Chapter 12 Mitigation

12-1

The previous chapters responded to the scope for the MEPA Certificate for the *Final ESPR*. In addition, the MEPA Certificate requested that the *Final ESPR* provide additional specific environmentally beneficial measures beyond the measures that were contemplated in the *Draft ESPR*. The MEPA Certificate also requested that Massport identify the parties responsible, a schedule for implementation and estimated costs of such measures.

Summary of the Draft ESPR

As identified in the *Draft ESPR*, the key future environmental effects of Hanscom Field are likely to be those associated with traffic and noise. For most of the future scenarios, the changes in traffic and the noise effects are minor in nature. Future traffic conditions are comparable with or without the anticipated Hanscom Field traffic contributions at most intersections. Changes in the 65dB Day-Night Sound Level (DNL) noise contour occur primarily on Hanscom Field property. The *Draft ESPR* recommended the following beneficial measures for consideration in all scenarios:

- Participate with other area employers to extend police traffic control at the Hanscom Drive/Route 2A intersection during the morning peak hours
- Investigate the feasibility of new Transportation Demand Management (TDM) measures to address traffic effects of Hanscom Field, which would be maximized as part of a regional effort
- Continue pilot education and public information efforts already underway; in particular working with operators to encourage the use of National Business Aircraft Association and Aircraft Owners and Pilots Association recommended quiet flying procedures
- A future evaluation of the permanent noise monitoring system as an approach to improve the evaluation of noise data.

It should be noted that this *Final ESPR* no longer identifies roundabouts or other potential physical modifications to Route 2A or other roadways within the Minute Man National Historical Park and instead includes additional TDM measures to strengthen the recommendations of the *Draft ESPR*. Massport has met with representatives from the Hanscom AFB to discuss TDM measures and plans to continue to work with them on these issues and to provide technical advice and guidance on ground transportation issues. Massport has



posted transit information about Hanscom Field on the Massport web site (www.massport.com). Massport provides Hanscom Field noise abatement information on the Hanscom overview page of the Massport website.

Current Massport Programs and Procedures

Massport has a number of programs in place to manage environmental issues at Hanscom Field. The *Draft ESPR* provided a comprehensive evaluation of the cumulative environmental effects of Hanscom Field. The environmentally beneficial measures were identified within the context of ongoing Massport programs and policies and are appropriate for the level of environmental effect that was identified in the technical analysis. Massport will continue its commitment to the following current environmental measures and monitoring programs to reduce or eliminate potential impacts to the environmental setting at Hanscom Field.

- Tracking the progress of the Installation Restoration Program and the Air Force's progress toward site closure as described in the *Draft ESPR*
- Remediation of the one active DEP-listed disposal site that Massport is responsible for bringing to regulatory closure under the Massachusetts Contingency Plan.
- Employing Best Management Practices through its Environmental Management System to protect surface waters and groundwater.
- Performing periodic visual inspections of water quality at Hanscom Field stormwater outfalls in compliance with the NPDES permit
- Enforcing Massport's policy that stormwater runoff for new projects not exceed the stormwater runoff that existed at the particular site prior to the construction of the new facility
- On-going implementation of Hanscom's Spill Prevention Control and Countermeasure Plan to ensure that all of Massport's hazardous material storage tanks are in compliance with current regulations and to monitor the age, condition, and regulatory compliance status of these tanks on an on-going basis
- Employing pollution prevention measures as they apply to site drainage, material storage, material transfer, truck unloading operations, and site security as part of Hanscom Field's Spill Prevention Control and Countermeasure Plan
- Continuing efforts to minimize and prevent the future releases of hazardous materials through careful operation and maintenance of equipment and site activities; having available spill response equipment; routine employee training, and monitoring and review of ongoing environmental/spill prevention programs; and an adherence to the regulatory requirements governing spill reporting and response actions

As described in the *Draft ESPR*, Massport has a long history of noise abatement at Hanscom Field, dating back to at least 1978, when it began developing measures to minimize noise. These measures were officially adopted in Massport's regulations in 1980 and included restrictions on operations by aircraft not certificated under Federal Aviation Regulation (FAR) Part 36; limits on touch and go training activity; and nighttime field use fees.

