

**Boston Overflight Noise Study (BONS)  
BOS/TAC Meeting**

**MEETING SUMMARY**

October 4, 2005

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**Attendance:**

**BOS/TAC Members:**

Toni Dusseault (FAA Air Traffic), Bettina Peronti (FAA Air Traffic), Terry Flieger (FAA Air Traffic), Joseph Bellabona (FAA), Gail Lattrell (FAA Airports), Gary Hufnagle (FAA), Ed Kelleher (FAA Flight Standards), Flavio Leo (Massport), Steve Lathrop (Hull), Maura Zlody (Boston Environmental Department), Sandra Kunz (Braintree), John Stewart (South End), Dovi Abbey (Roxbury), Bob Driscoll (Winthrop), Jerry Falbo (Winthrop), Ralph Dormitzer (Cohasset), Dan McCormack (Weymouth), Dick Morrison (Chelsea)

**Project Consultant (PC) Team:**

Greg Wellman (Ricondo & Associates, Inc.), Dennis Burke (Ricondo & Associates, Inc.), Stephen Smith (Ricondo & Associates, Inc.), John Williams (Ricondo & Associates, Inc.), Roger Odegard (Wyle Laboratories), Robert Varani (ASRC Aerospace), Scott Hamwey (Planners Collaborative)

**Independent Consultant (IC) Team:**

Jon Woodward (Landrum & Brown, Inc.), Berta Fernandez (Landrum & Brown, Inc.), Bud Riebel (Landrum & Brown, Inc.), Rob Adams (Landrum & Brown), Mark Perryman (Landrum & Brown, Inc.), Stan Matthews (Crown Consulting, Inc.)

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**1. Introductions**

Greg Wellman opened the meeting and all attendees introduced themselves. He introduced Gail Lattrell who expressed FAA's happiness at being back with the BOS/TAC group to wrap up the scoping for the remainder of the project and to begin evaluating alternatives. G. Wellman mentioned that the slides for today's meeting were available on the BOS/TAC website, and gave a brief overview of the day's agenda. The focus of the meeting would be a final review of the airline equipage survey and discussion of the go-forward work plan.

**2. Project Status**

G. Wellman next reviewed the BONS project objectives that had been met earlier in the project:

- Air traffic conditions and land use inventory
- Airport surveys
- Development of baseline air traffic conditions
- Alternative development and preliminary screening

He mentioned that community outreach has been initiated with the project website. Other recent BONS activities have focused on the work plan. The two consultant

teams reassessed the work plan in July, leading to a management team meeting in September to ensure that all parties were on the same page heading into the technical phase of the project. G. Wellman reviewed some of the main accomplishments of that meeting:

- Determination of PC's role
- Understanding of study expectations
- Re-emphasize that the CAC is the primary client of Phase I work
- Reinforce that this phase is not meant to balance the needs of Massport, the FAA, and the CAC, but to take the community view
- Discussion of how BONS documents will be reviewed

The product of this meeting is the revised draft work plan, which was distributed to the group by email on Friday the 30<sup>th</sup>. G. Wellman underscored the importance of the group reaching consensus on this revised work plan at today's meeting.

John Stewart commented that he had only received the work plan earlier that day. G. Wellman apologized and let the group know that extra copies were on hand. He also informed the group that a "red-lined" version was available on the website for those interested in seeing the changes from the earlier version. Most of the significant changes were in Task 7. G. Wellman concluded the review of project status by saying that if the group does not reach consensus today, it must at least come to an agreement on the work necessary to get there.

