



Federal Aviation Administration

Memorandum

Date: April 24, 2014

To: Sharon Abhalter, Acting Manager, Performance Based Navigation Group

From: John H. Belk II, Team Manager, Technical Support Team, AJV-1410

Prepared by: Jon T. Harris, Air Traffic Control Specialist, AJV-1410

Subject: Post-Implementation Review for the Boston (BOS) Runway 33L Area Navigation (RNAV) Standard Instrument Departure (SID) procedure

Background:

A new RNAV standard instrument departure procedure (SID) was developed for runway 33L at BOS and incorporated into the following (existing) SIDs at Boston: HYLND, LBSTA, CELTK, BRUWN, SSOXS, PATSS, BLZZR, and REVSS. The revised SIDs were published on March 07, 2013, and the runway 33L procedure became available for use on June 5, 2013.

A post-implementation review was completed on March 26, 2014. This review is a standard part of the Performance Based Navigation (PBN) 18-step RNAV procedure implementation process. The review determines aircraft track compliance by comparing historical flight track data against the published procedure. The review also provides a qualitative analysis opportunity to determine how the procedure satisfies air traffic control (ATC) operational requirements, including how aircraft using the procedure interact with arriving and departing aircraft utilizing other runways.

Post Implementation Review:

Since June 5, 2013 approximately 6,500 jet aircraft have flown the runway 33L SID. Since that time, there have been no negative comments provided by ATC regarding the runway 33L SID. The BOS Working Group representatives to include NATCA, provided the following feedback:

The Runway 33L RNAV SID is working as designed and accomplishes the following:

- Simplifies the BOS airport operations by allowing aircraft to depart from any runway using one SID assigned by ATC
 - Enhances safety by eliminating possible pilot confusion on what SID to fly
 - Reduces radio frequency congestion and workload for ATC and pilots during runway changes by not having to assign a new SID when the weather or winds changes
 - Facilitates jets departing BOS to fly an advanced navigation RNAV SID from all runways
 - Allows airlines and other operators to file standard RNAV routings from all runways

Evaluation of the aircraft flight tracks compared to the published SID profiles validates aircraft are flying the new procedure as designed. Due to ATC operational requirements, there are isolated aircraft tracks when ATC has removed an aircraft off a SID to ensure the safe and efficient flow of air traffic, e.g., to prevent faster climbing aircraft from overtaking slower climbing aircraft.

Additionally, work group participants representing industry were solicited for their comments regarding the new runway 33L SID. This feedback also validated the aircraft conformance for the SID. For example, Jet Blue Captain Joe DeVito reported that he “[has] not received any issues with its use.”

Conclusions:

Based on the validation of flight tracks and feedback provided by Boston air traffic control and industry, the BOS Runway 33L RNAV SID is performing as designed with aircraft successfully flying within the confines of the procedure’s design. Incorporating the runway 33L procedure into the existing RNAV SID infrastructure has served to enhance the air traffic operation and flow of aircraft at the Boston Logan airport.

FAA will conduct a 12 month post-implementation review of the runway 33L RNAV SID.

