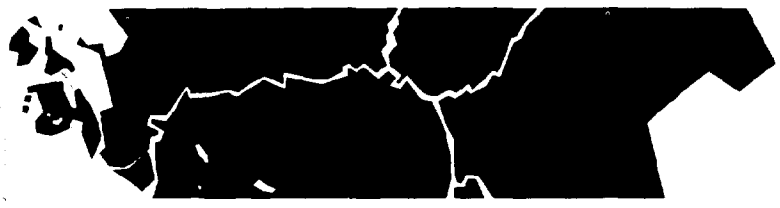
Washington - Coastal Zone Management Program

Skagit Council of Governments

Outer Continental Shelf Impact Analysis & Mitigation

Snelson-Anvil OCS Support Activities Anacortes, Washington 1980

Natural Resource Areas Management Plan



The S ...ments, formerly known as the Skagit Regional Planning Council, is a voluntary association of general and special purpose units of local ...ounty. The Council is composed of elected officials representing: the cities of Anacortes, Burlington, Concrete, Hamilton, LaConner, Lyma ...Woolley; Skagit County, the Skagit Soil Conservation District, Skagit PUD, the Port of Anacortes, and the Swinomish Tribal Community.

SKAGIT COUNCIL OF GOVERNMENTS
OUTER CONTINENTAL SHELF IMPACT ANALYSIS & MITIGATION
SNELSON-ANVIL OCS SUPPORT ACTIVITIES
ANACORTES, WASHINGTON 1980

NATURAL RESOURCE AREAS MANAGEMENT PLAN

Prepared for the
Anacortes Forest Land Advisory Committee

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INTRODUCTION

The Snelson-Anvil Corporation operates an outer continental shelf (OCS) support facility in Anacortes, Washington, including a fabrication and assembly yard, shipping facility, and storage and laydown area. Since 1975, the company has been fabricating, assembling, and shipping OCS modules and components to the Alaska North Slope Area. Snelson-Anvil worked to provide all services to construct, test, load out and deliver to offshore California all modules for platform "Grace", as well as performing maintenance and storage functions on major pieces of rotating and mechanical equipment required for the Kenai, Alaska LNG plant. The company forecasts expansion in the future, with peak employment expected to reach 1,400.

While the Snelson-Anvil OCS support activities help alleviate chronic unemployment and diversify the county's economy, they also present adverse impacts. The purpose of this planning project is to analyze OCS related impacts and develop mitigation measures. A report on traffic concerns has been published under separate cover. The development of a natural resource areas management plan is completed in this report, with the impact mitigation measures resulting from these elements being integrated into regional programs.

The City of Anacortes has approximately 2,000 acres of natural park and watershed property. However, increasing development pressure, coupled with the lack of a natural areas management plan, are resulting in the danger of losing this truly unique resource. This includes Mount Erie, Whistle Lake, Little Cranberry Lake, wetlands, and forests. These community forest lands contain some of the most unique and complex living environments in the Puget Sound Region. Few cities are so fortunate to have such a resource, coupled with the broad-based desire of its citizens to conserve and responsibly use these resources. One of the community's major concerns in this regard is the encumbrance of approximately 3,000 feet of shoreline, previously open to public access and recreation activity, by the Snelson-Anvil OCS site.

This natural resource areas management plan provides the framework for the proper decisions on the future use of these lands, including a strategy to replace the shoreline lost to public access by the OCS activity. Development of the management plan included the following activities:

**A detailed survey and inventory of the existing property. This involved: consolidation of existing maps, reports, plans and data, evaluation of inventory needs; inventory and mapping in terms of topography, timber resources and vegetation, drainage patterns and wetlands, soil types, wildlife habitats, trails, roads and paths; and, evaluation of historic and current uses of areas.

**Classification of the lands according to their best potential use, such as intense park use, conservancy areas (e.g. sensitive wildlife habitats, outstanding natural areas), pathway corridors, and areas suitable for timber management.

**Development of use policies for the classified lands, including permitted, encouraged and prohibited activities. The use/activity policies will be divided into four distinct areas of concern: (1) recreation and pathways, (2) conservation, (3) forestry, and (4) lands required for acquisition, trade or easements.

**Lands suitable to replace the 3,000 feet of shoreline lost to public access by the OCS activity will be identified and a strategy to acquire such lands will be developed.

This management plan has been developed by the Anacortes Forest Land Advisory Committee over the past year (January 1980 - January 1981). Their purpose was to create a self-supporting comprehensive resource plan which "maintains and enhances aesthetic and recreational values" while allowing economic benefit through sound forest management practices. This is not a preservation plan or a "cut and get out" plan. The overriding goal is to make these lands more accessible to the people of Anacortes and to enhance these resources for the future. The guidelines in this plan derive from three constraints: deed restrictions, soil and timber type and the Goals and Policies of the Comprehensive Plan, 1977.

This plan consists of four parts. Part I is the City of Anacortes Conservation Plan prepared by the Soil Conservation Service, U.S.D.A., under a cooperative agreement with the City. This report inventories soils, vegetation types, timber types, wildlife, watershed characteristics, wetlands and recreational sites. Part II is the Forest Inventory prepared by Robert Kline, Forest Management Consultant. This inventory provides information on timber volumes and grades, which is necessary for evaluating potential revenues and management practices. Part III is the Management Plan which develops policies and guidelines for these Community Forest Lands. Part IV consists of future acquisition considerations including lands identified as suitable to replace the 3,000 feet of shoreline lost to public access by OCS activity.

PART I

SECTION 1

ANACORTES PARK PLAN

Soil Numbers

10c Clallam gravelly loam, 8 to 15 percent slopes.

13 Swinomish-Fidalgo-Rock outcrop complex, 3 to 30 percent slopes.

16 Fidalgo-Lithic Xerochrepts-Rock outcrop complex, 3 to 30 percent slopes.

19 Lithic Haploxerolls-Rock outcrop complex, 70 to 90 percent slopes.

21 Bow gravelly loam, 0 to 3 percent slopes.

21B Bow gravelly loam, 3 to 8 percent slopes.

22 Coveland gravelly loam, 0 to 3 percent slopes.

50,14 Whistle-Fidalgo-Rock outcrop complex, 30 to 65 percent slopes.

62 Swinomish gravelly loam, 0 to 8 percent slopes.

130 Bellingham mucky silt loam

10c--Clallam gravelly loam, 8 to 15 percent slopes. This moderately deep and moderately well drained soil is on uplands. This soil formed in very compact glacial till. The vegetation in areas not cultivated is mainly conifers. Elevation is 25 to 450 feet. The average annual precipitation is about 23 inches, the average annual temperature is about 50 degrees F.; and the average frost-free season is about 190 days.

Included in this unit are small areas of Bow soils on remnant terraces, Coveland soils in swales, and Swinomish soils on ridges.

Permeability of this Clallam soil is moderate above the substratum and very slow in it. Available water capacity is moderate. Effective rooting depth is 20 to 30 inches. Runoff is medium, and the hazard of water erosion is moderate. A seasonal high water table fluctuates between depths of 20 and 30 inches in November to May.

This unit is used for Woodland.

Douglas Fir is the main woodland species on this unit. On the basis of the 100 year site curve, the mean site index for Douglas Fir is 125. On the basis of a 50 year site curve, the mean site index for Douglas Fir is 95, Yield tables indicate that the yield at culmination of the mean annual increment for Douglas Fir is 122 cubic feet per acre per year at age 70. Among the trees of limited extent are Grand Fir & Western Red Cedar. Among the common forest understory plants are Salal, Oregon grape, Huckleberry, Oceanspray, Twin flower and Swordfern.

The main limitation for the harvesting of timber is seasonal soil wetness. Use of wheeled and tracked equipment when the soil is wet produces ruts, compacts the soil, and damages the roots of trees. Unsurfaced roads and skid trails are soft and slippery. Logging roads require suitable surfacing for year-round use. Rock for road construction is not readily available on this unit. Seasonal high water table limit the use of equipment to dry periods.

Seedling establishment and windthrow is the main concern in the production of timber. Reforestation can be accomplished by planting Douglas Fir seedlings. If seed trees are present, natural reforestation of cutover areas by red alder occurs readily. Seasonal high water table reduces root respiration, which results in low survival of seedlings. When openings are made in the canopy, invading brushy plants, if not controlled, can delay the establishment of Douglas Fir seedlings. Trees commonly are subject to windthrow during periods when the soil is excessively wet and the winds are strong.

Capability subclass IV e

13--Swinomish-Fidalgo-Rock outcrop complex, 3 to 30 percent slopes.
This map unit is on footslopes of mountain sides and upland ridges. Slopes are complex. Areas are irregular in shape. The native vegetation is mainly conifers and deciduous shrubs. Elevation is 100 to 1000 feet. The average annual precipitation is about 20 inches, the average annual air temperature is about 50 degrees F.; and the average frost-free season is about 190 days. This unit is 40 percent Swinomish soil, 35 percent Fidalgo soil, and 15 percent rock outcrop. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used. Included in this unit are small areas of Coveland soils in swales and Swinomish Variant soils on uplands.

Permeability of the Swinomish soil is moderate to a depth of 25 to 40 inches and very slow below this depth. Available water capacity is moderate. Effective rooting depth is 25 to 40 inches. Runoff is slow, and the hazard of water erosion is slight. A seasonal high water table fluctuates between depths of 24 and 40 inches in winter.

The Fidalgo soil is moderately deep and moderately well drained. It formed in colluvium, glacial till and residium derived dominantly from argillite. Typically, the surface is covered with a mat of needles, leaves and twigs about 1 inch thick. The surface layer is very dark brown gravelly loam about 3 inches thick. The subsoil is brown and dark brown very gravelly fine sandy loam and very gravelly sandy loam about 22 inches thick. The substratum is very dark brown extremely gravelly loamy sand about 4 inches thick over argillite.

Permeability of the Fidalgo soil is moderate. Available water capacity is moderate. Effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is moderate. A seasonal high water table fluctuates between depths of 24 and 36 inches in winter.

Typically, the rock outcrop is argillite. This material is hard and has not weathered appreciably. It occurs as steep cliffs and irregular formations.

Douglas Fir is the main woodland species on the Swinomish soil. On the basis of the 100 year site curve, the mean site index for Douglas Fir is 125.

On the basis of a 50 year site curve, the mean site index for Douglas Fir is 95. Yield tables indicate that the yield at culmination of the mean annual increment for Douglas Fir is 122 cubic feet per acre per year at age 70. Among the trees of limited extent are Grand-fir, Western Hemlock and Western Red Cedar. Among the common forest understory plants are Swordfern, Trailing blackberry, Twinflower, Vine mapel, Current and Rose.

Douglas Fir is the main woodland species on the Fidalgo soil. On the basis of the 100 year site curve, the mean site index for Douglas Fir is 90. On the basis of a 50 year site curve, the mean site index for Douglas Fir is 71. Yield tables indicate that the yield at culmination of the mean annual increment for Douglas Fir is 70 cubic feet per acre per year at age 70. Among the trees of limited extent are Western Red Cedar, Lodge pole pine and Western Hemlock. Among the common forest understory plants

are Pacific madrone, Oregon-grape, Trailing blackberry, Rose, Holley grape, Starflower, Oceanspray, Current and Indain plum.

The areas of rock outcrop occupy about 15 percent of this unit and reduces yields accordingly.

The main limitation for the harvesting of timber is rock outcrop. Use of wheeled and tracked equipment when the soil is wet produces ruts, compacts the soil, and damages the roots of trees. Unsurfaced roads and skid trails are slippery when wet. This unit is well suited to year-round logging operations. Logging roads require suitable surfacing for year-round use. Rock for road construction is readily available on this unit. Rock outcrop hinder harvesting operations. Rock outcrops may cause breakage of timber and hinder yarding operations. Avoiding large rock outcrops forces paths to converge, which compacts the soil.

Seedling establishment is the main concern in the production of timber. Reforestation can be accomplished by planting Douglas Fir seedlings. High soil temperature and low content of mositure in the soil during the growing season cause high mortality of seedlings. The areas of rock outcrop limit the even distribution of reforestation. When openings are made in the canopy, invading brushy plants, if not controlled, can delay the establishment of seedlings. Trees commonly are subject to windthrow during periods when the soil is excessively wet and the winds are strong.

Capability subclass VII s.

16--Fidalgo-Lithic Xerochrepts-Rock outcrop complex, 3 to 30 percent slopes. This map unit is on gentle slopes to moderately steep uplands and hillslopes. Slopes are complex. Areas are irregular in shape and are 20 to 80 acres in size. The native vegetation is mainly conifers and shrubs. Elevation is 20 to 1300 feet. The average annual precipitation is about 20 inches, the average annual air temperature is about 50 degrees F.; and the average frost-free season is 180 days. This unit is 45 percent Fidalgo gravelly loam, 20 percent Lithic Xerochrepts, and 20 percent Rock outcrop. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

The Fidalgo soil is moderately deep and moderately well drained.

The Lithic Xerochrepts soil is shallow and moderately well drained.

Permeability of the Fidalgo soil is moderate. Available water capacity is moderate. Effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is moderate. A seasonal high water table fluctuates between depths of 24 and 36 inches in winter.

Permeability of the Lithic Xerochrepts soil is moderate. Available water capacity is low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate.

Typically, the rock outcrop is argillite. This material is hard and has not weathered appreciably. It occurs as steep cliffs and irregular formations.

This unit is used for Woodlands.

Douglas Fir is the main woodland species on the Fidalgo portion of this unit. On the basis of the 100 year site curve, the mean site index for Douglas Fir is 90. On the basis of a 50 year site curve, the mean site index for Douglas Fir is 71. Yield tables indicate that the yield at culmination of the mean annual increment for Douglas Fir is 70 cubic feet per acre per year at age 70. Among the trees of limited extent are Western Red Cedar, Lodge pole pine and Western Hemlock. Among the common forest understory plants are Pacific madrone, Oregon-grape, Trailing blackberry, Wildrose, Holley grape, Starflower, Ocean spray; Current and Indain plum.

Douglas Fir is the main woodland species on the Lithic Xerochrepts portion of this unit. On the basis of the 100 year site curve, the mean site index for Douglas Fir is estimated to be 85. On the basis of a 50 year site curve, the mean site index for Douglas Fir is estimated to be 65. Yield tables indicate that the yield at culmination of the mean annual increment for Douglas Fir is 64 cubic feet per acre per year at age 70. Among the trees of limited extent are Western Red Cedar, Western Hemlock, Lodgepole Pine and Grand Fir. Among the common forest understory plants are Trailing blackberry, Wildrose, Salal, Oregon-grape and Pacific madrone.

The areas of rock outcrop occupy about 20 percent of this unit and reduce yields accordingly.

The main limitation for the harvesting of timber is rock outcrop. Use of wheeled and tracked equipment when the soil is wet produces ruts, compacts the soil, and damages the roots of trees. Unsurfaced roads and skid trails are slippery when wet. Rock for road construction is readily available on this unit. This unit is well suited to year-round logging operations. Rock outcrop hinders harvesting operations. Rock outcrops may cause breakage of timber and hinder yarding operations.

Windthrow hazard is the main concern in the production of timber. Reforestation can be accomplished by planting Douglas Fir seedlings. The mortality of seedlings is higher on ridgetops that are subject to strong, persistent winds than that in other areas of this unit. High soil temperature and low content of mositure in the soil during the growing season cause high mortality of seedlings. The areas of rock outcrop limit the even distribution of reforestation. When openings are made in the canopy, invading brushy plants, if not controlled, can delay the establishment of seedlings. Trees commonly are subject to windthrow during periods when the soil is excessively wet and the winds are strong. Because the rooting depth is restricted by underlying bedrock trees are subject to windthrow.

Capability subclass VII e.

19--Lithic Haploxerolls-Rock outcrop complex, 70 to 90 percent slopes. This map unit is on the face of cliffs and mountain sides with sparse begetation. Areas are irregular in shape and are 40 to 100 acres in size. The native vegetation is mainly grasses, shrubs and clumps of conifers. Elevation is 50 to 1500 feet. The average annual precipitation is about 20 inches, the average annual air temperature is about 50 degrees F.; and the average frost-free season is about 200 days. This unit is 60 percent Lithic Haploxerolls, and 25 percent rock outcrop. The components of this unit are so intricately intermingled that it was not practical to map them separetely at the scale used.

The Lithic Haploxeroll soil is shallow and well drained.

Permeability of the Lithic Haploxerolls soil is moderate. Available water capacity is low. Effective rooting depth is 4 to 10 inches. Run-off is rapid, and the hazard of water erosion is severe. A seasonal high water table fluctuates between depths of 7 and 10 inches in the winter.

Typically, the rock outcrop is argillite.

This unit is used for Wildlife and recreation.

Douglas Fir si the main woodland species on Lithic Haploxeroll portion of this unit. On the basis of the 100 year site curve, the mean site index for Douglas Fir is estimated to be 70. On the basis of a 50 year site curve, the mean site index for Douglas Fir is estimated to be 55. Yield tables indicate that the yield at culmination of the mean annual increment for Douglas Fir is 48 cubic feet per acre per year at age 70. Among the trees of limited extent are wooley fern, grass, wild strawberry, red huckle-berry. Among the common forest understory plants are Lodgepole pine and Pacific madrone. The areas of rock outcrop occupy about 25 percent of this unit and reduces yields accordingly.

Capability subclass VIII s

21--Bow gravelly loam, 0 to 3 percent slopes.
This very deep, some what poorly drained soil is on glaciated remnant terraces and uplands. This soil formed in glaciola-custrine material with a mantle of volcanic ash. The vegetation in areas not cultivated is mainly conifers and deciduous shrubs. Elevation is 50 to 400 feet. The average annual precipitation is about 30 inches, the average annual air temperature is about 50 degrees F.; and the average frost-free season is about 190 days.

Included in this unit are small areas of Bellingham soils in low wet depressions and along drainage ways, Catla soils on uplands and Clallam soils on uplands. Permeability of this Bow soil is slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 0.5 to 1.5 feet from November to May. Runoff is slow, and the hazard of water erosion is slight.

This unit is used for Hay and Pasture, Woodland and Urban land.

If this unit is used for hay and pasture, the main limitations are small stones that interfere with tillage, seasonal wetness, and a seasonal high water table that limits its use for deep rooted legumes and grasses. Using management that maintains optimum, vigor, and quality of forage plants is a good practice. Grazing practices, weed control, and fertilizer are needed for maximum quality of forage. Fertilizer is needed for optimum growth of grasses and legumes.

Douglas Fir is the main woodland species on this unit. On the basis of the 100 year site curve, the mean site index for Douglas Fir is estimated to be 125. On the basis of a 50 year site curve, the mean site index for Douglas Fir is estimated to be 95. Yield tables indicate that the yield at culmination of the mean annual increment for Douglas Fir is 122 cubic feet per acre per year at age 70. Among the trees of limited extent are Western Red Cedar and Western Hemlock. Among the common forest understory plants are Salal, Trailing blackberry, Evergreen huckleberrry, Swordfern, Oceanspray and Twinflower.

The main limitaiton for the harvesting of timber is seasonal soil wetness. Use of wheeled and tracked equipment when the soil is wet produces ruts, compacts the soil, and damages the roots of trees. Unsurfaced roads and skid trails are sticky and slippery when surface and subsoil are disturbed. Logging roads require suitable surfacing for year round use. Rock for road construction is not readily available on this unit.

Windthrow hazard is the main concern in the production of timber. Reforestation can be accomplished by planting Douglas Fir seedlings. If seed trees are present, natural reforestation of cutover areas by Red Alder occurs readily. Seasonal high water table reduces root repsiration, which results in low survival of seedlings. Seedlings planted in the less fertile subsoil exhibit poor growth and vigor. When opeings are made in the canopy, invading brushy plants, if not controlled, can delay the establishment of seedlings. Because the rooting depth is restricted by seasonal high water table and clay layer trees are subject to windthrow.

If this unit is used for urban development, the main limitations are wetness

and shrink-swell potential. Wetness can be reduced by installing drain tile around footings. The effects of shrinking and swelling can be minimized by using proper engineering designs and by back filling with material that has low shrink-swell potential. The mainlimitations are slow permeability and seasonal high water table. Interceptor drains, additional top soil placed over the drain field, and absorption lines on contour may help to compensate for the limitations of this soil for septic tank absorption fields.

Capability subclass IV w.

21B--Bow gravelly loam, 3 to 8 percent slopes.

This very deep, some what poorly drained soil is on glaciated remnant terraces and uplands. This soil formed in glaciolacustrine material with a mantle of volcanic ash. The vegetation in areas not cultivated is mainly conifers. Elevation is 50 to 400 feet. The average annual precipitation is about 30 inches, the average annual air temperature is about 50 degrees F.; and the average frost-free season is about 190 days.

Included in this unit are small areas of Bellingham soils in low wet depressions and along drainage ways, Catla soils on uplands and Clallam soils on uplands. Permeability of this Bow soil is slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 0.5 to 1.5 feet from November to May. Runoff is medium, and the hazard of water erosion is lsight to moderate.

This unit is used for Hay and Pasture, Woodland and Urban land.

If this unit is used for hay and pasture, the main limitations are small stones that interfere with tillage, seasonal wetness, and a seasonal high water table that limits its use for deep rooted legumes and grasses. Using management that maintains optimum, vigor, and quality of forage plants is a good practice. Grazing when the soil is wet results in compaction of the surface layer, poor tilth, and excessive runoff. Rotation grazing helps to maintain the quality of forage. Periodic mowing and clipping helps to maintain uniform growth, discourages selective grazing, and reduces clumpy growth. Proper grazing practices, weed control, and fertilizer are needed for maximum quality of forage. Fertilizer is needed for optimum growth of grasses and legumes.

Douglas Fir is the main woodland species on this unit. On the basis of the 100 year site curve, the mean site index for Douglas Fir is estimated to be 125. On the basis of a 50 year site curve, the mean site index for Douglas Fir is estimated to be 95. Yield tables indicate that the yield at culmination of the mean annual increment for Douglas Fir is 122 cubic feet per acre per year at age 70. Among the trees of limited extent are Western Red Cedar and Western Hemlock. Among the common forest understory plants are Salal, Trailing blackberry, Evergreen huckleberry, Swordfern, Oceanspray and Twinflower.

The main limitation for the harvesting of timber is seasonal soil wetness. Use of wheeled and tracked equipment when the soil is wet produces ruts, compacts the soil, and damages the roots of trees. Unsurfaced roads and skid trails are sticky and slippery when surface and subsoil are disturbed. Logging roads require suitable surfacing for year-round use. Rock for road construction is not readily available on this unit.

Wind throw hazard is the main concern in the production of timber. Reforestation can be accomplished by planting Douglas Fir seedlings. If seed trees are present, natural reforestation of cutover areas by Red Alder occurs readily. Seasonal high water table reduces root respiration, which results in low survival of seedlings. Seedlings planted in the less fertile subsoil exhibit poor growth and vigor. When openings are made in the canopy, invading brushy palnts, if not controlled, can delay the establishment of seedlings. Because the rooting depth is restricted by seasonal high water

fable and clay layer trees are subject to windthrow.

If this unit is used for urban development, the main limitations are wetness and shrink-swell potential. Wetness can be reduced by installing drain tile around footings. Theeffects of shrinking and swelling can be minimized by using proper engineering designs and by back filling with material that has low shrink-swell potential. The main limitations are slow permeability and seasonal high water table. Interceptor drains, additional top soil placed over the drain field, and absorption lines on contour may help to compensate for the limitaitons of this soil for spetic tank absorption fields.

Capability subclass IV w.

22--Coveland gravelly loam, 0 to 3 percent slopes.

This very deep, somewhat poorly drained soil is in swales of uplands. This soil formed in glaciolacustrine material. The vegetation in areas not cultivated is mainly conifers and deciduous shrubs. Elevation is 10 to 250 feet. The average annual precipitation is about 23 inches, the average annual air temperature is about 50 degrees F.; and the average frost-free season is about 180 days.

Included in this unit are small areas of Clallam soils on uplands and small areas of Coveland soils over 3 percent slopes.

Permeability of this Coveland soil is slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth of 0 to 1.5 feet from November to May. Runoff is slow, and the hazard of water erosion is slight.

This unit is used for Woodland, Hay and Pasture.

Douglas Fir and Western Red Cedar are the main woodland species on this unit. On the basis of the 100 year site curve, the mean site index for Douglas Fir is estimated to be 115. On the basis of a 50 year site curve the mean site index for Douglas Fir is 90. Yield tables indicate that the yield at culmination of the mean annual increment for Douglas Fir is 106 cubic feet per acre per year at age 60. Estimates of the site index or yeild for Western Red Cedar have not been made. Among the trees of limited extent are Western Hemlock, and Grand Fir. Among the common forest understory plants are Sala, Oregon grape, Trailing blackberry, Rose, Swordfern, Current and Oceanspray.

The main limitation for the harvesting of timber is seasonal soil wetness. Use of wheeled and tracked equipment when the soil is wet produces ruts, compacts the soil, and damages the roots of trees. Unsurfaced roads and skid trails are sticky and slippery when surface and subsoil are disturbed. Logging roads require suitable surfacing for year-round use. Rock for road construction is not readily available on this unit.

Windthrow hazard is the main concern in the production of timber. Reforestation can be accomplished by planting Douglas Fir seedlings. If seed trees are present, natural reforestation of cutover areas by Red Alder occurs periodically. Seasonal high water table reduces root respiration, which results in low survival of seedlings. When openings are made in the canopy, invading brushy plants, if not controlled, can delay the establishment of seedlings. Trees commonly are subject to winthrow during periods when the soil is excessively wet and the winds are strong. The seasonal high water table restricts the development of roots. Because the rooting depth is restricted by a seasonal high water table and clay layer.

If this unit is used for hay and pasture, the main limitations are small stone that interfere with tillage, seasonal wetness, and a seasonal high water table that limits its use for deep rooted legumes and grasses.

