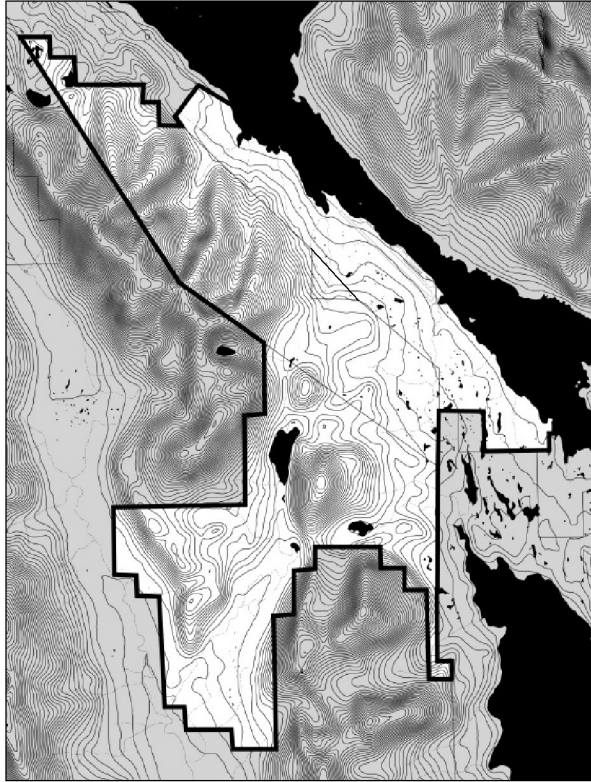




Gravina  
Island Plan

# *Central Gravina & Airport Reserve*

Area

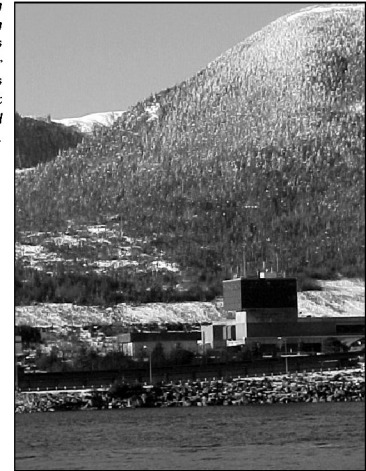


**KETCHIKAN GATEWAY BOROUGH**

Department of Planning & Community Development

2005

*The Ketchikan International Airport is situated within the 2,689 acre Airport Reserve. Only a small portion is needed for existing and planned airport operations and aviation related services, leaving opportunities for compatible industrial and commercial developments as well as recreational use along the shoreline and habitat protection and open space in wetland areas unsuited for development.*



Gravina  
Island Plan  
**Central Gravina &  
Airport Reserve**  
Area

*October, 2005*

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Note: It is impossible to recognize individually all the assistance received from citizens throughout Ketchikan and from staffs of federal and state agencies, the City of Ketchikan, the City of Saxman and private firms and individuals.

## Introduction & Issues To Be Addressed

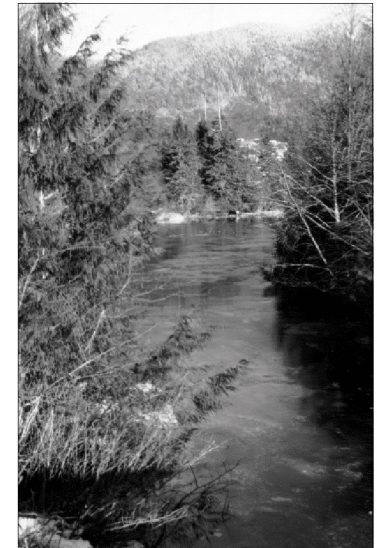
The Central Gravina and Airport Reserve area is the island's transportation hub. The Borough has lead development of a road from the airport terminal to Pacific Log & Lumber and funds have been secured for a road to the Bostwick Lake area for timber harvest purposes. DNR has announced plans for a significant timber harvest west of Bostwick Lake designed to support local mills and value-added products. The Airport Reserve area is near utilities and could serve new industrial parks and commercial land uses compatible with safe airport operations. Bostwick Lake has potential to be a high-quality recreation destination and there are important natural areas such as Government Creek for recreation and habitat protection.

