



Chapter Six:

Environmental Overview

BBB

CHAPTER SIX: ENVIRONMENTAL OVERVIEW

The purpose of this chapter is to identify and document basic environmental considerations as a part of the airport planning process. Information presented in this section can be used by decision makers and the general public to determine if additional action may be needed in regards to further investigation and/or mitigation.

The organization and content of this section are based upon FAA Order 5050.4A, *Airport Environmental Handbook*. This order provides instructions and guidance for preparing and processing environmental assessments (EAs) and environmental impact statements (EISs) for airport development proposals and other airport actions as required by various Federal laws and regulations. The information presented herein is not intended to meet the requirements for an EA or EIS as specified under the National Environmental Policy Act (NEPA) or the Washington State Environmental Policy Act (SEPA).

Areas of environmental interest that were examined as a part of this overview include the following:

- Noise Exposure;
- Land Use;
- Social Impacts;
- Air Quality;
- Water Quality;
- Section 4(f) Lands;
- Historic and Archaeological Sites;
- Biotic Communities;
- Wetlands and Floodplains; and
- Prime and Unique Farmland.

6.1 NOISE EXPOSURE

Based upon the level of existing and forecast demand, and the type of aircraft utilizing the Renton Municipal Airport, moderate noise impacts due to airport activity can be expected over the twenty year planning period.

6.1.1 Noise Exposure Estimation

Noise impact analysis is, at best, a complicated procedure. Because people react to noise in various ways, objective methodologies are difficult to develop. It is even more difficult to obtain a consensus as to the effectiveness of these methodologies.

The extent of aircraft noise generated by airport operations is a function of variables such as the physical configuration of the airfield, the level of aircraft operations, and the type of aircraft which characteristically use the airport. The methodology employed to assess noise impacts of airport operations is the day/night average noise level (DNL) metric. Use of this metric facilitates estimates of cumulative noise levels at specific ground locations resulting from aircraft takeoffs and landings. The DNL measure is used primarily because of its usefulness in land use analysis and ease of application in comparatively evaluating alternative development schemes.

The human ear can react to sound pressure ranging from 0.000000029 pounds per square inch, the threshold of hearing, to over 0.0029 pounds per square inch, the threshold of pain: a pressure level one million times greater. The price for this versatility is a decrease in sensitivity as amplitude increases. In other words, the ear cannot detect small changes in high pressure level noises as easily as it can detect small changes in low pressure level, or soft noises.

Because adverse human response to noise is a frequent area of concern, one of the more common units of noise measure considers only that part of the noise heard by the human ear. This is called an "A-weighted" measure, and considers only the sound between 16 and 20,000 cycles per second - the frequencies within the range of human hearing. Measurements of such noise are expressed as weighted decibels (dBA).

The day/night average sound level (DNL) is a measure of the noise environment at a prescribed location over a 24-hour period. It is equivalent in terms of sound energy to the level of a continuous A-weighted sound level with 10 Db added to the nighttime levels. To calculate DNL values, the noise contributions from each significant aircraft operation (takeoff and landing) occurring during a 24-hour period are summed, on an energy basis, to obtain the DNL value. From these values, contours representing areas of equal noise levels, in terms of cumulative, continuous perceived decibels over a 24-hour period, are developed.

The aircraft used to develop the noise contours include the Boeing 737 and 757, Beech Baron, a composite of noise characteristics for single engine piston aircraft, and Dehavilland Dash 6. Helicopters operating were simulated using the Sikorsky S-76. These aircraft represent the general fleet mix operating at Renton.

Exhibit 6-1 shows DNL values associated with common outdoor and indoor activities, and the contour DNL values associated with the Federal Aviation Administration land use guidelines for yearly Day-Night Average Sound Levels are presented in Exhibit 6-2. As may be seen in this latter exhibit, it is not until noise levels in excess of 65 DNL are attained that land uses become very sensitive to noise. For this reason, the noise analyses of this study have been concentrated on the land areas within 65 DNL and greater noise exposure levels. This range has generally been excepted as the area in which land use controls and operational modifications should be addressed.

