

### Aero-Airport Limousine Service, Inc.

Aero-Airport Limousine Service, Inc. operates six 15-passenger vans under its four-year contract with RIAC. Shuttle vans provide fixed-route service to Providence hourly, on the hour, with stops at Providence hotels including the Biltmore, Marriott, Marriott Courtyard, Westin (including Convention Center, Providence Place), Amtrak station, and Brown University and Rhode Island School of Design (RISD). One-way fare is \$9 per person. Vans operate from 5:00 a.m. to 11:00 p.m. with two vans usually in operation. Service to the Amtrak station in Providence is weather-based; few make that stop on a daily basis. Ridership information was not available although heavy ridership is based on school schedules, convention schedules, and weather (to Amtrak).

Under their current contract, one van is permitted to wait curbside within the commercial lane. There are seven parking spaces available for staging of off-duty passenger vans in the cargo area, south of the terminal.

### Coach USA

Coach USA is owned by Stagecoach Holdings PLC, international operators of airports, airlines, railroads, and bus service. According to sources at Coach USA, they provide private group charter buses and only travels to T.F. Green when hired by a group for delivery or pickup. Pawtuxet Valley Bus Lines, owned by Coach USA, is the primary carrier for charter service and diversion service to the airport. Diversion service must be provided within 10 minutes of notification.

### MBTA and Amtrak - Proposed Warwick Intermodal Station and Garage

Currently, there is no rail service to the airport; however, the Amtrak Northeast Corridor Rail Line travels through the area 1,570 feet to the west. This rail line provides service throughout the northeast and at Rhode Island stations in Providence, Westerly, and Kingston. Future rail service is proposed from Warwick via the new Warwick Intermodal Train Station, which is to be located at the southeast corner of Jefferson Boulevard and Coronado Road. An APM connecting the airport terminal and the train station will assure convenient access. The station will provide connecting rail service to Boston and New York via Massachusetts Bay Transportation Authority (MBTA) Commuter Rail and Amtrak. Design and engineering are currently underway for the station; projected opening day for the station is December 31, 2002.

With completion of the Warwick Intermodal Train Station, the MBTA has agreed to extend commuter rail service south from its current terminus at Union Station in Providence. Service to the proposed station will augment current Amtrak train service to Union Station in Providence, Kingston Station, and Westerly Station. A schedule of service at the new Warwick station has not yet been developed, but will include peak hour service for both Amtrak and MBTA service to Providence and Boston.

## APM

An APM or horizontal elevator is planned to transport passengers from the T.F. Green Airport, Bruce Sundlun Terminal to the planned Warwick Intermodal Train Station on Jefferson Boulevard. The APM may extend from the third level of the Bruce Sundlun Terminal and span the upper departure level, cross the hourly parking lot and Post Road (Route 1), and run along Fresno Road to the proposed Amtrak station/rental car garage lobby. On-demand service would be provided for intermodal (bus, rail) passenger, and rental car customers. Passengers will then be able to choose from several different modes to continue their trip. Rail service, bus service, rental car operations, and taxi service are currently planned to operate from this facility.

### **I.5.4 Support Facilities**

This section describes the existing support facilities at the airport. [Exhibit I.5-10](#) graphically depicts the location of the support facilities.

#### **Fuel Farm**

The central fuel farm was installed by RIAC in 1997 and is located on the airport's service entrance access road (Delivery Drive), north of the terminal building, and immediately east of the old fuel farm site. The fuel farm consists of above ground storage tanks. These tanks replaced the former underground fuel tanks that existed on the same site.

This current facility is comprised of four major components:

- the access drive
- the control shack
- two truck bays for loading/off-loading
- the fuel storage tanks

#### Access Drive

The access drive provides the entrance to the fuel farm from the airport's delivery drive. Tanker trucks delivering fuel must use the drive to pass through an airport security gate, and drive north around the facility in order to access the truck bays for the unloading of aircraft fuel. Aircraft refueling trucks also utilize the drive to access the truck bays to load aircraft fuel and then use the drive to return airside.

#### Control Shack

The 135-square foot fuel farm control shack is located immediately northwest of the truck bays. It contains all of the control and metering equipment and gauges for the fuel farm.

### Truck Bays

There are two covered truck bays available for loading and unloading of aircraft fuel. Each bay has its own pumps for fueling operations, and each has a drainage system to collect and process any fuel spillage through an oil-water separator and charcoal filtration system. Both bays are also serviced by an overall fire-suppression system.

