



# Boston Overflight Noise Study

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

# 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



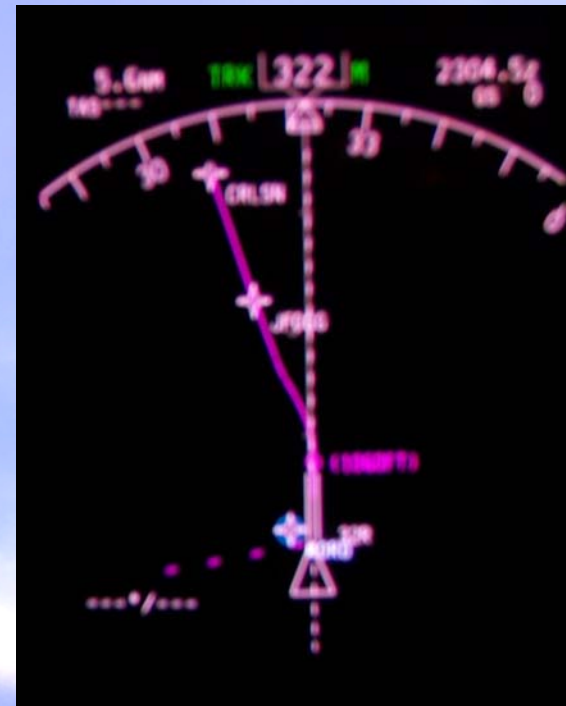
- **Respondents + ETMS Data Equipage Level by Operations**
  - Operations based on 2003-2004 Average Annual Day Schedule
  - Identified 749 Operations out of Possible 1035
  - Of 749 Operations
    - **49% RNAV GPS**
      - (35% of total)
    - **25% RNAV DME/DME**
      - (18% of total)
    - **26%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