



U.S. Department
of Transportation

Office of the Administrator

800 Independence Ave., S.W.
Washington, D.C. 20591

**Federal Aviation
Administration**

September 12, 2012

The Honorable John D. Rockefeller, IV
Chairman, Committee on Commerce, Science,
and Transportation
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

As requested in the Federal Aviation Administration (FAA) Modernization and Reform Act of 2012, P.L. 112-95, Section 314, subsection (c), I am pleased to provide you with an update on the installation and deployment of systems to alert air traffic controllers or flight crew members, or both, of potential runway incursions.

We published our plans for alerting controllers and pilots of potential runway incursions in the current update of the NextGen Implementation Plan, dated March 2012. The enclosed material appears on pages 58-60 of that Plan, as part of our Improved Surface Operations implementation portfolio.

The Improved Surface Operations portfolio comprises five Operational Improvements (OIs), two of which are OI 103207, Improved Runway Safety Situational Awareness for Controllers, and OI 103208, Improved Runway Safety Situational Awareness for Pilots.

One principal provision to improve situational awareness for controllers is the completion of programmed ASDE-X (Airport Surface Detection Equipment-Model X) installations at 35 airports, accomplished in Fiscal Year (FY) 2011. ASDE-X provides detailed surveillance of movement on runways and taxiways, enabling controllers to detect potential runway conflicts. Another provision planned is the development of an Airport Surface Surveillance Capability (ASSC) at nine airports that use ASDE-3/AMASS (the Airport Movement Area Safety System) for surface surveillance and situational awareness. ASSC will receive and integrate information from multilateration sensors, the Automatic Dependent Surveillance-Broadcast (ADS-B) system and Airport Surveillance Radar/Mode Select terminal radars. The FAA recently awarded a contract for ASSC and is scheduled to have the system operational at the nine sites by FY 2017.

To improve runway situational awareness for pilots, we published during FY 2011 guidance for the installation of ADS-B In equipment to enable cockpit moving-map displays that show an aircraft's position relative to other vehicles and structures as it moves about on runways and taxiways. ADS-B In also will enable Cockpit Display of Traffic Information, providing a graphical depiction in the cockpit of ground and air traffic. (ADS-B Out involves the

transmission of a GPS position (or comparable signal) from an aircraft in order to display the aircraft's location to controllers on the ground or to pilots in the cockpits of aircraft equipped with ADS-B In. ADS-B In is the capability of aircraft to receive ADS-B data from other aircraft or from the ground.) Two further enhancements, Surface Indications and Alerts and Enhanced Vision Systems for Taxi, are in concept exploration and not targeted for development before mid-decade.

We have sent identical letters to Chairman Mica, Senator Hutchison, and Congressman Rahall.

Sincerely,



Michael P. Huerta
Acting Administrator

Enclosure



U.S. Department
of Transportation

**Federal Aviation
Administration**

Office of the Administrator

800 Independence Ave., S.W.
Washington, D.C. 20591

September 12, 2012

The Honorable Kay Bailey Hutchison
Committee on Commerce, Science,
and Transportation
United States Senate
Washington, DC 20510

Dear Senator Hutchison:

As requested in the Federal Aviation Administration (FAA) Modernization and Reform Act of 2012, P.L. 112-95, Section 314, subsection (c), I am pleased to provide you with an update on the installation and deployment of systems to alert air traffic controllers or flight crew members, or both, of potential runway incursions.

We published our plans for alerting controllers and pilots of potential runway incursions in the current update of the NextGen Implementation Plan, dated March 2012. The enclosed material appears on pages 58-60 of that Plan, as part of our Improved Surface Operations implementation portfolio.

The Improved Surface Operations portfolio comprises five Operational Improvements (OIs), two of which are OI 103207, Improved Runway Safety Situational Awareness for Controllers, and OI 103208, Improved Runway Safety Situational Awareness for Pilots.

One principal provision to improve situational awareness for controllers is the completion of programmed ASDE-X (Airport Surface Detection Equipment-Model X) installations at 35 airports, accomplished in Fiscal Year (FY) 2011. ASDE-X provides detailed surveillance of movement on runways and taxiways, enabling controllers to detect potential runway conflicts. Another provision planned is the development of an Airport Surface Surveillance Capability (ASSC) at nine airports that use ASDE-3/AMASS (the Airport Movement Area Safety System) for surface surveillance and situational awareness. ASSC will receive and integrate information from multilateration sensors, the Automatic Dependent Surveillance-Broadcast (ADS-B) system and Airport Surveillance Radar/Mode Select terminal radars. The FAA recently awarded a contract for ASSC and is scheduled to have the system operational at the nine sites by FY 2017.