EXHIBIT 6-1: COMMON ACTIVITY SOUND LEVELS

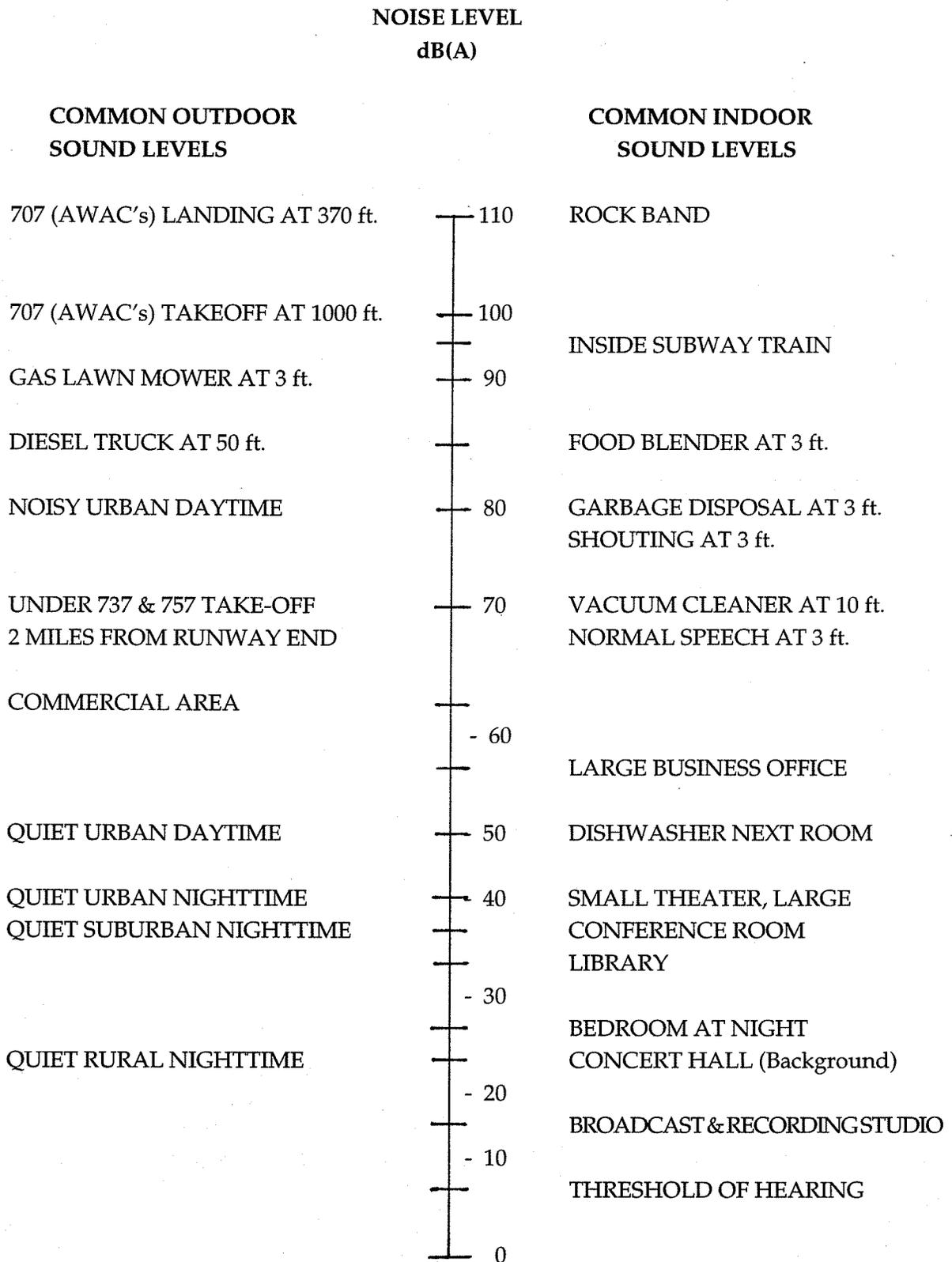


EXHIBIT 6-2: LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS

LEVEL (DNL) IN DECIBELS Land Use	Below 65	65-70	70-75	75-80	80-85	Over 85
Residential						
<i>Residential, other than mobile and transient lodgings</i>	Y	N(1)	N(1)	N	N	N
<i>Mobile home parks</i>	Y	N	N	N	N	N
<i>Transient lodgings</i>	Y	N(1)	N(1)	N(1)	N	N
Public Use						
<i>Schools, hospitals and nursing homes</i>	Y	25	30	N	N	N
<i>Churches, auditoriums, and concert halls</i>	Y	25	30	N	N	N
<i>Governmental services</i>	Y	Y	25	30	N	N
<i>Transportation</i>	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
<i>Parking</i>	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
<i>Offices, business and professional</i>	Y	Y	25	30	N	N
<i>Wholesale and retail-building materials, hardware and farm equipment</i>	Y	Y	Y(2)	Y(3)	Y(4)	N
<i>Retail trade-general</i>	Y	Y	25	30	N	N
<i>Utilities</i>	Y	Y	Y(2)	Y(3)	Y(4)	N
<i>Communication</i>	Y	Y	25	30	N	N
Manufacturing and Production						
<i>Manufacturing, general</i>	Y	Y	Y(2)	Y(3)	Y(4)	N
<i>Photographic and optical</i>	Y	Y	25	30	N	N
<i>Agriculture (except livestock) and forestry</i>	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
<i>Livestock farming and breeding</i>	Y	Y(6)	Y(7)	N	N	N
<i>Mining and fishing, resource production and extraction</i>	Y	Y	Y	Y	Y	Y

EXHIBIT 6-2: LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS, continued

Land Use	LEVEL (DNL) IN DECIBELS					
	Below 65	65-70	70-75	75-80	80-85	Over 85
Recreational						
<i>Outdoor sports arena and spectator sports</i>	Y	Y(5)	Y(5)	N	N	N
<i>Outdoor music shells, amphitheaters</i>	Y	N	N	N	N	N
<i>Nature exhibits and zoos</i>	Y	Y	N	N	N	N
<i>Amusements, parks, resorts and camps</i>	Y	Y	Y	N	N	N
<i>Golf courses, riding stables and water recreation</i>	Y	Y	25	30	N	N
<i>(Numbers in parentheses refer to notes.)</i>						

* The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses remains with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

Key to Table 2:

- Y (Yes) Land Use and related structures compatible without restrictions.
- N (No) Land Use and related structures are not compatible and should be prohibited.
- NLR Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
- 25, 30, or 35 Land use and related structure generally compatible; measures to achieve NLR or 25, 30, or 35 must be incorporated into design and construction of structure.

