Boston Logan Airport Noise Study (BLANS)
BOS/TAC Teleconference

MEETING SUMMARY
4:30 – 5:30 p.m.
May 19, 2011

TELECONFERENCE (TELECON) ATTENDANCE:
Boston Technical Advisory Committee (BOS/TAC) Members:
Federal Aviation Administration (FAA)-Terry English, Sandra Bogosian, Brian Brunelle (Alt), Gail Lattrell, Joe Bellabona (Alt-Contractor)
Massachusetts Port Authority (Massport)- Frank Iacovino
Community Advisory Committee (CAC)-Sandra Kunz (Braintree), Wig Zamore (Somerville), Jerry Falbo (Winthrop), Ron Hardaway (East Boston), Ed Deveau (Revere), Declan Boland (Hingham)
Project Consultant (PC)-Stephen Smith (Ricondo & Associates, Inc.)
Independent Consultant (IC)-Jon Woodward (Landrum & Brown, Inc.), Scott Carpenter (Landrum & Brown, Inc.), Stan Matthews (Crown Consulting)

OBSERVERS
FAA- Alan Reed-Recorder

Attachments:
BOS RNAV STARs Presentation
Measure F-A Worksheet

Purpose of Telecon:
The purpose of the BOS/TAC web conference/telecon was primarily for informational purposes. The FAA had agreed to share the results of the BOS RNAV Standard Terminal Arrivals (STARs) independent project with the Boston Logan Technical Advisory Committee (BOS/TAC), as the RNAV STAR procedures would become part of the 2015 INM (Integrated Noise Model) baseline condition for the Boston Logan Airport Noise Study (BLANS). In addition, FAA had to complete a BLANS criteria worksheet for Measures F-A (Establish continuous descent approach (CDA) to Runways 4R/L, 27, 33L, 32, 22R/L and 15R) using the using the new baseline RNAV STARs condition.

S. Smith opened the meeting by explaining the purpose of the telecon as described above.

J. Falbo expressed his concern that the reading material not available in time. T. English apologized for the materials not being sent out earlier, but said that they were not ready. She said that FAA will explain the materials today and CAC can always provide comments later after they have had more time to review the material

BOS RNAV STARs Presentation:

B. Brunelle explained the background of the Boston RNAV STARs development. He said that the RNAV STARs are part of FAA's Next Generation (NextGen) goals and part of the transition from land-based to satellite-based navigation. He said that four RNAV STARs have been in development since November of 2009 to overlay existing conventional procedures. Three serve BOS and one serves three BOS satellite airports. He added that optimized profile descents (OPDs) were considered as desirable components of all BOS STARS from beginning to end. He said that the Boston STARs are named the QUABN (from the northwest), OOSHN (from the northeast), and PVD (from the south) and that these STARs begin about 150 nautical miles from BOS. He also mentioned that the DREEM RNAV STAR will serve Bedford, Beverly, and Lawrence airports. He said that all four RNAV STARs are scheduled for publication on December 15, 2011.

B. Brunelle proceeded to go through his Power Point (PPT) presentation (see attached).

Overall, several CAC members commented that B. Brunelle's presentation was extremely clear, but suggested that he include an introduction slide to capture the background on the RNAV STARs that he provided verbally.

There was also a recommendation to label the runway transitions on the PPT slides.

R. Hardaway asked why the DREEM STAR was included in the presentation. T. English responded that FAA included it for full disclosure reasons, as the environmental analysis also includes the DREEM STAR for cumulative impact reasons (shared study areas).

S. Smith noted the positive aspect of the FAA raising the DRUNK intersection altitude from 6K to 8K, consistent with the CAC's BLANS recommendation.

J. Woodward asked to re-look at the PVD RWY transition and commented that we should anticipate a broader dispersion to the STAR RWY 33. B. Brunelle responded that it would come off the same as a vector procedure. T. English said that she would ensure that the INM files get transferred from HNTB to J. Woodward for further review.

J. Woodward noted the importance of the profile slides that, for the most part, show an increase in altitudes from the existing conditions. B. Brunelle commented to J. Woodward that no altitudes were lowered, but only raised where they could be raised.

<u>Measure F-A Presentation</u>
B. Brunelle began to read from the FAA's criteria worksheet on Measure F-A. See attached.

S. Kunz requested whether it was rejected or not. B. Brunelle said that it was eliminated. S. Kunz commented that 4R doesn't get anything again.

S. Smith and B. Brunelle explained the Providence Sector and the concept of "ownership" of other sectors in the airspace around BOS.

J. Falbo referenced item 3b, interpreting the effect of miles flown in level off. S. Smith said it was unlikely that it would be an effect on this particular component. J. Falbo said that in order to be satisfied, he needs to know what "narrow" means or "borrow airspace" from another.

