS shall predict future capacity conditions. (30840)

The NAS shall project the future capacity of specified airway route segments. (10620)

The NAS shall project the future capacity of specified sectors. (10610)

3.5.2.1.4 Disseminate Capacity Information

The NAS shall disseminate capacity information to specialists. (30850)

The NAS shall update aerodrome capacity projections when information pertinent to capacity projections changes. (10910)

The NAS shall process requests for capacity information from specialists. (30860)

3.5.2.1.4.1 Disseminate Capacity Information to Specialists

3.5.2.1.4.1.1 Local Traffic Management Coordinators

3.5.2.1.4.1.1.1 Airway Route Segment Capacity for Local Traffic Management Coordinators

The NAS shall disseminate airway route segment capacity projections to local traffic management coordinators for up to 2 hours from the current time. (12440)

The NAS shall disseminate IFR traffic capacity projections to local traffic management specialists for specified airway route segments. (10690)

The NAS shall disseminate 8-hour airway route segment capacity projections to local traffic management coordinators (12400)

3.5.2.1.4.1.1.2 Sector Capacity for Local Traffic Management Coordinators

The NAS shall disseminate sector capacity projections to local traffic management coordinators for up to 2 hours from the current time (12420)

The NAS shall disseminate IFR traffic capacity projections to local traffic management specialists for specified sectors. (10680)

The NAS shall disseminate 8-hour sector capacity projections to local traffic management coordinators. (12380)

3.5.2.1.4.1.1.3 Specified Aerodrome Capacity for Local Traffic Management Coordinators

The NAS shall disseminate IFR traffic capacity projections to local traffic management specialists for specified aerodromes (12270)

The NAS shall disseminate updated aerodrome capacity projections to local traffic management coordinators. (10930)

The NAS shall disseminate 2-hour aerodrome capacity projections to local traffic management coordinators. (10900)

3.5.2.1.4.1.1.4 Local Traffic Management Coordinator Requests for Capacity Information

The NAS shall accept capacity projection requests from local traffic management coordinators. (10800)

The NAS shall process capacity projection requests from local traffic management coordinators. (10810)

The NAS shall disseminate the results of local traffic management coordinator capacity projection requests within a means response time of 3 seconds of the request. (10820)

The NAS shall disseminate the results of local traffic management coordinator capacity projection requests within 99th percentile response time of 5 seconds of the request. (10820)

The NAS shall disseminate the results of local traffic management coordinator capacity projection requests within a maximum response time of 10 seconds of the request. (10820)

3.5.2.1.4.1.2 ATCSCC Specialists

3.5.2.1.4.1.2.1 Airway Route Segment Capacity for ATCSCC Specialists

The NAS shall disseminate IFR traffic capacity projections to ATCSCC specialists for specified airway route segments. (10660)

The NAS shall disseminate 2-hour airway route segment capacity projections to ATCSCC specialists. (12360)

The NAS shall disseminate airway route segment capacity projections to ATCSCC specialists for up to 8 hours from the current time. (12320)

3.5.2.1.4.1.2.2 Sector Capacity for ATCSCC Specialists

The NAS shall disseminate IFR traffic capacity projections to ATCSCC specialists for specified sectors. (10650)

The NAS shall disseminate 2-hour sector capacity projections to ATCSCC specialists. (12340)

The NAS shall disseminate sector capacity projections to ATCSCC specialists for up to 8 hours from the current time. (12300)

3.5.2.1.4.1.2.3 Specified Aerodrome Capacity for ATCSCC Specialists

The NAS shall disseminate IFR traffic capacity projections to ATCSCC specialists for specified aerodromes. (10670)

The NAS shall disseminate updated aerodrome capacity projections to ATCSCC specialists. (10920)

The NAS shall disseminate 8-hour aerodrome capacity projections to ATCSCC specialists. (10890)

3.5.2.1.4.1.2.4 ATCSCC Specialist Requests for Capacity Information

The NAS shall process capacity projection requests from ATCSCC specialists. (10750)

The NAS shall accept capacity projection requests from ATCSCC specialists. (10740)

The NAS shall disseminate the results of ATCSCC requested capacity projections within a means response time of 3 seconds of the request. (10760)

The NAS shall disseminate the results of ATCSCC requested capacity projections within the 99th percentile time of 5 seconds of the request. (23650)

The NAS shall disseminate the results of ATCSCC requested capacity projections within a maximum time of 10 seconds of the request. (23660)

3.5.2.1.4.2 Capacity Projection Dissemination Parameters

The NAS shall disseminate aerodrome capacity projections by aircraft performance type. (10880)

The NAS shall disseminate aerodrome capacity projections by a specified time interval. (10870)

The NAS shall disseminate aerodrome capacity projections by number of aircraft per minute. (10860)

3.5.2.2 Provide Demand Projections

The NAS shall update demand projections. (30870)

3.5.2.2.1 Monitor Information Pertinent to Demand

The NAS shall monitor information pertinent to demand projections. (10720)

The NAS shall store Non-NAS weather data for flow control use. (09930)

The aircraft's reported altitude shall be provided to the local flow management coordinator. (19470)

The NAS shall acquire traffic count summary information for each sector in the NAS. (11570)

The NAS shall disseminate the projected location of each aircraft to ATCSCC specialists. (11140)

3.5.2.2.2 Determine Demand

The NAS shall use information pertinent to demand projections. (10730)

The NAS shall generate demand projections for specialists. (30880)

The flight and flow management information shall pertain to the traffic management unit's assigned airspace structure boundary. (09620)

The NAS shall project the future demand on specified airway route segments. (10640)

The NAS shall project the future demand on specified sectors. (10630)

The NAS shall determine demand projections for designated aerodromes for a maximum of 8 hours in advance. (07970)

3.5.2.2.2.1 Demand Projection Parameters

The NAS shall retrieve demand projections by destination airport. (09880)

The NAS shall retrieve demand projections by altitude. (09870)

The NAS shall retrieve demand projections by route of flight. (09860)

The NAS shall retrieve demand projections by geographic area. (09850)

The NAS shall retrieve demand projections by number of aircraft per time interval.
(09840)

3.5.2.2.3 Disseminate Demand Information

The NAS shall disseminate the number of planned IFR arrivals for designated runways.
(09750)

The NAS shall disseminate the number of planned IFR departures for designated aerodromes. (09740)

The NAS shall disseminate the number of planned IFR arrivals for designated aerodromes. (09730)

The NAS shall disseminate the number of planned IFR departures for designated runways. (09720)

3.5.2.2.3.1 Disseminate demand projections to specialists

The NAS shall disseminate demand projections to specialists. (09830)

3.5.2.2.3.1.1 ATCSCC Specialists

The NAS shall disseminate 2-hour airway route segment demand projections to ATCSCC specialists. (12370)

The NAS shall disseminate 2-hour sector demand projections to ATCSCC specialists.
(12350)

The NAS shall disseminate IFR traffic demand projections to ATCSCC specialists for specified airway route segments. (12290)

The NAS shall disseminate airway route segment demand projections to ATCSCC specialists for up to 8 hours from the current time. (12330)

The NAS shall disseminate sector demand projections to ATCSCC specialists for up to 8 hours from the current time. (12310)

The NAS shall distribute sector workload information for specified look-ahead times to the ATCSCC specialist (11610)

The NAS shall distribute traffic count summary information for each sector in the NAS to the ATCSCC specialist. (11590)

The NAS shall disseminate ATCSCC flow information summaries to the local traffic management Coordinators. (09630)

The NAS shall disseminate IFR traffic demand projections to ATCSCC specialists for specified sectors. (12280)

3.5.2.2.3.1.2 ATCSCC Specialists Demand Requests

The NAS shall accept demand projection requests from ATCSCC specialists. (10770)

The NAS shall process demand projection requests from ATCSCC specialists. (10780)

The NAS shall disseminate the results of ATCSCC requested capacity projections within a means response time of 3 seconds of the request. (10790)

The NAS shall disseminate the results of ATCSCC requested capacity projections within the 99th percentile response time of 5 seconds of the request. (23670)

The NAS shall disseminate the results of ATCSCC requested capacity projections within a maximum response time of 10 seconds of the request. (23680)

3.5.2.2.3.1.3 Local Traffic Management Specialists

The NAS shall disseminate airway route segment demand projections to local traffic management coordinators for up to 2 hours from the current time. *(12450)*

The NAS shall disseminate sector demand projections to local traffic management coordinators for up to 2 hours from the current time *(12430)*

The NAS shall disseminate 8-hour airway route segment demand projections to local traffic management coordinators *(12410)*

The NAS shall disseminate 8-hour sector demand projections to local traffic management coordinators. *(12390)*

The NAS shall distribute sector workload information for specified look-ahead times to the Local Traffic Management Coordinators. *(11600)*

The NAS shall distribute traffic count summary information for each sector in the NAS to the Traffic Management Coordinators. *(11580)*

The NAS shall disseminate flow management information to the local traffic management coordinators. *(09610)*

The NAS shall disseminate flight data information to local traffic management coordinators. *(30890)*

3.5.2.2.3.1.4 Local Traffic Management Demand Requests

The NAS shall accept demand projection requests from local traffic management coordinators. *(10830)*

The NAS shall process demand projection requests from local traffic management coordinators. *(10840)*

The NAS shall disseminate the results of local traffic management coordinator demand projection requests within a means response time of 3 seconds of the request. *(10850)*

The NAS shall disseminate the results of local traffic management coordinator demand projection requests within a means response time of 5 seconds of the request. *(10850)*

The NAS shall disseminate the results of local traffic management coordinator demand projection requests within a maximum response time of 10 seconds of the request. *(10850)*

3.5.2.3 Evaluate Capacity and Demand

The NAS shall evaluate capacity and demand. *(30900)*

The NAS shall be capable of exchanging airport utilization data and scheduled airline data, in both voice and data formats, with appropriately equipped airline dispatch offices. *(19450)*

The NAS shall analyze available airdrome capacity based on saturation information. *(11650)*

The NAS shall analyze airspace capacity based on saturation information. *(11640)*

3.5.2.3.1 Analyze traffic saturation conditions.

The NAS shall predict airspace saturation no less than 8 hours in advance. *(11560)*

The NAS shall distribute traffic saturation summary information. *(11550)*

The NAS shall measure traffic saturation for selected aerodromes. *(11540)*

The NAS shall analyze potential traffic saturation for selected airdromes. *(11530)*

The NAS shall analyze potential traffic saturation for selected airspace. *(11520)*

The NAS shall analyze actual traffic saturation for selected airdromes. (11510)

The NAS shall analyze actual traffic saturation for selected airspace. (11500)

3.5.2.4 Coordinate Traffic Flow Strategies

The NAS shall coordinate TM initiatives with specialists. (31020)

The NAS shall coordinate traffic flow strategies. (31010)

3.5.2.4.1 Analyze Traffic Flow Alternatives

The NAS shall analyze alternate trial rerouting of proposed aircraft flight plans to resolve or minimize saturation conditions. (11810)

The NAS shall analyze operational alternatives based on saturation information. (11670)

The NAS shall analyze flight restrictions for specific aircraft based on saturation information. (11660)

The NAS shall analyze spacing advisories for clearance-based trajectories. (12040)

The NAS shall analyze spacing advisories for aircraft-aircraft conflicts. (12050)

The NAS shall analyze spacing advisories for aircraft intrusion into special use airspace. (12060)

3.5.2.4.2 Coordinate Alternatives

The NAS shall allocate available aerodrome capacity. (11750)

The NAS shall allocate available airspace capacity. (11740)

The NAS shall process derived alternatives to the specialist. (11690)

The NAS shall process derived alternatives to the user. (11680)

The NAS shall generate local flow restrictions. (11980)

The NAS shall generate interfacility traffic flow plans. (11960)

The NAS shall disseminate interfacility traffic flow plans. (11970)

The NAS shall notify specialists controlling the affected flights upon detection of airspace changes. (12090)

3.5.2.4.2.1 Exchange Traffic Flow Information

The NAS shall exchange traffic flow information between specialists. (31070)

The NAS shall exchange voice information between flight service specialists. (11890)

The NAS shall exchange data flow control information between flight service specialists. (11880)

The NAS shall exchange voice information between ATCSCC specialists. (11870)

The NAS shall exchange data flow control information between ATCSCC specialists. (11860)

The NAS shall exchange data flow control information between local traffic management coordinators and specialists. (11850)

The NAS shall disseminate voice information between local traffic management coordinators and specialists. (11840)

3.5.2.4.2.1.1 Data Connectivity

The NAS shall have connectivity between the ATCSCC and the military scheduling facilities. (11950)

The NAS shall have data connectivity between all flight service stations and the ATCSCC. (11940)

The NAS shall have data connectivity between selected air traffic control facilities and the ATCSCC. (11930)

The NAS shall have data connectivity between the ATCSCC specialists and the local traffic management coordinators. (11920)

3.5.2.4.2.1.2 Voice Connectivity

The NAS shall have voice connectivity between the ATCSCC specialists and the local traffic management coordinators. (11910)

The NAS shall have voice connectivity between the local traffic management coordinators and the ATCSCC specialists. (11900)

3.5.2.4.3 Participating Aircraft Information

The NAS shall determine flight restrictions for specific aircraft. (11760)

The NAS shall generate trajectories for all aircraft participating in TM initiatives. (31030)

The NAS shall process requests for aircraft information relating to aircraft participating in TM strategies. (31040)

3.5.2.4.3.1 Disseminate Aircraft Information

The NAS shall disseminate flight information of aircraft participating in TM initiatives to specialists. (31050)

The NAS shall disseminate the current location for each participating aircraft to TM specialists. (10940)

The NAS shall disseminate the current altitude for each participating aircraft to TM specialists. (10950)

The NAS shall disseminate the current speed for each participating aircraft to TM specialists. (10960)

The NAS shall disseminate the current track for each participating aircraft to TM specialists. (10970)

3.5.2.4.3.1.1 Aircraft Information to ATCSCC Specialists

The NAS shall disseminate the projected altitude of each aircraft to ATCSCC specialists. (11150)

The NAS shall disseminate the projected speed of each aircraft to ATCSCC specialists. (11160)

The NAS shall disseminate the projected track of each aircraft to ATCSCC specialists. (11170)

3.5.2.4.3.1.1.1 ATCSCC Aircraft Information Request

3.5.2.4.3.1.1.1.1 Participating Aircraft Position

The NAS shall disseminate ATCSCC specialist requested aircraft position predictions within a means time of 3.0 seconds of the request. (11270)

The NAS shall disseminate ATCSCC specialist requested aircraft position predictions within the 99th percentile response time of 5.0 seconds of the request. (11280)

The NAS shall disseminate ATCSCC specialist requested aircraft position predictions within a maximum response time of request of 10.0 seconds of the request. (23690)

3.5.2.4.3.1.1.2 Participating Aircraft Altitude

The NAS shall disseminate ATCSCC specialist requested aircraft altitude predictions within a means time of 3.0 seconds of the request. (23690)

The NAS shall disseminate ATCSCC specialist requested aircraft altitude predictions within the 99th percentile response time of 5.0 seconds of the request. (23700)

The NAS shall disseminate ATCSCC specialist requested aircraft altitude predictions within a maximum response time of request of 10.0 seconds of the request. (23710)

3.5.2.4.3.1.1.3 Participating Aircraft Speed

The NAS shall disseminate ATCSCC specialist requested aircraft speed predictions within a means time of 3.0 seconds of the request. (23720)

The NAS shall disseminate ATCSCC specialist requested aircraft speed predictions within the 99th percentile response time of 5.0 seconds of the request. (23730)

3.5.2.4.3.1.1.4 Participating Aircraft Heading

The NAS shall disseminate ATCSCC specialist requested aircraft heading predictions within a means time of 3.0 seconds of the request. (23750)

The NAS shall disseminate ATCSCC specialist requested aircraft heading predictions within the 99th percentile response time of 5.0 seconds of the request. (23760)

The NAS shall disseminate ATCSCC specialist requested aircraft heading predictions within a maximum response time of request of 10.0 seconds of the request. (23740)

The NAS shall disseminate ATCSCC specialist requested aircraft heading predictions within a maximum response time of request of 10.0 seconds of the request. (REPEAT) (23770)

3.5.2.4.3.1.2 Aircraft Information to Local Traffic Management Coordinators

The NAS shall disseminate flight data information to local traffic management coordinators. (09600)

Information about each aircraft's position, altitude, speed, and track shall be provided to the local traffic management coordinators. (19460)

The NAS shall disseminate requested aircraft heading information to local traffic management coordinators within a means response time of 3 seconds of a request. (11130)

The NAS shall disseminate the projected location of each aircraft to local traffic management coordinators. (11180)

The NAS shall disseminate the projected altitude of each aircraft to local traffic management coordinators. (11190)

The NAS shall disseminate the projected speed of each aircraft to local traffic management coordinators. (11200)

The NAS shall disseminate the projected track of each aircraft to local traffic management coordinators. (11210)

The NAS shall disseminate the current track for each participating aircraft to local traffic management coordinators. (11010)

The NAS shall disseminate the current speed for each participating aircraft to local traffic management coordinators. (11000)

The NAS shall disseminate the current altitude for each participating aircraft to local traffic management coordinators. (10990)

The NAS shall disseminate the current location for each participating aircraft to local traffic management coordinators. (10980)

3.5.2.4.3.1.2.1 Local Traffic Management Coordinators Information Request

The NAS shall accept aircraft track requests from local traffic management. (11090)

The NAS shall accept aircraft speed requests from local traffic management coordinators. (11080)

The NAS shall accept aircraft altitude requests from local traffic management coordinators. (11070)

The NAS shall accept aircraft position requests from local traffic management coordinators. (11060)

3.5.2.4.3.1.2.1.1 Participating Aircraft Position

The NAS shall disseminate requested aircraft position information to local traffic management coordinators within a means response time of 3.0 seconds of a request. (23840)

The NAS shall disseminate requested aircraft position information to local traffic management coordinators within the 99th percentile response time of 5.0 seconds of a request. (23850)

The NAS shall disseminate requested aircraft position information to local traffic management coordinators within a maximum response time of 10.0 seconds of a request. (23860)

The NAS shall disseminate horizontal position information to local traffic management coordinators with accuracy greater than 1.0 (99th percentile) nautical miles for targets within a range up to 100 NMI of the primary surveillance detector. (11030)

The NAS shall disseminate horizontal position information to local traffic management coordinators with an accuracy of 2.04 (99th percentile) nautical miles for target ranges greater than 100 NMI of the primary surveillance detector. (11020)

3.5.2.4.3.1.2.1.2 Participating Aircraft Altitude

The NAS shall disseminate requested aircraft altitude information to local traffic management coordinators within a means response time of 3.0 seconds of a request. (11110)

The NAS shall disseminate requested aircraft altitude information to local traffic management coordinators within the 99th percentile response time of 5.0 seconds of a request. (23820)

The NAS shall disseminate requested aircraft altitude information to local traffic management coordinators within a maximum response time of 10.0 seconds of a request. (23830)

3.5.2.4.3.1.2.1.3 Participating Aircraft Heading

The NAS shall disseminate requested aircraft heading information to local traffic management coordinators within the 99th percentile response time of 5 seconds of a request. (23780)

The NAS shall disseminate requested aircraft heading information to local traffic management coordinators within a maximum response time of 10 seconds of a request. (23790)

The NAS shall disseminate requested aircraft track to the local traffic management coordinator with accuracy greater than 5 degrees for aircraft in straight-line flight. (11040)

3.5.2.4.3.1.2.1.4 Participating Aircraft Speed

The NAS shall disseminate requested aircraft speed information to local traffic management coordinators within a means response time of 3.0 seconds of a request. (11120)

The NAS shall disseminate requested aircraft speed information to local traffic management coordinators within the 99th percentile response time of 5.0 seconds of a request. (23800)

The NAS shall disseminate requested aircraft speed information to local traffic management coordinators within a maximum response time of 10.0 seconds of a request. (23810)

The NAS shall disseminate requested aircraft speed to the local traffic management coordinator with accuracy greater than 20 knots for an aircraft in constant straight-line flight. (11050)

3.5.2.4.3.2 Participating Aircraft Projection

The NAS shall utilize aircraft flight plan information for short-term projections. (11250)

The NAS shall utilize actual aircraft track for short-term projections. (11240)

The NAS shall utilize actual aircraft speed for short-term projections. (11230)

The NAS shall utilize actual aircraft position for short-term projections. (11220)

The NAS shall disseminate long-term projections based on flight plan information for the entire flight of the aircraft. (11260)

3.5.2.5 Implement Traffic Flow Initiatives

The NAS shall implement traffic flow initiatives. (31080)

3.5.2.5.1 Disseminate Derived Restrictions**3.5.2.5.1.1 Disseminate Flow Control Information**

The NAS shall disseminate flow control information to specialists. (31060)

The NAS shall disseminate pre-departure flow restriction alerts. (12160)

The NAS shall disseminate pre-departure airspace restriction alerts. (12150)

3.5.2.5.1.2 Derived Restrictions to Specialists

The NAS shall disseminate derived alternate courses of action to the specialist. (11730)

The NAS shall disseminate derived restrictions to the specialist. (11710)

The NAS shall disseminate alternate courses of action relative to flight restrictions to specialists. *(11800)*

The NAS shall communicate flight restrictions to specialists. *(11780)*

3.5.2.5.1.2.1 ATCSCC Specialists

The NAS shall disseminate alternate trial rerouting to ATCSCC specialists to resolve or minimize saturation conditions. *(11820)*

3.5.2.5.1.2.1.1 ATCSCC Specialists' Requests

The NAS shall disseminate requested delay advisory information to ATCSCC specialists within a means response time of 3.0 seconds of the request. *(12480)*

The NAS shall disseminate requested delay advisory information to ATCSCC specialists within the 99th percentile response time of 5.0 seconds of the request. *(23910)*

The NAS shall disseminate requested delay advisory information to ATCSCC specialists within a maximum response time of 10.0 seconds of the request. *(23920)*

The NAS shall disseminate requested flow control advisory information to ATCSCC specialists within a means response time of 3.0 seconds of the request. *(12470)*

The NAS shall disseminate requested flow control advisory information to ATCSCC specialists within the 99th percentile response time of 5.0 seconds of the request. *(23930)*

The NAS shall disseminate requested flow control advisory information to ATCSCC specialists within a maximum response time of 10.0 seconds of the request. *(23940)*

3.5.2.5.1.2.2 Traffic Flow Management Specialists

The NAS shall disseminate flow control information to traffic management specialists via NAS voice communications. *(12510)*

The NAS shall disseminate flow control information to local traffic management specialists via NAS data communications. *(12520)*

The NAS shall disseminate flow control information to traffic management coordinators via NAS data communications. *(12530)*

The NAS shall disseminate flow control information to traffic management specialists via NAS voice communications. *(12540)*

The NAS shall disseminate flow control information to traffic management specialists via NAS data communications. *(12550)*

The NAS shall distribute alternate trial rerouting to the local Traffic Management Coordinator to resolve or minimize saturation conditions. *(11830)*

The NAS shall disseminate local flow restrictions to local traffic management coordinators. *(11990)*

The NAS shall disseminate interfacility flow restrictions to local traffic management coordinators. *(12000)*

3.5.2.5.1.2.2.1 Traffic Flow Management Requests

3.5.2.5.1.2.2.1.1 Request for Delay Advisories

The NAS shall disseminate requested delay advisory information to local traffic management specialists within a means response time of 3.0 seconds of the request. *(12500)*

The NAS shall disseminate requested delay advisory information to local traffic management specialists within the 99th percentile response time of 5.0 seconds of the request. (23870)

The NAS shall disseminate requested delay advisory information to local traffic management specialists within a maximum response time of 10.0 seconds of the request. (23880)

3.5.2.5.1.2.2.1.2 Request for Flow Control Advisories

The NAS shall disseminate requested flow control advisory information to local traffic management specialists within a means response time of 3.0 seconds of the request. (12490)

The NAS shall disseminate requested flow control advisory information to local traffic management specialists within the 99th percentile response time of 5.0 seconds of the request. (23890)

The NAS shall disseminate requested flow control advisory information to local traffic management specialists within a maximum response time of 10.0 seconds of the request. (23900)

3.5.2.5.1.3 Derived Restrictions to Users

3.5.2.5.1.3.1 Disseminate Flow Control Information

The NAS shall disseminate derived restrictions to the user. (11700)

The NAS shall disseminate derived alternative courses of action to the user. (11720)

The NAS shall disseminate flight restrictions to users. (11770)

The NAS shall disseminate alternate courses of action relative to flight restrictions to users. (11790)

The NAS shall disseminate flow control information to users via external voice communications. (07910)

The NAS shall disseminate flow control information to users via external data interfaces. (07920)

3.5.2.5.1.3.2 User Requests for Information

3.5.2.5.1.3.2.1 Flow Control Advisories

The NAS shall disseminate requested flow control advisory information to users within a means response time of 3.0 seconds of the request. (07890)

