

## **CHAPTER THREE RECOMMENDED NOISE COMPATIBILITY PROGRAM MEASURES**

This chapter describes the noise abatement and noise mitigation measures recommended for inclusion in the updated Noise Compatibility Program for T.F. Green Airport. The program consists of measures drawn from the previously approved 1986 Part 150 Program, as well as from the evaluations conducted during the study update. This chapter provides a description of each measure and a summary table (**Table 3-1**) of the recommended measures. In the final section of the chapter, single page summaries for each measure describe the background, the relationship to the previous NCP, the effect on land use compatibility, the responsible implementing parties, and the implementation steps, costs and schedule. In addition to noise abatement and land use measures, program management measures are recommended to assist in the implementation, coordination, and monitoring of the Noise Compatibility Program.

Nine of the 1986 NCP measures are not recommended for further implementation because they either are being withdrawn or completed by the Airport Sponsor.

- **Withdrawn measures:**
  - NA-4 Incorporate noise barrier in the design of air cargo building.
  - NA-12 Rotational runway use program.
  - NA-13 Helicopter operational procedures.
  - LU-1 Rezone selected residential properties within the 70-75 DNL noise contour.
  - LU-2 Amend the subdivision regulations within the City of Warwick.
  
- **Completed measures:**
  - NA-1 Construct fillet at intersection of Runways 5R/23L and 10/28.
  - NA-3 Construct noise barrier parallel to Runway 5R.
  - NA-5 Displace landing threshold on Runway 5L.
  - LU-5 Sound insulate all schools within the 65 DNL of the 1986 NCP.

The measures recommended for continuation or new implementation are:

### **Noise Abatement Measures**

- **NA-2** Construct parallel taxiway serving Runway 5R/23L.
- **NA-6** Physical isolation of maintenance run-ups.
- **NA-7** Voluntary nighttime restrictions for scheduled air carrier operations (Midnight - 6:00 a.m.).
- **NA-8** Auxiliary power unit restrictions.
- **NA-9** Restrictions on aircraft repositioning under power.
- **NA-10** Pre-takeoff run-up restrictions.
- **NA-11** Informational program on reverse thrust.

- **NA-14** Restrictions on 180 degree turns on runway, unless operationally necessary.
- **NA-15** Discourage engine maintenance run-ups during the period of the voluntary nighttime flight operations curfew of NA-7.
- **NA-16** Discourage, when safe and practicable, engine start-ups and auxiliary power unit starts prior to the end of the voluntary nighttime curfew (NA-7).
- **NA-17** Designate FAR 91-53A Close-In Noise Abatement Departure Procedures (NADP's) as developed and applied by each carrier for its own system-wide needs, as the airport's preferred procedure for takeoffs on Runway 5R by Stage 2 jet aircraft and Stage 2 jet aircraft modified to meet Stage 3 noise criteria.
- **NA-18** Designate FAR 91-53A Close-In Noise Abatement Departure Procedures (NADP's), as developed and applied by each carrier for its own system-wide needs, as the airport's preferred procedure for takeoffs on Runway 23L by Stage 2 jet aircraft and Stage 2 jet aircraft modified to meet Stage 3 noise criteria.
- **NA-19** Designate FAR 91-53A Close-In Noise Abatement Departure Procedures (NADP's), as developed and applied by each carrier for its own system-wide needs, as the airport's preferred procedure for takeoffs on Runway 16 by Stage 2 jet aircraft and Stage 2 jet aircraft modified to meet Stage 3 noise criteria.
- **NA-20** Designate FAR 91-53A Close-In Noise Abatement Departure Procedures (NADP's), as developed and applied by each carrier for its own system-wide needs, as the airport's preferred procedure for takeoffs on Runway 34 by Stage 2 jet aircraft and Stage 2 jet aircraft modified to meet Stage 3 noise criteria.
- **NA-21** Weather and traffic permitting, all southbound jet aircraft departing Runway 5R, turn right to a 080 degree heading until reaching 3 DME (from the PVD VORTAC), before being vectored to assigned heading. Prop and turboprop may be assigned divergent headings at the discretion of Air Traffic Control.
- **NA-22** Weather and traffic permitting, all northbound jet aircraft departing Runway 5R, turn left as soon as practicable after passing runway end to fly a 360 degree heading until reaching 3 DME (from the PVD VORTAC); before being vectored to assigned heading. Prop and turboprop may be assigned divergent headings at the discretion of Air Traffic Control.
- **NA-23** Weather and traffic permitting, all southbound jet aircraft departing Runway 23L, turn left as soon as practicable after passing runway end to a 160 degree heading until reaching 5 DME (from the PVD VORTAC) or intercepting 180 degree radial (whichever occurs first); before being vectored to an assigned heading (if necessary). Prop and turboprop may be assigned divergent headings at the discretion of Air Traffic Control.

- **NA-24** Weather and traffic permitting, all northbound jet aircraft departing Runway 23L, turn right as soon as practicable after passing runway end to a 280 degree heading until reaching 3 DME (from the PVD VORTAC); before being vectored to assigned heading. Prop and turboprop may be assigned divergent headings at the discretion of Air Traffic Control.
- **NA-25** Weather and traffic permitting, all southbound jet aircraft departing Runway 34, turn right to a 360 degree heading until reaching a position 3 DME north of the PVD VORTAC, before being vectored to assigned heading. Prop and turboprop departures may be assigned divergent headings at the discretion of Air Traffic Control.
- **NA-26** Weather and traffic permitting, all northbound jet aircraft departing Runway 34, turn left as soon as practicable after passing runway end to a 330 degree heading until reaching 4 DME (from the PVD VORTAC); before being vectored to assigned heading. Prop and turboprop departures may be assigned divergent headings at the discretion of Air Traffic Control.
- **NA-27** Weather and traffic permitting, all southbound jet aircraft departing Runway 16, turn right to a 180 degree heading until reaching 3 DME from the PVD VORTAC, or intercepting the PVD VORTAC 180 degree radial (whichever occurs first), before being vectored to an assigned heading (if necessary). Prop and turboprop may be assigned divergent courses at the discretion of Air Traffic Control.
- **NA-28** Approaching Runway 34, all jet aircraft intercept the final approach course before crossing the shoreline at Rocky Point beach on Warwick Neck (4 DME from the PVD VORTAC).
- **NA-29** Extend existing noise barrier 500 feet south to the Runway 5R safety area boundary.
- **NA-30** Construct a 6,500 foot noise barrier (24 foot high wall or earthen berm) along the east side of the airport between Airport Road on the north and the lower Buckeye Brook to the south.
- **NA-31** Construct a 1,500 foot noise barrier (24 foot high wall or earthen berm) on the east side of Warwick Industrial Drive north of SR-113 from Strawberry Field Road south to the Runway 5R safety area boundary.
- **NA-32** Construct a 1,600 foot long, 12 foot high noise wall parallel to and on the north side of Strawberry Field Road West along the Airport property line.
- **NA-33** Designate and construct a run-up position and orientation for maintenance run-up activity.

### **Land Use Management Measures**

- **LU-3** Amend the State of Rhode Island building code to require that new construction and major additions within or immediately adjacent to the 2003 Noise Exposure Map, based on the 65 DNL noise contour of the 2003 NCP, meet an interior noise standard through the use of sound insulation techniques.
- **LU-4** Modify Measure LU-4 to provide for the voluntary acquisition of approximately 210 residential structures located within or adjacent to the 70 DNL noise contour of the 2003 Noise Compatibility Program.
- **LU-6** Provide sound insulation for approximately 830 single-family homes, on a voluntary basis, within the 2003 Noise Exposure Map, based on the 65 DNL contour of the 2003 NCP.
- **LU-7** Implement a formal Fair Disclosure Policy whereby the State of Rhode Island amends the Fair Disclosure Policy legislation to require formal disclosure of noise levels on residential property located within a 65 DNL noise contour and is supplemented by information on aircraft noise levels distributed by airport staff within the community and among the citizens, neighborhood associations, developers, real estate agencies, and lenders.
- **LU-8** The City of Warwick's Comprehensive Plan should be updated to address airport influence on the surrounding community; and where appropriate to encourage compatible land uses within the 2003 Noise Exposure Map boundary, based on the 65 DNL noise contour of the 2003 NCP.
- **LU-9** Initiate a formal study to evaluate the noise levels at various schools located under heavily used aircraft flight paths for eligibility for sound insulation.

### **Program Management Measures**

- **PM-1** Install an aircraft operations monitoring system to evaluate the efficiency of the implementation of track corridor or runway use programs of the ultimate adopted NCP.
- **PM-2** Implement a "Fly Quiet" public relations publication and communication program to deliver the message of the NCP to airport users and the public.
- **PM-3** Establish a Permanent Implementation Committee to monitor/assist in implementation and success of the air traffic and land use measures approved as a part of the NCP.
- **PM-4** Continue five-year updates of the NCP and two-year reviews of the NEMs.
- **PM-5** Conduct a further study analyzing the possible extension of Runway 16/34 for Noise Abatement purposes.

**Table 3-1 (Page 1 of 12)  
NOISE COMPATIBILITY PROGRAM RECOMMENDATIONS  
T.F. Green Airport**

<b>Measure</b>	<b>Responsible Party</b>	<b>Cost to Airport</b>	<b>Cost to Local Governments</b>	<b>Cost to Users</b>	<b>Implementation Target</b>
<b>NA-1</b> Construct fillet at intersection of Runways 5R/23L and 10/28.	None	None	None	None	Completed
<b>NA-2</b> Construct parallel taxiway serving Runway 5R/23L	RIAC	\$15,000,000	None	None	The construction of the parallel taxiway is included in the Airport's five year capital improvement program.
<b>NA-3</b> Construct noise barrier parallel to Runway 5R	RIAC	None	None	None	Completed
<b>NA-4</b> Incorporate noise barrier consideration in the design of proposed air cargo building	None	None	None	None	Withdrawn
<b>NA-5</b> Displace landing threshold on Runway 5L.	RIAC	None	None	None	Completed
<b>NA-6</b> Physical isolation of maintenance run-ups.	RIAC through an Airport Operations Directive	None	None	None	Completed
<b>NA-7</b> Voluntary nighttime restrictions for scheduled air carrier operations (Midnight - 6:00 a.m.).	RIAC and Airlines	None	None	None	Completed
<b>NA-8</b> Auxiliary power unit restrictions.	RIAC through an Airport Operations Directive.	None	None	None	Completed
<b>NA-9</b> Restrictions on aircraft repositioning under power.	RIAC through an Airport Operations Directive	None	None	None	Completed
<b>NA-10</b> Pre-takeoff run-up restrictions	RIAC through an Airport Operations Directive	None	None	None	Completed

**Table 3-1 (Page 2 of 12)  
NOISE COMPATIBILITY PROGRAM RECOMMENDATIONS  
T.F. Green Airport**

<b>Measure</b>	<b>Responsible Party</b>	<b>Cost to Airport</b>	<b>Cost to Local Governments</b>	<b>Cost to Users</b>	<b>Implementation Target</b>
<b>NA-11</b> Informational program on reverse thrust	RIAC and jet operators.	None	None	None	Upon adoption of the NCP by RIAC.
<b>NA-12</b> Rotational runway use program	None	None	None	None	Withdrawn
<b>NA-13</b> Helicopter operation procedures.	None	None	None	None	Withdrawn
<b>NA-14</b> Restrictions on 180 degree turns on runway, unless operationally necessary.	Airport Users	None	None	None	Completed
<b>NA-15</b> Discourage engine maintenance run-ups during the period of the voluntary nighttime flight operations curfew of NA-7.	RIAC and users	None	None	None	Measure may be implemented on adoption of the NCP by the RIAC
<b>NA-16</b> Discourage, when safe and practicable, engine start-ups and auxiliary power unit starts prior to the end of the nighttime voluntary curfew.	RIAC and users	None	None	None	The measure may be initiated upon adoption of the NCP by the RIAC.
<b>NA-17</b> Designate FAR 91-53A Close-In Noise Abatement Departure Procedures (NADP's), as developed and applied by each carrier for its own system-wide needs, as the airport's preferred procedure for takeoffs on Runway 5R by Stage 2 jet aircraft and Stage 2 jet aircraft modified to meet Stage 3 noise criteria.	The air carriers at T.F. Green Airport, at the request of the Rhode Island Airport Corporation.	None	None	None	RIAC has requested the implementation of this procedure as soon as practical.
<b>NA-18</b> Designate FAR 91-53A Close-In Noise Abatement Departure Procedures (NADP's), as developed and applied by each carrier for its own system-wide needs, as the airport's preferred procedure for takeoffs on Runway 23L by Stage 2 jet aircraft and Stage 2 jet aircraft modified to meet Stage 3 noise criteria.	The air carriers at T.F. Green Airport, at the request of the Rhode Island Airport Corporation.	None	None	None	RIAC has requested the implementation of this procedure as soon as practical