This Central Gravina and Airport Reserve Area Plan addresses the following:

- What lands, resources and tidelands have significant community value and how should they be developed or protected? (see pp 8-11)
- Which areas are most suitable for development and which are less suitable due to natural hazards, difficult access, wetlands, etc.? (pp 4-5)
- What are the key economic development opportunities? (pp 6-7)
- How can the Airport Reserve be planned to best meet development opportunities? (pp 14-17)
- How should roads proposed by DOTPF, USFS, DNR and the Borough be integrated into an effective network to serve the airport and other parts of Gravina? How should issues related to cost, standards, controlled access, and maintenance responsibility be resolved? (pp 18-19)
- What development recommendations should be made to DNR and the MHT regarding their lands and resources? (pp 18-28)
- How should Bostwick Lake and the upper Bostwick Creek watershed be managed, recognizing its significant values (hydrological, ecological, wildlife, recreational, personal resource harvest, etc.)? (pp 22-28)
- What areas should be set aside and developed to meet community recreation needs? (pp 26-28)
- What are the area's commercial timber resources and what are the Borough's interests in their management? (pp 22-25)
- How should current zoning be changed? (pp 12-13)
- What steps must be taken to implement the recommendations in this plan? (pp 29-32)



This document is one of a set of four describing the Borough's long-term plans for Gravina Island. Island-wide policies and background are provided in the "Citizen's Guide." The eastern shoreline of Gravina has been divided into three area plans that address development issues and provide practical guidance at a detailed level. Copies of all four documents are available at the Ketchikan Gateway Borough Planning Department.



Lower Government Creek (shown here from the bridge near the south end of the Airport runway) and its estuary is only a ten-minute walk from the Airport Ferry terminal. With a few improvements (trail development, signage, interpretive map/brochure) it could be an attractive natural area for residents and visitors alike, especially travelers with a little time before a flight arrival or departure.

Part One: Context  
**1/The Central  
 Gravina & Airport  
 Reserve Area**

**Ownership & Zoning**

The Central Gravina & Airport Reserve area totals 11,010 acres, comprised of:

- 2,105 acres (19%) of land owned by the DOTPF designated as an Airport Reserve, which includes approximately 5.9 miles of waterfront,
- 538 acres of patented tidelands/submerged lands within the Airport Reserve,
- 3,842 acres (35%) of Mental Health Trust uplands, and
- 4,975 acres (45%) DNR-owned uplands.
- 85 acres (1%) Private

There are no Borough lands in this plan area, however, there are extensive Borough holdings immediately to the north and south (see map on facing page). There are just two current zoning classifications: lands in the Airport Reserve are zoned Airport Development and all other lands are Future Development.

**Landscape & Natural Resources**

The boundaries of this area plan are determined by ownership patterns rather than natural features. The landscape is defined by the steep northeastern facing slopes of California Ridge (to over 2000 ft) adjacent to a gently rolling coastal plain less than 300 ft in elevation. This plain is narrow to the north (less than 0.5 miles) but widens to 1.5 miles to the south. The high mountain barrier is breached by two passes opening to Gravina's interior: Bostwick Lake (about 500 ft elevation) and Pass Lake (550 ft). This area also includes the upper part of the Bostwick Creek watershed that drains into Bostwick Inlet.

Poor soil drainage characterizes much of the landscape. The predominant ecosystem type is scrub forest on organic soils (MF5, F5), followed by non-forested muskeg (M12).

The relatively flat topography of the coastal plain extends into Tongass Narrows, resulting in extensive intertidal areas and a typically shallow shelf. Small but significant estuaries occur north and south of the runway and there are six catalogued anadromous creeks draining into the Narrows that support populations of pink and silver salmon in their lower reaches. Bostwick Lake (73 acres) is Gravina's largest lake and part of the island's major salmon producing watershed.