The NAS shall disseminate requested flow control advisory information to users within a 99th percentile response time of 5.0 seconds of the request. (23950)

The NAS shall disseminate requested flow control advisory information to users within a maximum response time of 10.0 seconds of the request. (23960)

3.5.2.5.1.3.2.2 Delay Advisories

The NAS shall disseminate requested delay advisory information to users within a means response time of 3.0 seconds of the request. (07900)

The NAS shall disseminate requested delay advisory information to users within a 99th percentile response time of 5.0 seconds of the request. (23970)

The NAS shall disseminate requested delay advisory information to users within a maximum response time of 10.0 seconds of the request. (23980)

3.5.2.5.2 Non-Compliance

The NAS shall detect current clearance-based trajectories that are in noncompliance with flow restrictions. (22000)

The NAS shall disseminate advisories to the specialist to resolve noncompliance of current clearance-based trajectories with flow restrictions. (22010)

3.5.2.6 Modify Current Flow Strategies

The NAS shall modify current flow strategies. (31090)

The NAS shall generate alternate plans to alleviate traffic flow problems (12460)

3.5.3 Performance Assessment

3.5.3.1 Flight Day Performance Information

The NAS shall store flight day performance information. (31110)

The NAS shall retrieve flight day performance information. (31120)

The NAS shall archive flight day performance information. (31130)

The NAS shall record flight day performance information. (31140)

3.5.3.2 Assess the system performance of the NAS.

The NAS shall assess the system performance of the NAS. (31150)

The NAS shall evaluate the effectiveness of flow restrictions implemented in the NAS. (12010)

3.5.3.3 Identify deficiencies in the capacity of selected airspace.

The NAS shall identify deficiencies in the capacity of selected airspace. (31160)

The NAS shall generate proposals to correct the identified capacity deficiencies. (31170)

3.6 Emergency and Alerting

3.6.1 Emergency Assistance

3.6.1.1 Emergency Response

The NAS shall accept an emergency transmission from any user declaring an emergency. (12660)

The NAS shall recommend courses of action to any user declaring an emergency. (12670)

The NAS shall record all received emergency communications. (12680)

The NAS shall record all transmitted emergency communications. (12690)

The NAS shall store all recorded emergency communications. (12700)

The NAS shall archive all recorded emergency communications. (12710)

The NAS shall communicate with a user that has declared an emergency on the existing channel or frequency until frequency is unavailable. (12720)

The NAS shall evaluate alternate courses of action to expedite resolution of emergency situations. (12810)

The NAS shall disseminate emergency information over commercially available communications systems. (13390)

3.6.1.2 Search and Rescue

The NAS shall process airspace reservations submitted by aircraft. (13190)

The NAS shall alert specialists when the flight exceeds 30 minutes past its expected time of arrival (ETA). (13070)

The NAS shall accept flight plan amendments received from search and rescue aircraft. (13170)

The NAS shall accept flight plan amendments received from search and rescue agencies. (13160)

The NAS shall accept airspace reservations from search and rescue aircraft. (13150)

The NAS shall accept airspace reservations from search and rescue agencies. (13140)

The NAS shall disseminate essential information on missing aircraft. (13130)

The NAS shall retrieve essential information on missing aircraft. (13120)

The NAS shall retrieve essential information on overdue aircraft. (13110)

The NAS shall assist with search and rescue activities. (13010)

The NAS shall respond to emergency transmissions received via landline. (12630)

The NAS shall respond to emergency transmissions received via data link. (12620)

The NAS shall respond to emergency transmissions received via radar beacon. (12610)

The NAS shall respond to emergency transmission received via radio communications. (12600)

The NAS shall respond to requests for assistance from in-flight users. (12560)

3.6.1.3 Emergency Information Dissemination

The NAS shall disseminate information about an emergency to affected ATC facilities. (12790)

The NAS shall alert other ATC specialists along the proposed route of an aircraft when an apparent failure of on board air-ground communications is detected. (12850)

The NAS shall disseminate to specialists geographic coordinates of ELT transmission sites upon determination of the coordinates based on the report of detection from a non-ATC source. (13320)

The NAS shall disseminate to specialists geographic coordinates of ELT transmission sites upon detection of the transmission. (13310)

The NAS shall disseminate essential emergency information to the specialist on request. (19720)

The NAS shall deliver alerts that repeat. (13490)

The NAS shall deliver alerts that must be manually deactivated by the specialist. (13480)

The NAS shall deliver aural alerts to the specialist. (13470)

The NAS shall deliver visual alerts to the specialist. (13460)

The NAS shall exchange Essential Information and Emergency Alert Information with External Agencies Cooperating in Search and Rescue via voice communications systems. (22340)

The NAS shall exchange Essential Information and Emergency Alert Information with External Agencies Cooperating in Search and Rescue via external data interfaces. (22330)

The NAS shall exchange Essential Information and Emergency Alert Information with aircraft in the area via voice communications systems. (22320)

The NAS shall exchange Essential Information and Emergency Alert Information with aircraft in the area via external data interfaces. (22310)

The NAS shall exchange Essential Information and Emergency Alert Information between specialists via voice communications systems. (22300)

The NAS shall exchange Essential Information and Emergency Alert Information between specialists via external data interfaces. (22290)

3.6.1.4 Emergency Alert Information

The NAS shall disseminate magnetic heading to navigational aids upon user request. (13000)

The NAS shall disseminate magnetic heading to suitable aerodromes upon user request. (12990)

The NAS shall disseminate distance to suitable navigational aids upon user request. (12980)

The NAS shall disseminate distance to suitable aerodromes upon user request. (12970)

The NAS shall disseminate the location of an aircraft equipped with a functioning VHF transceiver in designated areas greater than or equal to 2000 feet AGL independent of surveillance capabilities. (12960)

The NAS shall determine the location of an aircraft equipped with a functioning VHF transceiver in designated areas greater than or equal to 2000 feet AGL independent of surveillance capabilities. (12950)

The NAS shall disseminate altitude of an aircraft with respect to known geographic positions to specialists. (12940)

The NAS shall disseminate range of an aircraft with respect to known geographic positions to specialists. (12930)

The NAS shall disseminate azimuth of an aircraft with respect to known geographic positions to specialists. (12920)

The NAS shall disseminate essential emergency information upon receipt of specialists' request. (12910)

The NAS shall disseminate amended flight plan data upon receipt of specialists' request. (12900)

The NAS shall disseminate original flight plan data upon receipt of specialists' request. (12890)

The NAS shall retrieve original flight plan data upon receipt of specialists' request. (12880)

The NAS shall disseminate information to users who have lost normal communications via alternate means. (12870)

The NAS shall alert ATC specialists at the proposed destination of an aircraft when an apparent failure of on board air-ground communications is detected. (12860)

The NAS shall disseminate emergency resolution recommendations to the specialist. (12840)

The NAS shall transmit aerodrome recommendations to expedite resolution of emergency situations. (12830)

The NAS shall transmit conflict-free flight path recommendations to expedite resolution of emergency situations. (12820)

The NAS shall alert private agencies to the existence of an emergency. (12780)

The NAS shall alert local government agencies to the existence of an emergency. (12770)

The NAS shall alert state agencies to the existence of an emergency. (12760)

The NAS shall alert federal agencies to the existence of an emergency. (12750)

The NAS shall alert foreign agencies to the existence of an emergency. (12740)

The NAS shall alert ATC facilities to the existence of an emergency. (12730)

3.6.1.5 Emergency Evaluation

The NAS shall analyze ELT transmission reports from satellites. (13300)

The NAS shall analyze ELT transmission reports from amateur radio operators. (13290)

The NAS shall analyze ELT transmission reports from pilots. (13280)

The NAS shall calculate the location of an aircraft in an emergency situation. (19700)

3.6.1.6 Emergency Information Processing

The NAS shall store essential emergency information. (12800)

The NAS shall accept ELT transmission reports from satellites. (13270)

The NAS shall accept ELT transmission reports from amateur radio operators. (13260)

The NAS shall accept ELT transmission reports from pilots. (13250)

The NAS shall acquire emergency information over commercially available communications systems. (13380)

3.6.2 Alerting Support

3.6.2.1 Emergency Transmission Monitoring

The NAS shall monitor ELT transmission at AFSS facilities. (13240)

The NAS shall monitor ELT transmission at TRACON facilities. (13230)

The NAS shall monitor ELT transmission at ATCT facilities. (13220)

The NAS shall monitor ELT transmission at ARTCC facilities. (13210)

The NAS shall monitor transmissions from Emergency Locator Transmitters (ELT) continuously. (13200)

The NAS shall monitor flight progress to ensure timely emergency assistance. (13400)

The NAS shall continuously monitor air-to-ground communications utilizing designated frequencies for detection of emergency transmissions. (12650)

The NAS shall monitor emergency transmissions received via landline. (12640)

The NAS shall continuously monitor emergency transmission via data link. (12590)

The NAS shall continuously monitor emergency transmission via radar beacon. (12580)

The NAS shall continuously monitor emergency transmissions via radio communications. (12570)

3.6.2.2 Emergency Communication Support

The NAS shall maintain emergency communications compatible with DoD. (13540)

The NAS shall maintain emergency communications compatible with fire departments. (13620)

The NAS shall maintain emergency communications compatible with local police officials. (13610)

The NAS shall maintain emergency communications compatible with amateur radio operators. (13600)

The NAS shall maintain emergency communications compatible with Civil Defense. (13590)

The NAS shall maintain emergency communications compatible with FEMA. (13580)

The NAS shall maintain emergency communications compatible with U.S. Coast Guard. (13570)

The NAS shall maintain emergency communications compatible with military command posts. (13560)

The NAS shall maintain emergency communications compatible with NCA. (13550)

3.6.2.3 Emergency Detection

The NAS shall initiate search and rescue activities. (13020)

The NAS shall alert specialists when the time for re-establishing contact with an aircraft operating over NAS-designated hazardous areas exceeds 15 minutes. (13080)

The NAS shall detect unreported aircraft located outside the NAS area of coverage but within Flight Information Regions. (13100)

The NAS shall detect overdue aircraft located outside the NAS area of coverage but within Flight Information Regions. (13090)

The NAS shall detect unreported aircraft. (13060)

The NAS shall detect overdue aircraft. (13050)

The NAS shall detect unreported aircraft. (13040)

The NAS shall detect overdue aircraft. (13030)

The NAS shall process airspace reservations submitted by search and rescue agencies. (13180)

The NAS shall disseminate to the specialist a list of aerodromes located within a 100-mile-wide corridor along the projected route from the last known position for overdue aircraft. (13330)

The NAS shall disseminate emergency alert information selected by the specialist. (13340)

The NAS shall disseminate Search and Rescue information to specialists. (13350)

The NAS shall exchange information with agencies involved in search and rescue activities. (13360)

The NAS shall coordinate with agencies involved in search and rescue activities. (13370)

The NAS shall maintain a hazardous area reporting service for users operating in NAS designated lake areas. (13410)

The NAS shall maintain a hazardous area reporting service for users operating in NAS designated island areas. (13420)

The NAS shall maintain a hazardous area reporting service for users operating in NAS designated mountain areas. (13430)

The NAS shall maintain a hazardous area reporting service for users operating in NAS designated swamp areas. (13440)

The NAS shall deliver systems that alert specialists when a flight receiving flight following services is overdue. (13450)

The NAS shall initiate emergency procedures when a specialist deems aircraft is overdue. (13500)

The NAS shall disseminate to the specialist a prioritized list of facilities to be notified in to begin a communications search for overdue aircraft. (13510)

The NAS shall disseminate to the specialist any historical information on an overdue aircraft that may aid in the communications search. (13520)

The NAS shall disseminate to the specialist any historical information on a pilot that may aid in the communications search. (13530)

The NAS shall disseminate essential emergency information to agencies involved in search and rescue activities. (19730)

3.7 Navigation

3.7.1 Airborne Guidance

The NAS shall disseminate aeronautical fix information to NAS users. (14830)

The NAS shall disseminate the geodetic location of navigational reference point using a FAA approved datum. (14090)

The NAS shall establish a navigation network that is compatible with NAS-approved user equipment (14000)

The NAS shall coordinate navigation guidance information reception requirements between en route and terminal area navigation systems to minimize equipment costs to users. (14070)

The NAS shall comply with ICAO navigation guidance information requirement. (14080)

The NAS shall generate en route navigation guidance information designated for primary means of navigation. (22380)

The NAS shall disseminate navigation guidance information designated for primary means of navigation. (13700)

The NAS shall support en route navigation guidance information designated for supplemental means of navigation. (13710)

The NAS shall disseminate a unique identifier for each en route ground-based navigational guidance information sources. (14100)

The NAS shall disseminate relative bearing navigation guidance information that is in alignment with locally defined magnetic bearings. (13680)

The NAS shall generate navigation guidance information for aircraft operating under instrument meteorological conditions. (19800)

The NAS shall disseminate navigation guidance information to areas of NAS responsibility. (19810)

The NAS ground-based navigational aids shall transmit a unique identification signal within its area of signal coverage. (17160)

3.7.1.1 All weather airborne navigation guidance

3.7.1.1.1 En route airborne navigation guidance

The NAS shall generate space-based en route altitude navigation guidance information. (13810)

The NAS shall disseminate space-based en route altitude navigation guidance information. (31280)

The NAS shall generate en route position guidance navigation information. (13690)

The NAS shall generate ground-based relative position guidance information for en route navigation. (13720)

The NAS shall disseminate theta reference information about en route ground-based navigation aids providing relative bearing navigation guidance information in navigation charts. (14040)

The NAS shall disseminate en route theta (q) navigation guidance information to an unlimited number of aircraft simultaneously. (13930)

The NAS shall align angular guidance information (theta) of ground-based en route navigation information with the local magnetic-bearing reference system. (14020)

The NAS shall align the origin of en route ground-based angular (theta) guidance information with the corresponding geographical coordinates. (14030)

The NAS shall disseminate en route rho (r) navigation guidance distance information to no less than 100 aircraft, concurrently. (13940)

3.7.1.1.1.1 En route path guidance

The NAS shall generate en route navigational path guidance information. (13630)

The NAS shall generate en route navigation course deviation guidance information. (13760)

The NAS shall disseminate en route path guidance navigation information. (13640)

The NAS shall disseminate en route navigation course deviation guidance information. (13770)

The NAS shall disseminate en route deviation-from-selected-course navigational guidance information at an update rates sufficient to support coupled autopilot operation. (14060)

3.7.1.1.1.2 En route position guidance

The NAS shall generate space-based en route geographic position navigation guidance information. (31290)

The NAS shall disseminate space-based en route geographic position navigation guidance information. (13750)

The NAS shall disseminate en route position guidance navigation information. (13650)

The NAS shall disseminate en route relative position navigation guidance information. (13660)

The NAS shall disseminate ground-based relative position guidance information for en route navigation. (13730)

The NAS shall disseminate en route position navigational guidance information at an update rates sufficient to support coupled autopilot operations. (14050)

3.7.1.1.1.3 Accuracy of en route guidance information

The NAS shall disseminate space-based en route navigation guidance information such that the probability of detecting hazardous misleading information is less than 1.0×10^{-7} per hour. (32430)

The NAS shall support the detection of space-based en route horizontal position navigation guidance information with a 95th percentile horizontal radial position error (R-95) less than or equal to 328 feet (100 meters) (13920)

3.7.1.1.1.4 Continuity of en route navigation service

The NAS shall disseminate space-based en route navigation guidance information with a continuity of navigation service of at least $1 - (1.0 \times 10^{-7})$ per hour. (13870)

The NAS shall disseminate navigational guidance information on a continuous basis. (14800)

3.7.1.1.1.5 Area specific en route navigation guidance service

The NAS shall disseminate en route navigational guidance information to remote areas, between 500 feet AGL and FL 600 for course guidance along normal density traffic routes with a maximum width of 20 nmi. (13830)

The NAS shall disseminate navigational guidance information for limited-use applications, such as rotorcraft, between 500 feet above the surface to 5000 feet for course guidance along low traffic density, offshore routes with a maximum width of 8 nmi. (13850)

The NAS shall disseminate navigation guidance information to off-shore oceanic areas between the altitudes of FL 275 and FL 400 for course guidance along normal density traffic routes of widths less than 60 nmi. (13800)

The NAS shall disseminate navigational guidance information in domestic areas, between 500 feet AGL and flight level 600 for course guidance along normal density traffic route of widths less than 8 NMI. (15420)

The NAS shall disseminate en route navigation guidance information in NAS controlled airspace between 2000 feet AGL and Flight Level 600. (13780)

3.7.1.1.2 Terminal area airborne navigation guidance

The NAS shall generate terminal navigation guidance information. (14140)

The NAS shall generate terminal navigational guidance information under all weather conditions. (14790)

The NAS shall generate ground-based terminal navigation aeronautical fix relative distance guidance information. (14270)

The NAS shall generate ground-based terminal navigation aeronautical fix relative bearing guidance information. (14250)

The NAS shall disseminate terminal navigational guidance information under all weather conditions. (14780)

The NAS shall disseminate terminal navigation guidance information. (14150)

The NAS shall disseminate unambiguous terminal navigational guidance. (14740)

The NAS shall disseminate terminal navigation guidance deviation-from-selected-course information. (14290)

3.7.1.1.2.1 Terminal navigation guidance, vertical

The NAS shall disseminate terminal navigation guidance information to enable users to determine aircraft position on a vertical plane. (14170)

3.7.1.1.2.2 Terminal navigation guidance, lateral

The NAS shall generate terminal area relative distance navigation information for a minimum of 100 aircraft, concurrently. (14710)

The NAS shall disseminate terminal navigation guidance information to enable users to determine aircraft position on a horizontal plane. (14160)

The NAS shall disseminate terminal navigational guidance information with sufficient accuracy to support establishing routes within terminal service volumes with widths 4 nmi or less. (14300)

The NAS shall disseminate terminal navigation guidance information to enable users to determine distance information. (14180)

The NAS shall disseminate space-based navigation guidance information for terminal navigation with a 95th percentile horizontal radial position error (R-95) less than or equal to 328 feet (100 meters). (14370)

The NAS shall disseminate space-based navigation guidance information in terminal areas with a 95th percentile horizontal radial position error (R-95) of 328 feet (100 meters). (22600)

The NAS shall disseminate terminal area relative distance navigation information for a minimum of 100 aircraft, concurrently. (14720)

The NAS shall disseminate ground-based terminal navigation aeronautical fix relative bearing guidance information. (14260)

The NAS shall disseminate ground-based terminal navigation aeronautical fix relative distance guidance. (14280)

The NAS shall disseminate available supplemental terminal navigation guidance information error correction values to Specialists. (14830)

The NAS shall disseminate available supplemental terminal navigation guidance information error correction values to users. (14820)

3.7.1.1.3 Airport area navigation guidance

3.7.1.1.3.1 Airport approach guidance

3.7.1.1.3.1.1 All weather airport approach guidance

The NAS shall generate approach navigation guidance information at designated aerodromes. (14200)

The NAS shall disseminate approach navigation guidance information at designated aerodromes. (14190)

The NAS shall generate landing navigation guidance information at designated aerodromes. (14210)

The NAS shall disseminate landing navigation guidance information at designated aerodromes. (14220)

3.7.1.1.3.1.1.1 All weather non-precision approach navigation guidance

The NAS shall disseminate navigational guidance information for established non-precision approach and landing routes. (14310)

The NAS shall disseminate space-based navigation guidance information for non-precision approaches with a 95th percentile horizontal radial position error (R-95) less than or equal to 328 feet (100 meters). (14360)

The NAS shall disseminate space-based navigation guidance information for non-precision approaches with integrity such that the probability of broadcasting hazardously misleading information is less than 1.0×10^{-7} per hour. (14380)

The NAS shall disseminate space-based navigation guidance information for non-precision approaches with a continuity of not less than $1.0 - (1.0 \times 10^{-8})$ per hour. (14390)

The NAS shall generate space-based non-precision approach navigation guidance information with an availability of navigation and fault detection information greater than $1 - (1.0 \times 10^{-5})$. (14400)

The NAS shall disseminate lateral navigation guidance information to non-precision approach missed approach points with a cross-track accuracy of 0.3 nmi. (14340)

The NAS shall disseminate non-precision approach missed-approach position guidance information to users. (14330)

3.7.1.1.3.1.1.2 All weather precision approach guidance

The NAS shall disseminate precision navigational guidance in terminal approach sectors. (14760)

The NAS shall disseminate precision-landing glide path guidance information to an unlimited number of aircraft. (14700)

The NAS shall disseminate space-based navigation guidance information within designated precision approach performance boundary. (14630)

The NAS shall generate precision approach navigational guidance in terminal approach sectors. (14750)

The NAS shall generate autonomous precision-landing lateral course guidance information. (14680)

The NAS shall disseminate precision approach relative distance navigation information to minimum of 100 aircraft, concurrently. (29000)

The NAS shall generate precision approach relative distance navigation information for a minimum of 100 aircraft, concurrently. (14730)

The NAS shall disseminate navigation guidance position information for precision approaches at an update rate sufficient to support coupled autopilot operations. (14650)

The NAS shall disseminate deviations from-selected-course navigation information for precision approaches at an update rate sufficient to support coupled autopilot operations. (14660)

The NAS shall disseminate precision-landing lateral course guidance information to a unlimited number of aircraft. (14670)

The NAS shall generate precision-landing glide path guidance information for an unlimited number of aircraft. (14690)

The NAS shall define the minimum volume limits of a terminal precision approach sector such that the area defined by a 20 nmi radius arc (with the vertex at the landing zone) sweeping through an angle from +40 to -40 degrees of the precision approach centerline, and arc area then swept vertical from a 0.9 degrees to 15 degrees above the an earth tangent plane at the landing surface, is inside the volume of the approach sector. (22690)

3.7.1.1.3.1.1.2.1 Category I approach navigation guidance

The NAS shall disseminate space-based navigation guidance information for Category I approaches with the probability of presenting hazardously misleading information of less than 1.3×10^{-7} per approach. (14610)

The NAS shall disseminate space-based navigation guidance information for Category I approaches with a continuity of navigation function no less than 1.0 - (1.0×10^{-4}) per approach. (14620)

The NAS shall disseminate space-based navigation guidance information for Category I approaches with a probability of generating hazardously misleading information within a precision approach performance boundary of less than 1.0×10^{-7} . (14640)

The NAS shall disseminate space-based Category I precision approach guidance information that qualifies as a sole means of navigation for at least 150 second from the time an aircraft cross the final approach fix. *(14540)*

The NAS shall disseminate space-based Category I precision approach sole means of navigation guidance information between the final approach fix and the point designated for missed approach (at 200 feet). *(31390)*

The NAS shall disseminate space-based navigation guidance information augmentation for Category I approaches from a designated final approach fix to a point on the approach path 200 feet above the runway threshold. *(14560)*

The NAS shall disseminate space-based navigation guidance information for designated Category I approaches between the altitudes of 100 and 3000 feet above the surface. *(14570)*

The NAS shall disseminate space-based Category I approach navigation guidance information with a 95th percentile spherical radial position error of 20.0 feet (6.20 meters). *(14600)*

3.7.1.1.3.1.1.2.2 Category I approach guidance

The NAS shall disseminate ground-based approach slope guidance information for Category I approaches between the altitudes of 100 and 3000 feet agl along the approach path. *(14430)*

The NAS shall disseminate ground-based navigation guidance information for Category I approaches with vertical accuracies of + 10 feet (+ 3.0 meters), 100 feet agl at the middle marker. *(14460)*

The NAS shall disseminate space-based Category I approach navigation guidance information with a 95th percentile vertical error of 32 feet at the point designated for missed approach (200 feet agl). *(14590)*

The NAS shall disseminate ground-based Category I approach lateral navigation guidance information between the altitudes of 100 and 3000 feet agl along the approach path. *(14440)*

The NAS shall disseminate ground-based navigation guidance information for Category I approaches with lateral accuracies of + 30 feet (+ 9.1 meters), 100 feet agl at the middle marker. *(14450)*

The NAS shall disseminate space-based Category I lateral navigation approach guidance information with a 95th percentile horizontal radial position error (R-95) less than or equal to 110 feet at the point designated for missed approach (200 feet agl). *(14580)*

3.7.1.1.3.1.1.2.3 Category II approach guidance

The NAS shall disseminate ground-based approach slope guidance information for Category II approaches between the altitudes of 50 and 3000 feet agl, along the approach path. *(31330)*

The NAS shall disseminate ground-based navigation guidance information for Category II approaches with vertical accuracies of + 4 feet (+ 1.2 meters) 50 feet agl at the inner marker. *(14490)*

The NAS shall disseminate ground-based lateral navigation guidance information for Category II approaches between the altitudes of 50 and 3000 feet agl, along the corresponding approach path. *(14470)*

