

**Boston Overflight Noise Study**

**Phase 1**

**PROJECT CONSULTANT**  
**SCOPE OF SERVICES**

**March 8, 2004**

**Project Consultant  
Phase 1  
Scope of Services  
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## **INTRODUCTION**

The Boston Overflight Noise Study is a two-phased study. Phase 1 will define potential airspace alternatives to improve the noise environs around Logan Airport. Airspace alternatives, which are eligible for Categorical Exclusion, will be initiated and implemented to the extent feasible in Phase 1.

Phase 2 will address the FAA environmental requirements to implement the recommended alternatives from Phase 1. The work elements of Phase 1 are more fully described in this scope of work. It is understood that the FAA in conducting the Phase 1 analysis is required to complete the Phase 2 environmental work to finalize the Environmental Impact Statement. The work elements of Phase 2 will be more fully described in the scope of work to be prepared as a task at the end of Phase 1.

The two tasks are in fulfillment of the requirements of the Record of Decision dated August 2, 2002.

This document presents the scope of services, also referred to as the work scope, for Phase 1 of the Boston Overflight Noise Study. The objectives of Phase 1 are to:

1. Define alternatives to be considered.
2. Establish the potential to implement alternatives that are carried forward to Phase 2.
3. Complete environmental requirements to implement noise improvements that are eligible for a Categorical Exclusion per FAA of fast track items (CatEx).
4. Implement flight track changes that are eligible for (CatEx).
5. Provide a scope of work, costs and schedule for Phase 2.

It is estimated that the Phase 1 effort may be completed in 12-15 months. A detailed project schedule will be developed at the start of this project.

This work scope defines the general tasks needed to achieve the Phase 1 objectives identified above. As the study progresses the consultant team will work closely with the FAA, Massport and the Community Advisory Committee (CAC) to evaluate the study progress and determine what adjustments to the work scope are necessary to effectively achieve the objectives of the study.

The PC and IC will provide copies of all substantive work product developed during the study to the membership of the BOSTAC for their consideration in decision making. All distributions of such material will be provided in a timely manner and in advance of critical BOSTAC discussions

## **1 STUDY DESIGN**

Study design covers the effort required to establish the study program for the Boston Overflight Noise Study. It entails the following actions:

- Project scoping meetings with BOS/TAC – a series of nine (9) project scoping meetings will be held with the consultant team and BOS/TAC.
- Development of project study framework – will include developing a problem statement, study objectives and decision process.
- Alternative Brainstorming Session – to identify a preliminary list of alternatives prior to the start of the program.
- Develop project work scope, budget and schedule for grant application.
- Revise project work scope, budget and schedule for consultant contracts.
- Meetings with client representatives to finalize work scope, budget and schedule.
- Notice to proceed will be issued after this task is complete.

### **PC Activities:**

- Assist the BOS/TAC membership in understanding and articulating its goals and positions relative to the purpose, need and conduct of the study through the activities listed above.
- Prepare materials for scoping meetings with the BOS/TAC
- Attend eight (8) scoping meetings with the BOS/TAC committee.
- Attend and present the work scope to the CAC.
- Participate in the development of work scope, budget and schedule for the PC contract.
- Participate in brainstorming session regarding potential noise abatement procedures.
- Participate in teleconferences related to the study design effort.

### **IC Activities:**

- Assist the CAC BOS/TAC membership in understanding and articulating its goals and positions relative to the purpose, need and conduct of the study through the activities listed above.
- Attend eight (8) scoping meetings with the BOS/TAC committee.
- Meet separately with the CAC's BOS/TAC membership four (4) times during study design.
- Attend and present the CAC's thoughts about alternatives at the brainstorming session.
- Participate in the development of work scope, budget and schedule for the IC contract.
- Participate in teleconferences related to the study design effort.

## **2 PROJECT MANAGEMENT**

This element addresses the overall project administration, management and coordination of the work effort. There are four tasks in this element as defined below. The FAA, Massport and the CAC will have overall responsibility for management of the PC. The CAC will have overall responsibility for management of the IC.

### **2.1 Project Administration and Coordination**

This task covers the day-to-day project administration and coordination required by the PC and IC in coordination with the client group: FAA, Massport, and CAC.

#### **PC Activities:**

- Weekly conference calls – the PC will prepare a project action report, which will serve as the agenda for the weekly project status conference calls with the Project Administration Team (PAT). The PAT will be comprised of the FAA, Massport, CAC, PC and IC project managers, and others as may be deemed appropriate. The PC will coordinate with the IC for input on the project action report. This report will outline the current activities of the study. Following each conference call, which is anticipated to last 30-40 minutes, the PC will update the project status report and distribute the updated report to the BOS/TAC for informational purposes. Monthly project status reports – the PC will prepare a monthly status report to be distributed to the PAT. This report will also be submitted with the PC's monthly invoice.
- Monthly project schedule updates – accompanying the monthly status report will be a report of the project's progress against schedule. The PC will maintain a project schedule on a monthly basis.
- Coordination with the Independent Consultant – the PC will coordinate with the IC via conference call regarding project issues on a weekly or bi-weekly basis, outside of the other coordination as described above. This coordination is assumed to require one (1) hour per week.

#### **IC Activities:**

- Weekly conference calls – The IC will coordinate with the PC in developing input for the weekly project action report and participate in each weekly teleconference.
- Monthly project status reports – The IC will prepare a monthly status report to be delivered to the CAC. This report will be submitted with the IC's monthly invoice.
- Consultant Coordination – The IC will coordinate with the PC via conference call regarding project issues on a weekly or bi-weekly basis, to prepare the weekly project action report and assure efficient flow of information between the two consulting teams. The IC will also conduct a project team teleconference at least monthly among the members of the Independent Consultant Team to discuss issues relevant to the delivery of product on behalf of the CAC.