Using management that maintains optimum, vigor, and quality of forage plants is a good practice. Grazing when the soil is wet results in compaction of the surface layer, poor tilth, and excessive runoff. Rotation grazing helps to maintain uniform growth, discourages selective grazing, and reduces clumpy growth. Fertilizer is needed for optimum growth of grasses and legumes.

Capability subclass IV w

50,14--Whistle-Fidalgo-Rock outcrop complex, 30 to 65 percent slopes. This map unit is on mountainsides and uplands. Slopes are complex. The native vegetation is mainly conifers and deciduous shrubs. Elevation is 200 to 1500 feet. The average annual precipitation is about 20 inches, the average annual air temperature is about 50 degrees F.; and the average frost-free season is about 190 days. This unit is 50 percent Whistle soil, 20 percent Fidalgo soil, and 15 percent Rock outcrop. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used. Included inthis unit are small areas of Swinomish soils on ridges. Also included are small areas of Bellingham and Terric Medisaprists soils in depressions.

The Whistle soil is deep and well drained. The Fidalgo soil is moderately deep and moderately well drained.

Permeability of the Whistle soil is moderate. Available water capacity is moderate. Effective rooting depth is 40 to 60 inches. Runoff is medium and the hazard of water erosion is moderate.

Permeability of this Fidalgo soil is moderate. Available water capacity is moderate. Effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is moderate. A seasonal high water table fluctuates between depths of 24 and 36 inches in winter.

Typically, the rock outcrop is argillite. This material is hard and has not weathered appreciabl y. It occurs as steep cliffs and irregular formations.

This unit is used for woodland and watershed.

Douglas Fir is the main woodland species on the Whistle portion of this unit. On the basis of the 100 year site curve, the mean site index for Douglas Fir is estimated to be 100. On the basis of a 50 year site curve, the mean site index for Douglas Fir is estimated to be 75. Yield tables indicate that the yield at culmination of the mean annual increment for Douglas Fir is cubic feet per acre per year at age . Among the common forest understory plants are Oregon grape, Trailing blackberry, Holley grape, Rose, and current. Among the trees of limited extent are Western Hemlock and Western Red Cedar.

Douglas Fir is the main woodland species on the Fidalgo soil. On the basis of the 100 year site curve, the mean site index for Douglas Fir is 90. On the basis of a 50 year site curve, the mean site index for Douglas Fir is 71. Yield tables indicate that the yield at culmination of the mean annual increment for Douglas Fir is 70 cubic feet per acre per year at age 70. Among the trees of limited extent are Grand-Fir, Western Hemlock, Lodge pole pine. Among the common forest understory plants are Pacific madrone, Oregon-grape, Trailing blackberry, Rose, Holley grape, Starflower, Oceanspray, Current and Indain plum.

The areas of rock outcrop occupy about 15 percent of this unit and reduce yields accordingly.

The main limitation for the harvesting of timber is steepness of slope and rock outcrop. When harvesting timber, steepness of slope restricts the use of wheeled and tracked equipment in skidding operations; cable yarding systems generally are safer and disturb the soil less. Use of wheeled and tracked equipment when the soil is wet produced ruts, compacts the soil, and damages the roots of trees. Unsurfaced roads and skid trails are slippery when wet. This unit is well suited to year-round logging operations. Logging roads require suitable surfacing for year-round use. Rock for road construction is readily available on this unit. Rock outcrop hinder harvesting operations. Rock outcrops may cause breakage of timber and hinder yarding operations. Avoiding large rock outcrops forces yarding paths to converge, which compacts the soil.

Seedling establishment is the main concern in the production of timber. Reforestation can be accomplished by planting Douglas Fir. High soil temperature and low content of moisture in the soil during the growing season cause high mortality of seedlings. The areas of rock outcrop limit the even distribution of reforestation. When openings are made in the canopy, invading brushy plants, if not controlled, can delay the establishment of seedlings. Trees commonly are subject to windthrow during periods when the soil is excessively wet and the winds are strong.

Capability subclass VII e.

62--Swinomish gravelly loam, 0 to 8 percent slopes.
This moderately deep, moderately well drained soil is on ridges of uplands. This soil formed in glacial till with an admixture of loess and volcanic ash. The native vegetation is mainly conifers and deciduous shrubs. Elevation is 100 to 1200 feet. The average annual precipitation is about 23 inches, the average annual air temperature is about 50 degrees F.; and the average frost-free season is about 190 days.

Included in this unit are small areas of Bow soils on glaciated remnant terraces and Coveland soils in swales.

Permeability of the Swinomish soil is moderate to a depth of 25 to 40 inches and very slow below this depth. Available water capacity is moderate. Effective rooting depth is 25 to 40 inches. A seasonal high water table fluctuates between depths of 24 and 40 inches in winter.

This unit is used for Woodland, Hay and Pasture and Homesites.

Douglas Fir is the main woodland species on Swinomish soils. On the basis of the 100 year site curve, the mean site index for Douglas Fir is 125. On the basis of a 50 year site curve, the mean site index for Douglas Fir is 95. Yield tables indicate that the yield at culmination of the mean annual increment for Douglas Fir is 122 cubic feet per acre per year at age 70. Among the trees of limited extent are Grand Fir, Western Red Cedar, and Western Hemlock.

Use of wheeled and tracked equipment when the soil is wet produces ruts, compacts the soil, and damages the roots of trees. This unit is well suited to year-round logging operations. Logging roads require suitable surfacing for year-round use. Rock for road construction is not readily available on this unit.

Plant competition is the main concern in the production of timber. Reforestation can be accomplished by planting Douglas Fir seedlings. If seed trees are present, natural reforestation of cutover areas by Red Alder occurs readily. When openings are made in the canopy, invading brushy plants, if not controlled, can delay the establishment of seedlings. Trees commonly are subject to windthrow during periods when the soil is excessively wet and the winds are strong.

If this unit is used for hay and pasture, the main limitations are droughtiness during summer and early fall. Using management that maintains optimum, vigor, and quality of forage plants is a good practice. Grazing when the soil is wet results in compaction of the surface layer, poor tilth, and excessive runoff. Rotation grazing helps to maintain the quality of forage. Use of proper stocking rates, pasture rotation, and restricted grazing during wet periods helps to keep the pasture in good condition and to protect the soil from erosion. Periodic mowing and clipping helps to maintain uniform growth, discourages selective grazing, and reduces clumpy growth. Proper grazing practices, weed control, and fertilizer are needed for maximum quality of forage. In some years, supplemental irrigation is also needed. Fertilizer is needed for optimum growth of grasses and legumes.

If the Swinomish soil is used for homesite development, the main limitation is a depth to hardpan and seasonal perched water table. Wetness can be reduced by installing drain tile around footings. Excavation for building sites is limited by the hardpan. Interceptor drains, additional top soil placed over the drain field, and larger absorption lines on contour may help to compensate for the limitations of this soil for septic tank absorption fields.

Capability subclass III w.

130--Bellingham mucky silt loam.

This very deep, poorly drained soil is in depressions. This soil formed in alluvium and lacustrine materials. The native vegetation is mainly mixed hardwoods and conifers. Elevation is near sea level to 450 feet. The average annual precipitation is about 40 inches, the average annual air temperature is about 51 degrees F.; and the average frost-free season is about 190 days.

Included in this unit are small areas of Norma soils along drainages and Skipopa soils on terraces.

Permeability of this Bellingham soil is slow. Available water capacity is high. Effective rooting depth is limited by a seasonal high water table that is at a depth +1.0 to 1.0 feet from November to June. Runoff is ponded, and the hazard of water erosion is slight.

This unit is used for Woodland and wildlife.

Red Alder is the main woodland species on Bellingham soils. On the basis of a 50 year site curve, the mean site index for Red Alder is 83. Yield tables indicate that the yield at culmination of the mean annual increment for Red Alder is 89 cubic feet per acre per year at age 40. Among the trees of limited extent are Western Red Cedar and Western Hemlock. Among the common forest understory plants are Western swordfern, salmonberry, and other perennial forbs and shrubs.

The main limitation for the harvesting of timber is wetness. Use of wheeled and tracked equipment when the soil is wet produces ruts, compacts the soil, and damages the roots of trees. Unsurfaced roads and skid trails are soft and slippery. Logging roads require suitable surfacing for year round use. Rock for road construction is not readily available on this unit. Ponding limits the use of equipment to dry periods.

Seedling mortality is the main concern in the production of timber. Reforestation can be accomplished by planting Western red cedar seedlings. Ponding reduces root respiration, which results in low survival of seedlings. Trees commonly are subject to windthrow during periods when the winds are strong.

Capability subclass IV w

WOODLAND SECTION

The areas listed below are outlined on the "Conservation Plan" aerial photo of the property. Information for each unit is presented to help the City Council make short and long-term decisions concerning woodland management. Each unit's information covers present woodland condition and suggested treatment. "Suggested Treatment" outlines management based on present woodland conditions, what the SCS planning team discussed on-site (7/28-29/80), the discussion between the planning team and the Council's planning subcommittee (7/30/80), and soil survey interpretations. Near the end of the report, additional information and recommendations are provided which are not specific to any one unit. A glossary is also provided.

#1: WOODLAND, 455 acres . . . . .primarily Douglas-fir, 8-24" dbh (diameter -breast-height) with scattered residual old growth Douglas-fir (100 + years old) with dbh's of 3 to 4'; narrow bands of red alder, 5-12" dbh, 20-35 years old, occur on roughly 20% of this unit and are most likely a result of old skidding trails or poorly drained soils; red alder forest understory consists mainly of salmonberry, red elderberry, and swordfern; Douglas-fir understory is mainly salal, oceanspray and swordfern.

Suggested Treatment: About 40% of the Douglas-fir stands on this unit are heavily stocked and could be commercially thinned. The remaining areas of Douglas-fir are moderately stocked and would not benefit from a thinning. From a timber production stand-point, any part of the unit could be clearcut harvested and then

reforested (many timber-producing stands in western Washington are harvested when they reach an age of 45-80 years old). However, large clearcut blocks are not compatible with the recreation, wildlife and visual concerns involved. Douglas-fir is a long-lived tree; the entire unit will continue to grow and become more valuable for decades to come. Until more specific information is known on wildlife species in the area, harvesting activities (other than commercial thinning or possibly some salvage of root-rot killed Douglas-fir) should be restricted. Because of the large-diameter trees over 20" dbh and the number of snags in some areas, this unit could be quite unique in meeting the needs of a variety of cavity nesting and predatory birds. Average growth of the 5-12" dbh red alder is good. Smaller diameter, co-dominant alder can be removed for firewood--this is not a critical practice to improve growth of the remaining trees. Currently, red alder stands are thought to reach their maximum value at age 45 to 55 years; this is about 20 to 25 years from now. If and when other areas of the unit are harvested in the future, the red alder could be cut concurrently.

#1a: WOODLAND, 65 acres . . . . this unit consists of 10-36" Douglas-fir 85-95 years old. There are scattered residual old growth Douglas-fir (100+ years old) with 3-4' dbh's. There are some wet depressions in this unit which are stocked with scattered alder, western red cedar and western hemlock.

Suggested Treatment: This unit is very suitable to a commercial thinning operation. This unit differs from unit #1 in the amount and distribution of red alder.

#2: WOODLAND, 245 acres . . . .fully stocked red alder, 30-40 years old, some areas 8-14" dbh and others 5-10" dbh; forest understory consists of stinging nettles, swordfern, salmonberry, red elderberry and scattered reproduction of western redcedar, grand fir and western hemlock; soils formed in topographic depressions and stay wetter in summer than upper adjacent areas. This unit contains patches of even aged Douglas-fir 25-30 years old, with 4-11" dbh range.

Suggested Treatment: Growth of the trees of this unit is good. Smaller diameter, dead, dying and deformed trees can be removed for firewood--this is not a critical practice to improve growth of the remaining trees. Depending on type of equipment and duration of use, soil displacement could be quite severe. As most of these units are roaded or have nearby truck trails, equipment should not be a major concern in firewood harvesting. As discussed for unit #1, the alder could be harvested in roughly 20 to 25 years for sawlogs and pulpwood.

#3a: WOODLAND, 15 acres . . . . this unit also contains a unique stand of old growth timber. This stand is located in designated unit #3 directly west of the entrance to Mt. Erie overlook and south of Heart Lake. The main stand of old growth is north of the city's property line. The stand is made up of old growth Douglas-fir, western redcedar, western hemlock, and grand fir. Dbh's range up to 60" and tree heights in excess of 140 feet. The rest of the unit consists of red alder similar to unit #2.

Suggested Treatment: This unit should be retained as a natural area for aesthetic purposes. Access to the old growth stand should be limited. Harvesting should be restricted to removing material as in unit #2.

#3: WOODLAND, 465 acres . . . . consists of a mixed stand of Douglas-fir 70-75 years old and some red alder; alder is 5-14" dbh with scattered old-growth Douglas-fir residuals 3-4' dbh; forest understory is mainly salal, red buckleberry, oceanspray, swordfern, red elderberry and salmonberry.

Suggested Treatment: This unit has the greatest potential for woodland improvement harvesting, generating revenue to the city, and having a favorable impact on wildlife habitat diversity. Douglas-fir is of a size and quality to generate high value when harvested. Compared to its potential productivity (as indicated by soil-site correlation), this unit is currently under-productive. This is mainly due to the high percentage of smaller-diameter red alder. By starting a series of group-selection cuts, 2-5 acres in size, value can be immediately captured and, with reforestation, treated areas could grow at their potential. The rationale for harvesting is only partially production-oriented. The benefit of group-selection cuts to wildlife habitat diversity (and resulting increases in numbers of certain wildlife species) will be quite significant after several years. This benefit can be explained by the introduction of two new successional stages, i.e., the "grass-forb" and the "shrub seedling," which are in short supply on the city's property. The amount of visible wildlife species dependent on these early successional stages should increase as the cutting system progresses. An example of proposed group-selection

areas are outlined on the Whistle Lake block of ownership. Note the configuration of the cutting boundary to maximize the amount of "edge effect" for wildlife.

#4: WOODLAND, 85 acres . . . . open areas of grass brush and rock outcrop to medium-stocked stands of uneven aged Douglas-fir up to 24" dbh and occasional, scattered lodgepole pine; low brush and forbs consist of oregon-grape, oceanspray, kinnikinick, yarrow, and pearly everlasting; rock outcrop occupies up to 40% of this unit. This unit also contains interspersed old growth Douglas-fir.

Suggested Treatment: Soil depth and rock outcrop limit the development of fully stocked stands on this unit. Also, rock outcrop presents a moderate limitation to logging equipment. The vegetative condition of this unit provides a contrasting habitat type for wildlife species. Individual tree selection harvesting is possible on this unit, but not advisable because of the relatively small amount of commercial timber, difficulty of using ground equipment, importance of maintaining the vegetative condition for habitat variety and that adjacent units are of higher priority for treatment. Numerous locations on the unit provide unique visual viewpoints of the surrounding area. Disturbance activities would detract from this aesthetic value.

#5: MOTORBIKE RECREATION AREA, 8 acres . . . .grass, brush and some hardwood and conifer seedlings occupy this area.

Suggested Treatment: This site appears to have had heavy vehicle use. Many areas on the unit are revegetating slowly. No woodland treatment is recommended at this time. From a recreation perspective, the unit could be devoted to a dirt bike/trail bike restricted use area--the area is relatively flat with any runoff intercepted by adjacent topographic features and vegetation. If this or similar type of activity is done, a second gate at the south end of the unit should be installed to control access to woodland units to the west and south.

#6: WOODLAND, 8 acres . . . .this unit is unique because it is the only one with a mixed hemlock, redcedar, Douglas-fir and grand fir canopy. Western hemlock is the dominant species ranging in age from 75-80 years and dbh range of 14-24." Western redcedar ranges from 6-14" dbh with old growth residuals up to 46" dbh. Grand fir ranges from 12-20" dbh up to 48" dbh old growth residuals. A few Douglas-fir in the stand in the 15-30" range were noted. The understory consists of red elderberry, swordfern, and trailing blackberry.

Suggested Treatment: This unit is on the road and thus very visible to the public. The stand has a park-like appearance which adds to its aesthetic/recreational value. We suggest that no harvesting be conducted and that a rest area with picnic tables be established.

<u>Cranberry Lake and Mt. Erie Buffer Zones and Exclusion Areas</u>: 671 acres . . . . areas receiving woodland treatment that are adjacent to wetlands, lakes, well-traveled roads and suburban areas will have a greater impact on recreation, aesthetics and wildlife than other areas that are treated. Timber production

objectives and resulting harvesting activities will have little compatibility with unique recreation areas such as those surrounding Mt. Erie and the 150 to 200' buffer zone around Little Cranberry Lake. Until more is known on habitat requirements of wildlife species found on the property, any harvesting or woodland improvement work should proceed slowly. Preliminary buffer zones and excluded areas, marked on the conservation plan photo, are suggested for no woodland treatment until such time as more precise relationships for these "critical impact" areas are developed.

Forest Practice Regulations: Most forest practices require compliance with the regulations of the 1974 Forest Practices Act . . . .contact the local DNR Forester (presently Joe Potter, Anacortes Unit Manager) before you start a forest practice. Recommendations in this report, if done properly, will meet minimum requirements of the regulations.

Timber-Producing Resource Base and Harvesting Regulation: Recreation, aesthetics and wildlife habitat concerns will limit the amount of land available as the timber-producing base for the city. As a preliminary estimate, 1100 acres have the potential for harvesting activities (primarily unit #3 and parts of unit #1 and #1a). New, site specific knowledge on recreation use and wildlife habitat and the public review process will increase or decrease this estimate.

Given a 1100 acre base and woodland recommendations for unit #3, it could be assumed that numerous 2 to 5 acre "group-selection" cuts could be made with the entire unit, some 500 acres, cutover in several years. Carrying out such an assumption would defeat the objective of compatible land uses on the same property. Obviously, harvesting activity needs to be regulated.

A simple method of regulation consists of establishing a specific rotation age or time period that the tree crop will be grown and applying it against the total timber-producing acreage base. For example, if a 60 year rotation age is chosen (which is reasonable for the soils and tree species involved) and applied against the 1100 acre base, an acreage amount that could be harvested each year is developed. This figure represents the amount of land which could be cut each year continuously in the future on a sustained basis. The following schemes show the possibilities:

1. Given: 1100 acres and a 60 year rotation.
2. Calculation: 1100 acres 60 years = 18 acres that can be cut each year on a sustained, continuous basis or 36 acres every 2nd year, etc.
3. Schemes:

TIMING OF HARVESTING ACTIVITY	TOTAL HARVESTED ACREAGE DURING THE SELECTED YEAR	NUMBER OF GROUP SELECTION CUTS	
		2 ACRE SIZE	5 ACRE SIZE
Every year	18 acres	9	3
Every 2nd year	36 acres	18	7
Every 3rd year	54 acres	27	10
Every 4th year	72 acres	36	14
Every 5th year	90 acres	45	18

It is recommended that timber harvesting, whether thinning or group selection cutting, by mechanical means be kept to a minimum. This can be done by on-site selection of units for use of heavy duty equipment. For a majority of the units to be treated we recommend strong consideration be given to horse logging. This has been a proven viable method of treating woodland stands and information is available of costs and benefits related to this method.

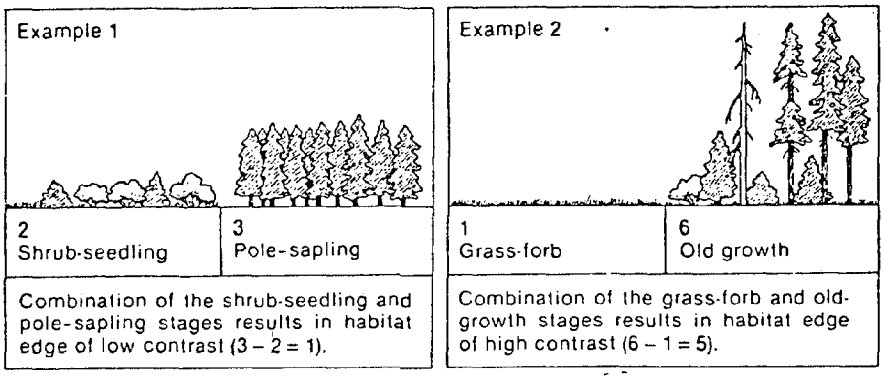
Glossary of Termed Used:

- *Commercial Thinning: A cutting made in immature tree stands to provide adequate growing space and accelerate diameter growth but also, by suitable selection, to improve the average form of the remaining trees. The mill value of the trees cut is greater than the harvesting and transportation costs of getting the tree to the mill.*

- *Clearcut: A silvicultural method of tree harvesting that removes the entire timber stand on the area cut.*

- *Edge Effect: The increased richness of flora and fauna resulting from the mixing of two plant communities where they join. See figure below.*

Figure W-2. Edge Effect.



- *Group-selection Cut: A modification of the individual tree selection system in which trees are removed in small groups rather than individually. Acreage-wise, we have further defined this to mean 2 to 5 acre groups.*

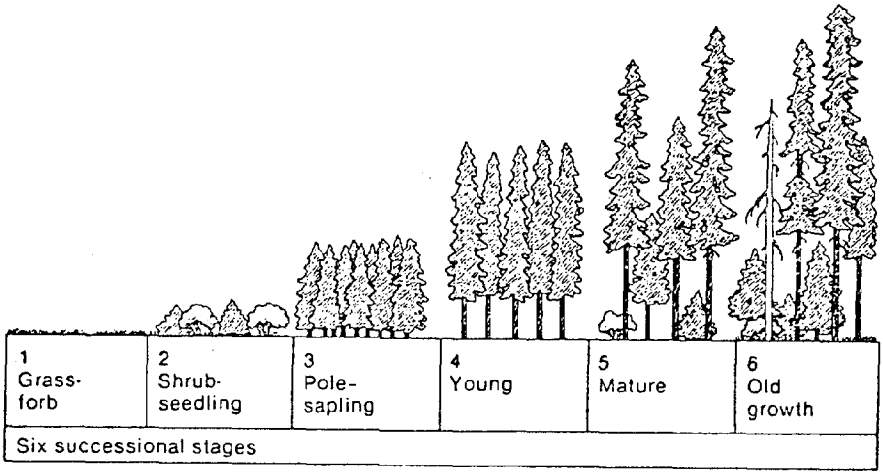
- *Heavily Stocked (fully stocked): A measure of the proportion of an area actually occupied by trees; the percent canopy closure for "heavily" or "fully" is 70 to 100 percent.*

- *Individual Tree Selection Cut: A system of cutting in which single trees are removed for commercial production.*

- *Moderately Stocked: A measure of the proportion of an area actually occupied by trees; the percent canopy closure for "moderately" is 40 to 70 percent.*

- *Residual Old-growth: Trees generally over 100 years of age and not cut during the initial cutting in the area in the late 1800's and early 1900's. Even though of large size at that time, trees were non-commercial.*
- *Rotation Age: The planned number of years required to establish and grow trees to a specific maturity.*
- *Snag: A standing dead tree from which the needles or leaves and most of the limbs have fallen. Generally they are over 4" dbh and 6' tall.*
- *Soil-Site Correlation: The process of developing and establishing forest tree quality and growth for a specific tree species to a particular soil.*
- *Successional Stage: A recognizable condition of a plant community which occurs during its development from bare ground to climax. See figure below.*

Figure W-3. Successional Stages.



Draft 9/19/80
I. Lines

City of Anacortes - Conservation Plan

Fish and Wildlife Considerations

Fish and wildlife populations fluctuate in response to changes in their environment or habitat. All animals have the same three basic habitat requirements: (1) food, (2) water, and (3) cover. In addition, each animal has specific requirements with regard to the quality, quantity and distribution (juxtaposition) of these three basic elements. The water requirements of a mallard obviously differ greatly from those of a black-tailed deer. Suitable habitat for some species such as spotted owls and western flycatchers is largely old-growth timber. The same old growth stand will provide better habitat for ruffed grouse if it is interspersed with shrubby and grassy openings.

Therefore, the numbers and diversity of wildlife on any piece of ground at any given time are the result of the habitat available. Each tract of land provides good habitat for some species and is unihabitable to other species. Any manipulation of the quality, quantity or interspersion of water and vegetation will change this relationship. Any manipulation will make the area better for some species and worse for others. The "secret" of fish and wildlife management is to understand the habitat requirements of each species and to manipulate water and vegetation to favor (or discourage) the desired kinds and numbers of animals.

There are two basic types of fish and wildlife management options. One option is to manage for a featured species. The other option is to manage for species richness. For rare, unique, threatened or spectacular species such as spotted owls, pileated woodpeckers or ospreys the land may be managed to create or preserve habitat for one of these species. Even the habitat requirements for other fish and wildlife species becomes a secondary consideration. When managing habitat for species richness, the goal is to create as much habitat diversity as possible to favor as many species as possible. The habitat requirements of one species are not given more consideration than those of another species.

Unfortunately, the detailed habitat requirements for many species such as non-game birds, reptiles and amphibians are not known. However, the habitat requirements of some species are fairly well documented and many species appear to have similar requirements. Therefore, if we manage a woodland for a species with relatively well-documented habitat requirements, such as the pileated woodpecker, we will largely meet the lesser-known habitat requirements of several cavity nesting, insectivorous birds. We have attached descriptions of the habitat requirements for several species occupying the Anacortes property. This material is a portion of the U. S. Fish and Wildlife Terrestrial Habitat Evaluation Handbook for the Willamette Valley - Puget Trough.

Management Recommendations by Habitat Type

Cranberry and Whistle Lakes

The primary goal for both lakes should be to maintain the integrity of shoreline vegetation and water quality. A buffer strip should be established around both lakes within which all activities, except limited recreational use,

is excluded. The buffer strip should be at least 500 feet wide or the crest of the watershed around each lake. It may be necessary to widen the buffer strip to include valuable features such as an osprey nest site or a stand of old growth timber.