The NAS shall disseminate ground-based navigation guidance information for Category II approaches with lateral accuracies of + 15 feet (+ 4.6 meters), at 50 feet agl, at the inner marker. *(14480)*

3.7.1.1.3.1.1.2.4 Category III approach guidance

The NAS shall disseminate ground-based approach slope guidance for Category III approaches between the surface and 3000 feet agl, along the approach path. *(31340)*

The NAS shall disseminate ground-based navigation guidance information for Category III approaches with vertical accuracies of + 1.2 feet (+ 0.4 meters), at 8 feet above the surface of the runway. *(14520)*

The NAS shall disseminate ground-based lateral navigation guidance for Category III approaches between the surface and 3000 feet agl, along the approach path. *(14500)*

The NAS shall disseminate ground-based navigation guidance information for Category III approaches with lateral accuracies of + 13.5 feet (+ 4.1 meters), at 8 feet above the surface of the runway. *(14510)*

3.7.1.1.3.2 Airport departure navigation guidance

The NAS shall disseminate departure navigation guidance information at designated aerodromes. *(14240)*

The NAS shall generate departure navigation guidance information at designated aerodromes. *(14230)*

3.7.1.2 Visual approach guidance

The NAS shall generate visual landing alignment guidance information. *(14820)*

The NAS shall implement intensity control of visual approach guidance information by specialists. *(19850)*

The NAS shall align instrument approach visual navigation guidance with the touchdown area centerline. *(14810)*

The NAS shall generate visual approach guidance that clearly identifies the type of landing area. *(15040)*

The NAS shall generate instrument approach visual navigation guidance at designated aerodromes. *(14960)*

The NAS shall generate visual approach slope guidance at designated aerodromes. *(15060)*

The NAS shall generate visual approach slope guidance with an effective visual range of no less than 3 miles during daylight hours. *(15070)*

The NAS shall generate visual approach slope guidance with an effective visual range of no less than 20 miles during night hours. *(15080)*

The NAS shall generate visual navigation approach slope guidance at designated airports to a distance no less than 4 nmi from the touchdown zone. *(15270)*

The NAS shall generate visual approach slope navigational guidance at designated heliports starting at a minimum distance of 4 nmi from the landing zone to a distance no less than 0.66 nmi from the landing zone. *(15280)*

3.7.1.2.1 Visual approach slope guidance

The NAS shall generate a visual indication of acceptable-approach slope guidance at designated aerodromes. *(15090)*

The NAS shall generate a visual indication of unacceptable approach slope guidance at designated aerodromes. *(15100)*

The NAS shall generate visual navigation guidance for offset visual approaches as dictated by individual aerodrome characteristics. *(14940)*

The NAS shall generate visual navigation guidance for straight-in visual approaches as dictated by individual aerodrome characteristics. *(14950)*

The NAS shall generate visual landing guidance for curved approaches to supplement electronic approach landing guidance as dictated by aerodrome characteristics. *(15000)*

The NAS shall generate visual landing guidance for offset approaches to supplement electronic approach landing guidance as dictated by aerodrome characteristics. *(15010)*

The NAS shall generate visual landing guidance for high angle approaches to supplement electronic approach landing guidance as dictated by aerodrome characteristics. *(15020)*

The NAS shall generate visual landing guidance for straight-in approaches to supplement electronic approach landing guidance as dictated by aerodrome characteristics. *(15030)*

3.7.1.2.2 Visual non-precision approach guidance

The NAS shall generate non-precision instrument approach runway visual navigation guidance from the runway threshold to no less than 400 feet in the direction of the approach. *(14980)*

The NAS shall generate visual navigation guidance for curved non-precision approaches as dictated by individual aerodrome characteristics. *(14900)*

The NAS shall generate visual navigation guidance for offset non-precision approaches as dictated by individual aerodrome characteristics. *(14910)*

The NAS shall generate visual navigation guidance for straight-in non-precision approaches as dictated by individual aerodrome characteristics. *(14920)*

3.7.1.2.3 Precision visual approach guidance

The NAS shall generate precision instrument approach runway visual navigation guidance from the landing threshold to a distance no less than 2400 feet in the approach direction. *(14970)*

The NAS shall generate helipad precision instrument approach visual navigation guidance from the landing threshold to a distance no less than 1000 feet in the direction of the approach. *(14990)*

The NAS shall generate visual navigation guidance for straight-in precision approaches as dictated by individual aerodrome characteristics. *(14890)*

The NAS shall generate visual navigation guidance for offset precision approaches as dictated by individual aerodrome characteristics. *(14880)*

The NAS shall generate visual navigation guidance for curved precision approaches as dictated by individual aerodrome characteristics. *(14870)*

The NAS shall generate visual navigation guidance for curved visual approaches as dictated by individual aerodrome characteristics. *(14930)*

3.7.1.2.4 Visual obstacle avoidance guidance

The NAS disseminate nighttime visual navigation guidance information from airspace obstacles for a minimum range of 20 nmi in clear weather. *(15190)*

The NAS shall verify the proper marking of obstructions in the vicinity of the landing area. *(15180)*

3.7.2 Surface Guidance

The NAS shall generate visual navigation guidance that identifies those permanent obstructions on the aerodrome surface that could pose a threat to taxiing aircraft. *(15220)*

The NAS shall generate airport surface visual markings navigation information. *(15230)*

3.8 Airspace Management

3.8.1 Airspace Design

3.8.1.1 Design airspace structures

The NAS shall establish non-precision approach routes that allow for a 0.6 nmi cross-track error at the missed approach point. *(15510)*

The NAS shall establish non-precision approach and landing routes with route widths 2 nmi or less between 250 feet and 3000 feet above the surface. *(15490)*

The NAS shall establish the terminal area service volume between 500 feet above the surface and flight level 180. *(15480)*

The NAS shall establish the location of each navigational reference point in latitude and longitude coordinates using WGS-84 or equivalent datum. *(15470)*

The NAS shall disseminate navigational guidance information for limited-use applications (e.g. rotorcraft) between 500 feet AGL and 3000 feet AGL suitable for use in course guidance within high-density traffic routes with a maximum width of 4 nmi. *(15460)*

The NAS shall establish a grid so that every point in the United States is within 1 nautical mile of a grid point. *(15300)*

The NAS shall acquire location information accurate to within one arc second for all known obstacles whose height exceeds the surrounding terrain by 200 feet throughout the area of US delegated airspace. *(15340)*

The NAS shall establish the minimum safe altitude for flight over all areas of US delegate airspace. *(15360)*

The NAS shall ensure ATC specialist has an unobstructed 360-degree view of the airport movement area from the Tower Cab. *(15370)*

The NAS shall acquire data on boundaries of special use airspace. *(15380)*

3.8.1.2 Disseminate airspace designs to users

The NAS shall disseminate complete information on ground and terrain elevation. *(15330)*

3.8.2 Airspace Management

3.8.2.1 Classify volumes of airspace.

The NAS shall develop sectorizations based on the characteristics of aircraft operating in airspace volumes. *(31530)*

3.8.2.2 Disseminate sectorizations for volumes of airspace

The NAS shall disseminate ATC facility boundary data anywhere in the NAS coverage as needed to specialists at the ATCSCC. *(11380)*

3.8.2.3 Designate airspace for special use

The NAS shall store boundaries of special use airspace. *(15390)*

3.9 Infrastructure/Information Management

3.9.1 Monitoring and Maintenance

3.9.1.1 Management of NAS facilities

3.9.1.1.1 Maintain facilities

The NAS shall maintain facilities in accordance with appropriate standards. *(19040)*

The NAS shall establish and locate repair facilities to facilitate the service and return of repairable items to sites in minimum time and at the lowest possible cost. *(21330)*

The NAS shall provide dependable and adequate heating/ventilating/air conditioning (HVAC) systems to provide an optimized operating environment for equipment and personnel. *(21360)*

The NAS shall control ambient noise inside manned NAS facilities to foster maximum efficiency of specialists. *(21370)*

The NAS shall provide manned facilities with electrical power system, which ensures maximum availability of services. *(21390)*

The NAS shall remotely monitor and control access to unmanned facilities to prevent interruption of service, unauthorized access to computers, theft, and damage to government property.

(21410)

The NAS shall provide a terminal interface at unmanned facilities for use with portable maintenance data terminals.

(20490)

The NAS shall use unmanned facilities equipped with systems for facility remote control. *(22200)*

The NAS shall provide physical access to specialists to perform maintenance activities. *(18680)*

3.9.1.2 Facility Design

3.9.1.2.1 Design Unmanned Facilities

The NAS shall construct unmanned facilities to applicable agency and local standards to protect the installed equipment from the adverse weather conditions and natural disasters. *(21420)*

The NAS shall design unmanned facilities to ensure a safe environment for installed equipment in accordance with appropriate standards. *(19130)*

The NAS shall design unmanned facilities to ensure a secure environment for installed equipment in accordance with appropriate standards. *(19140)*

The NAS shall design unmanned facilities to provide a safe work environment. *(23010)*

The NAS shall design unmanned facilities to provide a secure work environment. *(23020)*

The NAS shall design unmanned facilities to provide a reliable work environment. *(23030)*

The NAS shall design unmanned facilities to provide an adequate work environment. *(23040)*

The NAS shall design remote facilities on-site maintenance actions to occur no more frequently than once every 90 days. (32080)

3.9.1.2.2 Unmanned facility inspections

The NAS shall perform physical inspections of unmanned facilities. (18520)

The NAS shall calibrate the operating equipment at unmanned facilities. (18530)

The NAS shall calibrate monitoring devices at unmanned facilities. (18540)

The NAS shall replace LRUs of operating equipment at unmanned facilities. (18560)

The NAS shall verify operating equipment at unmanned facilities. (18570)

The NAS shall adjust monitored parameters of designated systems from designated remote locations to keep parameters within specified ranges. (18150)

The NAS shall perform maintenance activities at intermediate level repair facilities. (18600)

The NAS shall trigger backup equipment designated systems from designated remote locations in the event of equipment performance degradation. (18170)

The NAS shall certify equipment performance of designated systems from designated remote locations. (18180)

The NAS shall adjust performance of operational systems from local positions. (22170)

The NAS shall verify that operational system adjustments are correct from local locations. (22180)

The NAS shall locate unmanned sites to achieve maximum effectiveness of installed equipment. (19100)

3.9.1.2.3 Design manned facilities

The NAS shall design manned facilities to agency and local standards to protect personnel and equipment from the adverse weather conditions and natural disasters, which may be expected to occur at a site.

(21380)

The NAS shall design manned facilities to ensure a safe working environment in accordance with OSHA standards. (19110)

The NAS shall design manned facilities to ensure a secure working environment in accordance with OSHA standards. (19120)

The NAS shall design manned facilities in accordance with human engineering practices to provide a safe work environment. (22970)

The NAS shall design manned facilities in accordance with human engineering practices to provide a secure work environment. (22980)

The NAS shall design manned facilities in accordance with human engineering practices to provide a reliable work environment. (22990)

The NAS shall design manned facilities in accordance with human engineering practices to provide an adequate work environment. (23000)

The NAS shall comply with all Occupational Safety and Health Administration (OSHA), FAA, and local safety and sanitary regulations. (21350)

The NAS shall provide adequate space for work environment, personnel, storage, and equipment to include coverage and EMC. (21400)

The NAS shall establish facilities necessary to perform maintenance activities. (22930)

The NAS shall evaluate costs in establishing facilities. (19050)

The NAS shall consolidate repair facilities wherever possible. (19060)
 The NAS shall use system assets for maintenance. (18690)
 The NAS shall use unmanned facilities equipped with electrical power systems commensurate with facility criticality. (19160)

3.9.1.3 Monitor NAS resource status

3.9.1.3.1 Monitor system status

The NAS shall monitor the system status of operational systems. (31670)
 The NAS shall monitor navigation systems' operational status. (16920)
 The NAS shall monitor designated supplemental navigation guidance. (16730)
 The NAS shall acquire status of supplemental navigation guidance. (16740)
 The NAS shall monitor the status of all display systems. (17890)
 The NAS shall monitor status of surveillance equipment. (18190)
 The NAS shall monitor status of navigational systems. (18200)
 The NAS shall monitor status of approach systems. (18210)
 The NAS shall monitor status of landing aids. (18220)
 The NAS shall monitor terminal navigation equipment status for designated aerodromes. (07960)
 The NAS shall monitor signals from designated supplemental navigational systems. (16980)
 The NAS shall monitor signals from designated supplemental navigation systems. (16990)
 The NAS shall alert the specialist upon detection of fire from any system. (17950)
 The NAS shall use system assets for remote monitoring. (18700)

3.9.1.3.1.1 Monitor equipment performance parameters

The NAS shall monitor equipment parameters. (22150)
 The NAS shall analyze monitored equipment parameters. (22160)
 The NAS shall monitor operational performance parameters. (16960)
 The NAS shall monitor navigational operational performance parameters. (16970)
 The NAS shall monitor the performance of all equipment. (17900)
 The NAS shall monitor parameters of all critical systems. (17880)
 The NAS shall monitor operational performance of navigation systems. (16930)
 The NAS shall monitor performance of surveillance equipment. (18230)
 The NAS shall monitor performance of navigational systems. (18240)
 The NAS shall monitor performance of approach systems. (18250)
 The NAS shall monitor performance of landing aids. (18260)
 The NAS shall monitor equipment status from workstations that are separate from the equipment that is being monitored. (17970)
 The NAS shall monitor equipment performance from workstations that are separate from the equipment that is being monitored. (17980)
 The NAS shall monitor status of equipment without affecting equipment availability. (18060)
 The NAS shall monitor performance of equipment without affecting equipment availability. (22080)

The NAS shall monitor the integrity of non-precision approach space-based navigation guidance information to ensure its availability is not less than 0.99999 (TBD). (16890)

The NAS shall generate space-based terminal area navigation guidance information with an availability of navigation and integrity monitoring information of greater than 1- (1.0×10^{-5}) . (16900)

The NAS shall monitor equipment status from workstations that are separate from the equipment that is being monitored. (17990)

The NAS shall store proof that the control and monitoring communications system is functioning properly. (18070)

The NAS shall disseminate proof that the control and monitoring communications system is functioning properly. (18080)

The NAS shall use unmanned facilities equipped with systems for remote monitoring. (19150)

3.9.1.4 Detect operational system failures.

The NAS shall detect navigation systems' performance when it is outside allowable tolerance. (17050)

The NAS shall detect navigation aids' performance when it is outside allowable tolerance. (17060)

The NAS shall determine the cause of faults of operational equipment at unmanned facilities. (18550)

The NAS shall determine the cause of system failures. (18460)

The NAS shall exercise operational software to isolate system problems. (18430)

The NAS shall exercise operational databases through functional paths to isolate system problems. (18440)

The NAS shall determine the fault that caused a system failure. (18470)

3.9.1.4.1 System Failure Alert

The NAS shall alert the specialist when a system fails. (17930)

The NAS shall alert specialists not more than 10 seconds after any failures of navigation guidance affecting operations within the NAS. (16830)

The NAS shall alert specialists not more than 10 seconds after any failures of portions of navigation guidance affecting operations within the NAS. (16840)

The NAS shall alert specialists to a full navigation system failure affecting NAS operations within 10 seconds of the failures detection. (17120)

The NAS shall alert specialists to a partial navigation system failure affecting NAS operations within 10 seconds of the failures detection. (17140)

The NAS shall alert the specialist when a system operating parameters are out of tolerance. (17960)

The NAS shall alert specialists to known failures of visual aids at the landing area. (17210)

The NAS shall alert specialists when a change in status of a navigation system is detected. (16940)

3.9.1.4.2 Alert users to navigation guidance failure

The NAS shall alert users when a navigation guidance system fails. (31690)

The NAS shall alert users not more than 10 seconds after any failures of navigation guidance affecting operations within the NAS. (16810)

The NAS shall alert users not more than 10 seconds after any failures of portions of navigation guidance affecting operations within the NAS. (16820)

The NAS shall alert users to a full navigation system failure affecting NAS operations within 10 seconds of the failures detection. (17110)

The NAS shall alert users to a partial navigation system failure affecting NAS operations within 10 seconds of the failures detection. (17130)

The NAS shall alert users within 10 seconds, of failures to navigation guidance that affect operations.

(17150)

The NAS shall alert users to known failures of visual aids at the landing area. (17200)

3.9.1.4.3 Manage system failure alarm

The NAS shall manage alarm systems for failures. (31700)

The NAS shall display alarms at designated control points until the condition has been corrected. (18310)

The NAS shall disseminate the status of alarms to specialists in a timely manner. (18280)

The NAS shall store all alarms. (18290)

The NAS shall retrieve all alarms. (18300)

The NAS shall alert the specialist upon detection of smoke from any system. (17940)

3.9.1.5 Maintain NAS operational systems.

The NAS shall perform corrective maintenance on operational systems. (18370)

The NAS shall perform corrective maintenance when the performance of an operational system is outside specified parameters. (31720)

The NAS shall terminate ground-based navigation guidance, whose performance is outside of the acceptable parameters within 10 seconds of detection. (16800)

The NAS shall terminate operation of navigation systems operating outside of allowable tolerances within 10 seconds. (17070)

The NAS shall terminate operation of navigation aids operating outside of allowable tolerances within 10 seconds. (17080)

The NAS shall discontinue navigational guidance when performance is outside specified parameters within 10 seconds. (17100)

The NAS shall determine correction values for navigational aids as required. (16750)

The NAS shall disseminate correction values for navigational aids to specialists. (16780)

The NAS shall disseminate correction values for navigational aids to users. (16790)

3.9.1.5.1 Perform corrective maintenance

The NAS shall perform corrective maintenance on operational systems that fail. (31730)

The NAS shall strive to restore critical system service to users/specialists within 6 seconds of failure (22900)

The NAS shall strive to restore essential system service to users/specialists within 10 minutes of failure. (22910)

The NAS shall strive to restore routine system service to users/specialists within 1.68 hours of failure. (22920)

The NAS shall perform corrective maintenance in response to monitoring system indication. (22100)

The NAS shall perform corrective maintenance in response to general user observations. (22120)

The NAS shall perform corrective maintenance in response to monitoring system indication in response to FAA technical surveillance. (22140)

3.9.1.5.1.1 Perform corrective maintenance on navigational systems

The NAS shall perform corrective maintenance on navigational systems when a failure occurs. (31740)

The NAS ground-based navigational aids shall terminate transmittal of a unique identification signal when a system failure occurs. (17170)

The NAS ground-based navigational aids shall terminate transmittal of a unique identification signal when system is taken off-line for maintenance. (17180)

The NAS ground-based navigational aids shall terminate transmittal of a unique identification signal when system is taken off-line for testing. (17190)

The NAS shall recover from temporary loss of ground based navigation guidance information without complete resetting of systems. (16910)

The NAS shall restore critical system service within TBD seconds of failure. (19070)

The NAS shall restore essential system service with TBD minutes of failure. (19080)

The NAS shall restore routine systems service within TBD hours of failure. (19090)

The NAS shall control system parameters during the performance of corrective maintenance. (17920)

The NAS shall locate maintenance sites to enhance efficient restoration of service and to provide economical preventive maintenance service. (32480)

The NAS shall trigger backup equipment for designated systems from designated remote locations in the event of equipment failure. (18160)

The NAS shall perform on-site maintenance of unmanned facilities. (18510)

The NAS shall repair designated system components of operating equipment at unmanned facilities. (18580)

3.9.1.5.1.2 Verify operation of repaired systems

The NAS shall verify operation of repaired operational systems. (31750)

The NAS shall verify the operation of repaired equipment at an on-site repair facility. (18480)

The NAS shall verify the operation of repaired equipment at an intermediate repair facility. (18490)

The NAS shall verify the operation of repaired equipment at an remote depot repair facility. (18500)

3.9.1.5.1.3 Establish intermediate level repair facilities

The NAS shall perform repair activities at intermediate level repair facilities. (18590)

The NAS depot repair facility shall troubleshoot equipment beyond the capabilities of an intermediate level repair facility. (18610)

The NAS depot repair facility shall repair equipment beyond the capabilities of an intermediate level repair facility. (18620)

The NAS depot repair facility shall adjust equipment beyond the capabilities of an intermediate level repair facility. (18630)

The NAS depot repair facility shall overhaul equipment beyond the capabilities of an intermediate level repair facility. (18640)

The NAS depot repair facility shall verify the operation of equipment beyond the capabilities of an intermediate level repair facility. (18650)

3.9.1.5.2 Perform preventative maintenance

The NAS shall perform preventative maintenance for operational systems. (31760)

The NAS shall perform preventive maintenance in response to FAA technical surveillance. (22130)

The NAS shall perform preventive maintenance in response to general user observations. (22110)

The NAS shall perform preventive maintenance in response to monitoring system indication. (22090)

The NAS shall perform preventive maintenance at scheduled intervals. (18360)

The NAS shall determine preventive maintenance intervals for all NAS equipment. (18380)

The NAS shall update preventive maintenance intervals for all NAS equipment. (18390)

The NAS shall adjust performance of operational systems from remote locations. (18400)

The NAS shall verify that operational system adjustments are correct from remote locations. (18410)

The NAS shall use diagnostic aids to assist in the performance of preventive maintenance of operational systems. (18420)

The NAS shall certify equipment following the completion of maintenance actions. (18450)

The NAS shall control system parameters during the performance of preventive maintenance. (17910)

3.9.1.6 Identify contingent operation procedures

3.9.1.6.1 Provide system redundancy

The NAS shall provide exchange status condition information for backup purposes. (21560)

The NAS shall provide failure notification for ARTCC's to implement the backup capability. (21600)

The NAS shall provide ARTCC to notify its backup facilities, associated terminals, and ARTCCC when it is unable to maintain normal operation. (21590)

The NAS shall notify all other associated facilities when a capability of any ARTCC has failed. (21580)

The NAS shall provide continuous notification of an ARTCC's status to each of its backup facilities. (21570)

The NAS shall provide a capability for implementation of the backup operation within two minutes of an ARTCC failure. (21660)

The NAS shall provide processing and communications capacities to support the required backup capabilities and to meet the response time requirements specified above, while maintaining safe separation of all aircraft receiving ATC services (i.e., both normal and backup sectors) from the backup facilities. (21670)

The NAS shall provide each backup ARTCC with the requisite flight data for assigned backup responsibilities sufficient to allow flight plan association and the creation of flight data displays upon the activation of backup. (21550)

The NAS shall provide emergency communications by means independent of common carrier to rapidly disseminate information from FAA headquarters to regional and sectional facilities and, in turn, rapidly communicate the operational status of those facilities back to headquarters. (20970)

The NAS shall provide an emergency communications network protected from nuclear, high-altitude electromagnetic pulse (HEMP). (20980)

The NAS shall design emergency communications networks to operate for a 30-day period without commercial power at selected critical facilities. (20990)

The NAS shall design and locate facilities to optimize system cost and system effectiveness, provide suitable working and environmental conditions for NAS personnel, and provide appropriate operating conditions for NAS equipment. (22960)

The NAS shall control equipment remotely. (18000)

The NAS shall establish National Field Support Sectors to address system wide problems, develop equipment and software modifications, and provide the highest level of technical assistance on individual facility problems. (18660)

3.9.1.6.2 Perform integrated logistics support

The NAS shall perform integrated logistics support. (18720)

The NAS shall perform maintenance management. (18730)

The NAS shall perform logistics inventory management. (18740)

The NAS shall manage supply support in accordance with RMA requirements. (18750)

The NAS shall acquire equipment necessary to perform maintenance activities. (22940)

The NAS shall acquire systems necessary to perform maintenance activities. (22950)

The NAS shall provide the technical work force to accomplish their primary mission of the monitoring, identification, and diagnosis of failures and control of equipment at remote sites. (21080)

The NAS shall provide specialists to accomplish highly specialized maintenance tasks at intermediate and depot repair facilities. (21090)

The NAS shall provide equipment, systems, installations and facilities in an operable and committable state according to their criticality to safe operations and control of aircraft. (21450)

3.9.1.6.3 Manage materials inventory

The NAS shall manage materials inventory. (18770)

The NAS shall manage storage of expendable materials. (18780)

The NAS shall manage distribution of materials. (18790)

The NAS shall acquire replacement parts for NAS equipment. (18860)

The NAS shall provide specialists to utilize an automated maintenance management system. (21100)