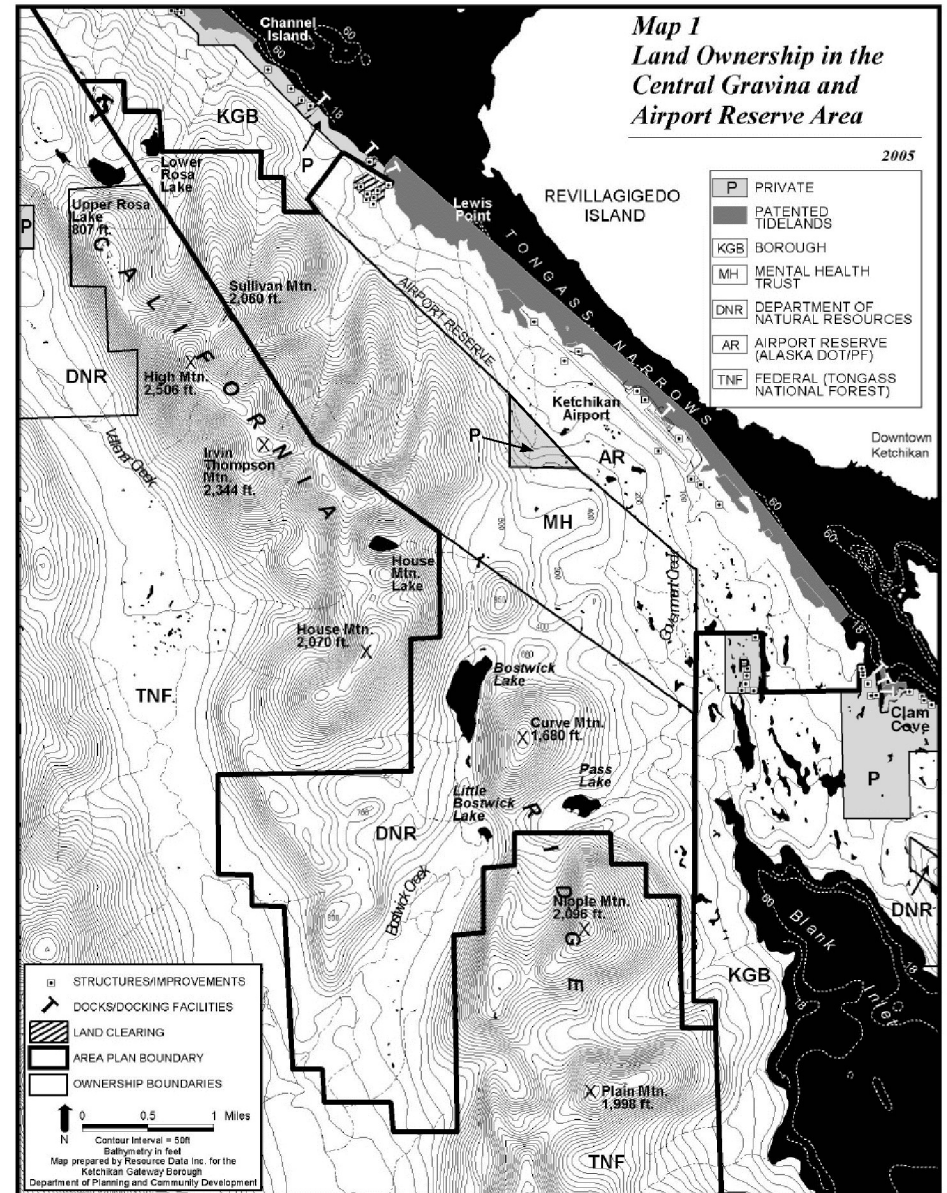
The natural shoreline and forested mountain slopes of this area provide the attractive natural backdrop for views from Ketchikan for residents and visitors.

**Development Trends**

This area's shoreline has long been attractive for development--especially near the airport. In the early 1900s, the Port Gravina Mill and Townsite were built there. While the site was soon abandoned after a fire, a few homesteaders made their livelihoods in the area until airport construction in the 1970s. In spite of improved access via the airport ferry, road development is only just occurring on Gravina. The recent Pacific Log & Lumber lease in the Airport Reserve has demonstrated the viability of Gravina for some types of industrial activity and is a catalyst for road development from the airport north (see the North Gravina Area Plan). Other road plans (DNR and USFS logging roads to the interior, the proposed Pennock Island bridge crossing and associated road network) all traverse Central Gravina. While this area is not slated for near-term residential development, the improved access will open the area for industrial development north and south of the Airport Reserve, as well as timber harvest and recreation. Longer-range development might take advantage of developable upland Mental Health Trust lands to the northwest of Clam Cove for large lot rural subdivisions. Development will undoubtedly continue to focus in and around the airport.



Trail development through much of the Central Gravina landscape will require boardwalks and other surface treatments to permit year-round use.



*Part One: Context*  
**2/Development Suitability**

Some areas are better suited for development than others. A site with deep, well-drained mineral soil near a road and on gently sloping terrain away from flooding or landslide hazards would generally be considered suitable for conventional development. Another area, equally accessible but with muskeg soils and poor drainage would be considered less suitable. While development is possible, it would be costly and require less conventional building practices. There are some areas considered unsuitable due to natural hazards, uneconomical access, critical habitat values, proximity to airport noise and operations, and other reasons. These are usually best retained as open space reserves.

It is expected that development will concentrate around the airport. Some industrial activities are expected near the north and south ends of the Airport Reserve. Residential growth is planned for the areas to the north of this plan area (North Gravina), south (Clam Cove) and to a lesser extent west (Vallenar Bay). Future growth around Clam Cove might extend into the nearby uplands owned by Mental Health Trust and the Borough.

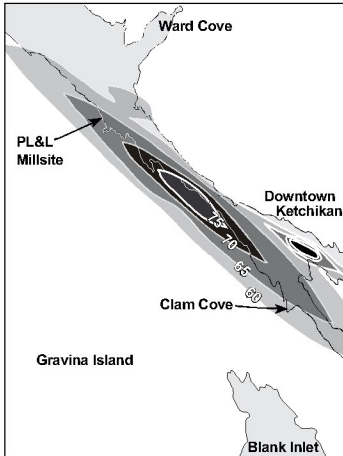
The map on the facing page illustrates the results of a development suitability analysis for the Central Gravina and Airport Reserve area (DNR lands south of Bostwick Lake were not analyzed due to absence of ecosystem data). It provides the following findings:

- Only a small portion of the area has no significant development limitations. (These areas are “white” on the map—without any overlay patterns or shading.) Such areas are characterized by well-drained mineral soils and gently sloping topography.
- Approximately 1,408 acres are below 300 ft elevation, with slopes under 10%, and could be readily accessed by proposed roads. The main limitation is poor drainage and organic soils as indicated by the muskeg-scrub forest ecosystems (M1, M2, MF5 and F5) found there.
- In addition to poor drainage, other limitations include moderate to steep slopes (10-30%), cold microclimates (north facing slopes), higher elevations (300 to 400 ft), reduced accessibility (more than 1/2 mile from proposed roads) and proximity to air traffic flight paths and noise.
- 54% of the area is not considered suitable for development due to one or more of the following characteristics: severe slopes (greater than 30%, v-notch drainages), high elevation (greater than 400 ft), salmon spawning stream corridors, and “prohibitive” wetlands (as classified by ADF&G). Such areas are suitable for open space, recreation, wildlife, flood control, watershed protection, and maintenance of visual quality.

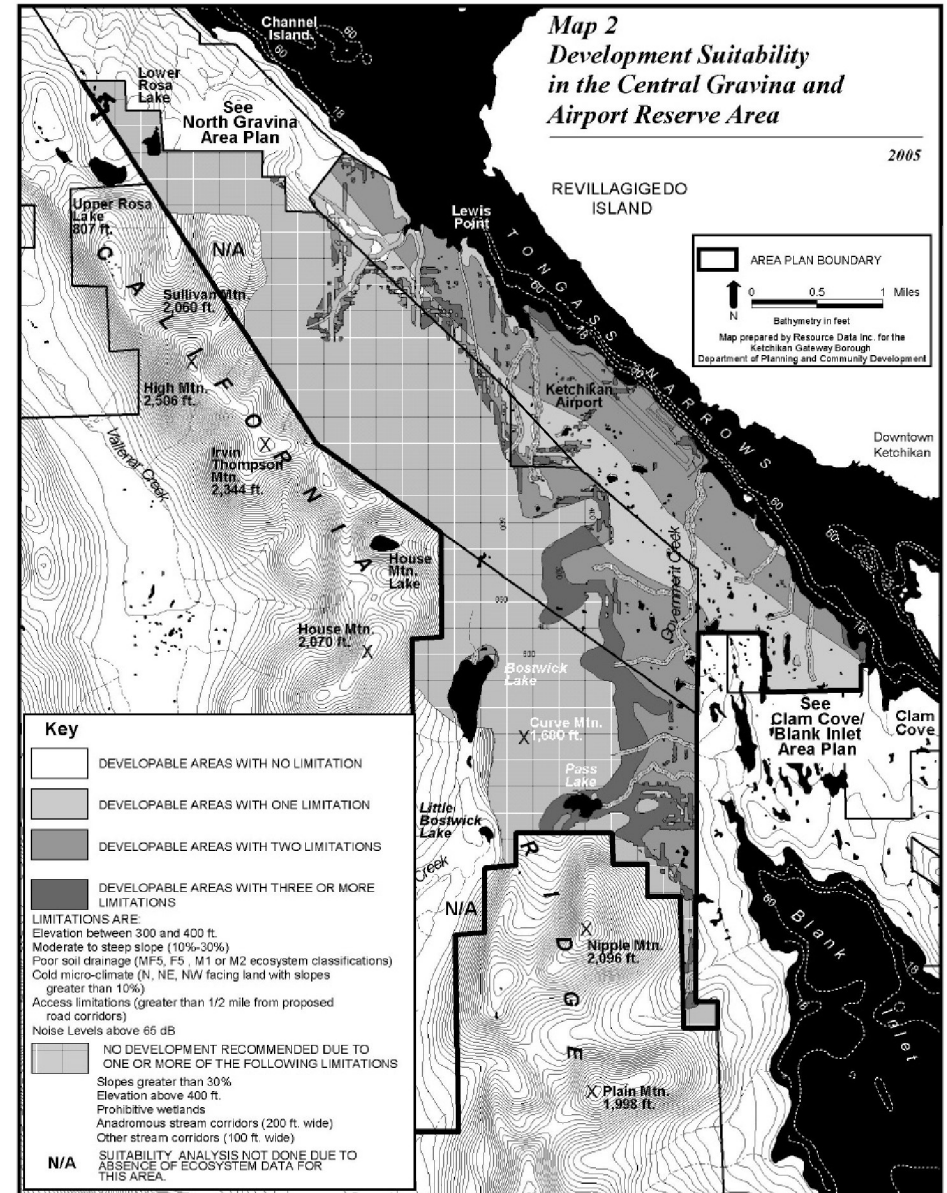
Development on the poorly drained organic soils associated with the extensive muskeg and scrub forest ecosystems typically uses either an overlay technique (adding rock fill) or replacement (excavating the organic soils and replacing it with better draining and load bearing materials). These techniques are most successful when they

- minimize re-grading and disturbance to drainage patterns
- minimize land clearing/tree removal, and
- utilize public or community wastewater treatment systems.