### **3. Aircraft Equipage Survey**

G. Wellman introduced Robert Varani to provide an update on the Boston Area Navigation (RNAV) equipage survey. R. Varani explained that the purpose of the survey was to determine RNAV capabilities for Boston and to develop RNAV procedures. In addition to the RNAV equipage survey, R. Varani relied on an ETMS dataset from Mitre. The surveys, which were distributed in May, were sent to 36 of the 62 carriers at Logan. In response to a question from Dick Morrison, R. Varani explained that Massport provided the list of 36 carriers, and that they represent all international and domestic carriers. Those omitted from the survey were mostly air taxi and charter carriers. Eighteen of these surveys were returned, representing 43% of the total operations at Logan. When ETMS data is included, 72% of Logan operations were covered by the results.

R. Varani next discussed survey results in terms of aircraft type. 61 out of a possible 127 aircraft types were covered by the responses, 62% of which were RNAV equipped with Global Positioning System (GPS), and an additional 20% of which were RNAV equipped with DME. He explained that he did not count aircraft as RNAV if they were equipped but did not report training with RNAV.

J. Stewart suggested that even if carriers were training on RNAV, that this did not guarantee that they would use it. Flavio Leo said that Massport had found that 80%

were equipped and using RNAV. F. Leo also reminded J. Stewart that the purpose of the survey was to design RNAV procedures, which is different than the situation with Runway 27, which J. Stewart referred to in his question. Bob Adams inquired as to whether it was possible to enforce the use of RNAV, to which R. Varani replied that it is not an enforcement issue, but that it is up to the pilot's discretion to use RNAV.

R. Varani explained that general aviation aircraft were not included in the survey, as it would be impossible to track them all down.

F. Leo asked how the results of the survey at Logan compared to the RNAV rate at other airports. R. Varani said that it was low based on his experience at other airports. He said that he had not thoroughly researched the reasons for this, but suggested that it was due to a combination of the large number of air taxi services at Logan (which skews the data), non-hub airport characteristics and the fact that many carriers at Logan were employing older aircraft.

R. Varani next reviewed survey results of RNAV equipment capability to execute waypoints (both flyby and flyover) and leg types (course to a fixed, direct to a fixed, and track to a fixed).

In response to a survey question about airline usage of RNAV procedures, 13 operators responded that they would use a procedure requiring Special Aircraft and Authorization Requirements (SAAAR). R. Varani explained that SAAAR means that only approved aircraft can use these procedures and that the crew also must be specially approved to use the procedure. A brief discussion ensued on special procedures that are not made public, and the requirements that must be met for a special procedure to become public.

R. Varani emphasized the conservative nature of the survey, explaining that the absence of some responses resulted in an automatic designation of non-RNAV.

Stephen Lathrop asked how accurate a particular procedure was. Ed Kelleher described the accuracy as comparable to the normal distribution curve. F. Leo explained that the community approval of a procedure might depend on how wide that distribution might be. Joseph Bellabona replied that the shape of the distribution could not be known until the procedure is simulated.

In response to J. Stewart's question about summing the operations percentage numbers from the RNAV participation summary slide, R. Varani explained that you could not, and that each number was its own independent statistic. He added that the problem with the VA (heading to altitude) leg is that not everyone can fly it.

S. Lathrop suggested that the analysis has omitted real world performance. In his opinion, the CAC could not go back to their community with any assurance as to what the results of a new procedure would be, even though the procedure has to be designed first. G. Wellman responded that the development of RNAV procedures has

to use the science being described in R. Varani's presentation, and that it is an industry standard. The practical results of a new procedure cannot be truly known until they are evaluated through testing. S. Lathrop asked whether that evaluation would be part of Phase I, to which G. Wellman replied that it would through the use of TARGETS, the FAA's RNAV development and performance model. He then added that the group was getting into the RNAV procedure survey in greater depth than was necessary for the purposes of the meeting and that the goal was to give the group an overview of the survey.

J. Bellabona emphasized to the group that R. Varani was being conservative in all of his analysis of the survey results, and that a lot of those carriers not listed as RNAV actually can use it. He suggested that it was better to be conservative in this case.