B. Brunelle explained about how other airspace can't be borrowed, due to other procedures.

J. Falbo questioned the feasibility of borrowing. S. Bogosian stated that it's outside the scope (of the BLANS). J. Falbo mentioned that JFK has local (jurisdiction) at best.

G. Lattrell reiterated that (the BLANS) has no control outside of A90. J. Falbo stated that in the beginning, he understood this. S. Kunz said (Braintree) was not getting anything from this, while J. Woodward highlighted that the STARs are higher now, for a possible (future) OPD application.

J. Bellabona stated that the STARs are designed with the intent of using optimum descent profiles (OPD), but with traffic flows and airspace it is not always practical to have a constant descent. This is what an OPD is supposed to do. However, the BOS STARs are designed to deliver aircraft to the initial approach fix (IAF) or runway patterns at or above altitudes that may provide future opportunities for constant descent approaches.

J. Falbo understands that flight is higher and produces less noise, but in the meantime, where is the relief for the communities?

B. Brunelle suggested going to item 1a. and looking at it. S. Kunz asked how much did (FAA) know about this prior to now. B. Brunelle stated that the design team was aware of F-A when they evaluated the BOS RNAV STARs, and looked at using OPD descent profiles where able. It is due to the conflicts stated in the F-A worksheet as to why OPDs could not be implemented to final approach for the BOS RNAV STARs. B. Brunelle continued to explain where the conflicts are.

J. Falbo suggested that (FAA) owes it to the CAC to consider:

- Reducing arrival/departure capacity
- Consulting with the CAC (with new developments)
- Providing a position that will allow a continuous descent that can be safely done

He stated that he wants to pursue (Measure F-A) this later. S. Kunz concurs.

S. Smith recommended the CAC and IC digest (the details of) the measure and (the CAC) solicit the IC guidance from J. Woodward. CAC/IC did not have a specific time frame on when they could get back to FAA.

The meeting adjourned at 5:45 PM.

FAA's Operational Screening/Evaluation Criteria Worksheet
For Boston Logan Airport Noise Study (BLANS) Level 2 Noise Abatement Measures

BLANS MEASURE: F-A _____DATE OF SCREENING: 04/28/11, 5/19/11
Measure Description: Establish continuous descent approach to Runways 4R/L, 27, 33L, 32, 22R/L and 15R. **Intent:** Continuous Descent Approach (CDA) procedures allow for a gradual descent at low power settings all the way to the runway end. Generally this results in lower noise in areas beyond the final approach, lower fuel consumption, and lower emissions. Level segments require higher thrust settings, more fuel burn and more noise.

FAA assumes that the intent of this measure is to have aircraft on continuous descent (i.e. no level segments of flight) through the TRACONs airspace (BLANS study area) to specific runway ends as described above. For purposes of this discussion, FAA will use the term Optimum Profile Descent or OPD which starts in the enroute environment up to the runway approach.

As an independent project, FAA designed RNAV STARS to BOS for implementation as part of NextGen and reviewed whether OPDs, which are components of RNAV STARS, could be implemented consistent with FAA NextGen goals. As a result, the RNAV STAR designs serve as the new baseline condition for this FAA Criteria Worksheet.

1. SAFETY: ***As in Phase 1, all final procedures will be subject to an FAA safety risk analysis prior to implementation in accordance with FAA Order 8040.4 Safety Risk Management. In addition, FAA will consider any unsafe measures as a significant compromise to FAA goals and mission.***

a. Describe, if any, the affect the measure has on the safety of the air traffic system regardless of any gain or loss in efficiency.

Arrival aircraft on a continuous descent or OPD would conflict with departure traffic. Many A90 traffic flows are mandated for noise considerations and require level segments of flight to maintain safe separation between arrival and departure aircraft. For example, BOS jet arrivals from the northwest via Gardner VOR (GDM) are required to be on a right downwind (the runway is on the pilot's right side travelling away from the airport) to RWY 4R. As they pass east of BOS to enter the right downwind they must level at 6000' MSL. Jet departures from RWY 9 must level at 5000' MSL to stay below the arrivals and maintain safe separation. After the departure traffic passes east of the arrival, it can now climb above the arrival and turn westbound, on course, to pass over the arrival. Crossings between arrivals and departures occur on every runway configuration.

Significant Y_X_N_____ (If Yes, Explain)

This measure would impact the safe separation of arrival and departure traffic. Any impact on safety is considered significant.

b. Describe, if at all, whether the measure affects the segregation or increases the complexity of segregating departure and arrival routes.

See 1a above.

