

Chapter 1

Existing Conditions in the Bayview Ridge Subarea

The Bayview Ridge Subarea is situated within the Padilla Bay watershed on a topographic bench above the Skagit River floodplain. The Subarea generally slopes from the east to the south and west; the western and northwestern edges of the Subarea are formed by hillsides approximately 150 feet above the valley floor. Figure 2 shows an aerial view of the Subarea. The Subarea lies within portions of the Airport Environs Zone established for the Skagit Regional Airport. This zone was established to promote compatibility between the airport and surrounding land uses.

Existing Natural Environment

The natural landscape within the Bayview Ridge Subarea encompasses gently sloping terrain, steep hillsides, numerous wetlands, large stands of mature trees, and open fields. The Subarea does not contain any identified aquifer recharge areas. Flooding is not a serious hazard in the Subarea as most of the land lies above the floodplains for the Samish River to the north and the Skagit River to the east and south. Potential geological hazards in the Subarea include areas of erosion and landslide hazards. There are no known faults in the Subarea.

Soils in the vicinity of the airport are mapped as Bow gravelly loam (0 – 3 percent slopes), which is subject to seasonal wetness due to a perched water table. Bellingham silt loam, a very poorly drained soil, is found in smaller depressional areas. The Subarea does not contain “prime farmland soils” as defined in the *Skagit County Comprehensive Plan*.

The majority of the Subarea is flat to gently sloping. Steep slopes (0 percent – 30 percent) defining the bench above the floodplain form the eastern and northeastern edges of the Subarea. Skagit County considers slopes of 30 percent or greater to be potentially geologically hazardous.

Numerous wetlands are scattered throughout the Subarea and are especially prevalent in the western and central portions of the Subarea. A total of 1,043 acres of wetlands and associated buffers have been identified in the Bayview Ridge Subarea. Some wetlands have been fragmented or isolated by existing development; others have been hydrologically modified by uncontrolled or poorly controlled stormwater runoff, or support populations of primarily invasive plants and animals. The Port of Skagit County has identified 694 acres of wetlands and buffers within their ownership as part of the Skagit County WIN Wetland Management Plan (Skagit County Wetlands and Industry Negotiation). Wetlands within the remainder of the Subarea have been identified based on the National Wetland Inventory and interpretations of aerial photography.

Fish and wildlife habitats are often classified by watercourse or stream type and vegetation type. Higgins Slough transverses the southeastern edge of the Bayview Ridge Subarea, just north of SR 20 in the vicinity of Ovenell and Avon-Allen roads. Higgins Slough is known habitat for Coho. No other streams or watercourses are known to exist in the Subarea.

Figure 2 – Bayview Ridge Subarea Plan: Aerial Photo

Existing Development and Land Ownership

Existing development within the Bayview Ridge Subarea, depicted in Figure 3, consists of the Skagit Regional Airport, the Port of Skagit County Bayview Business and Industrial Park, other substantial industrial/business developments, and residential subdivisions. The residential areas are not included within the UGA at this time. The industrial/business development is concentrated in the central and western portions of the Subarea - around the Airport, along Farm to Market Road, and along SR 20. Undeveloped parcels of various sizes lie within this industrial area. Residential development and the Skagit Golf and County Club are located in the higher, eastern edge of the Subarea, above Avon-Allen Road. Substantial tracts of vacant land lie between the Airport and the residential area, as well as east of the Airport. Figure 4 depicts large tracts of land, 10 acres or greater, in contiguous private ownership within the Subarea.

The Skagit Regional Airport is an “essential public facility,” the largest airport in Skagit County, and the center of considerable industrial development. The airport was originally built in 1933 by the Public Works Administration (PWA) and Works Progress Administration (WPA). The present runway and taxiway system was constructed in 1943 by the United States Navy as an alternate airfield for Whidbey Island Naval Air Station. The airport was transferred to the Skagit Board of County Commissioners in 1958, later to the Port Districts of Anacortes and Skagit County, and in 1975, to the sole ownership of the Port of Skagit County. Since 1975, the Port of Skagit County has worked to improve air transportation facilities and develop adjacent industrial lands. A master plan for the Port property has been adopted and is composed of a Stormwater Management Plan, an Airport Master Plan, and a Wetland Management Plan.