**Table 3-1 (Page 3 of 12)  
NOISE COMPATIBILITY PROGRAM RECOMMENDATIONS  
T.F. Green Airport**

<b>Measure</b>	<b>Responsible Party</b>	<b>Cost to Airport</b>	<b>Cost to Local Governments</b>	<b>Cost to Users</b>	<b>Implementation Target</b>
<p><b>NA-19</b> Designate FAR 91-53A Close-In Noise Abatement Departure Procedures (NADP's), as developed and applied by each carrier for its own system-wide needs, as the airport's preferred procedure for takeoffs on Runway 16 by Stage 2 jet aircraft and Stage 2 jet aircraft modified to meet Stage 3 noise criteria.</p>	<p>The air carriers at T.F. Green Airport, at the request of the Rhode Island Airport Corporation.</p>	<p>None</p>	<p>None</p>	<p>None</p>	<p>RIAC has requested the implementation of this procedure as soon as practical.</p>
<p><b>NA-20</b> Designate FAR 91-53A Close-In Noise Abatement Departure Procedures (NADP's), as developed and applied by each carrier for its own system-wide needs, as the airport's preferred procedure for takeoffs on Runway 34 by Stage 2 jet aircraft and Stage 2 jet aircraft modified to meet Stage 3 noise criteria.</p>	<p>The air carriers at T.F. Green Airport, at the request of the Rhode Island Airport Corporation.</p>	<p>None</p>	<p>None</p>	<p>None</p>	<p>RIAC has requested the implementation of this procedure as soon as practical.</p>
<p><b>NA-21</b> Weather and traffic permitting, all southbound jet aircraft departing Runway 5R, turn right to a 080 degree heading until reaching 3 DME (from the PVD VORTAC) before being vectored to assigned heading. Prop and turboprop may be assigned divergent headings at the discretion of Air Traffic Control.</p>	<p>FAA Air Traffic Control, aircraft operators, and the RIAC.</p>	<p>The air traffic EA/EIS is expected to cost approximately \$125,000. Costs for preparation of the measure would include staff time, but are not expected to be individually significant. Costs for preparation of all similar measures is expected to cost approximately \$10,000 in staff time.</p>	<p>None</p>	<p>None</p>	<p>The EA/EIS process, including federal review, is expected to take approximately one year. Preparation of implementing tools should take an additional four months for preparation and publication.</p>

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NOISE COMPATIBILITY PROGRAM RECOMMENDATIONS  
T.F. Green Airport**

<b>Measure</b>	<b>Responsible Party</b>	<b>Cost to Airport</b>	<b>Cost to Local Governments</b>	<b>Cost to Users</b>	<b>Implementation Target</b>
<b>NA-22</b> Weather and traffic permitting, all northbound jet aircraft departing Runway 5R turn left as soon as practicable after passing runway end to fly a 360 degree heading until reaching 3 DME (from the PVD VORTAC); before being vectored to assigned heading. Prop and turboprop may be assigned divergent headings at the discretion of Air Traffic Control.	FAA Air Traffic Control, aircraft operators and the RIAC	Included with NA-21	None	None	The EA/EIS process, including federal review, is expected to take approximately one year. Preparation of implementing tools should take an additional four months for preparation and publication.
<b>NA-23</b> Weather and traffic permitting, all southbound jet aircraft departing Runway 23L, turn left as soon as practicable after passing runway end to a 160 degree heading until reaching 5 DME (from the PVD VORTAC) or intercepting 180 degree radial (whichever occurs first); before being vectored to an assigned heading (if necessary). Prop and turboprop may be assigned divergent headings at the discretion of Air Traffic Control.	FAA Air Traffic Control, jet operators and the RIAC	Included with NA-21	None	None	The EA/EIS process, including federal review, is expected to take approximately one year. Preparation of implementing tools should take an additional four months for preparation and publication.
<b>NA-24</b> Weather and traffic permitting, all northbound jet aircraft departing Runway 23L, turn right as soon as practicable after passing runway end to a 280 degree heading until reaching 3 DME (from the PVD VORTAC); before being vectored to assigned heading. Prop and turboprop may be assigned divergent headings at the discretion of Air Traffic Control.	FAA Air Traffic Control, jet operators and the RIAC	Included with NA-21.	None	None	The EA/EIS process, including federal review, is expected to take approximately one year. Preparation of implementing tools should take an additional four months for preparation and publication.

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NOISE COMPATIBILITY PROGRAM RECOMMENDATIONS  
T.F. Green Airport**

<b>Measure</b>	<b>Responsible Party</b>	<b>Cost to Airport</b>	<b>Cost to Local Governments</b>	<b>Cost to Users</b>	<b>Implementation Target</b>
<b>NA-25</b> Weather and traffic permitting, all southbound jet aircraft departing Runway 34, turn right to a 360 degree heading until reaching a position 3 DME north of the PVD VORTAC, before being vectored to assigned heading. Prop and turboprop departures may be assigned divergent headings at the discretion of Air Traffic Control.	FAA Air Traffic Control, jet operators and the RIAC	Included with NA-21.	None	None	The EA/EIS process, including federal review, is expected to take approximately one year. Preparation of implementing tools should take an additional four months for preparation and publication.
<b>NA-26</b> Weather and traffic permitting, all northbound jet aircraft departing Runway 34, turn left as soon as practicable after passing runway end to a 330 degree heading until reaching 4 DME (from the PVD VORTAC); before being vectored to assigned heading. Prop and turboprop departures may be assigned divergent headings at the discretion of Air Traffic Control.	FAA Air Traffic Control, jet operators and the RIAC	Included with NA-21.	None	None	The EA/EIS process, including federal review, is expected to take approximately one year. Preparation of implementing tools should take an additional four months for preparation and publication.
<b>NA-27</b> Weather and traffic permitting, all southbound jet aircraft departing Runway 16, turn right to a 180 degree heading until reaching 3 DME from the PVD VORTAC, or intercepting the PVD VORTAC 180 degree radial (whichever occurs first), before being vectored to an assigned heading (if necessary). Prop and turboprop may be assigned divergent headings at the discretion of Air Traffic Control.	FAA Air Traffic Control, jet operators and the RIAC	Included with NA-21.	None	None	The EA/EIS process, including federal review, is expected to take approximately one year. Preparation of implementing tools should take an additional four months for preparation and publication.
<b>NA-28</b> Approaching Runway 34, all jet aircraft intercept the final approach course before crossing the shoreline at Rocky Point beach on Warwick Neck (4 DME from the PVD VORTAC).	FAA Air Traffic Control, jet operators and RIAC	Included with NA-21.	None	None	The EA/EIS process, including federal review, is expected to take approximately one year. Preparation of implementing tools should take an additional four months for preparation and publication.

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NOISE COMPATIBILITY PROGRAM RECOMMENDATIONS  
T.F. Green Airport**

<b>Measure</b>	<b>Responsible Party</b>	<b>Cost to Airport</b>	<b>Cost to Local Governments</b>	<b>Cost to Users</b>	<b>Implementation Target</b>
<p><b>NA-29</b> Extend existing noise barrier 500 feet south to the Runway 5R safety area boundary.</p>	<p>RIAC/FAA</p>	<p>Approximately \$300,000</p>	<p>None</p>	<p>None</p>	<p>Feasibility for construction of the berm/wall is subject to FAA Airspace and NEPA regulations. FAA approval of the NCP is necessary before federal funding can be obtained for this measure. The Implementation Committee (Measure PM-3) will assist the RIAC in determining the schedule and priority of implementing this measure.</p>
<p><b>NA-30</b> Construct a noise barrier (24 foot wall or earthen berm) along the east side of the airport between Airport Road on the north and the lower Buckeye Brook to the south.</p>	<p>RIAC/FAA</p>	<p>Constructing the noise berm is estimated at \$3,700,000.</p>	<p>None</p>	<p>None</p>	<p>Feasibility for construction of the berm/wall is subject to FAA Airspace and NEPA regulations. FAA approval of the NCP is necessary before federal funding can be obtained for this measure. The Implementation Committee (Measure PM-3) will assist the RIAC in determining the schedule and priority of implementing this measure.</p>

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NOISE COMPATIBILITY PROGRAM RECOMMENDATIONS  
T.F. Green Airport**

<b>Measure</b>	<b>Responsible Party</b>	<b>Cost to Airport</b>	<b>Cost to Local Governments</b>	<b>Cost to Users</b>	<b>Implementation Target</b>
<b>NA-31</b> Construct a 1,500 foot noise barrier (24 foot wall or earthen berm) on the east side of Warwick Industrial Drive north of SR-113 from Strawberry Field Road south to the Runway 5R safety area boundary.	RIAC/FAA	Approximately \$900,000	None	None	Feasibility for construction of the berm/wall is subject to FAA Airspace and NEPA regulations. FAA approval of the NCP is necessary before federal funding can be obtained for this measure. The Implementation Committee (Measure PM-3) will assist the RIAC in determining the schedule and priority of implementing this measure.
<b>NA-32</b> Construct a 1,600 foot long, 12 foot high noise wall parallel to and on the north side of Strawberry Field Road West along the Airport property line.	RIAC/FAA	Approximately \$480,000	None	None	Feasibility for construction of the wall is subject to FAA Airspace and NEPA regulations. FAA approval of the NCP is necessary before federal funding can be obtained for this measure. The Implementation Committee (Measure PM-3) will assist the RIAC in determining the schedule and priority of implementing this measure.
<b>NA-33</b> Designate and construct a run-up position and orientation for maintenance run-up activity	RIAC	Approximately \$100,000	None	None	The design and construction of the pad can begin after FAA approval of the NCP. Completion would be expected within a year of initiation.

**Table 3-1 (Page 8 of 12)  
NOISE COMPATIBILITY PROGRAM RECOMMENDATIONS  
T.F. Green Airport**

<b>Measure</b>	<b>Responsible Party</b>	<b>Cost to Airport</b>	<b>Cost to Local Governments</b>	<b>Cost to Users</b>	<b>Implementation Target</b>
<b>LU-1</b> Withdraw Measure LU-1 to rezone selected residential properties within the 70-75 DNL noise contour.	None	None	None	None	Withdrawn
<b>LU-2</b> Withdraw existing Measure LU-2 to amend the subdivision regulations within the City of Warwick.	None	None	None	None	Withdrawn
<b>LU-3</b> Amend the State of Rhode Island building code to require that new construction and major additions within or immediately adjacent to the 2003 Noise Exposure Map, based on the 65 DNL noise contour of the 2003 NCP, meet an interior noise standard through the use of sound insulation techniques.	State of Rhode Island and City of Warwick.	Administrative costs	Administrative costs	None	The measure does not require FAA authorization and may be implemented at any time.
<b>LU-4</b> Modify Measure LU-4 to provide for the voluntary acquisition of approximately 210 residential structures located within or adjacent to the 70 DNL noise contour of the 2003 Noise Compatibility Program.	RIAC, FAA	Approximately \$31,500,000 for voluntary acquisition, assuming a cost of \$150,000 per residence and a participation rate of 100 percent.	None	None	FAA approval of the NCP is necessary before federal funding can be obtained for this measure. The Permanent Implementation Committee (Measure PM-3) will assist the RIAC in determining the schedule and priority of implementing this measure. Participation in this program is voluntary on the part of the homeowner and is subject to the availability of funding
<b>LU-5</b> Close Measure LU-5 to sound insulate all schools within the 65 DNL of the 1986 NCP.	None	None	None	None	Completed

**Table 3-1 (Page 9 of 12)  
NOISE COMPATIBILITY PROGRAM RECOMMENDATIONS  
T.F. Green Airport**

<b>Measure</b>	<b>Responsible Party</b>	<b>Cost to Airport</b>	<b>Cost to Local Governments</b>	<b>Cost to Users</b>	<b>Implementation Target</b>
<p><b>LU-6</b> Provide sound insulation for approximately 830 single-family homes, on a voluntary basis, within the 2003 Noise Exposure Map, based on the 65 DNL contour of the 2003 NCP.</p>	<p>RIAC, FAA</p>	<p>Approximately \$24,900,000 for sound insulation, assuming a cost of \$30,000 per house and a participation rate of 100 percent.</p>	<p>None</p>	<p>None</p>	<p>FAA approval of the NCP is necessary before federal funding can be obtained for this measure. The Permanent Implementation Committee (Measure PM-3) will assist the RIAC in determining the schedule and priority of implementing this measure. Participation in this program is voluntary on the part of the homeowner and is subject to the availability of funding</p>
<p><b>LU-7</b> Implement a formal Fair Disclosure Policy whereby the State of Rhode Island amends the Fair Disclosure Policy legislation to require formal disclosure of noise levels on residential property located within a 65 DNL noise contour and is supplemented by information on aircraft noise levels distributed by airport staff within the community and among the citizens, neighborhood associations, developers, real estate agencies, and lenders.</p>	<p>RIAC and State of Rhode Island</p>	<p>Administrative Costs</p>	<p>Administrative costs</p>	<p>None</p>	<p>The measure does not require FAA authorization and may be implemented at any time.</p>
<p><b>LU-8</b> The City of Warwick's Comprehensive Plan should be updated to address airport influence on the surrounding community; and where appropriate to encourage compatible land uses within the 2003 Noise Exposure Map boundary, based on the 65 DNL noise contour of the 2003 NCP.</p>	<p>RIAC and the City of Warwick</p>	<p>Administrative Costs</p>	<p>None</p>	<p>None</p>	<p>The measure does not require FAA authorization and may be implemented at any time.</p>

**Table 3-1 (Page 10 of 12)  
NOISE COMPATIBILITY PROGRAM RECOMMENDATIONS  
T.F. Green Airport**

<b>Measure</b>	<b>Responsible Party</b>	<b>Cost to Airport</b>	<b>Cost to Local Governments</b>	<b>Cost to Users</b>	<b>Implementation Target</b>
<b>LU-9</b> Initiate a formal study to evaluate the noise levels at various schools located under heavily used aircraft flight paths for eligibility for sound insulation.	RIAC	\$10,000 to conduct the study, while sound insulation for both schools is estimated to cost \$625,000.	None	None	The initiation of the study does not require FAA authorization however, funding for the study and sound insulation of the schools would be subject to the availability of FAA funding.
<b>PM-1</b> Install an aircraft operations monitoring system to evaluate efficiency of the implementation of track corridor or runway use programs of the ultimate adopted NCP.	RIAC and State of Rhode Island	The costs for installation of an aircraft flight monitoring system is dependent upon the choices RIAC makes regarding the functionality of the system. The cost is expected to be approximately \$500,000.	None	None	This measure would require close coordination with the FAA in order to setup the information exchange process. It should be anticipated that it will take one year to design, fund, install, and train staff on the usage of the system.