### **2.2 CAC Coordination**

This task covers the consultants' coordination and assistance to the CAC during Phase 1.

**PC Activities:**

- Up to twelve (12) periodic meetings and/or teleconferences with the CAC to discuss project issues or attend CAC meetings. For budgetary purposes, four (4) separate trips are assumed for this task over the course of Phase 1.

**IC Activities:**

- Meet with the CAC BOS/TAC representatives on the day prior to each BOS/TAC meeting or set of meetings to review the findings of study and issues that have arisen since the previous BOS/TAC meetings.
- Assist with the preliminary and final articulation of the positions the BOS/TAC wishes to take regarding study issues.
- Attend up to four (4) meetings with the full CAC membership to report on status.
- Travel up to six (6) times to the Boston area at times not associated with BOS/TAC meetings to assist the CAC in understanding and evaluating study information.
- Provide clarifying airspace and noise technical information, based on the technical efforts conducted during the study, related to specific noise or overflight effects on various communities from the baseline or proposed alternative conditions, including information that may be derived from noise analyses conducted by the PC, or may be derived from location specific grid analyses conducted by the IC using the noise data and modeling files adopted for use during the Phase 1 study process. Information may be presented in tabular or graphic form, as appropriate. For budgeting purposes, it is assumed that up to twenty-five single-point analyses of each alternative considered for Categorical Exclusion. Similar analyses for continued alternatives will be delayed until Phase Two of the study.
- Provide for space for meetings between the CAC and the IC.
- Provide for and participate in up to two conference calls monthly among CAC BOS/TAC members.

Communications between the IC and the CAC's BOS/TAC representatives will be channeled through one of three designated members of the CAC.

### **2.3 BOS/TAC Meetings**

This task covers all primary meetings of the BOS/TAC. Sub-committee meetings (should they need to be held) will be covered under specific technical tasks described later in the work scope. It is anticipated that the BOS/TAC will meet at six (6) key milestone points during Phase 1. It is assumed that all meetings will be held at the Massport conference facilities.

**PC Activities:**

- The PC will prepare a draft agenda for review by the BOS/TAC for each meeting and incorporate comments as appropriate. Presentation or discussion material will be prepared as part of separate technical tasks for specific issues that will be discussed at each meeting.
- Following each meeting the PC will prepare and distribute draft meeting notes that capture the primary issues discussed and proposed follow-up actions. These notes are

not intended to be minutes of every issue discussed or comments made by members of the BOS/TAC. The meeting notes will be distributed to the BOS/TAC for review and comments. The PC will incorporate comments and discuss the comments at the subsequent PAT meeting if conflicting comments exist. The PC will distribute notes to the BOS/TAC via email.

**IC Activities:**

- Review and comment on the agenda.
- Prepare presentation materials, as appropriate, to articulate CAC positions related to issues to be discussed at each BOS/TAC meeting. The IC will lead presentations of such material on behalf of the CAC BOS/TAC membership.
- Review and comment on meeting notes.

**2.4 Work Scope Re-Assessment**

At four (4) points during Phase 1, the BOS/TAC will re-assess the work scope to determine if any changes are required to enhance the overall effectiveness of the study effort. The BOS/TAC will make the decision regarding contract changes. Work scope re-assessment will occur prior to the start of the following elements or tasks:

- 6.2 Conduct Initial Screening
- 7 Fast-Track Alternative Evaluation & Documentation
- 7.5 Provide Implementation Support
- 8 Preliminary Phase 2 Evaluation

**PC Activities:**

- Two to four weeks prior to the start of each of the above tasks, the BOS/TAC will discuss the Phase 1 Scope of Services. The PC will prepare and provide input/suggestions on possible work scope revisions.
- The BOS/TAC will direct the PC as to appropriate changes to the work plan. The PC will revise its work plan (scope, budget, and schedule) in coordination with the IC. The PC will distribute the revisions to the BOS/TAC for review and comment. The PC will incorporate changes, as agreed to by the BOS/TAC

**IC Activities:**

- Review and comment on proposed modifications to scope direction and level of effort.
- Teleconference with the CAC BOS/TAC membership relative to the modifications proposed and the effects of such modifications on CAC concerns.
- Develop, on the behalf of the CAC, language associated with proposed work scope modifications.
- Determine the effects of proposed modifications on IC budget and schedules.

**FAA/Massport:**

- Prior to changes to the consultant contracts, the FAA and Massport must approve the changes to the PC contract before they become effective.

### **3 PUBLIC COORDINATION/INVOLVEMENT**

This task will focus on the dissemination and gathering of information from the general public and other organizations regarding the Boston Overflight Noise Study. This important aspect of the project will be conducted throughout the study process with increased activity associated with key milestones.

#### **3.1 Initial BOS/TAC Outreach to Communities**

As identified in the schedule, all communities within the general study area will be notified regarding the initiation of the study, the purpose of the study, how communities can participate in the decision making process (join CAC), how they can follow the progress of the study, and the estimated schedule of milestones/completion of the project.

**PC Activities:**

- The PC will prepare a project notification letter for review by the BOS/TAC. The FAA will reproduce and distribute the letters to the communities in the study area as defined in Task 4.2.

**IC Activities:**

- The IC will review and comment on the draft letter and coordinate with the BOS/TAC.