The Port of Skagit County owns 1,817 acres within the Subarea. Of the total ownership, 761 acres are associated with the airport and substantially developed with aviation-related facilities. Within the Port’s 1,056-acre Bayview Business and Industrial Park, 108 acres are developed, and 694 acres are designated as wetland and buffers. The remaining 254 acres are undeveloped and planned for industrial development over the next twenty years.

The primary access to the Airport and industrial park is Higgins Airport Way via SR 20 or Josh Wilson Road. Access is also available via Farm to Market Road and Peterson Road.

Public and private industrial uses in the western portion of Bayview Ridge include the Skagit County Solid Waste Transfer Station (an “essential public facility”), the approximate 200-acre Paccar Technical Center, the Puget Sound Energy Tank Farm, the Olympic Pipe Line Tank Farm, Lignotech, and Washington Alder. Most of these uses access Farm to Market Road, on the west boundary of the Subarea.

The existing residential areas within Bayview Ridge, including the Skagit Golf and Country Club, were developed primarily between 1950 and 1970. The residential area is composed of single-family subdivisions, with clusters of condominiums in the Skagit Golf and Country Club. The Skagit Golf and Country Club development is accessed by Avon-Allen Road, with a secondary access to Ovenell Road. There is currently no road access to the remainder of the Subarea from this area. Residential subdivisions north of the Skagit Golf and Country Club are accessed by Avon-Allen Road and Peterson Road.

Figure 3 - Bayview Ridge Subarea Plan: Existing Development

Figure 4 – Bayview Ridge Subarea Plan: Large Lot Private Ownership

The current residential population within Bayview Ridge Subarea is 1,701, with 1,634 of those people residing within the Urban Growth Area.

Skagit Regional Airport Land Use Compatibility Study

The *Skagit Regional Airport Land Use Compatibility Study* (Reid Middleton) was prepared in April 2000. The intent of the study was to offer guidance regarding compatible land use development and the preservation of the utility of the Skagit Regional Airport. The three issues of concern and the objectives were:

- Height Hazards – To avoid development of land use conditions, which, by posing hazards to navigation, can increase the risk of an accident.
- Noise – To minimize the number of people exposed to frequent and/or high levels of airport noise.
- Safety – To minimize the risks associated with potential aircraft accidents to both people and property on the ground and enhance the survival of aircraft occupants.

The *Skagit Regional Airport Master Plan Update* (June 1995) addresses the height and noise compatibility issues and makes recommendations for height and noise compatibility that are consistent with the guidelines provided by the Federal Aviation Administration (FAA). Skagit County has adopted development ordinances related to height and noise.

The third issue of safety is more problematic. The question raised is what constitutes an acceptable level of risk. For the areas where the aircraft accident potential is greatest, certain types of land uses are considered unwise. The approach zones off the ends of the runway are the areas where an accident is most likely to occur and residential subdivision densities should be avoided. The runway safety zone has been enlarged to accommodate future precision approaches.

Three strategies are employed in minimizing the risks associated with potential aircraft accidents, including:

- Density limitations on the maximum number of dwellings, size of dwellings, or structures in areas close to the airport.
- Open space requirements to enhance safety for the occupants of an aircraft forced to make an emergency landing away from a runway.
- Avoiding certain critical types of land uses, particularly schools, hospitals, and other uses in which the mobility of occupants is effectively limited.

The *Skagit Regional Airport Land Use Compatibility Study* identifies and graphically illustrates five airport safety zones where uses are strictly limited and a sixth zone, known as the traffic pattern zone, where residential development at 4-6 units per acre is permitted. All of the Bayview Ridge Subarea, except the northeastern and southwestern edges, is within one of these zones. A summary of the recommended safety compatibility criteria developed in the study are represented in Table 1-1.