**Aircraft Noise Exposure**  
 Numbers indicate day-night average sound levels in decibels (Ldn).



Aircraft noise levels are a factor in development suitability. The FAA considers an Ldn (day/night average sound level) of 65 decibels as its threshold for “significant” noise affecting a neighborhood or community. The World Health Organization uses a lower measure of 55 dB as “engendering serious annoyance and creating an unhealthy environment.” The map above shows that Ldn’s of 60dB impact the shoreline and lowlands of Gravina northward to nearly Rosa Reef, while extending over one mile beyond Clam Cove to the south. Proposed industrial park areas are within the 65-70 dB impact zone.



Part One: Context  
**3/Economic Development Opportunities**

The Airport is the focus of economic activity on Gravina. Airport services provide numerous jobs and bring millions of dollars into the local economy annually. The sawmill and other nearby emerging industrial activities employ growing numbers of workers. This economic contribution is expected to expand as planned airport improvements and industrial expansions are implemented.

**Airport Development** Central Gravina economic resources include direct access to the airport's inter-regional air services, air taxis, general aviation facilities and services, and air freight services. In the short run, industrial use will be limited by lack of access and infrastructure. By late 2005, road access is to be provided to PL&L from the airport and, in subsequent years, to Bostwick Lake and to points north of the Airport Reserve. Electric and telephone service is to be upgraded to the airport terminal and to PL&L by the of 2006. More intensive development can occur when other infrastructure, including water and wastewater, are extended within proposed road corridors.

**North Airport Reserve** The existing PL&L facility has capabilities to produce 12 mmbf of rough sawn timbers, industrial grade shop lumber, green dimension lumber and chips annually on a single shift basis. With new dry kilns, co-generation plant and other equipment, this facility is expected to produce a wide variety of solid wood products for sale in SE Alaska. More importantly, the availability of high quality dry lumber provides the opportunity for tertiary manufacturers to produce finished products including trusses, glu-lam beams, furniture, siding and decking products, and prefabricated homes.

**South Airport Reserve** The south Airport Reserve area is the only accessible and serviceable site in the Borough where 2,000 lineal feet of moorage suitable for a service wharf for fishing vessels is located adjacent to 120+ acres of potential industrial land. Development of this site to expand value-added fish processing might enable Ketchikan to compete effectively with Pacific NW facilities for fishing vessel services and fish processing.

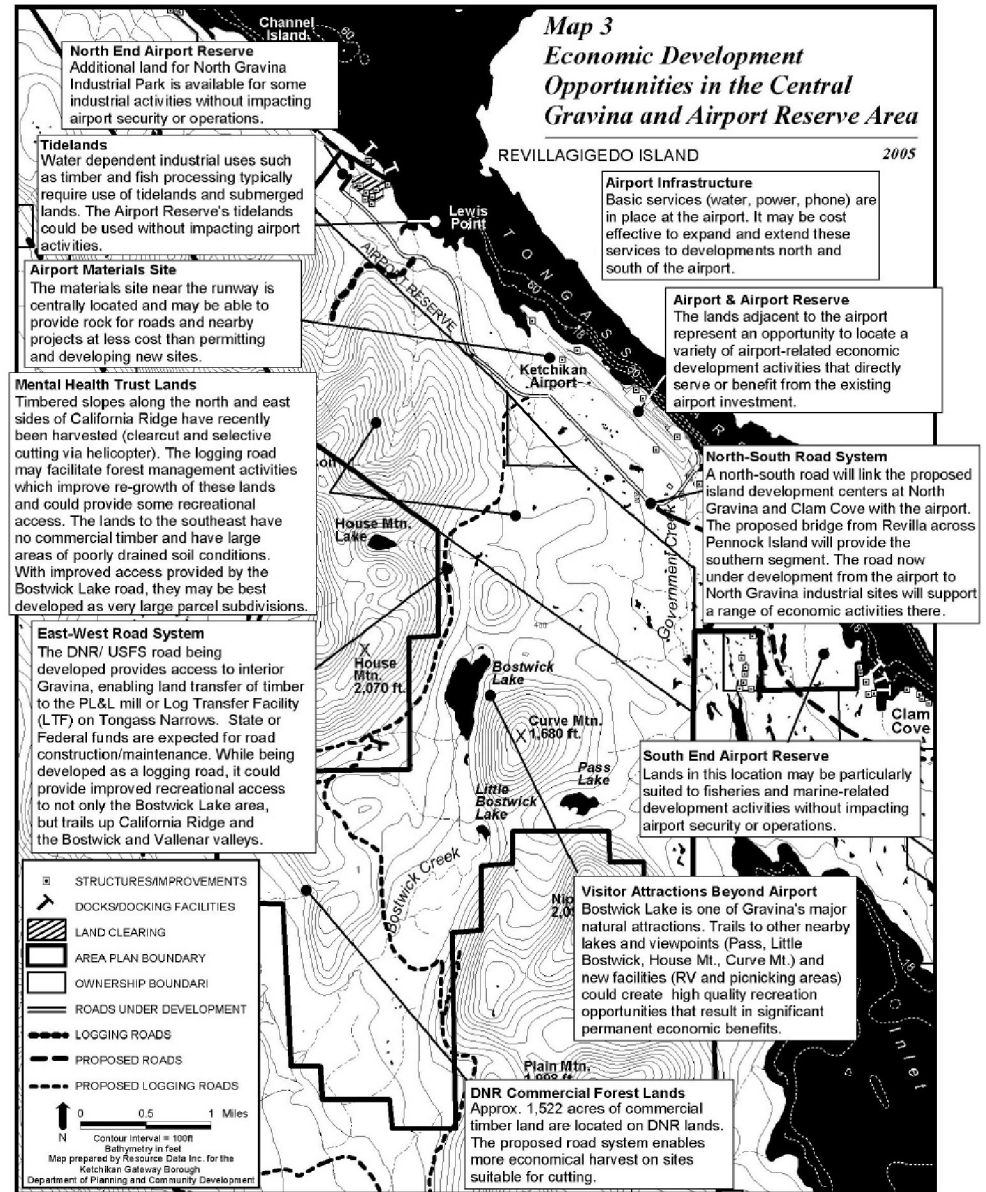
**Commercial Forest Land** There are several commercial value timber stands within the Central Gravina area. DNR expects to harvest approximately 13 mmbf on 495 acres southwest of Bostwick Lake, beginning in 2006. There are small stands on Mental Health lands high along the east face of California Ridge. The DNR sales, as well as those planned by USFS, require building a road from harvest areas to a Tongass Narrows log transfer facility. These harvests could contribute to a sustained supply of timber to the PL&L sawmill that would support long-term jobs within the local economy.