Neither lake has formally developed recreation facilities. Cranberry Lake receives relatively high use because it is much more accessible. Both lakes are bordered by user-created trails. These casually developed trails cause several problems including littering, soil erosion, soil compaction, destruction of vegetation and disturbance to wildlife.

There are several alternatives: (1) exclude recreation use, (2) allow the present situation to continue, (3) manage the trail system and human use. It seems that some combination of these alternatives may be in order. Develop a trail system around the south and west edges of Cranberry Lake, and provide primitive waste and sanitary disposal facilites. Limited development may encourage increased human use, but excluding use or allowing continued undeveloped use do not seem to be viable alternatives. A more primitive type trail can be developed around the east and south edges of the lake to accomodate hikers, bird watchers, etc. Cranberry Lake is also much more suitable for the development of picnic sites, swimming beaches and possibly a youth and/or elderly oriented fishery.

The present use of Whistle Lake, although much less than that of Cranberry Lake, should not be ignored. Whistle Lake is in a more near-pristine state and should be kept in this condition until a detailed management plan can be developed. In the meantime the trail along the western edge should be developed to accomodate hikers. This trail can be connected to other trails originating on Mt. Erie and other locations on this parcel of property. Again, limited waste and sanitary disposal facilites should be provided at key locations. Human

use should be discouraged from the remainder of the shoreline of this lake. An inventory of osprey, and other unique species, nesting sites should be conducted. Human use should be excluded or minimized as necessary to prevent nest abandonment of these species.

Off-road and all-terrain vehicles should be excluded from not only the watersheds of these lakes, but the watersheds of all perennial streams and wetlands. The use of such vehicles not only degrades soil, plant, and water resources, it disturbs wildlife and is annoying to other recreationists. Use of motorized vehicles should be concentrated in one area. A potential site for this use is identified elsewhere in the plan.

Wetlands

The property contains several wetlands that are in several stages of eutrophication ranging from open water, to emergent vegetation to organic bogs. Because of their inherent diversity and their contrast with surrounding vegetation types, these areas should be totally protected. Wetlands provide drinking water for terrestrial wildlife, habitat for waterfowl, waterbirds, fish frogs and turtles, a breeding areas for amphibians and a feeding areas for many insectivorous birds such as swallows and flycatchers. An inviolate buffer strip 500-1000 feet wide should be established around each wetland. The watersheds should be protected from any accelerated soil erosion. A primitive trail can be developed to selected wetlands for nature study and wildlife viewing. Some of these wetlands could be used on a regulated basis as outdoor classrooms for schools, organized youth groups, nature study groups, etc. However, use by large groups should be regulated by a permit system.

To minimize disturbance to wildlife and functioning of natural systems trials should approach the wetlands in carefully selected locations. A few

elevated walkways and observation blinds can be developed to increase user access without causing undue degradation.

Two alternatives can be considered for improving wetland habitat. Many birds, including wood ducks and golden-eyes nest in tree cavities. These species would benefit from the addition of a few wooden nest boxes in suitable locations. The edge of the wetlands we visited are bordered by trees and shrubs. An additional edge (and hence habitat diversity) can be created by clearing woody vegetation from selected portions of the shoreline and seeding them to herbaceous (grass-legume) vegetation. This treatment will create an edge between the wetland and herbaceous vegetation, and between woody and herbaceous vegetation.

Riparian Corridors

The property contains numerous natural drainageways and depressions largely dominated by red alder, with scattered western red cedar and western hemlock, and with an understory of salmonberry, red elderberry and swordfern. Many of these areas are the drainageways supplying water to the lakes and wetlands. Therefore, it is important to prevent erosion and limit disturbance in these areas. The vegetation also performs the important function of filtering sediment from erosion occurring on adjacent land.

The riparian corridors also serve an important ecological function. They provide habitat diversity to an otherwise conifer dominated woodland. Several species of song-birds and small mammals are directly dependent on these areas and spend a majority of their life cycle in this cover type. In addition, some species such as black-tailed deer and ruffed grouse require this cover type, interspersed with upland cover types, to supply their habitat needs.

Some cutting of firewood, pulpwood and sawlogs can be allowed in these areas. Cutting should be confined to small, randomly located blocks. Cutting

should be done in these areas in one to two acre irregularly shaped blocks no wider than 600 feet. Cutting on the adjacent block should be delayed 10 to 15 years to create more diversity between adjacent blocks. This type of cutting would be preferable to the random removal of wood from all areas. Removing trees from a small patch will encourage the growth of the herbaceous and shrubby understory - creating further habitat diversity. Many of the riparian corridors are bordered by roads or old skid trails. It would be desirable to winch the wood to these roads and trails, rather than operating equipment directly in the bottom of the drainageway.

Woodland

Three basic strategies seem appropriate for managing woodlands for wildlife - (1) set aside old growth and large growth for their intrinsic values (2) limited habitat manipulation within old growth based on detailed management plans (3) complementary timber - wildlife management within specified second growth.

Old Growth

Old growth and large second growth largely occur in units 1, 1a, 2, 2a, and 8. Old growth and large second growth are rapidly disappearing from western Washington. Modern silvicultural techniques are largely geared to producing even-aged stands on relatively short rotations. As a consequence we have a rapidly diminishing base of old growth and large second growth.

In a pristine situation many species of wildlife evolved habitat requirements dependent on the presence of old growth stands. Examples of these species include the pileated woodpecker, western flycatcher and spotted owl. Table 5 from Wildlife

and Forest Management in the Pacific Northwest contains a list of birds and indicates which forest successional stage provides their favored habitat. In the case of some species it is not simply enough to have some old growth present. The stand must be large enough - approximately 300 acres in the case of the pileated woodpecker - to satisfy that species requirements.

Because of their wildlife, recreation and aesthetic values all management decisions in old growth areas should be delayed until a detailed management plan can be developed. An attempt should be made to control some of the on-going activities such as motorbike use or firewood harvesting that might hinder future management options.

Second Growth

Identified in the conservation plan as woodland units 3, 4 and portions of units 1 and 1a. The soils in unit 4 are extremely shallow in many areas resulting in an interspersion of trees and herbaceous-shrub dominated openings. Because of the interspersion of vegetative types this unit probably supports one of the most diverse wildlife populations on the property. Because of its high wildlife, recreation and aesthetic values this parcel of land should be managed exclusively for these purposes. Plant succession is relatively slow on this site. However, it may be necessary to do some hand-work in this parcel to remove competing vegetation to maintain a desirable interspersion of herbaceous, shrubby and wooded vegetation.

Unit 3 and portions of units 1 and 1a are the most suitable areas to manage within the concept of species richness. Because they are relatively young stands they don't provide favored habitat for old-growth species. It also appears that these units are the most suitable areas for timber production.

In general, wildlife habitat can be improved by creating several small, irregularly shaped openings. The openings will have more value if they are interspersed throughout these timbered units. Although the optimum size varies by wildlife species, openings of two to five acres are used by most species. The shape and the distance to trees is probably more critical than the size of the opening. The goal should be to create irregularly shaped openings no more than 600 feet wide. The openings should be clear-cut and allowed to naturally re-invade with herbaceous plants, shrubs and conifers according to the natural succession pattern. Snags should be retained and shrubs retained as much as possible. All logging debris should be left in place to the extent it does not hinder future management. There is some data in the literature to indicate that further habitat diversity can be created by burning the debris on half the clear-cut. Areas prone to erosion should immediately be reseeded to grasses and legumes - particularly orchard-grass, clover, alfalfa and trefoil.

Four openings can be created per 100 acres every 10 to 15 years. New openings should be created in dense timber rather than adjacent to previously created openings. The natural vegetation on an opening should be allowed to develop for 30 to 40 years before the adjacent area is cut. This strategy will help create the maximum habitat diversity.

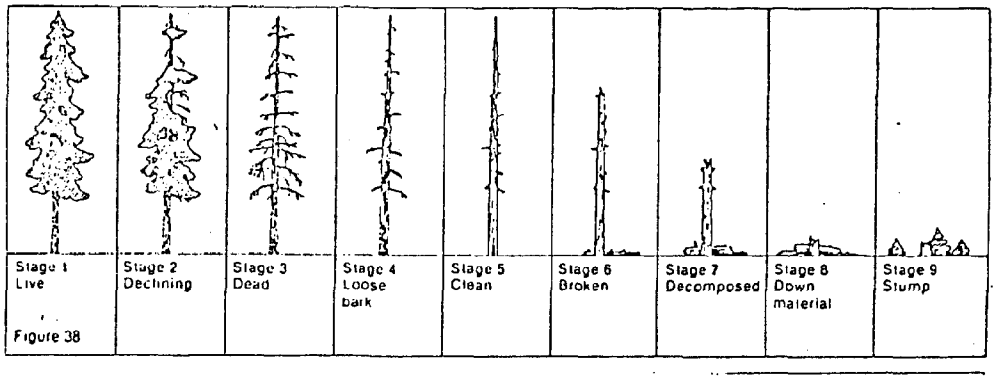
Any skid trails or roads built for timber harvesting should be closed to public access. Roads and trails, also create an edge of value to wildlife. They should be seeded to grasses and legumes to improve habitat value.

There is little data available on creating snags. There is some question whether artificially killed trees will persist as long as snags from naturally killed trees. Further advice is needed on this subject, particularly if detailed inventories show a deficiency of snags.

Snag Management:

Snags provide a portion of the life support system for numberous species of plants, invertebrates, birds and mammals. If undisturbed by man, snags undergo a series of successional changes from death of the tree to final decomposition:

FIGURE W-1 Snag Succession



Two successional processes influence the use of snags by wildlife:

(1) The internal and external characteristics of the snag itself, and
(2) the successional stage of the plant community that surrounds the snag.

Each stage in the decay process has particular value to certain wildlife species. For example, Stage 6 is most heavily used by excavating woodpeckers such as the pileated woodpecker. Stage 7 provides nest sites for birds which excavate in soft wood.

The successional stage of the surrounding plant community also influences the way wildlife use snags. Certain birds will use cavities in a snag that occurs in the grass-forb stage (unit #4) or shrub-seedling stage (proposed openings in unit #3) and will not ordinarily use the same snag if it is surrounded by more advanced successional stages. The pileated woodpecker, however, will nest in a snag surrounded by trees but tends to avoid nesting in snags located in earlier successional stages.

ANIMALS FOUND ON THE ANACORTES CITY PROPERTY

(According to Dr. Ernest Booth)

Opossum- Didelphis marsupialis
Shrew mole- Neurotrichus gibbsii
Townsend mole- Sorex vagrans
Bats- Chiroptera 20-25 common local species
Eastern Cottontail- Sylvilagus floridanus (Introduced!)
Douglas Squirrel- Tamiasciurus douglasii
Townsend Chipmunk- Eutamias townsendii
*Flying squirrels- Glaucomys sabrinus (Northern species)
White footed mouse- Peromyscus maniculatus
Bushy-tailed wood rat- Neotoma cinerea
*Red-backed Mouse- Clethrionomys gapperi
Common Muskrat- Ondatra zibethicus
Meadow Mice-Townsend-Microtus townsendii
Oregon Meadow Mouse- Microus longicaudus
Coast Jumping Mouse- Zapus trinotatus
Common Porcupine- Erethizon dorsatum
Colyote- Canis latrans
Red Fox- Vulpes fulva
Racoon- Procyon lotor
*Sea Otter- Enhydra lutris May come inland to lake
*Spotted Skunk- Spilogale puturis (Not common)
Stripped Skunk- Mephitis mephitis
Mink- Mustela vison
Long-tailed Weasel- Mustela frenata
Ermine- Mustela erminea (Does not change color to white in the winter, Here!)
Mule Deer (Black-tailed Deer)-Odocoileus hemionus columbianus

BIRDS

Common loon- Gavia immer
Arctic loon- Gavia arctica
Red-throated loon- Gavia stellata
Red-necked grebe- Colymbus grisegena holbolii
Horned grebe- Podiceps auritus
Western grebe- Aechmophorus occidentalis
Pied-billed grebe- Podilymbus podiceps podiceps (-found on lakes only)
Horned grebe- Podiceps auritus
Double-crested cormorant- fhalacrocorax auritus
Pelagic Cormorant- Phalacrocorax pelagicus
Brandt's Cormorant- Phalacrocorax penicillatus
*Black Brandt- Branta nigricans (salt water only)
Great Blue Heron- Ardea herodias
Mallard- Anas platyrhynchos
Gadwall- Anas strepera
Pintail- Anas acuta
Green-winged teal- Anus carolinensis

*Rare species

American widgeon- Mareca americana
Shoveler- Spatual clypeata
Wood duck- Aix sponsa
Redhead- Aythya americana
Ring-necked Duck- Aythya collaris
Canvasback- Aythya valisineria
Greater Scaup- Aythya marila
Lesser Scaup- Aythya affinis
Common Goldeneye- Bucephala clangula
Barrow's Goldeneye- Bucephala islandica
Bufflehead- Bucephala albeala
Oldsquaq- Clanqula hyemalis
White-winged Scoter- Melanitta deglandi
Surf Scoter- Melanitta perspicillata
Common Scoter- Oidemia nigra americana
Ruddy duck- Oxyura jamaicensis
Hooded Merganser- Lophodytes cucullatus
Common Merganser- Mergus merganser
Red-breasted Merganser- Mergus serrator
*Goshowk- Accipiter gentilis (Rare)
Sharp-shinned Hawk- Accipiter striatus
Cooper's hawk- Accipiter cooperii
Red-tailed hawk- Buteo jamaicensis
Osprey- Pandion haliaetus
Bald Eagle- Haliaeetus leucocephalus
*Perrégine Falcon- Falco peregrinus (Rare)
Sparrow Hawk (Kestrel)- Falco sparverius
Blue Grouse- Dendragapus obscurus
Ruffed Grouse- Bonasa umbellus
*Ring-necked Pheasant- Phasianus colchicus (Introduced)
*California Quail- Lophortyx californicus (Introduced)
American Coot- Fulica americana
Virginia Rail- Rallus limicola
Sora- Porzana carolina
*Spotted Sandpiper- Aetitus macularia
Bonaparte's Gull- Larus philadelphia
Glaucous Gull- Larus hyperboreus
Mew Gull- Larus canus
Mourning Dove- Zenaidura macroura
Band-tailed Pigeon- Columba fasciata
Great Horned Owl- Bubo virginiana
*Spotted Owl- Strix occidentalis (RARE)
Screech Owl- Otus asio
Pygmy Owl- Glaucidium gnoma
Nighthawk- Chordeiles minor
Vaux's Swift- Chaetura vauxi
Ruf Hummingbird- Selasphorus rufus
Belted Kingfisher- Megaceryle alcyon
Red-Shafted flicker- Colaptes cafer
Hairy Woodpecker- Dendrocopos villosus

ANIMALS FOUND ON THE ANACORTES CITY PROPERTY (Continue: Birds)

Pileated Woodpecker- Dryocopus pileatus
*Downy Woodpecker- (Rare)
Yellow-Bellied Sapsucker- Sphyrapicus varius
Olive-sided flycatcher- Nuttallornis borealis
Traill's flycatcher- Empiclonax traillii (edge forest)
Western flycatcher- Empidonax difficilis (deep forest)
*Hammond's flycatcher- Empidonax hammondi (migration only)
Tree Swallow- Iridoprocne bicolor
Violet-Green Swallow- Tachycineta thalassina lepida
Rough-winged Swallow- Stelgicopteryx ruficollis
Barn Swallow- Hirundo rustica
Cliff Swallow- Petrochelidon pyrrhonota
Stellar's Jay- Cyanocitta stelleri
Northwestern Crow- Corvus caurinus
Common Raven- Corvus corax
Black-capped Chickadee- Parus atricapillus
Chestnut-backed Chickadee- Parus rufescens
Common Bushtit- Psaltriparus minimus
White-breasted Nuthatch- Sitta carolinensis
Red-breasted Nuthatch- Sitta canadensis
Brown Creeper- Certhia familiaris
*House Wren- Troglodytes aedon (Rare)
Bewick's Wren- Thryomanes bewickii
Winter Wren- Troglodytes troglodytes
Long-billed Marsh Wren- Telmatodytes palustris
Robin- Turdus migratorius
Hermit Thrush- Hylocichla guttata
Varied Thrush- Ixoreus naevius
Swainson's Thrush- Hylocichla ustulata
Townsend's Solitaire- Myadestes townsendi
Bohemian Waxwing- Bombycilla garrula pallidiceps
Cedar Waxwing- Bobbycilla cedrorum
Loggerhead Shrike- Lanius ludovicianus
Starling- Sturnus vulgaris
Warbling Vireo- Vireo gilvus
Hutton's Vireo- Vireo solitarius
Orange-crowned Warbler- Vermivora celata
Yellow Warbler- Dendroica petechia
Audubon's Warbler- Dendroica auduboni
Black-throated Gray Warbler- Dendroica nigrescens
Townsend's Warbler- Dendroica townsendi
Hermit Warbler- Dendroica occidentalis
Mac Gillivray's Warbler- Oporornis tolmici
Yellowthroat- Geothlypis trichas
Wilson's Warbler- Wilsonia pusilla
Redwinged Blackbird- Agelaius phoeniceus
Brewer's Blackbird- Euphagus cyanocephalus
Western Tanager- Piranga ludoviciana

ANIMALS FOUND ON THE ANACORTES CITY PROPERTY (Continue: Birds)

Evening Grosbeak- Hesperiphona vespertina
Black-headed Grosbeak- Pheucticus melanocephalus
Lazuli Bunting- Passerina amoena
Purple Finch- Carpodacus purpureus
House Finch- Carpodacus mexicanus
American Goldfinch- Spinus tristis
Pine siskin- Spinus pinus
Red Crossbill- Loxia curvirostra
White-winged Crossbill- Loxia leucoptera
Rufous-sided Towhee- Pipilo evythrophthalmus
Oregon Junco- Junco oreanus
Savannah Sparrow- Passerculus sandwichensis
White-crowned Sparrow- Zonotrichia leucophrys
Golden-crowned Sparrow- Zonotrichia atricapilla
Fox Sparrow- Passerella iliaca
Song Sparrow- Melospiea melodia

No: Mt. Beaver
Marmots
Gophers
Kangaroo Rats
European Rats or Mice
Bears
Mt. Lions
Bobcats
Shearwaters
Albatross
Swans
Bluebirds
Nuthatches

Sensitive Areas

Wood ducks are known to nest on Heart Lake & South end of Whistle Lake

All marshes and bogs should be protected; limited-use access on foot only (ie, by boardwalk)

Recommends a minimum of 500-1000' buffer strip around all lakes or streams.

Table 5. Use by Eighty-four Birds of the Douglas-Fir Sere in Oregon West of the Cascade Mountains Summit. Use Is Designated as Largely Nesting (N), Significant Use Plus Nesting (UN), and Significant Use (U). Species Dependent on Holes for Nest Sites Are Printed in Italics.[1]

Bird species	Seral stage and age, *years*				
	Grass, forbs 1-7	Shrub, sapling 8-15	Second growth 16-40	Older 2nd growth 41-120	Mature 120+
Savannah sparrow	N	U	-	-	-
Vesper sparrow	N	U	-	-	-
White-crowned sparrow	UN	UN	-	-	-
Song sparrow	UN	UN	-	-	-
Night hawk	UN	UN	U	U	U
Oregon junco	UN	UN	UN	UN	UN
Fox sparrow	U	N	-	-	-
Chipping sparrow	U	N	-	-	-
Rufous-sided towhee	U	N	-	-	-
American goldfinch	U	N	-	-	-
Black-headed grosbeak	-	UN	UN	UN	UN
Bewick's wren	U	N	-	-	-
Lazuli bunting	U	N	-	-	-
Wilson's warbler	-	N	-	-	-
Yellow warbler	-	N	U	-	-
Nashville warbler	-	UN	UN	U	-
Orange-crested warbler	-	UN	UN	-	-
Warbling vireo	-	UN	UN	U	U
Solitary vireo	-	UN	UN	UN	-
MacGillivray's warbler	-	UN	UN	UN	UN
Yellow-rumped warbler	-	UN	UN	U	U
Black-throated gray warbler	-	UN	U	UN	UN
Hutton's vireo	-	UN	U	UN	U
Swainson's thrush	U	UN	UN	U	U
Varied thrush	U	UN	UN	UN	UN
Robin	U	UN	UN	UN	U
Common bushtit	-	N	U	U	U
Scrub jay	U	N	-	-	-
Stellar's jay	U	UN	UN	UN	UN
Western wood pewee	-	UN	U	UN	UN
Western flycatcher	-	UN	UN	U	-
Traill's flycatcher	-	N	U	-	-
Calliope hummingbird	U	N	-	-	-
Mourning dove	U	UN	UN	-	-
Mountain quail	U	N	U	U	-
Blue grouse	U	UN	-	UN	UN
Ruffed grouse	U	UN	UN	-	-
Sharp-shinned hawk	-	UN	U	UN	-
Saw-whet owl	-	U	UN	UN	UN
Cooper's hawk	-	U	N	U	-

Table 5. (continued)

Bird species	Seral stage and age, years				
	Grass, forbs	Shrub, sapling	Second growth	Older 2nd growth	Mature
Pigeon hawk	-	U	UN	UN	-
Pygmy owl	-	U	UN	UN	-
Long-ear owl	U	U	UN	UN	-
Rufous hummingbird	U	U	UN	UN	-
Tree swallow	-	UN	UN	-	-
Purple martin	-	UN	UN	-	-
Western bluebird	-	UN	U	-	-
Mountain bluebird	-	UN	U	-	-
Great horned owl	U	U	UN	UN	U
Crow	U	U	UN	UN	UN
Flicker	U	U	U	UN	UN
Gray jay	-	U	U	UN	UN
Yellow-bellied sapsucker	-	U	UN	UN	UN
Black-capped chickadee	-	U	UN	UN	U
Winter wren	-	U	UN	UN	UN
Golden-crowned kinglet	-	U	UN	UN	UN
Ruby-crowned kinglet	-	U	UN	UN	UN
Red-tailed hawk	U	U	-	UN	UN
Bald eagle	-	-	-	UN	UN
Osprey	-	-	-	UN	UN
Band-tailed pigeon	U	U	-	UN	UN
Screech owl	-	U	U	UN	UN
Pileated woodpecker	-	-	U	UN	UN
N. three-toed woodpecker	-	-	U	UN	UN
Hairy woodpecker	-	U	U	UN	UN
Downy woodpecker	U	U	-	UN	UN
Olive-sided flycatcher	U	U	-	UN	UN
Chestnut-backed chickadee	-	U	U	UN	UN
Red-breasted nuthatch	-	-	U	UN	UN
White-breasted nuthatch	-	-	U	UN	UN
Brown creeper	-	-	U	UN	UN
Townsend's solitaire	U	U	-	UN	UN
Hermit thrush	-	U	U	UN	UN
Townsend's warbler	-	-	-	UN	UN
Hermit warbler	-	-	U	UN	UN
Hammond's flycatcher	-	U	U	UN	UN
Western tanager	-	U	U	UN	UN
Evening grosbeak	-	U	U	UN	UN
Purple finch	-	U	U	UN	UN
Pine siskin	U	U	U	UN	UN
Red crossbill	-	-	-	UN	UN
Goshawk	-	-	-	U	N
Spotted owl	-	-	-	U	N
Vaux's swift	U	U	U	U	N

Table 5. (continued)

Bird species	Seral stage and age, *years*				
	Grass, forbs 1-7	Shrub, sapling 8-15	Second growth 16-40	Older 2nd growth 41-120	Mature 120+
SUMMARY:					
Species occurring	34	72	59	62	53
Species occurring, *percent*	42	86	70	77	66
Nesting species	6	40	30	50	44
Most nests in one seral stage	2	13	1	0	3
Species nesting in seral stage	7	48	36	62	55
Species nesting in snags[2]	0	0	4	13	13

[1]Of the 84 species, 16, or 19 percent, were hole-nesters.
[2]The snags were sized appropriately for the seral stage.

SECTION IV

RECREATION SECTION

This section is not intended to serve as a complete study of current or potential recreation resources within the City property.

Our intent is to record our observations and offer a few alternative treatments to obtain compatible recreation use.

Trails (See Recreation Map)

Currently, trail access does not appear to be a problem in most areas. There is however several problems associated with access that needs to be discussed.

Trail signs are badly needed throughout the system to direct users. Signs should be posted at strategic locations and map handouts available to interested people.

Some trails now in use are in fragile areas with soils with poor drainage characteristics that pond water.

The soils section can be of great assistance in locating good areas for trails.

Old Roads (See Recreation Map)

Many old logging roads provide access to City property. These roads also provide access to motorized vehicles that are causing damage in some areas.

Gates blocking these access roads may provide some relief to motorcycle misuse.

Proposed Dirt Bike Area (See Recreation Map)

We would like to propose a special area for motorcycle use south and east of Little Cranberry Lake.

Recreation Section: Continue

The site is the old dump area for the City and is well buffered on all sides. Because the site is elevated with no water drainages in close proximity the site cannot be adversely impacted by overuse.

The gate presently off of A Avenue would have to be moved west to allow access with other provisions made to protect the liability of the City.

We believe by providing an area for motorcycle use it will reduce the present impact on the road and trail systems.

SECTION V

WATERSHED-HYDROLOGY

The City of Anacortes Property can be divided into three major watersheds or drainages.

Aerial photography, on-site work and USGS Quadrangles were used to approximate watershed divisions.

Utilizing the soil types, slope and vegetative ground cover, water runoff rates were determined for each watershed.

Little Cranberry Lake Watershed

(See Watershed Map)

This watershed area consists of approximately 180 acres of which 18 percent or 34 acres lies outside the City property. Sixteen acres within the drainage area are wetlands that serve a very important function of regulating runoff waters.

Under present conditions this 180 acre watershed will shed 12 cubic feet per second (cfs) as a result of a 2.5 inch rainfall in 24 hours (25 year frequency storm).