R. Varani explained that the use of RNAV with a VA leg has been met with resistance.

Dovi Abbey asked whether they had tried to match the data with the actual numbers of RNAV equipped flying the schedule. R. Varani replied that he would use any data that he can get. R. Varani said the next step would be to update the average daily schedule to obtain current operations percentage figures.

S. Lathrop asked why Newark was at 95% for RNAV. Dennis Burke replied that this was due to Continental being the dominant carrier at that airport (hub airport for Continental Airlines), and their decision to fly an RNAV-equipped fleet there. F. Leo added that Logan has a very diverse fleet mix, whereas hub airports like Newark have one major carrier. However, he added that the goal should not be designing a procedure to the lowest common denominator. S. Lathrop asked whether reasonably accurate procedures meant flying within 1 or 2 miles, suggesting that this variance would not be acceptable to many communities. Berta Fernandez said that they would find this out afterward when they study dispersion. J. Bellabona explained that Logan currently has only one RNAV procedure and said that if you build it they will come—and that once RNAV procedures are in place you will start to see a greater percentage of aircraft RNAV-equipped at Logan. F. Leo suggested that they focus on approving procedures found to reduce noise. Then they can undertake the effort of finding the holes—which airline or aircraft is still a problem. J. Stewart cautioned that the one RNAV procedure was put into place nine years ago and it is still not followed, suggesting that the real world experience will be very important with the new procedures.

#### **4. Go-Forward Work Plan**

G. Wellman reviewed the revised draft work plan, going over each of the changes. Most of these were to Task 7. In response to a question about a change on page 2, paragraph 2; he replied that there was no change, and that the redline version was available on line for those wishing to see document changes.

G. Wellman explained that the Introduction has only one significant change, that being the changes to the objectives 1 through 6. G. Wellman said the objectives list was not meant to represent their sequence. He pointed out that Task 3.3 was downscoped to have two meetings rather than the originally programmed five.

G. Wellman used slides to highlight the major changes to Task 7. He outlined the three key subtasks in the Task 7 scope—detailed procedure definition, noise impact analysis, and operational impact analysis. He explained that there would not be any tradeoff analysis, saying that the job of this group is not to make judgments as to how to assess tradeoffs. S. Lathrop suggested that the group would have to deal with noise “here” versus noise “there”. G. Wellman assured him that they would receive that information. S. Lathrop said that he thought they had discussed noise tradeoffs and whether Integrated Noise Model (INM) data was necessary to get a Categorical Exclusion (CatEx) implemented. F. Leo explained that FAA uses Day Night Average Noise Level (DNL) data as their primary metric for noise reductions.

S. Lathrop said that he still believes it is probable to design a common sense plan that would obviously reduce noise, although the model might show it would increase. He suggested that this could occur because of inaccuracies in the baseline data being used. G. Wellman requested S. Lathrop to hold his concerns to when the group gets to Task 7.3 of the scope.

G. Wellman reviewed changes to Task 7.1. The work on this task will begin as soon as the CAC and Massport approve the revised work plan. He said that any questions about the approach should be raised now, as all of the key players are present. R. Dormitzer added that they wanted to ensure that nothing was based on merely opinion. Terry Flieger said that since there were two procedures per runway option, that there really are double the number of alternatives presented. She asked if there will be monitoring during the flight tests, to which G. Wellman replied that there would be if the FAA determines the need for a flight test.

G. Wellman asked if everyone was comfortable with Task 7. He acknowledged that there was a lot of work to do, citing the shoreline crossing, 33 charted visual, and the prop late night departure procedures as challenges. J. Bellabona provided an update regarding RNAV design criteria for visual approaches. Currently, the FAA considers an RNAV visual to be a special procedure. S. Lathrop asked if FAA procedures have been interpreted to put Runway 33L charted visual in a special procedure. Steve Smith replied that the proposed visual procedure to Runway 33L will be designed using conventional visual approach design criteria. An RNAV version of this procedure would be beneficial, but not required. An airline may choose to develop a special RNAV procedure for the visual. When and if the RNAV design criteria for a visual approach changes from special to public status, an RNAV version of the approach can be published. S. Lathrop asked what made this procedure special. J. Bellabona did not know why the criteria was considered special. F. Leo suggested that if the PC team has a different opinion than FAA, that the group could ask them to make a recommendation. R. Varani agreed that the PC team could work with this and

try to get it out of the special procedures and into the public procedures. J. Bellabona added that it had originally been signed as a public, but was later changed to special.