Boston Logan International Airport

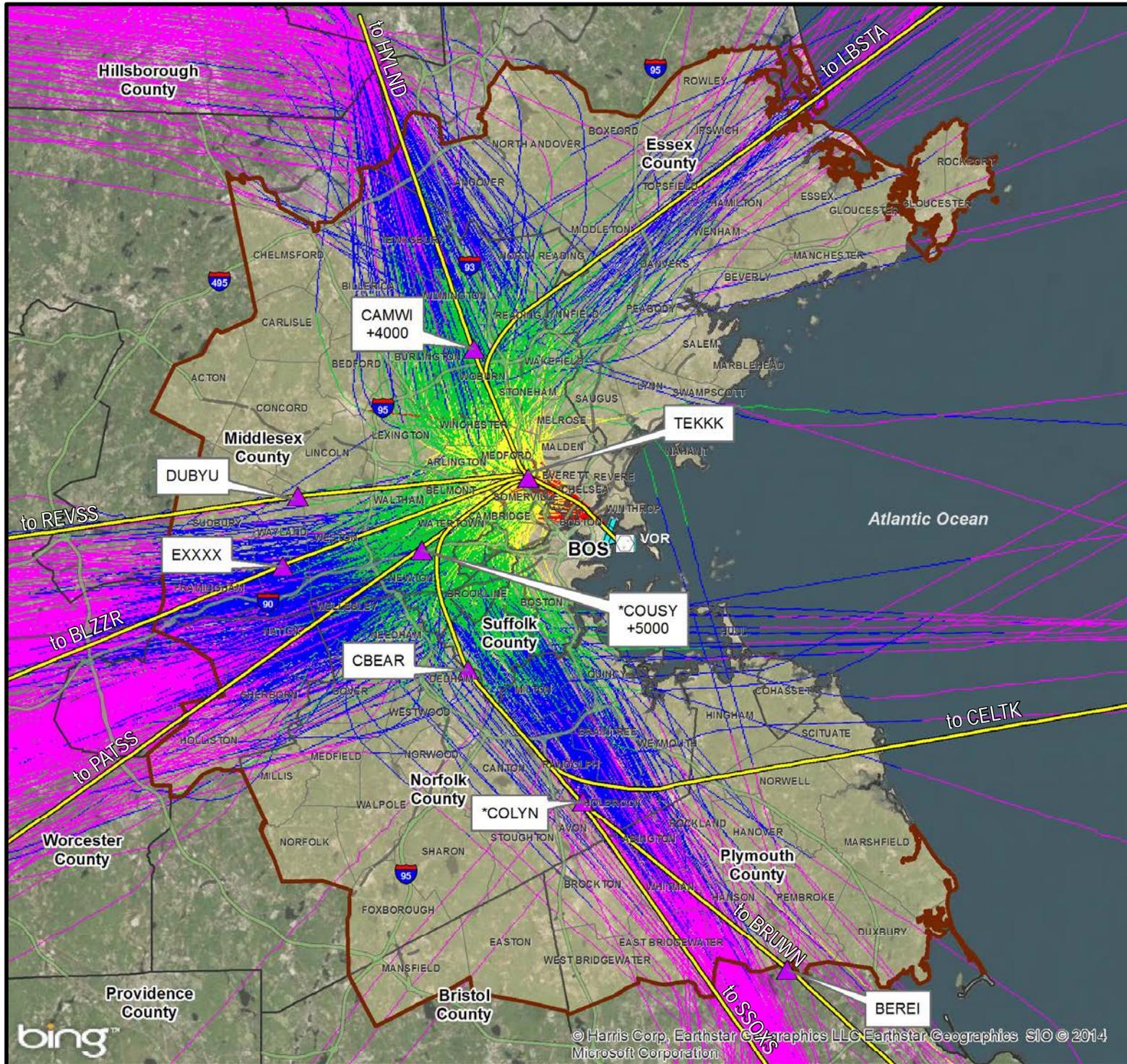


Figure 1
Runway 33L LOGAN SIX
Jet Departures Compared
with Proposed Action

(Final EA Figure 2-5, Revised 4/29/14)

LEGEND

- Runway 33L RNAV SID Noise Model Departure Flight Tracks (Expected Flyability Track)
- Waypoint
- Study Area
- Community within Study Area
- County Boundary
- BOS VOR/DME
- Interstate
- Highway

Existing (LOGAN SIX)
Runway 33L Jet Departures

- 0 - 3,000 ft AGL
- 3,001 - 6,000 ft AGL
- 6,001 - 10,000 ft AGL
- 10,000 - 14,000 ft AGL
- 14,001+ ft AGL

Note: Procedure applies to RNAV-capable Jet aircraft. Turboprop and non-RNAV capable aircraft use LOGAN SIX Conventional SID.