The threat of major watershed changes does not appear to be serious. With only 34 acres lying outside the City property uncontrolled degradation of the watershed can be kept to a minimum. However, recreation impacts especially to drainage ways and shorelines do represent sources of hydrologic changes.

Buffer strips, trail maintenance and limited controlled use are treatment alternatives that can be used to lessen watershed impacts.

Heart Lake Watershed

(See Watershed Map)

This watershed area consists of approximately 592 acres of which 64 percent or 382 acres lies outside the City property. Under present conditions this 592 acre watershed will yield 30 cfs as a result of a 2.5 inch rainfall in 24 hours (25 year frequency storm).

It should be pointed out the State of Washington owns the majority of the watershed area and thus is responsible for the quality of runoff water entering Heart Lake.

Major watershed impacts occuring at the present time are uncontrolled access of four wheel drive vehicles and motorcycles. Erosion and associated runoff from roads and trails are the result.

Controlled access and some minor stabilization work will solve the present problems.

(Also see Recreation Section)

Whistle Lake Watershed
(See Watershed Map)

This watershed area consists of approximately 724 acres of which only 8 percent or 57 acres lie outside the City property.

Under present conditions this 724 acre watershed will yield 31 cfs as a result of a 2.5 inch rainfall in 24 hours. (25 year frequency storm)

The soils in this watershed area are somewhat deeper and have the ability to absorb more water than the other areas.

Unlike the other areas the Whistle Lake Watershed is relatively inaccessible and exhibits a prestine quality. The City of Anacortes has total control of water quality associated with the Whistle Lake Watershed area.

PART II

INTRODUCTION

This forest inventory has been prepared for officials of the City of Anacortes and their Forest Management Committee to provide timber volumes and grades for evaluation as to potential revenues from a forest management program.

The timber volumes have been estimated on about 2,200 acres of City Property as outlined in the attached maps. A total of over 32 million board feet is estimated to be on this property. About 70 percent is Douglas-fir, generally of good quality. The remaining volumes are made up by hemlock, cedar and alder.

This report provides breakdowns of the timber by 10 separate timber types and each type has been measured for total acreage by use of a dot grid. The "Volume Summary" provides an overview of the entire area and expresses net timber volumes by species by timber type.

A separate table is also provided showing the estimated stocking rates of each timber type, by merchantable timber and reproduction.

VOLUME SUMMARY-ALL TIMBER TYPES

Timber Type Number	Acres	Volume by Species - Board Feet Scribner					
		Douglas-fir	Hemlock	Cedar	Alder	Pine	TOT
1	455	2,957,500	1,137,500	1,137,500	455,000	-	5,687,
1(a)	114	1,767,000	22,800	57,000	22,800	11,400	1,881,
2	279	334,800	418,500	781,200	558,000	-	2,092,
3	651	12,694,500	1,953,000	976,500	195,300	-	15,819,
3(a)	44	52,800	57,200	66,000	44,000	-	220,
3(b)	105	2,940,000	546,000	672,000	40,800	-	4,200,
4	385	2,502,500	77,000	38,500	38,500	38,500	2,695,
5	9	-	-	-	-	-	-
6	5	45,000	60,000	10,000	6,000	-	121,
7	44	-	-	-	-	-	-
Other	138	-	-	-	-	-	-
TOTALS	2,229	23,294,100	4,242,000	3,738,700	1,360,400	49,900	32,716,
Percent:		72 %	13 %	11 %	4 %	-	

INVENTORY SPECIFICATIONS

Timber Volumes - Expressed timber volumes are based on Scribner Log Rule values for trees measured to a 6" top diameter by 32' logs, plus expected volume in the top partial log if present.

Acreages - All expressed acreages for timber types are extimates made from dot grid counts made from the enclosed maps and are not quaranteed to be actual acreages by legal subdivisions.

Sampling Intensity- The timber types were all sampled to provide a sample intensity of at least 1 percent of area by timber type. The types showing the higher timber volumes were sampled to at least 2 percent of measured area in the timber types.

Log Grades - Roughly 20 percent of all sample cruise plots were also grading plots to provide an estimate of log grades by species by timber type. Additional adjustments were made by the cruiser to reflect observed timber quality on other than the grade plots.

Timber Types - The timber types examined were taken from the Soil Conservation Service "Conservation Plan" for the most part, though a few minor changes have been made on the enclosed maps. A few additional timber types have been added in those areas that were excluded from the S.C.S. evaluation.

Stocking Rates - Each timber type was evaluated for number of trees per acre and is expressed in the included table. Normal stocking for the merchantable timber types is 200 to 250 trees per acre.

STOCKING RATES BY TIMBER TYPES

Timber Type No.	Merchantable Trees/Acre	Sub-Merchantable Trees/Acre	Reproduction Conifer	Reproduction Hardwood	TOTAL Trees/Acre
1	70	- -	150	180	300
1(a)	163	27	- -	- -	190
2	60	20	- -	- -	80
3	110	10	- -	- -	120
3(a)	50	- -	150	150	350
3(b)	80	- -	- -	- -	80
4	78	12	50	- -	140
5	- -	- -	- -	- -	- -
6	90	- -	- -	- -	90
7	- -	- -	150	100	250

NOTES:

Type No. 1 - Patchy reproduction, relatively uniform hardwood stocking; conifers found mainly in small patches.

Type No. 3(a) Relatively uniform coverage of reproduction about equally proportioned in cedar, hemlock alder and Douglas-fir.

Type No. 4 - Patchy reproduction; confined mostly to strips or bands along rock outcrops.

Type No. 7 - Moderate stocking; mainly Douglas-fir and alder.

Acreage Breakdown
by
Timber Type and Section

Sec Twp Rng	Acres	1	1(a)	2	3	3(a)	3(b)	4	5	6	7	Lake & Swamp
2-34-1E	76	-	-	12	52	11	-	-	-	-	-	1
1-34-1E	480	-	-	53	110	33	105	130	-	-	44	5
12-34-1E	160	-	-	20	20	-	-	120	-	-	-	-
36-35-1E	80	-	-	38	37	-	-	-	-	-	-	5
26-35-1E	535	163	90	85	118	-	-	5	9	5	-	60
23-35-1E	178	-	24	-	101	-	-	28	-	-	-	25
31-35-2E	90	67	-	-	23	-	-	-	-	-	-	-
6-34-2E	520	208	-	48	190	-	-	32	-	-	-	42
7-34-2E	110	17	-	23	-	-	-	70	-	-	-	-
TOTALS:	2,229	455	114	279	651	44	105	385	9	5	44	138

VOLUME AND GRADES BY TIMBER TYPE

TIMBER TYPE NO: 1

Species	Grade	Trees/Ac	% of Vol	Vol/Ac BdFt	Acres	Net Vol Bd
Douglas-fir	#3 & #4 Sm	- -	65 %	4,225	455	1,922,375
Douglas-fir	#2 Sm	- -	30 %	1,950	455	887,250
Douglas-fir	Spec Mill	- -	5 %	325	455	147,875
SPECIES TOTALS:		30	100 %	6,500		2,957,500
Hemlock	#3 & #4 Sm	- -	70 %	1,750	455	796,250
Hemlock	#2 Sm	- -	30 %	750	455	341,250
SPECIES TOTALS:		15	100 %	2,500		1,137,500
Cedar	#3 Sm	- -	90 %	2,250	455	1,023,750
Cedar	#2 Sm	- -	10 %	250	455	113,750
SPECIES TOTALS:		10	100 %	2,500		1,137,500
Alder	Pulpwood	- -	80 %	800	455	364,000
Alder	#2 & #3 Sm	- -	20 %	200	455	91,000
SPECIES TOTALS:		15	100 %	1,000		455,000
TIMBER TYPE TOTALS:		70 Trees/Acre		12,500	455	5,687,500

TIMBER TYPE NO: 1(a)

Douglas-fir	#3 & #4 Sm	- -	70 %	10,850	114	1,236,900
Douglas-fir	#2 Sm	- -	22 %	3,410	114	388,740
Douglas-fir	Spec Mill	- -	8 %	1,240	114	141,360
SPECIES TOTALS:		150	100 %	15,500		1,767,000

TIMBER TYPE NO: 1(a) Con't.

Species	Grade	Trees/Ac	% of Vol	Vol/Ac BdFt	Acres	Net Vol BdF
Hemlock	#3 & #4 Sm	- -	100 %	200	114	22,800
SPECIES TOTALS:		2	100 %	200		22,800
Cedar	#3 Sm	- -	100 %	500	114	57,000
SPECIES TOTALS:		2	100 %	500		57,000
Alder	Pulpwood	- -	100 %	200	114	22,800
SPECIES TOTALS:		7	100 %	200		22,800
Pine	#3 & #4 Sm	- -	100 %	100	114	11,400
SPECIES TOTALS:		2	100 %	100		11,400
TIMBER TYPE TOTALS:		163 Trees/Acre		16,500	114	1,881,000

TIMBER TYPE NO: 2

Douglas-fir	#3 & #4 Sm	- -	80 %	960	279	267,840
Douglas-fir	#2 Sm	- -	15 %	180	279	50,220
Douglas-fir	Spec Mill	- -	5 %	60	279	16,740
SPECIES TOTALS:		7	100 %	1,200		334,800
Hemlock	#3 & #4 Sm	- -	80 %	1,200	279	334,800
Hemlock	#2 Sm	- -	20 %	300	279	83,700
SPECIES TOTALS:		8	100 %	1,500		418,500
Cedar	#3 Sm	- -	85 %	2,380	279	664,020
Cedar	#2 Sm	- -	15 %	420	279	117,180
SPECIES TOTALS:		7	100 %	2,800		781,200

TIMBER TYPE NO: 2 Con't.

Species	Grade	Trees/Ac	% of Vol	Vol/Ac BdFt	Acres	Net Vol BdF
Alder	Pulpwood	- -	90 %	1,800	279	502,200
Alder	#2 & #3 Sm	- -	10 %	200	279	55,800
SPECIES TOTALS:		38	100 %	2,000		558,000
TIMBER TYPE TOTALS:		60 Trees/Acre		7,500	279	2,092,500

TIMBER TYPE NO: 3

Douglas-fir	#3 & #4 Sm	- -	60 %	11,700	651	7,616,700
Douglas-fir	#2 Sm	- -	25 %	4,875	651	3,173,625
Douglas-fir	Spec Mill	- -	10 %	1,950	651	1,269,450
Douglas-fir	#3 Plr	- -	5 %	975	651	634,725
SPECIES TOTALS:		88	100 %	19,500		12,694,500
Hemlock	#3 & #4 Sm	- -	55 %	1,650	651	1,074,150
Hemlock	#2 Sm	- -	45 %	1,350	651	878,850
SPECIES TOTALS:		12	100 %	3,000		1,953,000
Cedar	#3 Sm	- -	100 %	1,500	651	976,500
SPECIES TOTALS:		6	100 %	1,500		976,500
Alder	Pulpwood	- -	100 %	300	651	195,300
SPECIES TOTALS:		4	100 %	300		195,300
TIMBER TYPE TOTALS:		110 Trees/Acre		24,300	651	15,819,300

TIMBER TYPE NO: 3(a)

Douglas-fir	#3 & #4 Sm	10	24 %	1,200	44	52,800
Hemlock	#3 Sm	12	26 %	1,300	44	57,200

TIMBER TYPE NO: 3(a) Con't.

Species	Grade	Trees/Ac	% of Vol	Vol/Ac BdFt	Acres	Net Vol BdF
Cedar	#3 Sm	13	30 %	1,500	44	66,000
Alder	Pulpwood	15	20 %	1,000	44	44,000
TIMBER TYPE TOTALS:		50 Trees/Ac		5,000	44	220,000

TIMBER TYPE NO 3(b)

Douglas-fir	All Grades	60	70 %	28,000	105	2,940,000
Hemlock	All Grades	10	13 %	5,200	105	546,000
Cedar	All Grades	8	16 %	6,400	105	672,000
Alder	All Grades	2	1 %	400	105	42,000
TIMBER TYPE TOTALS:		80	100 %	40,000	105	4,200,000

TIMBER TYPE NO: 4

Douglas-fir	#3 & #4 Sm	- -	85 %	5,525	385	2,127,125
Douglas-fir	#2 Sm	- -	15 %	975	385	375,375
SPECIES TOTALS:		70	100 %	6,500		2,502,500
Hemlock	#3 Sm	- -	100 %	200	385	77,000
SPECIES TOTALS:		3	100 %	200		77,000
Cedar	#3 Sm	- -	100 %	100	385	38,500
SPECIES TOTALS:		1	100 %	100		38,500
Alder	Pulpwood	- -	100 %	100	385	38,500
SPECIES TOTALS:		2	100 %	100		38,500
Pine	#3 Sm	- -	100 %	100	385	38,500
SPECIES TOTALS:		2	100 %	100		38,500
TIMBER TYPE TOTALS:		78 Trees/Acre		7,000	385	2,695,000

TIMBER TYPE NO: 5

Non-Stocked - Recreation Area

TIMBER TYPE NO: 6

Species	Grade	Trees/Ac	% of Vol	Vol/Ac BdFt	Acres	Net Vol BdF
Douglas-fir	#3 & #4 Sm	- -	60 %	5,400	5	27,000
Douglas-fir	#2 Sm	- -	30 %	2,700	5	13,500
Douglas-fir	Spec Mill	- -	10 %	900	5	4,500
SPECIES TOTALS:		12	100 %	9,000	5	45,000
Hemlock & GF	#3 & #4 Sm	- -	60 %	7,200	5	36,000
Hemlock & GF	#2 Sm	- -	40 %	4,800	5	24,000
SPECIES TOTALS:		54	100 %	12,000	5	60,000
Cedar	#3 Sm	- -	100 %	2,000	5	10,000
SPECIES TOTALS:		10	100 %	2,000		10,000
Alder	Pulpwood	- -	90 %	1,080	5	5,400
Alder	#2 & #3 Sm	- -	10 %	120	5	600
SPECIES TOTALS:		14	100 %	1,200		6,000
TIMBER TYPE TOTALS:		90 Trees/Acre		24,200	5	121,000

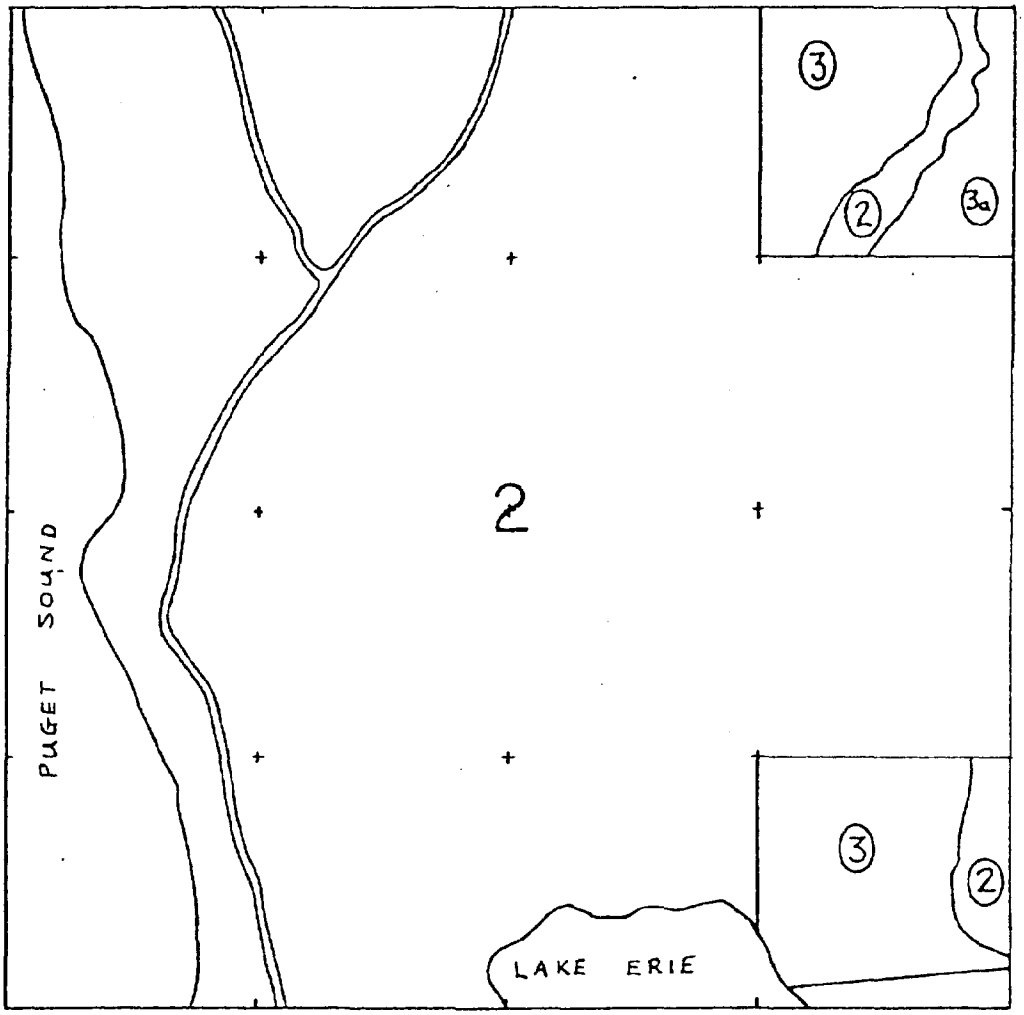
TIMBER TYPE NO: 7

No Merchantable Volume - Reproduction of 10 to 25 years old.

TIMBER TYPE MAP

SECTION(S) 2 TOWNSHIP 34N RANGE 1E

1" = 1000'



Improved Roads

Unimproved Roads

Skid Road

Timber Type Boundary

② Timber Type Number

Timber Type Tie

Year-round Stream

Seasonal Stream

Pond or Reservoir

Swamp

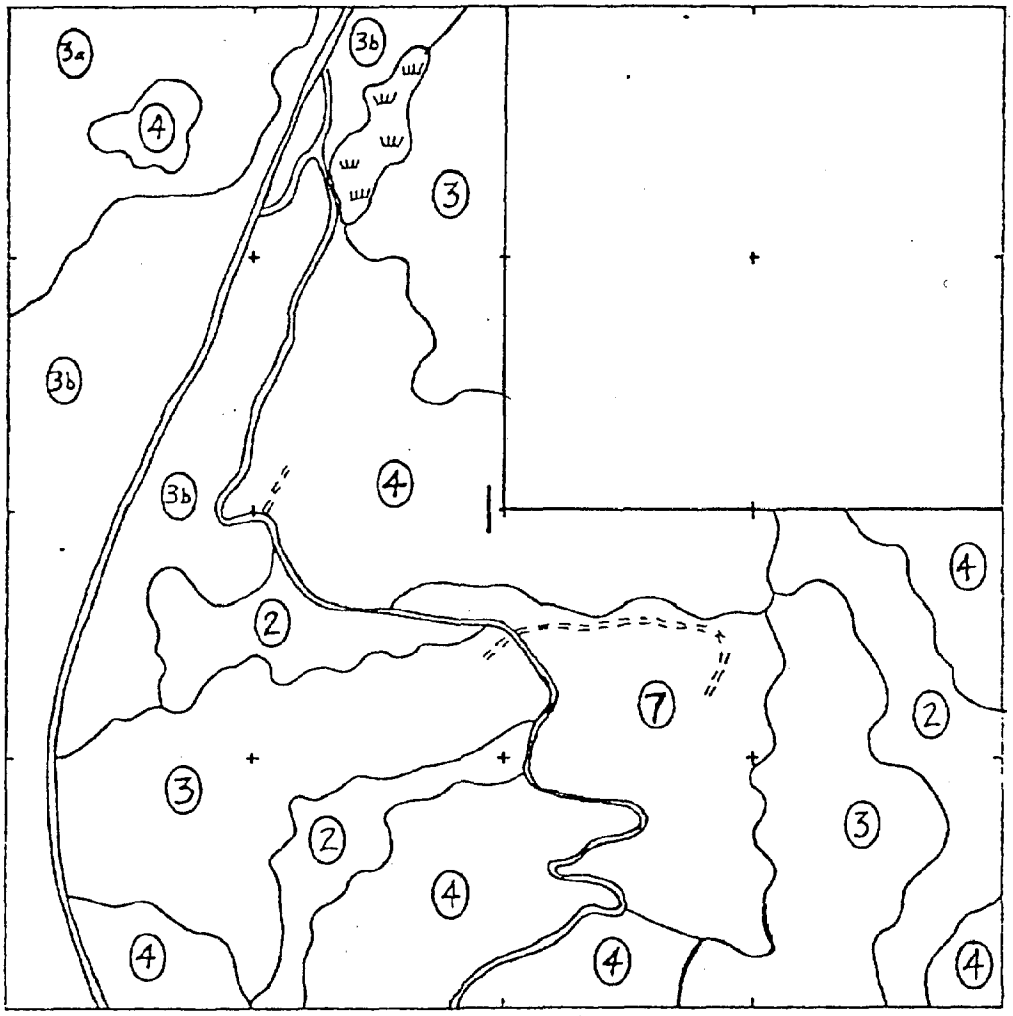
Proposed Road

Power Lines

TIMBER TYPE MAP

SECTION(S) 1 TOWNSHIP 34 N RANGE 1 E

1" = 1000'



Improved Roads

Unimproved Roads

Skid Road

Timber Type Boundary

(2) Timber Type Number

Timber Type Tie

Year-round Stream

Seasonal Stream

Pond or Reservoir

Swamp

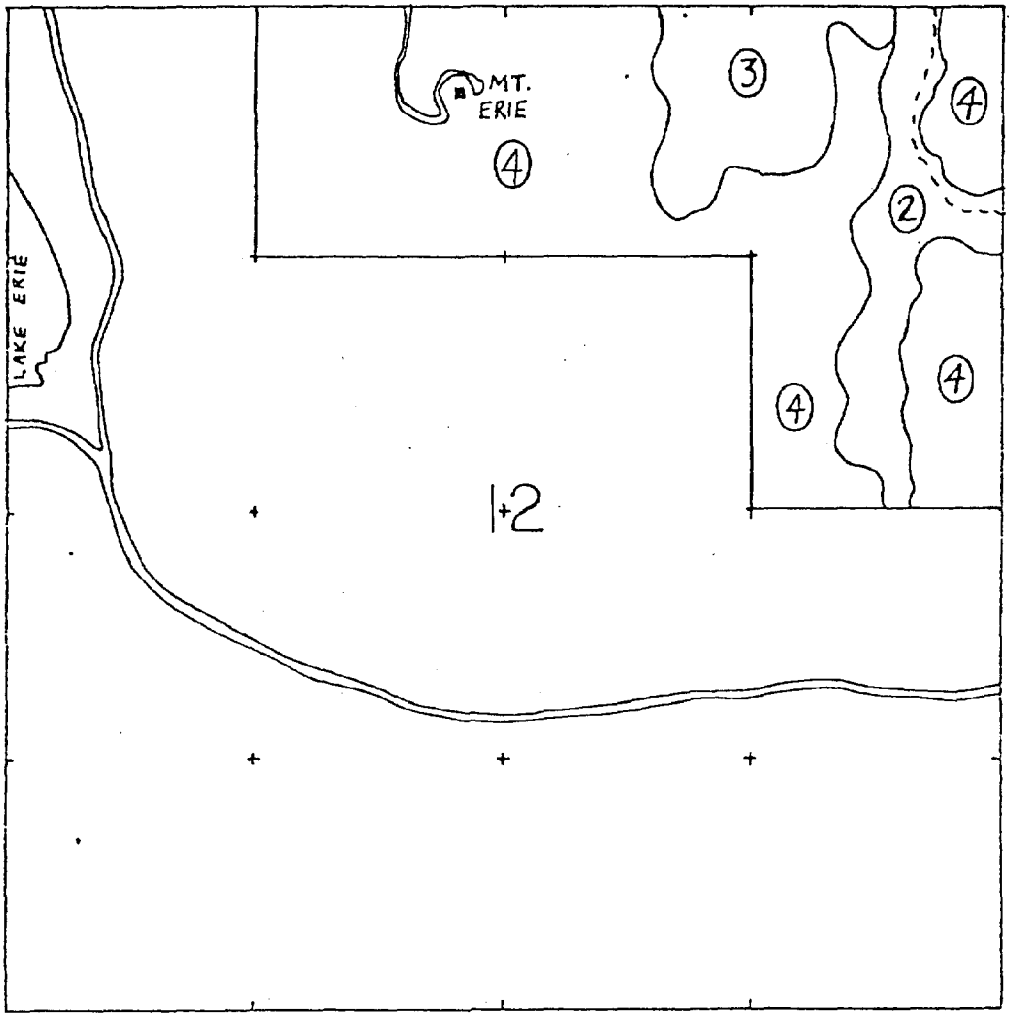
Proposed Road

Power Lines

TIMBER TYPE MAP

SECTION(S) 12 TOWNSHIP 34 N RANGE 1 E

1" = 1000'



