

CHAPTER FOUR AFFECTED ENVIRONMENT

As described in FAA Order 1050.1D, the Environmental Impact Statement (EIS) shall describe the environment of the area to be affected or created by the alternatives under consideration. The descriptions shall be no longer than necessary to understand the effects of the alternatives. Accordingly, this chapter should include a location map, vicinity map, and an Airport Layout Plan (ALP). In addition, existing and planned land uses and zoning; public facilities; population, industrial, and commercial growth characteristics; future airport actions; and other planned development projects in the study area should be analyzed.

Exhibit 4-1 depicts the study area including the cities of Warwick and Cranston in Kent County, Rhode Island.

Affected Environment

The T.F. Green Airport is located in Warwick, Rhode Island and the setting includes such features as the Providence River, Narragansett Bay, and Greenwich Bay, all located south and east of the airport. West and north there is a mixture of other cities and communities, such as the City of Providence, Rhode Island located approximately 10 miles to the north.

The county the airport is in, Kent County has been designated as a serious nonattainment area for ozone as far as air quality is concerned. Fortunately the Proposed Action examined did not impact the current air quality conditions in the affected environment.

There is one historical site that had the potential to be impacted. That site is the original airport terminal. Because it is on airport property and has an aviation function it is not considered impacted by the Proposed Action.

The populated areas in and around the T.F. Green Airport primarily consist of commercial areas which include the city of Warwick and communities such as Spring Green, Hoxie, Wildes Corner, Greenwood, Cowesett, Hillsgrove, Lincoln Park, and Norwood. The city of Cranston, located northwest of the airport, is included in the study area because parts of the city are underneath some of the flight tracks/corridors proposed in the NCP Update.

The majority of the property directly surrounding the airport is residential except for the northwest quadrants (Cranston area). This area is primarily industrial and institutional. The main roads around the airport are lined with commercial businesses. These main roads are Warwick Avenue to the east of the airport, Post Road to the west, and West Shore Road to the south and southeast. There are also several areas of compatible open space around the airport-- Warwick City Park is located west of Brushneck Cove and Shriners Park is located west of Warwick City Park and north of Greenwich Bay.

This chapter focuses primarily on land use around the airport in order to describe the environment that is most susceptible to impacts from the implementation of the air traffic alternatives presented in Chapter Three. Other impact categories normally evaluated in an EIS, such as biotic communities, floodplains, and wetlands etc., have not been discussed as part of the affected environment. This is primarily because the Proposed Action and other alternatives do

not involve construction activities, which is normally what causes impacts in most of the EIS categories. Those categories not affected by the air traffic actions are not described in this chapter, but will be listed in full in Chapter Five, *Environmental Consequences*.

The generalized existing land uses around the airport, shown in Exhibit 4-1, were primarily identified using the Rhode Island University Geographic Information System (RIGIS) and information provided by Warwick City Planning and Cranston City Planning. An aerial photograph, field surveys, US Census Bureau (TIGER) information, and Warwick Chamber of Commerce maps provided additional relevant information for the base map, such as roads, road names, public buildings, and compatible land uses.

RESIDENTIAL/COMMERCIAL/INDUSTRIAL LAND USE - The mapping of existing residential and compatible land uses in Kent County was developed using the RIGIS. In addition to roads, road names, and public buildings, a portion of south Warwick also included building footprints.

The 1990 U.S. Census data, at the block level, was combined with the Geographic Information System (GIS) land use data base in order to calculate the numbers of population and housing impacts within the noise contours.

4.1 EXISTING LAND USE

The existing land uses in the vicinity of the airport were organized in generalized categories as presented in 14 CFR Part 150, and include: residential (single-family, multi-family, duplex and triplexes, mobile home parks and houses that are in a noise mitigation program), commercial, recreational (open space and cemeteries), industrial, and institutional.