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NOISE COMPATIBILITY PROGRAM RECOMMENDATIONS  
T.F. Green Airport**

<b>Measure</b>	<b>Responsible Party</b>	<b>Cost to Airport</b>	<b>Cost to Local Governments</b>	<b>Cost to Users</b>	<b>Implementation Target</b>
<p><b>PM-2</b> Implement a "Fly Quiet" public relations publications and communication program to deliver the message of the NCP to users and the public.</p>	<p>RIAC</p>	<p>The costs for preparing and delivering a "Fly-Quiet" publication is dependent upon the amount and type of information included and the number of brochures delivered. For planning and budget purposes, a cost of \$50,000 is estimated. This cost is eligible for FAA grant funding under AIP.</p>	<p>None</p>	<p>None</p>	<p>All measures subject to FAA approval must receive that approval before inclusion in the documentation.</p>
<p><b>PM-3</b> Establish a Permanent Implementation Committee to monitor/assist in implementation and success of the air traffic and land use measures approved as a part of the NCP.</p>	<p>RIAC</p>	<p>The minimal costs associated with the implementation of this measure would be for administrative duties such as the preparation of handouts and talking papers.</p>	<p>Administrative costs</p>	<p>None</p>	<p>The measure does not require FAA authorization and may be implemented at any time.</p>
<p><b>PM-4</b> Continue five-year updates of the NCP and two-year reviews of the NEMs.</p>	<p>RIAC</p>	<p>The costs for the updates of the complete Part 150 evaluations will be dependent upon the scope of the project.</p>	<p>None</p>	<p>None</p>	<p>NEM reassessment in 2001; Part 150 NEM and NCP updates initiated in 2003</p>

**Table 3-1 (Page 12 of 12)  
NOISE COMPATIBILITY PROGRAM RECOMMENDATIONS  
T.F. Green Airport**

<b>Measure</b>	<b>Responsible Party</b>	<b>Cost to Airport</b>	<b>Cost to Local Governments</b>	<b>Cost to Users</b>	<b>Implementation Target</b>
<b>PM-5</b> Conduct further study analyzing the possible extension of Runway 16/34 for Noise Abatement purposes.	RIAC, FAA	The study would cost approximately \$50,000.	None	None	The study does not require FAA approval and should be combined with the runway rehabilitation EIS (1-2 years)

**Noise Compatibility Program Measure: NA-1      Exhibit:      N/A**

**Description:** Construct fillet at intersection of Runways 5R/23L and 10/28.

**Relationship to 1986 NCP:** Measure NA-1 of the 1998 NCP update is a continuation of the approved 1986 NCP Measure NA-1.

**Background and Intent:** This measure is complete. Before construction of the fillet, aircraft made a 180-degree turn on the runway just north of the intersection of Runway 5R/23L with Runway 16/34. This turn required the application of additional thrust, which increased ground noise exposure in adjacent areas. The construction of the fillet allowed landing aircraft to quickly exit Runway 5R with less power. The alternative is included to maintain numeric consistency and to retain the origin of the action.

**Land Use Compatibility Improvement:** Slight reduction of the length of reverse thrust application heard at properties west of Warwick Pond (east of airport) and in Hoxsie and Lincoln Park neighborhoods. No effect on the 65 DNL noise contour.

**Responsible Implementing Parties:** Not Applicable

**Implementation Steps, Costs, and Phasing:**

**Steps:** Complete.

**Costs:** No additional costs.

**Schedule:** Complete.

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-2**

**Exhibit: 3-1**

**Description:** Construct parallel taxiway serving Runway 5R/23L.

**Relationship to 1986 NCP:** Measure NA-2 of the approved 1986 NCP is recommend to be continued in the 1998 NCP.

**Background and Intent:** The construction of a taxiway parallel to and serving the takeoff end of Runway 5R would reduce taxi-related noise levels in portions of the Strawberry Field Road area by increasing aircraft-to-receiver distance. This measure has been incorporated into the Airport Master Plan for development, but has not yet been constructed.

**Land Use Compatibility Improvement:** The measure would approximately double the distance between the aircraft on the taxiway and the affected neighborhood immediately west of the proposed taxiway, thus reducing single event noise from such events by approximately four decibels on a limited number of homes. The measure has no effect on the location of the 65 DNL noise contour.

**Responsible Implementing Parties:** RIAC

**Implementation Steps, Costs, and Phasing:**

**Steps:** Complete engineering, pre-design and construction.

**Costs:** The costs associated with construction of the parallel taxiway are estimated to be \$15,000,000.

**Schedule:** The construction of the parallel taxiway is included in the Airport's five year capital improvement program.

**Effects on Other Programs/Measures:** This measure is not expected to impact any other noise abatement measure.

**Noise Compatibility Program Measure: NA-3**

**Exhibit: N/A**

**Description:** Construct noise barrier parallel to Runway 5R.

**Relationship to 1986 NCP:** Measure NA-3 of the 1998 NCP update is a continuation of the approved 1986 NCP Measure NA-3.

**Background and Intent:** The barrier has been constructed. A barrier parallel to Runway 5R/23L in the Strawberry Field Road West area, designed to shield residential areas exposed to noise resulting from nearby ground operations, pre-takeoff run-ups, and aircraft departing on Runway 5R, was included in the 1986 NCP. The measure is included to maintain numeric consistency and to retain the origin of the action.

**Land Use Compatibility Improvement:** Noise measurements in the area of the berm indicated that its presence resulted in a reduction of single-event noise from aircraft on the ground in the vicinity of the departure end of Runway 5R was reduced by 8 - 10 decibels.

**Responsible Implementing Parties:** RIAC.

**Implementation Steps, Costs, and Phasing:**

**Steps:** Complete.

**Costs:** No additional costs.

**Schedule:** Complete.

**Effects on Other Programs/Measures:** This berm is extended by Measure NA-31.

**Noise Compatibility Program Measure: NA-4**

**Exhibit: N/A**

**Description:** Incorporate noise barrier consideration in the design of proposed air cargo building.

**Relationship to 1986 NCP:** Measure NA-4 is not recommended for inclusion in the 1998 NCP.

**Background and Intent:** The air cargo building associated with this measure was not constructed. Therefore, this measure is no longer appropriate for inclusion in the NCP. The measure is included to maintain numeric consistency.

**Land Use Compatibility Improvement:** Not Applicable

**Responsible Implementing Parties:** Not Applicable

**Implementation Steps, Costs, and Phasing:**

**Steps:** Not Applicable

**Costs:** Not Applicable

**Schedule:** Not Applicable

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-5**

**Exhibit: N/A**

**Description:** Displace landing threshold on Runway 5L.

**Relationship to 1986 NCP:** Measure NA-5 of the 1986 NCP is recommended for continuation in the 1998 NCP.

**Background and Intent:** A displacement of the landing threshold for Runway 5L by 1,070 feet was recommended in 1986 to reduce noise levels from aircraft approaching that runway from the south. The displacement was accomplished and the measure is in effect. It is recommended for continuation. The measure is included to maintain numeric consistency.

**Land Use Compatibility Improvement:** The displacement results in a reduction of noise levels by approximately two decibels on properties nearest the runway threshold for aircraft landing on Runway 5L

**Responsible Implementing Parties:** RIAC.

**Implementation Steps, Costs, and Phasing:**

**Steps:** Not Applicable

**Costs:** Not Applicable

**Schedule:** Not Applicable

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-6**

**Exhibit: N/A**

**Description:** Physical isolation of maintenance run-ups.

**Relationship to 1986 NCP:** Measure NA-6 of the 1986 NCP is recommended for continuation in the 1998 NCP.

**Background and Intent:** When the Rhode Island Air National Guard operated at T.F. Green Airport, maintenance run-ups were a problem, particularly for residents of neighborhoods off the east end of Runway 10/28 (no longer in use). When the Guard was relocated to Quonset Airport in 1980, the majority of the maintenance run-ups were eliminated. While the relocation of the Guard pre-dated the adopted NCP, the measure was included to assure that should any future maintenance bases for airline, general aviation or military users be located at the airport in the future, the measure would be in place and apply. Specific locations were not indicated.

**Land Use Compatibility Improvement:** Specific noise reduction would range from a potential of several decibels to no effect at all, dependent upon the spatial relationship between the location for the run-up activity and nearby incompatible uses. No effect on the location of the 65 DNL noise contour is expected.

**Responsible Implementing Parties:** RIAC through an Airport Operations Directive.

**Implementation Steps, Costs, and Phasing:**

**Steps:** Not Applicable

**Costs:** Not Applicable

**Schedule:** Not Applicable

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-7**

**Exhibit: N/A**

**Description:** Voluntary nighttime restrictions for scheduled air carrier operations (Midnight - 6:00 a.m.).

**Relationship to 1986 NCP:** Measure NA-7 from the 1986 NCP is recommended for continuation in the 1998 NCP as modified below.

**Background and Intent:** The 1986 adopted NCP called for a voluntary program in which no airline takeoffs or landings would be scheduled between midnight and 6:30 a.m. The original 1986 measure had been partially implemented through the years with waivers granted by the airport operator to allow limited operations within the 6:00 a.m. to 6:30 a.m. time frame. In 1996 the Rhode Island Airport Corporation and the City of Warwick signed a Memorandum of Agreement which included an acknowledgement of this condition.

The measure remains voluntary and therefore does not prohibit the use of the airfield during the "curfew" period. RIAC recognizes the sensitivity of the community to flights in the early morning and requested that each airline revisit their schedules to determine if the flights before 6:30 a.m. are necessary. The airline responses indicated that the flights before 6:30 a.m. were necessary to make connections at other cities and that the flights are regularly full.

The members of the Technical Advisory Committee (TAC) requested that the Permanent Implementation Committee (Measure PM-3) be charged with continuing the effort to monitor the number of flights between 6:00 a.m. - 6:30 a.m. This may include reviewing an airline's request to operate a flight before 6:30 a.m. and requesting that the airline voluntarily provide information on the necessity to schedule the flight at this time.

**Land Use Compatibility Improvement:** Since the voluntary nighttime curfew occurs between midnight and 6:00 a.m., no effect on the location of the 65 DNL noise contour is expected. Further, any traffic which may have been desired by the carriers during the "curfew period" that is rescheduled outside that period is likely to fall within the shoulder hours of 10:00 p.m. - midnight or 6:00 a.m. - 7:00 a.m., still within the nighttime penalty period of DNL. The benefits of the voluntary curfew are in the potential reduction of events that occur during the late night period of sleep.

**Responsible Implementing Parties:** RIAC and the Airlines.

**Implementation Steps, Costs, and Phasing:**

**Steps:** Measure has been implemented through Memorandum of Understanding with the City of Warwick. The RIAC has requested and received airline responses on the necessity of scheduling flights between 6:00 a.m. - 6:30 a.m.

**Costs:** Not Applicable

**Schedule:** Not Applicable

**Effects on Other Programs/Measures:** The implementation committee (Measure PM-3) would continue to monitor airline requests for scheduling flights between 6:00 a.m. -6:30 a.m.

**Noise Compatibility Program Measure: NA-8**

**Exhibit: N/A**

**Description:** Auxiliary power unit restrictions.

**Relationship to 1986 NCP:** Measure NA-8 of the 1986 NCP is recommend for continuation in the 1998 NCP.

**Background and Intent:** The 1986 NCP recognized that the use of auxiliary power units (APUs) was not then a source of annoyance at the airport since their use occurred at the terminal or north of the cargo building. An Airport Operations Directive was issued to assure the restriction of APU usage to these locations. This measure is being continued.

**Land Use Compatibility Improvement:** No effect on the 65 DNL noise contour location. The measure is intended to limit a potential source of single event annoyance in the nearest neighborhoods.

**Responsible Implementing Parties:** RIAC has implemented the measure through an Airport Operations Directive.

**Implementation Steps, Costs, and Phasing:**

**Steps:** Not Applicable

**Costs:** Not Applicable

**Schedule:** Not Applicable

**Effects on Other Programs/Measures** Not Applicable

**Noise Compatibility Program Measure: NA-9**

**Exhibit: N/A**

**Description:** Restrictions on aircraft repositioning under power.

**Relationship to 1986 NCP:** Measure NA-9 of the 1986 NCP is recommended for continuation in the 1998 NCP.

**Background and Intent:** The 1986 NCP found that a restriction on aircraft repositioning under power would be beneficial only on the south apron at the airfreight building in the Evans Avenue area. An Airport Operations Directive was issued to assure the restriction of repositioning under power at this location.

**Land Use Compatibility Improvement:** Elimination of a source of single event noise on the Strawberry Field West neighborhood. No effect on the 65 DNL noise contour.