Improved Roads

Unimproved Roads

Skid Road

Timber Type Boundary

Timber Type Number

Timber Type Tie

Year-round Stream

Seasonal Stream

Pond or Reservoir

Swamp

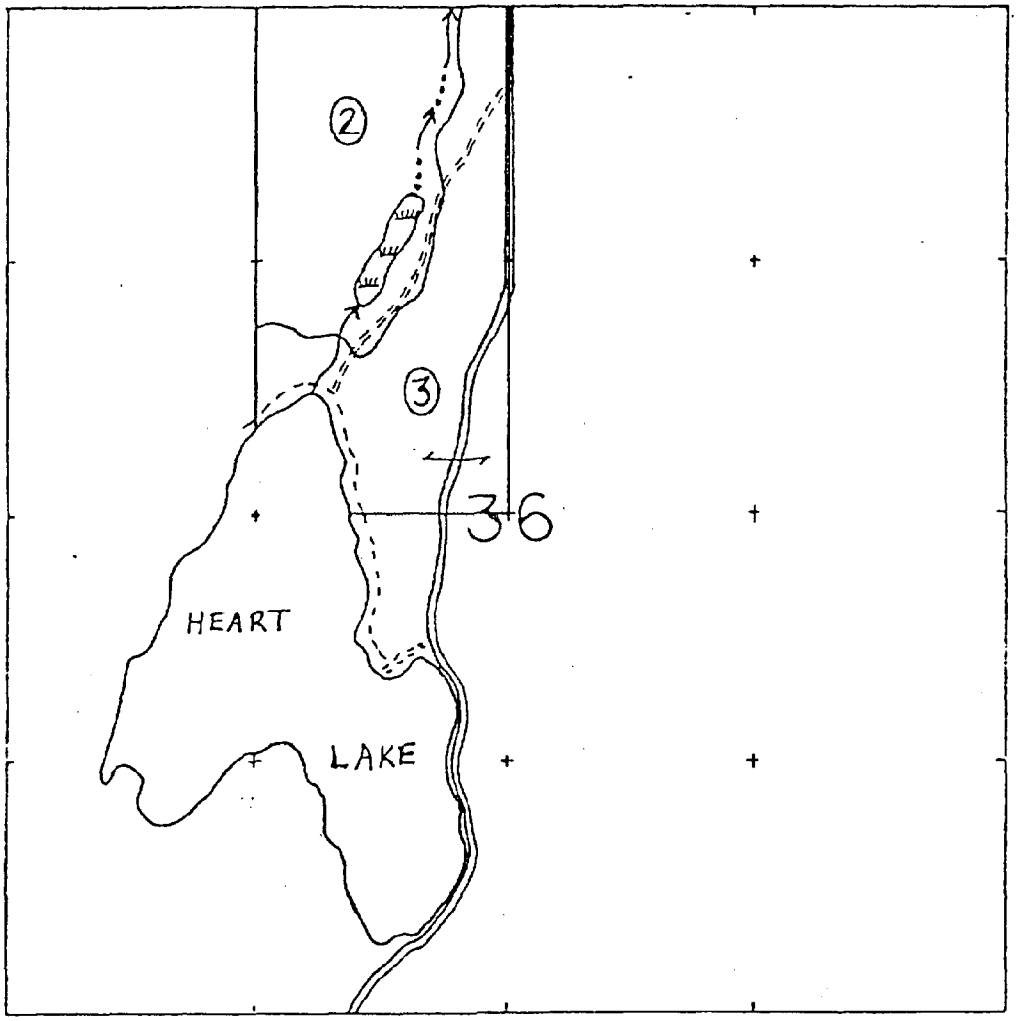
Proposed Road

Power Lines

TIMBER TYPE MAP

SECTION(S) 36 TOWNSHIP 35 N RANGE 1 E

1" = 1000'



Improved Roads

Unimproved Roads

Skid Road

Timber Type Boundary

2 Timber Type Number

Timber Type Tie

Year-round Stream

Seasonal Stream

Pond or Reservoir

Swamp

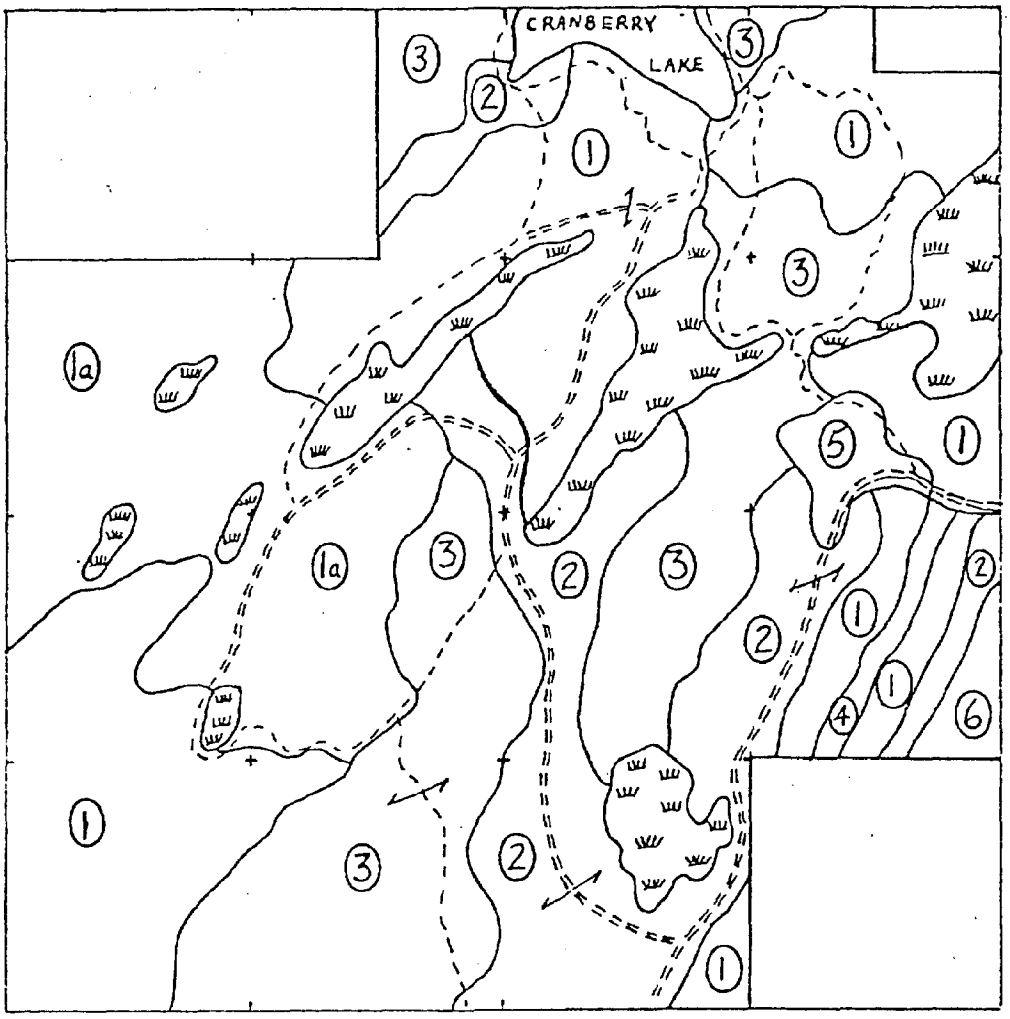
Proposed Road

Power Lines

TIMBER TYPE MAP

SECTION(S) 26 TOWNSHIP 35 N RANGE 1 E

1" = 1000'



Improved Roads

Unimproved Roads

Skid Road

Timber Type Boundary

(2) Timber Type Number

Timber Type Tie

Year-round Stream

Seasonal Stream

Pond or Reservoir

Swamp

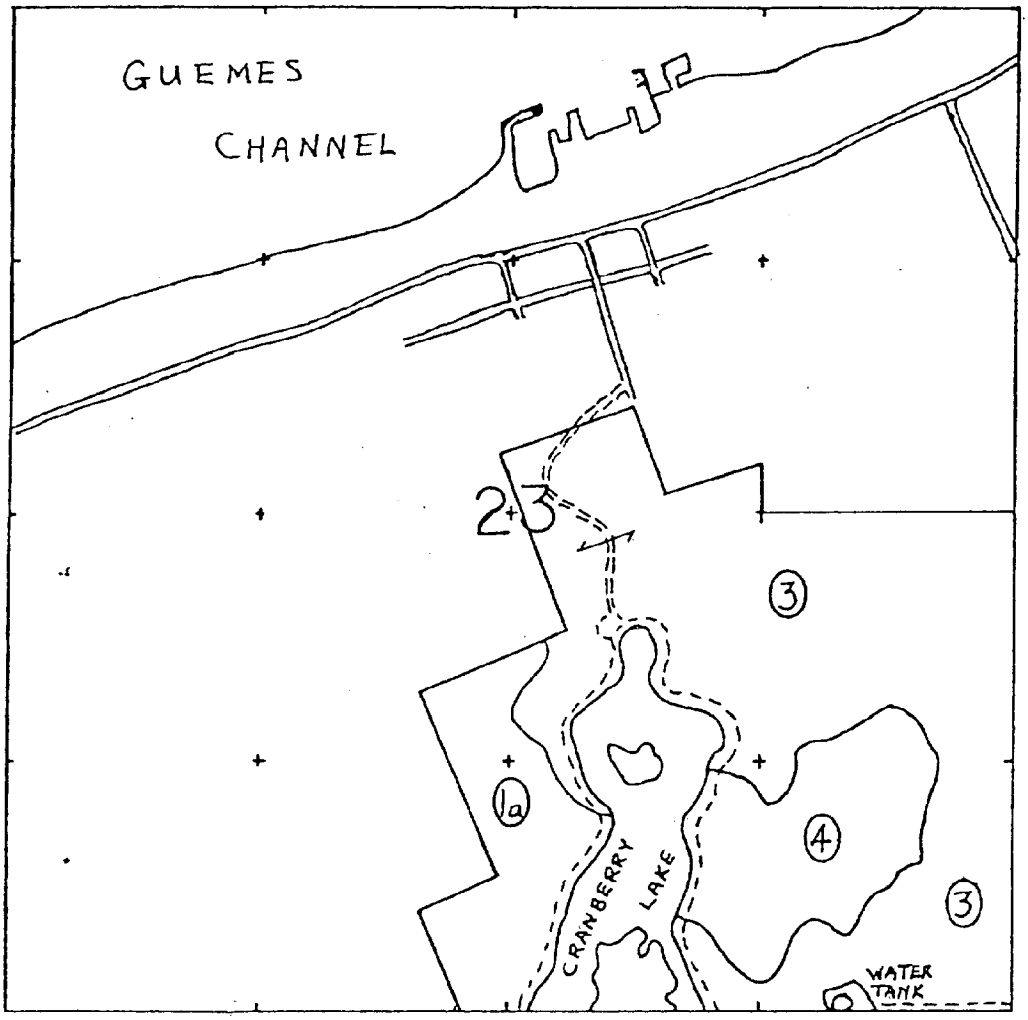
Proposed Road

Power Lines

TIMBER TYPE MAP

SECTION(S) 23 TOWNSHIP 35 N RANGE 1 E

1" = 1000'

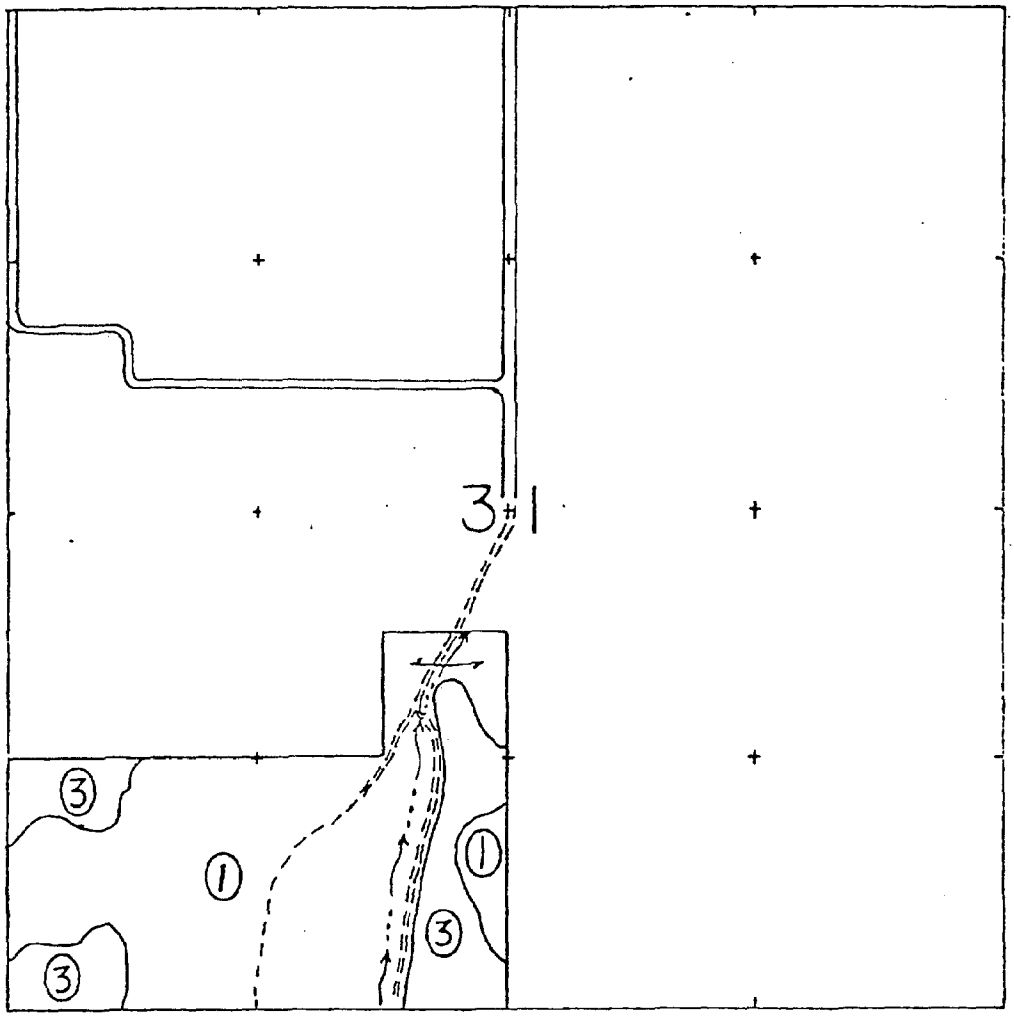


═══	Improved Roads	~→	Year-round Stream
= = = = =	Unimproved Roads	~···→	Seasonal Stream
\ - - - ~	Skid Road	~◯→	Pond or Reservoir
~~	Timber Type Boundary	ψψψ	Swamp
②	Timber Type Number	= • = • =	Proposed Road
←~	Timber Type Tie	—o—o—	Power Lines

TIMBER TYPE MAP

SECTION(S) 31 TOWNSHIP 35 N RANGE 2 E

1" = 1000'

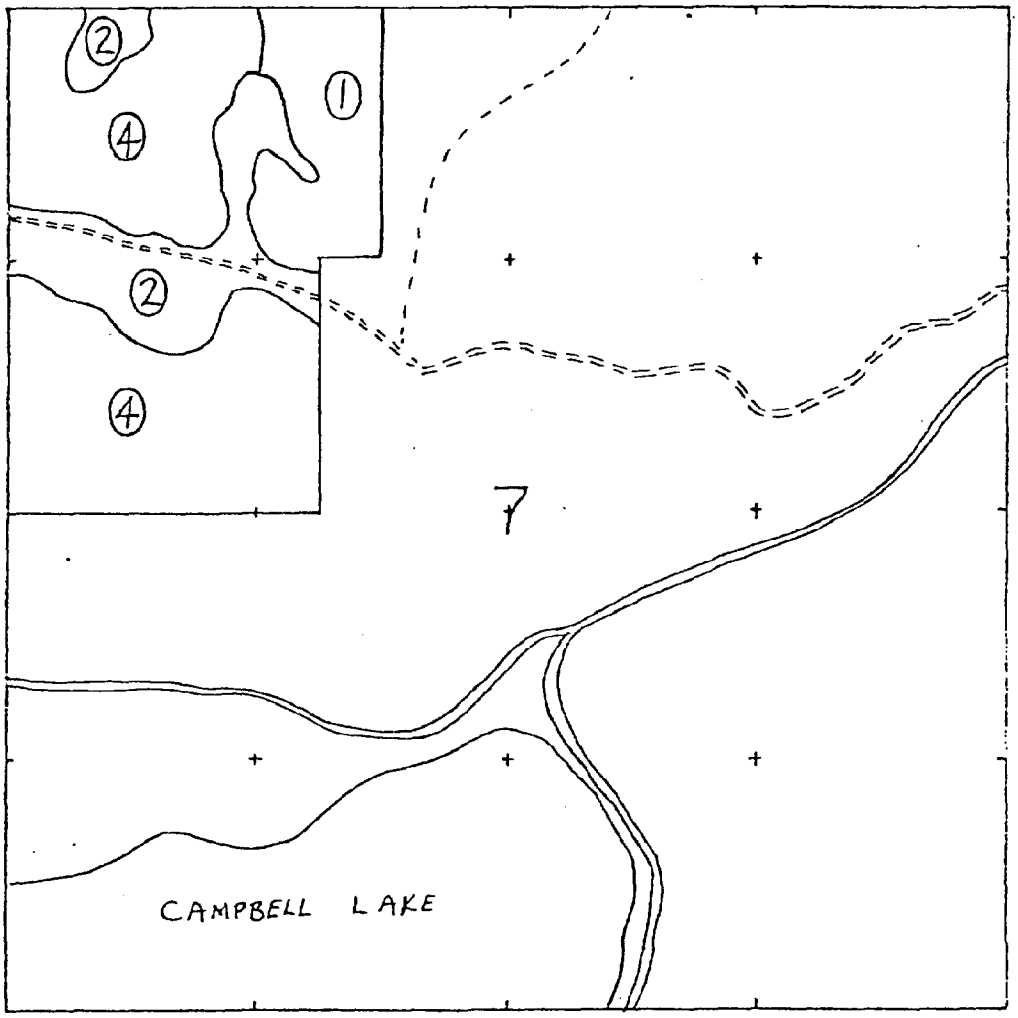


═══	Improved Roads	~→	Year-round Stream
= = = = =	Unimproved Roads	~···→	Seasonal Stream
\- - - -	Skid Road	~◯→	Pond or Reservoir
~	Timber Type Boundary	ψψψ	Swamp
②	Timber Type Number	= • = • =	Proposed Road
⟷	Timber Type Tie	—o—o—	Power Lines

TIMBER TYPE MAP

SECTION(S) 7 TOWNSHIP 34 N RANGE 2 E

1" = 1000'

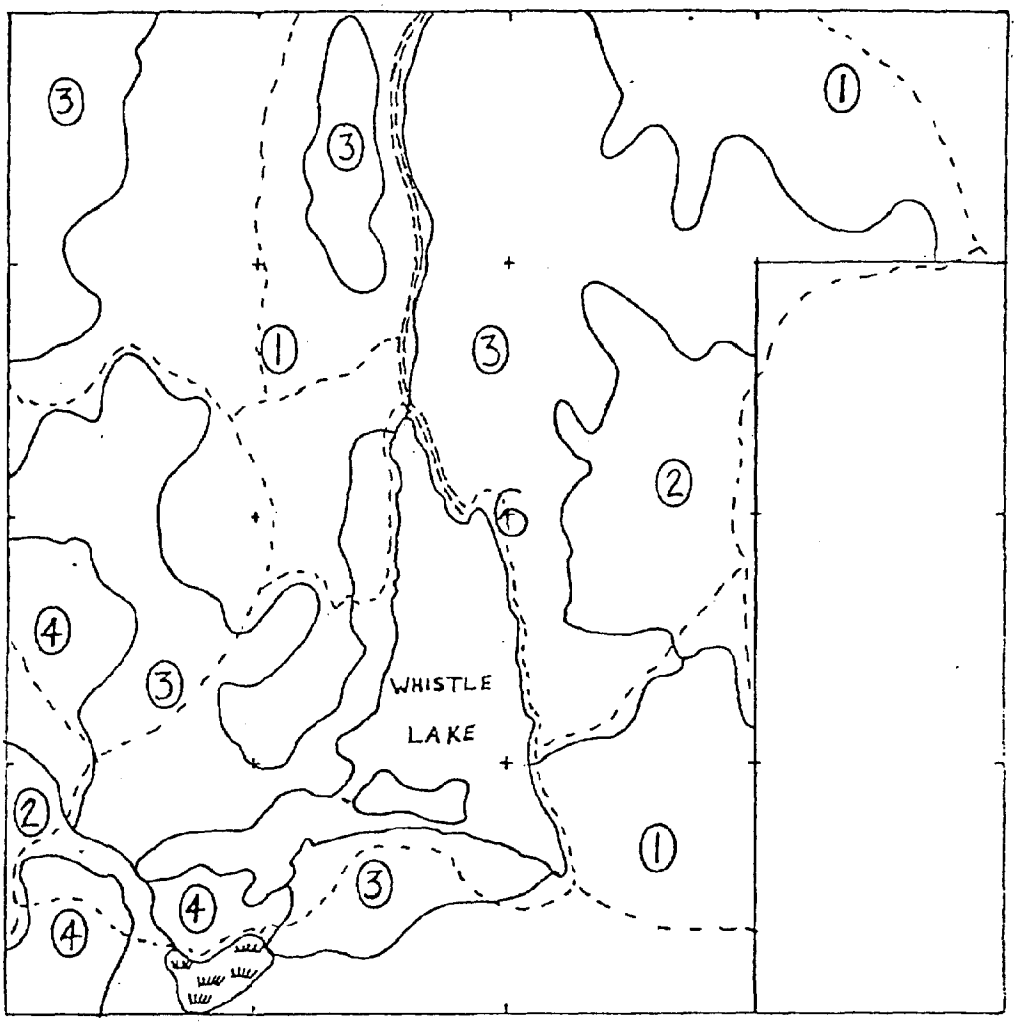


═══	Improved Roads	~→	Year-round Stream
= = = = =	Unimproved Roads	~···→	Seasonal Stream
\ - - - ~	Skid Road	~◯→	Pond or Reservoir
~	Timber Type Boundary	ψ ψ ψ	Swamp
②	Timber Type Number	= • = • =	Proposed Road
⟵	Timber Type Tie	—o—o—	Power Lines

TIMBER TYPE MAP

SECTION(S) 6 TOWNSHIP 34 N RANGE 2 E

1" = 1000'



Improved Roads

Unimproved Roads

Skid Road

Timber Type Boundary

(2) Timber Type Number

Timber Type Tie

Year-round Stream

Seasonal Stream

Pond or Reservoir

Swamp

Proposed Road

Power Lines

PART III

III

MANAGEMENT UNITS

INTRODUCTION

These sections of the plan proposes management units, defined by topographical features, deed limitation and timber type in order to simplify decision making. In effect, this is a king of "zoning" for the forest lands. By identifying primary, secondary and prohibited uses in each unit, we hope to minimize present and future conflicts, protect the resource and prevent further damage from occurring in critical habitat areas. When applicable, management activities on lands proposed for acquisition are included.

The Recommendations for Management of these lands will be presented with the fewest possible restrictions on user groups and yet consistent with protection of the forest against damage, the observance of essential sanitary/safety measures and the prevention of actions by individuals or groups which unduly conflict with the enjoyment of the area by all citizens.

MANAGEMENT UNITS

This section of the Management Plan is governed by the following statements in the Comprehensive Plan (1977), Conservation Section:

Goal (1): "The provision of recreation/tourist sites and activities for visitors should be planned and coordinated to not result in denial of opportunity for residents to have access to undeveloped natural areas. (unique areas with no special tourist potential and fragile or pristine environments - Whistle and Cranberry Lakes - should be preserved for use by residents.)"

Policy: "Status of City property should be reviewed to establish which properties are most fragile and least tolerant to intensive use. Those areas having no unique tourist attraction are to be identified in the Land Use Plan and managed so as to preserve their existing low intensity use."

Goal (4): "The City's timber resources should be managed with the principal goal to maintain and enhance aesthetic and recreational values. This does not prevent deriving economic benefit from the resource."

Policy: "Timber management policies should be a part of the total land management program and should designate those areas most susceptible and those least susceptible to the adverse impacts of logging. Policies should also clearly define restrictions and requirements controlling logging operations."

The Recreation/Tourism section of the same document states:

Goal (6): "Minimize conflicts between tourists and residents arising over demand for facilities and services."

Policies: "Outline in the Land Use Plan those recreation areas

most and least appropriate for non-resident use, and recommend to the Park Board planning and signing which would be compatible with such designations."

PLANNING UNIT: LITTLE CRANBERRY (Approx. 360 acres)

Boundaries: Entire area dedicated as Little Cranberry Park (1964), John M. Morrison Natural Park and associated wetlands, including the proposed 32nd Street route and dedicated parkland buffers.

Restrictions: The majority of this area is land dedicated for "public park purposes only". The Morrison Natural Park was given with the stipulation that "timber and land never be alienated." The City attorney advises that this restriction would allow salvage, sanitation and a light stand improvement timber management. In addition, Cranberry Lake is still technically a back-up water supply for the City. (see Acquisition section). It's dedication as Cranberry Park in 1964 and the need to maintain water quality argue for very sensitive and careful management.

The draft EIS for extension of 32nd Street is a review of the conditions and impending problems with the Cranberry Basin. Even without the proposed roadway, intensive residential development on the north and west flanks of the basin portend future difficulties in maintaining water quality. As a result of urban pressures, human impacts will markedly increase.

The marshes which feed the lake provide an important habitat for waterfowl and other animal life. In addition, the presence of scattered old growth and mature second growth timber create a very rich and

diverse biological zone.

Current Conditions

Little Cranberry receives "on call" maintenance by City Park crews. There is $1,000 budgeted for fiscal year 1981 for the area. "Vandalism of improvements (and even trees) in the area is a critical problem, and requires consideration prior to any substantial development." (Park Plan, 1977, p.30) There is also intensive motorcycle use of the basin and nearby wetlands, resulting in some severe erosion problems in lakeshore areas and on rocky knobs.

There is a posted restriction on motoboat use. The lake is intensively used for fishing and crayfish gathering. The poorly designed access road allows vehicular entry 24 hours a day. There is much evidence of cedar salvage and some wood cutting along the old logging roads and skid roads around the marshlands. These access roads and smaller foot and motorcycle trails are often poorly located in terms of drainage, access to scenic vistas and proximity to wetlands.

Projected Uses

The easement for the Fidalgo Lake Forest Trail (cross-island) granted by the City Council (Feb., 1979), was specifically designed to avoid using Cranberry Lake as an area for intense non-local use. This trail easement skirts the southwest corner of Cranberry Park then loops around the marshlands, using existing logging roads.