### Fuel Tanks

The fuel farm currently has five 50,000-gallon fuel tanks used for the storage of Jet-A aircraft fuel, one 10,000-gallon fuel tank used for the storage of 100LL aircraft fuel, and one 10,000-gallon fuel tank used for the storage of Mogas, or standard automobile gasoline. Located immediately east of the truck bays, the fuel tanks are surrounded by an 18-inch dike that is capable of containing a complete failure of one of the 50,000-gallon tanks, plus ten percent. There is no room within the existing diked area for additional tanks. A dispenser for the Mogas is located just north of the tanks, outside of the diked area. There is also a new 10,000-gallon diesel tank located west of the truck bays for refueling of airport vehicles.

An FBO, Northstar Aviation, Inc., conducts fueling operations for all aircraft as well as fuel farm management. As noted by Northstar, each airline purchases their own fuel and has it delivered to the airport's fuel farm on a regular basis. Since the airport maintains a "joint-use" fuel farm facility, each airline's fuel is co-mingled with other fuel. Northstar receives the fuel, tracks its balance quantity, and delivers it to the airline's aircraft on demand. For this service, and for maintaining trucks and other facilities, Northstar is paid a "handling" fee. To meet the commercial airlines' Jet-A fuel service demands, Northstar maintains four 5,000-gallon and three 10,000-gallon aircraft fuel trucks.

## **Belly Cargo & Ground Support Equipment (GSE)**

### GSE Maintenance/Belly Cargo Facility

Airline GSE maintenance and air cargo (belly freight only) operations at T.F. Green Airport occupy an existing 18,000 square foot (300 feet x 60 feet) metal-sided, prefabricated building located south of the Bruce Sundlun Terminal building. The facility is secured from AOA access. Outdoor parking and storage space exists on the airside, and a landside paved truckyard (approximately 36,700 square feet) is reserved both for shipping operations and for taxicab queuing. A covered lavatory dump station is located inside a lean-to on the south face of the GSE/Cargo building, along with a buried holding tank.

The building is made up of twelve 24-foot wide bays, that are currently<sup>12</sup> subdivided from north to south as follows:

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<sup>12</sup> As of May 24, 2001.

- US Airways Aircraft/GSE Maintenance
- Delta Airlines GSE Maintenance (ATI)
- Delta Airlines Cargo
- United Airlines Cargo
- US Airways Cargo (Quantum)
- Northstar GSE Maintenance

The fenced-in area on the airside (approximately 50,000 square feet) is partially paved. Numerous pieces of in-service GSE are parked in the paved area. Off-season storage of de-icing trucks, and permanent and semi-permanent glycol storage tanks occupy about half of the paved area. There are currently plans to relocate all glycol storage tanks to an area directly south and adjacent to the existing fuel farm. Unpaved areas are occupied by inactive GSE and bulk parts.

#### GSE Maintenance Operations

US Airways, Federal Express, UPS, Northstar Aviation, and ADS Aviation Maintenance, Inc. currently conduct GSE maintenance. US Airways provides their own GSE maintenance at the GSE Maintenance/Belly Cargo facility. Northstar Aviation provides GSE maintenance services for United and Northwest in the GSE Maintenance/Belly Cargo facility. Federal Express and UPS provide their own GSE maintenance on the Northwest Ramp. ADS Aviation Maintenance, Inc. provides these services for all other airlines in Hangar #1 on the Northwest Ramp.

#### GSE Storage Operations

GSE is currently stored at various locations around the airport depending on proximity to use, time of year, and availability of storage space. Most GSE is located at one of the following locations:

- GSE Maintenance/Belly Cargo Building
- Terminal Apron
- Fuel Farm
- Northwest Ramp (cargo & general aviation)

#### U.S. Postal Service Facility

This processing facility is used for minor sort operations of inbound mail shipped in the belly cargo holds of commercial aircraft. It is comprised of a metal sided, prefabricated, 2,400-square foot building located adjacent to, and southwest of, the GSE Maintenance/Belly Cargo building and next to the Taxiway "T" hold apron. Additionally, it utilizes approximately 8,400 square feet of the surrounding apron for storage of mail handling bins, and shipping/receiving operations.

### **Aircraft Maintenance Operations**

The only airline that currently has mechanics on site and conducts scheduled aircraft maintenance at T.F. Green Airport is US Airways. Maintenance operations are conducted at the terminal gate, while parts and shop activities are housed in the GSE Maintenance/Belly Cargo Building.

ADS Aviation Maintenance Inc. typically handles non-scheduled maintenance operations for all other airlines, including cargo carriers. Maintenance operations are conducted at the terminal gate for commercial passenger airlines, while cargo airlines are serviced on the Northwest Ramp. Parts and shop activities are housed in the ADS facility in Hangar #2 on the Northeast Ramp.

### **Aircraft Deicing Operations**

Aircraft deicing at T.F. Green Airport typically occurs immediately following the “push back” of an aircraft from the terminal gate prior to departure. Occasionally, aircraft must also deice immediately prior to takeoff in the vicinity of the runway in use at the time.