Gary Hufnagle said that as he read it, the PC team is going to model any existing RNAV procedure to the shoreline point utilizing TARGETS. B. Fernandez added that they would start with 22, and then see what the implications were for 4. She asked if they would monitor all of them with TARGETS, to which R. Varoni replied that they would. He added that they would not force pilots to a point 40 miles away from the airport.

G. Hufnagle asked if TARGETS uses basic aircraft performance characteristics or more specific weather/wind conditions. R. Varani replied that he held discussions with Mitre and that they will be adding weather information. He said that it is an acceptable tool for air traffic RNAV design, and is the FAA's official toolset for such use. G. Hufnagle brought up the issue of terminal radar approach control (TRACON) airspace versus sector boundaries, saying that the text should be changed from "it shall entail TRACON boundaries" to "it may". D. Burke said that you could recommend a procedure based on existing TRACON boundaries, but asked whether you would look at the altitude you would need and show where you might need to expand the TRACON sectors. B. Fernandez added that they didn't want the sector boundaries to be a limiting factor for this project. She said that they want to push beyond them to show that this is what would need to happen within the existing TRACON airspace for a procedure to work. G. Hufnagle replied that it was his understanding of the Record of Decision that this project would not change airspace boundaries. D. Burke said that they are not redesigning or looking outside of the TRACON boundary, but may recommend adjustments to the sectors if needed in order to maximize the shoreline crossing altitude(s). If it is not possible to get an optimal shoreline crossing with existing sectors, the PC/IC will provide a procedure that may require a sector adjustment. B. Fernandez asked if it was acceptable to put something on the table that would suggest adjusting sector boundaries. G. Wellman replied that this had been his understanding. Toni Dusseault, who was speaking for Joe Davies, cautioned that it might not be feasible to implement airspace restrictions on other sectors. D. Burke agreed, and said that they would only be asking for documentation that explained why a PC/IC recommendation could not be done. J. Bellabona explained that TARGETS does not work for airspace redesign. He said you need to use TAAMS, RAMS or SDAT. R. Dormitzer said that the goal is 12,000 feet. If it meets everything else, then the FAA needs to make an effort to change the sector boundary. T. Dusseault said that J. Davies has been open to sector boundary changes with the TRACON, but Center sector changes are outside the scope of this project. S. Lathrop asked if the Cohasset boundary was a sector boundary or TRACON. T. Dusseault replied that it is a sector boundary, and above 14,000 feet it is controlled by the Boston Center. She said moving that sector boundary could be looked at.

G. Wellman reviewed changes to Task 7.2, saying that work would begin as soon as the recommendations are complete.

G. Wellman opened discussion on 7.3. S. Lathrop asked if there was consensus from the group about the baseline data. He added that he sees problems using this as the baseline data for comparisons with improvements. G. Wellman replied that there had been consensus on using the baseline data at the last meeting (June 21, 2005). F. Leo asked for an explanation of the recommended approach. Roger Odegard explained that the PC and IC had come to the conclusion that it would be acceptable for the purposes of comparison. The purpose of using supplemental metrics is that BOSTAC will need to make decisions on where to move air traffic. If it trips CatEx, then it will need to be put in Phase II. T. Flieger asked if there would be noise monitoring during testing, and R. Odegard said there would if the FAA determined the need for operational testing. F. Leo said that as a layperson, he'd want to know the number of flights and how high they would be, as well as the time of day and the dispersion. S. Lathrop asked if FAA could implement trial procedures. T. Flieger said they could, for 180 days, but they're not excluded from NEPA. S. Lathrop said that this means if the group decided to implement a measure, they would have up to six months to evaluate it. G. Lattrell said that the PC and IC have tools in which they have confidence in to evaluate alternatives prior to any live testing. She said that FAA is not comfortable with live testing until some analysis has been conducted to show potential benefits.