The lake basin should be reserved primarily for local

resident use. Current low impact uses, such as hiking, fishing, picnicking, nature observation and non-motorized boating and canoeing should continue. High impact use such as motorcycles, horses near the lakeshore, and use of the lake after dark should be discontinued.

Recommendations In light of the heavy urban pressures on this area, the current levels of vandalism and the probable impacts from the 32nd Street extension, a master plan for this specific area should be developed. Responsibility for the Cranberry Lake Basin should be transferred from the Park Board to the Anacortes Community Forest Land Advisory Committee (see Management Authority Section). This would insure harmonious policies consistent with the provisions and guidelines of this plan.

In addition, the City Council should, by ordinance vacate all streets and alleys in the Morrison Natural Park and officially dedicate this area as Mr. Allmond wished when this land was given to the City.

In the interim, the following measures should be instituted:

1) Post this area for no motorcycles and restricted horse use;
2) Gate and lock the access road 2 hours after sunset;
3) Post directional signs for hiking trails;
4) Block or obliterate trails in areas which need to be re-vegetated;
5) Arrange with one of the community service clubs to take care of the area on a volunteer basis;
6) Make arrangements to develop a Master Plan for the Cranberry Basin and associated wetlands;
7) Horse logging and light motorized equipment should be considered for any necessary salvage, sanitation or thinning operations in this Unit.

SOUTH CRANBERRY UNIT (Approx. 320 acres)

Boundaries: All of Section 26 exclusive of those areas in the Little Cranberry Unit. Bounded by "A" Avenue on the east and City boundary on the south.

Restrictions: This unit is comprised entirely of land purchased from the Washington Water Company in 1919. There are no restrictions attached to the deeds. The only restrictions on use would be those included in the Timber Management section regarding wetlands. The major wetland in this unit (in the southeast corner) drains south, towards Havekost Road and Alexander Beach. The majority of this unit is not in the Little Cranberry drainage basin.

Current Use: This area, including the old City dump, is used extensively by trail bikes, horseback riders and hikers. There is a major forest road in this area which begins at the dump, circles the southern marsh, then heads north toward Cranberry Lake. This road has allowed extensive salvage and wood-cutting operations in the past.

Projected Uses: This unit is most capable of handling the stress of trail bike activity, especially if wetland areas are protected. We recommend that a series of trail bike trails be developed in this unit, while blocking entrance to other existing trails leading to wetland and/or restricted areas.

Much of this unit was logged during the late 1940's. There is a great opportunity for stand improvement and reforestation to conifer species. The combination of road access, the fact that most of the area is not particularly visually sensitive, the timber inventory and the soil type are all persuasive reasons to begin management in this unit.

Reccomendations: 1) The main road should be bladed and rocked where necessary to make it a walking trail as well as forest management road.

2) Trails should be rehabilitated (and redesigned where necessary) to serve the ends of this plan.

3) Horse barriers should be erected at entry points where trail bike use is prohibited.

4) Boundaries of adjacent private property ownerships should be posted.

5) Local trail bike users should be contacted and a design and construction strategy developed for the intensive trail bike areas.

6) There is a unique stand of timber (type 6) at the property corner of 41st and "A". This is the only stand of mature Cedar, Hemlock, White Fir and Douglas Fir in the Anacortes forest lands.

FIDALGO RIDGE UNIT (approx. 260 acres)

Boundaries: This unit includes all land east of the Whistle Lake access road and the east shore of Whistle Lake. The southern boundary is an alder bottom which drains into the southeast corner of Whistle Lake.

Restrictions Whistle Lake is a former City reservoir, acquired when Douglas Allmond sold the Washington Water Power to the City in 1919. Until recently, the lake was used as a storage reservoir for water pumped from the Skagit. In case of a future water emergency, it may become necessary to use this source again. Consequently, all efforts should be made to maintain the water quality and the wilderness quality of the basin. There are no deed restrictions.

This unit includes the major ridge seen when travelling west along Highway 20 into Anacortes. All forest practices should take visual impacts and watershed management impacts into account when designing timber sales in this unit. The lake basin is an extraordinary echo chamber. As a result, noise, especially trail bike motors, shatters an otherwise pristine quiet.

Current Use: Except for the access road itself and a walking trail at the edge of the lake and a few motorcycle trails, this unit has seen very little use. Recently, four-wheel drive vehicles have achieved access via adjacent property. The north end of the lake (near the old pump house) is well trodden with evidence of vandalism to the pump building and surrounding vegetation. Most of this

unit is visually buffered from the lake shore.

Projected Uses: Whistle Lake should be reserved for local resident, low impact use. There is the opportunity for careful timber harvesting outside of the 200 foot lake side buffer and the visual corridor of the access road. Consideration should be given to a walk-in picnic site for local residents. All efforts should be made to maintain water quality and the wildland as part of this area. Primarily, this unit should be managed as watershed/forest land and for low density recreational use.

Recommendation; 1) Acquire secure public access into this area (or by way of the West Whistle Lake Unit);

2) Securely gate or block all entry points against unauthorized traffic;

3) All forest practices and recreational activities shall be designed to protect water quality;

4) Repair damage to existing areas of intensive use;

5) Encourage low-impact recreational use by local residents.

6) Consider the eastern-most 40 acres of this unit for sale or trade in order to acquire more critical and/or necessary properties (see Future Acquisition Section).

WEST WHISTLE LAKE UNIT (Approx. 350 acres)

Boundaries: This unit is bounded on the east and south by the access road and west shore of Whistle Lake. The northern boundary is the property line parallel to Spradley Road and the eastern boundary is the east side of Section 6.

Restrictions; Same as for Fidalgo Ridge Unit regarding water quality and visual impacts. Parts of this unit are also visible from the summit of Mt. Erie and on the descent along Ray Auld Drive. There are no deed restrictions.

Current Use: The major use of this area is for trail-bike riding. The southern corner of the unit is accessible by the old jeep road from Heart Lake. The right-of-way has been systematically savaged by firewood cutters. Over the past few years, the area has become increasingly popular for walkers. The west shore of the lake has some small bluffs which people use for diving and swimming. The western end of the lake is a large marshy area. The lakeshore is rimmed with old-growth Fir left from previous timber harvesting because of difficult access or by Council stipulation.

Projected Uses: The lake lends itself to fishing and swimming activities. Like the Fidalgo Ridge Unit, this area should be reserved for local use. There is ample opportunity here for forest improvement with the same guidelines as the Fidalgo Ridge Unit. Low intensity recreational use and timber management are the major uses for this unit.

Recommendations: 1) Prohibit trail bikes in the lake basin, but allow them to continue to use the area north and west of Sugarloaf.

2) Repair trail damage cuased by motorcycles, especially in the perennial drainage course into the west end of the lake.

3) Secure all access points to prevent further four-wheel drive degradation.

4) Design all forest practices and recreational activities to protect and maintain water quality.

5) Encourage local-resident use of this area for low-impact recreational use.

HEART LAKE UNIT

Boundaries: 80 acre unit at the north end of Heart Lake

Restrictions: This land was acquired by the City from the State of Washington to assure access to the outflow from Heart Lake for reservoir purposes. There are no deed restrictions. In the past, the City allowed this unit to be logged "except for 300 feet along the road to preserve the scenic beauty". Visually, this unit is the entry to the magnificent Heart Lake Road corridor.

Current Use: Until recently, there was free access into this parcel from Heart Lake Road. Areas near the lake shore have been developed as camp sites, people have dumped large amounts of household garbage and numerous trees, live and dead, have been cut down. Much of this destructive activity ceased when the City erected a sturdy steel gate across the entry road. The north end of the lake is accessible by a trail which circles the lake shore, allowing spectacular views of Mt. Erie, Sugarloaf and the surrounding ridges. This unit is also currently used by trailbikes, horses, swimmers, fishermen, boaters and bird watchers. During the winter, Eagles and Ospreys often perch on the large old-growth snags on the lake shore. Anacortes has no police jurisdiction at this time outside City limits.

Projected Uses: Since the majority of the Heart Lake area is an undeveloped State Park and this area is essentially part of that acquisition by virtue of common access, lake frontage and use patterns, this unit should be managed with the State Parks System under a Joint Cooperative Agreement. There

would be no change of title or sale of property. Those areas previously cut over would be the subject of salvage and sanitation cuttings and firewood cutting in a controlled working forest environment. Eventually, in conjunction with State Parks plans for the lake (day use only at this time), parks and the City can develop a working interpretive area, where people can see the results of sensitive forest practices benefitting wildlife, the forest and the community. The soils in this unit are highly productive, but this must be balanced with the highly visible nature of this area. Use of State Park biologists and planners will assure environmentally sound management.

Recommendation: Reach a Joint Cooperative Agreement with the Washington State Parks and Recreation Commission to assure that management of this unit will be in harmony with State Park plans for Heart Lake.

HEART LAKE ROAD/RAY AULD DRIVE UNIT

Boundaries: All City property adjacent to Heart Lake Road and Ray Auld Drive and those lands dedicated for "Park Purposes" on the summit of Mt. Erie. (approx. 500 acres)

Restrictions: As with Heart Lake Unit, parts of this area were logged in the past between 1940 and 1950 with the stipulation that a 300 foot buffer be left along Heart Lake Road. The 160 acres at the top of Mt. Erie was given to the City for "park purposes" by Gus Hensler and the Kiwanis Club. Mr. Hensler stipulated that the 120 acres be a"haven for birds and/or animals" (i.e., a wildlife sanctuary).

Current Use: Heart Lake Road (formerly Lake Forest Road) is a scenic corridor of regional renown. The thoughtful stipulations of past City Councils have preserved a feeling of passage through primeval forests. It is important to realize, however, as the history indicates, that it is only by previous restrictions that this corridor remains. 300 feet off the road, there are second and third growth stands of timber which would benefit from some careful attention. In addition, the dirt roads which feed onto Heart Lake Road and the Mt. Erie Road allow ample opportunities for garbage dumping and camping.

The summit of Mt. Erie is already a multiple-use park. On a sunny day, hundreds of people drive to the parking

lot for rock climbing, hang-gliding, picnicking, sight-seeing, photography, hiking and nature study. The Seattle Mountaineers, Skagit Alpine Club and the Bellingham Mountain Rescue Unit all use the summit and south face for rock-climbing practice. Trail bikes have historically used the Sugarloaf area for trailriding.

Projected Use: Most of the current uses should be allowed to continue. However, the lack of Anacortes enforcement ability, the "on-call" on which basis maintenance work is done and the popularity of the summit as a recreational center have created a situation in need of a certain order and control. There is a lack of sanitary facilities for the large number of visitors. The area is littered with broken bottles, some of which are thrown at rock climbers down below. The radio towers, observation platforms, monuments and sculpture have each been placed without regard to any Master Plan. As the Anacortes area grows and as urban residents seek recreational opportunities closer to home, the use of the Heart Lake Road corridor/Mt. Erie Summit will increase markedly.

Recommendation 1) The City should reach a Joint Cooperative Agreement with the State Parks for management of this unit.

2) A Master Plan for the Summit of Mt. Erie, honoring the covenants requested by the donors, should be developed.

3) All unnecessary access points from Heart Lake Road and along Mt. Erie Road should be ditched and bermed. Others should be gated. Ray Auld Drive should be closed two hours after sunset.

4) Develop a Management Plan for the Heart Lake Road corridor including trail access to Lake Erie Viewpoint, a foot trail to the summit of Mt. Erie, interpretive trails off Ray Auld Drive and forest Management program.

5) Cut selected trees along Ray Auld Drive to allow views of Whistle Lake, the San Juan Islands, and Mt. Baker. At the present time, it is impossible to see some of the most spectacular views.

6) Post and sign key access points with appropriate notice of rules in effect.

7) Consider sale or trade of a portion of the 40-acre parcel in Section 2 south of Heart Lake and adjacent to Marine Asphalt quarry operations.

MT. ERIE CONSERVANCY UNIT (Approx. 340 acres)

Boundaries: This unit is primarily defined by the southern boundary of City property on Mt. Erie, the south shore of Whistle Lake, and the east flanks of Mt. Erie.

Restrictions: The marshes at the western and southern edges of the lake provide a relatively isolated habitat. Eagle and Osprey have been observed in this area. Much of this unit is timber-type 4, mostly rock outcrop with thin soils. "Relatively small amount of commercial timber... Numerous locations in the unit provide unique visual viewpoints....Vegetative condition provides a contrasting habitat type for wildlife species." (S.C.S. Report, p.5, Woodlands section). There are no deed restrictions.

Current Use: This is a relatively inaccessible area, especially the knobs southeast of Mt. Erie. There are some foot-paths and motorcycle trails. There have been some access problems by trail bikes from the Campbell Lake Road area. Trail bike damage to trails and soils on the south Whistle Lake shore is severe, with deep ruts and erosion gulleys crossing perennial streams which feed Whistle Lake. Four-wheel drive vehicles have had access to the northern corner of this area, with large scale firewood harvesting as a result.

Projected Use: This area should be limited to low intensity use; hiking, nature observation and horseback riding on designated trails. Sensitive habitat, lack of merchantable timber, difficult access and steep rocky slopes are all reasons to place this unit in a Conservancy/ Forest Study designation.

Recommendation:

1) Post signs and erect suitable barriers to restrict intensive use of this area.

2) Repair trail bike and horse-caused damage to trails.

3) Work with trail bike users to help them understand the reasons for these restrictions and direct their use to the Sugarloaf area or to the South Cranberry unit.

IV
MANAGEMENT OF RESOURCES

FOREST MANAGEMENT

Goal: The forest lands of the City should be managed and protected in perpetuity to insure the maximum benefit and enjoyment to the citizens of Anacortes

The following guidelines are provided to guide the managing authority in harvesting forest products from City land. These guidelines will provide the "restrictions and requirements controlling logging operations" called for under Goal 4 in the Conservation Section of the Anacortes Comprehensive Plan.

"The City's timber resources should be managed with the principal goal to maintain and enhance aesthetic and recreational values. This does not prevent deriving economic benefit from the resources."

A similar goal is indicated under Industry, Goal 7, Policies:

"Apply modern conservation practices to maintain and improve forest assets for the future."

Policies:

1) The direct economic benefit realized in the management of this land should be reinvested to protect the resources. The area should be made more accessible and useful to the community by enhancing the esthetic timber, wildlife and water qualities.

2) The underlying policy must be one of sustained yield of woodland "products" such as timber, firewood, wildlife, low density recreational opportunities. Important "by-products" will include clean air and water and the availability of a forestland setting for citizen's physical and psychological wellbeing. For many people, the knowledge that this opportunity exists, whether they ever avail themselves of it or not, is a source of great satisfaction and relief. The increasing urbanization of this area will make this "relief valve" principle a priceless community resource in coming decades.

3) Harvesting of forest products must always be done in a manner which will improve and maintain stands of indigenous vegetation species; for the conservation and enhancement of the wildlife resources; to insure a continuous yield of forest products and to enrich the natural beauty of the area without hampering the citizen's use or enjoyment of the area.

4) In those areas designated "parks", the City Attorney advises that the level of management must be confined to timber stand improvement by removal of cull trees, insect or disease infestations, and blowdowns. The level of activity must reflect the desire of the various donors to leave these areas in a "natural state:. Healthy, live, standing timber will not be cut in these areas.

5) High Priority should be given to harvesting timber products from those areas least susceptible to environmental damages and out of the visual horizon of visiting public. This would allow the public to become aware of the results of responsible forest practices while generating the necessary funds to begin properly managing these lands for multiple use.

6) The forest management policy will encourage a Douglas Fir species association, all-age class forest which can be continually harvested by periodic removal or intermediate thinnings. This practice will gradually improve the existing forest, while developing stands composed of thrifty, well-spaced trees. Such a mixed forest is less subject to insect damage, disease and storms. And, in the long run, makes for better soil conditions. Frequent light cuttings bring better results than infrequent heavy ones.

7) Selective harvesting, leaving healthy trees will be the preferred practice. In cases where a site is capable of growing conifers, but is currently stocked with brush and other undesirable hardwoods, irregular openings of approximately 5 acres in size will be created to benefit wildlife and will allow natural or artificial re-stocking of the area with the species which formed the original stand. Selective logging practices will minimize site disturbance, protect existing reproduction and minimize site preparation costs.

8) Alder will be considered as a valuable species in a species totation scheme with Douglas Fir. Alder will be used in a unit to re-charge soil nitrogen and minimize spread of root rot in Douglad Fir.

9) Sites should be re-planted as soon after a harvesting activity as possible. Sites capable of conifer production should be managed for species in Douglas Fir species association. Areas which naturally grow Alder and Cedar (bottoms, swales and boggy areas), should be managed for these species. Brush competition control should be considered in re-planted stands until conifers become dominant.

10) Whenever wind and weather conditions create an excessive amount of blowdown, this timber should be removed as quickly as possible to minimize insect attack, to derive revenue, and to permit stand re-establishment.

11) Pest epidemic and various diseases are an unavoidable part of a growing forest. Removal of these affected trees is absolutely essential to prevent total loss and risk of further spread and consequent damage.

12) Leave snags unless they are a clear and present danger to the public safety (adjacent to roads or trails) or will substantially deter fire control if left stnading. This requirement is covered under RCW 76.04.120 and 222. An amended law was passed last year in recognition of the important place snags play in supplying habitat for cavity-nesting birds and mammals because they act as natural controls on insect infestation.

13) Large clearcuts will provoke intense public reaction and are unnecessary on a land base the size of the City of Anacortes. Openings will be planned to minimize blowdown and sunscald and to maximize edge effect for wildlife species. Openings should be no more than 600 feet in any dimension and all edges will be contoured to simulate natural openings. In addition, visual impacts should be a primary consideration in any sale design.

14) Reserve 200-foot buffers along visual corridors such as Heart Lake Road, Mt. Erie Road and "A" Avenue. Cut only those trees which are diseased, insect infested, or a clear public liability. It may be necessary to cut suppressed understory.

15) Until further study of the critical areas surrounding wetlands and lakes is completed, no timber will be harvested within 200 feet of any of these areas. If such harvest is necessary for any of the reasons listed above, all felling should be away from the water body.

16) Chemical brush control should be avoided wherever possible.

17) Slash Disposal. Selective harvesting would allow a lop and scatter method of slash disposal. If trees are cut to 3 or 4 inch tops and the limbs and tops cut up and left in place, the problem of disposal is minimized. This method also returns organic material to the forest floor and avoids the problems associated with slash burning and consequent depletion of the forest soil nutrient bank.

18) Landing areas will be kept to an absolute minimum and must be left without slash piles or remnants of unmerchantable materials.

19) All sales will be designed so that they are economically sound for a conscientious, reputable operator and trees marked with contractor in a manner which will not compromise the site's environmental quality.

20) All sales will be designed with impacts on present and potential future multiple uses in mind. When necessary, appropriate technical advice will be sought from professionals to minimize questions of environmental damage.

21) Road systems will be designed to use existing cat and skid trails as much as possible. Clearing older skid trails will yield Alder for firewood and minimize the need for additional road construction and help to eliminate erosion created during new road developments. Main forest management roads should be upgraded so that they can be used for fire protection access and for hiking.
Temporary harvesting roads, skid trails and landings should be seeded with grass and "put to bed". Harvesting roads will be constructed as dry weather trail roads, approximately 8 feet wide, with adequate turnouts for equipment.

22) Logging during excessively wet conditions will be controlled as it can cause soil compaction, rutting and changes in soil structure.

23) All timber sales will be marked and announced as required by law. Any questions or protests will be heard by the Anacortes Community Forest Land Advisory Committee (see Management Section). The logging contracts should normally contain the following restrictions and stipulations:

Note: Sample logging contracts are available from the Department of Natural Resources, State Parks and local operators which can serve as models to insure that the best interests of the City are protected.

a) All stumps will be cut no higher from the ground than 12 inches;
b) Logs should be cut to obtain highest value;
c) All felled trees, cut to log length and to a 4-inch top, will be hauled to within 25 feet of the landing;
d) Damage to limbs, trunks and roots of more than 5% of the remaining stand not marked for removal (due to carelessness) shall be considered excessive damage and penalties, based upon value, imposed;
e) All refuse (cans, bottles, etc.) shall be removed by operator from each unit upon completion;
f) Suitable penalties included in the contract for violations of the above standards;
g) Slash disposal in accordance with Item 17 above;
h) Operator must realize that great care is needed in his operation in order to prevent injury to living and remaining trees, reduce fire hazard, plan for future operations, provide for regeneration of forest growth and to encourage health, stimulating growing conditions for the remaining timber;
i) Type of logging equipment will be specified to minimize damage and degradation to the site. On flatter topography, horse logging should be given active consideration.

j) Fall all trees toward the skid trails, lop and scatter branches and run over or otherwise reduce tops to inoffensive proportions.

k) Before completion of operation, all broken-topped trees and rub trees shall be removed. These "catch the eye" of the critical observer.

24) This plan does not relieve the City of Anacortes from any of the requirements of the Hydraulics Act, the Shorelines Management Act, the Snag Felling law, the Snag Leave law, Forest Practices Act, or any other applicable state laws and/or regulations.

25) These conditions should be included in a program designed with a consulting forester who has experience and knowledge of forestry management in this area. Every effort should be made to select a reliable forester who can assure a continuity of management practice and build a relationship of trust between the City and the citizens of Anacortes. The managing authority should interview interested parties in order to recommend the most appropriate forest manager with whom to reach a long-term contract arrangement.

26) All monies generated from Forest Land Management should be deposited as outlined in the Funding Section. This account should be used for the purpose of funding future land management activities and the development of designated recreational facilities. Harvest yields must cover the costs of the proposed management program. Except in the case of disease or insect infestation, there should be no pressing need to harvest timber until monies are needed for specific management or development projects. Sales may also be set when there is an advantageous log buying market.

Summary

Generally, a cautious, prudent course of action is recommended as timber prices historically increase at a faster rate than inflation. The City will do well to manage this growing asset with this in mind.

FIREWOOD PRODUCTION

Goal: To provide firewood for the citizens of Anacortes as part of a sustained yield forest management program.

Policies:

1) Except in selected and controlled situations, entry into the woodlands to cut firewood at random should be prohibited. In those selected and controlled situations, entry into designated areas of the woodlands for firewood cutting should be restricted to the cutting of only dead and/or down timber. Suitable penalties should be provided for the cutting of live trees. This would be in conjunction with stand improvement or stand conversion sales.

2) Firewood cutting opportunities can be best provided by arranging for removal of unmerchantable material over 3-inches in diameter to temporary wood lots located within easy access of existing roads and highways. This can be done in connection with logging, thinning or cleanup operations, often as a part of a contract. Upon establishment of a temporary woodlot, suitable public announcement of wood availability could be made. Then persons desiring to cut wood would obtain a permit from the City allowing gathering of a specific amount of wood. A permit fee per unit quantity of wood should be charged to defray the costs connected with the firewood sale.

FLORA MANAGEMENT

Goal: To maintain, enhance and rehabilitate the native vegetation on City of Anacortes properties.

Policies:

1) No taking of trees, shrubs, bushes, flowers or other vegetation from City land without a permit.
2) Encourage the use of City property for botanical research, field work and observation by local educational institutions.
3) Post access points with notice that taking of plans is contrary to the intent of this plan.
4) Identify those areas of particular and/or unique plant species or colonies and restrict use to an appropriate level.

WILDLIFE MANAGEMENT

Goal: To maintain, preserve and enhance the present diversity of wildlife on City of Anacortes forest lands.

Policies:

1) This plan, including the Soil Conservation Service section on wildlife management, provides only a "guesstimate" of the species and habitats present on City land.
2) No other activity should be permitted which will significantly alter the mixture of habitats that provide a varied and abundant wildlife population. (see Dr. Booth's list in S.C.S. report).
3) The stands of old-growth timber on City land provide a diminishing resource for wildlife and aesthetic enjoyment. The major stands of this timber type (3b) occur along Heart Lake Road, in association with the major stand on State land at the south end of Heart Lake. Any management along this corridor should be accompanied by a thorough inventory and evaluation. As stated in the Timber Management Section, proper design of sales will minimize questions of environmental impacts.
4) The City should reach some agreement with Western Washington State University, the University of Washington and Skagit Valley Collete to encourage student use of these lands in order to provide baseline data on wildlife populations and species diversity.
5) A list of wildlife species found on City land should be made available to the public.
6) Encourage local school districts to use City land for nature study. This could include building and setting nesting boxes, passive observation of seasonal wildlife and development of some site specific curricula. (see Education Section)
7) Develop suitable wildlife observation sites in conjunction with recreational development. After a detailed study, observation boardwalks should be built in one or more of the marshes for the purposes of nature study and education.

WATER RESOURCES MANAGEMENT

Goal: To maintain and enhance the water quality of lakes, marshes and wetlands in the Anacortes Community Forests.

Policies:

1) Prohibit use of any motorized vehicle within 200 feet of any water body or wetland.
2) Until further study, all forest practices will be prohibited within 200 feet of wetlands and lakeshores. After proper evaluation, openings in tree cover planted back to native grasses or original species might provide a beneficial "edge" effect at certain points along the lakeshores. (see Wildlife Section of S.C.S. Report)
3) Relocate trails away from lakeshores and marsh edges in order to minimize impacts on water quality. Identify areas where trails perpendicular to main trails can be built to shorelines with minimal impacts.
4) Improve existing trails to minimize erosion. Where necessary, obliterate trails which are causing undue resource damage.
5) Both Whistle Lake and Little Cranberry Lake are back-up supplies of water in case of an emergency. All management activities in the watersheds of these lakes must take this into account.
6) A monitoring program of Whistle Lake and Little Cranberry Lake should be instituted in conjunction with Western Washington University, the University of Washington, or Skagit Valley College.

V

MANAGEMENT OF RECREATIONAL ACTIVITIES

TRAIL SYSTEM

Goals: Develop and overall hiking trail system in City forest lands.

Policies:

1) "Enhance parks through improvement of signing (remove unnecessary signs), and establishment of an easily recognized park logo to identify City park sites and trail system." (Action Program, No. 4, Parks Comprehensive Plan, 1977)

2) Make available at City Hall a map of existing main trails on City of Anacortes properties. This map should also summarize use policies outlined elsewhere in this plan.