**Visitor Industry** There are excellent Central Gravina recreation sites that could enhance residents' all-season recreational opportunities and contribute to Ketchikan's stock of nature tourism products directed to the independent traveler as well as group tours. Most notable is the Bostwick Lake/Pass Lake/Curve Mountain area which would be directly accessible from a DNR/USFS timber harvest road. The natural setting is untouched, is not slated for extensive logging and could be a recreation area of statewide significance that supports dispersed camping, trailheads, and excellent fishing and hunting. The Airport Reserve shoreline could also be a prime visitor industry asset with beautiful natural areas, dramatic views of town, and the possibility of a coastline trail.

**Airport & Airport Reserve** The lands adjacent to the airport represent an opportunity to locate a variety of airport-related economic development activities that directly serve or benefit from the existing airport investment.



The flat to gently rolling slopes of much of the Central Gravina area are underlain by compacted glacial till, resulting in very poor drainage, deep organic soil deposits, and scrub forest stands such as those shown in the foreground. Even the eastern slopes of California Ridge shown in the distance have limited commercial timber resources due to poor soil drainage and generally steep slopes. Only an estimated 176 acres of Mental Health Trust's 3,482 acres of these uplands are estimated to have commercial timber stands.



*Part Two: Policies  
4/Community Interest  
Lands & Resources*

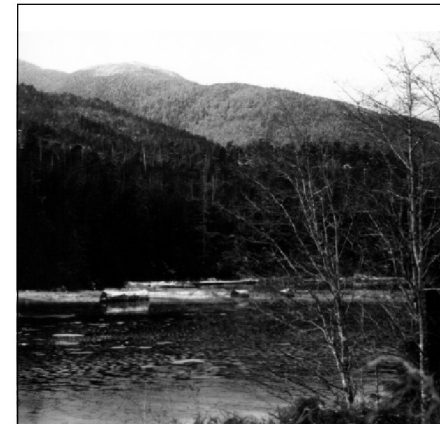
The Central Gravina & Airport Reserve area will be the focus for road improvements over the next decade. Regardless of when financing for a bridge to Gravina is ultimately secured, a road is now being built from the airport north to Pacific Log & Lumber. Another road to the Bostwick Lake area will be started soon. These road improvements will enable timber harvests, expanded recreation, industrial activities and further airport-related expansion. As this occurs, it is important to recognize that it is in the community's interest to identify and set aside some lands and resources in order to:

- protect future economic development opportunities, especially those associated with airport expansion, the proposed industrial parks at the north and south ends of the Airport Reserve, and road corridors;
- maintain the quality of and access to important resources now enjoyed by many residents, especially the Tongass Narrows shoreline, recreation areas such as Bostwick Lake and important streams and estuaries.

**1. South Airport Reserve Industrial Area**

**Description:** waterfront, tidelands, and adjacent uplands at southeast end of Airport Reserve (approximately 120 acres), adjacent to Clam Cove area (1 of 3 designated community growth nodes on Gravina).

**Community Interests/Values:** good road access if Pennock crossing implemented; development suitability good; convenient boat access from downtown; good access to utilities if incorporated into proposed bridge structure; undeveloped waterfront sites in high demand for water dependent/water related uses such as fish processing and boat servicing.