S. Lathrop said that he is not interested in the integrated noise model (INM) in the abstract, but in the reality at Logan. He believes the INM for Logan is producing wildly wrong results. G. Wellman said that at the last meeting there was consensus that, although there were some problems, that the noise data was adequate for Phase I decision making (June 21, 2005 BOS/TAC meeting). F. Leo added that there would be new measurements in Phase II. S. Lathrop asked if they disputed that the EDR under-models noise. R. Odegard said that the existing flight tracks would stay as they are. They will develop new ones but keep the same climb rate. S. Lathrop said that the mismatch is between INM and the noise monitoring devices. Aircraft types and dispersed flight tracks are not accurately modeled. G. Wellman said that the issue is the loading of aircrafts, altitudes and aircraft types on tracks. S. Smith added that the model represents the average traffic flow conditions. S. Lathrop replied that in his area, this is not representing the situation accurately. F. Leo suggested using radar tracks for actuals and using INM for CatEx. R. Odegard said that there is no acoustical information in the radar tracks. S. Lathrop said he was looking for assurance that if the group does a CatEx and they get counterintuitive results, that they will explore the reasons for the results. G. Wellman asked him if he was looking to change the noise data. He replied that he did not know what the benefit was from using demonstrably bad data. G. Wellman offered that there be a caveat that if they see counterintuitive results they will delve deeper into the results. S. Lathrop said his concern was with third parties, not this group. He is worried about a third party seeing this and asking "why are they recommending something that will add noise?" D. Morrison suggested pointing out in a footnote that there may be some weaknesses in the model.

B. Fernandez suggested that the group not let this issue hold the process back. She said that they could always go back and look at specific problems. G. Wellman said that they would proceed as the project is scoped and, if it becomes clear to the group that the results are not intuitive, then the group can suggest further analysis. All analysis will be based on the EDR data set. D. Morrison added that the group can't be worried about dealing with outliers. S. Lathrop said that the majority of noise data is way off once you get beyond 2.5 miles from Logan. S. Lathrop said that the results from Massport's INM show higher noise levels closer to the airport and lower noise levels beyond 2.5 miles. He said that is not random, it's a bias in the model. F. Leo said that this group is interested in the deltas, and the deltas won't have that bias. G. Lattrell reminded the group that the project schedule is aggressive. She suggested letting the consultants move forward, and that there would be time available later in the process to apply additional measures if necessary. S. Lathrop asked for a commitment from the IC and PC to develop an independent INM. F. Leo said that he could not make that commitment without seeing the costs and benefits of them doing so. F. Leo mentioned several options that will be discussed during Phase 2 scope of work discussions. S. Lathrop replied that this left him with no choice but to object to any use of INM data. He asked if Massport would permit the PC/IC consultants to analyze the noise data at Logan as it becomes available.

B. Fernandez suggested an acceptable way of moving forward would be to use the INM tool and radar data to give the group as much information as possible to compare the baseline to the 13 alternatives (on number of overflights, altitude, noise) and produce all of that information between now and March 2006. Then, we can ask if all of the results make sense. If there are controversial results, those alternatives can be advanced to Phase II. The non-controversial results can go straight to implementation, with FAA flight testing and measuring real noise before and after. If the group finds that it is way off and they've produced negative impacts, then the procedure can be modified or pulled. Mark Perryman said that by the time we get to Phase II, he can almost guarantee there will be a new version of the INM, and that FAA will be required to use the new version. G. Wellman added that both the PC and IC have recommended a new baseline in Phase II. S. Lathrop said he was concerned about lawsuits being filed by the Allerton Hill neighborhood. G. Wellman said if there was significant public outcry, the visual approach to Runway 33L would be pushed to Phase II. He added that there would be additional noise measurements from different locations as part of Phase I alternatives evaluation.