**EXHIBIT 6-2: LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE
SOUND LEVELS, continued**

Notes for Table:

1. Where the community determines that residential uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 Db should be incorporated into building codes and be considered in individual approvals. Normal construction can be expected to provide a NLR of 20 Db, thus the reduction requirements are often stated as 5, 10 or 15 Db over standard construction and normally assume mechanical ventilation and closed windows year around. However, the use of NLR criteria will not eliminate outdoor noise problems.
2. Compatible where measures to achieve NLR of 25 are incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
3. Compatible where measures to achieve NLR of 30 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
4. Compatible where measures to achieve NLR of 35 are incorporated into the design and construction of portions of these buildings where the public is received, office area, noise sensitive areas or where the normal noise level is low.
5. Land use compatible provided special sound reinforcement systems are installed.
6. Prime use only, any residential buildings require an NLR of 25 to be compatible.
7. Prime use on , any residential buildings require an NLR of 30 to be compatible.
8. Prime use only, NLR for residential buildings not normally feasible, and such uses should be prohibited.

6.1.2 Airport Noise Impacts

Estimated existing and potential future noise impacts for Renton Municipal Airport were examined by using the Federal Aviation Administration's Integrated Noise Model (INM). This computer program simulates noise levels generated around the airport as a result of aircraft operation. Each aircraft's distinct noise data, slant range and engine thrust are stored in the INM database. During the simulation, the programs use this database to calculate aircraft noise for various user-specified flight tracks. The INM program accumulates daily noise measurements in day/night average sound levels (DNL) adding additional noise as a penalty for nighttime activity (10:00 PM to 7:00 AM).

The programs generate a series of noise level contour lines of equal value for each of the years presented to the program. The noise contours can then be overlaid on a map of the airport and vicinity, giving a comprehensive view of how the area around the airport is impacted by the noise. It is important to note that the noise contours are averages, therefore, they do not depict how the noise impacts the surrounding areas at a given time.

The models were used to simulate existing and potential aircraft noise conditions based upon the forecast of demand and the runway configuration described in the selected alternative. The two models were run independently of each other: one simulating fixed wing aircraft, and the other simulating helicopter activity. The noise profiles generated for each model were combined to form a complete "picture" of conditions at the airport. This was done because of the unique operating characteristics and flight profiles for helicopters.

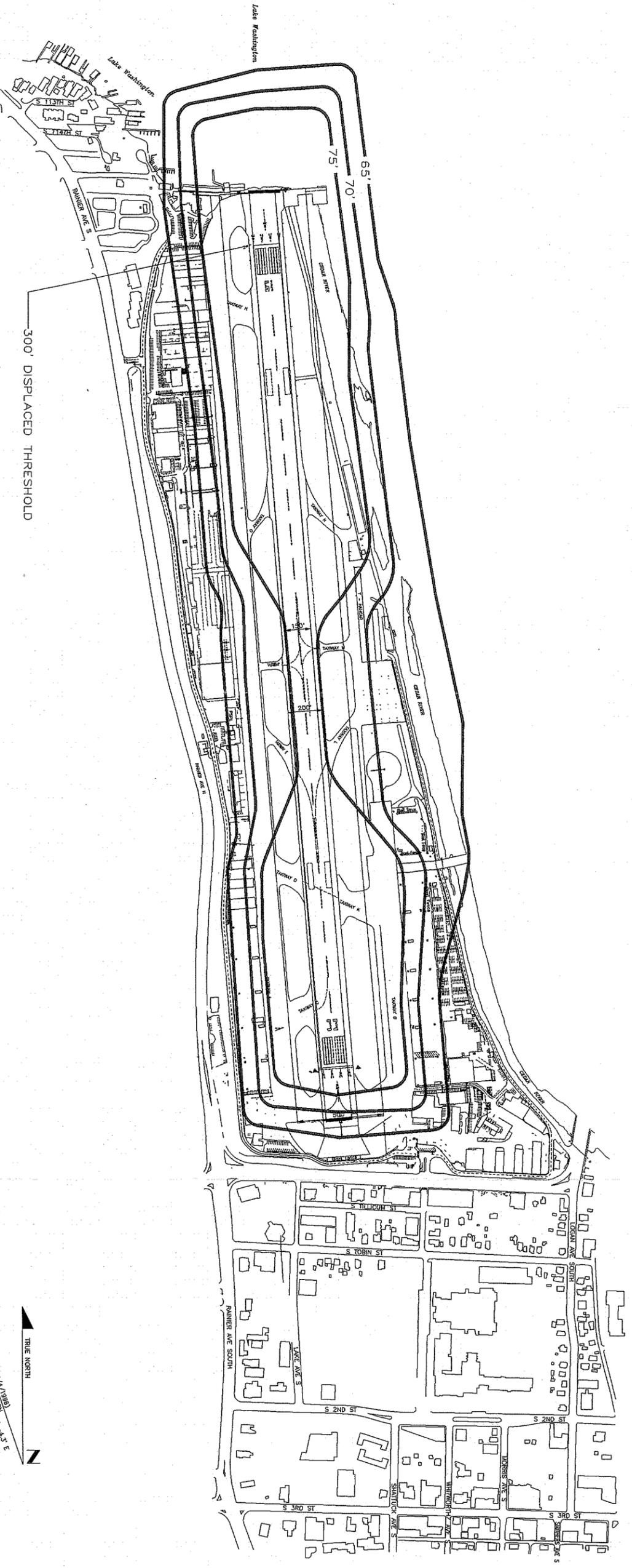
An assessment was made of existing land uses and human activity that would fall within the identified noise contours. Residences within the 65 DNL contour were considered as being impacted by aircraft noise. All land uses were considered compatible with noise levels less than 65 DNL. The actual area falling within the projected DNL contours are shown in Exhibit 6-3. The contours generated by year 1994 and 2015 operations are depicted in Exhibits 6-4 and 6-5.