Massport has also made progress in bringing alternative fuel vehicles (AFV) into the fleet at Hanscom Field. Massport will continue to consider AFVs for any new vehicle purchase in the future. Also, since



Massachusetts has adopted the California Low Emission Vehicle program, any new conventional-fueled vehicle added to the Hanscom fleet in the future will have very low emissions and will automatically comply with the low emission goals of the federal Clean Fuel Fleet Program (40 CFR Part 88).

Following the *1995 GEIR*, the Hanscom Field Noise Workgroup developed a list of recommended abatement and mitigation actions; Massport was the primary entity responsible for implementing a number of these recommendations. Table 12-1, which was included in the *Draft ESPR*, presents the entire list from the HNWG report (using the same numbering methodology), as well as an update of the status of each measure that Massport was responsible for implementing. This table has been updated to include the following information that was received from the U.S. Air Force.

- Measure A12. Electronic System Center (ESC) Public Affairs Office will issue news releases alerting area residents whenever significant or unusual military flight activity is planned.
- Measure A13. News releases regarding significant or unusual flight activity will be posted to the Hanscom AFB public website.

Additional Environmentally Beneficial Measures

The MEPA Certificate requested additional environmentally beneficial measures with schedule and cost information. This section provides a general schedule for environmentally beneficial measures based on the 2005 and 2015 analysis years and includes the responsible parties and order of magnitude of costs for these measures and other measures from the *Draft ESPR*. In general, Massport has in place programs and policies to address potential environmental effects described for the 2005 scenarios. This time frame is appropriate for developing and implementing potential improvements. Potential measures identified for the 2015 scenarios will be evaluated as part of the 2005 *ESPR* to determine whether implementation would be warranted during the "near-term" analysis year for that report. Table 12-2 summarizes this information, which is discussed below.

Ground Transportation

Massport has refined the potential environmentally beneficial measures that could address the traffic operational effects identified in the preceding analysis. In particular, Massport will pursue TDM measures as described below, particularly to address the concerns about Route 2A and roadways in the Minute Man National Historical Park. Of particular concern were the roundabout that was identified for Old Bedford Road and Lexington Road (Meriam's Corner) to address Hanscom-related traffic and the roundabout that was identified for Lexington Road, the Cambridge Turnpike Cut-off, Route 2A and Brooks Road to address regional traffic. These roundabouts are no longer identified for potential implementation.

Most intersections in the study area operate at the same levels of service regardless of the level of Hanscom Field-related traffic growth. For these locations, the new trips generated by Hanscom Field under future scenarios are not expected to impact intersection operations. As Hanscom Field traffic represents a small portion of total intersection traffic volumes, intersection improvements for many locations are needed with or without any future growth at Hanscom Field.