To improve runway situational awareness for pilots, we published during FY 2011 guidance for the installation of ADS-B In equipment to enable cockpit moving-map displays that show an aircraft's position relative to other vehicles and structures as it moves about on runways and

taxiways. ADS-B In also will enable Cockpit Display of Traffic Information, providing a graphical depiction in the cockpit of ground and air traffic. (ADS-B Out involves the transmission of a GPS position (or comparable signal) from an aircraft in order to display the aircraft's location to controllers on the ground or to pilots in the cockpits of aircraft equipped with ADS-B In. ADS-B In is the capability of aircraft to receive ADS-B data from other aircraft or from the ground.) Two further enhancements, Surface Indications and Alerts and Enhanced Vision Systems for Taxi, are in concept exploration and not targeted for development before mid-decade.

We have sent identical letters to Chairmen Rockefeller and Mica and Congressman Rahall.

Sincerely,



Michael P. Huerta
Acting Administrator

Enclosure



U.S. Department
of Transportation

**Federal Aviation
Administration**

Office of the Administrator

800 Independence Ave., S.W.
Washington, D.C. 20591

September 12, 2012

The Honorable John L. Mica
Chairman, Committee on Transportation
and Infrastructure
House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

As requested in the Federal Aviation Administration (FAA) Modernization and Reform Act of 2012, P.L. 112-95, Section 314, subsection (c), I am pleased to provide you with an update on the installation and deployment of systems to alert air traffic controllers or flight crew members, or both, of potential runway incursions.

We published our plans for alerting controllers and pilots of potential runway incursions in the current update of the NextGen Implementation Plan, dated March 2012. The enclosed material appears on pages 58-60 of that Plan, as part of our Improved Surface Operations implementation portfolio.

The Improved Surface Operations portfolio comprises five Operational Improvements (OIs), two of which are OI 103207, Improved Runway Safety Situational Awareness for Controllers, and OI 103208, Improved Runway Safety Situational Awareness for Pilots.

One principal provision to improve situational awareness for controllers is the completion of programmed ASDE-X (Airport Surface Detection Equipment-Model X) installations at 35 airports, accomplished in Fiscal Year (FY) 2011. ASDE-X provides detailed surveillance of movement on runways and taxiways, enabling controllers to detect potential runway conflicts. Another provision planned is the development of an Airport Surface Surveillance Capability (ASSC) at nine airports that use ASDE-3/AMASS (the Airport Movement Area Safety System) for surface surveillance and situational awareness. ASSC will receive and integrate information from multilateration sensors, the Automatic Dependent Surveillance-Broadcast (ADS-B) system and Airport Surveillance Radar/Mode Select terminal radars. The FAA recently awarded a contract for ASSC and is scheduled to have the system operational at the nine sites by FY 2017.

To improve runway situational awareness for pilots, we published during FY 2011 guidance for the installation of ADS-B In equipment to enable cockpit moving-map displays that show an aircraft's position relative to other vehicles and structures as it moves about on runways and

taxiways. ADS-B In also will enable Cockpit Display of Traffic Information, providing a graphical depiction in the cockpit of ground and air traffic. (ADS-B Out involves the transmission of a GPS position (or comparable signal) from an aircraft in order to display the aircraft's location to controllers on the ground or to pilots in the cockpits of aircraft equipped with ADS-B In. ADS-B In is the capability of aircraft to receive ADS-B data from other aircraft or from the ground.) Two further enhancements, Surface Indications and Alerts and Enhanced Vision Systems for Taxi, are in concept exploration and not targeted for development before mid-decade.

We have sent identical letters to Chairman Rockefeller, Senator Hutchison, and Congressman Rahall.

Sincerely,

A handwritten signature in black ink, appearing to read 'Michael P. Huerta', with a large circular flourish at the end.

Michael P. Huerta
Acting Administrator

Enclosure



U.S. Department
of Transportation

**Federal Aviation
Administration**

Office of the Administrator

800 Independence Ave., S.W.
Washington, D.C. 20591

September 12, 2012

The Honorable Nick J. Rahall, II
Committee on Transportation and Infrastructure
House of Representatives
Washington, DC 20515

Dear Congressman Rahall:

As requested in the Federal Aviation Administration (FAA) Modernization and Reform Act of 2012, P.L. 112-95, Section 314, subsection (c), I am pleased to provide you with an update on the installation and deployment of systems to alert air traffic controllers or flight crew members, or both, of potential runway incursions.