4.1.1 General Land Use Patterns

The majority of the property surrounding the airport is residential except for the northwest quadrant. This area is primarily commercial, industrial, and institutional. The main roads around the airport are lined with commercial businesses. These main roads are Warwick Avenue to the east of the airport, Post Road to the west, Airport Road to the north, and West Shore Road to the south and southeast. There are also several areas of compatible open space around the airport. Open space is also found around Buckeye Brook running east and west from airport property to the coast. Exhibit 4-1 shows the general land use patterns.

Most of the residential land uses within the study area consist of single-family housing. There are seven residential neighborhoods located around the airport. These neighborhoods are: Hoxsie to the east of the airport, Wildes Corner to the southeast, Greenwood to the southwest, Hillsgrove to the west, Lincoln Park to the northwest, Norwood to the north, and Spring Green to the northeast. Several multi-family apartment complexes are also located around the airport.

4.1.2 Noise-Sensitive Facilities Within the Study Area

As shown on **Exhibit 4-2**, 71 public community facilities are located within the study area. These facilities are 28 schools, 30 churches, ten libraries, two nursing homes, and one hospital. Exhibit 4-2 also depicts residential land use patterns within the study area.

The list of noise-sensitive public and community facilities is shown in **Table 4-1**. Those facilities within the 65 DNL or greater contours of the Proposed Action are highlighted. It was considered important to identify facilities within the contours, as well as those outside the contours, but within close proximity of the airport. The proposed noise abatement air traffic actions will in some cases cause overflights of noise-sensitive facilities, but will not result in significant impacts.

4.2 COMPREHENSIVE LAND USE PLANS

A comprehensive plan is an overall guide for the future development of a community. It typically includes general policies and maps regarding future land use and the installation of public facilities. The comprehensive plan is important in identifying the future land use pattern in the community. In the noise compatibility planning process, both the comprehensive plan and the zoning ordinance are reviewed. If apparent contradictions in planned future use are encountered, judgements must be made as to which will most likely prevail.

4.2.1 The City of Warwick

The city of Warwick's first Comprehensive Plan was recently completed and ready for adoption in 1999. The Land Use Element section of the plan states that the airport-owned land in Warwick has increased by over 100 acres since 1972. Most of the increase has been the result of the state's acquisition of land off Warwick Industrial Drive and land south of Main Avenue (known as the airport's clear zone). The 1985 total of 958 acres included vacant state holdings abutting the active areas of the airport now in use.¹

4.2.2 The City of Cranston

The City of Cranston, Rhode Island Comprehensive Plan was adopted in February 1993. The plan's goals and policies represent an important step in the process of developing strategies for allocating areas for various land uses, managing residential and commercial growth, protecting natural resources and open space providing necessary infrastructure to support development, and directing other aspects of Cranston's future growth. The southeastern portion of the city of Cranston that is affected in the study area is mainly industrial and institutional.

¹ *City of Warwick, Rhode Island Comprehensive Community Plan*, prepared by City Planning Commission, 1998, p. 17.

Table 4-1
NOISE-SENSITIVE COMMUNITY FACILITIES IN THE AIRPORT STUDY AREA
T.F. Green Airport

Schools	
Map Code	Name
S 1	Rhodes Elementary
S 2	Aldrich Junior High
S 3	Norwood Elementary
S 4	Oaklawn Elementary
S 5	Holliman Elementary *
S 6	St. Peter Elementary/Middle
S 7	Pilgrim High *
S 8	Francis Elementary
S 9	St. Francis Elementary
S10	Randall Holden Elementary
S11	Cottrell F. Hoxie Elementary
S12	Sherman Elementary
S13	N.E. Institute of Technology
S14	Greenwood Elementary
S15	St. Kevin Elementary/Middle
S16	John Wickes Elementary *
S17	E.G. Robertson Elementary
S18	Lippitt Elementary
S19	Warwick Vets Memorial High *
S20	Bishop Hendricken High
S21	John Greene Elementary
S22	Gorton Junior High
S23	Oaklawn Beach Elementary
S24	Park Elementary
S25	Eleanor Briggs
S26	Cedar Hill Elementary
S27	Warwick Neck Elementary
S28	Overbrook Academy Middle