While there is currently no existing, centralized glycol<sup>13</sup> storage facility at T.F. Green Airport, all storage tanks are located at or near either the airside ramp of the GSE Maintenance/Belly Cargo Facility, or the fuel farm. There are a total of 14 semi-stationary Type I glycol storage tanks, as well as at least 13 portable Type IV tanks being used by a total of eight separate glycol operators as of August 2000. Individual tank shapes, sizes, ages, conditions, and containment properties vary widely.

RIAC is in the process of implementing a state-of-the-art glycol waste management program. The program is being designed to sweep or vacuum up as much as 35 percent of all used glycol product (prior to it entering the storm drainage system) and then collect and recycle as much of the remaining product as is feasible. Currently, used glycol is vacuumed up by specialty vehicles (V-Quip), stored in temporary holding tanks, and ultimately sent off-site for recycling.

### **Airfield Maintenance/Snow Removal Equipment (SRE)**

The Airfield Maintenance/SRE Facilities are located off-airport on a 5.5-acre site north of Airport Road and are comprised of four buildings:

- Administration Building
- Sand Storage Shed
- Equipment Storage Dome
- Maintenance Garage

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<sup>13</sup> Fluid used to deice aircraft.

The Administration Building (4,100 square feet) is a stone-sided, single-story, former state police maintenance garage that now houses:

- Airfield Maintenance Administration Offices
- Records Storage
- Field Electrical Storage/Shop
- Personnel Dormitory
- Personnel Support Facilities (bathrooms/kitchen)

The Sand Storage Shed (1,100 square feet) is a heated facility for the storage of aviation grade sand for spreading during snow events, and has been recently rebuilt. Additionally, approximately 11,000 square feet in front of and next to the shed is also required for sand loading and unloading operations.

The distinctive, aluminum Equipment Storage Dome (13,900 square feet) currently houses numerous pieces of vehicular equipment and support attachments, as well as storage for bulk materials, such as sweeper brooms. The largest pieces of equipment (i.e. sweepers, blowers) are precluded from being located under the dome because of size constraints.

Connected to the dome to the west is the Maintenance Garage (4,900 square feet), which services all airport field maintenance/SRE and ARFF vehicles. The garage currently contains:

- Garage Administrative Office
- Parts Storage
- Machine Shop
- Paint Bay
- Four Service Bays (including service pit)
- Small Equipment Storage
- Personnel Support Facilities (bathrooms/kitchen/lockers)

The remainder of the site, about half of which is paved, is utilized for the following:

- Large Equipment Storage
- Large Attachment Storage
- Miscellaneous Bulk Storage
- RI State Gas/Diesel Station
- Access/Operations
- Employee Parking

All airfield maintenance equipment, SRE, and ARFF maintenance equipment is located off-airport at the Airfield Maintenance/SRE Facility north of Airport Road. Several pieces of SRE are also currently located in the old fire station on the Northwest Ramp.

With respect to FAA Advisory Circular 150/5200-30A, *Airport Winter Safety and Operations*, paragraph 16 and paragraph 17, the Priority 1 clearance areas (those areas that are required to be cleared of up to one inch of snow within a half-hour period) for T.F. Green Airport are as follows:

- Runway 5R-23L
- Taxiways to Runway 5R (“T”, “D”, “S”)
- Taxiways to Runway 23L (“T”, “N”, “M”, “A”)
- Taxiways to Commercial Ramp (“T”, “F”, “N”)
- 50 percent of Commercial Service Ramp and associated ramp movement areas
- ARFF access route

The total size of the Priority 1 clearance areas is approximately 2.8 million square feet.

### **Northeast and Northwest Ramp Facilities**

The area described as the Northwest Ramp is located on the north side of the airport just to the south of Airport Road. On the airfield side, the Northwest Ramp is located between the threshold of Runway 16 on the west and Taxiway “B” on the east. The Northeast Ramp is just east of the Northwest Ramp and its eastern boundary is Taxiway “A.” Existing facilities on the Northwest Ramp and their use are shown in **Table 1.5-6** (listed west to east).

The Northwest and Northeast Ramps contain a variety of airport support operations and their associated facilities, including all corporate, general aviation, and FBO operations; all cargo handling, sort, and parking operations; and airport operations offices and other support facilities.

This area accommodates 25 small aircraft tie-down spots owned by RIAC and 10 tie-down spots utilized by Northstar Aviation. There are also several spots available for transient aircraft parking around the Northstar Hangar.

All air cargo operations are conducted in this area (with the exception of belly cargo). Specifically, Federal Express, UPS, and Airborne Express all utilize Hangar #2, and the apron located north of Taxiway “N” and between Taxiways “B” and “M”, for their freight processing operations. The apron is also utilized by all three airlines for aircraft parking throughout the day, as well as for GSE storage.