We published our plans for alerting controllers and pilots of potential runway incursions in the current update of the NextGen Implementation Plan, dated March 2012. The enclosed material appears on pages 58-60 of that Plan, as part of our Improved Surface Operations implementation portfolio.

The Improved Surface Operations portfolio comprises five Operational Improvements (OIs), two of which are OI 103207, Improved Runway Safety Situational Awareness for Controllers, and OI 103208, Improved Runway Safety Situational Awareness for Pilots.

One principal provision to improve situational awareness for controllers is the completion of programmed ASDE-X (Airport Surface Detection Equipment-Model X) installations at 35 airports, accomplished in Fiscal Year (FY) 2011. ASDE-X provides detailed surveillance of movement on runways and taxiways, enabling controllers to detect potential runway conflicts. Another provision planned is the development of an Airport Surface Surveillance Capability (ASSC) at nine airports that use ASDE-3/AMASS (the Airport Movement Area Safety System) for surface surveillance and situational awareness. ASSC will receive and integrate information from multilateration sensors, the Automatic Dependent Surveillance-Broadcast (ADS-B) system and Airport Surveillance Radar/Mode Select terminal radars. The FAA recently awarded a contract for ASSC and is scheduled to have the system operational at the nine sites by FY 2017.

To improve runway situational awareness for pilots, we published during FY 2011 guidance for the installation of ADS-B In equipment to enable cockpit moving-map displays that show an aircraft's position relative to other vehicles and structures as it moves about on runways and taxiways. ADS-B In also will enable Cockpit Display of Traffic Information, providing a

graphical depiction in the cockpit of ground and air traffic. (ADS-B Out involves the transmission of a GPS position (or comparable signal) from an aircraft in order to display the aircraft's location to controllers on the ground or to pilots in the cockpits of aircraft equipped with ADS-B In. ADS-B In is the capability of aircraft to receive ADS-B data from other aircraft or from the ground.) Two further enhancements, Surface Indications and Alerts and Enhanced Vision Systems for Taxi, are in concept exploration and not targeted for development before mid-decade.

We have sent identical letters to Chairmen Rockefeller and Mica and Senator Hutchison.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael P. Huerta", written in a cursive style with a large circular flourish at the end.

Michael P. Huerta
Acting Administrator

Enclosure

Improved Surface Operations

Focuses on improved airport surveillance information, automation to support airport configuration management and runway assignments and enhanced cockpit displays to provide increased situational awareness for controllers and pilots.



Timeline for Achieving OIs and Capabilities

| 2011 | 2012 | 2013 | 2014 | 2015 | 2016+ |
|------|------|------|------|------|-------|
|------|------|------|------|------|-------|



- Airport Configuration Management
- Runway Assignments
- Scheduling and Sequencing
- Taxi Routing

- SURF IA
- EVS for Taxi

Common Services: Aeronautical (blue dot), Communications (green dot), Flight (yellow dot), Surveillance (purple dot), Weather (orange dot)

Concept (blue bar) **Development** (orange bar) **Available** (green bar)

1 OI 104209: Initial Surface Traffic Management

Departures are sequenced and staged to maintain throughput. Air Navigation Service Provider (ANSP) uses automation to integrate surface movement operations with departure sequencing to ensure aircraft meet departure schedule times while optimizing the physical queue in the movement area.

Task Force: Surface

External Data Exchange

The FAA has established a data exchange infrastructure that enables the sharing of airport surface movement data with authorized stakeholders. These data come from airports equipped with Airport Surface Detection Equipment–Model X (ASDE-X) or Airport Surface Surveillance Capability (ASSC) and a Data Distribution Unit (DDU). The FAA is implementing this data dissemination architecture and is actively sharing movement-area surface surveillance data with authorized and participating National Airspace System (NAS) domains, other government entities and non-government operators and entities.

Supported by: Surveillance Common Service

Task Force: Surface Connectivity (38), Surface Situational Awareness Phase 1 (40), Surface Situational Awareness Phase 2 (41) and Traffic Flow Management (TFM) Common Operational Picture (43)

Departure Routing Increment 1

Assessments of weather and Traffic Management Initiative impacts on departure routes and associated flights will be provided to tower traffic management coordinators and supervisors to improve departure operations.