#### **3.2 Web-Based Periodic Community Updates**

This task will be used to provide the public with periodic updates regarding the study. Information will be similar to materials provided to the BOS/TAC during the Study but will be tailored for a website. There will be information updates throughout Phase 1.

**PC Activities:**

- Strategize and define key features and functions to be included in the website. Present website concept for review by the BOS/TAC. Incorporate comments, as necessary. For cost estimating purposes, it has been assumed that this website will be provided only in English.
- Develop website navigational architecture and site design.
- Develop website materials, review with BOS/TAC and incorporate comments.
- Develop feedback section for the public to provide comments.
- Provide site production and progress reviews.
- Beta test and launch website.
- Provide ongoing website updates.

**IC Activities:**

- Review and comment on all aspects of web content.
- Provide for inclusion, as appropriate, materials developed to assist the CAC in its understanding of the issues and effects associated with various proposed alternatives.

### **3.3 Milestone Public Outreach**

A formal public outreach effort will be conducted at a key milestone near the completion of Phase 1. There will be five (5) locations for this event (north, south, southeast, west, and close in to the airport as defined by the BOS/TAC). This public outreach will be in the form of a presentation and panel discussion with the opportunity for questions from the public. It is assumed that these meetings will occur on separate nights during a one-week period. One meeting during daylight hours may be scheduled to provide the opportunities for night workers to participate in the process.

**PC Activities:**

- Coordinate with the BOS/TAC regarding the schedule and location for conducting the workshops.
- Provide logistical support for setting up the workshops, including reserving meeting space, equipment and supplies.
- Working from material prepared in the technical process, prepare a draft PowerPoint presentation and handout.
- Review material with the BOS/TAC
- Incorporate BOS/TAC comments
- Provide professional staff for the meetings (up to three).

**IC Activities:**

- Prepare presentation materials, as appropriate, to articulate CAC participation in the planning and workshop process.
- Provide professional staff for the meetings (up to two).

## **4 INVENTORY**

This task will focus on the collection and organization of all information necessary to initiate the technical analysis. Sources of information will generally include previous documents, interviews, and data collected for the study.

### **4.1 Airport Operating Characteristics**

This task will include an inventory of pertinent operating characteristics and resulting noise data for Logan Airport using existing data, as well as new data collected for the study. Data collection meetings with the FAA Tower will be conducted in conjunction with the discussions and information compilation described in Task 5.1.

**PC Activities:**

- Collect existing data on the pertinent physical facilities of the airfield. The inventory will include major physical facilities including runways, taxiways and terminal facilities.
- Gather historic and current airport statistical data, including the following:
  - Aircraft Type/Engine Type
  - Airline
  - Runway
  - Operation Type (Arrival/Departure)
  - Date
  - Time of Day
  - Flight Tracks (in X, Y and Z dimensions)
  - Destination/Origin (determined through analysis if necessary)
  - Airspace Fix (determined through analysis if necessary)
  - Runway Configuration (determined through analysis if necessary)
  - Observations of activity from the FAA control tower
  - History of Noise Restrictions/Rules at Logan

**IC Activities:**

- Review materials compiled by the PC, comment as appropriate, and file for later use in analysis.
- Attend meetings held to accomplish efforts under this task.

**Meetings**

- Massport Noise Office
- FAA Tower

## **4.2 Land Use and Demographic Data**

At the initiation of this task, the boundaries of the area for detailed noise analysis will be established by the BOS/TAC.

This task covers the activities necessary to develop a comprehensive Geographic Information System (GIS) map for this study. This GIS database will be compiled from existing sources through Massport or other agencies to the extent possible. Only limited field checking will be conducted to verify map data (additional field verification may be required in Phase 2).

**PC Activities:**

- The PC will work with the IC to propose a study area boundary for consideration by the BOS/TAC. After acceptance of the specific study area boundary by the BOS/TAC, the PC will begin the GIS data collection effort. The mapping will include at a minimum:
  - The jurisdictional boundaries of the communities within the study area
  - Assess available information (including the 2002 EDR, Airside EIS data)
  - The geographic distribution and demographic characteristics of residences and population, in sufficient detail for population and environmental justice

analysis, based on 2000 Census data or other more accurate data where available

- The geographic distribution of noise-sensitive facilities (schools, churches, libraries, hospitals, nursing homes)
- Current sound insulation program boundaries
- The PC will compile the data into a single, comprehensive database for use in the study as a tool for analysis and to prepare mapping exhibits. Once developed, copies of the system files will be provided to the IC.

**IC Activities:**

- Review materials compiled by the PC, comment as appropriate, and file for later use in analysis.

### **4.3 Additional Inventory Efforts**

This task covers additional inventory efforts that will be conducted for this study.

**PC Activities:**

- The PC will review and provide comment on the survey effort prepared by the IC.

**IC Activities:**

- Prepare a written survey for distribution to the thirty-five (35) other airports in the United States having the largest number of scheduled commercial flights to ascertain local information on:
  - Noise abatement measures in place, with a focus on operational measures (flight track, runway use and cockpit procedures)
  - Noise metrics in use, including both cumulative and single event measures
  - Environmental justice issues and approaches to dealing with them
  - Published visual approaches and their effectiveness in noise abatement.
  - Use of noise easements and other land use controls to manage noise impact areas
- Follow up the written survey by telephone contact with each airport to seek completion of each airport's information.
- Survey by phone and telephone the airport management in six (6) major foreign cities to review international approaches to noise abatement, noise metrics, and land use controls for noise compatibility.
- Prepare administrative draft working paper summarizing results of survey process.
- Submit administrative draft working paper of results for BOS/TAC for review and incorporate comments.
- Provide draft working paper to BOS/TAC for review. Incorporate comments.
- Convert working paper to PDF format for delivery to the PC for inclusion on the project website.