EXHIBIT 6-3: NOISE IMPACTED AREA

Year	Impacted Area		
	65 DNL	70 DNL	75 DNL
1994	0.29 sq. miles	0.21 sq. miles	0.13 sq. miles
2015	0.31 sq. miles	0.22 sq. miles	0.14 sq. miles

Exhibit 6-3 demonstrates the difference in the land area expected to be impacted by aircraft noise between the years 1994 and 2015. The area affected by 65 DNL in 1994 is approximately 0.29 square miles and in 2015, 0.31 square miles.

Map analysis of the noise contours show that currently no residences are impacted by noise as represented by the 65 DNL contour.



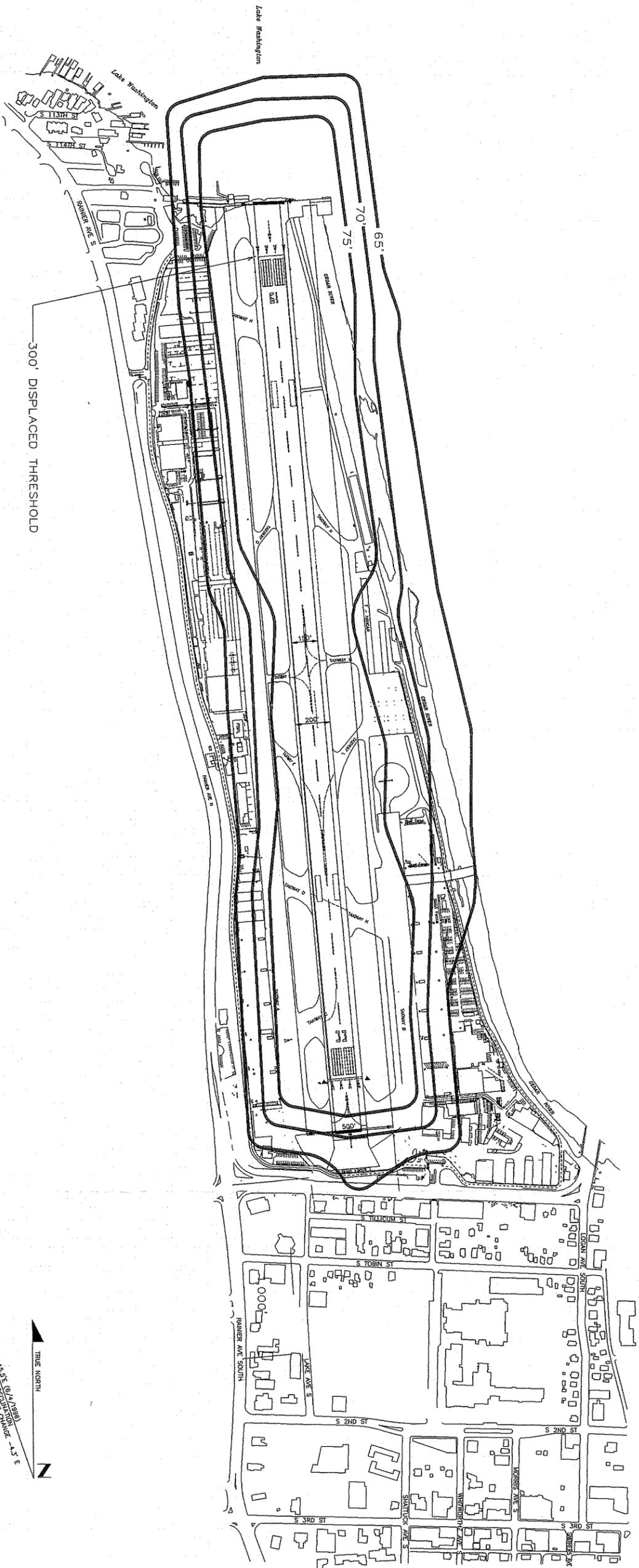
300' DISPLACED THRESHOLD

EXHIBIT 6-4

300 FT Reduction of Rwy 15 Threshold

ANNUAL AVERAGE NOISE EXPOSURE FOR YEAR 1994

BWR BUCHER, WILLS & RATLIFF CORPORATION



300 FT Reduction of Rwy 15 Threshold
ANNUAL AVERAGE NOISE EXPOSURE FOR YEAR 2015

BWR BUCHER, WILLIS & RATLIFF
 CORPORATION

6.1.3 Noise Abatement

The FAA continually receives complaints concerning low flying aircraft over noise sensitive areas. These complaints have prompted requests for regulatory action prohibiting low altitude flight over identified noise sensitive locations. It is the policy of the FAA that a satisfactory solution can be realized by means of a pilot/industry cooperative endeavor rather than through the regulatory process. To this end, the FAA has developed voluntary practices that pilots are encouraged to implement in noise sensitive areas. Voluntary noise abatement practices that may be applicable to pilots utilizing Renton Municipal Airport can be found in various FAA Advisory Circulars. Because of the congested airspace that surrounds Renton Municipal Airport, only limited options are available.

6.2 LAND USE

As identified in the Inventory Chapter, the land uses surrounding the airport are predominately urban with a mix of commercial, manufacturing/industrial, public use, and residential. In order to reduce or eliminate future airport/land use conflicts, several alternatives for the airport area are discussed in the following sections.

6.2.1 Land Use Recommendations

Improvement and development of new facilities requires a careful review of laws and ordinances that might affect such activities. The emphasis in this element is on local laws and ordinances that impact airport compatibility planning. Airport zoning, subdivision regulations, and building code modifications are all a part of the airport compatibility planning process. These topics are discussed in detail in the following sections.

Airport Compatibility Planning

Airports are an important factor in community growth and development and represent a significant investment of public resources. Once an airport is located, it is not easily moved and, therefore, an airport site must remain viable for many years. The airport thus involves a number of land use considerations, including the goal that it remain compatible with the surrounding environment. Not all land uses make good airport neighbors. Planning for the airport vicinity should attempt to maintain safe operations by aircraft by protecting surrounding properties from the nuisance of aircraft noise and the potential hazard of aircraft accidents.