3.9.1.6.3.1 Disseminate maintenance activity reports

The NAS shall disseminate reports on maintenance activities. (18880)
 The NAS shall summarize reports on equipment performance. (18930)
 The NAS shall summarize reports on preventive maintenance activities. (18940)
 The NAS shall summarize reports on equipment repair activities. (18950)
 The NAS shall disseminate reports on maintenance problem trends. (18810)
 The NAS shall disseminate reports on equipment performance. (18870)
 The NAS shall disseminate reports on equipment repair activities. (18890)
 The NAS shall disseminate results of analysis of maintenance action impacts to specialists. (18050)
 The NAS shall disseminate degraded performance information of designated systems. (18130)
 The NAS shall disseminate information on expected failure of designated equipment. (18140)
 The NAS shall disseminate equipment performance measurements for trend analysis. (19020)
 The NAS shall disseminate equipment performance measurements for failure anticipation rates. (19030)
 The NAS shall disseminate maintenance technical data to specialist upon request. (18760)

3.9.1.6.4 Analyze maintenance activity information

The NAS shall analyze information gathered from maintenance activities. (31770)
 The NAS shall acquire data on completed equipment maintenance. (18010)
 The NAS shall analyze maintenance action impacts on performance. (18030)
 The NAS shall analyze maintenance action impacts on equipment status. (18040)
 The NAS shall acquire degraded performance information from designated monitoring systems. (18090)
 The NAS shall analyze degraded performance information from designated monitoring systems. (18100)
 The NAS shall analyze trends in maintenance problems. (18800)
 The NAS shall acquire equipment performance measurements for trend analysis. (18960)
 The NAS shall acquire equipment performance measurements for failure anticipation rates. (18970)
 The NAS shall correlate equipment performance measurements for trend analysis. (19000)
 The NAS shall correlate equipment performance measurements for failure anticipation rates. (19010)

3.9.1.6.4.1 Calculate navigation accuracy correction values

The NAS shall calculate navigational accuracy correction values for supplemental navigation systems. (17020)
 The NAS shall disseminate navigational accuracy correction values for supplemental navigation systems to specialists. (17030)
 The NAS shall disseminate navigational accuracy correction values for supplemental navigation systems to users. (17040)

3.9.1.6.4.2 Store equipment maintenance data

The NAS shall store data on completed equipment maintenance. (18020)
 The NAS shall store maintenance records. (18820)
 The NAS shall retrieve maintenance records on request. (18830)
 The NAS shall store resolution to maintenance problems. (18840)
 The NAS shall retrieve resolutions to maintenance problems on request. (18850)
 The NAS shall store reports on equipment performance. (18900)
 The NAS shall store reports on preventive maintenance activities. (18910)
 The NAS shall store reports on equipment repair activities. (18920)
 The NAS shall store equipment performance measurements for trend analysis. (18980)
 The NAS shall store equipment performance measurements for failure anticipation rates. (18990)
 The NAS shall store degraded performance information from designated monitoring systems. (18110)
 The NAS shall store information of expected failure of designated equipment. (18120)
 The NAS shall provide appropriate data recorders, data reduction equipment, and software for the analysis of test results, as necessary. (21250)

3.9.1.7 Operational system status information dissemination

The NAS shall notify specialists of any automatic switchovers of designated equipment. (18270)
 The NAS shall disseminate bearing information for ground-based navigational aids. (16720)

3.9.1.7.1 Disseminate status of navigation aids

The NAS shall disseminate status of navigation aids. (31790)
 The NAS shall disseminate geographical reference information for ground-based navigational aids. (16700)
 The NAS shall disseminate identification information for ground-based navigational aids. (16710)
 The NAS shall disseminate status of supplemental navigation systems to specialists. (16760)
 The NAS shall disseminate status of supplemental navigation systems to users. (16770)
 The NAS shall disseminate non-precision approach space-based navigation guidance information. (16880)
 The NAS shall disseminate the status of supplemental navigation systems to specialists. (17000)
 The NAS shall disseminate the status of supplemental navigation systems to users. (17010)

3.9.1.7.2 Disseminate space-based navigation guidance information

The NAS shall disseminate space-based en route navigation guidance information. (31800)
 The NAS shall disseminate space-based en route navigation guidance information with availability of navigation service and fault detection of at least $1-(1.0 \times 10^{-5})$. (13880)

The NAS shall support integrity monitoring of space-based en route navigation guidance information with an availability of at least $1 - (1.0 \times 10^{-5})$. (13890)

The NAS shall disseminate space-based en route navigation guidance information with continuity of fault detection greater than $1 - (1.0 \times 10^{-5})$ per hour. (16680)

The NAS shall support the detection of space-based terminal area navigation guidance information with continuity of fault detection greater than $1 - (1.0 \times 10^{-8})$ per hour. (16850)

The NAS shall disseminate accurate rho measurements subsequent to periods of temporary loss of rho coordination information without completely resetting the affected rho system components. (16690)

The NAS shall support navigation and fault the detection of terminal area space-based navigation guidance information to ensure its availability is not less than $1 - (1.0 \times 10^{-5})$. (16870)

3.9.1.7.3 Train maintenance specialists

The NAS shall train maintenance specialists. (32440)

The NAS shall provide for a training program, including facilities, equipment, methods, and materials, which prepares specialists for the transition to new NAS equipment, computer software, and procedures. (21110)

The NAS shall provide for a training program, including facilities, equipment, and materials, which prepares specialists for implementation of the maintenance philosophy embodied in the NAS. The NAS shall provide for the training of: (21070)

Facilities, equipment, and materials to support an extensive training program are required to effect the implementation of the maintenance philosophy embodied in the NAS; to facilitate the transition to new NAS equipment, computer software, and procedures; and to provide for the progressive improvement and consistent maintenance of the knowledge and skill levels of all NAS personnel. (21060)

The NAS shall provide for a training program, including facilities, equipment, methods, and materials, which results in the continuous and progressive improvement in the skill level of specialists. (21120)

The NAS shall provide for the training: a. Identified by the agency as necessary for each position for the achievement of required and optimum efficiency b. As required to improve individual performance or to prepare the individual for specific potential future responsibilities (21130)

The NAS shall provide for a distributed training system with instructional programs allocated among a centralized FAA training facility, local training facilities (e.g., ARTCCs and AFSSs), and external facilities, as appropriate. (21140)

The NAS shall provide contingency plans for ARTCC's in the event of catastrophic failure. (21500)

The NAS shall provide service availability not less than that provided by existing capabilities. Critical Services - .99999 Essential Services - .999 Routine Services - .99 (21470)

NAS equipment, systems, installations, and facilities whose functioning is required by the services described in this document shall be designed to ensure that they perform these intended functions under any foreseeable operating conditions. (21440)

3.9.1.7.4 Establish test and evaluation programs

The NAS shall establish a test and evaluation program. (21150)

The NAS shall meet design specifications through analysis and simulation or test. (32450)

The NAS shall provide support for DT&E in the incremental determination of the degree to which functional engineering specifications are attained. (21160)

The NAS shall include specified equipment, test sets, test drivers, scenarios, simulators, data reduction equipment and software, and other test support items required for the conduct of testing. (21170)

The NAS shall utilize Subject Matter Experts in testing functional integration of units, subsystems, and systems; testing functional integration of hardware with software and operational programs; and testing functional compatibility and integration with operational systems on sites and with the NAS. (21180)

The NAS shall utilize Subject Matter Experts in the planning of testing, participate in or observe testing, review test data, and evaluate test results to validate integration of an item and its components/elements. (21190)

The NAS shall utilize Subject Matter Experts for operational inputs to planning and conduct of the tests and evaluation of the results of the tests. (21200)

The NAS shall assure the frequency of occurrence goal for any loss of service shall not exceed one per week. (21490)

The NAS shall provide support for OT&E to validate that operational requirements are met. This shall include determination of a system's operational effectiveness and suitability to be part of the NAS and identification of needed modifications. (21220)

The NAS shall perform OT&E to demonstrate functional integration of hardware components, software elements, hardware and software, and the end item with other equipment. (21230)

The NAS shall provide support for validation of new or modified equipment or computer software at operational sites to verify integration with the site and with the NAS and to verify its suitability for use in an operational environment. (21240)

The NAS shall provide a test bed consisting of all appropriate NAS equipment, including remote monitoring and control equipment, which can be configured to provide the physical and functional interfaces found at NAS operational sites. (32300)

The NAS shall provide simulators, target and message generators, and external interfaces necessary to exercise the item. (32350)

The NAS shall provide instrumented aircraft to test the item in the system under known conditions (32310)

The NAS shall provide data recorders and data reduction equipment and programs necessary for evaluation of the performance of test items (32320)

The NAS shall provide test equipment and spare parts for maintenance of items under test. (32330)

The NAS shall provide laboratory facilities to conduct environmental and electromagnetic interference EMI tests (32340)

Specialists shall operate and maintain test items during OT&E at sites. (21290)

The NAS shall provide support for PAT&E to determine whether serial production items consistently are of the same quality and have the same technical and operational characteristics as items that have been previously tested and accepted and to incorporate specified improvements. (21300)

The NAS shall provide equipment, as necessary, for PAT&E conducted at the developer's/manufacturer's factory to verify contractual compliance of the test item. (21310)

The NAS shall participate in factory compliance testing, observe testing, participate in testing where required, review test data, and evaluate test results to ensure contractual compliance and to ensure that specified improvements have been incorporated into the item. (21320)

The NAS shall provide data recorders, data reduction equipment, and software for the analysis of test results, as necessary. (32460)

The NAS shall provide unique installation tools and equipment and unique test equipment required only for initial site certification. (21260)

If necessary, the NAS shall provide instrumented aircraft for the conduct of this testing. (21270)

The NAS shall be capable of providing the specialists necessary to plan testing, to operate and maintain the item under known conditions, and to evaluate test results. (21280)

3.9.1.7.4.1 Flight Inspect navigational aids

The NAS shall perform flight inspections to verify performance of ground systems that are critical to safety. (18330)

The NAS shall perform flight inspections to verify performance of air systems that are critical to safety. (18350)

The NAS shall perform flight inspections to verify operation of air systems that are critical to safety. (18340)

The NAS shall perform flight inspections to verify operation of ground systems that are critical to safety. (18320)

3.9.2 Spectrum Management

3.9.2.1 Secure spectrum for the FAA

The NAS shall secure and protect national radio spectrum for the FAA and the US Aviation community. (32470)

The NAS shall coordinate national spectrum allocation programs. (19190)

The NAS shall establish new systems spectrum development activities compatible with projected national use. (19290)

3.9.2.1.1 Secure frequency for the FAA

The NAS shall establish new systems frequency development activities compatible with projected national use. (19270)

The NAS shall establish new systems frequency development activities compatible with current national use. (19230)

The NAS shall establish national frequency allocation programs. (19170)

3.9.2.1.2 Secure international spectrum

The NAS shall comply with national standards to avoid the interference of new systems with existing systems. (19310)

The NAS shall establish new systems spectrum development activities compatible with current national use. (19250)

The NAS shall coordinate national spectrum management assistance programs. (19210)

The NAS shall disseminate en route navigational guidance such that ambiguities in guidance information have a minimal impact on NAS operations. (13960)

3.9.2.1.3 Manage international spectrum

The NAS shall comply with international standards to avoid the interference of new systems with existing systems. (32090)

The NAS shall establish international management assistance programs. (19220)

The NAS shall establish new systems spectrum development activities compatible with current international use. (19260)

The NAS shall establish new systems spectrum development activities compatible with projected international use. (19300)

3.9.2.1.3.1 Manage international frequency

The NAS shall coordinate international frequency allocation programs. (19180)

The NAS shall establish new systems frequency development activities compatible with projected international use. (19280)

The NAS shall establish new systems frequency development activities compatible with current international use. (19240)

The NAS shall coordinate international spectrum allocation programs. (19200)

3.9.3 Government-Agency Support

3.9.3.1 Support coordination with government and civil agencies

The NAS shall provide appropriate voice and data communications connectivity between designated military facilities and designated backup ARTCCs. (Refer to Para. 3.6.2.B.) (21680)

The NAS shall discontinue dissemination of navigation guidance information in accordance with the military command/FAA supplemental agreements to support national defense requirements. (13980)

The NAS shall restrict dissemination of navigation guidance information in accordance with the military command/FAA supplemental agreements to support national defense requirements. (13990)

The NAS accept data from external agencies cooperating in search and rescue with minimal manual processing. (15900)

The NAS shall store data from external agencies cooperating in search and rescue with minimal manual processing. (15910)

The NAS shall accept requests for routine or special military air operations. (15920)

3.9.3.2 Support information exchange with government and civil agencies

The NAS shall facilitate operation of military air traffic control facilities. (16620)

The NAS shall exchange data between FAA and DoD air traffic control facilities in a timely manner. (16630)

The NAS shall coordinate the transition of aircraft to or from airfields serviced by military air traffic control facilities. (16640)

The NAS shall coordinate the transition of aircraft serviced by military air traffic control facilities to airfields serviced by FAA en route controllers. (16650)

The NAS shall coordinate with DoD air traffic control facilities for the provision of common services to military aviation users. (16660)

The NAS shall coordinate with DoD air traffic control facilities for the provision of common services to civil aviation users. (16670)

The NAS shall reject requests for routine or special military air operations. (15930)

The NAS shall evaluate the impact of requests for routine or special military air operations. (15940)

The NAS shall approve requests for routine or special military air operations. (15950)

The NAS shall disseminate information regarding military aircraft activity to non-participating civil users. (15960)

The NAS shall disseminate information regarding military aircraft activity to non-participating military users. (15970)

The NAS shall respond to national defense initiatives in accordance with Executive Orders. (15980)

3.9.3.2.1 Support special use airspace

The NAS shall acquire airspace reservations from military users. (15990)

The NAS shall accept airspace reservations from military users. (16000)

The NAS shall reject airspace reservations from military users. (16010)

The NAS shall approve airspace reservations from military users. (16020)

The NAS shall disapprove airspace reservations from military users. (16030)

The NAS shall store airspace reservations from military users. (16040)

The NAS shall disseminate airspace reservations from military users. (16050)

The NAS shall acquire special use airspace reservations. (16070)

The NAS shall accept special use airspace reservations. (16080)

The NAS shall reject special use airspace reservations. (16090)

The NAS shall approve special use airspace reservations within 30 minutes of initial receipt of request. (16100)

The NAS shall disapprove special use airspace reservations within 30 minutes of initial receipt of request. (16110)

The NAS shall acquire military air traffic control plans related to national emergencies. (16120)

The NAS shall store military air traffic control plans related to national emergencies. (16130)

The NAS shall disseminate military air traffic control plans related to national emergencies. (16140)

The NAS shall implement military air traffic control plans related to national emergencies. (16150)

The NAS shall disseminate activity information on low-level routes by military users. (16200)

The NAS shall validate classified route proposals with security classifications up to and including secret. (16390)

The NAS shall reject classified route proposals with security clearances up to and including SECRET from military scheduling activities. (01520)

The NAS shall reject classified flight plans with security clearances up to and including SECRET from military scheduling activities. (01510)

The NAS shall reject unclassified flight plans from military scheduling activities. (01450)

3.9.3.2.2 Support air defense operations.

The NAS shall disseminate position of aircraft operating within an ADIZ to military officials. (17380)

The NAS shall disseminate velocity of aircraft operating within an ADIZ to military officials. (17420)

The NAS shall disseminate velocity of aircraft operating within an ADIZ to law enforcement officials. (17430)

The NAS shall disseminate altitude of aircraft operating within an ADIZ to military officials. (17460)

The NAS shall disseminate altitude of aircraft operating within an ADIZ to law enforcement officials. (17470)

The NAS shall disseminate identification of aircraft entering an ADIZ to military officials. (17600)

The NAS shall disseminate identification of aircraft entering an ADIZ to law enforcement officials. (17610)

The NAS shall correlate flight plans of known inbound aircraft with aircraft penetrating an ADIZ within 8 seconds of initial penetration. (17640)

The NAS shall correlate flight plans of known inbound aircraft with aircraft penetrating DEWIZ within 8 seconds of initial penetration. (17650)

The NAS shall alert specialists when an inbound aircraft track entering an ADIZ fails to correlated to a known flight plan within a means response time of 0.6 of the failure. (17660)

The NAS shall alert specialists when an inbound aircraft track entering an ADIZ fails to correlated to a known flight plan within a 99th percentile response time of 1.2 of the failure. (23990)

The NAS shall alert specialists when an inbound aircraft track entering an ADIZ fails to correlated to a known flight plan within a maximum response time of 3.0 of the failure. (17670)

The NAS shall detect aircraft within an ADIZ on a continuous basis. (17680)

The NAS shall identify aircraft within an ADIZ on a continuous basis. (17690)

The NAS shall exchange flight plan data with military air defense personnel. (17700)

3.9.3.2.3 Support law enforcement agencies.

The NAS shall disseminate position of aircraft operating within an ADIZ to law enforcement officials. (17390)

The NAS shall exchange flight plan data with law enforcement authorities. (17710)

The NAS shall accept requests from law enforcement authorities to track aircraft of special interest. (17780)

The NAS shall identify aircraft of special interest for law enforcement authorities. (17790)

The NAS shall disseminate identity of aircraft of special interest to law enforcement agencies. *(17800)*

The NAS shall disseminate position information of aircraft of special interest to law enforcement agencies. *(17810)*

The NAS shall detect aircraft operating in NAS airspace using the registration number of an aircraft of special interest. *(17820)*

The NAS shall alert specialists to aircraft operating in NAS airspace using registration number from stolen aircraft within 1 minute of initial detection. *(17830)*

The NAS shall acquire registration numbers of stolen aircraft. *(17840)*

The NAS shall store registration numbers of stolen aircraft. *(17850)*

The NAS shall provide a capability for automatic track initiation and flight plan association in the backup airspace within 60 seconds of an ARTCC failure. *(21650)*

The NAS shall provide assistance in studies for the selection of preferred alternative system concepts, identification of preferred technical approaches, development of specifications, and establishment of boundaries for technical and operational parameters. *(21210)*

3.10 Enabling Services

3.10.1 Automation

The NAS shall provide automation services to enable information to be requested, stored, archived and retrieved *(31820)*

3.10.1.1 Display critical information

The NAS shall display critical information to the specialist. *(19560)*

The NAS shall display discriminating presentation of designated functional category levels of weather intensity, controller alerts, flight plan amendments, emergencies, altitude assignments, and track control. *(19550)*

The NAS shall automate communications capabilities to reduce specialist and user workload. *(20210)*

The NAS shall retain and display sender/addressee identification. *(20150)*

The NAS shall provide the supervisor a duplicate specialist display to monitor data flow, data inputs and any messages displayed to the specialist *(20770)*

The NAS shall record data processed by or displayed to the specialist. *(15880)*

The NAS shall provide capabilities to perform the required backup support functions while meeting response time requirements. *(21630)*

The NAS shall display airspace structure information. *(02830)*

The NAS shall display aircraft position related information in relation to airspace structure information. *(24830)*

The NAS shall display airspace structure information to within .26 nmi (99th percentile) of its actual position. *(24840)*

3.10.1.2 Alert Users of Collision Through Visual Means

The NAS shall alert users of a predicted possible collision through visual means. *(25190)*

The NAS shall display a unique alert symbol for aircraft that are in potential violations of separation standards. *(03050)*

The NAS shall alert specialists of an imminent collision by visual signals that are distinct from any other signals presented to the specialist. *(25200)*

The NAS shall alert specialists of an imminent collision by aural signals that are distinct from any other signals presented to the specialist. *(03640)*

The NAS shall alert responsible specialists of a prediction of a possible collision through audible means. *(03620)*

The NAS shall alert responsible specialists of predictions of possible aircraft collisions through visual means. *(03630)*

The NAS shall display a unique alert symbol for actual aircraft violations of separation standards. *(24920)*

The NAS shall alert appropriately equipped users to the collision danger within 10 seconds after the prediction is made. *(03660)*

The NAS shall alert affected users of a predicted possible collision through audible means. *(25180)*

The NAS shall generate an aural alarm for predicted aircraft-obstacle separation standards violations. *(25960)*

The NAS shall generate a visual alarm for predicted aircraft-ground separation standards violations. (25970)

The NAS shall generate a visual alarm for predicted aircraft-terrain separation standards violations. (25980)

The NAS shall generate a visual alarm for predicted aircraft-obstacle separation standards violations (25990)

The NAS shall generate an aural alarm for predicted aircraft-ground separation standards violations. (25940)

The NAS shall generate an aural alarm for predicted aircraft-terrain separation standards violations. (25950)

The NAS shall distinguish between designated functional category levels of controller alerts on displays. (24700)

3.10.1.3 Issue Automated visual alerts for surface conflicts at designated aerodromes

The NAS shall issue automated visual alerts when potential surface conflicts are predicted on the movement area environment at designated aerodromes. (04880)

The NAS shall issue automated aural alerts when potential surface conflicts are predicted on the movement area environment at designated aerodromes. (04890)

The NAS shall issue automated visual alerts when actual surface conflicts are detected on the movement area environment at designated aerodromes. (04900)

The NAS shall issue automated aural alerts when actual surface conflicts are detected on the movement area environment at designated aerodromes. (04910)

3.10.2 Communications

3.10.2.1 Voice and Data communication with users, specialists, ATC facilities, and other Government Agencies

The NAS shall transfer information between aircraft and NAS ground facilities. (19900)

The NAS shall provide specialists commercial telephone service for non-routine flight services to users. (20600)

The NAS shall not derogate quality of voice or data communications provided by the NAS interfacility by interfacing to public or private networks. (20590)

The NAS shall provide surveillance information exchange communications interface capabilities with appropriate federal and local law enforcement agencies. (20580)

The NAS shall provide a data communications interface to accommodate the exchange of surveillance information with properly equipped sources external to the NAS to complement the NAS surveillance coverage. Such sources shall include, but not be limited to, joint use surveillance facilities; military radars and surveillance processing facilities, such as Fleet Air Control and Surveillance Facilities (FACSFAC) and Programmable Indicator Data Processor (PIDP) sites; and airline tracking networks, such as the Aeronautical Radio, Inc. (ARINC) network. (20570)

The NAS shall provide voice and data communications interface to accommodate air carrier automatic flight plan filing and cancellation capabilities with airline dispatch offices. (20560)

The NAS shall provide interfaces with public, private, and other government-owned data communications networks to designated NAS facilities; airline dispatch offices; foreign military and ATC facilities; and DoD facilities. (20550)

The NAS shall interface with defined DoD communications networks. (20540)

The NAS shall interface operational positions with public or private telephone networks. (20530)

The NAS shall interface operational positions with public/private communications facilities. (20520)

The NAS shall interface operational positions with commercial communications networks to assure blocked calls do not exceed 1 in 20 calls. (20460)

The NAS shall assure indirect-access blocked calls do not exceed 1 in 1000 calls. (20450)

The NAS shall provide one touch speed dial access to indirect calls. (20440)

The NAS shall interface operational positions with indirect-access voice communications with other operational positions in selected facilities. (20430)

The NAS shall provide capabilities for additional direct-access voice communications connectivity for use within 2 minutes of a catastrophic failure in an ARTCC. (20420)

The NAS shall provide inter-facility direct-access voice communications. (20410)

The NAS shall provide a communications capability between selected operating, supervisory, maintenance, and administrative positions at separate NAS facilities. (20400)

The NAS shall exchange aviation-related information between governmental and non-governmental agencies. (20390)

The NAS shall provide continuous inter-facility and intra-facility ground-ground communications. (20920)

The NAS shall provide data connectivity between the local traffic management coordinators and the ARTCC specialists. (09970)

The NAS shall establish data communications with users requiring altitude reservation services and ATCSCC specialists. (15870)

The NAS shall establish voice communication between users requiring altitude reservation services and ATCSCC specialists. (15860)

The NAS shall communicate with all military aircraft using low-level training routes between exit altitude of the route and 10,000 feet AGL. (16600)

The NAS shall exchange data with DoD using voice communications. (17720)

The NAS shall exchange data with DoD using data communications. (17730)

The NAS shall exchange data with DoD using automated systems. (17740)

The NAS shall exchange data with law enforcement authorities using voice communications. (17750)

The NAS shall exchange data with law enforcement authorities using data communications. (17760)

The NAS shall exchange data with law enforcement authorities using automated systems. (17770)

The NAS shall alert military officials using secure communications. (17860)

The NAS shall alert law enforcement officials using secure communications. (17870)

The NAS shall maintain communications links to assist maintenance activities. (18710)

3.10.2.2 Reliable communications

The NAS shall provide reliable communications. (32100)

The NAS shall provide air-ground data communications with error detection and correction, and signal regeneration capabilities. (20190)

The NAS shall provide computer assisted message handling (e.g., formatting, blocking, and reconstruction). (20160)

The NAS shall provide interfacility and intrafacility data communications with error detection and correction capabilities. (20780)

The NAS shall provide expandable, cost effective inter-facility voice and data communications connectivity. (20510)

The NAS shall provide protection against interference from undesired signals on the same or adjacent frequencies. (20220)

The NAS shall provide the capability to sustain data exchange with all suitably equipped users. (20180)

The NAS shall detect message format errors. (20170)

The NAS shall provide single key acknowledgment by addressee of message receipt and content. (20140)