Significant Y__X__N_____ (If Yes, Explain)

This measure would impact the safe separation of arrival and departure traffic. Any impact on safety is considered significant.

c. Describe, if at all, whether the measure has an affect on safety buffers (prevent proximity or operational error events identified in FAA Order 7210.56, Air Traffic Quality Assurance) between aircraft and/or airspace boundaries.

Arrival aircraft on continuous descent profiles to BOS would conflict with A90 airspace boundaries both internally and externally. BOS arrivals must remain in the airspace owned by the controller working the aircraft and must frequently level to do this. For example: BOS jet arrivals via Providence VOR (PVD) landing RWY 4R are descended to 11,000 MSL by Boston Center (ZBW) to remain above PVD Approach airspace (10,000' MSL and below). A90 can descend to 8,000' MSL when entering a shelf it owns between 8,000' and 11,000' MSL. After exiting this airspace A90 can descend to 6,000' MSL to stay above other arrival flows. The aircraft is then handed off to the final vector controller who cannot descend below 6,000' MSL until entering final vector airspace. This example is repeated by all arrival flows.

Additionally, arrival aircraft on an instrument approach typically require level segments of flight to maintain safe separation from other aircraft either already established on the approach ahead, or joining the approach ahead from a base leg. Agency rules mandate 1000' vertical separation on opposite direction base legs to protect for aircraft overshooting the final. Additionally, aircraft already established on final will be assigned 1000' vertical separation from aircraft entering the final from a base leg ahead. These are examples of vertical safety buffer requirements (e.g. 7210.56 & 7110.65) that need to be maintained to ensure safe separation.

Significant Y__X__N_____ (If Yes, Explain)

This measure would impact safety buffers and safe separation between aircraft, and between aircraft and airspace boundaries. Any impact on safety is considered significant.

d. Describe, if at all, whether the measure affects safety buffers between aircraft and physical structures on the ground (obstruction clearance standards).

There is no known effect at this time.

Significant Y____N__X__ (If Yes, Explain)

e. Describe, if at all, whether the measure creates new safety hazards and/or increases the severity level or likelihood of occurrence of an existing known hazard that has been mitigated.

Within the existing airspace and procedures, arrival aircraft on continuous descent profiles to BOS would increase the severity and likelihood of unsafe conflicts between arrivals from

different directions, between arrivals and departures, and between arrivals and airspace boundaries, as described in 1.a. and 1.c. above.

Significant Y__X__N_____ (If Yes, Explain)

Any impact on safety is considered significant.

2. CONTROLLER and/or PILOT WORKLOAD

a. Describe, if at all, whether the measure would affect controller/pilot workload by requiring more complex procedures to maintain safe separation and/or segregate arrivals and departures.

Arrival aircraft on continuous descent profiles to BOS would conflict with departure traffic, as stated in 1.a. above. This would require a new procedure to maintain safe separation. We currently ensure separation vertically between arrivals and departures by assigning an altitude to each aircraft of at least 1000' apart until after courses cross. Since the arrival is in a continuous descent, the altitude required to maintain 1000' vertical separation from it is continuously changing as well. No procedures currently exist to ensure this type of separation or to manage arrivals and departures in the same airspace.

Significant Y__X__N_____ (If Yes, Explain)

A complete airspace and procedural redesign to accommodate a continuous descent without interruption would be required. (Note, an airspace redesign is outside the scope of the BLANS).

b. Describe, if at all, whether the measure affects controller/pilot workload by requiring increased radio transmissions associated with turns and clearance instructions.

There is no known effect at this time.

Significant Y____N__X__ (If Yes, Explain)

c. Describe, if at all, whether the measure affects controller workload by increasing intra and inter radio transmissions /point outs/coordination as aircraft transition through/to/from a sector.

Arrival aircraft on continuous descent profiles to BOS would require numerous point outs with sectors both internal and external to A90 to coordinate for continuous descent. See example in 1.c. above.

Significant Y__X__N_____ (If Yes, Explain)

Workload would be significantly increased as every arrival aircraft would need to be pointed out and coordinated with several sectors.

d. Describe, if at all, whether the measure affects airspace and or flow changes within A90.

Arrival aircraft on continuous descent profiles to BOS would require a total airspace redesign of A90 airspace, and a redesign of arrival and departure flows to accommodate a continuous descent for arrivals.

Significant Y_X_N_____ (If Yes, Explain)

An airspace redesign and (arrival and departure) flow redesigns are significant and are outside the scope of the BLANS.

e. Describe, if at all, whether the measure affects airspace and or flow changes between A90 and other abutting ATC facilities.

Arrival aircraft on continuous descent profiles to BOS would require that A90 acquire airspace both vertically and laterally from Boston Center, Providence Approach and Cape Approach. It would also require flow changes within current Providence Approach, Cape Approach and Boston Center airspace. For example; A90 would have to take airspace from Providence Approach to allow for continuous descent of arrivals from PVD, as in 1.c. above, and Providence Approach would need to reroute traffic to and from Cape Approach.