**Table 1-1
Recommended Safety Compatibility Criteria**

<i>Land Use and Densities^{1,2}</i>	<i>Open Space Requirements^{3,4}</i>	<i>Representative Land Uses⁵</i>
Zone 1 – Runway Protection Zone		
Residential: None	Maintain all undeveloped land in open space	Agricultural operations
Non-Residential: 5 to 10 people/acre		Tree farm (8 ft height restrictions)
Notes: 1. FAA and WSDOT encourage airport sponsor to acquire RPZ. 2. FAA ⁶ suggests use of property as golf course but such use may not comply with suggested densities.		
Zone 2 – Inner Safety Zone		
Residential: None	50% open space within a 500-foot-wide strip along the extended runway centerline; 25% to 30% open space overall.	Light industrial uses ⁷
Non-Residential: 5 to 40 people/acre		Mini-storage Parking lots
Notes: 1. During site development process, shift all structures away from the runway centerline.		
Zone 3 – Inner Turning Zone		
Residential: 2 acres/DU to 10 acres/DU	15% to 20%	Light industrial uses
Non-Residential: 25 to 60 people/acre		Mini-storage Parking lots
Notes: 1. During site development process, shift all structures away from the runway centerline.		
Zone 4 – Outer Safety Zone		
Residential: 2 acres/DU to 5 acres/DU	25% to 30% open space within a 500-foot-wide strip along the extended runway centerline; 10% to 15% open space overall.	Small neighborhood shopping center
Non-Residential: 40 to 100 people/acre		Small office building ⁸
Notes: 1. During site development process, shift all structures away from the runway end.		
Zone 5 – Sideline Safety Zone		
Residential: Not Applicable, under Port of Skagit County ownership	25% to 30% open space adjacent to the runway ends and RPZ.	All aviation related land uses are considered acceptable. ⁹
Non-Residential: 40 to 60 people/acre ⁹		
Zone 6 – Traffic Pattern Zone		
Residential: Urban Areas: 4 to 6 DU/acre or higher with master planned developments Rural Areas: 2.5 acres/DU to 5 acres/DU	10% to 15% open space or an open useable area every ¼ to ½ mile.	Industrial uses Small restaurant Neighborhood shopping center Small office building ⁸ Residential subdivisions
Non-Residential: 100 to 150 people/acre		

¹ DU refers to a residential dwelling unit.

² Certain critical types of land uses should be prohibited in all zones one through six. These include two categories:

- Schools, hospitals, nursing homes, and other similar land uses for which the significant common element is the relative inability of the people occupying the space to move out of harm’s way.
- Functions, such as aboveground storage of large quantities of flammable materials or other hazardous substances, which could substantially contribute to the severity of an aircraft accident if they were to be involved in one.

³ The objective of open space requirements is to enable a successful emergency landing, allowing the occupants to survive the accident with limited injury. An area as small as 75 feet by 300 feet (about 0.5 acre or the size of a football field) can be adequate for a survivable emergency landing in a small plane if the area is relatively level and free of objects such as overhead lines and large trees and poles that can send the plane out of control at the last moment. Because the pilot’s discretion in selecting an emergency landing site is reduced when the aircraft is at low altitude, open areas preferably should be larger and

spaced more closely in those locations usually overflown at low altitude. The chance of a pilot seeing and successfully landing in a small open space also would be increased if there were more such spots from which to choose.