## **5 BASELINE CONDITIONS**

### **5 BASELINE CONDITIONS**

The purpose of this task is to establish a screening level baseline of current and future air traffic conditions and of recent noise conditions in the Airport environs. Alternatives will be compared against the baseline conditions to determine the anticipated benefits and impacts of each alternative. The baseline conditions will be updated as needed in Phase 2 to accommodate changes that result from the Phase 1 analyses, as well as to reflect any changes in air traffic activity that may have occurred since the development of the screening baselines.

#### **5.1 Air Traffic**

The purpose of this task is to gain a thorough understanding of how Air Traffic Control (ATC) operates at Logan Airport and the factors that contribute to the current operation as well as the operation with the new runway.

##### **PC Activities:**

- During a site visit and interviews with ATC representatives, collect the following information:
  - Existing airspace structure and major airspace routes
  - Existing air traffic control procedures for approaches and departures
  - Current noise abatement procedures
  - Existing runway operating configurations for both visual flight rules (VFR) and instrument flight rules (IFR)
  - Future runway and airspace operating configurations (VFR/IFR) with Runway 14-32, including locations and altitudes of arrival/departure routes.
  - Wind, ceiling and visibility impact on operations
  - Existing runway assignment decision process for arrivals and departures
  - Anticipated effect of Runway 14-32 on runway assignment decision process
  - Standard separations on approach and takeoff
  - In-trail separation restrictions
  - Dependencies/coordination of operations on multiple runways
  - Aircraft performance
- Evaluate capabilities of current and projected fleet to use Flight Management System (FMS) and Global Positioning System (GPS) procedures and the degree of accuracy expected.
- In collaboration with the IC, prepare a draft working paper summarizing the baseline air traffic conditions. Meet with ATC representatives during the preparation of the draft working paper to ensure accuracy. Follow-up with telephone contact as necessary.
- Submit draft working paper to the BOS/TAC for review. Incorporate comments.
- Convert working paper to PDF format for inclusion on the project website.

##### **IC Activities:**

- Attend all inventory meetings to develop a comprehensive understanding of existing and future airspace and airfield use configurations.

- Collaborate with the PC to prepare a draft working paper summarizing the baseline air traffic conditions. The IC will interactively review sections of the document as they are prepared and provide feedback as to accuracy and presentation of results. Meet with ATC representatives during the preparation of the draft working paper to ensure accuracy. Participate in telephone follow up contracts as necessary.
- Assist in the review and incorporation of comments.
- Prepare, as appropriate, materials for the CAC review of the document, and for delivery of the CAC position on the results to the BOS/TAC.

**Meetings/On-Site Visits:**

- On-site visits and observations at the Logan Airport Traffic Control Tower (ATCT) and Terminal Radar Approach Control (TRACON)
- Meetings/discussions with ATCT, TRACON and BOS Center controllers, as necessary
- Discussions with the Traffic Management Unit (TMU)
- Coordination with other airport facilities and the ARTCC

## **5.2 Noise**

This task defines the baseline noise condition for purposes of the Phase 1 screening analysis. The following task will be completed.

### **5.2.1 Identify Noise Metrics to be Used**

Select and define noise metrics that will be reported for the baseline, as well as alternative conditions, in response to the issues identified during Study Design.

**PC Activities:**

- Meet with the BOS/TAC to understand concerns and issues that should be considered in supplemental noise metrics. Present ideas on potential metrics. Define how each metric could be used to respond to issues identified in Study Design (related metrics to issues). Review and incorporate comments of the IC. Refine ideas and prepare presentation for the BOS/TAC. Document BOS/TAC consensus on preferred noise metrics to be used.
- Determine the appropriate table/graphical formats for reporting each metric.

**IC Activities:**

- Meet with the BOS/TAC to understand concerns and issues that should be considered in supplemental noise metrics. Define how each metric could be used to respond to issues identified in the Study Design meetings. Present ideas on potential metrics.
- Review and comment on PC refinement of ideas through the BOS/TAC preparation and meeting process.

### **5.2.2 Baseline Noise Levels**

Model the existing noise baseline condition and tabulate the results of the modeling. Results will be presented according to the selected metrics as defined in Task 5.2.1. The noise conditions will include noise exposure from aircraft overflights as well as noise from ground operations

while aircraft are on the runways at Logan Airport. Noise from ground operations while aircraft are taxiing between the runways and terminals will be addressed in Phase 2 of the Boston Overflight Noise Study. The INM model will be used as the basic tool for noise contour analysis and grid point analysis.

**PC Activities:**

- Obtain/Review most recent EDR INM Input Files and Supporting Data – The PC will collect from Massport all of the INM input files and supporting documentation (in electronic source files) developed for use in the preparation of the most recent Boston Logan’s EDR. The PC will review the files in detail to develop a thorough understanding of their contents. In coordination with the IC, the PC will compile a list of questions and/or issues related to this data and submit to the BOS/TAC. These questions will then be transmitted to the preparers of the EDR for response. If necessary, the PC will participate in a conference call to discuss the issues with the preparers of the information.
- Expand EDR’s INM Input Files to Capture Potential Study Area – the INM input files made available in the previous task will be expanded to cover any areas within the radar coverage area that are not accounted for by the EDR flight tracks. This effort may include lengthening flight tracks or increasing the altitudes of aircraft takeoff profiles that reach above 10,000 feet. This scope and associated budget is based on the assumption that much of the EDR data will be adequate for screening analysis without modification.
- Create Airfield Configuration Based INM Input Files – using the air traffic data collected in Task 5.1, separate the activity by runway use configurations. Create a database of annual average day activity by configuration, runway and flight track assignment. Create separate INM input files for each configuration (4 configurations are assumed). Configuration files will be developed and accepted by the BOS/TAC prior to the computation of noise levels in either standard or supplemental metrics.
- Deliver to the IC all INM input files, output files and directories.
- Conduct noise modeling (Run INM) of expanded input files and produce a complete set of standard baseline metrics (tables/graphs of results).
- Compute supplemental noise metrics for the existing noise baseline condition and produce tables/graphs, as appropriate.
- In collaboration with the IC, prepare a draft Screening Baseline Noise Condition Working Paper. The PC will provide the draft working paper to the BOS/TAC. Following BOS/TAC review, the PC will incorporate BOS/TAC comments. The PC will also convert the working paper to PDF format for distribution on the project website.