G. Wellman concluded the review of the work plan with a brief discussion of Task 7.4. D. Morrison made a request to left justify future documents.

## **5. Next Steps**

G. Wellman reviewed the upcoming BONS schedule. He said that the alternative evaluation document should be completed by the end of February at the current pace. J. Bellabona informed the group that for the non-RNAV procedures, the next available slot for publication would be November 23, 2006 (assuming a procedure

was agreed upon by February 2006). R. Varoni said that the group would not need to wait for a slot if it was a special procedure. R. Dormitzer said that the group should think about conforming to the schedule outlined by J. Bellabona. G. Wellman cautioned that if you break alternatives out to meet the November 2006 slot, it would be harder to do the CatEx. T. Flieger agreed, saying that the group's recommendation would be the entire package of improvements. She was concerned about the legal challenges if something is cut out of the CatEx. G. Lattrell recommended that instead of chasing the cycle, that the group try to get this right. F. Leo said that the group should meet in December.

## **6. Closing Remarks**

G. Wellman asked for, and received consensus of the BOSTAC that the work plan, as amended, is adequate to complete Phase I. S. Lathrop expressed concern about the talk of economizing on meetings by scoping Phase II in management meetings. He suggested there be opportunities for other BOSTAC members to stay involved.



# Boston Overflight Noise Study

**BOS/TAC Meeting**  
**October 4, 2005**

# Agenda



- **Introductions**
- **Project Status**
- **Airline Equipage Assessment**
- **Go-Forward Workplan**
- **Next Steps**
- **Closing Remarks**

## Project Status

- **Inventory**
  - Air traffic conditions
  - Land use/ GIS
  - Airport surveys
- **Baseline Air Traffic Conditions**
- **Alternative Development and Preliminary Screening**
- **Community Outreach**



## Work Plan Re-Assessment



### **Recent activities :**

- **PC/IC re-assessed work plan (Jul)**
- **Management review (Aug)**
- **Management team meeting (9/13)**
  - **Study expectations**
  - **PC's role**
  - **Communication/process**
  - **Document review process**
  - **Runway 14/32**
  - **Work plan**
- **Finalize work plan (Sep)**

# Boston Aircraft Equipage Analysis/Survey



# Boston RNAV Equipage Analysis/Survey- Introduction/Approach



- **Purpose of Study: Establish RNAV Capability at BOS for Planning**
  - **Establish Current Fleet %**
  - **Establish Operations %**
- **Aid in Design of RNAV Procedures**
- **Determine Benefits of Implementing RNAV Procedures**
- **Feed Noise Modeling Analysis**
- **Sources Used for Analysis**
  - **RNAV Equipage Survey**
  - **Other Data Sources (ETMS)**

# Boston RNAV Equipage Analysis/Survey- Overview of Survey



- **Surveys Sent Out in May**
- **Follow Up Conversations June - Present**
- **36 Operators Surveyed (out of 62)**
  - **Major Air Carrier, Air Taxi, and Cargo Operators Based on Tennant List Provided by MassPort**
- **18 Returned Surveys**
  - **7 Domestic Air Carriers**
  - **6 International Air Carriers**
  - **4 Air Taxi**
  - **1 Cargo**
- **6 Interpolated Responses (ETMS Data)**
  - **5 Domestic Air Carriers**
  - **1 Air Taxi**

# Boston RNAV Equipage Analysis/Survey- Overview of Survey (cont.)

- **Total Operators Surveyed equals 58% at BOS**
- **Survey Respondents Represent 43% of Total Operations at BOS**
- **Survey Respondents + ETMS Data Represent 72% of Operations at BOS**