Communities that have failed to plan for compatible airport environs have often fallen victim to the consequences of conflict between the airport and its neighbors. The most tragic is the loss of life due to aircraft accidents in densely populated areas. Far more common has been the conflict between incompatible land uses limiting airport expansion and development.

To protect against this conflict and maintain the integrity of the airport, land use and development controls that take advantage of the impact of an airport on land development; minimize the restrictions placed on airport operations by surrounding development; and minimize the nuisance potential of an airport are essential to the Renton Municipal Airport's survival.

A number of different controls are normally available to the City to prevent the intrusion of noncompatible development. The controls that are generally most useful to local governments for mitigating noise impacts or achieving compatible land use within proximity to an airport include:

Comprehensive Planning: In the comprehensive land use planning process, consideration of aircraft noise and height restrictions can be an important factor in projecting future land uses;

Capital Improvements: A governing body may control the direction of growth by effectively planning the location of its capital improvements;

Zoning: A widely used approach to controlling and guiding development around an airport is to impose land use restrictions through zoning;

Subdivision Regulations: When applied to an airport environs situation, subdivision regulations can provide a decision-making system for land use management; and

Building Code Modification: Since housing is by far the most significant land use incompatible with aircraft noise, building code modifications can be an appropriate tool to require sound insulation in high-noise areas.

The concept of compatible land use is based on two sets of criteria. The first set of criteria is that relating to airport hazards, and the second, to noise exposure. An airport hazard is defined as any structure or tree or use of land which obstructs the airspace required for the flight of an aircraft or which obstructs or interferes with the control tracking and/or data acquisition in the landing, taking off, or flight at an airport. Noise exposure is based on noise prediction studies that measure aircraft noise and plot noise contours on a map based on a day/night sound level average (DNL).

Airport hazard areas are defined by the Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace. FAR Part 77 defines imaginary surfaces established in relation to civil or military airports and of each runway. The size of each imaginary surface is based on the category of each runway or runway end according to the type of approach available or planned for that runway or runway end. Any tree or structure that penetrates one of these imaginary surfaces is defined by FAR Part 77 as an obstruction to air navigation. The characteristics of military operations and aircraft require different configurations of imaginary surfaces that are also detailed in FAR Part 77. In the land area underlying these surfaces, the political subdivision may control activities such as electronic and smoke emission and reflective objects that interfere with aerial navigation.