**IC Activities:**

- Obtain/Review most recently available EDR INM input files and supporting data – To assure consistency of data, the IC will obtain from the PC the INM input files and supporting source documentation developed for the most recently available EDR. The IC will review the files to develop a comprehensive understanding of the input and its underlying assumptions, including sampling methodology. In coordination with the PC, the IC will develop a list of questions and/or issues related to this data

- for submission to the BOS/TAC. If necessary, the IC will participate in a conference call to discuss the issues with the preparers of the information.
- Review and comment, as appropriate, on the PC's expansion of the INM input files.
  - Review and comment, as appropriate, on the PC's development of airfield configuration-based INM input files.
  - Review and verify the results of all INM computations conducted by the PC.
  - Collaborate with the PC in the preparation of a draft Screening Baseline Noise Condition Working Paper. The IC will interactively review sections of the document as they are prepared and provide feedback as to accuracy and presentation of the results.
  - Prepare, as appropriate, materials for the CAC review of the document, and for delivery of the CAC position on the results to the BOS/TAC.

**Meetings:**

- Present/review draft results with BOS/TAC
- Present/review final results with BOS/TAC

## **6 ALTERNATIVE DEFINITION & PRELIMINARY SCREENING**

The purpose of this task will be to develop a comprehensive list of noise abatement procedures and determine which can be fast tracked in Phase 1, which should be carried forward into Phase 2 and which alternatives should not be considered further.

### **6.1 Develop Preliminary List Of Alternatives**

The consultants will begin with the initial list of concepts that were developed in the BOS/TAC brainstorming session in November 2003. The consultants will consider additional concepts and develop a list of possible actions that could be taken to reduce the noise impact to communities affected by over flight noise resulting from operations at Logan Airport. The only parameters for developing noise abatement alternatives to be considered in Phase 1 is that they should not include Airport use restrictions, runway use actions or procedures intended to address noise created by aircraft taxiing on the ground at the Airport. While taxi-related ground noise and PRAS are not addressed in Phase 1, they will be addressed in Phase 2 of this study. Ground noise generated by aircraft operations while on the runway (during takeoffs and landings including reverse thrust) will be considered in both Phase 1 and 2. Airport use restrictions, except for than those in the FAA Airside EIS ROD of August 2002, will not be considered in either Phase 1 or Phase 2 of this study.

**PC Activities:**

- Prepare ideas/concepts for consideration.
- Meet with IC and the BOS/TAC to review/refine concepts
- Document the initial list of alternatives; each alternative will include the following information:

- Title – brief title of the procedure.
  - Purpose/Objective – to the extent possible, the intent of the procedure will be defined.
  - Description – a brief description and illustrations, as appropriate, of how the procedure is intended to work will be included.
- Incorporate IC comments on list of alternatives and distribute to BOS/TAC.

**IC Activities:**

- Prepare ideas/concepts for consideration.
- Meet with PC and BOS/TAC to review/refine concepts.
- Review and comment on the documentation of alternative information prepared by the PC.

## **6.2 Conduct Initial Screening**

The objective of this task is to eliminate from consideration all alternatives that do not meet the initial screening criteria (“show-stopper” technical issues only) and to identify alternatives that can be fast-tracked. The BOS/TAC decision process will follow the following steps:

- Establish screening criteria
- Apply to alternatives
- Consider revised alternatives and re-apply screening criteria
- Apply FAA environmental criteria (FAA Order 1050.1D and 5050.4A) to determine if it can qualify for Categorical Exclusion.
- Reach consensus of alternatives that meet initial screening criteria and qualify for fast-tracking.

**PC Activities:**

- Develop recommended screening criteria/metrics for the initial screening (these will include show-stopper issues, such as: safety, technical feasibility, within scope of study).
- Meet with BOS/TAC to review recommendations of both PC and IC. Document BOS/TAC consensus on criteria.
- Assess each alternative against the screening criteria and document findings.
- Evaluate each alternative to determine if it may be eligible for Categorical Exclusion.
- Meet with BOS/TAC to conduct preliminary screening.
- Work with the IC to evaluate each alternative that does not meet the screening criteria and modify, if possible, to meet the screening criteria while still achieving its intended objective.
- Present revised alternatives for consideration by the BOS/TAC.
- Document BOS/TAC decision process. Review with BOS/TAC and revise as necessary.

**IC Activities:**

- Review and comment on initial screening criteria as proposed by the PC. Recommend additional screening criteria as appropriate.

- Meet with BOS/TAC to review and discuss recommendations of both PC and IC.
- Assess each alternative against the screening criteria and document findings. Evaluate each alternative to determine if it may be eligible for Categorical Exclusion.
- Meet with BOS/TAC to conduct preliminary screening.
- Working with the PC, identify techniques, if any, by which an alternative may be made acceptable under the initial screening criteria, if rejected.
- Meet with BOS/TAC to consider revised alternatives.