**Responsible Implementing Parties:** RIAC through an Airport Operations Directive.

**Implementation Steps, Costs, and Phasing:**

**Steps:** Not Applicable

**Costs:** Not Applicable

**Schedule:** Not Applicable

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-10**

**Exhibit: N/A**

**Description:** Pre-takeoff run-up restrictions.

**Relationship to 1986 NCP:** Measure NA-10 of the 1986 NCP is recommended for continuation in the 1998 NCP with modifications to remove citations that have become inapplicable due to the closure of Runway 10/28.

**Background and Intent:** The 1986 NCP designated pre-flight run-up locations for takeoffs from Runways 5L, 28, and 34 to increase the distance between such activity and adjacent neighborhoods. In each case, the designated run-up area resulted in a reduction of six to ten decibels during the event. Subsequent to the 1986 NCP, Runway 28 has been closed and the associated run-up location has been eliminated.

**Land Use Compatibility Improvement:** No effect on the 65 DNL noise contour location. The measure is intended to limit a source of single-event annoyance in the nearest neighborhoods.

**Responsible Implementing Parties:** RIAC through an Airport Operations Directive.

**Implementation Steps, Costs, and Phasing:**

**Steps:** Not Applicable

**Costs:** Not Applicable

**Schedule:** Not Applicable

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-11**

**Exhibit: N/A**

**Description:** Informational program on reverse thrust.

**Relationship to 1986 NCP:** Measure NA-11 of the 1986 NCP is recommended for continuation and renewed efforts in the 1998 NCP.

**Background and Intent:** An informational program to inform pilots of the effects of reverse thrust on the annoyance to residents of communities immediately adjacent to the airport was included in the 1986 NCP. The NCP suggested the preparation of leaflets for distribution to all jet pilots operating at the airport, as well as posters to be mounted in crew lounges. Pilots were asked to voluntarily reduce the application of reverse thrust, consistent with safety.

**Land Use Compatibility Improvement:** Reverse thrust management will have limited effects for noise reduction on neighborhoods adjacent to the airport. Some areas will experience slightly lower single-event levels, while other areas could experience slightly higher levels, both dependent on the location where reverse thrust is applied. The runways are not long enough to accommodate a general reverse thrust limitation for overall noise level reduction. The 65 DNL noise contour will not be affected by this measure.

**Responsible Implementing Parties:** RIAC and jet operators.

**Implementation Steps, Costs, and Phasing:**

**Steps:** Prepare brochures, flyers, and manuals for pilots informing them of the noise-sensitive nature of the surrounding community to reverse thrust noise.

**Costs:** Not Applicable

**Schedule:** This measure does not require FAA approval so it can begin at anytime.

**Effects on Other Programs/Measures:** This measure will initiate a formal communication with RIAC and the pilots regarding the effect of reverse thrust on the communities surrounding the airport. See recommended Measure PM-2.

**Noise Compatibility Program Measure: NA-12**

**Exhibit: N/A**

**Description:** Rotational runway use program.

**Relationship to 1986 NCP:** Measure NA-12 of the 1986 NCP is not recommended for inclusion in the 1998 NCP.

**Background and Intent:** A program of rotational runway use, calling for the alternating use of each runway, consistent with safety, was recommended and adopted as part of the 1986 NCP. In practice, the measure was found to be generally impractical, owing to the short lengths of the runways and the desire for operation on the runway most directly aligned into the wind. Consequently, the use of a rotational use system could not be consistently implemented. It is not recommended for continuation, but the measure number is included to maintain numeric consistency.

**Land Use Compatibility Improvement:** Not Applicable

**Responsible Implementing Parties:** Not Applicable

**Implementation Steps, Costs, and Phasing:**

**Steps:** Not Applicable

**Costs:** Not Applicable

**Schedule:** Not Applicable

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-13**

**Exhibit: N/A**

**Description:** Helicopter operation procedures.

**Relationship to 1986 NCP:** It is recommended that Measure NA-13 of the 1986 NCP be dropped from the 1998 NCP.

**Background and Intent:** This adopted measure called for helicopters using the airport to cross the airport boundary at or above 1,000 feet MSL during arrivals and departures. The removal of an Army Guard helicopter unit to Quonset Airport reduced the annoyance associated with helicopter operations. This measure is not considered a safe or efficient operation for all locally based helicopter operations because of their placement on the north boundary of the airfield, particularly for those aircraft bound to the north. In order to comply with the measure, the northbound helicopter operations would have to hover towards the south airfield, turn and fly back north to cross the airport boundary at or above 1,000 feet MSL. This measure is being withdrawn from the 1998 NCP. The measure number is being retained to maintain numeric consistency. Review of helicopter operating procedures by RIAC, ATCT, and helicopter users has come to the determination that the small number of helicopter operations should be advised to fly over non-residential areas as safety allows. In addition, these groups recommend that local helicopter routes should be defined and distributed to helicopter pilots as part of the "Fly-Quiet" publication in Measure PM-2 and through the airport's Noise Abatement Manager.

**Land Use Compatibility Improvement:** Not Applicable

**Responsible Implementing Parties:** Not Applicable

**Implementation Steps, Costs, and Phasing:**

**Steps:** Not Applicable

**Costs:** Not Applicable

**Schedule:** Not Applicable

**Effects on Other Programs/Measures:** The intent of the original measure is better served as a section of the "Fly-Quiet" publication in Measure PM-2.

**Noise Compatibility Program Measure: NA-14**

**Exhibit: N/A**

**Description:** Restrictions on 180 degree turns on runway, unless operationally necessary.

**Relationship to 1986 NCP:** Measure NA-14 of the 1986 NCP is recommended for continuation in the 1998 NCP.

**Background and Intent:** The original measure was adopted to address the noise impacts associated with aircraft turning around on Runway 5R after missing an exit at Runway 16/34. Since adoption, a fillet has been constructed (see Measure NA-1) and the problem addressed by this measure has been resolved. Nevertheless, this measure is recommended for continuation to discourage the use of 180 degree turns on the runway, except when operationally necessary.

**Land Use Compatibility Improvement:** No effect on the location of the 65 DNL noise contour. The measure would slightly reduce single-event noise at Hoxsie and Warwick Pond from aircraft that stop and turn around at the north end of Runway 5R. The availability of a taxiway at the north end, as well as the fillet at the crossing of Runway 16/34, have virtually eliminated the impacts associated with this measure in 1986.

**Responsible Implementing Parties:** Airport users.

**Implementation Steps, Costs, and Phasing:**

**Steps:** Not Applicable

**Costs:** Not Applicable

**Schedule:** Not Applicable

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-15**

**Exhibit: N/A**

**Description:** Discourage engine maintenance run-ups during the period of the voluntary nighttime flight operations curfew of NA-7.

**Relationship to 1986 NCP:** Measure NA-15 is a new measure that will enhance the effectiveness of Measure NA-7 by discouraging maintenance run-ups during the "curfew period".

**Background and Intent:** This is a new measure. The airport has operating policies that preclude late-night engine maintenance run-up activity. This measure would restate the policy to reflect the hours of any adopted curfew. Engine maintenance run-up activity is most offensive to those people living in close proximity to the airport. This measure would strive to protect these neighbors from maintenance run-ups during the most sensitive time, the overnight period. Discussions with the airlines have found that this action would have little effect on their ability to perform maintenance run-ups, unless it impacted directly on the ability of an aircraft to be used for an early morning flight.

**Land Use Compatibility Improvement:** Due to the relatively low number of engine maintenance run-ups this measure is expected to have little or no effect on the noise contours or land use compatibility. Its benefit is in the potential reduction of run-up events during the normal hours of sleep.

**Responsible Implementing Parties:** RIAC and the airport users

**Implementation Steps, Costs, and Phasing:**

**Steps:** Modify the Airport Operating Directives to insert this measure as a voluntary program and include its intent in the informational program implemented under Measure PM-2.

**Costs:** Not Applicable

**Schedule:** Measure may be implemented on adoption of the NCP by the RIAC.

**Effects on Other Programs/Measures:** This measure will enhance the effectiveness of Measure NA-7.

**Noise Compatibility Program Measure: NA-16**

**Exhibit: N/A**

**Description:** Discourage, when safe and practicable, engine start-ups and auxiliary power unit starts prior to the end of the nighttime voluntary curfew.

**Relationship to 1986 NCP:** Measure NA-16 enhances the effectiveness of Measures NA-7 and NA-15.

**Background and Intent:** The policy discouraging maintenance run-up activity, recommended for inclusion in the NCP under Measure NA-15, would be extended under this measure to include pre-flight run-ups and auxiliary power unit (APU) starts within the curfew period. If extended to restrict these actions, scheduled flights by turboprop aircraft could be delayed during the colder months when engines must be warmed up before flight. Such warm-up periods might take as long as 20 to 30 minutes during the coldest weather and could result in delays of that length of time for the earliest scheduled turboprop departures. During summer months, much less warm up time is necessary and it is unlikely that this measure would result in significant delays. The measure would be less necessary during the cold months, because nearby residents would presumably have their windows closed in the early morning, while during the warmer spring, summer, and fall months, windows would be more likely to be open. Consequently, seasonal application of the measure could be expected. But to avoid the imposition of a measure that might impact upon the national transportation system, the measure is recommended as one of discouraging the engine starts, rather than prohibiting them.

**Land Use Compatibility Improvement:** This measure would have little or no effect on the noise contours and land use compatibility. It will however, result in the reduction of intrusive single-events during the early morning hours, particularly between 5:00 a.m. and 6:00 a.m.

**Responsible Implementing Parties:** RIAC and users.

**Implementation Steps, Costs, and Phasing:**

**Steps:** Modify the Airport Operating Directives to insert this measure as a voluntary program and include its intent in the informational program implemented under Measure PM-2.

**Costs:** Since this is a voluntary measure, cost differences are not applicable

**Schedule:** The measure may be initiated upon adoption of the NCP by the RIAC.

**Effects on Other Programs/Measures:** This measure would enhance the effectiveness of Measures NA-7 and NA-15.

**Noise Compatibility Program Measure: NA-17**

**Exhibit: N/A**

**Description:** Designate FAR 91-53A Close-In Noise Abatement Departure Procedures (NADP's), as developed and applied by each carrier for its own system-wide needs, as the airport's preferred procedure for takeoffs on Runway 5R by Stage 2 jet aircraft and Stage 2 jet aircraft modified to meet Stage 3 noise criteria.

**Relationship to 1986 NCP:** Measure NA-17 is a new measure.

**Background and Intent:** The evaluation of Close-In departure procedures conducted early during the Part 150 planning process indicated that current noise levels could be reduced by the application of the procedure, as defined by each individual carrier for its fleet-wide usage. The RIAC requested each carrier to implement the measure from all runways in an attempt to reduce current noise levels. The implementation of this measure by various carriers has been mixed.

**Land Use Compatibility Improvement:** Use of Close-In procedures from Runway 5R indicates that for the near term (until 2000), noise levels will be reduced by approximately 1.5 DNL for the fleet and by as much as 4 decibels for individual Stage 2 aircraft and Stage 3 retrofit aircraft. Use of the Close-In procedure from Runway 5R would result in a reduction of 266 residences within the 65 DNL noise contour for 1998 conditions, and virtually no change in the impacts for 2003 conditions.

**Responsible Implementing Parties:** The air carriers at T.F. Green Airport, at the request of the Rhode Island Airport Corporation. This measure is being implemented on a continuing basis.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC requests that each carrier begin flying their designated Close-In NADP as soon as practical. Airlines would implement the procedure as soon as pilots are notified and internal procedures are prepared.

**Costs:** No cost increases are expected as a result of the implementation of this measure.

**Schedule:** RIAC has requested the implementation of this procedure as soon as practical.

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-18**

**Exhibit: N/A**

**Description:** Designate FAR 91-53A Close-In Noise Abatement Departure Procedures (NADP's), as developed and applied by each carrier for its own system-wide needs, as the airport's preferred procedure for takeoffs on Runway 23L by Stage 2 jet aircraft and Stage 2 jet aircraft modified to meet Stage 3 noise criteria.

**Relationship to 1986 NCP:** Measure NA-18 is a new measure.

**Background and Intent:** The evaluation of Close-In departure procedures conducted early during the Part 150 planning process indicated that current noise levels could be reduced by application of the procedure, as defined by each individual carrier for its fleet-wide usage. The RIAC requested each carrier to implement the measure from all runways in an attempt to reduce current noise levels. The implementation of the measure by various carriers has been mixed.

**Land Use Compatibility Improvement:** Use of Close-In procedures from Runway 23L indicates that for the near-term (until 2000), noise levels will be reduced by approximately one DNL for the fleet and by as much as three decibels for individual Stage 2 aircraft and Stage 3 retrofit aircraft. Use of the Close-In procedure from Runway 23L would result in a reduction of 281 dwellings within the 65 DNL noise contour for 1998 conditions, and virtually no change in the impacts for 2003 conditions.

**Responsible Implementing Parties:** The air carriers at T.F. Green Airport, at the request of the Rhode Island Airport Corporation. This measure is being implemented on a continuing basis.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC requests that each carrier begin flying their designated Close-In NADP as soon as practical. Airlines would implement the procedures as soon as pilots are notified and internal procedures are prepared.