# Boston RNAV Equipage Analysis/Survey- Results by Aircraft Type

- Respondents Equipage Level by Type
  - Identified 61 Aircraft Types out of Possible 127
  - Of 61 Surveyed Aircraft
    - 62% RNAV GPS
      - (30% of total)
    - 20% RNAV DME/DME
      - (10% of total)
    - 18% Non RNAV
      - (9% of total)



# Boston RNAV Equipage Analysis/Survey- Results by Aircraft Type



- Respondents + ETMS Data Equipage Level by Type
  - Identified 80 Aircraft Types out of Possible 127
  - Of 80 Surveyed Aircraft
    - 60% RNAV GPS
      - (38% of total)
    - 21% RNAV DME/DME
      - (13% of total)
    - 19% Non RNAV
      - (12% of total)



# Boston RNAV Equipage Analysis/Survey- Results by Operations



- Respondents Equipage Level by Operations
  - Operations based on 2003-2004 Average Annual Day Schedule
  - Identified 449 Operations out of Possible 1035
  - Of 449 Operations
    - 45% RNAV GPS
      - (19% of total)
    - 22% RNAV DME/DME
      - (9% of total)
    - 33% Non RNAV
      - (15% of total)



# Boston RNAV Equipage Analysis/Survey- Results by Operations



- **Respondents + ETMS Data Equipage Level by Operations**
  - Operations based on 2003-2004 Average Annual Day Schedule
  - Identified 749 Operations out of Possible 1035
  - Of 749 Operations
    - **49% RNAV GPS**
      - (35% of total)
    - **25% RNAV DME/DME**
      - (18% of total)
    - **26% Non RNAV**
      - (19% of total)



# Boston RNAV Equipage Analysis/Survey- RNAV Equipment Capability



- **Ability to Execute Waypoints (RNAV Aircraft)**
  - 100% Flyby
  - 100% Flyover
- **Ability to Execute Leg Types**
  - 100% CF
  - 100% DF
  - 100% TF
  - 95% VA



# Boston RNAV Equipage Analysis/Survey- Airline RNAV Training and Use Summary Information



- **12 Operators Use RNAV Today as Part of Normal Operating Procedures**
- **14 Operators Indicate that 100% of Pilots are Trained to Use RNAV**
- **14 Operators Indicate that they Plan to Use RNAV in the Future**
- **5 Operators Have Been “Lead Carrier” in Procedure Development Efforts**
- **7 Operators Indicate Interest in Participating in a New Procedure Development Effort**
- **13 Operators Indicate They Would Use a Procedure Requiring SAAAR**

# Boston RNAV Equipage Analysis/Survey- BOS RNAV Participation Summary



- **Standard Instrument Arrival (DME/DME Design)**
  - 51% Fleet
  - 53% Operations
- **Standard Instrument Arrival (GPS Only Design)**
  - 38% Fleet
  - 35% Operations
- **Standard Instrument Departure Using Runway Transition (VA Leg)**
  - 33% Fleet
  - 32% Operations
- **Standard Instrument Departure Using Vector To RNAV Route (Both)**
  - 51% Fleet
  - 53% Operations

**Notes:**

Includes Air Carrier, Air Taxi, and Air Cargo operators

RNAV capable aircraft operated by airlines not using or training for RNAV procedures were considered Non RNAV

Operational figures consider operators not identified in survey or ETMS data as Non-RNAV

Based on Survey + ETMS Data

# Boston RNAV Equipage Analysis/Survey- Summary and Next Steps



- **Design New Procedures Alternatives Considering Equipage and Capability Levels**
  - Attempt to capture as many users as possible
- **Update Average Daily schedule to obtain current operations % figures**
- **Correlate and harmonize data with INM assumptions for noise analysis**
  - Fleet mix assumptions
  - Operation % by proposed RNAV track
  - Assumed dispersion
- **Use Data to Work Implementation Issues**
  - Some issues can be resolved through software changes