### **6.3 Prepare Documentation**

Document the evaluation process and results for each alternative, including the justification for fast tracking, deferring to later study, or removing any alternative that does not meet the screening criteria. The FAA will provide documentation to justify any rejected alternatives. This documentation will provide source material for the discussion of alternatives in the EIS to be conducted in Phase 2.

#### **PC Activities:**

- Prepare draft working paper documenting the evaluation process.
- Review with the BOS/TAC and incorporate their comments.

#### **IC Activities:**

- Review and comment on documentation of the preliminary screening process as prepared by the PC.

## **7 FAST-TRACK ALTERNATIVE EVALUATION & DOCUMENTATION**

Outlined below are the necessary tasks for evaluating the potential benefits and cost of implementing the alternatives that qualify for fast tracking as well as preparing the necessary Categorical Exclusion environmental documentation for each of these alternatives. Prior to the start of this task, the BOS/TAC along with the PC and IC will re-evaluate this scope for potential refinement. This refinement will be based on the nature of the specific procedures identified for fast track evaluation as well as the specific noise conditions and supplemental metrics identified during the baseline analysis. For purposes of an initial budget estimate, it has been assumed that seven (7) alternatives will be evaluated (but that could change depending on the outcome of Task 6).

### **7.1 Develop Detailed Procedure Definition**

For each of the fast track alternatives identified in Task 6, a detailed description of the procedure sufficient to assess the potential benefits and impacts, as well as potential effects on Airport and airspace operations will be developed.

#### **PC Activities:**

- Prepare draft procedure definitions for each of the fast-track alternatives.
- Incorporate IC comments and distribute to the BOS/TAC for review and comment.
- Incorporate BOS/TAC comments.

**IC Activities:**

- Review and comment on PC definitions.

**7.2 Assess Potential Air Traffic Operational Benefits/Impacts**

Operational analysis will be conducted on the fast track alternatives. This analysis will be prepared by the PC in collaboration with the IC. The consultants will also coordinate with the ATC representatives of the BOS/TAC. The following operational factors will be considered:

- Airspace/Airfield Considerations, including potential effects on other routes and airfield capacity.
- FAA and aircraft equipment/facility requirements.
- Human factor analysis – addressing controller-to-controller and controller-to-pilot interactions and issues.
- Aircraft performance analysis – will compile a current fleet mix at BOS and identify key aircraft performance characteristics and differences in on-board avionics, pilot training and air carrier operating procedures that may affect aircraft ability to fly a proposed procedure. This work will include a review of any near term (up to 5 years) air carrier plans to change, upgrade or replace these aircraft or change air carrier specific operating procedures.
- TERPS analysis – will analyze procedures for obstruction clearance.
- Other operational considerations – additional operational issues may need to be addressed in this study, depending on the scope of the alternatives and evaluation criteria identified.
- In the case where flight simulation may be required, the consultants would coordinate with specific airline(s) regarding flight simulation experiments of selected proposed noise abatement procedures.
- Nothing in the foregoing analysis will preclude modification of alternatives or consideration of entirely new alternatives to achieve the same or similar noise benefit.

**PC Activities:**

- Develop proposed methodology and review with the IC and BOS/TAC representatives.
- Finalize methodology based on input of the IC and BOS/TAC.
- Conduct analysis in collaboration with the IC.
- Present findings, in a discussion outline format, along with the findings of Task 7.3 to the BOS/TAC.
- Incorporate comments and revise documentation, as appropriate.

**IC Activities:**

- Develop CAC-proposed methodology and criteria for review with the PC and BOS/TAC representatives.
- Review and comment on final methodology and criteria.
- Conduct analysis in collaboration with the PC, ATC representatives to BOS/TAC and other BOS/TAC members as determined by the BOS/TAC.

- Participate in the presentation of findings, in a discussion outline format, along with the findings of Task 7.3 to the full BOS/TAC.
- Review and comment, as appropriate, on document revisions.

### **7.3 Assess Potential Noise Benefits/Impacts**

The noise analysis of fast track alternative procedures will be assessed and tabulated for the fast track alternatives. Results will be presented according to the selected metrics using the same methods as in the existing baseline noise analysis.

#### **PC Activities:**

- Develop activity assumptions and INM Input files and review with the IC.
- Conduct noise modeling according to established approach with the oversight of the IC.
- Produce tables/graphs of results, as appropriate.
- Prepare discussion outline material.
- Review with and incorporate comments of the IC and BOS/TAC.

#### **IC Activities:**

- Review PC-developed activity assumptions and INM input files.
- Review noise modeling output files and results. Comment appropriately.
- Review tabular, graphic and written discussion material with the BOS/TAC.

### **7.4 Prepare Documented Categorical Exclusion for Flight Testing**

The results of Task 7.2 and 7.3 will be reviewed to determine which of the alternatives should be flight-tested prior to implementation. For each of these alternatives, a separate documentation to support a Categorical Exclusion for flight-testing will be prepared. This documentation will incorporate the analysis completed in previous tasks and will follow a format consistent with the FAA New England region procedures. The documentation will be coordinated with FAA Air Traffic Division Environmental Specialist.