Table 12-1 Status of Noise Abatement Recommendations of the Hanscom Noise Workgro	Table 12-1	Status of Noise Abatement	t Recommendations of	f the Hanscom	Noise Workgrou
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Number	Measure	Detail	Massport Actions to Date
A1	Voluntary Noise Abatement Procedures	Massport will formalize, publish, distribute and post existing noise abatement procedures drafted by Massport, HART, and HPA.	Massport distributed handouts and posters describing noise abatement procedures to all tenants, fixed base operators, and flight training schools. Additionally, Massport mailed AOPA Fly Friendly videos to all hangar and tie-down tenants.
A2	Distribution to Renters	Massport will duplicate and deliver to flights schools voluntary noise abatement procedures in sufficient quantity for schools to distribute to all aircraft renters.	Massport distributed handouts and posters describing noise abatement procedures to all tenants, fixed base operators, and flight training schools.
A3	Informative Page Markers	Massport will print and distribute informative page markers for noise abatement information in Jeppesen and flight guide handbooks to local and transient pilots.	Massport mailed and distributed flight manual inserts describing noise abatement procedures to all tenants, fixed base operators, and flight training schools.
A4	Flight School Briefings	Hanscom flight schools will display and distribute local noise abatement procedures to their pilots, brief all flight instructors at least annually on local noise abatement procedures and AOPA Fly Friendly program, and require all students to view the AOPA Fly Friendly video.	Massport discussed noise abatement with the flight schools and made the AOPA Fly Friendly video available.
A5	Flight Training Center Briefings	The Hanscom AFB Flight Training Center will display in its flight planning room and distribute to its members local noise abatement procedures, brief the AOPA Fly Friendly program and local noise abatement procedures at its safety meetings at least annually, and require new club members to view the AOPA Fly Friendly video.	Massport provided the Hanscom AFB Flight Training Center with posters, flight manual inserts, and AOPA Fly Friendly videos.
A6	FBO Guest Follow-up	Each FBO at Hanscom will institute a guest sign-in sheet and send each transient pilot a follow-up letter describing the voluntary noise abatement procedures at Hanscom.	FBOs are responsible for implementing this measure.
A7	Massport Website	Massport will include the voluntary noise abatement procedures for Hanscom on its public access website with mutual links to the USAF and other web-based pre-flight planning resources.	Massport has added information to its web site related to noise abatement information.
A8	ATIS Broadcast	The ATIS broadcast will include a reminder that voluntary noise abatement procedures are in effect and whenever workload permits the Tower, Ground, and Clearance Delivery will follow with reminders.	ATC is responsible for implementing this measure.
A9	Hanscom AFB Leader Briefings	Hanscom AFB representatives to the Hanscom Noise Workgroup will brief Electronic Systems Center and 66th Air Base Wing leaders on local noise abatement procedures, sensitivities, and issues.	Hanscom AFB is responsible for implementing this measure.
A10	Military Flight Crews	Hanscom AFB Transient Alert will display and distribute local noise abatement procedures and information to military flight crews utilizing their facility.	Hanscom AFB is responsible for implementing this measure.
A11	ESC Web page	The Hanscom AFB Electronic Systems Center will create a web page dealing with noise abatement issues at Massport for both military and civilian pilots.	Hanscom AFB is responsible for implementing this measure.



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Number	Measure	Detail	Massport Actions to Date
A12	ESC Press Releases	The Hanscom AFB Electronic Systems Center Office of Public Affairs will send area newspapers regular (biweekly or monthly) news releases updating area residents on Air Force flight operations, subject to security considerations.	Hanscom AFB is responsible for implementing this measure. (Note: ESC Public Affairs Office will issue news releases alerting area residents whenever significant or unusual military flight activity is planned.)
A13	ESC Website News Releases	The Hanscom AFB Electronic Systems Center Office of Public Affairs will add information about Air Force flight operations to the public access section of the Hanscom AFB web site, subject to security considerations.	Hanscom AFB is responsible for implementing this measure. (Note: News releases regarding significant or unusual flight activity will be posted to the Hanscom AFB public website.)
A14	AOPA Video Distribution	Massport will purchase and distribute the AOPA Fly Friendly video to all Hanscom pilots.	Massport distributed the video to all tenants, fixed base operators, and flight training schools.
A15	Hanscom User Group	Massport will provide support to ensure that a representative user group be available to all users, pilots, and businesses.	Massport is supportive of aviation user groups and encourages aviation participation at HFAC.
A16	Selectmen and Town Briefings	HNWG will brief Town Selectmen on the group's findings.	HNWG is responsible for implementing this measure.
A17	Part 150 Study	A group representing local pilots, business interests, surrounding communities and Massport be formed to investigate the possibility and implications of re-opening the Part 150 Study at Hanscom Field.	The communities did not support this initiative in part because it would require a commitment by the communities to adopt land use restrictions consistent with the results of the Part 150 Study. In addition, the communities refused to accept the noise metrics approved by FAA for use in Part 150 studies.
A18	Model Quiet Airport Study	A group representing local pilots, business interests, surrounding communities and Massport be formed to define the scope and purpose of a Model Quiet Airport Study at Hanscom Field.	Massport is not the primary entity responsible for implementing this measure.
A19	Non-Profit Organization	A group representing local pilots, business interests, surrounding communities and Massport be formed to explore the idea of establishing a non-profit organization to raise funds to support various noise reduction awareness programs.	Massport is not the primary entity responsible for implementing this measure.
A20	Noise Abatement Officer	A group representing local pilots, business interests, surrounding communities and Massport be formed to explore the idea of establishing a Noise Abatement Officer position at Hanscom Field.	Massport's Office of Planning and Statistics at Hanscom Field has provided general noise abatement support since the 1980s. In addition, Massport's Office of Noise Abatement (at Logan) supports Hanscom's noise monitoring system. Many of the tasks envisioned in this recommendation are being implemented by Massport staff, which includes a Noise Abatement Coordinator.
A21	Noise Overlay Zones	A group including representatives of the Planning Boards of the towns of Lincoln, Lexington, Bedford, and Concord be formed to study the issues associated with the creation of Noise Overlay Zoning Districts.	Massport is not the primary entity responsible for implementing this measure.