*The un-named creek which flows into Tongass Narrows near the north end of the runway includes a high value wetland (its estuary) and is one of 8 catalogued salmon streams found in the Central Gravina planning area. Many of Gravina Island's creeks, lakes, and other natural features lack appropriate names, something that the Borough plans to address through soliciting recommendations from area residents. The area above might be called "Port Gravina Creek" in recognition of its historic past as the site of the first mill and settlement on Gravina.*

**Use/Development Considerations:** includes wetlands and anadromous stream corridors; most uses would not adversely impact airport operations or security; extensive wharf frontage with 20-30 foot depth alongside at MLLW.

**Recommended Actions:** reserve area for future water dependent industrial or commercial activities.

**2. Lower Government Creek & Estuary  
3. Lower "Port Gravina" Creek & Estuary**

**Description:** lower 1/2 mile of creeks, estuaries and intertidal areas, situated below the south and north ends of runway.

**Community Interests/Values:** anadromous creeks and diverse natural areas less than 1 mile from airport terminal; includes "high value wetlands" (estuary); potential for park/nature preserve and compatible airport activities; potential destinations on Gravina shoreline trail.

**Use/Development Considerations:** construction activities have degraded parts of sites, some restoration needed; may be impacted by further airport development, especially at Government Creek where south end runway extension and proposed access road are planned; security requirements may limit access; water (kayak, boat) access is possible.

**Recommended Actions:** prepare master plans for Government Creek and Airport Creek natural areas integrating public recreational use with airport activities and plans; include area in proposals for Gravina shoreline trail system; evaluate restoration needs.

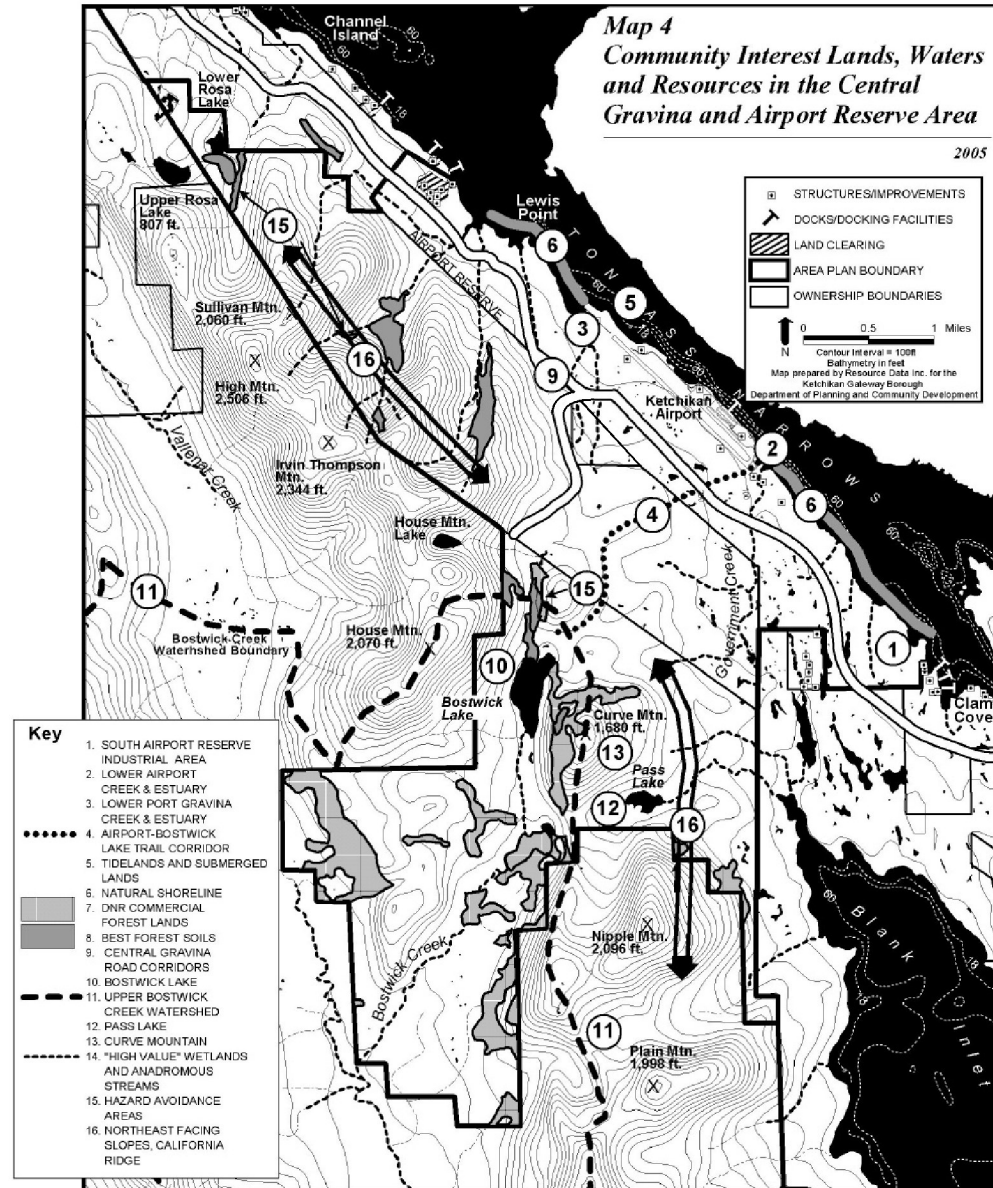
**4. Airport-Bostwick Lake Trail Corridor**

**Description:** approximately 2 miles of unimproved trail from south end of airport runway to Bostwick Lake.

**Community Interests/Values:** most commonly used Gravina hiking route (relatively easy day hike when trail conditions good); easy access from airport.