**Costs:** No cost increases are expected as a result of the implementation of this measure.

**Schedule:** RIAC has requested the implementation of this procedure as soon as practical.

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-19**

**Exhibit: N/A**

**Description:** Designate FAR 91-53A Close-In Noise Abatement Departure Procedures (NADP's), as developed and applied by each carrier for its own system-wide needs, as the airport's preferred procedure for takeoffs on Runway 16 by Stage 2 jet aircraft and Stage 2 jet aircraft modified to meet Stage 3 noise criteria.

**Relationship to 1986 NCP:** Measure NA-19 is a new measure.

**Background and Intent:** The evaluation of Close-In departure procedures conducted early during the Part 150 planning process indicated that current noise levels could be reduced by application of the procedure, as defined by each individual carrier for its fleet-wide usage. The RIAC requested each carrier to implement the measure from all runways in an attempt to reduce current noise levels. The implementation of the measure by various carriers has been mixed.

**Land Use Compatibility Improvement:** Use of Close-In procedures from Runway 23L indicates that for the near-term (until 2000), noise levels will be reduced by approximately one DNL for the fleet and by as much as 3.5 decibels for individual Stage 2 aircraft and Stage 3 retrofit aircraft. Use of the Close-In procedure from Runway 23L would result in a reduction of 14 residences within the 65 DNL noise contour for 1998 conditions, and virtually no change in the impacts for 2003 conditions.

**Responsible Implementing Parties:** The air carriers at T.F. Green Airport, at the request of the Rhode Island Airport Corporation. This measure is being implemented on a continuing basis.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC requests that each carrier begin flying their designated Close-In NADP as soon as practical. Airlines would implement the procedures as soon as pilots are notified and internal procedures are prepared.

**Costs:** No cost increases are expected as a result of the implementation of this measure.

**Schedule:** RIAC has requested the implementation of this procedure as soon as practical.

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-20**

**Exhibit: N/A**

**Description:** Designate FAR 91-53A Close-In Noise Abatement Departure Procedures (NADP's), as developed and applied by each carrier for its own system-wide needs, as the airport's preferred procedure for takeoffs on Runway 34 by Stage 2 jet aircraft and Stage 2 jet aircraft modified to meet Stage 3 noise criteria.

**Relationship to 1986 NCP:** Measure NA-20 is a new measure.

**Background and Intent:** The evaluation of Close-In departure procedures conducted early during the Part 150 planning process indicated that current noise levels could be reduced by application of the procedure, as defined by each individual carrier for its fleet-wide usage. The RIAC requested each carrier to implement the measure from all runways in an attempt to reduce current noise levels. The implementation of the measure by various carriers has been mixed.

**Land Use Compatibility Improvement:** Use of Close-In procedures from Runway 23L indicates that for the near-term (until 2000), noise levels will be reduced by approximately one DNL for the fleet and by as much as three decibels for individual Stage 2 aircraft and Stage 3 retrofit aircraft. Use of the Close-In procedure from Runway 23L would result in a reduction of 10 residences within the 65 DNL noise contour for 1998 conditions, and virtually no change in the impacts for 2003 conditions.

**Responsible Implementing Parties:** The air carriers at T.F. Green Airport, at the request of the Rhode Island Airport Corporation. This measure is being implemented on a continuing basis.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC requests that each carrier begin flying their designated Close-In NADP as soon as practical. Airlines would implement the procedures as soon as pilots are notified and internal procedures are prepared.

**Costs:** No cost increases are expected as a result of the implementation of this measure.

**Schedule:** RIAC has requested the implementation of this procedure as soon as practical.

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-21**

**Exhibit: 3-2**

**Description:** Weather and traffic permitting, all southbound jet aircraft departing Runway 5R, turn right to a 080 degree heading until reaching 3 DME (from the PVD VORTAC) before being vectored to assigned heading. Prop and turboprop may be assigned divergent headings at the discretion of Air Traffic Control.

**Relationship to 1986 NCP:** Measure NA-21 is a new measure.

**Background and Intent:** This measure is intended to route jet traffic to the southern departure gate away from the more densely-populated residential and public use areas located along the extended centerline of Runway 5R departures to a course which more quickly reaches the compatible Narragansett Bay. The route expected for this operation passes over the less intensely undeveloped open spaces along Passeonkquis Cove. It follows a defined corridor until reaching the shore of Narragansett Bay, at which time, aircraft would initiate turns to the south overflying compatible water areas. Propeller aircraft would be assigned to divergent departure headings at the discretion of ATCT for separation.

**Land Use Compatibility Improvement:** This measure, in combination with Measure NA-22, is expected to reduce the number of residences within the 65 DNL noise contour north of the airport by approximately 188 units from 2003 baseline conditions. This reduction is largely achieved by the reduction of the area of flight dispersion present under baseline conditions through a concentration of those flights into a more focused area of overflights. The area within the 65 DNL noise contour would be narrowed as a result of more clearly defined departure paths.

**Responsible Implementing Parties:** FAA Air Traffic Control, aircraft operators, and the RIAC.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC adopts the NCP. An air traffic Environmental Assessment/Environmental Impact Statement must be completed to evaluate the environmental effects associated with this and each other air traffic measure. Upon completion and acceptance of the EA/EIS by the FAA, the ATCT would prepare Standard Instrument Departure (or similar) procedures for publication and distribution to users.

**Costs:** The air traffic EA/EIS is expected to cost approximately \$125,000. Costs for preparation of the measure would include staff time, but are not expected to be individually significant. Costs for preparation of all similar measures is expected to cost approximately \$10,000 in staff time.

**Schedule:** The EA/EIS process, including federal review, is expected take approximately one year. Preparation of implementing tools should take an additional four months for preparation and publication.

**Effects on Other Programs/Measures:** Best applied in conjunction with Measure NA-22.

**Noise Compatibility Program Measure: NA-22**

**Exhibit: 3-2**

**Description:** Weather and traffic permitting, all northbound jet aircraft departing Runway 5R turn left as soon as practicable after passing runway end to fly a 360 degree heading until reaching 3 DME (from the PVD VORTAC) before being vectored to assigned heading. Prop and turboprop may be assigned divergent headings at the discretion of Air Traffic Control.

**Relationship to 1986 NCP:** Measure NA-22 is a new measure.

**Background and Intent:** This measure is intended to route jet traffic to the Putnam departure gate away from the more densely populated residential and public use areas located along the extended centerline of Runway 5R departures to a course which flies over undeveloped and more compatibly developed commercial areas along U.S. Highway 1. Propeller aircraft would be assigned to divergent departure headings at the discretion of ATCT for separation.

**Land Use Compatibility Improvement:** This measure, in combination with Measures NA-21, is expected to reduce the number of residences within the 65 DNL noise contour north of the airport by approximately 188 units. This reduction is largely achieved by the reduction of the area of flight dispersion present under existing conditions through a concentration of those flights into a more focused area of overflights. The area within the 65 DNL contour would be slightly broadened to follow the intended course and a small area of incompatible use would be added, although the total number of homes would be reduced from the 2003 baseline noise contour.

**Responsible Implementing Parties:** FAA Air Traffic Control, aircraft operators, and the RIAC.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC adopts the NCP. An air traffic Environmental Assessment/Environmental Impact Statement must be completed to evaluate the environmental effects associated with this and each other air traffic measure. Upon completion and acceptance of the EA/EIS by the FAA, the ATCT would prepare Standard Instrument Departure (or similar) procedures for publication and distribution to users.

**Costs:** The air traffic EA/EIS is expected to cost approximately \$125,000. Costs for preparation of the measure would include staff time, but are not expected to be individually significant. Costs for preparation of all similar measures is expected to cost approximately \$10,000 in staff time.

**Schedule:** The EA/EIS process, including federal review, is expected take approximately one year. Preparation of implementing tools should take an additional four months for preparation and publication.

**Effects on Other Programs/Measures:** Best applied in conjunction with Measure NA-21.

**Noise Compatibility Program Measure: NA-23**

**Exhibit: 3-2**

**Description:** Weather and traffic permitting, all southbound jet aircraft departing Runway 23L, turn left as soon as practicable after passing runway end to a 160 degree heading until reaching 5 DME (from the PVD VORTAC) or intercepting 180 degree radial (whichever occurs first); before being vectored to an assigned heading (if necessary). Prop and turboprop may be assigned divergent headings at the discretion of Air Traffic Control.

**Relationship to 1986 NCP:** Measure NA-23 is a new measure.

**Background and Intent:** This measure is intended to route all jet departures to the southbound fix from Runway 23L over Greenwich Bay and along the north edge of Goddard Memorial State Park. Many of the complaints about aircraft in the environs are associated with departures over residential areas along the extended centerline of Runway 23L beyond the 65 DNL noise contour. Residents have asked for relief from both departure noise and arrival noise from Runway 5R approaches. While it is virtually impossible to relocate instrument approaches from the area, it is possible to provide relief by redirecting departure traffic to more compatible areas. This measure would turn Runway 23L takeoffs bound to the Block Island area to a compatible course over Greenwich Bay and over Goddard Memorial State Park prior to turns on course.

**Land Use Compatibility Improvement:** This route would result, in association with Measure NA-24, in a reduction of noise on hundreds of homes beyond the 65 DNL noise contour with a slight increase in the number of residences within the 65 DNL noise contour. Such increases would be less than 1.5 decibels of DNL in all areas where the DNL exceeds 65 decibels.

**Responsible Implementing Parties:** FAA Air Traffic Control, jet operators, and the RIAC.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC adopts the NCP. An air traffic Environmental Assessment/Environmental Impact Statement must be completed to evaluate the environmental effects associated with this and each other air traffic measure. Upon completion and acceptance of the EA/EIS by the FAA, the ATCT would prepare Standard Instrument Departure (or similar) procedures for publication and distribution to users.

**Costs:** The air traffic EA/EIS is expected to cost approximately \$125,000. Costs for preparation of the measure would include staff time, but are not expected to be individually significant. Costs for preparation of all similar measures is expected to cost approximately \$10,000 in staff time.

**Schedule:** The EA/EIS process, including federal review, is expected take approximately one year. Preparation of implementing tools should take an additional four months for preparation and publication.

**Effects on Other Programs/Measures:** Best applied in conjunction with Measure NA-24

**Noise Compatibility Program Measure: NA-24**

**Exhibit: 3-2**

**Description:** Weather and traffic permitting, all northbound jet aircraft departing Runway 23L, turn right as soon as practicable after passing runway end to a 280 degree heading until reaching 3 DME (from the PVD VORTAC); before being vectored to assigned heading. Prop and turboprop may be assigned divergent headings at the discretion of Air Traffic Control.

**Relationship to 1986 NCP:** Measure NA-24 is a new measure.

**Background and Intent:** This measure is intended to direct jet departures, below approximately 3,000 feet, over areas of compatible land use in downtown Apponaug and along the I-95 and SR-115 corridors. A right turn as soon as practicable from Runway 23L would direct Putnam departures by jet aircraft toward the desired departure, and generally over more compatible commercial and open space areas to the west-southwest of the airport. The traffic would be reduced from a broad area of residential usage south of Apponaug. The aircraft would overfly an area of schools west of I-95, well beyond the area of 60-65 DNL noise contour. At the same time, the desirable separation between jet and prop traffic would be left to the discretion of the FAA Air Traffic Control.

**Land Use Compatibility Improvement:** Owing to the substantial benefits of this measure accruing to the residential areas south of Apponaug, its implementation is considered advantageous to the general noise reduction in the area. The route would result, in association with Measure NA-23, in a significant reduction of noise on hundreds of homes beyond the 65 DNL noise contour with a slight increase in the number of residences within the 65 DNL noise contour. Such increases would be less than 1.5 decibels of DNL within the 65 DNL noise contour.

**Responsible Implementing Parties:** FAA Air Traffic Control, jet operators, and the RIAC.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC adopts the NCP. An air traffic Environmental Assessment/Environmental Impact Statement must be completed to evaluate the environmental effects associated with this and each other air traffic measure. Upon completion and acceptance of the EA/EIS by the FAA, the ATCT would prepare Standard Instrument Departure (or similar) procedures for publication and distribution to users.

**Costs:** The air traffic EA/EIS is expected to cost approximately \$125,000. Costs for preparation of the measure would include staff time, but are not expected to be individually significant. Costs for preparation of all similar measures is expected to cost approximately \$10,000 in staff time.

**Schedule:** The EA/EIS process, including federal review, is expected take approximately one year. Preparation of implementing tools should take an additional four months for preparation and publication.

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-25**

**Exhibit: 3-2**

**Description:** Weather and traffic permitting, all southbound jet aircraft departing Runway 34, turn right to a 360 degree heading until reaching a position 3 DME north of the PVD VORTAC, before being vectored to assigned heading. Prop and turboprop departures may be assigned divergent headings at the discretion of Air Traffic Control.

**Relationship to 1986 NCP:** Measure NA-25 is a new measure.

**Background and Intent:** This measure is intended to direct jet departures, below approximately 3,000 feet, over the compatible land uses adjacent to the I-95 and Pawtuxet River corridors. Departures from Runway 34 have the advantage of overflying generally compatible land until reaching points approximately 1.5 miles from the end of the runway. Reviews by the Air Traffic Control Tower indicated that left turns from Runway 34 would result in airspace conflicts between traffic departing Runway 34 direct to Block Island and arriving traffic into the Runway 5R or 34 approaches. Consequently, a procedure that turns aircraft away from these inbound flows is required. This measure results in a focusing of jet departure traffic to the south from Runway 34 along a north circling course designed to fly over compatibly used lands along the highway and river. At the same time, the desirable separation between jet and prop traffic would be left to the discretion of the FAA Air Traffic Control.