**Table 1.5-6**  
**CORPORATE/GENERAL AVIATION AREAS**  
**T.F. Green Airport**

<b>Name</b>	<b>Use and Aircraft Storage</b>
Hangar # 1 (54,000 square feet +/-)	<ol style="list-style-type: none"> <li>1. Horizon Aviation Inc.- Flight training, Rentals, Scenic tours</li> <li>2. P T Aero Service Inc. – Aircraft maintenance</li> <li>3. Aircraft storage – Main hangar</li> <li>4. Corporate Air Charter Inc. – Charter service</li> <li>5. Civil Air Patrol</li> </ol>
Fleet Hangar (11,000 square feet +/-)	<ol style="list-style-type: none"> <li>1. Fleet Bank – Corporate flight department</li> <li>2. Richmor Aviation – Aircraft maintenance for Fleet</li> </ol>
City of Warwick Fire Station (Decommissioned) (8,800 square feet +/-)	<ol style="list-style-type: none"> <li>1. Airfield maintenance equipment storage</li> <li>2. Airport electrical vault</li> </ol>
Old Terminal Building (2,900 square feet +/-)	<ol style="list-style-type: none"> <li>1. Airport operations offices</li> <li>2. Potential historic site</li> </ol>
Quality Aviation Hangar (12,800 square feet +/-)	Helicopter sales & storage
Textron # 2 Hangar (10,500 square feet +/-)	<ol style="list-style-type: none"> <li>1. Transient aircraft storage</li> <li>2. Textron crews for aircraft it sells.</li> </ol>
CVS Hangar (8,300 square feet +/-)	CVS – Corporate flight department
Textron # 1 Hangar (10,300 square feet +/-)	Textron – Corporate flight department
Northstar Aviation (15,200 square feet +/-)	FBO offices and aircraft storage
Hangar # 2 (49,700 square feet +/-)	<ol style="list-style-type: none"> <li>1. ADS Aviation Maintenance, Inc.</li> <li>2. Airborne Express</li> <li>3. Federal Express</li> <li>4. UPS hangar, office and storage space</li> <li>5. Airport weather services</li> </ol>
Hangar # 3 (7,500 square feet +/-)	<ol style="list-style-type: none"> <li>1. RIAC aeronautics inspection offices</li> <li>2. State aircraft/helicopter storage</li> </ol>

## **Aircraft Rescue and Firefighting**

T.F. Green Airport operates as an air carrier facility under certification by the U.S. Department of Transportation (DOT). The Code of Federal Regulations (CFR) 14, Part 139, governs the operations of airports serving DOT-certified air carriers using aircraft with greater than 30 seats. Within these regulations, specific requirements for the operation of ARFF equipment and service have been established. In addition, the airport is required to maintain and update an FAA-approved Airport Certification Manual, which outlines operational procedures and personnel responsibilities, for the safe operation of the airport.

The 12,000-square foot ARFF facility is located northeast of the intersection of Runways 34 and 23L at T.F. Green Airport. Built in 1990, the facility consists of a centered, two-story crew and operations facility, flanked on either side by three vehicle storage bays. The center operations area is comprised of the following:

- Administrative offices (four)
- Operations office
- Crew kitchen
- Crew dormitory
- Men's locker room (sized for 18 employees) / bathroom
- Women's bathroom
- Crew training room
- Crew exercise / weight training room (required per ARFF regulations)
- Storage room

## **Flight Kitchens**

There are no flight kitchens/galley services located on T.F. Green Airport property. These services (i.e. meal/snack preparation for commercial passengers and flight crews, as well as general catering) are currently provided to most of the airlines and the airport by Galley Services Providence Incorporated, which is located in a rear, ground floor section of the shopping plaza on the corner of Post and Airport Road. From this location, Galley Services has direct access to the airport delivery drive, and thereafter to the airfield via Airport Gate 1, north of the terminal building. They currently provide all meal services for US Airways, American Airlines, Air Ontario, United Airlines, Federal Express, UPS, charter flights (sports/vacation), as well as on-call catering for Northstar and other general aviation operators. They currently have four delivery vans.

Emery's Catering Service is a local, general caterer that provides the meal services for Delta Airlines. They are located on West Shore Road in Warwick, Rhode Island. Airlines that do not require regular meal services at T.F. Green Airport, such as Northwest Airlines, have those services provided to them at other airports.

### **I.5.5 Energy Systems**

Heating and cooling for the main terminal building (311,000 square feet of space on three levels) is provided from a mechanical plant that is attached to the front of the terminal building, near the loading dock area. Heating is provided via a low temperature (180 degree) hot water system. The airport has two Cleaver Brooks boilers with a capacity of 300 boiler horsepower (bhp) each. The boilers run on gas only, with no dual-fuel capacity. There are two centrifugal chillers, with a capacity of 600 tons each. There are also three Marley cooling towers. There is currently no cogeneration of power at the airport. (Cogeneration is a technology which makes power and captures wasted heat to make steam for heating. It is frequently used in heating plants to improve the efficiency of the overall energy operation.)