Significant Y_X_N_____ (If Yes, Explain)

An airspace redesign with adjacent air traffic control facilities is significant and is outside the scope of the BLANS.

f. Describe, if at all whether the measure increases the number of aircraft entering or exiting a sector or increase the time a controller must monitor flights in a sector.

There is no known effect at this time.

Significant Y_____N__X_ (If Yes, Explain)

3. DELAY, EFFICIENCY AND FLEXIBILITY CHANGES

a. Describe, if at all, whether the measure affects mileage flown, time, or requires new level-offs during climb from the runway to standard or letter agreement altitudes at the A90/BOS ARTCC transition points/boundaries.

Options to mitigate the conflicts described above may include: (1) increased lateral separation as much as 10 miles (to create gaps within common use arrival/departure airspace within A90) w/o conflict, (2) to restrict departures to a much lower altitude (as low as 2000 or 3000 feet for as long as five or more miles).

Significant Y_X_N_____ (If Yes, Explain)
Any increases in lateral separation will have a direct effect in reducing the throughput of the airport.

b. Describe, if at all, whether the measure affects mileage flown, time, or requires new level-offs during descent from entry into A90 and to the runway.

There is no known effect at this time.

Significant Y____N__X_ (If Yes, Explain)
c. Describe, if at all, whether the measure affects airport or airspace delay (expected time of arrival/departure compared to scheduled times and impact to airport capacity compared to scheduled arrival/departure service). See 3.a. above. **Significant Y_X_N_____ (If Yes, Explain)**
d. Describe, if at all, whether the measure affects airport departure and arrival queue length on the airfield. See 3.a. above **Significant Y__X___N__(If Yes, Explain)**
e. Describe, if at all, whether the measure affects taxi-in and/or taxi-out times on the airfield. There is no known effect at this time. **Significant Y____N__X_ (If Yes, Explain)**
4. CAPACITY
a. Describe, if at all, whether the measure decreases the ability of the airport to accommodate forecast future demand for the design day. Throughput has a direct relationship to capacity as stated in 3.a. above. **Significant Y_X_N_____ (If Yes, Explain)** Any increases in lateral separation will have a direct effect in reducing the throughput of the airport and the ability to accommodate future forecast demand.
b. Describe, if at all, whether the measure decreases arrival or departure capacity at BOS based on the ratio of arrival/departure operations to arrival/departure capacity. See 3.a. above. **Significant Y_X_N_____ (If Yes, Explain)** This measure would reduce both arrival and departure capacity at BOS.
c. Describe, if at all, whether the measure decreases the ability of the A90 system to meet forecast airport arrival/departure demand for the Peak Month Average Weekday capacity. See 3.a. above. **Significant Y_X_N_____ (If Yes, Explain)** This measure would reduce both arrival and departure capacity at BOS.

5. OTHER

a. Describe, if at all, whether there are cumulative changes that may affect efficiency, workload and/or capacity.

See 1.a, c., e.; 2 a., c., d., e.; 3 a, and 4. a.

Significant Y__X__N_____ (If Yes, Explain)

FAA DECISION: Does this measure significantly compromise FAA goals and stated mission based on either one or several of the above criteria combined?

Yes ___X____ Summarize reasons below and eliminate from further consideration.

As specified in 1.a., 1.c. and 1.e. above, arrival aircraft on continuous descent profiles to BOS would impact the safe separation of arrival and departure traffic, arrival aircraft with other arrival aircraft, and between arrival aircraft and internal and external airspace boundaries. Any impact on safety is considered significant.
As specified in 2.a., 2.c., 2.d., and 2.e. above, a complete airspace and procedural redesign to accommodate a continuous descent without interruption would be required. (Note; an airspace redesign is outside the scope of the BLANS). Workload would be significantly increased as every arrival aircraft would need to be pointed out and coordinated with several sectors. Arrival aircraft on continuous descent profiles to BOS would require redesign of arrival and departure flows. It would also require an airspace and flow redesign with adjacent air traffic control facilities. An airspace redesign with adjacent air traffic control facilities is significant and is outside the scope of the BLANS
As specified in 3.a., any increases in lateral separation will have a direct effect in reducing the throughput of the airport, increasing delays, and reducing efficiency.
As specified in 4.a., any increases in lateral separation will have a direct effect in reducing the throughput of the airport, the ability to accommodate current and future demand, and decreasing capacity.

No. _____ Retain and apply information and conceptual designs for noise screening consideration in Level 2 and/or Level 3 analysis to be weighed against potential noise benefits.