The NAS shall provide single data transmission for multiple clients/customers (20130)

The NAS shall provide discrete addressing for transmitting data messages. Messages shall be deliverable when 32 users are contained in a 10 nmi by 10 nmi area and when 497 users are contained within a 50 nmi by 50 nmi area. (20120)

The NAS shall assure one-way air-to-ground voice transmissions do not produce delays that adversely impact aeronautical operations or services. (20100)

The NAS shall assure ground-air transmission time for data messages not exceed 6 seconds. (20090)

The NAS shall provide data communications between ground locations and aircraft at and above 6000 feet MSL or at and above minimum en route altitude, whichever is higher, up to 60,000 feet MSL (20070)

The NAS shall provide data communications to ground level at qualifying terminal facilities (those meeting Air Traffic Service criteria for air-ground data communications) (20060)

3.10.2.3 Store Communications

The NAS shall store communications. (32110)

The NAS shall record all voice communications entering or leaving each specialist's position at ARTCCs, ATCTs, AFSSs, the ATCSCC, and the FAA Headquarters Operations Center. (20850)

The NAS shall be able to receive, store, retain, and readily retrieve NAS interfacility and intrafacility ground-ground communications. (20840)

The NAS shall interface recorded coded time source at selected facilities voice and data recordings to provide time-related data. (20290)

Individual air-ground data messages shall be retrievable from "off-line" storage within 5 minutes of a request by authorized NAS personnel. (20280)

The NAS shall provide retrievable air-ground data messages within 30 minutes and from "off-line" storage within 60 minutes. (20270)

The NAS shall retain recordings of air-ground data messages for not less than 30 days. (20260)

The NAS shall retain recordings of air-ground voice transmissions for not less than 15 days. (20250)

The NAS shall record air-ground voice and data communications. (20240)

The NAS shall receive, store, retain, and readily retrieve all air-ground communications. (20230)

The NAS shall retrieve individual data messages from "off-line" storage. (20900)

The NAS shall retrieve individual voice recordings from "off-line" storage within 30 minutes of a request. (20890)

The NAS shall store data recordings in "off-line" storage for not less than 15 days. (20880)

The NAS shall store voice recordings in "off-line" storage for not less than 15 days. (20870)

The NAS shall record all accountable data messages utilized at each specialist's position at each of these facilities. The data recorded shall ensure that all information utilized by the specialist and/or displayed at the specialist's position and all actions or messages initiated by the specialist can be reconstructed. (20860)

In-flight operations are enhanced by the availability of monitoring services. The NAS is required to provide monitoring services to assist the user in emergency situations, in avoiding other aircraft and in adverse weather. (19750)

The NAS shall monitor initiation, continuation, and break off to the specialist and not distract normal operations. (20320)

The NAS shall provide specialists to selectively monitor the content of all air-ground voice and data communications and video displays at each operating position. (20310)

The NAS shall provide monitoring support to any operating position without introducing any change in transmission or reception characteristics. (20300)

3.10.2.4 Configure Communications

The NAS shall provide configurable communications. (32120)

The NAS shall configure communications for to provide the ARTCC's redundant connectivity for surveillance, data, and ground-to-ground and air-to-air voice connectivity. (32130)

The NAS shall provide auto-answer capabilities for dial-up data communications by users through interface to commercial telephone lines for filing flight plans and amendments, requesting and receiving terminal and area-specific weather data, and other related purposes. The number of incoming calls blocked because of saturation of FAA-owned equipment shall not exceed 1 in 20 calls. (22070)

The NAS shall provide configuration of ground-to-ground voice communications to achieve communications between control positions within the backup facility and control positions in other facilities. (21530)

The NAS shall provide reconfiguration of air-to-ground voice communications to achieve communications with aircraft in backup airspace assigned to positions within the backup facility. (21520)

The NAS shall provide rapid reassignment of operational and backup sectors to any operating or training position in the facility. (21610)

The NAS shall provide reconfiguration of communications capabilities without degradation of air-ground voice or data communications. (20380)

The NAS shall provide specialists in adjacent ARTCCs control of the air-ground voice communications and primary responsibility for the air-ground data communications capabilities associated with designated sectors and/or sector regions within 2 minutes of an ARTCC failure. (20370)

The NAS shall provide preset reconfiguration modes to be activated automatically or for a supervisor to initiate command for individual positions and for the entire ATC facility. (20360)

The NAS shall provide selective reconfiguration of air-ground voice and data communications channels to different specialist positions within the same ATC facility. (20350)

The NAS shall configure communications to support changes in operating position responsibilities. (20340)

The NAS shall provide air-ground communications continuously. Each VSCS supported facility shall be provided the capability to access A/G radio control equipment independent of VSCS. (20330)

The NAS shall provide one channel modular expansion and/or one position at a time for ARTCC, ATCT, and AFSS air-ground voice and data communications (20200)

The NAS shall provide computer assisted and/or supervisory control of the reconfiguration capabilities for intrafacility and interfacility data communications at designated specialist positions within an ARTCC or an ATCT. (20830)

The NAS shall provide reconfiguration for distribution of intrafacility and interfacility communications to permit an ARTCC to provide service in airspace normally served by a failed ARTCC. (20820)

The NAS shall provide reconfiguration for the distribution of intrafacility and interfacility communications within ATC facilities to accommodate changes in individual position responsibilities, daily combining and decombining of sectors, specialist training, and maintenance actions. (20810)

The NAS shall reconfigure communication capabilities to support changes in operating responsibilities. (20800)

The NAS shall provide intrafacility voice and data communications modular expansion. (20790)

The NAS shall support peak busy hour exchange of data including short-term peaks that may occur within the peak hour, with minimal change in the data transmission response times and no loss of data. (20760)

The NAS shall provide an intrafacility data communications at each ATC facility and the ATCSCC. (20750)

The NAS shall selectively assign or restrict access to any or all of the special voice communications features (including access to public or private telephone networks) at each specialist's position. (20740)

The following capabilities shall be provided at each position within an ATC facility (ARTCC, ATCT, AFSS), and the ATCSCC for interfacility and intrafacility voice transmissions:

a. Conference calls with other positions involving any combination of direct-access and indirect-access voice transmissions up to the conference limit. In addition, these may be

a combination of interfacility or intrafacility transmissions.

b. Call forwarding for voice transmissions to any other position within that same facility.

c. Call holding for voice transmissions received (except for override calls being forced through the system).

d. Call transfer for voice transmissions (except for override calls being forced through the system) to any other position within that same facility. (20730)

The NAS shall provide supervisory personnel in an ATC facility to monitor the direct-access and indirect-access interfacility and intrafacility voice transmissions of each specialist within that facility. (20720)

The NAS shall provide queuing of indirect-access and direct-access interfacility and intrafacility voice transmissions entering the position. (20710)

The NAS shall provide the specialist to force urgent direct-access or indirect-access interfacility and intrafacility calls through to a busy receiver by overriding the existing call. (20700)

The NAS shall provide specialists with indirect-access voice communications to all other positions within the same facility. (20690)

The NAS shall provide direct-access voice communications capabilities between specified positions within ARTCCs, ATCTs, AFSSs, the ATCSCC, and the FAA Headquarters Operations Center. (20680)

The NAS shall provide communication between selected operating, supervisory, maintenance, and administrative positions within or between NAS facilities. (20670)

The NAS shall provide communication between and within the various NAS facilities. (20660)

The NAS shall provide air-ground communications within the operational jurisdictions of NAS. (19910)

The NAS shall provide intelligible air-ground voice communications. (20040)

The NAS shall provide VHF/UHF voice channels at selected AFSSs for en route flight advisory service communications. (20030)

The NAS shall provide VHF/UHF channels for transmission of pre-recorded and/or computer-generated voice messages at all ARTCCs, ATCTs, and AFSSs. (20020)

The NAS shall provide at least 5 discrete UHF voice channels for single-frequency approach communications from ground level to a minimum altitude of 3000 feet AGL for a minimum radial distance of 5 statute miles, subject to terrain constraints, around control towers serving military users. (20000)

The NAS shall provide VHF/UHF voice channels for communications from ground level to a minimum altitude of 3000 feet AGL for a minimum radial distance of 5 statute miles, subject to terrain constraints, around control towers serving users at terminal facilities. (19980)

The NAS shall provide VHF/UHF voice channels for en route communications between specialists located in area control facilities (ARTCCs) and automated flight service stations (AFSSs) and users at altitudes at and above 2000 feet AGL (except in areas of low activity) and for lower altitude coverage in areas of special concern (such as military training routes and areas of high rotorcraft activity). (19970)

The NAS shall provide VHF voice channels in the 136.000 to 137.000 MHz band in accordance with forthcoming international agreements. (19950)

The NAS shall provide data channels in the frequency band appropriate for air-ground data communications equipment for data communications coverage for both civil and military users. *(19940)*

The NAS shall provide VHF voice channels in the 117.975 to 136.000 MHz band and UHF voice channels in the 225 to 400 MHz band for air-ground voice communications coverage. VHF and UHF voice channels shall be provided for communications with civil and military users, respectively. *(19930)*

The NAS shall provided air-ground voice and data communications within the en route and terminal airspace of the conterminous United States, Alaska, Hawaii, and Puerto Rico. *(19920)*

The NAS shall provide VHF voice channels for ground control or clearance delivery communications between specialists at terminal facilities and users and vehicles on the aerodrome surface or controlled movement areas. The NAS shall provide UHF voice channels at terminal facilities serving both civil and military users for ground control communications. *(19990)*

The NAS shall provide transfer surveillance, flight plan, flight movement, weather, and monitoring and control information between aircraft and the ground, between ground facilities (interfacility ground-ground), and within NAS facilities (intrafacility ground-ground) is necessary for safe and efficient operation of the NAS. *(19890)*

3.10.2.5 Emergency Communications

The NAS shall provide emergency communications. *(32140)*

The NAS shall provide appropriate emergency agencies off-line data generation, and data storage. *(21020)*

The NAS shall provide appropriate emergency agencies simultaneous voice and data communications. *(21010)*

The NAS shall support communications with essential emergency services. *(20950)*

The NAS shall provide appropriate government agencies information on the operational status of the NAS for executive crisis management and control of the national emergency and reconstitution of the NAS. *(20940)*

The NAS shall provide receipt and transmission of emergency voice communications via VHF and UHF at AFSSs while maintaining voice communications via normal assigned VHF and/or UHF channels. *(20010)*

3.10.2.6 Aircraft-Controller Communication

The NAS shall establish communications between controllers and aircraft via voice communications. *(04840)*

The NAS shall establish communications between controllers and aircraft via data communications. *(04850)*

The NAS shall communicate with all military aircraft using low-level training routes between entry altitude of the route and 10,000 feet AGL. *(16590)*

The NAS shall provide data communications from specialists in ARTCCs, ATCTs, and AFSSs to users in appropriately equipped aircraft. *(20110)*

The NAS shall disseminate clearances to aircraft via data link communications. *(02990)*

The NAS shall issue clearances to aircraft via voice communications. *(02980)*

The NAS shall establish communications between controllers and aircraft, via visual signals when voice or data communications fail or are unavailable. (04870)

3.10.2.7 NAS Inter-Facility Data Communications

The NAS shall provide data communications capabilities between NAS facilities. (20480)

The NAS shall provide intelligible interfacility voice communications. (20470)

The NAS shall provide secure voice and data communications between selected NAS facilities and DoD facilities. (20610)

3.10.2.7.1 Data Exchange with Airline Dispatch Offices

The NAS shall exchange airport utilization data with Airline Dispatch Offices. (24000)

The NAS shall exchange airport utilization data in voice communication format. (24010)

The NAS shall exchange airport utilization data in data communication format. (24020)

The NAS shall exchange scheduled airline data with Airline Dispatch Offices. (24030)

The NAS shall exchange scheduled airline data in data communication format. (24040)

The NAS shall exchange scheduled airline data in voice communication format. (24050)

3.10.2.8 Controllers and surface vehicles

The NAS shall establish communications between controllers and surface vehicles via voice communications. (04820)

The NAS shall establish communications between controllers and surface vehicles via data communications. (04830)

The NAS shall establish communications between controllers and surface vehicles, via visual signals when voice or data communications fail or are unavailable. (04860)

3.10.3 Security

3.10.3.1 Prevent disclosure of classified information

All NAS systems shall provide recovery measures from security incidents. (21890)

The NAS shall prevent disclosure of classified information to unauthorized persons. (21690)

The NAS shall prevent disclosure of sensitive information to unauthorized persons. (21860)

3.10.3.2 Control physical access to equipment facilities

The NAS shall control physical access to equipment and facilities. (21710)

The NAS shall provide physical security to prevent damage to information, equipment, and facilities. (32030)

The NAS shall provide physical security to prevent unauthorized access to information, equipment, and facilities. (21700)

The NAS shall provide physical security to prevent damage to information, equipment and facilities. (32170)

3.10.3.3 Protection of NAS systems

The NAS shall provide security measures at facilities for protection of NAS systems. (21720)

The NAS shall immediately notify the appropriate personnel when an attempt to violate physical security is detected. (21740)

The NAS shall verify user authorization and limit access to computer operational programs and databases. (20930)

3.10.3.4 Criteria for access of clearances

The NAS shall establish criteria for determining who shall have access or clearances to information on a need -to-know basis. (21760)

The NAS shall deny effective use of information even if access is gained. (21800)

The NAS shall prevent unauthorized persons from gaining access to information systems (21790)

The NAS shall enforce established security rules and procedures. (21780)

The NAS shall control access to facilities and information. (21770)

3.10.3.5 Protect NAS assets

The NAS shall protect NAS assets. (21830)

The NAS shall protect assets from unacceptable degradation of service. (31940)

The NAS shall protect assets from denial of service (31950)

The NAS shall protect assets against false or misleading data (31960)

The NAS shall protect assets from unauthorized creation (31970)

The NAS shall protect assets from unauthorized deletion (31980)

The NAS shall protect assets from unauthorized modification (31990)

3.10.3.6 Security rules on an entity's access attempts

The NAS shall enforce system security rules on an entity's access attempts. (21840)

The NAS shall restrict the release of NAS data to authorized entities. (31880)

The NAS shall authenticate an authorized entity's identity. (31890)

The NAS shall uniquely identify all authorized entities. (31900)

The NAS shall deter repeated unsuccessful attempts to gain access, in accordance with system security rules. (31910)

The NAS shall detect repeated unsuccessful attempts to gain access. (31920)

3.10.3.7 Implement non-repudiation

The NAS shall implement non-repudiation. (21870)

The NAS shall alert specialists when malicious activity is detected. (31840)

The NAS shall deter malicious activity. (21880)

The NAS shall detect malicious activity. (31860)

3.10.3.8 Provide the required level of security and necessary training

All NAS systems shall provide the required level of security and necessary training based upon risk analyses and threat and vulnerability assessments. (21820)

The NAS shall implement technical security management. (32180)

The NAS shall protect access to assets during all operational states. (32190)

The NAS shall enforce system security rules during all operational states. (32200)

3.10.3.9 Maintain security logs

The NAS shall record the security audit log during all operational states. (21850)

The NAS shall record all system access attempts in a security audit log. (32210)

The NAS shall preserve the security audit log for a minimum of 90 days. (32220)

The NAS shall prevent modification of the events recorded in the security audit log. (32230)

The NAS shall record all detected malicious activity in the security audit log. (32240)

The NAS shall record all attempts to violate system security rules in the security audit log. (32250)

The NAS shall record all security administration activities in the security audit log. (32260)

3.10.3.10 Control access to manned facilities

The NAS shall continually control access to manned facilities to prevent interruption of service. (21340)

The NAS shall continually control access to manned facilities to prevent distractions of specialists. (32270)

The NAS shall continually control access to manned facilities to prevent unauthorized access to computers (32280)

The NAS shall continually control access to manned facilities to prevent the theft of government property. (32290)

The NAS shall prevent unauthorized modifications to flight plans. (00930)

3.10.3.11 Rules and procedures for security to control access to facilities and information

The NAS shall establish rules and procedures for security to control access to facilities and information. (21750)

The NAS shall store classified information. (21730)

The NAS shall store security sensitive information. (32010)

The NAS shall secure unclassified voice and data communication. (20650)

The NAS shall provide physical security to protect of classified up to and including Secret. (20640)

The capability shall encrypt/decrypt classified information up to and including Secret for data transmission between selected NAS facilities and DoD facilities. (20620)

3.10.3.12 Implement security audit review mechanisms

The NAS shall implement security audit review mechanisms.

3.10.3.13 Segregate interface equipment

The NAS shall segregate interface equipment performing air traffic control functions.

The NAS shall segregate interface equipment for encrypting data communications to computer equipment performing air traffic control functions. (20630)

The NAS shall segregate interface equipment for storing classified information to computer equipment performing air traffic control functions. (32160)

3.11 Performance Requirements

Performance requirements are currently being developed by ITT. When these requirements become mature and have been reviewed by the FAA, they will be added to this document.

3.12 Reliability, Maintainability, and Availability

Requirements for reliability, maintainability, and availability are currently being developed. They will be added to this document at a later date.

4 Glossary

Term	Definition
Alphabetic References	
A	
Above Ground Level	Measurement of flight or obstacle above the earth's surface.
Access Control	The process of granting access to information systems resources only to authorized users, programs, processes, or other systems.
Additional Services	<p>Advisory information provided by ATC that includes but is not limited to the following:</p> <ol style="list-style-type: none"> 1. Traffic Advisories 2. Vectors 3. Altitude deviation information of 300 feet or more from an assigned altitude 4. Advisories 5. Weather and chaff information 6. Weather assistance 7. Bird activity information 8. Holding pattern surveillance <p>Additional services are provided to the extent possible contingent only upon the controller's capability to fit them into the equipment, volume of traffic, frequency congestion, and controller workload. The controller has complete discretion for determining if he is able to provide or continue to provide a service in a particular case.</p>
Adjacent Facility	An ATC facility that's assigned airspace borders that of the facility being discussed.
Adjacent Foreign Airspace	Airspace of a foreign nation's airspace system bordering the US NAS.
Advanced Automation Functions	The ARTCC shall receive from other ARTCCs trial plans, trajectory update information, and messages containing inputs to and/or outputs from advanced automation functions such as Flight Plan Conflict Probe. The messages shall include flight plan conflict and airspace conflict alerts and displays.
Advisory	Advice and information provided to assist pilots in the safe conduct of flight and aircraft movement.
Aerodromes	A defined area on land or water (including any buildings, installations, and equipment) intended to be used either wholly or in part for the arrival, departure, and movement of aircraft. Aerodromes may include airports, heliports, and other landing areas.
Aerodrome/Airport	The designated arrival capacity of an airport.

Acceptance Rates	
Aerodrome Characteristics	Aerodrome characteristics include: - aerodrome size - type - service - terrain characteristics.
Aerodrome Lighting	Various lighting aids that may be installed on an aerodrome.
Aerodrome Surface	That part of the aerodrome dealing specifically with vehicles operating on the surface of the airport.
Aerodrome Types	Aerodrome types include: - heliport - civil - seaplane
Aeronautical Chart	A map used in air navigation containing all or part of the following: 1. Topographic features 2. Hazards and obstructions 3. Navigation aids 4. Navigation routes 5. Designated airspace 6. Airports
Aeronautical Information	The establishment, condition, or change in an component of the NAS; boundaries and time of restriction for special use airspace, preferred, fuel-efficient, and/or low altitude routes, traffic management information, and alternate routing to avoid conditions precluding original route availability.
Aircraft	Devise(s) that are used or intended to be used for flight in the air; when used in air traffic control terminology may include the flight crew.
Aircraft Identification	The words, letter(s), and numerals (or combination thereof) which uniquely identify an aircraft, e.g., Air Force 0, NIZ34Y, United 340, T5678.
Agencies involved in emergencies and SAR	Agencies with whom essential emergency information is communicated are: - Appropriate Rescue Coordination Centers - Military, Federal, State, or local Search and Rescue facilities/agencies in the affected area - Neighboring foreign ATC facilities/agencies - Neighboring foreign Military ATC facilities/agencies
Aircraft Class	Heavy-Aircraft capable of take-off weights of more than 255,000 pounds whether or not they are operating at this weight during a particular phase of flight.

	<p>Large-Aircraft of more than 41,000 pounds, max. certified takeoff weight, up to 255,000.</p> <p>Small- Aircraft of 41,000 pounds or less max certified takeoff weight.</p>
Air Defense Identification Zone/ADIZ	The area of airspace over land or water, extending upward from the surface, within which the ready identification, the location, and the control of aircraft are required in the interest of national security.
Aeronautical Information Manual/AIM	A publication containing Basic Flight Information and ATC Procedures designed primarily as a pilot's instructional manual for use in the National Airspace System of the United States
Air Navigation Facility	Any facility used in, available for use in, or designed for use in, aid of air navigation, including landing areas, lights, any apparatus or equipment for disseminating weather information, for signaling, for radio-directional finding, or for radio or other electrical communication, and any other structure or mechanism having a similar purpose for guiding or controlling flight in the air or the landing and take-off of aircraft. (14 CFR 170)
Air Traffic	Aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.
Airborne User	A general term that includes the passengers, pilot(s), and the aircraft.
Aircraft of Interest (to law enforcement)	<p>Aircraft of interest to law enforcement are:</p> <ul style="list-style-type: none"> - Stolen - Known or Suspected Drug Trafficking - Known or Suspected Terrorist Activities - Smuggling
Aircraft Performance Envelopes	<p>Aircraft Performance Envelopes are:</p> <ul style="list-style-type: none"> - Optimal descent and ascent profiles - Maximum turning capability - Minimum certified IFR airspeed - Acceleration/deceleration constraints
Airport	An area on land or water that is used or intended to be used for the landing and takeoff of aircraft, including its buildings and facilities, if any.
Airport Acceptance Rate	A dynamic input parameter specifying the number of arriving aircraft that an aerodrome can accept per hour.
Airport Movement Area	Airport area controlled by the tower or to transit the Class D airspace.
Airport Visual Markings	<p>Airport visual markings include:</p> <ul style="list-style-type: none"> - Runway pavement markings - Taxiway pavement markings - Runway signs

	<ul style="list-style-type: none"> - Taxiway signs - Information signs
Airspace and Flow restriction alerts	<p>Airspace and flow restriction alerts include:</p> <ul style="list-style-type: none"> - Expected times and locations of airspace conflicts - Expected activations and deactivations of protected airspaces and flow restrictions
Airspace Designs	<p>Airspace designs include:</p> <ul style="list-style-type: none"> - the existing design - current and projected traffic usage - radio frequency congestion - guidelines for establishing classes of airspace - designation of volumes of airspace for the provision of separation (sectors, special use, etc.) - waypoints - published routes etc. - identification of those structures, which require rulemaking, publication, environmental evaluations, etc - criteria to support the design process - objectives to meet demand, performance criteria
Airspace Management Products	<p>Airspace management products include:</p> <ul style="list-style-type: none"> - charts - approach plates - Special Use Airspace schedules - NOTAMS - sector plan alternatives
Airway/Route Usage	<p>The procedure or conduct of a control area or portion thereof established in the form of a corridor, the centerline of which is defined by navigational aids.</p>
Airport Traffic Control Tower/ATCT	<p>A terminal facility that uses air-ground radio communications, visual signaling, and other devices to provide ATC services to aircraft operating in the vicinity of an airport or on the movement area. Authorizes aircraft to land or takeoff at the airport controlled by the tower or to transit the airport traffic area regardless of flight plan or weather conditions (IFR or VFR). A tower may also provide approach control services.</p>
Airport Surface Detection Equipment/ASDE	<p>Equipment specifically designed to detect all principal features on the surface of an airport including aircraft and vehicular traffic, and to present the entire image on an indicator in the control tower. Used to augment visual observation by tower personnel of aircraft and/or vehicular movements on runways, landing areas, and taxiways.</p>
Airport Traffic Control	<p>A service provided by a control tower for aircraft</p>

Service	operating on the movement area and in the vicinity of an aerodrome.
Air Route Traffic Control Center/ARTCC	A facility established to provide air traffic control service to aircraft principally during the en route phase or flight. When equipment capabilities and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft.
Air Traffic	Aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.
Air Traffic Control Clearance/ATC	An authorization by air traffic control, for the purpose of preventing collision between known aircraft, for an aircraft to proceed under specified traffic conditions within controlled airspace.
Air Traffic Control System Command Center/ATCSCC	An air traffic service facility consisting of four operational units. <ol style="list-style-type: none"> 1. <i>Central Flow Control Function/CFCF</i> - Responsible for coordination and approval of all major intercenter flow control restrictions on a system basis in order to obtain maximum utilization of the airspace. 2. <i>Central Altitude Reservation Function/CARF</i> - Responsible for coordinating, planning, and approving special user requirements under the Altitude Reservation (ALTRV) concept. 3. Airport Reservation Office/ARO - Responsible for approving IFR flights at designated high-density-traffic airports (John F. Kennedy, LaGuardia, O'Hare, and Washington National) 4. ATC Contingency Command Post - A facility that enables the FAA to manage the ATC system when significant portions of the system's capabilities have been lost or are threatened.
Air Traffic Control Facility	A facility that provides an Air Traffic Control Service.
Airway	A control area or portion thereof established in the form of a corridor, the centerline of which is defined by navigational aids.
Alert Areas	Airspace which may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft. Alert Areas are depicted on aeronautical charts for the information of nonparticipating pilots.
Alphanumeric Display/Data Block	Letters and numerals used to show identification, altitude, beacon code, and other information concerning a target on a controller radar display.
Altitude	The height of a level, point, or object measured in feet

	<p>above ground level (AGL) or from mean sea level (MSL).</p> <ol style="list-style-type: none"> 1. <i>AGL Altitude</i> - Altitude expressed in feet measured above ground level. 2. <i>MSL Altitude</i> - Altitude expressed in feet measured from mean sea level. 3. <i>Indicated Altitude</i> - The altitude as shown by the altimeter. On a pressure or barometric altimeter it is altitude as shown uncorrected for instrument error and uncompensated for variation from standard atmospheric conditions.
Altitude Readout/Automatic Altitude Report	An aircraft's altitude, transmitted via the Mode C transponder feature that is visually displayed in 100-foot increments.
Altitude Reservation/ALTRV	Airspace utilization under prescribed conditions.
Ambiguity	With respect to navigational systems, two or more possible position fixes having the same set of measurements, with no indication of which is the more nearly correct.
Approach Sector	Approach sector is defined as having horizontal coverage of at least +/- 20 degrees relative to the final approach path, having vertical coverage from 0.9 degrees to 15 degrees above the horizontal plane, and extending at least 20 nmi from the landing area.
Approved Communications media for dependent surveillance	<p>Approved communications media for dependent surveillance information are:</p> <ul style="list-style-type: none"> - Satellite communications - ARINC - AFTN - Data Links - Air-ground voice communications.
Approach performance boundaries	Boundaries having the dimensions at the specified height above touchdown elevation (HAT) along and relative to the approach path:
Approach Performance Boundaries with respect to precision approach	<p>Approach performance boundaries with respect to a precision approach center-line:</p> <ul style="list-style-type: none"> - At 1500 feet HAT, +/- 800 feet lateral width +/- 250 feet vertical height; thence decreasing linearly until: - at 300 feet HAT, +/- 235 feet lateral width and +/- 67.5 feet vertical height; thence decreasing linearly until: - at 200 feet HAT, +/- 212.5 feet lateral width and +/- 55 feet vertical distance.