It is the airport's current operating philosophy to maintain one backup boiler and one backup chiller unit. Under current peak conditions, approximately 40 percent of total heating capacity and 50 percent of total chilling capacity is available, so any major addition to terminal space in the future will require the addition of new boiler and chiller equipment in order to maintain adequate backup units. Very little space exists in the existing plant to add more equipment.

Thermal distribution systems run from the plant in a loop through the terminal. The existing systems are at capacity. Any major terminal space addition would require a rework of the thermal distribution systems, or construction of a separate plant and distribution loop to serve the new space.

Emergency power generators for life safety systems (such as exit signs and fire protection systems) are located in a separate room in the plant. Two 600 kilowatt generators have about 60 percent more capacity than is currently needed, and could accommodate some additional loads.

Ground power is provided for aircraft at all gates. Preconditioned air is provided by individual airlines via stand-alone units at all gates, and is not provided from the airport's thermal systems. There are currently no charging stations for GSE.

### **I.5.6 Drainage and Utilities**

#### **Drainage**

In 1987, the firm of Hoyle, Tanner & Associates presented a Drainage Master Plan for T.F. Green Airport. The plan consisted of a compilation of drainage infrastructure "as-builts." In order to reflect the current status of the drainage system infrastructure at

T.F. Green, a Drainage Master Plan Update is currently being prepared. Information will be provided as it becomes available.

### Utilities

There are buried utility systems that are owned and maintained by the airport while some are owned and maintained by utility companies or airport tenants. The airport does not maintain a composite atlas of buried systems, but refers to construction as-built drawings as needed. **Table I-5.7** describes the existing buried utilities at the airport.

## I.6 CURRENT CAPITAL IMPROVEMENT PROGRAM (CIP) FUNDING

### I.6.1 Current Five-Year CIP/Sources of Funds

Following the opening of the new terminal building at T.F. Green Airport in September 1996, RIAC has continued to plan and implement various airport capital projects in order to keep up with significant increases in passenger demand and other infrastructure needs.

RIAC's five-year CIP includes \$1.7 million in planning projects, \$11.7 million in noise mitigation, \$1.2 million in easements/obstruction removal, \$4.4 million in airfield pavement rehabilitation/new pavement projects, \$26.7 million in terminal area/building and landside improvements, \$7.7 million in environmental compliance projects, and \$0.8 million in miscellaneous projects.

In the Fiscal Year (FY) 1997 – FY 2001 timeframe, an estimated \$183.5 million was available for use on required capital projects. Sources of funds have included the following:

- Federal entitlement grants
- Federal discretionary grants
- Federal noise grants
- State funds
- RIAC funds
- Passenger facility charge (PFC) pay-as-you-go funds
- Airport revenue bond proceeds

**Table I.5-7**  
**BURIED UTILITIES**  
**T.F. Green Airport**

<u>System</u>	<u>Owner</u>
Storm Sewer mains and service lines	Airport
Sanitary sewer mains and service lines	Airport system connects to City of Warwick system at property line
Aircraft lavatory service facility (Triturator)	Separate facility in cargo building, connects to sanitary sewer
Water mains and service lines	Airport system connects to City of Warwick system at property line
Fire Hydrants	Airport
Gas mains	Providence Gas, up to the meter
Gas service lines	Airport, after the meter
Communications-Telephone duct bank	Mixed ownership
Communications- FAA lines and ductbank	FAA
Communications- telephone company lines	Verizon/Lucent
Communications-[other vendor] lines	Airlines and some tenants lease lines from vendors
Electrical - high voltage systems and transformer bank	Narragansett Electric
Electrical – low -voltage ductbank and cable	Airport
Outdoor Lighting-Roadway	Airport
Outdoor Lighting-Apron	Airport
Aircraft Fueling-piping and pumping, hydrant systems, tanks	Owned by Airport/Managed by Northstar
Aircraft gate utilities	Airlines supply all PCA, ground power supplied by Airport

[Exhibit I.6-1](#) and [Table I.6-1](#) reflect the amounts of specific sources of funds that were available during FY 1997 – FY 2001.

T.F. Green Airport projects either completed or started in the FY 1997 – FY 2001 period include:

- Construction of new parking garage
- Noise mitigation and land acquisition
- Rehabilitation of Runway 5R-23L
- New airfield maintenance facilities
- Four-Gate terminal building expansion
- Northwest ramp rehabilitation
- Deicing improvements
- Other projects

## **I.6.2 Historical Airline Payments Per Enplaned Passenger**

A primary goal of airport management is to provide a reasonable cost of doing business to the airport users, including the airlines. This can be accomplished by maintaining a realistic and financially feasible operating budget environment, as well as a prudent capital program. These parameters can be monitored through the airport's actual rates and charges to the airlines and reported as "cost per enplaned passenger."