**Land Use Compatibility Improvement:** This measure would, in combination with Measure NA-26, result in a reduction of 90 residences located within the 65 DNL noise contour. This reduction is largely the result of focusing traffic along procedural routes and limiting the dispersion of traffic present under current operating conditions.

**Responsible Implementing Parties:** FAA Air Traffic Control, jet operators, and the RIAC.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC adopts the NCP. An air traffic Environmental Assessment/Environmental Impact Statement must be completed to evaluate the environmental effects associated with this and each other air traffic measure. Upon completion and acceptance of the EA/EIS by the FAA, the ATCT would prepare Standard Instrument Departure (or similar) procedures for publication and distribution to users.

**Costs:** The air traffic EA/EIS is expected to cost approximately \$125,000. Costs for preparation of the measure would include staff time, but are not expected to be individually significant. Costs for preparation of all similar measures is expected to cost approximately \$10,000 in staff time.

**Schedule:** The EA/EIS process, including federal review, is expected take approximately one year. Preparation of implementing tools should take an additional four months for preparation and publication.

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-26**

**Exhibit: 3-2**

**Description:** Weather and traffic permitting, all northbound jet aircraft departing Runway 34, turn left as soon as practicable after passing runway end to a 330 degree heading until reaching 4 DME (from the PVD VORTAC); before being vectored to assigned heading. Prop and turboprop departures may be assigned divergent headings at the discretion of Air Traffic Control.

**Relationship to 1986 NCP:** Measure NA-26 is a new measure.

**Background and Intent:** This measure is intended to direct jet departures, below approximately 3,000 feet, over areas of compatible use along SR-37 and I-295. A slight turn to the left from the extended centerline of the runway (by 15-20 degrees) would move Putnam departures from directly overflying large residential areas of Cranston to overflying large compatible areas along the two highways for approximately four miles from the runway end.

**Land Use Compatibility Improvement:** The measure would, in combination with Measure NA-25, result in a reduction of 90 residences located within the 65 DNL noise contour, as well as many more residences located beyond the 65 DNL noise contour. This reduction is largely the result of focusing traffic along procedural routes and limiting the dispersion of traffic present under current operating conditions.

**Responsible Implementing Parties:** FAA Air Traffic Control, jet operators, and the RIAC.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC adopts the NCP. An air traffic Environmental Assessment/Environmental Impact Statement must be completed to evaluate the environmental effects associated with this and each other air traffic measure. Upon completion and acceptance of the EA/EIS by the FAA, the ATCT would prepare Standard Instrument Departure (or similar) procedures for publication and distribution to users.

**Costs:** The air traffic EA/EIS is expected to cost approximately \$125,000. Costs for preparation of the measure would include staff time, but are not expected to be individually significant. Costs for preparation of all similar measures is expected to cost approximately \$10,000 in staff time.

**Schedule:** The EA/EIS process, including federal review, is expected take approximately one year. Preparation of implementing tools should take an additional four months for preparation and publication.

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-27**

**Exhibit: 3-2**

**Description:** Weather and traffic permitting, all southbound jet aircraft departing Runway 16, turn right to a 180 degree heading until reaching 3 DME from the PVD VORTAC, or intercepting the PVD VORTAC 180 degree radial (whichever occurs first), before being vectored to an assigned heading (if necessary). Prop and turboprop may be assigned divergent headings at the discretion of Air Traffic Control.

**Relationship to 1986 NCP:** Measure NA-27 is a new measure.

**Background and Intent:** This measure is intended to direct jet departures, below approximately 3,000 feet, over areas of more compatibly used land along Brush Neck Cove and Greenwich Bay. Runway 16 is infrequently used for jet departure operations (approximately two to four percent). Therefore, any measure which changes the jet departure procedures from Runway 16 will have little effect on the noise contours southeast of the airport. This measure would redirect jet departure traffic bound to the southbound departure airspace along a course 23 degrees to the right of the extended centerline, passing over Warwick Park and Brush Neck Cove before reaching Greenwich Bay. This measure would result in an increase of residences within the 65 DNL noise contour by 65, but would eliminate southbound overflights above large areas of residential usage located on Warwick Neck which receive less than 60-65 DNL.

**Land Use Compatibility Improvement:** This measure, combined with other flight corridor measures, would result in fewer overflights of homes located within the 60-65 DNL noise contour and a more predictable overflight pattern.

**Responsible Implementing Parties:** FAA Air Traffic Control, jet operators and the RIAC

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC adopts the NCP. An air traffic Environmental Assessment/Environmental Impact Statement must be completed to evaluate the environmental effects associated with this and each other air traffic measure. Upon completion and acceptance of the EA/EIS by the FAA, the ATCT would prepare Standard Instrument Departure (or similar) procedures for publication and distribution to users.

**Costs:** The air traffic EA/EIS is expected to cost approximately \$125,000. Costs for preparation of the measure would include staff time, but are not expected to be individually significant. Costs for preparation of all similar measures is expected to cost approximately \$10,000 in staff time.

**Schedule:** The EA/EIS process, including federal review, is expected take approximately one year. Preparation of implementing tools should take an additional four months for preparation and publication.

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-28**

**Exhibit: 3-3**

**Description:** Approaching Runway 34, all jet aircraft intercept the final approach course before crossing the shoreline at Rocky Point beach on Warwick Neck (4 DME from the PVD VORTAC).

**Relationship to 1986 NCP:** Measure NA-28 is a new measure.

**Background and Intent:** Radar evaluations of approaches to Runway 34 indicate that final courses are intercepted at varying distances from the landing threshold, and frequently within the shoreline at Warwick Neck. This measure would assure that all jet aircraft intercept and follow a single instrument (ILS) approach course along the extended centerline of the runway from beyond the shoreline. The result would be a concentration of approach traffic into a single predictable corridor of impact that may then be mitigated under eligibility standards.

**Land Use Compatibility Improvement:** This measure will provide a more predictable overflight pattern and will reduce single-event aircraft noise associated with turns to the approach course. No effect within the 65 DNL noise contour is expected with this change.

**Responsible Implementing Parties:** FAA Air Traffic Control, jet operators, and RIAC.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC adopts the NCP. An air traffic Environmental Assessment/Environmental Impact Statement must be completed to evaluate the environmental effects associated with this and each other air traffic measure. Upon completion and acceptance of the EA/EIS by the FAA, the ATCT would prepare approach procedures for publication and distribution to users.

**Costs:** The air traffic EA/EIS is expected to cost approximately \$125,000. Costs for preparation of the measure would include staff time, but are not expected to be individually significant. Costs for preparation of all similar measures is expected to cost approximately \$10,000 in staff time.

**Schedule:** The EA/EIS process, including federal review, is expected take approximately one year. Preparation of implementing tools should take an additional four months for preparation and publication.

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-29**

**Exhibit: 3-1**

**Description:** Extend existing noise barrier 500 feet south to the Runway 5R safety area boundary.

**Relationship to 1986 NCP:** Measure NA-29 is a new measure.

**Background and Intent:** The extension of the existing noise barrier west of the departure end of Runway 5R by five hundred feet to the south is intended to provide additional noise level attenuation to existing areas of the Strawberry Field Road neighborhood west of the runway. Feasibility for construction of the berm/wall is dependent upon FAA Airspace and NEPA analysis of the project. Care must be taken to assure that the berm is not extended into the critical Part 77 surfaces at the runway end or that it does not encroach upon the Glide Slope Critical Area for the Runway 5R approach. The barrier is an approximately 16-foot high berm topped by an eight-foot wall.

**Land Use Compatibility Improvement:** This measure would have no effect on the noise contours, but would help to protect residences in the Strawberry Field West area from single-event noise impacts created by aircraft taxiing and departing Runway 5R to the north. It is expected that these single-events from ground level noise sources at the south end of the runway would be reduced by approximately two to four decibels by the presence of the barrier. Comparable noise reduction benefits could be achieved for these homes by their inclusion in the sound insulation program.

**Responsible Implementing Parties:** RIAC

**Implementation Steps, Costs, and Phasing:**

**Steps:** FAA Airspace and NEPA studies determine the feasibility of construction. Design barrier, obtain financing, and construct wall.

**Costs:** The cost of constructing the noise berm is estimated at \$300,000.

**Schedule:** FAA approval of the NCP is necessary before federal funding can be obtained for this measure. The Permanent Implementation Committee (Measure PM-3) will assist the RIAC in determining the schedule and priority of implementing this measure.

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-30**

**Exhibit: 3-1**

**Description:** Construct a noise barrier (wall or earthen berm) along the east side of the airport between Airport Road on the north and the lower Buckeye Brook to the south.

**Relationship to 1986 NCP:** Measure NA-30 is a new measure.

**Background and Intent:** A berm similar to that constructed under Measure NA-3 and NA-31, and topped by a seven foot wide T-wall, located along the east side of the airport would provide several decibels of noise reduction. The berm would extend along the airport property line, from the northwest corner of the Hoxsie neighborhood, south toward Warwick Pond, then west along Lakeshore drive towards the airfield, then south around the Warwick Pond neighborhood, passing the fire station, and then extending southeast, parallel to Runway 16/34 to Lower Buckeye Brook. The berm would protect the residences from the noise created by departing aircraft on the ground on Runway 23L and 34, and reverse thrust from landings on those same runways. In general, noise attenuation is a function of the height of the barrier (berm and wall), with overall heights of 24 feet achieving about twice the benefit of a barrier 12 feet high. Feasibility for construction of the berm/wall is dependent upon FAA Airspace and NEPA analysis of the project. Care must be taken to assure that the berm is not extended into the critical Part 77 surfaces at the runway end or that it does not encroach upon the Glide Slope Critical Area of the runway approach.

**Land Use Compatibility Improvement:** This measure would have no effect on the noise contours, but would help to protect residences in the Warwick Pond area from single-event noise impacts created by aircraft departing Runways 23L and 34 and from reverse thrust noise of arrivals on the same runways. Noise levels could be reduced by eight to 12 decibels in the Warwick Pond neighborhood and by four to six decibels in Hoxsie. The measure would benefit approximately 195 residences on the west side of Warwick Pond and 70 residences in Hoxsie. Comparable noise reduction benefits could be achieved for these residences by their inclusion in the sound insulation program.

**Responsible Implementing Parties:** RIAC

**Implementation Steps, Costs, and Phasing:**

**Steps:** FAA Airspace and NEPA studies determine the feasibility of construction. Design barrier, obtain financing, and construct wall.

**Costs:** The cost of constructing the noise berm is estimated at \$3,700,000, based on the cost of constructing the existing berm at the south end of Runway 5R.

**Schedule:** FAA approval of the NCP is necessary before federal funding can be obtained for this measure. The Permanent Implementation Committee (Measure PM-3) will assist the RIAC in determining the schedule and priority of implementing this measure.

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-31**

**Exhibit: 3-1**

**Description:** Construct a 1,500-foot noise barrier on the east side of Warwick Industrial Drive north of SR-113 from Strawberry Field Road south to the Runway 5R safety area boundary.

**Relationship to 1986 NCP:** Measure NA-31 is a new measure.

**Background and Intent:** This berm would provide noise reduction benefits from pre-flight run-ups, taxi movements at the runway end, and initial takeoff thrust application to residences east of the berm location. Feasibility for construction of the berm/wall is dependent upon FAA Airspace and NEPA analysis of the project. Care must be taken to assure that the berm is not extended into the critical Part 77 surfaces at the runway end or that it does not encroach upon the Glide Slope Critical Area for the Runway 5R approach.

**Land Use Compatibility Improvement:** This measure would have no effect on the noise contours but would help to protect residences in the Strawberry Field East area from single-event noise impacts created by aircraft departing Runway 5R and from reverse thrust noise of arrivals on the same runway. It is estimated that the reduction of these single-events would approximate eight decibels on the nearest row of residences, based on the achieved reduction from the berm on the west side of the runway. The measure would benefit approximately 154 residences in the neighborhood. Comparable noise reduction benefits could be achieved for these residences by their inclusion in the sound insulation program.

**Responsible Implementing Parties:** RIAC

**Implementation Steps, Costs, and Phasing:**

**Steps:** FAA Airspace and NEPA studies determine the feasibility of construction. Design barrier, obtain financing and construct wall.

**Costs:** The cost of constructing the noise berm is estimated at \$900,000.

**Schedule:** FAA approval of the NCP is necessary before federal funding can be obtained for this measure. The Permanent Implementation Committee (Measure PM-3) will assist the RIAC in determining the schedule and priority of implementing this measure.

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-32**

**Exhibit: 3-1**

**Description:** Construct a 1,600-foot long, 12-foot high noise wall parallel to and on the north side of Strawberry Field Road West along the airport property line.

**Relationship to 1986 NCP:** Measure NA-32 is a new measure.

**Background and Intent:** This wall would provide noise reduction benefits from pre-flight run-ups, taxi movements near the terminal to residences south of the berm location. Space is not available to provide a 24-foot high barrier as recommended for each other location. The barrier would run from the northeast corner of the neighborhood westward until it reaches the secondary exit from the long-term parking lot. Feasibility for construction of the wall is dependent upon FAA Airspace and NEPA analysis of the project.