3) Where necessary, rehabilitate trails where horses, trailbike or erosion problems have developed. Seek involvement of user groups and community service organizations as much as possible.

4) Coordinate forest management activities with recreational trail use, especially along the easement granted to Washington State Parks for the cross-island trail (Fidalgo Lake Forest Trail)/Centennial Trail inside City limits.

5) For the present time, sign and post current use main access trails on City of Anacortes property. Except where posted, allow current use to continue.

6) Obtain easements for current use trails where they cross onto private property. Work with adjacent owners to prohibit, control or allow current use. Minimize conflicts by working with user groups.

7) Post regulatory signs at all entry points and where trails cross onto private property.

8) Design and/or renovate existing trails to serve the recreational objectives of this plan with a minimum amount of maintenance. Sign trails to serve the needs of local residents. Design loop trails and loop options as much as possible. All improvements should harmonize with the natural setting.

PICNICKING

Goal: To allow picnicking at designated walk-in areas.

Policy:

1) Develop at least one walk-in camp in the Whistle Lake area for local resident day-use only.
2) Provide fire-pits and proper sanitary facilities.
3) Prohibit camping except under special conditions when a permit will be required from the managing authority. Groups with adult supervision, such as Scouts and Bluebirds, can make special arrangements.

There has been a historic use of City lands for overnight camping by local residents. Numerous camp areas are obvious in walking around the Whistle Lake and Cranberry Lake basins. Without regulation and planning, this could become a very serious problem. By developing a specific site (or using an existing area), this opportunity will still be available in the future. Ample opportunities are available for a camping experience at Washington Park and Deception Pass State Park. No further opportunities need to be available on City property at the present time. For the time being, walk-in camps should be in areas where there is already a Park Manager.

9) Interpretive trails should be developed (in conjunction with the recreational trail system) with self-guiding brochures available either at the trail-head or at City Hall.

10) Arrange with Outdoor Planning class at Western Washington State University or at the University of Washington to develop a full trail system plan for each potential trail user type. See Appendix.

11) The Acquisition Section elaborates on the necessity to obtain guaranteed public access into City properties. At present, all access to Whistle Lake is across private property.

The City Forest lands are criss-crossed by numerous trails which follow old logging roads, skid trails, and game trails or have been deliberately created by horseback riders or trail-bikers. In the Parks Survey of 1977, hiking was listed as the second most popular recreational activity after swimming (Survey Results, pg.13). This survey also placed a first priority on "using existing City-owned timber and shoreline areas for recreation" (pg. 14).

The present use patterns, predominantly by trailbikes and horses, have created a situation of poorly designed drails, severe erosion problems, under-utilization of potential scenic opportunities and a serious under-use by that group most eager to enjoy City land, walkers. Many Anacortes citizens have expressed the fear of getting lost for the lack of an available map. A map of the present trail system, in conjunction with a long range future plan, should encourage people to use these areas.

HORSE TRAILS/BRIDLE PATHS

Goal: Allow current use of City forest lands for bridle trails to continue, with any restrictions necessary to reduce or eliminate damage to the environment.

Policies:

1) Where possible, restrict horse use adjacent to wetlands and lakeshores.

2) Develop separate trails for horse-use.

3) Work with riding clubs to develop new trails and rehabilitate trails damaged by past abuses.

MOTORCYCLES/TRAIL BIKES

Goal: To allow trail bike use to continue on City forest lands in designated areas and on designated trails.

Policies:

1) The use of trail bikes on City of Anacortes properties will be governed by the following restrictions:
   a) All bikes must have a valid Washington State ATV permit.
   b) The Revised Code of Washington's defining noise limits.
   c) Must have spark arrestors.
   d) Careless, reckless or inconsiderate actions affecting other users will be cause of citation.
2) Trail bike use will be controlled so as to protect the resources, promote safety and minimize conflicts among other users.
3) Trail bikes will not be permitted to travel cross-country (off designated trails), or on designated hiking equestrian, bicycle, or interpretive trails. Entry points should be gated with horse type barriers.
4) Involve trail bike users in trail construction and maintenance. Under certain conditions, trail bikes can be severly damaging to forest soils. Channels formed in wet soils can become erosion gulleys. This erosion then ends up in nearby lakes and marshes. These problems can be minimized by careful site selection and trail routes, hardening trails and restricting use in excessively wet weather. Puncheon,

water-barring and culverts will also minimize damage.

5) Trail bikes will be allowed to use the Sugarloaf area and the South Cranberry Unit.

6) No trail bike use within 200 feet of wetlands, marshes or lakes.

7) Post boundaries of management units where trail bike use is restricted

8) Rallies, races, competitions and like events are not allowed on Anacortes Community Forest Lands.

9) Seasonal, temporary or permanent restrictions on trail bike use may be necessary if severe impacts on other resources develop.

10) Trail bikes are an acceptable form of recreation, but their use can be detrimental to the environment and the pleasure and welfare of other users of Anacortes forest lands.

The long term productivity of our lands can be maintained by defining areas and trails which can and cannot accomodate this type of use and by implementing appropriate controls.

MOTOR VEHICLES

Goal: Prohibit the use of motor vehicles in City forest lands and parks except on designated roads.

Policy:

1) All access points into City property shall be gated or blocked to prevent unauthorized vehicular access.

2) All entry points will be posted with this information and strict penalties invoked for non-compliance.

3) The other goals of this plan are incompatible with vehicular access. The land area is too small and potential and present abuses are reason enough to limit this use.

Over the past years, vehicular access has become an increasingly difficult problem. Unprepared drivers enter City lands and need to be rescued by commercial towing outfits. More serious drivers in rigs equipped for cross-country or rough road travel have taken considerable quantitites of standing timber, mostly alder, from City land. Access by other vehicles to the Whistle Lake Basin has allowed large and destructive parties to be held, for which the police and sheriff have had to be called in. In addition, adjacent private property owners have complained about unauthorized entry across their property by 4-wheel drive vehicles.

FISHING

Goal: Provide the opportunity for local residents to fish in Little Cranberry and Whistle Lake.

Policy:

1) Develop or improve limited access points for fishing City-owned lakes.
2) Maintain restrictions on motor boats in Little Cranberry.
3) Prohibit use of any boats in Whistle Lake.
4) At the present time, Whistle Lake will not be enhanced for sport fishing.
5) Develop a long range sports fishing plan in conjunction with the State Game Department.
6) Monitor fish population in conjunction with water quality monitoring program.

There are seven lakes on Fidalgo Island. Each has particular recreational and fisheries values. Heart Lake is a well-known trout fishing lake on which motor boats are allowed. Campbell Lake and Lake Erie both have boat launch facilities and are managed for spiny-ray and trout. Pass Lake is a fly-fishing lake next to Highway 20. Trafton Lake (Crater Lake) is surrounded by private ownerships. Little Cranberry is accessible by automobile and is actively used for fishing and crayfish diving. Whistle Lake is the only lake not impacted by automobile access. Whistle Lake will be reserved for a more "primitive" recreational experience.

HUNTING AND TRAPPING

Goal: Hunting and trapping is allowed on City land outside City limits as a management tool to control game population.

Policy:

1) Use of firearms on Anacortes Community Forest Lands is prohibited except as stated below.
2) Hunting with rifles is prohibited.
3) Hunting with shotgun or with bow and arrow is permitted in accordance with State Game laws.
4) Trapping is allowed under appropriate Game Department guidelines.

Alternatives:

1) Allow no hunting or trapping whatsoever. The local game warden feels that this would be detrimental, in the long run, to the wildlife population.
2) Allow hunting with bow and arrow only. This would eliminate the use of firearms completely.

As the City engages in responsible manipulation of the forest resource, increased habitat will be available for browsing animals such as deer. Hunting and trapping are useful tools for assuring that the game population does not exceed the carrying capacity of the area.

OTHER ACTIVITIES

Goal: To use the Anacortes Community Forest Lands for dispersed low intensity recreational activities.

Policies:

1) Developed park sites in Anacortes allow the opportunity for group games and activities such as baseball, soccer, basketball, tennis and other sports. There is no need to develop these sorts of facilities on City Forest lands.

2) Deception Pass State Park and Washington Park offer ample opportunity for overnight recreational camping. There is no need to develop more facilities of this sort at this time.

3) Facilities needing utilities and/or extensive site improvements should be located in or near currently developed facilities.

EDUCATION

Goal: The City forest lands should be made available to educate the Community in the stewardship of our natural resources. "Through information, attempt to maintain and improve a resource conservation attitude within the City." (Goal 5, Conservation Section, Comprehensive Plan, 1977)

"Promote conservation attitude through public disemination of ecological information and descriptions of natural features of Fidalgo Island." (Policies, Goal 5, Comprehensive Plan, Conservation Section, 1977)

Policies:

1) Encourage joint cooperative arrangements with local colleges and universities to use these lands for ongoing research projects by students and faculty. Botany, Biology, Outdoor Recreation, Planning, Forestry and other academic disciplines will all find fruitful opportunity in the watersheds of our lakes and the surrounding forest lands. These "experts-in-training" could supply useful baseline and monitoring information to the managing authority.

2) Teaching our young people about the recreational and natural values of their land will develop an attitude of possession and care which can translate into less vandalism and destruction of park and forest areas in the future.

3) Areas of City forest land which need rehabilitation because of poor management in the past should be developed as "demonstration working forests". Local students can take park by planting trees, monitoring growth and observing the consequences of responsible resource management.

VI

MANAGEMENT PROCEDURES

MANAGEMENT AUTHORITY

Goal: To provide efficient and effective management of the Anacortes Community Forest Lands in order to implement the goals and policies of this report.

Under the Council-Manager form of government, the City Council has ultimate legal authority and sets policy direction for the City. The City Manager is charged with management responsibility for administration of all City assets under the direction of the City Council. The City Council must approve all contracts, asset sales, and use policies. However, within the framework of these legal restrictions, it is recommended that an advisory board be established with broad authority to set use policies and effectively guide management of the Anacortes Community Forest Lands.

Policy:

1) Establish an advisory board to be known as the "Anacortes Community Forest Advisory Board".
   a) The Board should consist of five members, appointed by the Mayor and confirmed by the City Council. Membership should be one member of the Parks and Recreation Commission, one member of the Planning Commission and three citizen members.
   b) Terms of the Board members should be 5 years, with the initial terms staggered to provide for reappointment of one member each year.
   c) At least four members should be residents of the City of Anacortes, with it being permissable for the fifth member to reside on Fidalgo Island. The City Manager, or his designee, should serve as Executive Secretary to the Board.

2) The duties and responsibilities of the Anacortes Community Forest Advisory Board shall include the following:
   a) Setting use policies and guidelines, under the terms outlined in this report, for the ACF lands. Use policies requiring legal enforcement authority shall be confirmed by the City Council. Use policies not requiring legal-penalty provisions shall be set by the Board.

b) Securing additional studies, trail plans and surveys as deemed necessary by the Board.

c) Recommending an annual budget to the City Manager and the City Council for management of the Anacortes Community Forest Lands.

d) Interviewing and recommending a Forest Management consultant to implement the forest resources section of this plan.

e) Providing policy advice to the City Council for the long range use, enhancement and conservation of the resource. Conducting periodic reviews and recommendations for required changes in this plan. Providing technical advice to the City Manager for implementation of this plan.

f) Managing all timber sales in conjunction with the consulting forester. Final sales contracts must be confirmed by the City Council.

g) Serving as a liaison with interested citizens, user groups, educational institutions and volunteer service organizations.

FUNDING

Goal: The management of City forest resources will be a self-supporting program. These lands will not be a burden to the general taxpayer. In the forseeable future, monies generated from resources will be used for land management costs and recreational developments on Anacortes Community Forest Lands.

Policy:

1) A special revenue fund, known as the "Anacortes Community Forest Land Management Fund" will be created by ordinance. This ordinance will specify the uses for which these monies may be expended.
2) Monies expended for Forest Land Management will come only from the above-mentioned fund.
3) This fund does not require that a separate checking account be set up.
4) If necessary, special accounts may be set up within the Forest Land Management Fund.
5) All monies from sale of timber or other resources will be placed in this special fund.
6) Continue and expand existing efforts at coordinated planning and joint funding and maintenance of facilities among the various providers of park and recreation services. (State, County, School, City, private entities)

The forest inventory completed by Robert Kline indicates that the 2,200 acres of forest land owned by the City of Anacortes contains approximately 32 million board feet. About 70% is good quality Douglas Fir. The remaining volumes are made up of Hemlock, Cedar, and Alder. The constraints of deed restrictions, soil types and the goals of this plan will still allow income to be generated from these forests consistent with good forest management techniques.

ENFORCEMENT

Goal: The policies and regulations developed in this plan will be enforced by the appropriate authority.

Policies:

1) City of Anacortes shall obtain limited enforcement powers on Anacortes Community Forest Land outside City limits. If this arrangement is not sufficient to enforce the policies of this plan, annexation for municipal purposes of those lands outside City limits should be considered.

2) The Cranberry Lake area will be patrolled on a random basis by the City of Anacortes Police Department.

3) Develop an enforcement agreement with Washington State Parks for those areas identified as Joint-Cooperative Agreement areas.

4) Develop an awareness that vandalism and destruction are acts for which everyone in the community pays - both for facility repair and enforcement time.

5) Defensively plan facilities to minimize vandalism. Build and design rugged facilities to harmonize with surroundings.

6) Maintain facilities. Rundown areas promote vandalism and destructive behavior.

FIRE PROTECTION

Goal: To protect the City forest lands from damage or destruction by fire.

Policies:

1) In conjunction with other forest management activities, improve and map the existing road system to allow fire vehicle access.
2) Develop a fire plan in conjunction with local DNR office in Sedro Woolley and Washington State Parks.
3) Prohibit any fires on City property until designated fire pits at developed recreational sites are available.
4) Levy stiff fines, in addition to suppression costs, for violations.
5) Pay the $.24 per-acre per-year fee to the State Fire-fighting Fund. This would cover all expenses for DNR fire-fighters.

SIGNS AND BOUNDARY MARKERS

Goal: The boundaries of the Anacortes Community Forest Lands shall be clearly marked to indicate that users are entering publicly owned property.

Policies:

1) Boundaries of areas likely to be impacted by recreational use or real estate development should be surveyed and posted as quickly as possible. In some cases, this should be done in cooperation with adjacent private owners.
2) All access and egress points should be posted with notification that use of the City of Anacortes lands is governed by certain rules and regulations.
3) Access roads should be blocked by sturdy gate, ditch and berm or other suitable barriers to prevent unauthorized garbage dumping, timber harvesting and creation of mayhem on City lands. Unauthorized uses should be punishable by stiff fines.
4) A distinctive, visible boundary tag should be used to indicate Anacortes ownership.

COOPERATION WITH ADJACENT PROPERTY OWNERS AND PUBLIC AGENCIES

Goal: All land management decisions should be compatible with adjacent land owners within Anacortes and on Fidalgo Island. "The department responsible for City land management should initiate a program of systematic cooperation and coordination with other public and private land-holding entities on Fidalgo Island to encourage compatibility in land use decisions and activities." (Policy entry in Goal 3 of Conservation section, Anacortes Comprehensive Plan, 1977)

"The City permit application process is to include a manual for applicants which will clearly defind the requirements for shoreline and environmental impact consideration. This manual, incorporated with a shoreline inventory system, will, through graphics and text, alert the City and applicant to the natural conditions and unique characteristics in the area of the proposed activity." (Policy under Goal 5, Conservation section, Anacortes Comprehensive Plan, 1977)

Policies:

1) City Ordinance No. 1807 (Land Clearing Ordinance) should be revised to better serve the City's long-term interests. Areas of high potential for impact from land clearing should be clearly identified on a map available to City staff, Planning Commission and Council. Impacts on City forest land and current use access points could be severe without "defensive planning". Special areas of concern would be the area between "A" and "D" Avenues between 41st Street and 17th Street, the northern border of Cranberry Park and the western border of Section 26 adjacent to Skyline. A series of small clearings has the same cumulative effect as a large clearing.

2) On land outside the City limits, efforts should be made to contact adjacent private property owners and inform them of the intended use of the City land. Every attempt should be made, as early as possible, to resolve present and potential conflicts arising from timber harvesting, trespass, garbage dumping, etc.

3) Development adjacent to City forested lands and/or watersheds should provide buffers, erosion and drainage control measures and access control. This should be part of the review by the Planning Commission and City Council. "....provide for flexibility to allow for attractive plat design in subdivision development." (Goal 6, Housing Section, Comprehensive Plan, 1977)

"Make a process available for residential development which allows for a tract of land to be developed as a coordinated unit according to an approved plan." (Policy Section of Goal 6)

4) Whenever necessary, reach agreement with adjacent land owners to create, by easement, purchase or donation, buffer areas between developments and public use lands. This recommendation depends upon the specific characteristics of the site.

SECTION XIII
SUMMARY OF RECOMMENDATIONS

The following is a summary of recommendations for management of the Anacortes Community Forest Lands (ACFL). The complete recommendation for each section will be found in the body of this report.

MANAGEMENT UNITS

A) Little Cranberry Unit

Current Conditions: Severe problems around Cranberry Lake caused by motorcycles, vandalism and unrestricted entry.

Projected Use: Local resident park use for low-impact recreational activities. Use will intensify as surrounding areas become urbanized.

Recommendations: Develop a master plan for this basin and associated wetlands in conjunction with planning for 32nd Street. Restrict current intensive use activities (motorcycles, camping, and after dark access). Repair existing damage. Vacate streets and alleys in Morrison Natural Park. Declare Morrison Park by City ordinance. Transfer responsibility for Cranberry Park to the Anacortes Community Forest Advisory Committee under the provisions and guidelines of this plan.

B) South Cranberry Unit

Current Conditions: Accessible by a major forest road beginning at old dump site. Primarily used by motorcyclists, equestrians and hikers.

Projected Use: Develop a series of trail bike trails in southern part of Section 26. Stand improvement and management activities as per Forest Management Guidelines.

Recommendations: Improve main road and re-habilitate trails. Post property boundaries. Develop area for trail bikes. Begin forest management activities.

C) Fidalgo Ridge Unit

Current Conditions: Uncontrolled four-wheel drive and motorcycle access. Very little other recreational use.

Projected Use: Manage for watershed/forest land and low impact recreational use. Develop a walk-in picnic area.

Recommendations: Acquire a guaranteed access into this area. Restrict unauthorized traffic. Repair damage to trails and lakeshore. Design all forest management activities to protect water quality.

D) West Whistle Lake Unit

Current Conditions: Accessible by firewood cutters from Heart Lake Road. Some trails, mostly used by motorcycles and equestrians.

Projected Use: Low intensity recreational use. Forest improvement activities.

Recommendations: Repair trail damage caused by motorcycles. Prohibit vehicular access. Design all forest management activities to protect water quality. Promote local use only.

E) Heart Lake Unit

Current Conditions: Intensive recreation area on shores of Heart Lake, adjacent to Heart Lake Road.

Projected Use: To be developed in conjunction with Heart Lake State Park.

Recommendations: Negotiate a Joint Cooperative Agreement with State Park Department.

F) Heart Lake Road/Ray Auld Drive Unit

Current Conditions: This area is already intensively used as a multiple-use park. The Heart Lake Road and drive to Mt. Erie summit are regional attractions. Anacortes has no police jurisdiction in this unit.

Projected Use: With the development of Heart Lake Park as a satellite of Deception Pass and the closeness of this area to dense urban areas, use of this area will increase during the next decade. There is no Master Plan for the summit.

Recommendations: Negotiate a Joint Cooperative Agreement with State Parks for this unit. Develop a Master Plan for the summit of Mt. Erie. Close all unnecessary access points along Heart Lake Road and Ray Auld Drive.

G) Mt. Erie Conservancy/Forest Study Unit

Current Use: Relatively inaccessible except for trail bikes. Very sensitive habitat area. Little merchantable timber.

Projected Use: Low intensity dispersed recreation. Conservancy/study area.

Recommendations: Restrict high intensity use. Repair trails. Work with trail bike users to direct their use to South Cranberry Unit.

MANAGEMENT OF RESOURCES

A) Forest Management: Anacortes Community Forest Lands have some potential commercial timberland value. This plan provides carefully defined guidelines for harvesting of forest products in order to maintain or enhance the scenic and recreational potential of the land. These policies will maintain and improve the indigenous vegetation. This plan favors a mixed age class, Douglas Fir-association forest. Selective harvesting, leaving healthy trees, will be the preferred practice.

B) Firewood Management: Provide firewood, under specified conditions, for residents of Anacortes, in conjunction with the sustained yield forest management program.

C) Flora Management: No taking of trees, shrubs, bushes, flowers or other vegetation without a permit.

D) Wildlife: Anacortes Community Forest Lands should be managed to enhance and maintain current populations of wildlife. Citizens should be made aware of the diversity of this resource.

E) Water Resources: Every effort should be made to maintain and enhance the water quality of Little Cranberry and Whistle Lake and their associated marshlands and wetlands.

MANAGEMENT OF RECREATIONAL ACTIVITIES

A) Picnicking Develop at least one walk-in picnic site, for local use only.

B) Trails For the present, restrict obviously destructive activities from specific trails. Make available a map of trails on City land. Develop a full trails plan within the next six months.

C) Horse Trails/Bridle Paths Develop separate trails for horse use. Work with riding clubs to repair trail damage.

D) Motorcycles/Trail Bikes All motorcycles used on ACFL must conform to state code for noise levels and spark arrestors. Trail bike use will be restricted to specified areas in the Sugarloaf/Mt. Erie area and in the South Cranberry Unit. Motorcycles can cause severe resource damage. Their use must be directed to areas which will have minimal impact on other users.

E) Motor Vehicles No unauthorized motor vehicles will be allowed on ACFL roads. All access points to be gated and/or bermed and ditched.

F) Fishing In conjunction with the Game Department, the lakes in the ACFL should be managed for fishing. Develop a long-range sports fishing plan with the Game Department.

G) Hunting and Trapping Hunting with rifles is prohibited. Shotgun and bow and arrow are permitted as per Game Department regulations. These activities are a management tool to control game population levels.

H) Other Activities Other, more facility-intensive activities should be developed on existing park lands.

I) Education ACFL should be made available to the Anacortes School System and institutions of higher learning for environmental education and research. These lands are invaluable for instilling a conservation ethic in our young people.

MANAGEMENT PROCEDURES

A) Management Authority A five-member advisory committee is established to be known as the Anacortes Community Forest Land Advisory Committee. Members will provide technical

advice, policy guidelines, review procedures and act as a liaison with the community on all forest land matters.

B) Funding This management plan is a self-supporting activity with no additional burden to the general taxpayer. The proceeds from forest product sales will be deposited in a separate account to be used for maintenance and enhancement of the forest resource.

C) Enforcement The City of Anacortes Police Department shall obtain limited enforcement powers on ACFL. Where appropriate, Joint Enforcement Agreements will be developed with the Washington State Park and Recreation Commission.

D) Fire Protection Develop a comprehensive fire plan in conjunction with the Anacortes Fire Department, State Parks and the Department of Natural Resources.

E) Signs and Boundary Markers The boundary of ACFL should be clearly marked. All access and egress points should be posted. Private property lines should be posted with appropriate warnings.

F) Cooperation with Adjacent Land Owners and Other Public Agencies City subdivision ordinances should reflect the sensitive nature of these forest lands and review all future subdivision activity adjacent to these areas with this in mind. The City should develop cooperative agreements with adjacent owners, and other agencies such as DNR. Skagit County and State Park Department, to insure compatibility on land use decisions.

G) Future Acquisition Considerations Specific areas are identified for acquisition in order to insure continued public access to the ACFL. First priority is a guaranteed public route into the Whistle Lake Basin.

PART IV

FUTURE ACQUISTION CONSIDERATIONS

Goal: Assure guaranteed public access to Anacortes Community Forest Lands. The below listed parcels would guarantee future access to areas already important for recreation.

1) Public access to Whistle Lake by way of Whistle Lake Road.

This area has created an increasing number of problems for the City over the past years. The City ownership begins approximately 300 feet south of the access gate at the end of Whistle Lake Road. At present, a sturdy steel gate and barbed wire fence keep out motor vehicles and trail bikes from this access point. The City has an easement for maintenance vehicles on this road. The easement does not, however, allow use by the general public. Residents have been increasingly bothered by inconsiderate parties and they have taken to posting prohibitive signs against trespassing and parking. In addition, alternative routes through adjacent property allow free access to the lake basin by four-wheel drive vehcles and others.

Recommendation: Acquire, by purchase, easement, gift or trade, a guaranteed access for the public into Whistle Lake from the end of Whistle Lake Road. This would necessarily involve negotiations with the concerned property owners. The access would be restricted to foot traffic only. Parking for hikers should be established at the old reservoir site on Whistle Lake Road.

2) Remove the potential threat of development of the Northwest corner of Colver's Addition. The old logging road which provides the main access route to all City property south of Little Cranberry is crossed by a corner of private property on the Northwest corner of Colver's Addition.

Recommendation: The acquisition of a "conservation" or "scenic" easement would be sufficient to assure that no building or land clearing would occur along this primary access corridor.

3) Assure public access to the rock-climbing route to Mt. Erie. One of the primary recreational uses of Mt. Erie is by rock-climbing parties often numbering up to 100 people on any given day. Much of the route on the south face of the mountain crosses private property. The present trail follows a narrow, unbuildable parcel belonging to two private owners. The main concern is that this route does not become a trail-bike access point.

Recommendation: Acquire public trail easement to permit access to the south face of Mt. Erie.

4) Acquire the 160-acre in-holding between Heart Lake State Park and the City property on Sugarloaf.