- ⁴ The premise behind master planned developments is that, in most off-airport mishaps, the aircraft are under some degree of control when forced to land. Master planned developments promote clustering thus allowing for a greater amount of open space toward which the pilot can aim. The disadvantage of a master planned development is that it allows an increased number of people to be in the potential impact area of an uncontrolled crash. The optimum approach is believed to be a compromise that entails limiting the maximum occupancy level of a small area to double the overall criterion, but otherwise clustering development so as to provide the greatest amount of large open areas.
- ⁵ The various land uses provided under Representative Land Uses are not intended to provide a comprehensive list of acceptable activities, rather these examples are to provide decision makers with some insight as to appropriate uses. Examples were taken from WSDOT and CALTRANS guidelines and from information provided by airport managers throughout the region.
- ⁶ The FAA provides guidance on use of the RPZ in AC 150/5300-13 CHG 5. Paragraph 212 as follows: While it is desirable to clear all objects from the RPZ, some uses are permitted provided they do not attract wildlife, are outside of the runway OFA (object of area), and do not interfere with navigational aids. Golf courses (but not club houses) and agricultural operations (other than forestry and livestock) are permitted. Automobile parking facilities, although discouraged, may be permitted outside of the OFA extension. Land uses prohibited from the RPZ are residences, places of public assembly and fuel storage. Recommend the airport owner acquire the entire RPZ.
- ⁷ The CALTRANS study offers examples of what types of land uses should be prohibited within the Inner Safety Zone in Chapter 9, page 9-21: Nonresidential land uses should be limited to activities which attract relatively few people to a given area. Shopping centers, eating establishments, meeting halls, multi-story office buildings, and labor-intensive manufacturing plants are examples of uses which should be prohibited.
- ⁸ The CALTRANS study provides typical densities for various uses and offers the following example for a single-story office structure having a density of 50 to 100 people per acre (Chapter 9 page 9-20): The upper limit (100 people per acre) would occur if the building housed 1 occupant per 100 square feet of floor area – the maximum occupancy load allowed under the Uniform Building Code – and covered 25% of the lot.
- ⁹ Property within the sideline safety zone is controlled by the Port of Skagit County and is used for aviation purposes. While non-residential densities of 40 to 60 people per acre are recommended by the WSDOT guidelines, the CALTRANS study offers the following (Chapter 9 page 9-23): Aviation-related land uses on or adjoining airport property are typically viewed differently than non-aviation uses. Users of these facilities implicitly acknowledge some degree of risk simply by being present on the airport. All common aviation-related activities should be considered acceptable in this area provided that FAA airport design criteria are met.

Currently, the vast majority of compatibility impacts are contained on Port of Skagit County property. In response to the five safety zones, some additional land is proposed for acquisition by the Port, and some land that is now zoned for residential development is proposed to be rezoned to industrial. Open space will be required for new development projects.

The majority of the land outside the Port ownership lies within the sixth zone (i.e., the traffic pattern zone). Within this zone, it is recommended that residential uses be allowed at 4-6 dwelling units per acre, using a planned residential development process to insure the provision of 10-15 percent open space for emergency aircraft landings. Non-residential uses are limited to 100 – 150 people per acre. This is accommodated by the limitations of the requirement for parking, the occupant load factors of the Uniform Building Code, and the limits on assembly occupancies in the industrial zoning districts. For example, it takes one acre of land to park 120 cars. If those parking on the site work in a nearby building, the occupancy is limited to 120 employees, assuming they come by car. This results in about 60 employees per acre, maximum.

In proposing the safety recommendations outlined above, the *Skagit Regional Airport Land Use Compatibility Study* acknowledges that there is “little established guidance available regarding how restrictive to make safety criteria for various parts of an airport’s environs.” Additionally, the study cited a need to balance “the airport sponsor’s objectives of promoting a high degree of airport land use compatibility and the broader planning considerations and development needs of

the community.” While one of the main goals of the Bayview Ridge Subarea Plan is to preserve and protect the Skagit Regional Airport, the Plan also gives consideration to the economic implications of such protection.

As a result, two height contour maps have been developed by the Skagit County GIS and Walker & Associates depicting building height restriction contours, a Skagit Airport Building Height Restriction Contours Map shown in Figure 5, using the FAA's Part 77 surfaces minus the underlying ground elevations, and a Skagit Airport FAA Permit Contours Map, shown in Figure 6, depicting the FAA's 7460-1 permit contours using the FAA's 7460-1 surfaces minus the underlying ground elevations. This will enable the Skagit County Planning and Permit Center and permit applicants to determine if their proposed project falls within the contours that require an FAA permit (7460-1) or would likely exceed Part 77 surface limitations. These two maps show that the property located in the BR-HI zone is significantly below both the FAA's 7460-1 and Part 77 surfaces making a typical 35 foot - 40 foot height limitation unnecessary. Consequently, the building size and population restrictions suggested in the *Skagit Regional Airport Land Use Compatibility Study* for this particular area have been eliminated.

**Figure 5 – Bayview Ridge Subarea Plan:
Skagit Airport Building Height Restriction Contours Map**

Figure 6 – Bayview Ridge Subarea Plan: Skagit Airport FAA Permit Contours Map