#### **PC Activities:**

- As part of the BOS/TAC's review of findings from Tasks 7.2 and 7.3, identify which alternatives should be flight tested prior to implementation
- Coordinate with FAA to establish documentation requirements and procedures for this flight testing. For purposes of this work scope, it is assumed that the process established in the FAA New England Region Preliminary Environmental Review Checklist and Categorical Exclusion Declaration (revised 1998) will apply.
- In accordance with the documentation requirements established above, prepare draft documents for BOS/TAC review, including the following elements.
  - Project/Procedure Description - Description of the proposed action in text and use of exhibits/illustrations as prepared initially in Tasks 6.3, 7.1 and portions of Task 7.2.
  - Purpose and Need of Proposed Action - Describe purpose and need of the proposed action, including the assessment of potential air traffic operational benefits determined in Task 7.2.

- Affected Environment - Description of the area potentially affected/benefited by the proposed change as may be applicable; otherwise, description of general airport environment. Utilize Tasks 5.1 and 7.1 and 7.2.
  - Environmental Consequences - Document findings of Tasks 5.2 and 6.2. Describe potential impacts/benefits to all impact categories as outlined by FAA Order 5050.4A, including discussions of Thresholds of Significance. It is anticipated that the assessment of impacts will focus on the evaluation of noise, compatible land use, social impacts, and air quality.
  - Other Considerations and Cumulative Impacts - Describe potential for controversy or other considerations. Describe potential for cumulative impacts when considering the proposed action together with other past, present, and reasonably foreseeable future development projects/actions.
  - Public Involvement - Describe public and agency coordination efforts. Summarize and document all public coordination efforts, including public notification requirements associated with flight testing (if applicable) and implementation as may be proposed.
  - Summary/ Conclusion - Summarize overall impacts / benefits and finding.
- Review with IC and submit to FAA for review and comment.
  - Prepare final documents to incorporate FAA comments.

**IC Activities:**

- Review and comment on draft and final documents.

**7.5 Provide Implementation Support**

Following completion of the documented Categorical Exclusion for flight-testing, the consultants may be required to provide technical support to the implementation of the proposed fast track alternatives. This technical support will be determined for each alternative (such as noise measurements).

**PC Activities:**

- Collect ARTS and operational data from Massport to evaluate the operational conditions prior to the test period and during the test period in order to assess the effectiveness of the measures. The data will be processed to show the effectiveness of the measures in terms of flight tracks and altitude, as appropriate to the specific objectives of the measure.
- Prepare documentation of all operational analysis conducted during the flight test. Present to the BOS/TAC.
- Oversee and review field testing conducted by the IC during flight testing.

**IC Activities:**

- Conduct a measurement program to evaluate the field effects of the alternatives tested. Up to six supplemental field sites will be selected, based on the alternative(s) to be evaluated. These sites will not be selected until after the procedures to be evaluated are determined. At each site, attended noise measurements will be collected for three daytime periods prior to the implementation of the flight test. The measurements will be repeated for two daytime periods during each flight test at the

same sites. If a test procedure is a night-only procedure, a nighttime period measurement will replace a daytime period on a one-for-one basis. It is assumed that flight test periods will incorporate two procedures per test period. Noise level data will be collected in A-weighted 1 second intervals and 1/3 octave band levels at each supplemental site.

- Massport noise monitoring data collected at permanent monitoring locations sites that may be affected by the tested alternatives will also be obtained and evaluated for the same periods as supplemental measurements are made. Time stamped radar data with flight numbers from the Massport noise and operations monitoring system will be gathered to correspond to the measurement period. Single events will be identified and comparisons between the noise levels of the same flight on pre-test and test days will be made.
- Review and comment on all PC-prepared evaluations.

## **7.6 Prepare Documented Categorical Exclusion for Implementation**

Following successful flight testing (or completion of Task 7.2 and 7.3 for alternatives that may not require flight testing) a documented Categorical Exclusion will be prepared for implementing each of the alternatives, as appropriate. This documentation will incorporate the analysis completed in previous tasks and will follow a format consistent with the FAA New England region procedures.

### **PC Activities:**

- In accordance with the documentation requirements established above, prepare draft documents for FAA review, including the following elements.
  - Project/Procedure Description - Description of the proposed action in text and use of exhibits/illustrations as prepared initially in Tasks 6.3, 7.1 and portions of Task 7.2.
  - Purpose and Need of Proposed Action - Describe purpose and need of the proposed action, including the assessment of potential air traffic operational benefits determined in Task 7.2.
  - Affected Environment - Description of the area potentially affected/benefited by the proposed change as may be applicable; otherwise, description of general airport environment. Utilize Tasks 5.1 and 7.1 and 7.2.
  - Environmental Consequences - Document findings of Tasks 5.2 and 6.2. Describe potential impacts/benefits to all impact categories as outlined by FAA Order 5050.4A, including discussions of Thresholds of Significance. It is anticipated that the assessment of impacts will focus on the evaluation of noise, compatible land use, and social impacts.
  - Other Considerations and Cumulative Impacts - Describe potential for controversy or other considerations. Describe potential for cumulative impacts when considering the proposed action together with other past, present, and reasonably foreseeable future development projects/actions.
  - Public Involvement - Describe public and agency coordination efforts. Summarize and document all public coordination efforts, including public notification requirements associated with flight testing (if applicable) and implementation as may be proposed.

- Summary/ Conclusion - Summarize overall impacts / benefits and finding.
- Review with IC and submit to BOS/TAC for review and comment.
- Prepare final documents to incorporate BOS/TAC comments.

**IC Activities:**

- Review and comment on draft and final documents.

## **8 DOCUMENTATION**

This task includes the documentation of assumptions, analyses and findings of the study. Documentation will be distributed in electronic and printed form. Documents will be reviewed with the BOS/TAC and other established technical committees. Comments will be incorporated into final versions of the documentation. Documentation will include the following:

- Appendix Technical working papers documenting key elements of the study.
- Final Technical Reports summarizing Phase 1.
- Executive Summary highlighting the findings of Phase 1.
- Appendix public process.