Boston Logan
International Airport
Runway 33L RNAV SID

0 1 2 4 Nautical Miles

N

Source: Radar Data: FAA PDARS (3/26/12, 3/30/12, 4/27/12, 4/30/12, 12/11/12, 12/12/12)
 RNAV: TARGETS (FAA PBN Integration Office)
 Office of Geographic Information (MassGIS), ESRI
 The COLYN and COUSY waypoints switched names in the final procedure design for the Runway 33L RNAV SID



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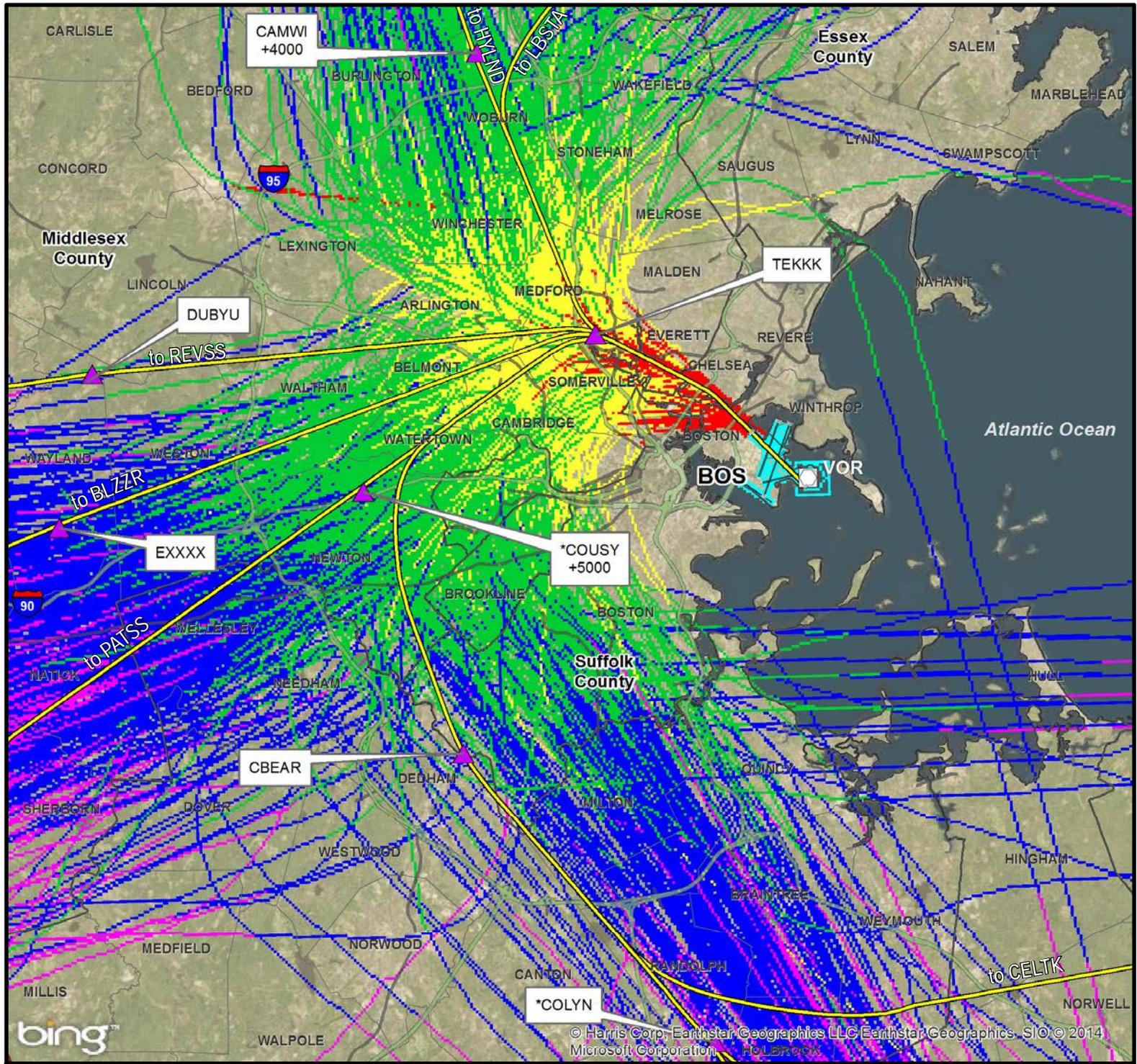