Table 12-1 Status of Noise Abatement Recommendations of the Hanscom Noise Workgroup (cont.)



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Table 12-2 Potential Environmentally Beneficial Measures

Measure	Responsible Parties	Cost	Timetable			
Ground Transportation						
Traffic Control Officer at Hanscom Drive and Route 2A during morning peak hours	Multiple including Massport	\$40,000-50,000 per year	2005 or later, based on activity levels			
Bus shelter with transit information in front of Civil Air Terminal	Massport	\$5,000-\$6,000	~ 2005			
Bicycle racks in front of Civil Air Terminal and other Hanscom Field locations	Massport	\$1,000 per unit	~ 2005			
Information about transit and non-auto travel options in prominent locations throughout Hanscom Field	Massport	Negligible	~ 2005			
Information about transit and non-auto modes on Hanscom Field on website	Massport	Negligible	Complete			
Survey Hanscom air passengers	Massport	\$20,000-\$25,000	As part of 2005 ESPR			
Implement an all-way stop at Hanscom Drive and Old Bedford Road to address operational issues associated with regional traffic flows as part of 2015 scenarios	Massport with approval from MassHighway	\$1,000	2015, based on activity levels			
Implementation of parking fees in the lot in front of the Civil Air Terminal	Massport	To be determined	2005 or later			
Noise						
Continue to direct operators to the Run-up Pad during the day, and to the East Ramp at night if the need arises to conduct maintenance run-ups at Hanscom Field.	Massport	Negligible	Ongoing			
Investigate methods that would reduce noise at the Wheeler-Merriam House building while being sensitive to its historic architectural character.	Massport	To be determined	2015, based on activity levels			
Air Quality						
Install a paved aircraft holding area at the head of Runway 23 to would allow piston aircraft to pull off Hotel Taxiway and complete their pre-flight checkout, freeing other aircraft that are behind to takeoff.	Massport	To be determined	2005 or later			
Encourage Signature and Jet Aviation to minimize the operation of APUs and GPUs to help reduce air pollutant emissions at Hanscom Field.	Massport	Negligible	2003			



Transportation Demand Management (TDM) Opportunities

Future traffic growth from increased background traffic and new developments near Hanscom Field, with or without potential increased activity at Hanscom Field, will exacerbate any existing delays at Study Area intersections. TDM approaches that include a variety of measures can result in fewer vehicles on the road, particularly during peak commuter hours. These measures are described in Chapter 6.

To be successful in this area, TDM approaches need to be regional in scope with participation from a range of stakeholders that includes major employers, the United States Air Force (USAF) Base, Massport, and the National Park Service. As described in Chapter 6, Hanscom Field contributed a small portion of the year 2002 peak hour traffic on area roadways and is a relatively low traffic generator compared to other uses in the area such as the Hanscom AFB. Hanscom Field represents three to four percent of peak hour traffic on Route 2A and 12-13 percent of peak hour traffic on Hanscom Drive. While Hanscom Field traffic would increase in the 2005 and 2015 scenarios, it will remain one of many traffic generators that contribute traffic volumes to area roadways, rather than the dominant traffic generator.