**PC Activities:**

- Prepare reports as outlined above for BOS/TAC review.
- Prepare final reports.
- Prepare reports for inclusion on the website.

**IC Activities:**

- Review and comment on draft and final documents.

## **9 PRELIMINARY PHASE 2 EVALUATION**

For each of the alternatives identified in Task 6 that may not be eligible to be Categorically Excluded from formal NEPA processing, alternative analysis and refinement will be conducted. This task will be re-assessed prior to being initiated. The following activities assumes that this task will be a limited effort that will primary determine the likelihood that each of the alternatives being considered for Phase 2 can be implemented in a reasonable timeframe (next 5 years) based on available technology.

**PC Activities:**

- Refine scope based on available funds and the scope of the alternatives to be carried into Phase 2.
- Define screening criteria (primarily implementation focus)
- Evaluate each alternative based on above criteria. The evaluation is qualitative only. This analysis will be used to further refine the alternatives prior to Phase 2.
- Refine alternatives, as necessary and re-test against criteria.
- Report findings to BOS/TAC.

**IC Activities:**

- Participate in refinement of scope for Element 9, based upon funds remaining.
- Review screening criteria developed under previous evaluations; recommend appropriate revisions, if any.
- Begin qualitative evaluations in preparation for completion during Phase 2.
- Review and comment on documentations prepared by the PC.

**10 SCOPE OF SERVICES – PHASE 2**

Based on study findings, prepare a draft scope of services for Phase 2. Phase 2 will assess the noise abatement procedures carried forward from Phase 1 as well as runway use patterns and taxiway noise levels

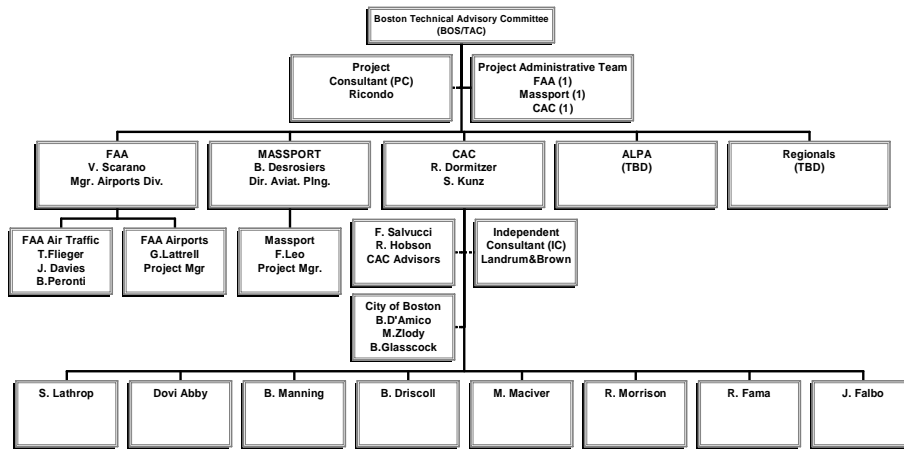
**PC Activities:**

- Meet with the BOS/TAC to establish framework for scoping Phase 2.
- Participate in scoping meeting with the BOS/TAC.
- Prepare draft scope, budget and schedule for Phase 2 in collaboration with the IC.
- Meet with the BOS/TAC to review the proposed Phase 2 work plan.
- Revise work plan, as necessary.
- Provide additional assistance to the FAA in preparing the FAA grant application.

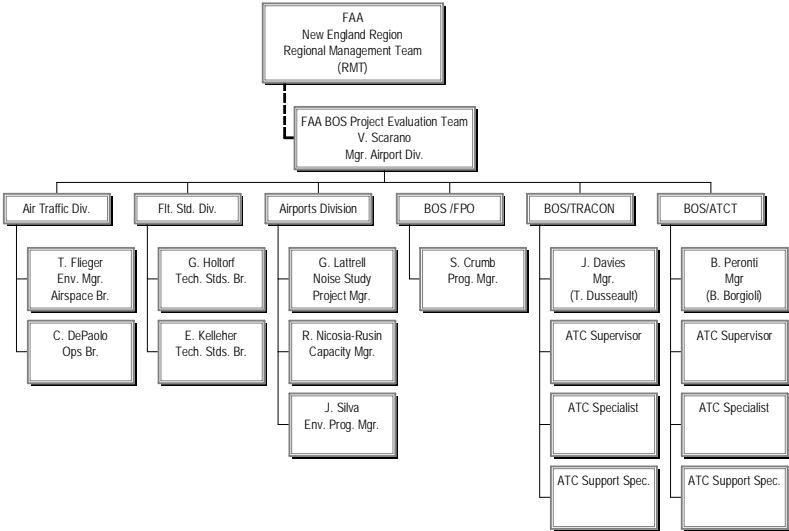
**IC Activities:**

- Discuss with the BOS/TAC a framework for scoping Phase 2.
- Participate in scoping meeting trip to meet with the BOS/TAC.
- Prepare draft scope, budget and schedule for Phase 2 in collaboration with the PC.
- Meet with the BOS/TAC to review the proposed Phase 2 work plan.
- Revise work plan, schedule and budget, as necessary.
- Review and comment on draft FAA funding application.

BOS/TAC ORGANIZATION CHART



FAA EVALUATION TEAM



FAA EVALUATION TEAM RELATIONSHIP TO BOS/TAC