Figure 2
Runway 33L LOGAN SIX
Jet Departures Compared
with Proposed Action

(Final EA Figure 2-5, Revised 4/29/14)

LEGEND

- Runway 33L RNAV SID Noise Model Departure Flight Tracks (Expected Flyability Track)
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Boston Logan International Airport
Runway 33L RNAV SID

0 0.75 1.5 3 Nautical Miles

Source: Radar Data: FAA PDARS (3/26/12, 3/30/12, 4/27/12, 4/30/12, 12/11/12, 12/12/12)
 RNAV: TARGETS (FAA PBN Integration Office)
 Office of Geographic Information (MassGIS), ESRI
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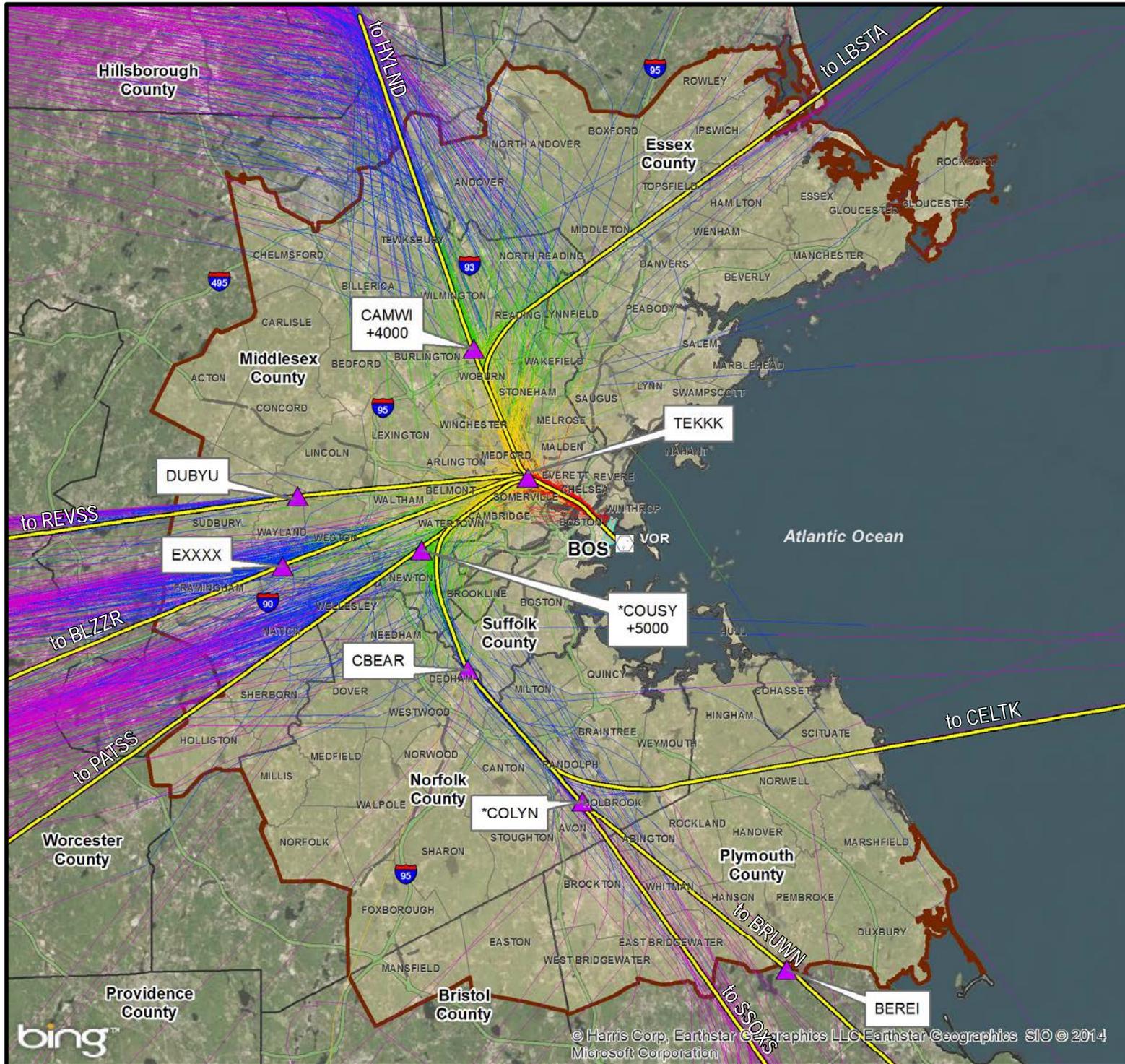