	Where HAT means height above touchdown.
Area Forecast Weather	A prediction of the future state of the atmosphere with specific reference to one or more associated meteorological elements of a particular location.
Area Navigation/RNAV	<p>A method of navigation that permits aircraft operations on any desired course within the coverage of station-referenced navigation signals or within the limits of self-contained system capability.</p> <ol style="list-style-type: none"> 1. <i>Area Navigation Low Route</i> - An area navigation route within the airspace extending upward from 1,200 feet above the surface of the earth to, but not including, 18,000 feet MSL. 2. <i>Area Navigation High Route</i> - An area navigation route within the airspace extending upward from and including 18,000 feet MSL to flight level 450. 3. <i>Random Area Navigation Routes/Random RNAV Routes</i> - Direct routes, based on area navigation capability, between waypoints defined in terms of latitude/longitude coordinates, degree/distance fixes, or offset from published or established routes/airways at a specified distance and direction. 4. <i>RNAV Waypoint/W/P</i> - A predetermined geographical position used for route or instrument approach definition or progress reporting purposes that is defined relative to a VORTAC station position or in terms of latitude/longitude coordinates.
Area of NAS Responsibility	A volume of airspace designated for control by the United States. It includes domestic and oceanic airspace for which the US is responsible for providing air traffic services.
Area of NAS Responsibility for Foreign Operations	The area of NAS responsibility is the volume of airspace designated for control by the United States while under the use of foreign aircraft. It includes US domestic and oceanic airspace for which the US is responsible for providing air traffic services.
Associated Facility	A facility having a functional interdependence with another facility and sharing voice and data communications for the purpose of providing NAS services over a specified area.
ATC Instructions	Directives issued by air traffic control for the purpose of requiring a pilot to take specific actions.
Assigned Airspace at Terminal Facilities	Assigned airspace at terminal facilities is from ground level to no less than 3000 feet AGL for the area within 5 statute miles around towers.
ATC Preferred Routes	Routes generated by air traffic control, which represent the preferred routings to or from a location. They may

	or may not be coincident with user-preferred routes.
ATCSCC Specialist	Traffic management specialist resident at the Air Traffic Control System Command Center (ATCSCC) who coordinates with local traffic management specialists at ARTCCs and manages flow control operations. See ATCSCC description.
Audit	A set of processes by which records of information systems security relevant events are kept and maintained by information processing systems. This allows for the periodic or on-demand review of security relevant events such as network communications logs, logon records, and file integrity check events.
Authentication	The process of verifying that a claimed identity is correct (i.e., authentic). Authentication is often based on something known or possessed, such as a password or token, where a claimed identity is challenged and shown to be authentic based upon a correct response to the challenge.
Automatic Altitude Reporting	The function of a transponder that responds to interrogations by transmitting the aircraft's altitude in 100-foot increments.
Automatic Terminal Information Service/ATIS	The continuous broadcast of recorded non-control information in selected terminal areas. Its purpose is to improve controller effectiveness and to relieve frequency congestion by automating the repetitive transmission of essential but routine information. It normally includes weather and important airport/terminal area information of interest to users.
Automation Coordination	Suggestions of automation enhancements and information on the impact of proposed automation enhancements on TFM system users.
Availability	The availability of a navigation system is the percentage of time that the services of the system are usable. Availability is an indication of the ability of the system to provide usable service within the specified coverage area. Signal availability is the percentage of time that navigation signals transmitted from external sources are available for use. Availability is a function of both the physical characteristics of the environment and the technical capabilities of the transmitter facilities.
Azimuth	The angular distance measured on a horizontal circle in a clockwise direction from either north or south.
B	
Bearing	The horizontal direction to or from any point, usually measured clockwise from true north, magnetic north, or some other reference point, through 360 degrees.

Broadcast	Transmission of information for which an acknowledgment is not expected.
C	
Call sign	
Capacity Projections	Information pertinent to capacity projections includes: <ul style="list-style-type: none"> - sector area current weather and forecast weather - navigation equipment operational status - aerodrome operational status - runway configuration - aircraft performance characteristics
Catastrophic Failure	The inability of an ATC facility to perform its operational responsibilities, regardless of cause, as determined by operational authorities.
Category I approach	ILS approach procedure that provides for approach to a height above touchdown of not less than 200 feet and with runway visual range of not less than 1800 feet.
Category II approach	ILS approach procedure that provides for approach to a height above touchdown of not less than 100 feet and with runway visual range of not less than 1200 feet.
Category IIIA approaches	ILS approach procedure that provides for approach without a decision height minimum and with runway visual range of not less than 700 feet.
Category IIIB approaches	ILS approach procedure that provides for approach without a decision height minimum and with runway visual range of not less than 1500 feet.
Category IIIC approaches	ILS approach procedure that provides for approach without a decision height minimum and without a runway visual range minimum.
Ceiling	The heights above the earth's surface of the lowest layer of clouds or obscuring phenomena that is reported as "broken", "overcast", or "obscuration", and not classified as "thin" or "partial"
Center Weather Advisory/CWA	An unscheduled weather advisory issued by Center Weather Service Unit meteorologists for ATC use to alert pilots of existing or anticipated adverse weather conditions within the next two hours. A CWA may modify or refine a SIGMET.
Certification	A statement of the demonstrated ability of a unit or piece of equipment to perform in accordance with pre-established criteria.
Class 'A' Airspace	Airspace extending from 18,000 feet MSL up to and including FL 600, including the airspace overlying the waters within 12 nmi of the coast of the 48 contiguous states and Alaska within areas of domestic radio navigational signal or ATC radar coverage and within which domestic procedures are applied. Previously

	known as " Positive Control Area "
Class 'B' Airspace	Airspace that extends from the surface of the Earth up to 10,000 feet MSL surrounding the nation's busiest airports in terms of IFR operations or passenger enplanements. Previously known as " Terminal Control Area "
Class 'C' Airspace	Airspace that extends from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach control, and have a certain number of IFR operations or passenger enplanements. Although the configuration of each Class C airspace area is individually tailored, the airspace usually consists of a 5 nmi radius core surface area that extends from the surface up to 4,000 feet above the airport elevation, and 10 nmi radius shelf areas that extend for 1,200 feet to 4,000 feet above the airport. An outer area extends 20 nmi outward from the center of the primary airport and extends from the lower limits of radar/radio coverage up to the ceiling of the approach control's delegated airspace. Previously known as an Airport Radar Service Area .
Class 'D' Airspace	Airspace extending from the surface to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower. The configuration of each Class D airspace area is individually tailored, and when instrument procedures are published, the airspace will normally be designed to contain the procedures.
Class 'E' Airspace	Ensures that aircraft operating on IFR flight plans can remain in controlled airspace during their entire flight. Class E airspace generally has no defined vertical limit, but does extend upward to the overlying or adjacent controlled airspace.
Class 'G' Airspace	Airspace that is uncontrolled airspace within which ATC separation services will not be provided to any aircraft, whether IFR or VFR. The burden of aircraft separation is placed directly on the pilot.
Classified Information	Official information, including foreign classified information, which has been designated as requiring protection in the interest of national security.
Clear Air Turbulence/CAT	Turbulence encountered in air where no clouds are present. This term is commonly applied to high-level turbulence associated with wind shear. CAT is often encountered in the vicinity of the jet stream.
Cleared as Filed	A phrase used by the controller when the route issued to

	the pilot is exactly the same as the route filed in the IFR flight plan.
Clearance-based Trajectory	A projection of the flight path of an aircraft that is partly based on information from the aircraft's flight plan, especially, that portion of the flight plan for which the aircraft has received clearance.
Codes/Transponder Codes	The number assigned to a particular multiple pulse reply signal transmitted by a transponder.
Commercial Service Facility	Any physical facility owned, leased, or operated by a commercial entity that provides information and services to the FAA in support of the FAA's air traffic control services. The services are provided for a fee and may include communications, weather, information, training, and infrastructure support.
Commercially Available Equipment	Equipment that is readily available in the marketplace.
Common Services	Similar or particular high-level activities that interact or cross Service Group boundaries (e.g., Air Traffic Services, Safety Services) performed by the FAA for the aviation community that contribute to the flow of aircraft throughout the NAS
Conformance	Techniques in applying or complying with the rules
Confidentiality	Confidentiality is achieved when data is restricted to authorized individuals and automated processes and denied to all others.
Conflict	The recognition of the predicated loss of separation minima.
Conflict Resolution Process Steps	Conflict resolution process steps include: <ul style="list-style-type: none"> - predict collision - determine aircraft maneuver state - ranking of alternative clearances - specialist analysis - communications with the affected flight(s) - flight crew reaction - aircraft maneuvering.
Conflict Alert	A function of certain air traffic control automated systems designed to alert specialists to existing or pending situations recognized by the program parameters that require their immediate attention/action.
Contiguous U.S.	The forty-eight adjoining states and the District of Columbia.
Continuity	The continuity of a system is the ability of the total system (comprising all elements necessary to maintain aircraft position within the defined airspace) to perform its function without interruption during the intended operation. More specifically, continuity is the

	probability that the specified system performance will be maintained for the duration of a phase of operation, presuming that the system was available at the beginning of that phase of operation.
Controlled Airspace	<i>Controlled airspace</i> means an airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification. (14 CFR Part 1) Note: Controlled airspace is a generic term that covers Class A, Class B, Class C, Class D, and Class E airspace.
Controlled Firing Areas	Controlled Firing Area? Airspace wherein activities are conducted under conditions so controlled as to eliminate hazards to nonparticipating aircraft and to ensure the safety of persons and property on the ground. (AIM)
Controller	See Specialist
Convective SIGMET/WST/Convective Significant Meteorological	A weather advisory concerning convective weather significant to the safety of all aircraft. Convective SIGMETs are issued for tornadoes, lines of thunderstorms, embedded thunderstorms of any intensity level, areas of thunderstorms greater than or equal to VIP level 4 with an area coverage of 4/00 (40%) or more, and hail 3/4 inch or greater.
Coordinates	The intersection of lines of reference, usually expressed in degrees/minutes/seconds of latitude and longitude, used to determine position or location.
Coordination Fix	The designated fix in relation to which facilities will handoff, transfer control of an aircraft, or coordinate flight progress data. For terminal facilities, it may also serve as a clearance for arriving aircraft.
Corrective Maintenance	Maintenance actions performed, as a result of failure, to restore an item to a specified condition.
Cost Effectiveness	A measure of a system or a piece of equipment that relates mission fulfillment and total life-cycle cost.
Course	1. The intended direction of flight in the horizontal plane measured in degrees from north. 2. The ILS localizer signal pattern usually specified as from course or back course.
Course Information	Data or information pertaining to the intended direction of flight in the horizontal plane measured in degrees from north.
Critical Information	Critical Information: - Time - Altimeter setting - Range marks

	<ul style="list-style-type: none"> - Tabular lists - Duty runway - Beacon codes being monitored - Beacon codes available - Emergency information - Cursor/selection device positioning
Cross-Reference	Accessing or looking up related information, usually by means of an indexing or organized structuring scheme set up for that purpose.
Current Location	Site, setting, or position of the aircraft based on visual or tool readings.
Current Maneuver status	When the aircraft is climbing, turning, or descending.
Current and Forecast Weather	Current and Forecast weather data shall include: <ul style="list-style-type: none"> - hazardous weather - terminal weather - en route weather - winds aloft
D	
Defense Visual Flight Rules	Rules applicable to flights within an ADIZ conducted under visual flight rules.
Degree of Hazardous Weather	Depends upon it's intensity, characteristics of the aircraft, and phase of flight
Demand Projections	Information pertinent to demand projections includes: <ul style="list-style-type: none"> - stored flight plan information - filed flight plan information - aerodrome operational status - historic demand profiles - scheduled special events - military operations
Departure Information	Departure information includes: <ul style="list-style-type: none"> - Proposed departure and destination locations and times - Aircraft identification and type - Assigned altitude - Assigned departure sequence and schedule, at select locations
Dependent Surveillance Environment	Airspace not covered by either independent or cooperative surveillance, in which the NAS obtains information about the position and movement of aircraft through reports from the aircraft being monitored.
Designated Hazardous Areas	Designated hazardous areas are: <ul style="list-style-type: none"> - Long Island Sound Reporting Service - Block Island Reporting Service - Cape Cod and Islands Radar Overwater - Lake Reporting Service - Everglades Reporting Service

Deviations	<ol style="list-style-type: none"> 1. A departure from a current clearance, such as an off-course maneuver to avoid weather or turbulence. 2. Where specifically authorized in the FARs and requested by the pilot, ATC may permit pilots to deviate from certain regulations.
Direct-Access Voice Communications	Means whereby a specialist can activate voice communications to a designated position in a different facility with a single action on a single physical device.
Direction Finder/DF	A radio receiver equipped with a directional sensing antenna used to take bearings on a radio transmitter. Specialized radio direction finders are used in aircraft as air navigation aids. Others are ground-based, primarily to obtain a "fix" is established by the intersection of two or more bearing lines plotted on a navigational chart using either two separately located Direction Finders to obtain a fix on an aircraft or by a pilot plotting the bearing indications of his DF on two separately located ground-based transmitters both of which can be identified on his chart.
Discrete Frequency	A separate radio frequency for use in direct pilot-controller communications in air traffic control which reduces frequency congestion by controlling the number of aircraft operating on a particular frequency at one time. Discrete frequencies are normally designated for each control sector in en route/terminal ATC facilities.
Distance Measuring Equipment/DME	Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.
E	
Efficient	Competent, capable, that which is suitable to satisfy the requirements.
Emergency	A safety condition of being threatened by serious and/or imminent danger that requires immediate or timely assistance.
Emergency Alert Information (overdue aircraft)	<p>Emergency Alert Information information on overdue aircraft includes:</p> <ul style="list-style-type: none"> - Type of emergency - Aircraft identification - Aircraft type and description - Destination - Aircraft endurance (from flight plan) - Last known/recorded position - Last recorded heading - Number and identification (if available) of passengers - Information contained on the original/amended filed

	<p>flight plan</p> <ul style="list-style-type: none"> - Weather conditions projected along last reported heading or along flight path - Other remarks deemed pertinent by the specialist
Emergency Locator Transmitter/ELT	A radio transmitter attached to the aircraft structure that operates from its own power source on 120.5 MHz and 243.0 MHz. It aids in locating downed aircraft by radiating a downward sweeping audio tone, 2-4 times per second. It is designed to function without human action after an accident.
En Route	One of the three phases of flight services. En route service is provided outside of terminal airspace and is exclusive of oceanic control.
En Route Air Traffic Control Services	Air traffic control service provided aircraft on IFR flight plans, generally by ARTCCs, when these aircraft are operating between departure and destination terminal areas. When equipment capabilities and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft.
En Route Flight Advisory Service/Flight Watch	A service specifically designed to provide, upon pilot request, timely weather information pertinent to the type of flight, intended route of flight, and altitude.
En Route Minimum Safe Altitude Warning/E-MSAW	A function of the NAS Stage A en route computer that aids the controller by providing an alert when a tracked aircraft is below or predicted by the computer to go below a predetermined minimum IFR altitude.
Environmental Data	May include smog, smoke, and volcanic ash.
Equipment	Hardware, software, or systems tools and/or apparatus
Essential Emergency Services	<p>Essential emergency services include:</p> <ul style="list-style-type: none"> - Security Control of Air Traffic and Navigation Aids (SCATANA) - Civil Reserve Air Fleet (CRAF) - War Air Service Program (WASP) - Air Carrier Dispersal - State and Regional Disaster Airlife (SARDA) - Continental U.S. Airborne Reconnaissance for Damage Assessment (CARDA) - Special Air Traffic Procedures - Military Flight Inspection - Monitoring Civil Airlift Operation for DoD
Essential Information	That data or information that is pertinent to facilitate an action.
Essential Information (overdue aircraft)	<p>Essential Information on overdue aircraft includes:</p> <ul style="list-style-type: none"> - Information contained on the original and any amendments to the filed flight plan - Last recorded or last known position

	<ul style="list-style-type: none"> - Last recorded heading - Weather conditions in area of last recorded or last known position - Weather conditions projected along last reported heading or along predicted flight path
External Data Interfaces	Equipment (hardware, software, systems, firmware, etc.) that indirectly interacts with or prompts the transmittal of data.
F	
Failure	The event, or inoperable state, in which any item or part of an item does not, or would not, perform as previously specified.
Fix	A geographical position that is determined by visual reference to the surface, by reference to one or more radio NAVAIDs, by celestial plotting, or by another navigational device.
Flight Following	The controller monitors the progress of a flight whose navigation is being provided by the pilot. The system will correlate the aircraft position with the proposed flight plan. Flight Following may be accomplished either through procedural methods or surveillance assistance.
Flight Information	Information including the aircraft identification/call sign, aircraft type, current and projected location (position), altitude of aircraft, clearance limit, speed of aircraft, track for each controlled aircraft in controlled airspace, track for each controlled aircraft expected to enter controlled airspace (e.g. terminal, Enroute, oceanic), and the ETA at reported fixes.
Flight Information (expanded)	<p>Flight Information is:</p> <ul style="list-style-type: none"> aircraft identification current position altitude speed heading vertical velocity horizontal acceleration vertical acceleration Actual or reported altitude Assigned altitude Source of altitude information Aircraft velocity Aircraft type Altitude conformance Handoff status Track status

	<p>Ground speed Beacon code Computer identification number Conflict resolution advisory Heavy jet indicator Remarks Alert special aircraft status Conflict alert Minimum safe altitude warning Conflict probe violation Failure of attempted data transmission indication</p>
Flight Information Region/FIR	<p>An airspace of defined dimensions within which Flight Information Service and Alerting Service are provided.</p> <ol style="list-style-type: none"> 1. <i>Flight Information Service</i> - A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights. 2. <i>Alerting Service</i> - A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid and assist such organizations as required.
Flight Level /FL	<p>A pressure altitude convention used at or above 18,000 feet MSL whereby all aircraft altimeters must be set to 29.92 inches of mercury. Flight level is specified in three digits that represent hundreds of feet. For example, Flight level 2500 represents a barometric altimeter indication of 25,000 feet; flight level 255, an indication of 25,500 feet.</p>
Flight Path	<p>A line, course or track along which an aircraft is flying or intended to be flown.</p>
Flight Path Projection	<p>Flight path projection is based on:</p> <ul style="list-style-type: none"> - Current position - Course - Speed - Altitude - Vertical velocity - Vertical and horizontal acceleration including turn rate
Flight Plan	<p>Specified information relating to the intended flight of an aircraft that is filed orally or in writing with an ATC facility. <i>(From Current NAS SR)</i></p>
Flight Plan Based Trajectories	<p>An ordered union of all converted fixes and route segments for a Flight Plan.</p>
Flight Plan Evaluation	<p>Flight plan evaluation includes:</p> <ul style="list-style-type: none"> - User ID - Aircraft ID - Logic check of data

	<ul style="list-style-type: none"> - Verification of flight plan for A/c to A/s conflicts - Predictions of non-compliance with flow restrictions.
Flight Plan Information	<ul style="list-style-type: none"> - Aircraft Call Sign - Aircraft Type - Aircraft Position - Aircraft Altitude - Direction of Flight - Aircraft Velocity - Beacon code - Departure point - Destination - Altitude - Route of flights - Times relative to the movement of the flight - Clearance limit - ETA at reported fixes - Holding information - Approach information - Fixes - Handoff indicator - Vector information - Scratch pad - Remarks
Flight Segments	The portions of a flight; the distance from one destination to another of a multiple flight-planned aircraft.
Flight Service Station/FSS	Air traffic facilities which provide pilot briefing, en route communications, and VFR search and rescue services; assist lost aircraft and aircraft in emergency situations; relay ATC clearances; originate Notices to Airmen; broadcast aviation weather and NAS information; receive and process IFR flight plans; and monitor NAVAIDS. In addition, at selected locations FSSs provide En route Flight Advisory Service (Flight Watch), take weather observations, issue airport advisories, and advise Customs and Immigration of transborder flights.
Flow Control	Measures designed to adjust the flow of traffic into a given airspace, along a given route, or bound for a given airport so as to ensure the most effective utilization of the airspace.
Flow Management	The monitoring and management of traffic flows.
Forecast Weather	The predicted atmospheric conditions.
Foreign	Non-United States or its providences

Flight Level	A level of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury. Each is stated in 3 digits that represent hundreds of feet.
Flight Data Input/Output Device	Operational equipment tools that handle flight cancellations, flight diversions, and/or flight delays.
G	
Geostationary Operational Environmental Satellite/GOES	A visible and infrared earth sensing satellite. Two satellites exist in geostationary orbits, one covering the eastern U.S. and the other covering the western U.S.
Glide Scope	Provides vertical guidance for aircraft during approach and landing.
Graphical Weather Products	Graphical Weather Products are: <ul style="list-style-type: none"> - Mosaiced weather radar - Individual weather radar - Satellite weather data - NWS non-model products - Local station model plots - Upper air model data
Gridded Forecasts	Gridded Forecasts are forecasts of: <ul style="list-style-type: none"> - Winds aloft - Temperature aloft - Geopotential height - Relative humidity - Vertical velocity - Vorticity - Convective INhibition (CIN) - Convective Available Potential Energy (CAPE) - Helicity - Total precipitation - Lifted index - Pressure at the surface - Pressure at mean sea level - 0 degree isotherm - Max wind level Tropopause - Convective cloud top height - Convective precipitation - Maximum wind level
Ground speed	An aircraft's speed over the ground during straight-line-and-level flight at constant speed.
H	
Handoff	An action taken to transfer the control of an aircraft from one controller to another if the aircraft will enter the receiving controller's airspace and radio communications with the aircraft will be transferred.
Hazardous Area	Terminal and/or ARTCC facilities reporting hazardous

Reporting Service	weather conditions within its domain.
Hazardous Weather	Weather conditions that have the potential to significantly increase the likelihood of aviation accidents. Hazardous weather conditions include moderate to severe icing, moderate to severe turbulence, moderate to severe precipitation, wind shear, thunderstorms, sustained high winds near the surface, or widespread areas of low visibility.
Hazardous Weather Information	Hazardous weather information is: <ul style="list-style-type: none"> - Turbulence - Icing - Thunderstorms - Wind Shear - Microbursts - Sustained surface winds - Low Visibility - Heavy Precipitation - Lightning - Hail
Hazardous weather reports	Hazardous weather disseminated to users/specialists includes: <ul style="list-style-type: none"> - Location of weather phenomenon - Extent of weather phenomenon - Intensity; at least 2 levels - Wind velocity - Rate of precipitation - Direction of movement
Hazardous Weather Avoidance Plan	Initiative set forth in the event of hazardous weather for the safety of aircraft. An approved plan to minimize the affect of severe weather on traffic flows in impacted terminal and/or ARTCC areas. This is normally implemented to provide the least disruption to the ATC system when flight through portions of airspace is difficult or impossible due to severe weather.
Heliport	An area of land or water, or a structure used or intended to be used for the landing and takeoff of helicopters, including its buildings and facilities, if any.
Human Engineering	The application of scientific knowledge to the design of items to achieve man-machine integration.
I	
ICAO Flight Plan Information	ICAO flight plan information is defined as: <ul style="list-style-type: none"> - Aircraft identification - Aircraft type - Beacon code - Aircraft velocity - Departure point

	<ul style="list-style-type: none"> - Destination - Altitude - Route of flights - Times relative to the movement of the flight - Holding information - Approach information - Fixes - Handoff indicator - Vector information - Scratch pad - Remarks
Identification "Ident" Feature	The special feature in the Air Traffic Control Radar Beacon System (ATCRBS) equipment used to immediately distinguish one displayed beacon target from other beacon targets.
Identification	An act or process that presents an identifier to a system so that the system can recognize a system entity and distinguish it from other entities.
IFR Aircraft/IFR Flight	An aircraft conducting flight in accordance with instrument flight rules.
IFR Conditions	Weather conditions below the minimum for flight under visual flight rules.
Independent Cooperative Surveillance Environment	The environment in which aircraft position information is acquired and determined by the interrogation of a transponder on board an aircraft.
Independent Non-Cooperating Surveillance	A system which requires no airborne compatible equipment
Independent Surveillance Environment	The environment in which aircraft position information is detected via means not reliant on the aircraft
Indirect-Access Voice Communications	Means whereby a specialist can establish voice communications with a designated position through multiple actions on one or more physical devices.
Instrument Flight Rules/IFR	Rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan.
Instrument Landing System/ILS	<p>A precision instrument approach system that normally consists of the following electronic components and visual aids:</p> <ol style="list-style-type: none"> 1. Localizer 2. Glide Slope 3. Outer Marker 4. Middle Market 5. Approach Lights
Instrument Meteorological Conditions/IMC	Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling less than the minima specified for visual meteorological conditions.