Libraries	
Map Code	Name
L 1	Apponaug Branch
L 2	N.E. Institute of Technology
L 3	Warwick Public
L 4	Pontiac Free
L 5	Department of Corrections
L 6	Eleanor Slater Hospital Reagan
L 7	Eleanor Slater Hospital Psychiatric
L 8	Conimicut Branch
L 9	Norwood Branch
L10	Rhode Island Training School DCIF

* Previously sound insulated by RIDOT/RIAC
 Note: Map Code corresponds to **Exhibit 4-2**. Only the two Churches that are highlighted all within the 65 DNL or higher noise contours

Hospitals	
Map Code	Name
H1	Eleanor Slater Hospital

Nursing Homes	
Map Code	Name
N1	Greenwood House
N2	Father Olsen Terrace

Churches	
Map Code	Name
C 1	St Francis of Assisi
C 2	St. Barnales Episcopal
C 3	St. Catherine
C 4	Warwick Central Baptist
C 5	St. Gregory
C 6	Our Lady of Providence
C 7	Pilgrim Lutheran
C 8	St. Timothy
C 9	St. Peters
C10	Samuel Priest Chapel
C11	Friendship Baptist
C12	St. Rose of Lima *
C13	St. Timothy Convent
C14	United Methodist
C15	Chapel
C16	Episcopal Church of Resurrection
C17	First Congressional Church of Warwick
C18	St. Ritas
C19	Kingdom Hall of Jehovah's Witnesses (within 65 + DNL of proposed action)
C20	St. Rose in Clement
C21	Buttonwood Bible Chapel
C22	Spring Green Memorial
C23	Church of Jesus Christ of LDS
C24	St. Benedicts
C25	Reorganized Church of Jesus
C26	Center for Positive Living
C27	St Marcs Episcopal
C28	Warwick Christian Fellowship
C29	Warwick Bible Chapel
C30	Assembly of God

Western Cranston has more open space than eastern Cranston, but is changing more rapidly due to the combination of available land and low-density zoning. The Housing Element of the Comprehensive Plan in western Cranston relates primarily to new residential development and its relationship to the overall framework of growth and environmental quality in this part of the city. The Natural Resources Element of the Comprehensive Plan for western Cranston is effective management of growth and change.

The economic development plan presents a series of strategies and related actions for maintaining and expanding Cranston's economic and employment base. The Services and Facilities Element of the comprehensive plan includes the recent growth in western Cranston that has created stresses on systems, like sewage treatment, and has created environmental concerns resulting from the lagging of infrastructure behind development.²

The *City of Cranston, Rhode Island Comprehensive Plan* does not include recommendations related to T.F. Green Airport.

4.3 OTHER LAND USE PLANS

The *Warwick Station Redevelopment District Master Plan* prepared in July 1998, focuses on Warwick's transportation issues. This plan establishes the groundwork for Warwick to capture economic benefits that come with having T.F. Green Airport in the center of the city. The plan calls for the designation of approximately 70 acres of land west of the airport as a Warwick Station Redevelopment District, of which 22.4 acres will be designated as an Intermodal Zone. This zone will be the centerpiece of the district. The district is in the vicinity of Jefferson Boulevard, the airport connector, and Airport Road.

One untapped resource for both mobility and local economic development is the Amtrak Northeast Corridor rail line located 1,170 feet from T.F. Green Airport. The city of Warwick, Amtrak, the Rhode Island Department of Transportation, Governor Lincoln Almond, Rhode Island Airport Corporation, and the Commonwealth of Massachusetts, are working cooperatively to locate and construct a new station accommodating high-speed, conventional, and commuter rail traffic. This rail-to-air connection will offer unprecedented inter-modal access opportunities, as well as local land and economic development opportunities. Funding for the station and an elevated "people mover" pedestrian connection to the airport has been secured through a \$25 million authorization in the 1998 Federal Transportation Equity Act (TEA-21).