Figure 3
Runway 33L RNAV Flight Tracks with Altitudes

- LEGEND**
- Runway 33L RNAV SID Noise Model Departure Flight Tracks (Expected Flyability Track)
 - Waypoint
 - Study Area
 - Community within Study Area
 - County Boundary
 - BOS VOR/DME
 - Interstate
 - Highway

- Post Implementation RNAV Runway 33L Jet Departures**
- 0 - 3,000 ft AGL
 - 3,001 - 6,000 ft AGL
 - 6,001 - 10,000 ft AGL
 - 10,000 - 14,000 ft AGL
 - 14,001+ ft AGL

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Boston Logan International Airport Runway 33L RNAV SID



Source: Radar Data: RNAV: Two representative days per month, June through December 2013
 RNAV: TARGETS (FAA PBN Integration Office)
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 The COLYN and COUSY waypoints switched names in the final procedure design for the Runway 33L RNAV SID

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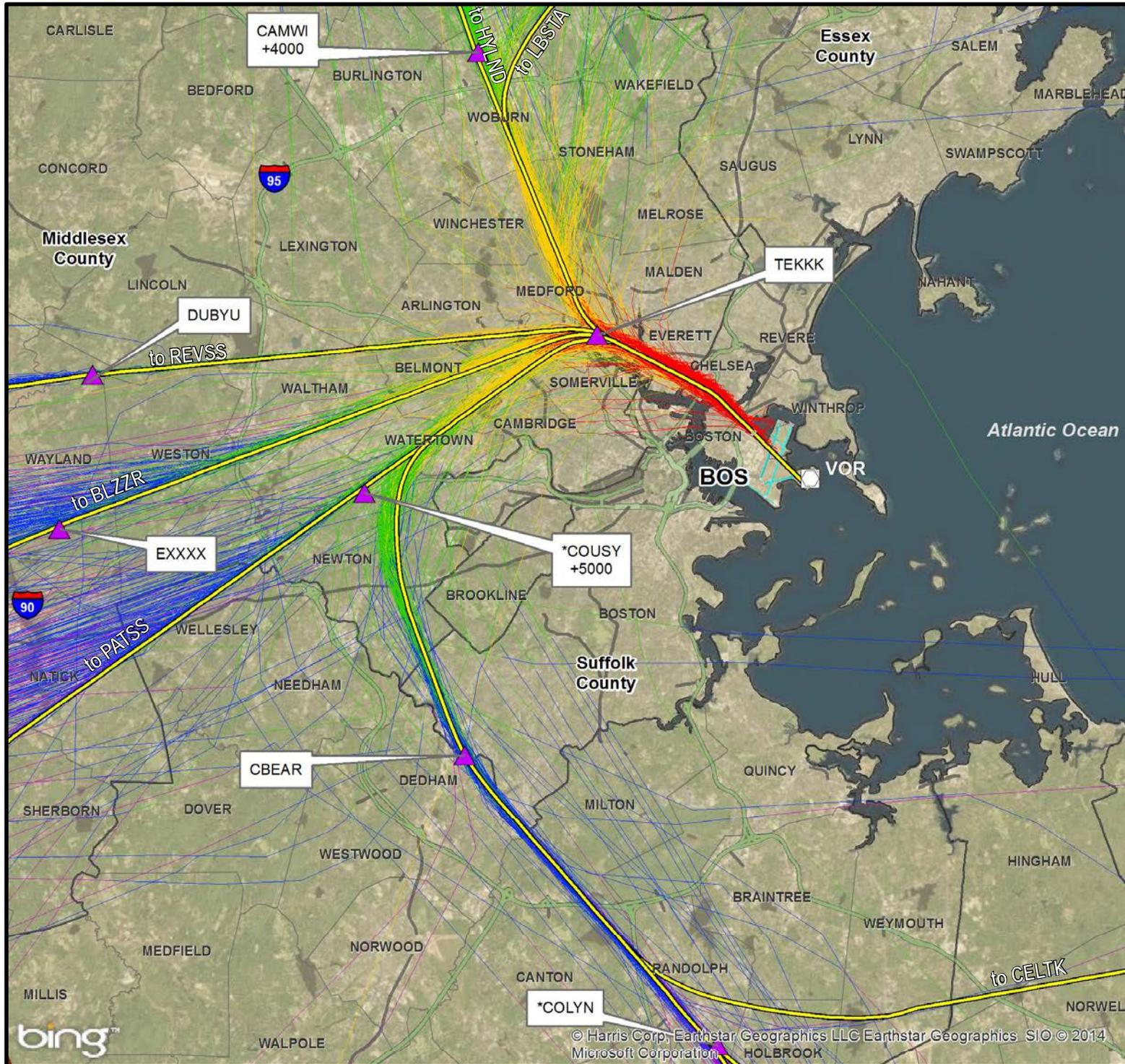


Figure 4
Runway 33L RNAV Flight Tracks with Altitudes

LEGEND

- Runway 33L RNAV SID Noise Model Departure Flight Tracks (Expected Flyability Track)
- Waypoint
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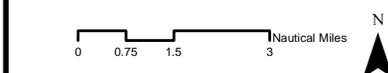
Post Implementation RNAV Runway 33L Jet Departures

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Boston Logan International Airport Runway 33L RNAV SID