Prior to the opening of the new terminal building at T.F. Green Airport, the total cost per enplaned passenger ranged from \$1.71 to \$1.88 in FY 1994 – FY 1996. Following the opening of the new terminal building, the total cost per enplaned passenger increased to \$4.10 in the first full FY of operation (FY 1998)--as a result of increased operating and debt service costs associated with the new terminal building. Since FY 1998, the total cost per enplaned passenger has decreased to \$3.79 in FY 1999 and to \$3.58 in FY 2000. (See [Exhibit I.6-2](#)).

Between FY 1994 and FY 2001, the average cost per enplaned passenger has ranged between 1.0 percent and 3.2 percent of estimated average one-way fares at T.F. Green Airport. Industry-wide, a range of four percent to six percent is generally considered to be reasonable by the airlines.

**Table I.6-1**  
**ESTIMATED HISTORICAL AVAILABLE SOURCES OF FUNDS (FY 1997-FY 2001)**  
**T.F. Green Airport**

<u>Funding Source</u>	<u>FY 1997 – FY 2001 (Last 5 Fiscal Years)</u>
<u>Federal Funds</u>	
Federal entitlement grants <sup>1</sup>	\$ 9,580,000
<u>Federal discretionary grants</u> <sup>2</sup>	<u>41,470,000</u>
<b>Total Federal Funds</b>	<b>51,050,000</b>
State funds <sup>3</sup>	5,450,000
RIAC funds (available for pay-as-you-go capital project costs) <sup>4</sup>	17,036,000
Other funds	1,250,000
Available PFC revenues for pay-as-you-go use <sup>5</sup>	13,917,000
<u>Airport Revenue Bond proceeds</u>	
<u>Series 1998</u>	
Airline revenue-supported (MI-approved)	11,500,000
PFC-supported	0
<u>RIAC-supported</u>	<u>40,896,000</u>
Total Series 1998	52,396,000
<u>Series 2000</u>	
Airline revenue-supported (MI-approved)	17,254,000
PFC-supported	10,350,000
<u>RIAC-supported</u>	<u>14,816,000</u>
Total Series 2000	<u>42,420,000</u>
<b>Total Airport Revenue Bond proceeds</b>	<b><u>94,816,000</u></b>
<b>GRAND TOTAL</b>	<b><u>\$183,519,000</u></b>

Note: Fiscal Years Ending June 30

Note: All amounts estimated as received or available during FY 1997 – FY 2001, but not actually spent within that same time period.

<sup>1</sup> Based on actual enplaned passengers and the entitlement formula.

<sup>2</sup> Includes noise grants.

<sup>3</sup> A portion of these funds were used for an underground storage tank removal project.

<sup>4</sup> Based on estimated deposits to Capital Projects Account from feasibility studies for Series 1998 and Series 2000 Bonds. FY 1997 deposit assumed to be \$0.

<sup>5</sup> PFC collections received during this period that were not committed to pay PFC debt service. Not necessarily equal to pay-as-you-go amounts spend during this period.

Source: FY 97-01 Table

## I.7 Airport Environmental Conditions

This section provides a preliminary overview of the physical environmental conditions at T.F. Green Airport and its vicinity. This is a preliminary discussion of currently available data and is not meant to be viewed as a complete *Affected Environment* chapter of the EIS nor a comprehensive discourse on environmental conditions. This information is meant to help the master planners recognize the environmental constraints during the Master Plan process. Investigation of the environmental conditions is ongoing and the *Affected Environmental* chapter will provide complete and confirmed data on environmental conditions at the airport.

The National Environmental Policy Act of 1969 (NEPA) established 21 areas of potential environmental impact that are required to be evaluated as part of any airport development proposal requiring a Federal Action. One example of a Federal Action is a request for approval of an Airport Layout Plan, such as what will be produced as a result of this master planning effort. Specific information on how airports fulfill the requirements of the NEPA can be found in the FAA Order 5050.4A or FAA Order 1050.1D. The 21 categories of environmental consideration for a Federal Action include:

- Noise
- Compatible Land Use
- Social Impacts (Environmental Justice)
- Induced Socioeconomic Impacts
- Air Quality
- Water Quality
- 49 USC Section 303(c) Properties<sup>14</sup> (Public Parks and Recreation)
- Historic, Architectural, Archaeological and Cultural Resources
- Biotic Communities
- Endangered and Threatened Species of Flora and Fauna
- Wetlands
- Floodplains
- Coastal Zone Management and Coastal Barriers
- Wild and Scenic Rivers
- Farmland
- Energy Supply and Natural Resources
- Light Emissions

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<sup>14</sup> 49 USC, Subtitle I, Section 303(c) was recodified from Department of Transportation Act of 1966, Section 4(f).