The second set of criteria to be applied to the airport is that based on noise exposure as defined by prediction studies. These studies consider the types of aircraft using, or forecast to use, the airport and their frequency of operation. Computer models are then used to estimate the levels of noise generated. Contours of equal noise intensity are developed and plotted on maps. The Day-Night Average Sound Level (DNL) is the noise metric recommended for expressing cumulative noise exposure. The DNL values correlate the reaction of people to noise and, thus, form the basis for relating aircraft noise to compatible land use.

The aircraft noise at Renton Municipal Airport clearly indicates that there are no 65 DNL contours that create an incompatible land use problem. However, recognition that single event noise (usually a few seconds when aircraft are directly overhead) does happen and, therefore, creates a compelling reason to take prudent noise mitigation measures. These measures for Renton Municipal Airport have been discussed in Sections 6.1 and 5.6, items 6 and 7 of this report. The following test describes the mechanisms that local governments have to control land use around airports.

Optimum Land Use and Development Control Strategies

This section will discuss the different control methods previously identified and the specific land use management strategies that will serve to aid in airport land use compatibility. This section is organized as follows:

- Comprehensive Planning;
- Capital Improvements;
- Zoning;
- Subdivision Regulations;
- Building Code Modifications;
- Acquisition; and
- Coordination Agreements.

Comprehensive Planning: Airport planning must be recognized as an integrated part of local and regional comprehensive plans. The location, size, and configurations of the airport needs to be coordinated with patterns of major land uses in the area, as well as with other transportation facilities and public services. Within the comprehensive planning framework of the Growth Management Act, airport planning, policies, and programs must be more fully coordinated with the objective, policies, and programs for the area in which the airport is located. The social and economic impact, together with the environmental effects and airspace requirements of airport development and operations, can then be evaluated in order to guide development to make the airport environs compatible with airport operation.

The comprehensive plan, as a guide for future city development, should thus provide the policy guidance for the establishment of the quantitative provisions for the regulation of land use, building height, safety and noise insulation for inclusion into zoning ordinances, subdivision regulations, and building codes. It is through these land use and development control tools that conflict can be reduced or eliminated and land use potential optimized. There are four categories of land use considered most appropriate to the airport environment.

Aviation or Airport Related: These are uses which have an incentive to locate close to an airport. Such uses would include air freight terminals, aviation research and testing laboratories, airport hotels and restaurants, and aircraft repair shops,

Inherently Noisy Activities: There are many industrial processes that operate under noise levels so high as to be little affected by the incremental increases resulting from proximity to an airport. However, these uses can also exacerbate the airport noise situation to surrounding uses in some situations.

Indoor Uses Which Can be Protected from Airport Noise by Soundproofing: Such uses may include offices, indoor recreational uses, and commercial establishments.

Open Uses Involving Few People: In the innermost areas of approach zones where overflights occur quite close to the ground, open uses or those that require relatively little construction can serve as buffers, these uses would include farming, golf courses, cemeteries, or passive recreational areas.

In the context of the Renton Municipal Airport, it is suggested that comprehensive planning efforts be directed toward a policy of business and industrial growth around the airport, and that the Airport Area of Influence map be referred to in the plan.

Capital Improvements: A governing body may control the direction of growth by effectively planning the location of its capital improvements. This can be particularly effective in guiding development into areas where it is desirable, or conversely, in restricting development by withholding such improvements.

A function usually delegated to a planning agency is the establishment of a program of capital improvements of a municipality. This would typically entail determining the priority and location of improvements such as utilities, roads, schools, and libraries, and relates directly to land use compatibility. Many of these capital improvements are either noise generators themselves or are sensitive to noise. A thoughtfully prepared improvement program can be used to encourage compatible development with a concern for noise, among other environmental problems.

Zoning: The most common land use control is zoning. Zoning is an exercise of the police powers of a state or local government which enables that government to designate the uses that are permitted for each parcel of land. It normally consists of a zoning ordinance that specifies land development and use constraints. One of the primary advantages of zoning is that it may be used to promote land use compatibility while leaving the land in private ownership, on the tax rolls, and economically productive. Nevertheless, zoning is subject to change and must be continually monitored if it is to remain an effective land use compatibility tool.

Subdivision Regulations: Subdivision regulations govern the act of splitting a tract of land into separate parcels. These regulations typically seek to assure that subdivisions are appropriately related to their surroundings. When applied to an airport environs situation, these regulations should require noise impact identification to ensure compatible land use development.

Navigation easements and restrictive covenants accompanying these easements should be required on all newly-platted property in the airport noise-impacted and Runway Protection Zone area. This easement would apply to all areas defined in City or County zoning ordinances as "Navigable Airspace" by FAR Part 77 and would read in part:

"...By virtue of this easement, the grantor, for and on behalf of himself and all successors in interest to any and all of the real property above described, waives as to the public authority only any and all claims for damage of any kind whatsoever as a result of aircraft using the 'Navigable Airspace' granted herein. This easement does not grant or convey any surface use rights, nor is it to be construed to grant any right to private persons or corporations..."