**Land Use Compatibility Improvement:** This measure would have no effect on the noise contours, but would help to protect residences in the Strawberry Field West area from single-event noise impacts created by aircraft taxiing near the terminal and from pre-flight run-ups. It is estimated that the reduction of these single-events would approximate four decibels, based on the location and attenuation properties of a noise wall. The measure would benefit approximately 25 residences in the neighborhood. The same noise reduction benefits could be achieved for noise levels inside the residences by their inclusion in the sound insulation program.

**Responsible Implementing Parties:** RIAC

**Implementation Steps, Costs, and Phasing:**

**Steps:** FAA Airspace and NEPA studies determine the feasibility of construction. Design noise wall, obtain financing, and construct wall.

**Costs:** The cost of constructing the noise wall is estimated at \$480,000.

**Schedule:** FAA approval of the NCP is necessary before federal funding can be obtained for this measure. The Permanent Implementation Committee (Measure PM-3) will assist the RIAC in determining the schedule and priority of implementing this measure.

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: NA-33**

**Exhibit: 3-1**

**Description:** Designate and construct a run-up position and orientation for maintenance run-up activity.

**Relationship to 1986 NCP:** Measure NA-33 is a new measure.

**Background and Intent:** A specific location and orientation of aircraft for run-ups could reduce noise by physically locating the aircraft away from nearby incompatible uses, and if properly oriented, the impact of flow of noise from the source could be reduced by redirecting it to more compatible areas. The loudest noise levels around an aircraft undergoing a run-up are typically found in front and 45 degrees from the direct rear of the aircraft. The selection of a preferred run-up location in the center of the airfield (for example, on a pad constructed north of Taxiway V near the VORTAC) would isolate run-ups in the center of the airfield. An orientation with the aircraft aligned parallel to Runway 5/23 or east/west would direct the majority of the noise away from the nearby residential areas. The cost of the measure would be associated with taxiing to the location and paint for the marking of the location on the taxiway pavement and, if necessary, constructing a run-up pad.

**Land Use Compatibility Improvement:** This measure would have no effect on the noise contours, but would help to reduce impacts on all adjacent neighborhoods created by aircraft undergoing maintenance run-ups. The level of this reduction is estimated at one to three decibels, dependent upon the specific location and the orientation used.

**Responsible Implementing Parties:** RIAC

**Implementation Steps, Costs, and Phasing:**

**Steps:** Design, identify financing, and construct the run-up pad. Establish an Airport Operating Directive indicating the desired location and orientations for run-ups.

**Costs:** The cost of constructing the run-up pad is estimated at \$100,000.

**Schedule:** The design and construction of the pad can begin after FAA approval of the NCP. Completion would be expected within a year of initiation.

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: LU-1**

**Exhibit: N/A**

**Description:** Withdraw Measure LU-1 to rezone selected residential properties within the 70-75 DNL noise contour.

**Relationship to 1986 NCP:** Measure LU-1 is recommended to be withdrawn from the 1998 NCP.

**Background and Intent:** This measure, as approved in the 1986 NCP, was recommended so that properties acquired by the airport were rezoned to compatible use. In addition, it recommended the rezoning of the Hillsgrove neighborhood west of the airport to limited business or commercial zoning. Rezoning this area would eliminate any further development of residential land uses and noise-sensitive public facilities from the noise-impacted area. Since property owned by the RIAC is not subject to zoning, this measure is no longer applicable.

**Land Use Compatibility Improvement:** Not Applicable

**Responsible Implementing Parties:** Not Applicable

**Implementation Steps, Costs, and Phasing:**

**Steps:** Not Applicable

**Costs:** Not Applicable

**Schedule:** Not Applicable

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: LU-2**

**Exhibit: N/A**

**Description:** Withdraw existing Measure LU-2 to amend the subdivision regulations within the City of Warwick.

**Relationship to 1986 NCP:** Measure LU-2 is recommended to be withdrawn from the 1998 NCP.

**Background and Intent:** The 1986 Part 150 Study recommended amending subdivision regulations to prevent the encroachment of incompatible uses in the airport noise impact area by requiring mitigation measures to be included in the design of a structure as a condition of plat approval from the Warwick Planning Board. Changing subdivision regulations would have to occur at the State level.

The 1998 Part 150 Study Update analysis revisited amending the subdivision regulations and concluded that the approval and implementation of this measure would not result in any further land use compatibility beyond that which would be achieved with the other recommended Part 150 measures. The potential for new subdivision development occurring with the 65 DNL noise contour is extremely low. Therefore, amending the subdivision regulations of the City of Warwick was not recommended for inclusion in this Part 150 Study Update.

**Land Use Compatibility Improvement:** Not Applicable

**Responsible Implementing Parties:** Not Applicable

**Implementation Steps, Costs, and Phasing:**

**Steps:** Not Applicable

**Costs:** Not Applicable

**Schedule:** Not Applicable

**Effects on Other Programs/Measures:** Not Applicable

**Noise Compatibility Program Measure: LU-3**

**Exhibit: 3-4**

**Description:** Amend the State of Rhode Island Building Code to require that new construction and major additions within or immediately adjacent to the 2003 Noise Exposure Map, based on the 65 DNL noise contour of the 2003 NCP, meet an interior noise standard through the use of sound insulation techniques.

**Relationship to 1986 NCP:** Measure LU-3 is a continuation from the 1986 NCP.

**Background and Intent:** A revision of the building code to require new construction or major additions to meet an interior Noise Level Reduction (NLR) standard of 45dB would benefit the occupants of new or modified residential units constructed within the 2003 NEM, based on the 65 DNL noise contour of the 2003 NCP. Implementation of this measure would ensure that new residential development would be compatible with aircraft noise levels of 65 DNL and greater. Building code amendments are needed to comply with proposed FAA policy to prohibit FAA funds to be used for the mitigation of homes constructed after the publication of the approved Noise Exposure Maps. The proposed Building Code revision language is provided in Appendix E.

**Land Use Compatibility Improvement:** Not Applicable

**Responsible Implementing Parties:** State of Rhode Island and City of Warwick.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC should encourage the State of Rhode Island to revise the state building code based on the 2003 NEM boundary.

**Costs:** The costs of implementing the measure will be confined to administrative costs for RIAC staff, should their assistance be required to provide information or coordination with the State of Rhode Island.

**Schedule:** The measure does not require FAA authorization and may be implemented at any time.

**Effects on Other Programs/Measures:** The implementation of this measure is not expected to adversely affect any other mitigation program measures and it will enhance the compatibility of land uses surrounding the airport. The 2003 NEM boundary would be the same boundary used for eligibility in the airport's sound insulation program (Measure LU-6).

**Noise Compatibility Program Measure: LU-4**

**Exhibit: 3-4**

**Description:** Modify Measure LU-4 to provide for the voluntary acquisition of approximately 210 residential structures located within or adjacent to the 70 DNL noise contour of the 2003 Noise Compatibility Program.

**Relationship to 1986 NCP:** This is a modification of the 1986 approved Measure LU-4.

**Background and Intent:** The 1986 Part 150 Study recommended the purchase, by voluntary sale, of approximately 21 residences in the 75 DNL noise contour. This program has been completed. As a part of RIAC's commitment to ensure land use compatibility within noise impacted areas, this measure would offer voluntary acquisition of single-family residential properties located within or adjacent to the 70 DNL of the 2003 NCP contour.

**Land Use Compatibility Improvement:** No incompatible land uses would remain within the 70 DNL of the 2003 NCP noise contour.

**Responsible Implementing Parties:** RIAC, FAA.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC should initiate offers to eligible homeowners for purchase of residential structures upon FAA approval of the 1999 Part 150 Study Update which are in accordance with established policies of the airport and the schedule outlined below.

**Costs:** The costs associated with the implementation of Measure LU-4, which will accrue to RIAC, are expected to be approximately \$31,500,000 for voluntary acquisition, assuming a cost of \$150,000 per house (purchase and demolition) and a participation rate of 100 percent.

**Schedule:** FAA approval of the NCP is necessary before federal funding can be obtained for this measure. The Permanent Implementation Committee (Measure PM-3) will assist the RIAC in determining the schedule and priority of implementing this measure. Participation in this program is voluntary on the part of the homeowner and is subject to the availability of funding.

**Effects on Other Programs/Measures:** Depending on the priorities established by the Permanent Implementation committee, the implementation of this measure could affect the timing of implementing other mitigation program measures.

**Noise Compatibility Program Measure: LU-5**

**Exhibit: N/A**

**Description:** Close Measure LU-5 to sound insulate all schools within the 65 DNL noise contour of the 1986 NCP.

**Relationship to 1986 NCP:** Measure LU-5 is recommended to be withdrawn from the 1998 NCP.

**Background and Intent:** The 1986 Part 150 Study recommended the sound insulation of all schools within the 65 DNL noise contour and has been completed. The following schools were sound insulated under this program: Holliman Elementary; Wickes Elementary; Pilgrim High School; Veterans High School; and St. Rose of Lima Elementary. No schools are located within the 65 DNL of the 2003 noise contour and therefore, the measure is recommended to be withdrawn from the 1998 NCP.

**Land Use Compatibility Improvement:** Not Applicable

**Responsible Implementing Parties:** Not Applicable

**Implementation Steps, Costs, and Phasing:**

**Steps:** Not Applicable

**Costs:** Not Applicable

**Schedule:** Not Applicable

**Effects on Other Programs/Measures:** Measure LU-9 replaces this measure and recommends a new analysis be conducted for schools located under heavily used flight paths for eligibility in the airport's sound insulation program.

**Noise Compatibility Program Measure: LU-6**

**Exhibit: 3-4**

**Description:** Provide sound insulation for approximately 830 single-family residences, on a voluntary basis, within the 2003 Noise Exposure Map, based on the 65 DNL noise contour of the 2003 NCP.

**Relationship to 1986 NCP:** Measure LU-6 of the 1998 NCP update is a continuation of the approved 1986 NCP Measure LU-6, revised based on the 2003 NCP noise contour.

**Background and Intent:** It is recommended that RIAC offer sound insulation for homeowners whose homes are located within the 2003 NEM boundary, based on the 65 DNL noise contour of the 2003 NCP. The sound insulation program will provide mitigation for incompatible land uses while maintaining the integrity and stability of the residential neighborhood. As a condition of receiving sound insulation, aviation easements would be attached to the property deed. Sound insulation is being used successfully as part of the 1986 NCP to bring residences into compliance with the FAA's standards for noise compatibility.

**Land Use Compatibility Improvement:** Will enhance the compatibility of land uses surrounding the airport.

**Responsible Implementing Parties:** RIAC, FAA.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC should initiate offers to eligible homeowners to sound insulate single-family residential structures upon FAA approval of the 1998 Part 150 Study Update in accordance with established policies of the airport and the schedule outlined below.

**Costs:** The costs associated with the implementation of Measure LU-6, which will accrue to RIAC, are expected to be approximately \$24,900,000 for sound insulation, assuming a cost of \$30,000 per house and a participation rate of 100 percent.

**Schedule:** FAA approval of the NCP is necessary before federal funding can be obtained for this measure. The Permanent Implementation Committee (Measure PM-3) will assist the RIAC in determining the schedule and priority of implementing this measure. Participation in this program is voluntary on the part of the homeowner and is subject to the availability of funding.

**Effects on Other Programs/Measures:** The implementation of this measure is not expected to adversely affect any other mitigation program measures and it will enhance the compatibility of land uses surrounding the airport.

**Noise Compatibility Program Measure: LU-7**

**Exhibit: 3-4**

**Description:** Implement a formal Fair Disclosure Policy whereby the State of Rhode Island amends the Fair Disclosure Policy legislation to require formal disclosure of noise levels on residential property located within a 65 DNL noise contour and is supplemented by information on aircraft noise levels distributed by airport staff within the community and among the citizens, neighborhood associations, developers, real estate agencies, and lenders.

**Relationship to 1986 NCP:** This is a new measure recommended for approval in the 1998 NCP update.

**Background and Intent:** RIAC should institute a policy to advise potential developers, real estate agents, lenders, and buyers of properties that certain areas may be impacted by aircraft noise and overflights. The policy would provide actual, or constructive, disclosure to potential residents in the airport vicinity. Such disclosure is intended to advise a prospective buyer where the property is located in relation to current noise exposure contours; allowing the prospective buyer to make an informed decision.

Since all existing residential property in the noise impact area will be sound insulated by RIAC, most potential buyers may find these properties acceptable. Most importantly, they will do so with full knowledge of aircraft noise levels prior to committing to their purchase.

The key to a formal disclosure policy is that legal requirements will be imposed upon the developers, real estate agents, lenders, and buyers. It is RIAC's desire to institute legislation to change the real estate disclosure notices in the State of Rhode Island to include language that would inform the prospective buyer that a home is located inside of a 65 DNL noise contour. In addition, information about the disclosure should be disseminated to the developers, real estate agents, lenders, and buyers by airport staff. The main responsibility for implementing the program should fall to the airport's Noise Program Manager, in concert with other staff members. There are several methods of disseminating the information necessary for the formal Fair Disclosure Policy. While many techniques may evolve over a period of time by the RIAC's staff, a number of key actions may be initiated including public progress reports, noise program bulletins, direct contacts with Federal Housing Administration and Veterans Administration, and presentations to organizations.