Integrity	Integrity is the ability of a system to provide timely warnings to users when the system should not be used for navigation.
Intensity Levels	Intensity levels are associated with the following elements: <ul style="list-style-type: none"> - Precipitation - Turbulence - Icing (in flight) - Convective Activity/Thunderstorms - Low level wind shear
International Civil Aviation Organization/ICAO	A specialized agency of the United Nations whose objective is to develop the principles and techniques of international air navigation and to foster planning and development of international civil air transport.
Interrogator	The ground-based surveillance beacon transmitter-receiver, which normally scans in synchronism with primary radar, transmits discrete radio signals that repetitiously request all transponders, on the mode being used, to reply. The replies received are mixed with the primary returns and displayed on the same plan position indicator. Also applied to the airborne element of the TACAN/DME system.
Initiation of SAR Procedures	Initiation of Search and Rescue procedures is dependent on: <ul style="list-style-type: none"> - Any flight making airborne position reports when contact has not been re-established within 15 minutes of the expected report time - Not less than 30 minutes after the estimated time of arrival on aircraft whose active flight plan has not been closed.
Intruder	An unplanned aircraft or one that is in violation of airspace rules.
Intrusion	The presence of unauthorized users, traffic, or data in a system.
Integrity	The ability of a system to provide timely warnings when the system should not be used for navigation as a result of errors or failures in the system.
J	
Joint Use Restricted Areas	Restricted areas where the restrictions are not in effect 24 hours a day. When a Joint Use Restricted Area is not active, it is released by the controlling agency to the appropriate ATC facility, and controllers in that facility may permit both IFR and VFR aircraft to use the restricted space.

K	
Known Traffic	With respect to ATC clearances, aircraft whose altitude, position, and intentions are known to ATC. With respect to collision avoidance, aircraft whose altitude and position is known to ATC.
L	
Landing Area	That part of the movement area intended for the landing and takeoff of aircraft.
Law Enforcement Authorities	Law Enforcement Authorities are: <ul style="list-style-type: none"> - FBI - DEA - INS - State and Local Police
Light Gun	A handheld directional light signaling device which emits a brilliant narrow beam of white, green, or red light as selected by the tower controller. The color and type of light transmitted can be used to approve or disapprove anticipated pilot actions where radio communication is not available. The light gun is used for controlling traffic operating in the vicinity of the airport and on the airport movement area.
Local Environment	Local environment includes: <ul style="list-style-type: none"> - local terrain - nearby obstacles - local weather conditions - other aircraft in the vicinity
Local Traffic Management Coordinators	Local traffic management coordinators are located at: <ul style="list-style-type: none"> - ARTCCs - TRACONs - Towers
Longitudinal Separation	The longitudinal spacing of aircraft at the same altitude by a minimum distance expressed in units of time or miles.
Lost Communications/Two-Way Radio Communications Failure	Loss of the ability to communicate by radio. Aircraft are sometimes referred to as NORDO (No Radio).
Low-Altitude Airways	Extend from 1,200 feet above the surface of the Earth up to, but not including, 18,000 feet above MSL. Low-Altitude Airways are also known as 'Victor Airways.'
Low-Altitude Airway Structure/Federal Airways	The network of airways serving aircraft operations up to but not including 18,000 feet MSL.
Lowest Replaceable unit/LRU	Any level of hardware assembly (e.g., system, segment of a system, subsystem, equipment, component, part) depending on the level of maintenance.

M	
Maintainability	A characteristic of design and installation that is expressed as the probability that an item will be retained in, or restored to a specified condition within a given period of time, when the maintenance is performed in accordance with prescribed procedures and resources.
Maintenance	<p>All actions necessary for retaining an item in, or restoring it to, a specified condition. Types of maintenance are:</p> <ol style="list-style-type: none"> 1. Corrective - Actions performed, as a result of failure, to restore an item to a specified condition. 2. Preventive - Actions performed in an attempt to retain an item in a specified condition by providing systematic inspection, detection, and prevention of incipient failure.
Malicious Code	Software or firmware that is intentionally included in a system for an unauthorized purpose, e.g. a Trojan horse.
Manned Facility	A facility that is normally occupied by Specialist, Technicians, or other FAA personnel for the conduct or support of NAS operations.
Maintenance Activities	<p>Maintenance activities include:</p> <ul style="list-style-type: none"> - adjustment - diagnosis - replacement - repair - reconditioning - recertification
Map outline data	Is comprised of airspace structure, geographic landmark information, and outlines of runway, taxiway, and landing areas
Metering	A method of time-regulating arrival traffic flow into a terminal area so as not to exceed a predetermined terminal acceptance rate.
Microburst	A downdraft-induced, diverging, horizontal flow near the surface, whose initial dimension is less than 4 km and whose differential velocity is greater than 10 meters per second.
Military Air Traffic Contrl Plans	<p>Military Air Traffic Control Plans are:</p> <ul style="list-style-type: none"> - The Wartime Air Traffic Priority List - Emergency Security Control of Air Traffic Plan - Tactical Air Movement Plan - Security Control of Air Traffic and Navigation Aid Plan
Military Operating Areas/MOA	Designated airspace where military flight training activities routinely take place that might prove hazardous to civilian aircraft.

Military Operations	<p>Military operations are:</p> <ul style="list-style-type: none"> - Reservation of airspace for special use - Including both permanently dedicated areas and areas allocated temporarily to support special military missions - Permanently delegated approach control airspace - En route training, refueling, and deployment missions - Aircraft surge launch and recovery missions - Logistic support and administrative missions - Supersonic operations - Remotely piloted vehicle operations - Artillery missile operations - Other military operations requiring NAS support
Military Training Routes/MTR	Airspace of defined vertical and lateral dimensions established for the conduct of military flight training at airspeeds in excess of 250 knots indicated airspeed.
Minimum Safe Altitude/MSA	The minimum altitude specified in FAR Part 97 for various aircraft operations to include altitudes depicted on approach charts which provide at least 1000 feet of obstacle clearance for emergency use within a specified distance from the navigation facility upon which a procedure is predicated.
Minimum Vectoring Altitude/MVA	The lowest MSL altitude at which an IFR aircraft will be vectored, except as otherwise authorized for approaches, departures, and missed approaches.
Minimums/Minima	Weather condition requirements established for a particular operation or type of operation.
Missed-Approach Point	A point prescribed in each instrument approach procedure at which a missed approach procedure shall be executed if the required visual reference does not exist. (AIM)
Mode	The letter or number assigned to a specific pulse spacing of radio signals transmitted or received by ground interrogator or airborne transponder components of the Air Traffic Control Radar Beacon System (ATCRBS). Mode A (military Mode 3) and Mode C (altitude reporting) are used in air traffic control.
Monitoring	Certain aeronautical advisory services made available by the NAS to airborne aircraft. Service consists of VFR flight following and the providing of various degrees of traffic and weather information to requesting pilots.
Movement Area	A facility that is normally occupied by Specialist, Technicians, or other FAA personnel for the conduct or support of NAS operations.

Movement Area Environment	Aerodrome surface areas that include runways, areas adjacent to the runways, and the close approach paths to runways.
Multiple Flight Plans	Sets of information related to the intended flight of an aircraft.
N	
NAS Stage A	The en route ATC system's radar, computers and computer programs, controller plan view displays (PVDs/radar scopes), input/output devices, and the related communications equipment which are integrated to form the heart of the automated IFR air traffic control system. This equipment performs Flight Data Processing (FDP) and Radar Data Processing (RDP). It interfaces with automated terminal systems and is used in the control of en route IFR aircraft.in the cointrol of en route IFR aircraft.
National	The United States and its territories.
National Airspace System/NAS	The NAS as used herein describes the FAA facilities, hardware, and software that are a predominant part of the NAS infrastructure and the personnel who operate and maintain that equipment to provide services to the user.
National Emergency	A condition declared by the President or the Congress of the U.S. that authorizes certain emergency actions to be undertaken in the national interest. Actions to be taken may include partial or total mobilization of national resources.
National Search and Rescue Plan	An interagency agreement that provides for the effective utilization of all available facilities in all types of search and rescue missions.
National Weather Radar Mosaic	Graphic of the national weather forecasts and status
NAVAID Classes	VOR, VORTAC, and TACAN aids are classed according to their operational use. The three classes of NAVAIDS are: <ol style="list-style-type: none"> 1. Terminal 2. Low Altitude 3. High Altitude
Navigable Airspace	Airspace at and above the minimum flight altitudes prescribed in the FARs, including airspace needed for safe takeoff and landing.
Navigation Aid/NAVAID	Any visual or electronic device, airborne or on the surface which provides point-to-point guidance information or position data to aircraft in flight.
Navigation Guidance	Point-to-point information or position data to aircraft in flight.

Navigation Guidance Information	Navigation guidance Information can include: <ul style="list-style-type: none"> - Horizontal (azimuth) guidance - Vertical (glide slope) guidance - Distance/range - Bearing - Latitude - Longitude - Altitude - Rho/Theta coordinates referenced to the location of the navigational aid and true magnetic north respectively
Navigation Reference Point	Navigation reference point includes: <ul style="list-style-type: none"> - Navigation Fix - Reporting Point - Intersection - Waypoint - Landmarks
Near Real-Time	Information that is loosely considered between 20 and 60 seconds old.
Non-Cooperative Surveillance	Techniques to observe, resolve, and identify aircraft and ground-service vehicles on and near an airport.
Non-FAA ATC Facility	Provides air traffic control services to aircraft operating in airspace adjoining FAA controlled airspace. Non-FAA and FAA ATC facilities coordinate the transition of aircraft to and from FAA controlled airspace. Non-FAA ATC facilities include facilities in Canada, Mexico, The Caribbean, Russia, and Japan. A non-FAA ATC facility is located outside of the FAA controlled airspace.
Non-Participating Aircraft	An aircraft that is not receiving assistance or service from air traffic control. Alternatively, an aircraft that is not participating in the operations of special use airspace.
Non-precision approach	Standard instrument approach procedure in which no electronic glide slope is provided (VOR, TACAN, Loran C, NDB).
Non-Repudiation Service	A security service that provides protection against false denial of involvement in a communication.
Notice to Airmen/NOTAM	A notice containing information concerning the establishment, condition, or change in any component (facility, service, or procedure of, or hazard in, the National Airspace System) the timely knowledge of which is essential to personnel concerned with flight operations.
O	
Obstacle	An existing object, object of natural growth, or terrain at

	a fixed geographical location, or which may be expected at a fixed location within a prescribed area, with reference to which vertical clearance is or must be provided during flight operation.
Obstruction	An object/obstacle exceeding the obstruction standards specified by FAR Part 77, Subpart C.
On-Line Storage	Storage facilities allowing immediate access to information (voice and/or data) recorded within the past 24 hours.
Operational Check-out	Systematic review of equipment
P	
Participating Aircraft	An aircraft that meets the conditions for receiving some assistance or service from Air traffic control. Alternatively, an aircraft that is participating in the operations of special use airspace.
Pilot	The person(s) flying the plane.
Positive Control	The separation of all air traffic, within designated airspace, by air traffic control.
Positive Controlled Airspace	In areas designated as Positive Controlled Airspace, the FAA either absolutely prohibits VFR flight operations, or if permitted, separates both VFR and IFR aircraft. Positive controlled airspace is reserved for flight above 18,000 feet mean sea level (MSL) -- or around high-density areas.
Precipitation	Any or all forms of water particles (rain, fog, sleet, hail, or snow) that fall from the atmosphere and reach the surface.
Precision approach	Standard instrument approach procedure in which an electronic glide slope is provided (Instrument Landing System (ILS)).
Precision Approach Control Sector	A control sector containing a precision approach such that a volume of airspace defined by: <ol style="list-style-type: none"> 1. +/- 20 degrees of the final approach path 2. Vertical coverage from 0.9 degrees to 15 degrees above the surface plane 3. Extending at least 20 nmi from the landing area. is completely contained within the sector.
Predicted	That which is expected at some future time, postulated on analysis of past experience and tests.
Preferential Routes	Routes Preferential Departure Routes (PDRs), Preferential Arrival Routes (PARs), and Preferential Departure and Arrival Routes (PDARs) are adapted in ARTCC computers to accomplish inter/intrafacility controller coordination and to ensure that flight data are posted at the proper control positions. Preferential routes are usually confined to one ARTCCs area.

Preventive Maintenance	Actions performed in an attempt to retain an item, or restoring it to, specified condition.
Primary Facility	The facility normally connected for providing services on a routine basis.
Primary Means of Navigation	A navigation system approved for a given operation or phase of flight that must meet accuracy and integrity requirements, but need not meet full availability and continuity of service requirements. Safety is achieved by limiting flights to specific time periods and through appropriate procedural restrictions. There is no requirement to have a sole-means navigation system on board to support a primary means system.
Published Route	A route for which an IFR altitude has been established and published.
Prohibited Area	Airspace where aircraft operations are absolutely prohibited by law. These areas are directly concerned with either national security or public safety. Some include the White House, Capital Building, Camp David, and more.
Q	
Qualifying Terminals	Terminals that qualify for some special consideration.
Quota Flow Control/QFLOW	A flow control procedure by which the Central Flow Control Function (CFCF) restricts traffic to the ARTCC area having an impacted airport thereby avoiding sector/area saturation.
R	
R-95	A circle of error probability (CEP) in which 95 percent of the position estimates are within the specified distance of the actual position. A radial position error is defined as $\text{SQRT}(X\text{PositionError}^2 + Y\text{PositionError}^2)$ where the standard deviation of X and Y position error are equal.
Reliability	The probability that an item can perform its intended function for a specified interval under stated conditions.
Recurring Flight Plans	Canned and stereo flight plans
Remote Areas	Sparsely populated area such as mountains, swamps, and large bodies of water.
Remote Communications Air/Ground Facility/RCAG	An unmanned VHF/UHF transmitter/receiver facility that is used to expand ARTCC air-ground communications coverage and to facilitate direct contact between pilots and controllers.
Remote Communications Outlet/RCO and Remote Transmitter/Receiver/RT R	An unmanned communications facility remotely controlled by air traffic personnel. RCOs serve FSSs; RTRs serve terminal ATC facilities. Any RCO or RTR may be UHF or VHF and will extend the communication range of the air traffic facility.

Remote Control	Control of an operation from a distance, involving a link, usually electrical, between the control device and the apparatus to be operated.
Remote Areas	Remote areas include: <ul style="list-style-type: none"> - NAS oceanic airspace - coastal offshore airspace - remote landing areas - Alaska
Reported Altitude	The height of a level, point, or object measured in feet Above Ground Level (AGL) or from Mean Sea Level (MSL.) as reported by the pilot.
Reporting Point	A geographical location in relation to which the position of an aircraft is reported.
Requirement	A specified capability that must be provided by the NAS. Types include functional, general, operational, and specific. <ol style="list-style-type: none"> 1. <i>Functional Requirement</i> - Describes what the system must do to satisfy the operational requirements. A functional requirement must have an action verb and should have well defined inputs and outputs. 2. <i>General Requirement</i> - Relates the characteristics of the operational requirements. 3. <i>Operational Requirement</i> - Qualifies and quantifies the services and products which must be provided to users and specialists. Operational requirements should be directly related to the NAS mission. 4. <i>Specific Requirement</i> - Describes how well a function or service must be performed and may be either qualitative or quantitative.
Rescue Coordination Center(RCC)	A search and rescue (SAR) facility equipped and manned to coordinate and control SAR operations in an area designated by the SAR plan. The U.S. Coast Guard and the U.S. Air Force have responsibility for the operation of RCCs.
Resource Definitions	Identifier, type (fix, sector, airport, runway), location, boundaries, nominal capacity, configuration options Capacity metric (aircraft/hour, aircraft/unit volume, aircraft separation)
Restricted Areas	Locations where aircraft operations are not absolutely prohibited but are subject to various restrictions. They are located where both airborne and ground-based activities are routinely conducted that may be hazardous to either the aircraft or its occupants. Some activities include artillery firing, aerial gunnery, and high-energy

	laser and missile testing.
Rotorcraft	A heavier-than-air aircraft that depends principally for its support in flight on the lift generated by one or more rotors.
Risk Analysis	Risk analysis is a formal process by which system vulnerabilities, threat agents, and mechanisms are identified.
Route	A defined path, consisting of one or more courses in horizontal plane, which aircraft traverse over the surface of the earth.
Runway	A defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length. Runways are normally numbered in relation to the magnetic direction.
Runway Threshold	The beginning of that portion of the runway usable for landing.
S	
Safety	Freedom from conditions that can cause death, injury, occupational illness, or damage to or loss of equipment or property.
Safety Advisory	A safety advisory issued by ATC to aircraft under their control if ATC is aware the aircraft is at an altitude which, in the controller's judgment, places the aircraft in unsafe proximity to terrain, obstructions, or other aircraft.
Saturation	The level of air traffic at which no additional traffic may be accommodated.
Search and Rescue/SAR	A service that seeks missing aircraft and assists those found to be in need of assistance. It is a cooperative effort using the facilities services available Federal, state, and local agencies.
Secure/Security	<ol style="list-style-type: none"> 1. Measures taken to protect the NAS from all acts designed to, or that may, impair its effectiveness. 2. A condition that results from the establishment and maintenance of measures to protect designated information, personnel, equipment, and installations. 3. A condition that prevents unauthorized disclosure of information that is safeguarded as NAS-sensitive (designated operational/administrative) or is classified in the interests of national security.
Security Incidents	Any act or circumstance that intends to harm or actually harms NAS data or information systems, deliberate violation of FAA security policy, or actual or intended violation of U.S. law.
Separation	In air traffic control, the spacing of aircraft to achieve their safe and orderly movement in flight and while

	landing and taking off.
Sole Means	A sole-means navigation system approved for a given operation or phase of flight must allow the aircraft to meet, for that operation or phase of flight, all four navigation system performance requirements: accuracy, integrity, availability, and continuity of service. Note-- This definition does not exclude the carriage of other navigation systems. Any sole-means navigation system could include one (standalone installation) or several sensors, possibly of different types (multi-sensor installation).
Separation Assurance	This service ensures that aircraft maintain a safe distance from other aircraft, terrain, obstacles, and certain airspace not designated for routine air travel.
Separation Minima	The minimum longitudinal, lateral, or vertical distances by which aircraft are spaced through the application of air traffic control procedures.
Separation Violation	An event in which the distance between an aircraft and either another aircraft, an obstacle, the ground, or specified airspace is less than prescribed standards.
Severe Weather Avoidance Plans/SWAP	An approved plan to minimize the effect of severe weather on traffic flow in impacted terminal and/or ARTCC areas. SWAP is normally implemented to provide the least disruption to the ATC system when flight through portions of airspace is difficult or impossible due to severe weather.
SIGMET/WS/Significant Meteorological Information	Weather advisory issued concerning weather significant to the safety of all aircraft. SIGMET advisories cover severe and extreme turbulence, severe icing, and widespread dust or sand storms that reduce visibility to less than three miles.
Sector Posting Data	<p>Sector posting data is:</p> <ul style="list-style-type: none"> - Aircraft identification - Aircraft type - Beacon code - Aircraft velocity - Departure point - Destination - Altitude - Route of flights - Times relative to the movement of the flight - Holding information - Approach information - Departure information - Fixes - Vector information

	- Remarks
Sector Workload Information	<p>Sector Workload Information includes:</p> <ul style="list-style-type: none"> - Traffic count - Flight plan complexity - Conflicts - Traffic density
Significant Deviation	<p>Significant Deviation - The flight path exceeds the following conformance bounds from the nominal position:</p> <ul style="list-style-type: none"> - Longitudinal track exceeding 2 minutes or 5 nautical miles per flight hour - Lateral deviations from track exceeding 4 nautical miles - Vertical deviations of 300 feet or more from assigned altitude.
Simultaneous Parallel Approach Runway Separation	<p>Simultaneous parallel approach runway separation includes:</p> <ul style="list-style-type: none"> - Distance between centerlines between 2500 feet and 4300 feet - 2 nmi staggered separation (i.e. combination of actual longitudinal and actual lateral with respect to approach course) - Distance between centerlines greater than 4300 feet - minimum actual lateral separation irrespective of approach course)
Storm Cell Movement Predictions	<p>Predictions on the positions and movement of storm cells.</p> <p>Storm Cell movement predictions are for periods of:</p> <ul style="list-style-type: none"> - 10 minutes - 20 minutes - 30 minutes <p>into the future</p>
Supplemental Means of Navigation	<p>A navigation system that may only be used in conjunction with a primary- or sole-means navigation system. Approval for supplemental means for a given phase of flight requires that a primary-means navigation system for that phase of flight must also be on board. Amongst the navigation system performance requirements for a given operation or phase of flight, a supplemental-means navigation system must meet the accuracy and integrity requirements for that operation or phase of flight; there is no requirement to meet availability and continuity requirements. Note-- Operationally, while accuracy and integrity requirements are being met, a supplemental means system can be used without any crosscheck with the primary-means system. Any navigation system</p>

	approved for supplemental means could involve one (stand-alone installation) or several sensors, possibly of different types (multi-sensor installation).
System Assests for Maintenance	System assets for maintenance are: <ul style="list-style-type: none"> - Workstations - Test equipment - Replacement LRUs - Supply support - Technical Data
Special Forecasts	Weather briefings or forecasts issued due to emergency situations that may affect an aircraft or air traffic management.
Special Interest Flights	Aircraft designated for unique or unusual events (e.g., corporate jets to standing weekly meetings).
Special Surface Weather Observation	Special surface observations are non-regular observations required when conditions exceed a threshold according to the Federal Meteorological Handbook.
Special Use Airspace	Airspace of defined dimensions identified by an area on the surface of the earth wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities.
Special VFR	A VFR flight cleared by ATC to operate within Class B, C, D, and E surface areas in meteorological conditions below VMC.
Specialist	Any of the ground based personnel involved in supporting air traffic control. This includes controllers, supervisors, and TM specialists in the facilities and TM managers in the command center.
Specified Weather Conditions	Weather conditions below the minimums prescribed by regulation for the particular action involved; e.g., hurricane, blizzard, volcanic eruption, etc.
Speed Information	Data or information on an aircraft's momentum or velocity
Supplemental Means of Navigation	A navigation system that may only be used in conjunction with a primary- or sole-means navigation system. Approval for supplemental means for a given phase of flight requires that a primary-means navigation system for that phase of flight must also be on board.
Surface Conflicts	Conflicts that occur in the movement area environment between aircraft and other aircraft, vehicles or objects.
Surface Observation	Visual surveillance of an air facility's ground area.
Surveillance	The detection, location, and tracking of aircraft within NAS airspace for the purposes of control, separation,