This easement carries a restrictive covenant on all properties subject to the easement. This covenant is designed to legally notify the owner that the property is subject to "considerable noise from the operation of aircraft, and is exposed at times to aircraft noise which may infringe upon a resident's enjoyment of property and may, dependent upon the degree of acoustical treatment of the dwelling, affect his health and/or well being..." Additionally, the covenant requires that:

"Any building constructed on the premise shall be so designed and constructed as to minimize noise pollution in any such structure, giving due consideration to the use for which such structure is designed and built. This covenant is for the benefit of and pass with said property and shall apply to and bind the successors in interest and any owner thereof."

A policy that requires the Avigation Easement and related Restrictive Covenant should be implemented for all subdivisions being platted or replatted within the defined "Navigable Airspace." This requirement should be formally adopted as an amendment to the Subdivision Regulations of the local community in question.

The tying together of easements and subdivision approval has been used successfully by several communities. Prior to the granting of a subdivision request, the developer must dictate a noise easement over his property to the community. This is tied to the deed of each lot that is sold within that subdivision. The granting of easements gives the airport the privilege of making noise without facing court action.

Building Code Modifications: Building codes specify ventilation, room area, and other housing requirements in the interest of health, welfare and safety of residents. The building code commonly applies to both new and existing buildings. Renton should establish minimum acoustical insulation standards, expressed as Sound Transmission Coefficients (STC), for new and existing office or residential dwellings within high noise impact contours, especially the Airport Approach Zones or areas determined as appropriate by the City planner.

Acquisition: Purchase or condemnation of property provides land areas necessary for future airport development and also affords the best insurance against the development of land uses incompatible with airport operations. Runway Protection Zones should be purchased and cleared of items or structures that require the assembly of people.

Interlocal Agreements: When establishing or preserving compatible land uses in the vicinity of an airport, a coordination agreement is often necessary because the impacts of airports may extend across the jurisdictional boundaries of two or more cities and counties. Such an agreement could coordinate planning, zoning, legal authority or other factors as required. An interlocal agreement can also be used in identifying responsibilities for noise abatement programs, height restriction, and land use ordinances and controls.

6.3 SOCIOECONOMIC IMPACTS

Aviation development actions affect not only the natural environment, but also the human environment. These effects on the human environment are generally classified as socioeconomic impacts. They may either be a direct result of development or an induced result.

Direct impacts are distinguished from indirect impacts in that they are more immediate and easier to predict and quantify. This is due largely to the precise geographic area and specific time frame in which they occur. Conversely, indirect impacts involve events that may or should occur over an indeterminate time period.

6.3.1 Direct Socioeconomic Impacts

Direct social impacts action include the following specific areas:

- Land purchased or encumbered;
- Residential or business relocation;
- Alterations in surface transportation patterns; and
- Loss or degradation of public lands or facilities contributing to the quality of community life.

Areas beyond the existing airport boundary are shown on the ALP to be purchased ultimately. Any direct social inputs related to the acquisition of this property will be minimal because the airport will only buy property as it becomes available. There will be no changes in surface transportation patterns or degradation to public lands as a result of recommendations of the Master Plan.

6.3.2 Induced Socioeconomic Impacts

Induced socioeconomic impacts are the secondary effects resulting from a proposed action. These impacts may include shifts in the pattern of population movement, growth, public service demands, and changes in business and economic activity.

Growth of existing business and industry as well as the attraction of new firms are important goals for a community interested in sustaining economic growth. There is no accepted method to quantify the effect that an aviation facility has on community economic development. However, an adequate facility is known to improve a community's chances for economic growth.

The proposed action will induce some contributions to the local economy. Jobs will be created by implementation of the recommended Airport Development Plan. Some jobs associated with the construction phases of the project will be temporary in nature; others associated with a potential increase in passenger activity may be permanent.

No negative impacts can be expected from the employment, business and economic shifts as a result of the proposed activities of Renton Municipal Airport.

6.4 AIR QUALITY

Impacts on air quality are not expected to be significant. Air quality is measured by the concentration of chemical compounds and microscopic matter in outside air. Air that contains certain compounds and matter above threshold concentrations can have harmful effects on humans, animals and plants.

The United States Environmental Protection Agency (USEPA) has adopted air quality standards that specify the maximum permissible short term and long term concentrations of various air contaminants. Primary air quality standards are established at levels to protect the public health from harm with an adequate margin of safety. Secondary standards are set at levels necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. All areas of the country are required to demonstrate attainment with the Ambient Air Quality Standards. The Puget Sound Air Pollution Control Agency (PSAPCA) has jurisdiction over the Puget Sound Basin and has established local ambient air quality standards to ensure compliance with the Clean Air Act.

Proposed construction at the Renton Municipal Airport is not expected to exceed the air quality standards set forth by PSAPCA. If future projects appear to exceed accepted thresholds conformity must be demonstrated. The majority of aircraft owners waiting to occupy hangar space at the airport will be relocating from other airports within the Puget Sound area.