As described in the *Draft ESPR*, the role of a TDM program at Hanscom Field would be to provide measures that have usefulness to the current commuting population while laying the foundation for addressing future demands as they occur. Massport has participated in the periodic discussions among area employers and traffic generators about the potential formation of a Transportation Management Association (TMA). A TMA would provide an institutional framework to develop and implement TDM measures. Massport will continue to participate in these discussions in the future. Massport has met with the U.S. Air Force to discuss potential TDM measures including plans by the U.S. Air Force to provide a shuttle bus between Hanscom AFB and Concord Center.

For Hanscom Field, potential TDM opportunities include the following:

- **Public Transit.** Public transit information can be made readily available for employees and visitors. This improvement could include prominently posting transit information in lobby areas, providing transit schedules near primary entrances/exits, and providing transit schedules to all new employees.
- **Bicycle Racks.** Bicycle racks could be provided near primary entrances and exits to promote the use of commuting to Hanscom Field by bicycle. A shower is already provided in the Civil Air Terminal, which also encourages people to walk or ride their bicycles to work.
- Website Rideshare Information. Currently Massport's Hanscom Field website provides information about airlines, airport services, parking, and limited information about getting to and from Hanscom Field. Transit information is already provided on the website. In addition, information about TDM initiatives such as carpool/rideshare programs could be added to the site along with phone numbers for inquiries about these programs.
- **Parking Fees.** Massport plans to resurface its existing parking lot in front of the Civil Air Terminal. Infrastructure for fee collection equipment will be installed as part of this project. Massport has not established a timetable to implement fee collection operations at the parking lot. The implementation of parking fees could encourage a positive mode shift to carpooling and shared ride services.

Massport will conduct an air passenger survey as part of the 2005 ESPR.



Operational and Traffic Management Improvements

Operational improvements and traffic management measures are aimed at improving roadway operations and safety. These measures often can be implemented with minimal impacts to the local roadways and surrounding land uses.

Hanscom Drive/Route 2A

The deployment of a police officer during the morning commuting hours at Hanscom Drive/Route 2A would improve the forecasted conditions for the 2005 and 2015 scenarios at this intersection. This measure would be more effective in reducing delays for traffic exiting Hanscom Drive.

Hanscom Drive/Old Bedford Road

As described in Chapter 6 - Ground Transportation, operational issues at this intersection are primarily attributable to regional traffic flows. However, the deployment of a police officer during the morning commuting hours at Hanscom Drive and Route 2A would improve the forecasted conditions for the 2005 morning peak hour at Hanscom Drive and Old Bedford Road. In 2015 the operation of this intersection as an all-way stop would improve level of service on the Old Bedford Road approach. This measure would require minor restriping and provide a traffic calming and safety benefit by managing vehicular movements through the intersection. Massport will continue to assess conditions at this intersection through the ESPR process to determine the need for these improvements.

Air Quality

The analysis of air quality in the *Draft ESPR* indicated that the emission levels forecasted for the future scenarios will not result in significant adverse air quality effects. However, Massport has also identified air quality measures in addition to TDM measures that would help to reduce emissions.

To increase awareness among pilots about reducing emissions, Massport will encourage Signature and Jet Aviation to minimize the operation of Auxiliary Power Units (APUs) and Ground Power Units (GPUs) to help reduce air pollutant emissions at Hanscom Field.

Airside Operational Improvements

Massport examined airside operational improvements in Chapter 12 of the *Draft ESPR* and concluded that Hanscom Field already operates without any appreciable taxiway delays that might create excess emissions, and this situation will not change even for the 2015 High Growth Scenario. Emissions from aircraft engines are exclusively within the jurisdiction of the federal government, and within U.S airspace aircraft operations are managed by FAA controllers. One area where Massport could affect aircraft emissions might be in the design of taxiways. An aircraft holding area at the head of Runway 23 may offer environmental benefits. Installing a paved aircraft holding area at the head of Runway 23 would allow piston aircraft to pull off Hotel Taxiway and complete their pre-flight checkout, freeing other aircraft that are behind to takeoff. Massport will review the possibility of implementing this measure.