According to the deed of 1940, this property was supposed to revert to the City after logging operations were completed. For some unknown reason, this did not occur. The property changed hands a couple of times and in 1975 the City lost any interest in the property by passing a City Council resolution offering a Quit Claim Deed for $500 to clear the title. The property has since been logged with the consequent destruction of many trails in the area and a slight visual impact on the Whistle Lake visual basin. In addition, the old Mt. Erie Road crosses this property and has allowed an unfortunate amount of four-wheel drive access into the area with a consequent amount of illegal firewood cutting at a substantial loss to the resource.

Recommendation: Acquire, by deed, this critical, private in-holding. As it abutts, on the north, the Heart Lake State Park property, the City could also recommend and support efforts by that agency to acquire the parcel. The Management Unit section indicates which City holdings might be available for sale or trade in order to acquire these parcels and block up City ownership.

UNIFORM WASHINGTON STATE CLEARINGHOUSE PROJECT
NOTIFICATION AND REVIEW FORM

PROJECT IDENTIFICATION Uniform Washington State Clearinghouse Identifier Number: 57-0-04-04	Special State Program Identifier Number:	Multi-Clearinghouse Identifier Number:

PROJECT TITLE
Anacortes Shoreline Replacement

APPLICATION INFORMATION
Applicant Agency and Mailing Address:
City of Anacortes, P.O. Box 547, Anacortes, Wa 98221

Contact Person: Name, Title, Mailing Address, Telephone
Robert L. Olander, City Manager, P.O. Box 547, Anacortes, WA, 98221
(206) 293-5171

PROJECT DESCRIPTION
5) Purchase of 1.5 miles (15.95 acres) of unused Burlington-Northern right-of-way along Guemes Channel in Anacortes for multi-purpose waterfront trail.

4. PROJECT LOCATION County or Counties	Incorporated City or Cities	Unincorporated Community or other Common Area Name if Applicable	Section, Township and Range or Street Address if Applicable
Skagit	Anacortes		

5. FUNDING INFORMATION

Federal Funds		State Funds		Applicant Funds			Total Project Cost
Grant	Loan	Grant	Loan	Cash	In-Kind	Other	
275,000							$275,000

Federal Funding Agency & Sub-Agency	Federal Program Title	Catalog Number
Dept. of Commerce, NOAA	Coastal Energy Impact Program	11.421

State Funding or Administering Agency	State Program Title
Dept. of Ecology	Coastal Energy Impact Program

6 PLANNING AND PERMIT INFORMATION

Environmental Impact Statement Status
- Not Applicable or Exempt ( )
- Threshold Determination ( )Yes ( )No (X)Pending
- Declaration of Non-Significance ( )Proposed ( )Final
- Declaration of Significance ( )Yes ( )No
- EIS ( )Pending ( )Draft

Relocation	Yes	No
Is Land Acquisition Involved		
Will Relocation be Involved		
Has Relocation Plan Been Prepared		
Not Applicable		X

Water Area Involved	
None	
River	
Lake	
Shoreland	X
Salt Water	
Tide Land	
Flood Plain	
Not Applicable	

Shoreline Management Permit	Yes	No
Project Exempt		
Determination Pending	X	
Application Submitted		
Permit Approved		
Not Applicable		

Environmental Coordination Procedure Act Process being Utilized Yes ___ No ___ Not Applicable ___ ECPA Application Number ___

Comprehensive Planning
List or describe briefly plans affecting project, include year of completion or adoption (example: city comprehensive plan, law & justice plan, regional sewer and water plan, comprehensive health plan.

Comprehensive Land Use Plan
Comprehensive Park Plan
Shoreline Management Plan

7 APPLICANT SIGNATURE (To be signed by chief elected official or legally authorized official)

(Signature) [signature] (Agency) City of Anacortes

Title City Manager (Date)

8 FOR DISTRICT CLEARINGHOUSE USE

Designated District Clearinghouse Agency SCOG

Date Completed Application Received by Clearinghouse 4-22-80

Time and Place Application will be given Final Review by District Clearinghouse 7:30pm., 5-21-80, Mt. Vernon City Hall

Authorized District Clearinghouse Official (Signature) [signature]

10. FUNDING AGENCY ACTION (For Clearinghouse Use)

Name of Agency Funding All or a Portion of Project	Amount	Funding Date
Total		

APPLICATION FOR ASSISTANCE

COASTAL ENERGY IMPACT PROGRAM

WASHINGTON COASTAL ZONE MANAGEMENT PROGRAM

PART 1

1. NAME OF APPLICANT: CITY OF ANACORTES

2. ADDRESS: P.O. BOX 547, ANACORTES, WA 98221

3. CONTACT PERSON: ROBERT L. OLANDER, CITY MANAGER

4. TELEPHONE: (206) 293-5171

5. PROJECT TITLE: ANACORTES SHORELINE REPLACEMENT

6. TYPE OF ASSISTANCE REQUESTED (check one)

   a. ( ) 308 (c)(1)

   b. (XX) 308 (b)

7. PROJECT DURATION June 1, 1980 TO September 1, 1981

8. PROJECT COST

   Federal Share: $275,000

   Local Share (if applicable): 0

   Total: $275,000

PART II

PROGRAM NARRATIVE

1. The problem of reduced shoreline access.

Although the City of Anacortes has the truly unique characteristic of being surrounded on three sides by water, the access by the public to the shorelines is severely restricted, and becoming increasingly so with continued industrial, commercial and residential development. As indicated on the attached map, (Exhibit A), public access is limited to relatively few points in Anacortes.

As has been documented in the 1979 report by the Skagit Regional Planning Council entitled "Onshore Support Activities Planning Study for Outer Continental Shelf (OCS) Construction Anacortes, Washington" (Exhibit B), over 100 acres of prime shoreline have been purchased and developed by the Snelson-Anvil Corporation for past, current and future OCS-related activity. This shoreline land is now legitimately, but irretrievably, lost for public access and enjoyment as a direct result of the siting and development of OCS-related industrial activity.

The intent of the Coastal Energy Impact Program to solve exactly this type of problem is indicated in Section 931.71 (a) of the rules established for administration of the CEIP.

> 931.71(a) To help coastal states and units of local government in such states to prevent, reduce or ameliorate losses in the coastal zone of valuable environmental or recreational resources when such losses result from coastal energy activity.

2. How CEIP assistance will be used to solve this problem.

Coastal Energy Impact Program assistance is requested to purchase from the Burnlington-Northern Railroad 1.5 miles of replacement shoreline suitable for public access and use along the Guemes Channel in Anacortes (see Exhibit C).

3. Benefits of the proposed CEIP Project.

The purchase of this 1.5 miles of waterfront property will permit construction of a multiple-use trail along a unique and mostly undeveloped stretch of waterfront from downtown Anacortes to the San Juan and international ferry terminal at Ship Harbor.

a. Acquisition of the property will permit access and trail development on a total of 3.5 miles of waterfront. Two miles is now owned by the Anacortes Port District and the City of Anacortes, but access will not be

available unless this remaining section is acquired. Acquisition of the 1.5 miles will thus "leverage" or make available an additional two miles of public waterfront access.

b. A multiple-use trail will provide walking, jogging, and bicycling opportunities along a uniquely beautiful stretch of shoreline. These multiple recreational uses will be available to the residents of Anacortes and the thousands who visit Anacortes annually.

c. Development of this project will provide an alternative non-vehicular method of transportation to and from Ship Harbor ferry terminal, Guemes Island ferry terminal and downtown Anacortes. This would be utilized by Anacortes residents, and the increasing number of people passing through Anacortes for bicycling and hiking tours to the San Juan Islands.

d. Development of this project will provide an opportunity for hundreds of thousands of people to walk along a shoreline path while waiting for ferries at the Ship Harbor terminal. During summer months, waits of two to three hours are common. There are few places in Washington that would be able to provide casual shoreline access to this many people. Currently, however, this shoreline is not open or accessible to the public.

4. Relationship to Coastal Energy Activity

One of the critical environmental problems identified in the F79 CEIP planning work conducted by the Skagit Regional Planning Council was the "unavoidable loss of valuable coastal environmental and recreational resources and opportunities on approximately 3,200 feet of shoreline utilized by Snelson-Anvil's oil platform fabrication yard". Planning activity funded under a CEIP 308(b) grant to the Skagit Regional Planning Council in FY 1980 to complete a detailed study of the impact of OCS support activity on the Anacortes natural areas has progressed to the point where shoreline replacement has emerged as a top priority recommendation. This project is designed to provide replacement shoreline dedicated in perpetuity for public access and enjoyment.

5. Status of Energy Facility

Snelson-Anvil is a fully developed heavy industrial facility currently engaged in receiving, fabrication, assembly and shipping of large process plant components and offshore platform modules. For a complete description of the Snelson-Anvil facility and operations, see Exhibit B attached.

As of March 1980, Snelson-Anvil employs 450 people and is currently working on manufacturing support modules, utility connections and oil-gas modules for the Kuparuk oilfield on Alaska's north slope. Maximum employment is expected to be 550 people for this contract alone.

It is particularly important to note that this energy facility is a continuous, on-going and active facility, as opposed to other projects in the state that may be many years from the beginning of construction.

6. Shoreline Master Program Impact

The proposed CEIP project is consistent with the Shoreline Master Plan, Zoning Code, Recreation Plan and Comprehensive Land Use Plan of the City of Anacortes.

a. Shoreline Master Plan - City of Anacortes - Goals Related to CEIP Project.

...Achieve uses and development which increase and preserve public physical access and visual shoreline access.

...Increase public physical and visual access to shorelines.

...Increase uses and activities which attract public to shorelines.

...Maintain existing shoreline which is available for recreational use and increase amount of shoreline available for active and passive public use, while enhancing shore-dependent recreation opportunities.

b. Comprehensive Plan - City of Anacortes - Goals Related to CEIP Project.

...Encourage development of public access (bicycle, pedestrian, railroad) along Guemes Channel railroad right-of-way. Goal 7, p. 25.

7. Public Involvement

a. The public has been involved in this funding request directly through an advisory committee established by the Anacortes City Council. The committee has held at least three public meetings and advertised them through the local media.

This particular CEIP project for establishment of a public shoreline trail along Guemes Channel has received

extensive public input and support through the public involvement process associated with the adoption of the Comprehensive Land Use Plan, Shoreline Master Plan and Comprehensive Park and Recreation Plan.

b. Continued public involvement and media contacts on the CEIP project will be utilized during the project to assure public knowledge and involvement in the project. The City Newsletter, mailed to all households quarterly, has been utilized to inform the public of this project and will be used for this purpose in the future if funding is granted.

8. Other Funding Sources

Informal contacts have been made with the Economic Development Administration, Farmers Home Administration, Planning and Community Affairs, Commerce and Economic Development and others, and it has been determined that financial assistance for the proposed project is not available from these sources.

PART III

SCOPE OF WORK

This project is a simple acquisition project. Upon award of grant funds, it is expected that negotiations and finalization of the sale of the property from Burlington-Northern Railroad to the City of Anacortes can be completed within six months.

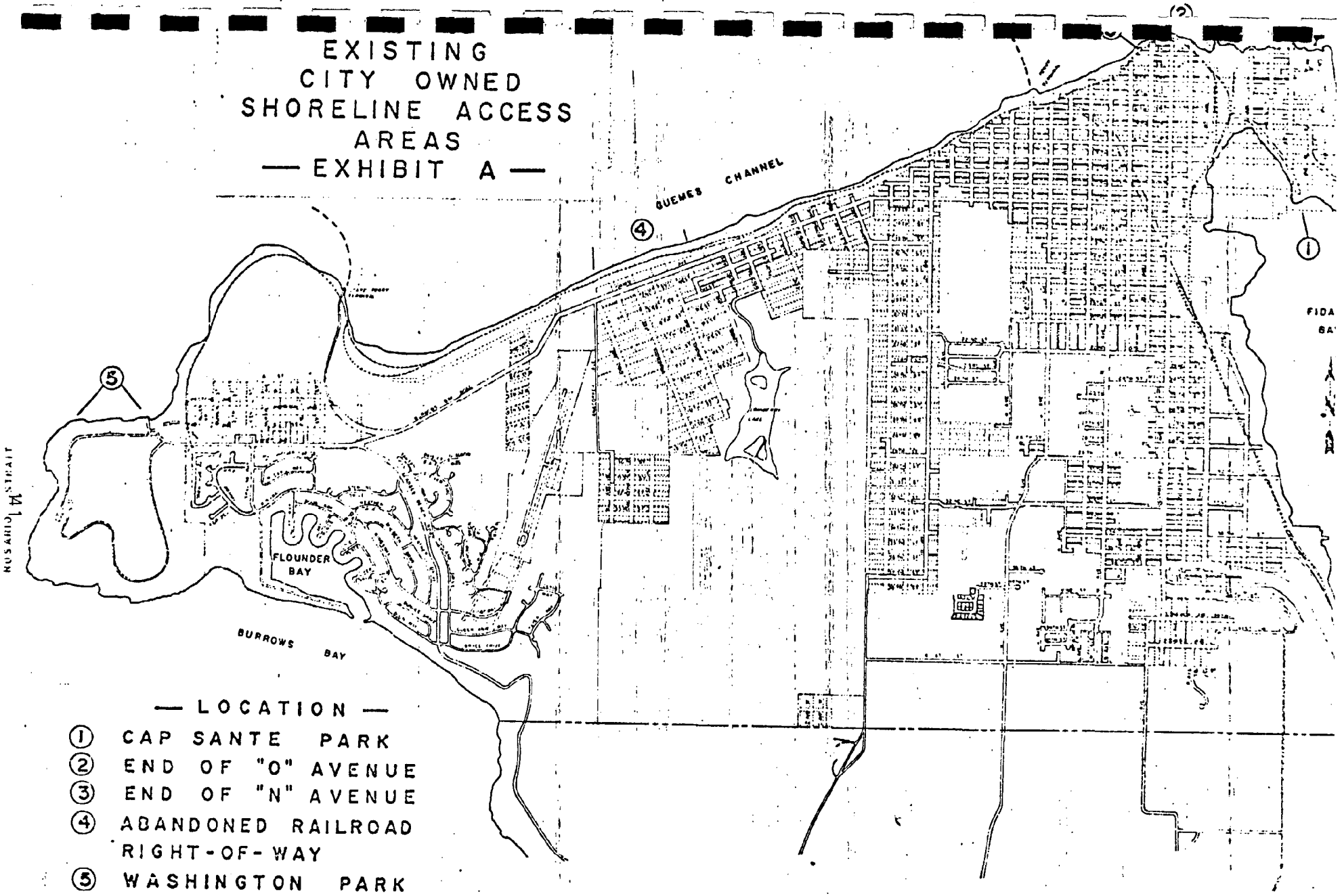
PART IV

PROJECT BUDGET

Acquisition Cost	$ 273,000
Legal Costs	2,000
Total	$ 275,000
Local Share	-0-
Federal Share	$ 275,000

ro:ir

EXISTING CITY OWNED SHORELINE ACCESS AREAS — EXHIBIT A —



— LOCATION —

1. CAP SANTE PARK
2. END OF "O" AVENUE
3. END OF "N" AVENUE
4. ABANDONED RAILROAD RIGHT-OF-WAY
5. WASHINGTON PARK

CITY OF ANACORTES

1500 750 0 1500 3000 4500

SCALE IN FEET

EXHIBIT "A"

1. Cap Sante Park

Cap Sante Park is a small pocket park with approximately 30 feet of water access. The site is limited because of steep bluffs.

2. "O" Avenue Street End

Although owned by the City as a street end abutting the water, the site has no physical access to the water. The street is between two old wharfs in the industrial section and blocked from water by railroad tracks. It is undeveloped and unsuitable for any shoreline recreation.

3. "N" Avenue Street End

This street end is similar to "O" Avenue, and provides no opportunity for shoreline amenities due to adjacent industrial uses.

4. Railroad Right-of-Way

This section of old right-of-way was purchased from Burlington-Northern in 1970. There is no access to the property since it is at the bottom of a steep bluff and blocked at the west end by Port of Anacortes property and at the east end by Burlington-Northern property. This would be incorporated in the multi-purpose water front trail if the grant is acquired to purchase the Burlington-Northern property to the east.

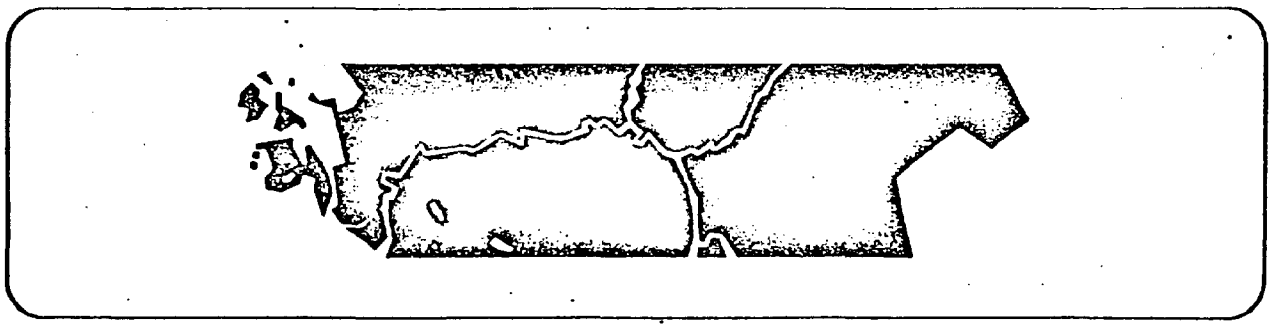
5. Washington Park

Although Washington Park is surrounded by water, direct public access to the water is limited to a small 40-yard stretch at Sunset Beach. The balance of the shoreline at Washington Park is steep bluffs.

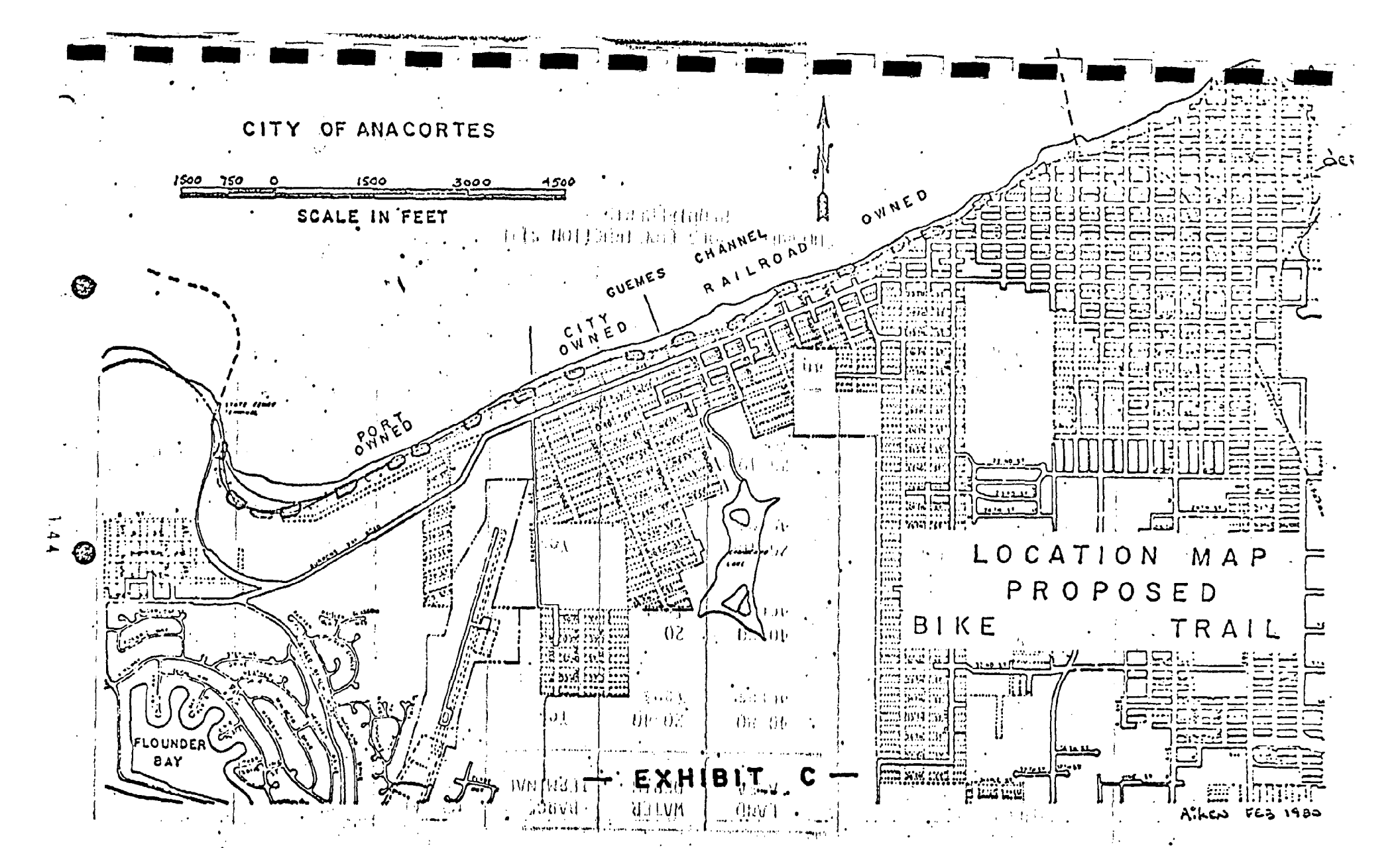
EXHIBIT "B"

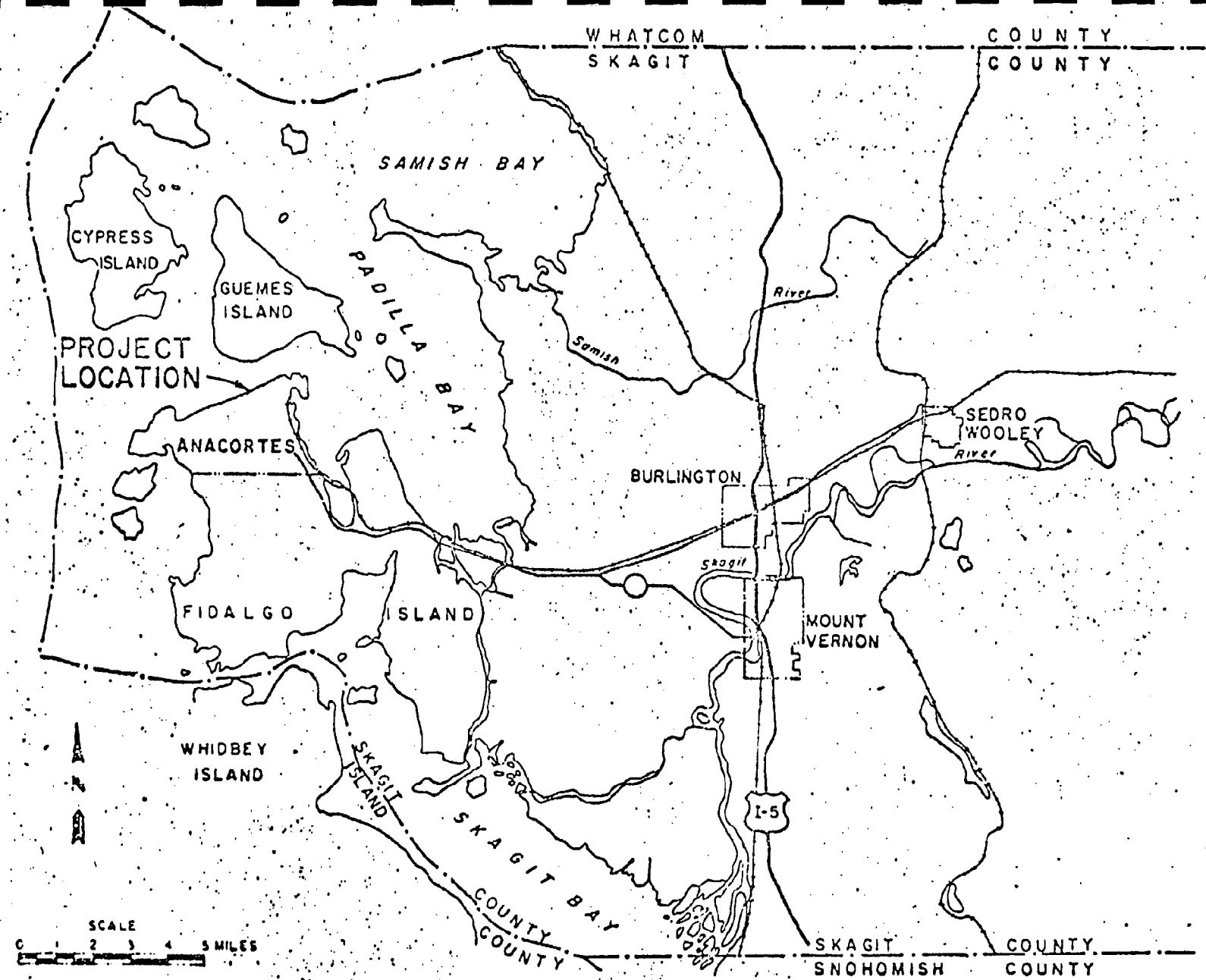
Skagit Regional Planning Council

Onshore Support Activities Planning Study for Outer Continental Shelf (OCS) Construction Anacortes, Washington 1979



The Skagit Regional Planning Council is a Council of Governments composed of elected officials representing general and special purpose units of local government in Skagit County. The members are the cities of Anacortes, Burlington, Concrete, LaConner, Lyman, Mount Vernon, Sedro Woolley; Skagit County, the Skagit Soil Conservation District, Skagit PUD, the Port of Anacortes, and the Swinomish Tribal Community.


CITY OF ANACORTES
1500 750 0 1500 3000 4500
SCALE IN FEET
N
CITY OWNED
GUEMES CHANNEL
RAILROAD OWNED
PORT OWNED
FLOUNDER BAY
LOCATION MAP
PROPOSED
BIKE TRAIL
EXHIBIT C
Aiken Feb 1980



LOCATION MAP —EXHIBIT D—