Supported by: Surveillance Common Service

Airport Configuration Management

To improve responsiveness and effective use of airport resources, this capability provides automation to analyze, schedule, implement and disseminate airport configuration changes, including airport configuration change modeling for impact assessment. This capability provides a manually requested “what-if” capability to assess the impact of airport configuration change and supports the dissemination of the selected configuration and scheduled time of the change.

Supported by: Aeronautical, Surveillance and Weather common services

Runway Assignments

To assist in efficient runway allocation and use, the air traffic control automation system assigns an aircraft to a runway based on the flight’s departure fix and enables ANSP personnel to accept or modify the runway assignment.

Supported by: Aeronautical, Surveillance and Weather common services

Scheduling and Sequencing

For improved departure schedule integrity, this capability generates and displays a projected runway schedule showing arrival and departure demand. It provides TFM constraints to tower controllers, such as expected departure clearance times, and generates and disseminates flight state data.

Supported by: Aeronautical and Surveillance common services

Taxi Routing

For improved taxi route efficiency, this capability provides for manual input to close and re-open taxiways, runways and their segments, integrated with controller displays.

Supported by: Aeronautical and Surveillance common services

2 OI 103207: Improved Runway Safety Situational Awareness for Controllers

At large airports, current controller tools provide surface displays and can alert controllers when aircraft taxi into areas where a runway incursion could result. Additional ground-based capabilities, including expansion of runway surveillance technology, e.g., ASDE-X, to additional airports, will be developed to improve runway safety.

Task Force: Surface

ASDE-X to Additional Airports

This increment provides for the completion of programmed ASDE-X installations at 35 airports and enables air traffic control to detect potential runway conflicts by providing detailed coverage of movement on runways and taxiways. By collecting data from a variety of sources, ASDE-X is able to track surface traffic operating in the airport movement area and obtain identification information from vehicle and aircraft transponders.

Supported by: Surveillance Common Service

Task Force: Surface Situational Awareness, Phase 1 (40)

ASSC

Nine airports in the NAS that use the ASDE-3/Airport Movement Area Safety System for situational awareness and surveillance of the airport surface will not receive an ASDE-X upgrade. Instead, they will receive ASSC, which will receive inputs from multilateration sensors, Automatic Dependent Surveillance–Broadcast (ADS-B) and Airport Surveillance Radar/Mode Select terminal radars. ASSC will provide a fused target position of all transponder-equipped aircraft and ADS-B-equipped ground vehicles on the airport surface movement area, as well as aircraft flying within five miles of the airport, for display in the airport control tower. The ASDE-3 primary surface radar will be decommissioned after ASSC installation.

Supported by: Surveillance Common Service

3 OI 103208: Improved Runway Safety Situational Awareness for Pilots

Runway safety operations are improved by providing pilots with improved awareness of their location on the airport surface as well as runway incursion alerting capabilities. Additional enhancements may include cockpit displays of surface traffic, e.g., vehicles and aircraft, and the use of a cockpit display that depicts the runway environment.

Moving Map with Own-Ship Position

Cockpit displays, for instance Electronic Flight Bags, may incorporate airport moving map displays that provide constantly changing views of an airport’s runways, taxiways and structures to help pilots identify and anticipate the airplane’s location on the surface.

Cockpit Display of Traffic Information (CDTI) with Traffic Information Service–Broadcast (TIS-B) and ADS-B for Surface

Surface traffic information is available via TIS-B for moving map displays, and available from aircraft operating with approved ADS-B capability. Using TIS-B and ADS-B, surface CDTI will provide a graphical depiction of ground and air traffic, and qualifying air traffic within close proximity to the runway. This will improve situational awareness for a variety of operations.

Supported by: Surveillance Common Service

Surface Indications and Alerts (SURF IA)

SURF IA is a runway safety application for flight crews of aircraft with CDTI/TIS-B/ADS-B where situations that may lead to or already represent a collision risk are highlighted on the moving map. Avionics for SURF IA are likely to require software and display quality assurance levels higher than those for CDTI only.

 In Concept
Exploration

 In
Development

 Available
at least one site

Improved Surface Operations

3 Cont'd

Enhanced Vision Systems (EVS) for Taxi

The FAA and industry are partnering to develop a taxi benefit for aircraft equipped with certified enhanced vision systems. Currently, EVS-equipped operators can use their enhanced vision systems only for approved situational awareness and safety while on the ground. Some operators have requested that they be authorized taxi benefits when their company's weather minima are lower than an airport's weather operating minima and if their aircraft are equipped with EVS. The FAA is evaluating the feasibility of this request in concert with other activities related to improved low-visibility surface operations.