6.5 WATER QUALITY

The airport is bounded on the north by Lake Washington and on the east by the Cedar River. Potential for water quality impacts may exist. The airport is not within any of the City of Renton's Aquifer Protection Areas. If runway development Alternative 4, extension of the runway safety area 300 feet into Lake Washington, is pursued, guidelines set forth in Section 404(b)(1) of the Clean Water Act may need to be implemented. Additionally, measures to improve the seaplane dock will need coordination of state and federal agencies.

Early consultation with local, state and federal agencies charged with implementation of water quality regulations and issuance of permits will normally identify deficiencies in airport development plans with regard to water quality or additional information necessary to make judgments on the significance of impacts.

6.6 SECTION 4(F) LANDS

Section 4(f) of the Department of Transportation Act of 1966 states that approval will not be given for proposed Federal actions requiring use of publicly-owned land from a public park, recreation area, wildlife or waterfowl refuge, or any land from a historic site unless:

- There is no feasible and prudent alternative to the use of such land, or
- Such a program includes possible planning to minimize harm to such areas.

Since no public land is to be acquired, the proposed action will have no significant effect on Section 4(f) lands.

6.7 HISTORIC AND ARCHAEOLOGICAL SITES

No resources included in or eligible for inclusion in the National Register of Historic Places have been identified in the immediate vicinity proposed for runway construction.

6.8 BIOTIC COMMUNITIES AND ENDANGERED AND THREATENED SPECIES

Coordination with the US Fish and Wildlife Service should be initiated prior to seaplane dock and ramp construction. However, no special species or natural communities in the general vicinity of the Renton Municipal Airport are known to exist. In addition, no managed state parks or management areas are within the immediate project vicinity.

6.9 WETLANDS

The US Army Corps of Engineers and the US Environmental Protection Agency (EPA) jointly define wetlands as follows: Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. If an area is covered with water for a short duration such that no effect occurs on moist vegetation, it is not considered a wetlands nor are the permanent waters of streams, reservoirs, and deep lakes.

An examination of National and City Wetland Inventory Maps do not indicate the presence of wetlands on, or near, the Airport.

6.10 FLOODPLAINS

The Cedar River is subject to frequent flooding. Floodplains are defined by Executive Order 11988, Floodplain Management, as those areas with a one percent chance of flooding in any given year, or once in every 100 years. Examination of Federal Flood Insurance Administration Maps have revealed the existence of a 100 year floodplain on the airport. Included in this floodplain area is the south end of the airport and most of the airport east of the runway centerline to the Cedar River. The rest of the airport is considered to be in the 500 year floodplain. A map of the 100 year floodplain area is shown in Chapter 7, Airport Plans. Recent experience during the 1990, 1995, and 1996 floods revealed some inconsistency with areas delineated as floodplain. It was observed that some areas that were expected to be subject to flooding remained above floodwaters, while other areas that were not expected to flood, were inundated. Given the importance of this issue, it is recommended that flood profiles be re-evaluated for the airport. A continued dialog between the City and Corps of Engineers will be necessary to reach a reasonable and long-term solution for flooding at the airport.

6.11 PRIME AND UNIQUE FARMLAND

Prime farmland, as defined by the US Department of Agriculture (USDA), is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops without intolerable soil erosion and is not already committed to urban development or water storage. There are no lands designated as prime farmland on, or near, airport property.

6.12 SUMMARY

A wide range of environmental factors regarding future development of the Renton Municipal Airport were examined. Potential adverse environmental impacts may be anticipated related to an extension of the Runway 15 safety area into Lake Washington. According to the *Federal Aviation Administration Order 5050.4A, Airport Environmental Handbook*, paragraph 22, the proposed Airport Development Plan falls under actions normally requiring a formal Environmental Assessment only if the Runway 15 safety area is extended out into Lake Washington.

The Corps of Engineers is charged with maintaining navigable water ways. This is accomplished by the Corps' permit program. Notification of the Corps of Engineers will be necessary prior to any development in Lake Washington. Other agencies to be notified regarding development along the shoreline of Lake Washington include the Washington State Department of Natural Resources and the Department of Ecology, responsible for administrating the Shoreline Management Act.

It is anticipated that the proposed actions recommended in the Master Plan will accomplish the following objectives:

- Offer improved safety and convenience to airport users;
- Increase airport efficiency and operational flexibility; and
- Provide support for local economic growth.

REFERENCES

Federal Aviation Administration Order 5050.4A Airport Environmental Handbook, Department of Transportation, October 8, 1985.

Flood Insurance Study, King County, Washington and Incorporated Areas, Volume 3 of 4, Federal Emergency Management Agency, revised September 30, 1994.

National Flood Insurance Map, Panels 326 and 327, Federal Emergency Management Agency.

Soil Survey of King County Area, Washington; US Department of Agriculture, Soil Conservation Service; August, 1975.

Air Quality Program Annual Report; Washington State Department of Ecology, 1995.

Air Quality Procedures for Civilian Airports and Air Force Bases, Report No. FAA-EE-82-21.

Seaplane System Program, Washington State Department of Transportation, 1993.