- Solid Wastes
- Construction Impacts
- Surface Transportation
- Hazardous Materials

Specific categories that require routine and ongoing evaluation of potential condition include the categories of Noise and Land Use Compatibility, Air Quality, Water Quality, Section 303(c) Resources, Historic, Architectural, Archaeological and Cultural Resources, Threatened and Endangered Species, Wetlands, Floodplains, Farmland, Solid Waste, and Hazardous Materials. It is these categories that will be outlined in this section of the Inventory chapter. Other environmental resource categories are being studied and will be described in their entirety in the *Affected Environment* chapter of the EIS.

### I.7.1 Noise and Compatible Land Use

Aircraft engine noise produces undesirable noise, especially in the vicinity of an airport. Engine thrust is loudest upon application of takeoff power and throughout the initial climb segment of flight. In order to address noise at airports across the nation, the FAA, airline industry, airport management, and local communities have joined to find ways to mitigate these unwanted effects.

Over the past two decades, the U.S. Congress has enacted laws to require broad participation from various stakeholders to reduce aircraft noise. The airline industry has produced quieter engines and has retrofitted older aircraft engines to meet newer noise reduction requirements. The FAA has developed and enhanced computer models that more accurately predict noise levels in the airport vicinity. In addition, Congress and the FAA has provided significant funding for the study of noise and land use compatibility in the airport vicinity when conducted in accordance with FAR Part 150. Airport management, working with local governments, has conducted Part 150 studies to identify appropriate mitigation measures for nearby incompatible land uses.

T.F. Green Airport has conducted two such Part 150 studies, one in 1986 (the first of its kind in the country), and an update in 1998. In each study, measures were identified to reduce the noise exposure on the community. Surrounded by a significant amount of incompatible residential uses, it is difficult for aircraft to avoid these areas. In an attempt to mitigate the noise exposure for as many eligible homes as possible, the FAA and RIAC have spent or committed nearly \$100 million over a fifteen year period in the form of sound insulation treatments, or voluntary acquisition of eligible houses. T.F. Green ranks 19<sup>th</sup> out of nearly 250 airports in the country for funding of noise mitigation programs.

The official Noise Exposure Map (NEM) for 1998 is presented as [Exhibit I.7-1](#). The data is also depicted in **Table I.7.1**.

**Table I.7-1**  
**NOISE INCOMPATIBILITY – 1998 Noise Exposure Map**  
**T.F. Green Airport**

	<u>65-70 DNL</u>	<u>70-75 DNL</u>	<u>75 + DNL</u>	<u>TOTAL</u>
Housing units	2,735	601	6	3,342
Population	7,091	1,568	16	8,675
Churches	2	0	0	2
Schools	2	0	0	2
Area (Square Miles)	2.29	0.92	0.68	3.89

Source: Landrum & Brown, 1998  
 Reference: 97bs01

RIAC also compiles data on noise complaints it receives from its neighbors. [Exhibit I.7-2](#) shows the number of complaints by community for the year 2000. The nature of the complaints is described on [Exhibit I.7-3](#). [Exhibit I.7-4](#) shows the number of noise complaints by month.

## I.7.2 Air Quality

An updated evaluation of air quality conditions at T.F. Green will be performed as part of this Master Plan and EIS process. Prior evaluation and formal study was conducted for the Bruce Sundlun Terminal construction project. While air quality evaluations are performed primarily as a result of proposed Federal Actions, RIAC recognizes the importance of responding to community concerns about airport air quality. As a result, RIAC is conducting an update to its air quality emissions inventory. When completed, this evaluation will identify the airport's current level of air emissions of criteria pollutants and serve as a baseline for further evaluation of relative conditions of any future airport development. The updated emissions information will also assist the Rhode Island Department of Environmental Management (RIDEM) in updating its Statewide Implementation Plan (SIP), slated for 2001-2002.

Rhode Island has been designated as a severe non-attainment area for ozone.

## I.7.3 Water Quality

T.F. Green Airport is located in Warwick, Rhode Island within several sub-basins of Narragansett Bay. Topographically, the site is relatively flat, except for the wetland area around Buckeye Brook, which drops off sharply to the southeast beyond the limits of Runway 16-34. The site is located in the Narragansett Bay water basin and the Pawtuxet River Watershed.

The majority of the airport is within the Narragansett Bay sub-basin. The southern corner of the facility and south of the site is located in the Greenwich Bay sub-basin. The Providence River sub-basin is to the north and the Pawtuxet River sub-basin is located to the west. [Exhibit I.7-5](#) shows groundwater characteristics.