In addition to the T.F. Green Airport and the Amtrak high-speed rail corridor from Boston to Washington, the I-95 corridor passes through Warwick. The I-95 corridor encourages growth for the Warwick Station Redevelopment District, and if connected by rail shuttle service to Providence, should synergize tourism, and business and convention opportunities for the entire area.³

² *City of Cranston, Rhode Island Comprehensive Plan*, prepared by City Plan Commission, February 1992, pp. 5, 23, 51, and 75.

³ *Warwick Station Redevelopment District Master Plan*, prepared by City of Warwick Planning Department, July 1998, p. 2.

The purpose of the T.F. Green Airport Area *Economic Redevelopment Plan* is to provide the physical, organizational, and implementation basis for future development in the vicinity of the airport. The plan includes improvement projects for the four districts, including the Metro Center Commerce Park, Airport Park, Warwick Industrial Drive, and the Post Road commercial corridor. Proposed roadway improvements are included in this plan as well as areas available for development.⁴

4.4 LAND USE CONTROLS

In most cities and counties, the chief land use regulatory document is the zoning ordinance, which regulates the types of uses, building height, bulk, and density permitted in various locations. Subdivision regulations are another important land use tool, regulating the platting of land. Local communities also regulate development through building codes and, in some cases, enforce noise regulations. The local Capital Improvements Program, a schedule for constructing and improving public facilities, such as streets, sewers, and water lines, is another important policy document which can influence development, although on its own, it does not involve regulation.

4.4.1 Zoning

Zoning is one of the primary tools available to local communities to ensure land use compatibility. Zoning ordinances and regulations are implemented to promote public health, safety, and welfare by regulating the use of the land within a jurisdiction based on factors such as existing and expected socioeconomic conditions.

The city of Warwick zoning ordinance references T.F. Green Airport in relation to airport hazards and airport hazard areas. In general, the ordinance restricts any use that interferes with aircraft safety, including communications and obstructions to flight. Neither the city of Cranston nor the city of Warwick zoning ordinances specifically references airport noise. Exhibit 4-1 displays the generalized zoning in the study area.

4.4.2 Building Codes

Building codes regulate the construction of buildings, ensuring that they are built to safe standards. Building codes may be used to require sound insulation in new residential, office, and institutional building construction when warranted by existing or potential high aircraft noise levels.

Most features of building codes intended for energy efficiency also provide acoustical insulation. Caulking of joints, continuous sheathing, dead air space, and use of materials with high R-values are construction techniques that can attenuate aircraft noise while conserving energy used for home heating and cooling. Other measures that can help attenuate noise, but which are not always justifiable for energy efficiency alone, are vent baffling and year-round, closed-window ventilation systems. Surprisingly, some highly energy-efficient storm window designs are less efficient for sound insulation than other older style designs.

⁴ T.F. Green Airport Area *Economic Redevelopment Plan*, prepared by Sasaki Associates, October 1996.

Building codes apply to existing structures only when remodeling or expansion is contemplated. Therefore, amendments to building codes are of little value in correcting noise sensitivity problems in completely developed areas. In those circumstances, noise insulation programs must be instituted retroactively.

The state of Rhode Island administers the building code for one and two-family residential construction, and for multi-family and commercial construction. State law requires that plans for multi-family and commercial buildings be forwarded to state building officials, as well as local officials, for approval. The state of Rhode Island must approve any changes that local jurisdictions wish to make in the State Building Code.

None of the building codes currently administered in the area of the airport contain special provisions relating to noise attenuation. However, there is a proposed amendment to the State Building Code that would establish uniform minimum noise insulation performance standards for residential properties that fall within the official 65 DNL noise contour map of a state airport. The draft language of the State Building Code amendment is provided in the 1999 NCP Update, Appendix E.