Other Aviation Support Emission Reductions

Auxiliary Power Units and GPUs provide electricity, heat and air conditioning to an aircraft when its engines are off. Pilots of small jets run their APU (or a GPU) to heat or cool the aircraft while they wait for passengers. These aircraft operate primarily through the two FBOs at Hanscom Field: Signature (formerly Mercury Air Group) and Jet Aviation. APUs and GPUs produce relatively small amounts of air pollutant emissions in comparison to aircraft engines. While Massport neither owns nor directly controls the operation of these small power units, the Authority recognizes the air quality benefit of minimizing APU/GPU



operations. Massport will encourage Signature and Jet Aviation to minimize the operation of APUs and GPUs to help reduce air pollutant emissions at Hanscom Field.

Noise

MEPA requested additional information and evaluation of run-up procedures and the noise monitoring system at Hanscom Field. This section discusses these specific measures.

Run-up Procedures

Massport has a well-defined aircraft engine maintenance run-up procedure. Aircraft are directed to the "Run-up Pad" located due south of Runway 11-29, west of the intersection with Runway 05-23. At the Run-up Pad, aircraft are directed to maintain a west heading when conducting run-ups; there is a short "blast fence" on the east side of the pad which deflects jet exhaust, propwash, and debris. Furthermore, Massport discourages operators from conducting nighttime run-ups.

After Shuttle America began performing regular aircraft maintenance at Hanscom Field, there were times when nighttime run-ups occurred for required maintenance purposes. After receiving multiple complaints mostly from residents in newly constructed homes along Virginia Road, Massport re-located those nighttime run-ups to the east end of the East Ramp, away from this residential community. Shuttle America has since relocated its aircraft maintenance activities to its facility in Fort Wayne, Indiana, significantly reducing nighttime maintenance run-ups at Hanscom.

Should other run-up be necessary, Massport will continue to direct operators to the run-up pad during the day, and to the East Ramp at night. The optimal orientation for run-ups at the East Ramp is a magnetic heading of approximately 230 degrees, aligned with Runway 05-23, whenever feasible based on wind conditions. This heading will minimize sound levels at homes north of the approach end of Runway 11-29, while providing a substantial reduction in sound levels at the newly constructed homes along Virginia Road, relative to levels during run-ups conducted at the run-up pad.

Noise and Operations Monitoring System

Massport is focusing on a "fly friendly" program to establish an atmosphere at Hanscom Field that encourages quiet flying procedures. In addition, there is particular emphasis on discouraging 11 p.m. to 7 a.m. aircraft activity, which is generally considered the most intrusive. Measure M13 of the Noise Workgroup recommended that a procedure or system be developed to correlate noise events with flight data and complaints (see Table 7-3). When Massport is in a position to upgrade its noise monitoring system, which currently does not make these correlations, there may be opportunities to enhance the system. However, the majority of operations are conducted under Visual Flight Rules (VFR), which makes it more difficult to identify specific flights and their noise levels even with an upgraded system.

Wheeler-Merriam House

The noise analysis in the *Draft ESPR* identified the Wheeler-Merriam house, a rental residence at 477 Virginia Road, Concord as the historic resource with the highest DNL exposure level for year 2000 and for the 2005 and 2015 scenarios. This location is the only historic property that would fall within the 65 dBA DNL contour (for the 2015 High Growth Scenario). The year 2000 DNL exposure level is expected to increase one to two decibels for the 2005 scenarios and two to three decibels for the 2015 scenarios. The TA65 at this location increases from 33 minutes a day in 2000 to 40-46 minutes a day in 2005 and 49-60 minutes a day in 2015. The TA55 at this location increases from 113 minutes a day in 2000 to 131-145 minutes a day in 2005 and 157-182 minutes a day in 2015.



The mitigation approach for noise exposure levels at the Wheeler-Merriam House under the 2015 scenarios includes the overall noise reduction strategies described in Chapter 7 - Noise of this *Final ESPR*. In addition, Massport will investigate appropriate mitigation in the event that the 2015 High Growth Scenario sound levels are reached.

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