During the past five years, RIAC (with assistance from the Rhode Island Department of Administration, State Budget Office, and RIDEM) has funded approximately \$15 million in water quality improvement projects.

In 1996, a large oil/water separator was installed as part of the Bruce Sundlun Terminal construction. All stormwater drainage that collects at the terminal apron passes through this cleansing system, and any oil products are properly disposed, preventing any off-site oil pollution impacts. In 1997, RIAC prepared a *Spill Prevention, Control and Countermeasures Plan* and a *Stormwater Pollution Prevention Plan* for T.F. Green Airport, and periodically updates these plans as needed to ensure that “best management practices” remain implemented to prevent off-site oil pollution.

In 1997 and 1998, all underground storage tanks from the fuel farm area were removed from the airport, and approximately 3,000 tons of contaminated soil were disposed of, and the site remediated. Recently, monitoring wells at the former fuel farm site were removed, after soil tests indicated no presence of petroleum-based products.

In 1998 and 1999, long-term parking lot expansion projects included the installation of “Vortech” units, designed to remove a minimum of 80 percent of total suspended solids from the drainage from the parking lot, in accordance with RIDEM regulations. In 1999 and 2000, T.F. Green’s main runway (Runway 5R-23L) was repaved. During the repaving project, the pavement width was narrowed from 200 feet to 150 feet (reducing the amount of impervious surface), and an in-pavement drainage system was removed. The replacement drainage system allows overland flow of stormwater filtered by the soil, rather than quickly conveyed in a piped system.

In 2000, an oil/water separator was installed by RIAC near the approach end of Runway 23L in order to process all stormwater runoff from the Northwest Ramp area of the airport. Another major ongoing effort is a glycol waste management program designed to remove as much as 35 percent of glycol products used to deice aircraft during winter operations. The emerging system includes vehicles that vacuum some of the spent glycol product before it enters the storm drainage system, storm drain inserts that prevent stormwater discharges during most deicing operations, and an “interceptor” that senses glycol at certain concentrations and then routes the glycol to a holding tank for proper disposal or recycling.

Periodically through the year, RIAC also samples and monitors the quality of receiving waters by testing for pollutants, as part of its Rhode Island Pollution Discharge Elimination System (RIPDES) Permit.

#### **I.7.4 Section 303(c) Resources and Historic, Architectural, Archaeological, and Cultural Resources**

Structures potentially eligible for listing in the National Register of Historic Places are located on the Northwest Ramp and include the original terminal building of the Rhode Island State Airport, Hangar #1, and the Air National Guard Hangar. Two cemeteries on the airport, both located on the north side of Main Avenue (Route 113), are of local historic interest (see [Exhibit I.7-6](#)).

#### **I.7.5 Endangered and Threatened Species**

Mapping of state threatened and endangered species indicated a rare species west of the main airport terminal and north of the main access road to the airport. Based on communication with the RIDEM Natural Heritage Program, the species is the sora (*Porzana carolina*), a small marsh-nesting bird that has historically occurred in the Three Ponds Marsh area.

#### **I.7.6 Wetlands**

Wetlands are located adjacent to the airport at T.F. Green, primarily on the east side. To provide more detailed information on the presence of wetlands, field delineation on airport property was performed in the fall of 2000. Freshwater wetlands (approximately 7.8 acres) were found to occur on, or near airport property in undeveloped areas (see [Exhibit I.7-7](#)).

#### **I.7.7 Floodplains**

[Exhibit I.7-8a](#) and [Exhibit I.7-8b](#) show 100 and 500-year floodplains near T.F. Green Airport. The largest floodplain area near T.F. Green Airport lies east of the airfield.

#### **I.7.8 Farmland**

Areas of prime farmland occur on and around the airport, mostly in scattered pockets between developed areas. Larger blocks of soils of statewide importance occur in the vicinity, particularly north of Airport Road and continuing southeasterly toward Warwick Pond and beyond (see [Exhibit I.7-9](#)).

#### **I.7.9 Solid and Hazardous Waste**

RAIC has a RIPDES Permit for T.F. Green Airport (RIPDES Permit Number RI0021598).

The former Truk-Away Landfill lies on airport property to the southeast of the ATCT. Landfills attract bird populations, which can be hazardous to aircraft operations, leading the state of Rhode Island to purchase the landfill in 1978 from the city of Warwick. While the former landfill site (see [Exhibit I.7-10](#)) has never been appropriately closed from an environmental standpoint, RIAC is evaluating potential redevelopment and closure options with the state's Department of Administration. Studies of the appropriate closure methods are ongoing, and will be discussed with the Master Plan Study Resource Committee (SRC) as evaluations are completed.