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 RNAV: TARGETS (FAA PBN Integration Office)
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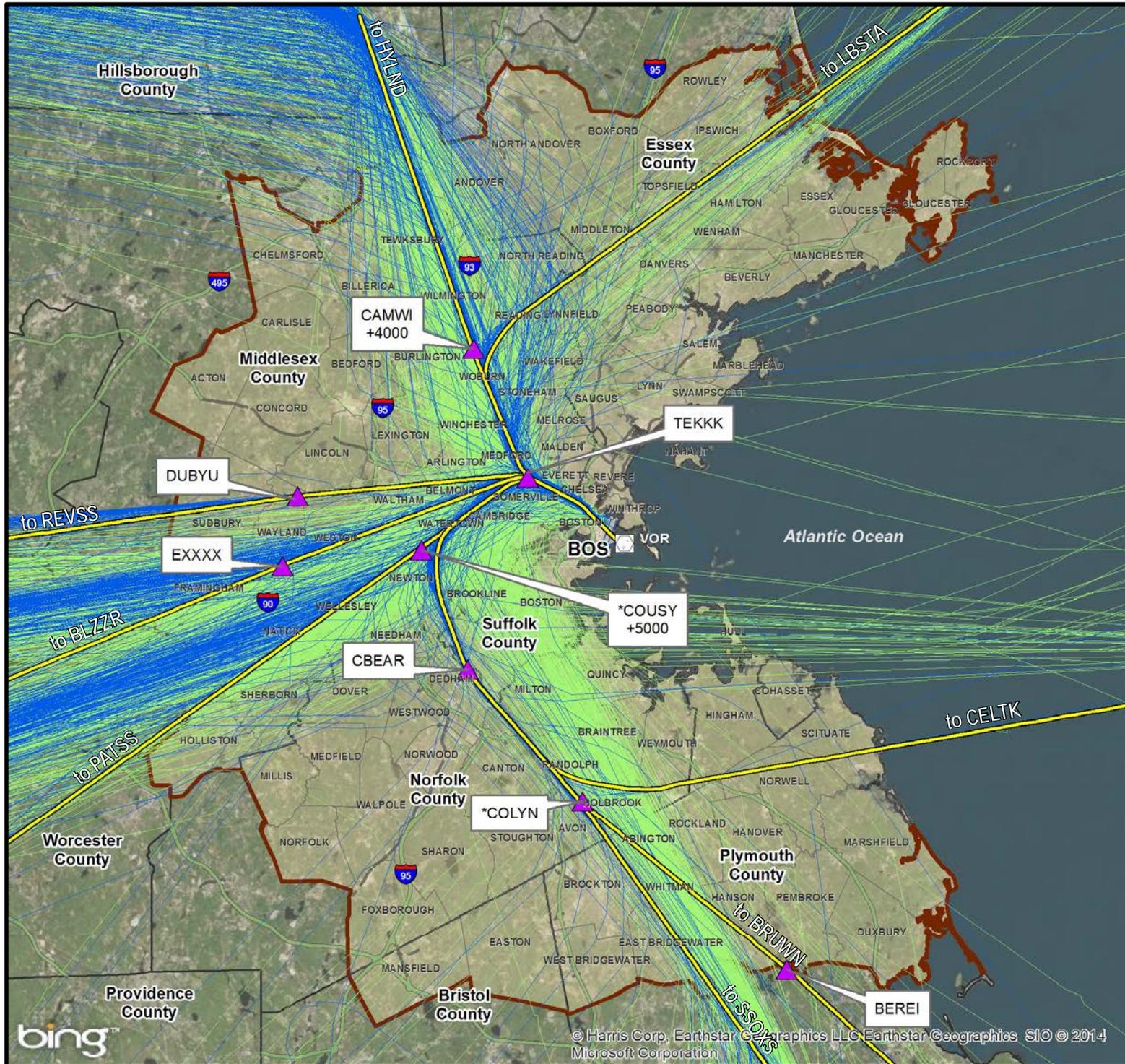


Figure 5
Runway 33L Flight Track Dispersion Comparison

- LEGEND**
- Runway 33L RNAV SID Noise Model Departure Flight Tracks (Expected Flyability Track)
 - Post Implementation RNAV Runway 33L Departures
 - Pre Implementation Runway 33L Departures
 - Waypoint
 - Study Area
 - Community within Study Area
 - County Boundary
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 - Interstate
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Boston Logan International Airport Runway 33L RNAV SID



Source: Radar Data: RNAV: Two representative days per month, June through December 2013
 Non RNAV: Two representative days per month between November 2012 and March 2013
 RNAV: TARGETS (FAA PBN Integration Office)
 Office of Geographic Information (MassGIS), ESRI
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Figure 6
Runway 33L Flight Track
Dispersion Comparison

- LEGEND**
- Runway 33L RNAV SID Noise Model Departure Flight Tracks (Expected Flyability Track)
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Runway 33L RNAV SID

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