# Boston RNAV Equipage Analysis/Survey- Questions



- **Questions/Answers**



# Go-Forward Work Plan

## 7. Early Implementation Alternative Evaluation and Documentation

- **Purpose:**
  - Provide basis for BOS/TAC decision making
  - Provide basis for Categorical Exclusion documentation
- **Scope:**
  - Detailed procedure definition
  - Noise impact analysis
  - Operational impact analysis
- **No tradeoff analysis by Project Consultant**
  - BOS/TAC will assess tradeoffs in deciding which alternatives to recommend



## 7.1 Develop Detailed Procedure Definitions



- **Purpose: to further define each alternative for detailed analysis**
- **Timeframe: Oct. thru mid Nov.**
- **Review analytical approach and key issues**

## 7.2 Operational Analysis



- **Purpose: to assess the operational impacts of the alternatives**
- **Timeframe: Nov. thru Dec.**
- **Review analytical approach and key issues**

## 7.3 Noise Analysis



- **Purpose: to assess the noise impacts of the alternatives**
- **Timeframe: Nov. thru Dec.**
- **Review key issues and analytical approach**

## 7.4 Alternative Evaluation Documentation



- **Purpose: to document the findings**
- **Timeframe: Jan. thru Feb.**
- **Review key issues and analytical approach**

## 7.4 Alternative Evaluation Documentation

### Step 1- Document Preparation

- PC/IC real time communication
- PC produces the 1st draft
- IC review
- Web meeting PC/IC to resolve issues
- PC prepares a 2<sup>nd</sup> draft
- IC review
- PC incorporates comments and sends to the PMT for review

*(IC independently coordinates with CAC throughout)*

*(PC/IC Provide weekly updates to the PMT)*



## 7.4 Alternative Evaluation Documentation

### Step 2 – PMT Review

- Meeting with PMT
- PC prepares 3<sup>rd</sup> draft in coordination with IC
- PMT reviews and discusses as necessary
- PC prepares the 4<sup>th</sup> draft in coordination with IC
- Send to BOS/TAC



## 7.4 Alternative Evaluation Documentation

### Step 3 – BOS/TAC Review

- Review with BOS/TAC (format of review as appropriate)

### Step 4 – CAC Review

- Review with CAC (as needed)



# Go-Forward Timeline



TASK	2005				2006											
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>BOS/TAC AND PUBLIC COORDINATION</b>																
BOS/TAC Meetings (tentative)		■						■	To be determined							
Public Meeting								■								
<b>EARLY IMPLEMENTATION ALTERNATIVE EVALUATION &amp; DOCUMENTATION</b>																
Alternative Definition		■	■													
Operational Analysis			■	■	■											
Noise Analysis			■	■	■											
Prepare Alternative Evaluation Documentation				■	■	■	■									
<b>BOS/TAC PHASE 1 DECISION PROCESS</b>																
CAC Decision Making								■								
BOS/TAC Decision Making								■								
<b>IMPLEMENTATION OF PHASE 1 ALTERNATIVES</b>																
Prepare Documented Categorical Exclusion									■	■						
FAA Implementation (including flight testing)																
RNAV Procedures										■	■	■	■	■	■	■
Non RNAV Procedures										■	■	■	■	■	■	■
Performance Assessment										■	■	■	■	■	■	■
CAC Recommendation to Continue/Refine																■
BOS/TAC Decision to Continue/Refine																■
<b>PHASE 2</b>																
Prepare Phase 2 Work Plan				■	■											
Execute grant application and consultant contracts						■	■	■								
<b>PHASE 2 WORK EFFORT</b>									■	■	■	■	■	■	■	■

Assumes a notice to proceed on amended work plan on 10/4/05.



# Next Steps



# Closing Remarks