4 OI 104207: Enhanced Surface Traffic Operations

Terminal automation provides the ability to transmit automated terminal information, departure clearances and amendments and taxi route instructions via Data Communications (Data Comm), including hold-short instructions.

Task Force: Cross-Cutting

Revised Departure Clearance (DCL) via Data Comm

A DCL Data Comm ATC capability will enable rapid delivery of automated departure clearance revisions, due to weather or other airspace issues, to one or more departing aircraft equipped with Future Air Navigation System avionics.

Supported by: Communications Common Service

Task Force: Data Communications for Revised Departure Clearance, Weather Reroutes and Routine Communications (39)

5 OI 102406: Provide Full Surface Situation Information

Surface situation information will complement visual observation of the airport surface. Decision support system algorithms will use enhanced target data to support identification and alerting of those aircraft at risk of runway incursion.

Situational Awareness and Alerting of Ground Vehicles

Equipment compatible with airport surface surveillance, e.g., ADS-B Out, will be installed in airport ground vehicles that operate in the movement area. The capability will allow the surface surveillance equipment to display a target representing equipped ground vehicles in the air traffic control tower and on the aircraft cockpit surface maps.

Supported by: Surveillance Common Service

 In Concept Exploration

 In Development

 Available at least one site

Selected Work Activities

| Budget ¹ | FY 2011 | FY 2012 | FY 2013 – Mid-term |
|--|---|--|---|
| 1 OI 104209: Initial Surface Traffic Management (2010-2017) | | | |
| | <ul style="list-style-type: none"> ✓ Installed DDUs at ASDE-X and ASDE-3/multilateration (MLAT) locations. Provided data dissemination capability at: <ul style="list-style-type: none"> ○ BWI ○ LAS ○ DCA ○ HNL ○ IAD ✓ Completed initial draft of benefits study on FAA-funded infrastructure to provide surface surveillance in non-movement area ✓ Prepared update to FAA Order 1200.22D | <ul style="list-style-type: none"> • Complete installation of DDUs at ASDE-X and ASDE-3/MLAT locations. Provide data dissemination capability at: <ul style="list-style-type: none"> ○ DEN ○ MSP ○ MDW ○ SLC ○ MKE ○ ORD • Published FAA Order 1200.22E | <ul style="list-style-type: none"> • Declare departure routing operationally available at: <ul style="list-style-type: none"> ○ C90 ○ N90 |
| 2 OI 103207: Improved Runway Safety Situational Awareness for Controllers (2012-2016) | | | |
| | <ul style="list-style-type: none"> ✓ Declared ASDE-X fully operational at: <ul style="list-style-type: none"> ○ LAS ○ BWI ○ MEM | <ul style="list-style-type: none"> • Award contract for ASSC | <ul style="list-style-type: none"> • Declare ASSC operationally available at: <ul style="list-style-type: none"> ○ PDX ○ MSY ○ CVG ○ ANC ○ PIT ○ CLE ○ MCI ○ SFO ○ ADW |
| 3 OI 103208: Improved Runway Safety Situational Awareness for Pilots (2012-2016) | | | |
| | <ul style="list-style-type: none"> ✓ Published installation guidance for ADS-B In systems | | |
| 4 OI 104207: Enhanced Surface Traffic Operations (2014-2018) | | | |
| Supported by NextGen Data Comm | <ul style="list-style-type: none"> ✓ Initiated development of revised departure clearance capability in tower | <ul style="list-style-type: none"> • Achieve final investment decision for Data Comm tower service | <ul style="list-style-type: none"> • Declare revised DCL via Data Comm operationally available to suitably equipped operators |
| 5 OI 102406: Provide Full Surface Situation Information (2016-2019) | | | |
| | <ul style="list-style-type: none"> ✓ Finalized vehicle ADS-B specification | <ul style="list-style-type: none"> ✓ Published vehicle ADS-B advisory circular 150/5220-26 • Declare situational awareness and alerting of ground vehicles operationally available at BOS | <ul style="list-style-type: none"> • Declare situational awareness and alerting of ground vehicles operationally available at: <ul style="list-style-type: none"> ○ DEN ○ ORD |

¹ The selected work activities shown can be fully or partially funded by the NextGen budget.