	<p>and identification. Surveillance systems are electronic in nature; visual methods are purposely excluded. In the case of dependent surveillance, the aircraft provides all flight information. Surveillance systems are differentiated as independent, independent cooperative, and dependent;</p> <ol style="list-style-type: none"> 1. Independent Surveillance - A system which requires no airborne compatible equipment 2. Independent Cooperative Surveillance - A system which requires airborne compatible equipment (e.g., ATCRBS, Mode S) 3. Dependent Surveillance - A system that requires input from navigation equipment aboard the aircraft either via a data link (e.g., LOFF) or via voice (transmission pilot reports).
Surveillance Information	The data or information pertaining to the detection, location, and tracking of aircraft within NAS airspace for the purposes of control, separation, and identification.
Sources of Flight Plan Reservations for Military	<p>Sources of Flight Plan Reservations from military users are:</p> <ul style="list-style-type: none"> - Altitude reservation facilities - Military scheduling activities - Military base operations - Major Air Force, Army, Navy, and Marine Corp Commands requiring airspace reservations - Military non-ATC facilities such as range control activities, fleet scheduling activities, and air defense facilities
Special Interest Flights	<p>Special Interest Flights include:</p> <ul style="list-style-type: none"> - All known aircraft of Cuban registry and all known civil aircraft of other special interest countries that will enter, overfly, or operate within the continental U.S., the Atlantic, Gulf of Mexico or Pacific Coastal ADIZ's, or the Southern Border Domestic ADIZ. - All known civil aircraft of foreign registry, other than the aircraft listed above, that will enter or overfly the continental U.S. en route to or from Cuba.
Surface aviation weather observation	<p>Surface aviation weather observation data is:</p> <ul style="list-style-type: none"> - Cloud layer height and amount - Visibility - Precipitation occurrence, type , and amount - Temperature - Dew Point - Wind speed direction and peak gusts - Altimeter setting

	<ul style="list-style-type: none"> - Obstruction to visibility - Lightning and thunderstorms - Runway visual range - Snow depth and runway surface condition
T	
Tactical Air Navigation/TACAN	An ultra-high frequency electronic rho-theta air navigation aid, which provides suitably equipped aircraft a continuous indication of bearing and distance to the TACAN station.
Tangential Plane	Used for surface network generation, that is, the usage of points to project a location
Target Symbol	A computer-generated indication shown on a display resulting from a primary return or a radar beacon reply.
Terminal Areas	The airspace volume within a 40-mile radius of an airport up to and including 18,000 feet.
Terminal Area Facility	A facility providing air traffic control service for arriving and departing IFR, VFR, Special VFR, Special IFR aircraft and, on occasion, en route aircraft.
Terminal Aerodrome Forecasts	A concise statement of the expected meteorological conditions at an airport during a specified period (usually 24 hours) that uses the same weather code found in METAR weather reports.
Terminal Weather Forecast	Meteorological forecast issued by terminal area staff of conditions of the that terminal area
Terrain, Ground, and Obstacle Information	<p>Terrain, ground and obstacle information accuracy includes:</p> <ul style="list-style-type: none"> - Ground and Terrain grid resolution - every location is within 1 nmi of a grid point - Terrain and ground elevation grid point accuracy -to within 50 feet - Manmade obstacle lateral position accuracy - within 1 second of a degree arc - Terrain, ground and man-made obstacle information criteria - accurate, complete and current - Manmade obstacle information - location and elevation
Threat Assessment	The systematic examination of potential sources of harm to an organization and related mechanisms. Threat Assessment is part of the overall <i>risk analysis</i> process.
TFM Weather Information	<p>TFM Weather information includes:</p> <ul style="list-style-type: none"> - graphical representation of terminal area weather and sector forecast weather for up to 24 hours in advance updated every 4 hours. - Textual forecast and current weather information for adjacent airspace
Traffic Flow Information	Traffic flow (ATCSCC) information summaries include:

Summaries	<ul style="list-style-type: none"> - Current flow restrictions in effect throughout the NAS - Traffic loading information summarized by fix, sector, airway/route, or boundary crossing points and by time
Traffic Pattern and Active Runway Selection information	<p>Information influencing Traffic Patterns and active runway selection includes:</p> <ul style="list-style-type: none"> - Current local traffic flow - Local inbound traffic flow - Flow metering - Flight plan information - Precipitation - Winds aloft - Local wind - Barometric pressure - Runway surface conditions - Predicted and current traffic conditions - Current and forecast weather - Flow metering information
Trend Weather	<p>Trend weather is:</p> <ul style="list-style-type: none"> - Forecast values from unexpired terminal forecasts - Position, altitude, intensity data and forecast from any unexpired forecast about Thunderstorms - All pilot reported data
Time Interval	A specialist entered interval for the calculation of something.
Traffic	A term used by ATC to refer to one or more aircraft. The term may be used by specialists to transfer radar identification of an aircraft to another specialist for the purpose of coordinating separation action. Traffic is normally issued (a) in response to a handoff or point out, (b) in anticipation of a handoff or point out, or (c) in conjunction with a request for control of an aircraft.
Traffic Advisories	Advisories issued to alert pilots to other known or observed air traffic, which may be in such proximity to the position or intended route of flight of their aircraft to warrant attention.
Traffic Count Summary Information	<p>Traffic Count Summary Information includes:</p> <ul style="list-style-type: none"> - Total number of aircraft - Aircraft IDs - Aircraft types of air carrier (general aviation and DoD/Military)
Traffic Flow Plans	Flow control preparation function and schemas of the ATCCC and local ARTCC controllers in performing traffic flow management

Traffic Management	The function in ARTCC's and designated terminals resulting in the direct involvement and/or active management of facility traffic.
Traffic Management Coordinator	A traffic management specialist resident at the ARTCC traffic management unit (TMU) providing coordination between the national level central flow control function of the ATCCC and local ARTCC controllers.
Traffic Management Specialist	Specialist resident at the air traffic control command center (ATCCC) who coordinates between local traffic management specialists at ARTCCs and manages flow control operations.
Traffic Management Unit/TMU	A non-control, coordination position at an ARTCC connected to the central flow control function at the ATCCC and responsible for dissemination of flow control information at the local level.
Traffic Sequencing Advisories	Advisories issued to alert pilots to other known or observed air traffic, which may be in such proximity to the position or intended route of flight of their aircraft to warrant their attention.
Traffic Spacing Advisories	Advisories issued to alert pilots spacing of aircraft in terms of distances (nautical miles)
Trajectory	An ordered union of all converted fixes and route segments for a Flight Plan or Trial Plan.
Transfer of Control	That action whereby the responsibility for the separation of an aircraft is transferred from one controller to another.
Transferring Controller/Facility	A controller/facility transferring control of an aircraft to another controller/facility.
Transitional Airspace	That portion of controlled airspace wherein aircraft change from one phase of flight or flight condition to another.
Trend Weather	The trend that the actual data is going. It would seem that the unexpired portion of forecast data is still forecast data.
Trial Plan	A modified form of an active flight plan that is proposed as a possible replacement for that active flight plan. A Trial Plan shall be processed by route processing and advanced automation functions before entry as an active flight plan or amendment.
U	
US Airspace	All airspace whose Air Traffic Control responsibility is delegated to the US.
US Controlled Airspace	All US delegated airspace that is for which positive control can be performed. This includes airspace designated as a continental control area, control area, control zone, terminal control area, transition area, or

	positive control area within which some or all aircraft may be subject to air traffic control.
Unclassified Information	Unclassified information requiring security include: <ul style="list-style-type: none"> - National Transportation Safety Board accident investigations - Terrorism - Hijacking - Bomb threats - VIP travel - Personnel data - Certification of aircraft - Violations of Federal Aviation Regulations, and - Information that is proprietary to Government and industry
Uncontrolled Airspace	That portion of the airspace that has not been designated as continental control area, control area, control zone, terminal control area, or transition area and within which ATC has neither the authority nor the responsibility for exercising control over air traffic.
UNICOM	A non-government air to ground (A/G) communication facility which may provide airport information at certain airports.
Unpublished Route	A route for which no minimum altitude is published or charted for pilot use. It may include a direct route between NAVAIDS, a radial, a vector, or a final approach course beyond the segments of an instrument approach procedure.
Unmanned Facility	A facility that is normally not occupied by personnel for the conduct or support of NAS operations. Such facilities normally contain equipment that is operated, controlled, and monitored from a manned facility.
Unreported Aircraft	Overdue or missing IFR aircraft.
User	The external individual or group that receives services from the NAS (e.g., Pilot, Air Carrier, General Aviation, Military, Law Enforcement Agencies).
V	
Vector	A heading issued to an aircraft to provide navigational guidance.
Vertical Separation	Separation established by assignment of different altitudes or flight levels.
VFR Aircraft/VFR Flight	An aircraft conducting flight in accordance with visual flight rules or operating on a Special VFR clearance.
VFR Conditions	Weather conditions equal to or better than the minimum for flight under visual flight rules. See VMC
Victor Airways	Another term for expressing Low-Altitude Airways. Extends from 1,200 feet AGL up to, but not including,

	18,000 feet MSL.
Visibility	The ability, as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night. Visibility is reported as statute miles, hundreds of feet, or meters.
Visual Flight Rules/VFR	Rules that govern the procedures for conducting flight under visual conditions. The term "VFR" is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, pilots and controllers to indicate type of flight plan use it.
Visual Helipad Landing Area Indicators	Visual helipad landing area indicators include: <ul style="list-style-type: none"> - perimeter indicators - landing direction indicators - extended edge and extended wing indicators - touchdown area indicators
Visual Landing Navigation Guidance	Visual landing navigation guidance includes the use of: <ul style="list-style-type: none"> - lighting - visual descent guidance devices - aerodrome location aids - standardized aerodrome marking aids.
Visual Landing Area Guidance	Visual landing area guidance information includes: <ul style="list-style-type: none"> - landing area alignment - height perception - roll guidance - horizontal references
Visual Runway Indicators	Visual runway indicators include: <ul style="list-style-type: none"> - runway end identifiers to provide rapid and positive identification of the approach end of a particular runway - runway edge indicators - touchdown zone indicators - runway centerline indicators - runway remaining indicators - taxiway turn-off
Visual Meteorological Conditions/VMC	Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling equal to or better than specified minima.
Visual Separation	A means employed by ATC to separate aircraft in terminal areas. There are two ways to effect this separation: <ol style="list-style-type: none"> 1. The tower specialist sees the aircraft involved and issues instructions, as necessary, to ensure that the aircraft avoid each other. 2. A pilot sees the other aircraft involved and upon

	instructions from the specialist provides his own separation by maneuvering his aircraft as necessary to avoid it. This may involve following another aircraft or keeping it in sight until it is no longer a factor.
VORTAC/VHR Omni directional Range/Tactical Air Navigation	Navigation aid providing VOR azimuth, TACAN azimuth, and TACAN distance measuring equipment (DME) at one site.
Vulnerability Assessment	The process by which system vulnerabilities are identified for specific systems under investigation. Vulnerability assessment is part of the overall <i>risk analysis</i> process.
W	
Warning Areas	Special Use Airspace located over international waters where operations that may be hazardous to non-participating aircraft are routinely conducted.
Weather	A category of atmospheric phenomena that includes tornadoes, funnel clouds, waterspouts, thunderstorms, squalls, precipitation, and obscurations
Weather Advisory/WS/WSI/WA/CWA	In aviation forecast practice, an expression of hazardous weather conditions not predicted in the area forecast, as they affect the operation of air traffic and as prepared by the NWS.
Weather Advisory Information	Weather Advisory information includes: <ul style="list-style-type: none"> - Weather Products - Weather Data - Weather Elements
Weather Conditions Aloft	Weather conditions aloft are: <ul style="list-style-type: none"> - Wind speed and direction - Temperature - Clear air turbulence - Thunderstorms -Thunderstorm associated turbulence - Hail - Icing - Mountain Wave Turbulence
Weather History	Historical weather patterns and trends, including information showing the development of weather leading up to current conditions.
Weather Updates	Weather information (both current and forecast, including probability of occurrence) and seasonal weather patterns.
Wind Shear	A change in wind speed and/or wind direction in a short distance resulting in a fearing or shearing effect. It can exist in a horizontal or vertical direction and

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	occasionally in both.
X	
Y	
Z	

5 Acronyms

Acronym	Meaning
	A
A/C	Airport
ACTMAR	ACT-230 Master Acronym Reference
AOAS	Advanced Oceanic Automation System
ATOP	Advanced Technologies and Oceanic Procedures
ARTCC	Air Route Traffic Control Center
AT	Air Traffic
ATC	Air Traffic Control
ATCT	Air Traffic Control Tower
ATCSCC	Air Traffic Control Systems Command Center
AILS	Airborne Information for Lateral Spacing
ACARS	Aircraft Communication Addressing and Reporting System
AIP	Airport Improvement Program
AMASS	Airport Movement Area Safety System
ASDE	Airport Surface Detection Equipment
AF	Airway Facilities
ADIZ	Air Defense Identification Zone
ADS-A	Automated Dependent Surveillance-Addressable
ADS-B	Automatic Dependent Surveillance-Broadcast
ADTN	Administrative Data Transmission Network
AFSS	Automated Flight Service Station
ACD	Automated Radar Terminal System Color Display
AGL	Above Ground Level
ALTRV	Altitude Reservation
ARINC	Aeronautical Radio, Inc
ASOS	Automated Surface Observation System
AUTODIN	Automatic Digital Network
AUTOVON	Automatic Voice Network
AWOS	Automated Weather Observing System
AvSTAR	Aviation System Technology Advanced Research
	C
CARDA	Continental U.S. Airborne Reconnaissance for Damage Assessment
CATS	Capability Architecture Tool Suite
CATS-I	Capability Architecture Tool Suite-Internet
CCSD	Common Constraint Situation Display
CDM	Collaborative Decision Making
CDTI	Cockpit Display of Traffic Information
CFIT	Controlled Flight into Terrain
CFMU	Central Flow Management Unit (Euro Control)
CONUS	Contiguous/Conterminous United States

CNS	Communications, Navigation & Surveillance
CPDLC	Controller Pilot Data Link Communications
CRAF	Civil Reserve Air Fleet
CRCT	Collaborative Routing and Coordination Tool
CTAS	Central TRACON Automation System
	D
D-BRITE	Digital Bright Radar Indicator Tower Equipment
D-PDC	Data Link Pre-Departure Clearance
DARC	Direct Access Radar Channel
DBA	Database Administrator
DCS	Defense Communication System
DoD	Department of Defense
DOT	Department of Transportation
DGPS	Differential Global Positions Systems
DT&E	Development Test and Evaluation
	E
ELT	Emergency Locator Transmitter
EOSL	End of Service Life
ETA	Expected/Estimated Time of Arrival
	F
F&E	Facility & Equipment
FAA	Federal Aviation Administration
FAATC	FAA Technical Center
FACSFAC	Fleet Air Control and Surveillance Facilities
FEMA	Federal Emergency Management Agency
FOC	Final Operational Capability
FL	Flight Level
FMH-1	Federal Meteorological Handbook No.1
FSS	Flight Service Station
	H
HEMP	High-Altitude Electromagnetic Pulse
HTML	Hyper-text Mark-up Language
HVAC	Heating/Ventilating/Air Conditioning
	I
IOC	Initial Operational Capability
IEEE	Institute of Electrical & Electronics Engineers, Inc.
IFR	Instrument Flight Rules
ICD	Interface Control Document
IRD	Interface Requirements Document
ICAO	International Civil Aviation Organization
	J
JRC	Joint Resources Council
	L
LRU	Lowest Replaceable Unit
	M

MARSA	Military Accepts Responsibility for Separation of Aircraft
MEA	Minimum En-Route Altitude
MHz	Megahertz
MNS	Mission Needs Statement
MOD	Modification to a System Mechanism
MSL	Mean Sea Level
	N
NAS	National Airspace System
NARP	National Aviation Research Plan
NAVAID	Navigational Aid
NCA	National Command Authority
NEOF	National Emergency Operations Facilities
	O
OCC	Operations Control Center
OSHA	Occupational Safety and Health Administration
OT&E	Operational Test and Evaluation
	P
PAT&E	Production Acceptance Test and Evaluation
PIREP	Pilot Report
PL-SQL	Procedural Language/Structured Query Language
	R
RCAG	Remote Communications Air/Ground
RCO	Remote Communications Outlet
R,E,&D	Research, Engineering, & Development
RMA	Reliability, Maintainability, and Availability
RMS	Root Mean Squared
RO	Requesting Officials
	S
ASD	System Architecture and Investment Analysis
SAC	Strategic Air Command
SCATANA	Security Control of Air Traffic and Navigation Aids
SOC	Service Operations Center
SPECI	Special Weather Report Issue
SRS	Software Requirements Specification
SSS	Software Systems Specification
	T
T&E	Test and Evaluation
TAF	Terminal Area Forecast
TBD	To Be Determined
TM	Traffic Management
TRACON	Terminal Radar Approach Control
	U
UHF	Ultra High Frequency
US	United States
	V

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VFR	Visual Flight Rules
VHF	Very High Frequency
VSCS	Voice Switching and Control System
	W
WASP	War Air Service Program

6 Action Verbs

Action Verb	Definition
Accept	To regard as proper, usual, or right.
Access	Get some stored information
Acquire	Gain possession of, obtain.
Adjust	To change so as to match or fit; cause to correspond. To bring to a more useful state.
Alert	To notify someone of a condition that may require action.
Align	To adjust (parts of a mechanism, for example) to produce a proper relationship or orientation.
Allocate	To set apart for a special purpose; designate. To distribute according to a plan; allot.
Analyze	Examine methodically so as to determine the nature and components of a matter via categorization, calculation, itemization, comparison, or tabulation.
Apply	To put into action
Approve	Respond favorably to a request.
Archive	To place something in long-term storage.
Assess	To examine a situation for the purposes of characterizing it or identifying specific events or conditions.
Assign	To give out as a task; allot. To set apart for a particular purpose; designate; select.
Assist	To give aid or support
Associate	Establish a link via naming or grouping.
Attach	To fasten, secure, or join
Broadcast	To make known over a wide area.
Calculate	Reckon, mentally compute, or computationally determine. To determine by mathematical processes. To compute, assess, evaluate, analyze, determine, or gauge.
Calibrate	To check, adjust, or determine by comparison with a standard (the graduations of a quantitative measuring instrument).
Categorize	Classify or sort one or more entities into specific sets or groupings, usually on the basis of a well-defined classification scheme.
Certify	To confirm formally as true, accurate, or genuine. To guarantee as meeting a standard.
Check	Examine for the existence of specified conditions.
Check-out	An investigation; an inspection.
Communicate	To give or receive information via voice or data.
Compare	To examine the character or qualities of two or more items in order to discover similarities, differences, or convergences.
Comply	To act in accordance with another's command, request, rule, or wish
Compute	
Consider	To take something into account in the processing of some data or the making of a decision.

Consolidate	To unite into one system or whole; combine
Control	To exercise authoritative or dominating influence over; direct. To adjust to a requirement; regulate. To hold in restraint; check. To verify or regulate.
Convert	To change (something) from one use, function, or purpose to another; adapt to a new or different purpose.
Coordinate	Bring into common action, movement, or condition. The exchange information and the participation in the planning of a common or joint action that requires consensus or cooperation.
Correlate	To put in relation with each other; to connect together by the disclosure of a mutual relation.
Decide	Arrive at an answer, choice, or conclusion via analysis, synthesis, and/or assessment.
Define	To state the precise meaning of (a word or sense of a word, for example).
Deliver	To bring or transport to the proper place or recipient; distribute.
Design	To plan out in systematic, usually graphic form
Designate	To indicate or specify; point out.
Detect	To discover or discern the existence of something, to become aware of something.
Determine	A process that uses information in order to establish some fact, happening, or event.
Disapprove	To refuse to approve; reject
Discard	To put or thrust away; to reject
Discontinue	To stop doing or providing (something); end or abandon.
Display	To hold up to view or to present information to someone.
Disseminate	The act of providing information to one or more users without the information being tailored to specific recipients. {The difference between “distribute” and “disseminate” is that “disseminate” involves a process by which each recipient receives the same information, and “distribute” involves the tailoring of the information to the specific recipient.}
Distinguish	To mark as separate or different.
Distribute	The act of providing information to one or more users where the information is tailored to each recipient. {The difference between “distribute” and “disseminate” is that “disseminate” involves a process by which each recipient receives the same information, and “distribute” involves the tailoring of the information to the specific recipient.}
Ensure	To make sure or certain
Estimate	To calculate approximately based on previous values.
Establish	To bring into existence.
Evaluate	To examine and judge carefully; appraise. Assigning a status based on set criteria.
Exchange	To give and receive reciprocally; interchange.

	To give in return for something received; trade. To give up for a substitute. To turn in for replacement.
Exercise	An act of employing or putting into play; use.
Filter	To extract a subset of information or data from a larger set based on specific criteria.
Forecast	To calculate or estimate something in advance; predict the future
Generate	To bring into being; to create.
Have	To possess as a characteristic, quality, or function.
Identify	Cognitively classify via discrimination or recognition.
Implement	To put into practical effect; carry out
Include	To take in as a part, element, or member.
Inform	To give knowledge of something, such as the occurrence of an event.
Inhibit	To hold back; restrain.
Initiate	To set going by taking the first step; begin.
Issue	To promulgate an official statement such as an instruction, a command, or an advisory.
Maintain	To keep in an existing state; preserve or retain: keep in perfect or unaltered condition. This generally implies a further breakdown to store and update.
Manage	To direct or control the use of; handle
Measure	A processing action that quantifies something.
Meet	To satisfy (a need, for example); fulfill.
Meter	To gauge, measure.
Modify	To change in form or character
Monitor	To keep track of systematically with a view to collecting information. To keep close watch over.
Notify	To give notice to; inform.
Overhaul	To make extensive renovations or revisions on; renovate.
Overlay	Superimpose one entity on top of another so as to effect a composite appearance while still retaining the separability of each component layer.
Perform	To take action in accordance with the requirements of; fulfill.
Pertain	To have reference; relate.
Predict	To make know in advance, especially on the basis of special knowledge.
Present	To transmit information.
Prevent	To keep from happening:
Prioritize	To place things in order of importance. To arrange or deal with in order of importance.
Process	To put through the steps of a prescribed procedure.
Project	To calculate, estimate, or predict, based on present data or trends.
Rank Order	The order in which items are listed based on pre-defined hierarchical order, and priority.

Receive	To acquire or get something; be a recipient. To Take something that is offered.
Recognize	Specific, positive identification of an entity.
Recommend	To advise or counsel
Record	To register (sound or images) in permanent form by mechanical or electrical means for reproduction.
Reject	refuse to accept or acknowledge
Repair	To restore to sound condition after damage or injury; fix. To set right; remedy. To renew or revitalize.
Replace	Furnish an equivalent or substitute, especially for one that has been lost, depleted, worn out, or discharged.
Report	To provide information in a prescribed manner.
Reposition	To move from one position to another.
Resolve	To eliminate, rectify or mitigate an issue, problem or unsatisfactory situation.
Respond	Answer or reply in reaction to a message input.
Restrict	To confine within bounds.
Retrieve	To get back; regain.
Revise	To amend or change.
Schedule	To plan or appoint for a certain time or date.(v) A list of times of departures and arrivals; a timetable.(n)
Segregate	To separate or isolate from others or from a main group.
Select	To take as a choice from among several; pick out.
Separate	To set or keep apart. To space apart; scatter. To differentiate or discriminate between; distinguish.
Sequence	Serial arrangement in which things follow in logical order.
Store	To reserve or put away for future use.
Summarize	To make a summary or make a summary of.
Support	To provide for or maintain, by supplying with necessities.
Synthesize	Mentally produce new information via estimation, interpolation, translation, integration, formulation, or projection/extrapolation.
Terminate	To bring to an end or halt.
Track	To monitor aircraft movement, record the history of that movement, and perform short-term projections of that movement.
Transfer	To convey or cause to pass from one place, person, or thing to another.
Transmit	Send out a message, such as a call, acknowledgement, response, suggestion, direction, information, instruction, message, or request.
Troubleshoot	solve problems.
Trigger	An event that precipitates other events
Update	Replace some information or data with information or data that is more current.

Use	To put into service or action; to employ.
Utilize	To put to use, especially to find a profitable or practical use for.
Validate	To declare or make legally valid. Prove valid; show or confirm the validity of something.
Verify	To prove to be true or correct; to establish the truth of; to confirm; to substantiate.