**Land Use Compatibility Improvement:** Not Applicable

**Responsible Implementing Parties:** RIAC and State of Rhode Island.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC should initiate discussions with the legislature of the State of Rhode Island to enact the formal Fair Disclosure Policy recommended in the Part 150 Study Update. RIAC should prepare information for informal disclosure to the surrounding communities.

**Costs:** The costs for implementation of this measure, which will accrue to RIAC, include expenses for administration, printing, and public advertising.

**Schedule:** The measure does not require FAA authorization and may be implemented at any time.

**Effects on Other Programs/Measures:** The implementation of this measure is not expected to adversely affect any other mitigation program measures and it will enhance the compatibility of land uses surrounding the airport.

**Noise Compatibility Program Measure: LU-8**

**Exhibit: 3-4**

**Description:** The City of Warwick's Comprehensive Plan should be updated to address airport influence on the surrounding community; and where appropriate to encourage compatible land uses within the 2003 Noise Exposure Map boundary, based on the 65 DNL noise contour of the 2003 NCP.

**Relationship to 1986 NCP:** This is a new measure recommended for approval in the 1998 NCP update.

**Background and Intent:** The City of Warwick's Comprehensive Plan is an important tool for establishing policies to guide future development around the airport. Within this plan, the City is divided into separate planning districts. The City's Planning Board is responsible for conducting updates of the Comprehensive Plan. The Warwick City Council is responsible for adopting the Comprehensive Plan updates conducted by the City Planning Board. The City's Planning Board and the City Council should consider one of two options for addressing the impact of the airport. The first option is to create a new planning district (noise impact planning district) based on the 2003 NEM boundary. The other option is to address the airport's impact on existing planning districts, again based on the 2003 NEM boundary.

In both cases, the Comprehensive Plan should identify the 2003 NEM boundary, based on the 65 DNL noise contour of the 2003 NCP, as the airport's minimum area of influence. Within this area, the Comprehensive Plan should address informal and formal fair disclosure policies, encourage amendments to the building code, and where appropriate recommend zoning that is compatible with the airport.

The Technical Advisory Committee addressed this issue and suggested that the Permanent Implementation committee (PM-3) could be used as a forum to recommend to the City's Planning Board which "district" option should be pursued in planning for the impact of the airport.

**Land Use Compatibility Improvement:** The implementation of this measure would help to establish policies to guide compatible development in those areas within the airport's area of influence.

**Responsible Implementing Parties:** RIAC and the City of Warwick.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC and the implementation committee (PM-3) should work with the City of Warwick's Planning Board to update the Comprehensive Plan. Updates, which are conducted by the Planning Board, should be closely coordinated with the Warwick City Council to strengthen the possibility of Plan adoption.

**Costs:** The costs for implementing this measure, which will accrue primarily to the City of Warwick, include expenses for consultants, administration, printing, and public advertising of the update to the Comprehensive Plan.

**Schedule:** The measure does not require FAA authorization and may be implemented at any time.

**Effects on Other Programs/Measures:** The implementation of this measure is not expected to adversely affect any other mitigation program measures and it will enhance the compatibility of land uses surrounding the airport. This measure replaces in whole or part Measures LU-1 and LU-2, and will enhance Measures LU-3 and LU-7.

**Noise Compatibility Program Measure: LU-9**

**Exhibit: N/A**

**Description:** Initiate a formal study to evaluate the noise levels at various schools located under heavily used aircraft flight paths for eligibility for sound insulation.

**Relationship to 1986 NCP:** This is a new measure recommended for approval in the 1998 NCP update.

**Background and Intent:** A formal study would be conducted to evaluate the noise levels at the following schools: John Brown Francis School, E.G. Robertson School. In order to more accurately assess the impact of aircraft noise on schools, the study would focus on the aircraft events occurring during typical school hours. The results of the analysis could lead to recommendations for the sound insulation of some or all of the schools. Additionally, the results of the study will allow the RIAC to determine if further schools need to be evaluated.

**Land Use Compatibility Improvement:** This measure would make up to six incompatible land uses compatible with aircraft operations.

**Responsible Implementing Parties:** RIAC.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC should initiate a formal study to evaluate and make recommendations on the sound insulation of the identified schools in the area.

**Costs:** The costs for implementation of this measure, which will accrue to the RIAC, would include expenses for preparing the study and potentially the sound insulation of some or all of the schools. The study is estimated to cost \$10,000, while soundproofing of both schools is estimated to cost \$625,000.

**Schedule:** The initiation of the study does not require FAA authorization however, funding for the study and sound insulation of the schools would be subject to the availability of FAA funding.

**Effects on Other Programs/Measures:** The implementation of this measure is not expected to adversely affect any other mitigation program measures and it will enhance the compatibility of land uses surrounding the airport. This measure replaces Measures LU-5.

**Noise Compatibility Program Measure: PM-1**

**Exhibit: N/A**

**Description:** Install an aircraft operations monitoring system to evaluate efficiency of the implementation of track corridor or runway use programs of the ultimate adopted NCP.

**Relationship to 1986 NCP:** This is a new measure recommended for approval in the 1998 NCP update.

**Background and Intent:** An operations monitoring system is a useful tool for evaluating aircraft flights for compliance with NCP measures and monitoring the potential changes in noise conditions. The system would provide runway use and flight track location information, accompanied by a series of analytical reports which assist in monitoring the implementation of noise abatement actions, as well as gather information required for updating the noise mapping and compatibility programs. Such monitoring can be gathered either continuously via a direct connection to the FAA's radar system, resulting in a mirroring of all data collected by the ATCT, or information may be collected periodically which will show trends of operating characteristics.

**Land Use Compatibility Improvement:** Not Applicable

**Responsible Implementing Parties:** RIAC and State of Rhode Island.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC should initiate discussions with the State of Rhode Island to identify funding sources for such a system. The next step is to prepare a request for proposal from selected firms to provide proposals and cost estimates for installing a system.

**Costs:** The costs for installation of an aircraft flight monitoring system is dependent upon the choices RIAC makes regarding the functionality of the system. The cost is expected to be approximately \$500,000.

**Schedule:** This measure would require close coordination with the FAA in order to establish the information exchange process. It should be anticipated that it will take up to one year to design, fund, install, and train staff in the usage of the system.

**Effects on Other Programs/Measures:** The implementation of this measure would enhance the effectiveness of the entire NCP program by providing a means to monitor the implementation of individual measures such as flight track corridors.

**Noise Compatibility Program Measure: PM-2**

**Exhibit: N/A**

**Description:** Implement a "Fly Quiet" public relations publications and communication program to deliver the message of the NCP to users and the public.

**Relationship to 1986 NCP:** This is a new measure recommended for approval in the 1998 NCP update.

**Background and Intent:** This measure would significantly expand upon adopted Measure NA-11. An NCP needs a vehicle such as this to publicize its requirements to all affected parties. This alternative may help operators comply with NCP procedures. In general, a "Fly-Quiet" publication would include information on noise abatement procedures for pilots and airlines such as NADP's, the voluntary curfew, noise abatement flight corridors for fixed wing aircraft and helicopters, the runway use program, restrictions on maintenance, and suggestions for noise reduction. In addition, this publication would ensure that the pilots, airlines, and the community recognizes that the airport is serious and committed to noise compatibility around the airport.

**Land Use Compatibility Improvement:** N/A

**Responsible Implementing Parties:** RIAC.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC should develop a "Fly-Quiet" document and distribute it to all interested parties. This may include RIAC contracting with a consultant to complete the program.

**Costs:** The costs for preparing and delivering a "Fly-Quiet" publication is dependent upon the amount and type of information included and the number of brochures delivered.

**Schedule:** For planning and budget purposes, a cost of \$50,000 is estimated. The cost is eligible for FAA grant funding under AIP. All measures subject to FAA approval must receive that approval before inclusion in the documentation

**Effects on Other Programs/Measures:** The implementation of this measure would enhance the effectiveness of the entire NCP program by providing pilots and airlines with the necessary information to follow the procedures.

**Noise Compatibility Program Measure: PM-3**

**Exhibit: N/A**

**Description:** Establish a Permanent Implementation Committee to monitor/assist in implementation and success of the air traffic and land use measures approved as a part of the NCP.

**Relationship to 1986 NCP:** This is a new measure recommended for approval in the 1998 NCP update.

**Background and Intent:** This measure has been included in the Part 150 NCP update to institutionalize the continuation of the communication and cooperation between the various groups participating on the Technical Advisory Committee (TAC). Such a committee should include airline operators, RIAC, FAA, City of Warwick, and citizen representatives. The group could monitor the implementation of the various recommended measures and provide a mechanism for assuring that miscommunication and misunderstandings of future noise abatement and land use mitigation actions do not become common. In addition, the group may request airline representatives to voluntarily provide information on the necessity to operate aircraft during late night or early morning hours. This group could also assist the RIAC in determining the schedule and priority for implementing various NCP measures. RIAC staff should serve as the coordinating staff for the committee.

**Land Use Compatibility Improvement:** Not Applicable

**Responsible Implementing Parties:** RIAC.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC should notify the interested parties about the creation of the committee and schedule the initial meeting.

**Costs:** The minimal costs associated with the implementation of this measure would be for administrative duties such as preparation of handouts and talking papers.

**Schedule:** The measure does not require FAA authorization and may be implemented at any time.

**Effects on Other Programs/Measures:** The implementation of this measure would enhance the effectiveness of the entire NCP program by providing the interested parties the opportunity to be involved in the decision-making process of the NCP.

**Noise Compatibility Program Measure: PM-4**

**Exhibit: N/A**

**Description:** Continue five-year updates of the NCP and two-year reviews of the NEMs.

**Relationship to 1986 NCP:** This is a new measure recommended for approval in the 1998 NCP update.

**Background and Intent:** This measure has been included in the Part 150 NCP update to formalize the continuing process of noise and land use compatibility at the airport. Part 150 guidelines call for periodic reevaluation and resubmission of the conditions of noise at the airport. The conditions of the NCP should be reevaluated every five years and the NEMs should be reassessed internally every two years and, if appropriate, an update of the Part 150 Study should be conducted.

**Land Use Compatibility Improvement:** Not Applicable

**Responsible Implementing Parties:** RIAC.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC should monitor activity levels relative to forecasts of operations. If found to deviate significantly (by more than 10 percent) from predicted levels, the current noise levels of the airport may be recomputed. Further, if significant new service is introduced, facilities are developed, or variations from the defined air traffic procedures become necessary, a re-computation of the noise contours is recommended. Upon the expiration of the NCP in 2003, the Part 150 Study should be updated to reflect conditions present at that time.

**Costs:** The costs for updating the complete Part 150 evaluations will depend upon the scope of the project. Costs for periodic re-computation of the noise contours only may be held under \$25,000, and if the recommendations of PM-1 are implemented, the cost may be reduced significantly from there.

**Schedule:** NEM reassessment in 2001; Part 150 NEM and NCP updates initiated in 2003.

**Effects on Other Programs/Measures:** This measure provides for continuing reassessment of the conditions leading to the evaluation of noise management and control programs at the airport.

**Noise Compatibility Program Measure: PM-5**

**Exhibit: N/A**

**Description:** Conduct further study analyzing the possible extension of Runway 16/34 for noise abatement purposes.

**Relationship to 1986 NCP:** Measure PM-5 is a new measure.

**Background and Intent:** This measure considers noise abatement and operational benefits that would be achieved if Runway 34 were designated as preferred for all departure operations, wind and weather permitting. In order for Runway 16/34 to be designated as the preferential departure runway, it would need to be extended to be of equal or greater length than Runway 5R/23L. This conclusion is supported by the fact that during the testing of the Part 150 measures by the FAA Air Traffic Control Tower, this measure created potential aircraft movement conflicts due to the smaller general aviation aircraft using Runway 34 for departures while the commercial jet aircraft continued using Runway 5R/23L because of its greater length. Potential conflicts occurred on the ground with taxiing aircraft, as well as in the arrival and departure airspace in the vicinity of the airport.

Increased usage of Runway 16/34 would have significant noise benefits, but cannot be accomplished unless the runway is extended. The feasibility study would evaluate all factors of a potential extension of Runway 16/34 and address the needs of the airport in determining the necessary length of an extended 16/34 by analyzing noise abatement, runway safety, operational efficiency, and runway condition.

**Land Use Compatibility Improvement:** The extension of Runway 16/34 and the subsequent preferential use of the runway for departures would dramatically reduce the number of persons affected by noise in three directions, but would increase the size of the contour along the departure path of Runway 34 (over primarily commercial/industrial uses). The area immediately to the west of the airport along the Runway 34 centerline is considered to be compatible land use (industrial and institutional).

**Responsible Implementing Parties:** RIAC, FAA.

**Implementation Steps, Costs, and Phasing:**

**Steps:** RIAC intends to rehabilitate Runway 16/34 pavement within the next few years. The scope of this effort should include the evaluation of extending Runway 16/34. An EIS would be required by NEPA, which includes extensive public participation and involvement to discuss the impacts.

**Costs:** The costs for the study would be approximately \$50,000 and would be included as part of the Runway 16/34 rehabilitation EIS. The study would include an evaluation of costs for the potential extension of Runway 16/34.

**Schedule:** The feasibility study could be accomplished as part of the runway rehabilitation EIS expected to be conducted in the next two years. As part of that process there will be extensive public participation and involvement.

**Effects on Other Programs/Measures:** Having two runways of equal length would change the way the airport is operated. The most significant noise reduction could result by extending Runway 16/34 and it is likely that new NEM's and NCP could be required.