**Use/Development Considerations:** bog and open forest landscape permits good views, especially north and east towards Ketchikan; wet boggy conditions require boardwalks and careful trail alignment to permit all-weather use; trail could be main feeder route to other trails (California Ridge, Curve Mountain), as well as first leg of eventual cross-Gravina trail.

**Recommended Actions:** improvements to this trail (boardwalks, better alignment, trailhead map, route markings, etc.) are high priority for Gravina trail improvements; develop as a "loop" concept where return routing goes around Curve Mountain by Pass Lake and down the Government Creek drainage.



## 5. Tidelands & Submerged Lands

**Description:** formerly patented tidelands, vacated and added to Airport Reserve.

**Community Interests/Values:** can support waterfront related uses (such as log storage for PL&L sawmill); may provide space for expanding adjacent land uses where space restricted (such as fill to permit development of taxiway); may be used for walking/ beachcombing, or points for water access (from kayaks, small boats); important marine habitat.

**Use/Development Considerations:** use near airport may be restricted due to security considerations and airport operational needs.

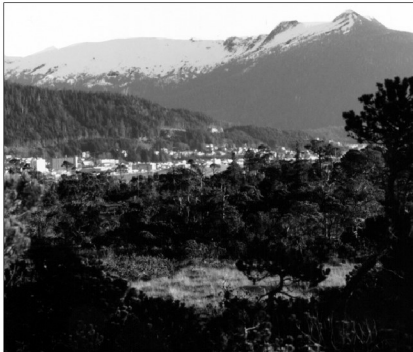
**Recommended Actions:** incorporate tidelands and submerged lands into proposed industrial use zones at north and south ends of the Airport Reserve; integrate tidelands into proposed Gravina shoreline trail, encouraging public access and use; develop public mooring to allow for marine access.

## 6. Natural Shoreline

**Description:** approximately 6 miles of natural, relatively undisturbed shoreline along Tongass Narrows from the north to the south ends of the Airport Reserve (including 1 mile of altered shoreline along airport frontage).

**Community Interests/Values:** natural shoreline contributes to the attractiveness of views from Ketchikan; most of Gravina's shoreline along Tongass Narrows is privately owned and likely to one day be developed, this portion offers the opportunity to be kept in a natural state, with portions of it open to public access and use.

**Use/Development Considerations:** single ownership (State land within Airport Reserve) facilitates management; airport operations and security may restrict access to and use of the shoreline along the airport; trail might not be extended beyond Airport Reserve due to private ownership.



*The trail to Bostwick Lake offers attractive views of Ketchikan and the surrounding mountains upon the return. The 2 mile trail from the Airport to the lake is currently unimproved and poorly marked. Improvements needed include signage, boardwalks and all-weather surfacing and some realignment.*

**Recommended Actions:** incorporate portions not restricted by airport security needs into a Gravina Shoreline Open Space Reserve, encouraging public access and use; develop Gravina Shoreline Trail, extending from beyond Lewis Point to near Clam Cove; include shoreline restoration projects in airport improvement programs; restrict ORV use; identify boat access sites (mooring/docking facilities); promote public awareness by information on ferries and in airport.

## 7. DNR Commercial Forest Lands

**Description:** approximately 1,931 acres (39%) of DNR managed lands (unit K-41) within Central Gravina plan area with mature stands of commercial timber.

**Community Interests/Values:** proximity to processing and planned roads increases value/profitability of timber; promotes viability of local wood processing businesses; provides jobs and revenue to State and Borough; logging roads provide recreational access; provides for wildlife habitat and recreation and helps maintain water quality.

**Use/Development Considerations:** some stands are situated along Bostwick Creek and around Bostwick Lake, both sensitive areas; timber harvest activities planned to begin in 2006; proposed logging road traverses MHT, DNR and USFS lands and would provide vehicular access to Bostwick Lake; issue on road closure to public use after logging needs resolution.

**Recommended Actions:** establish buffers along Bostwick Creek and around Bostwick Lake; design road crossing of Bostwick Creek to not impact fish passage or spawning activities; ensure continued availability of timber to support local mill capacity over the long term; work with stakeholders and area residents to reach consensus on public use of logging road.

## 8. Best Forest Soils

**Description:** closed canopy forests with deep, well-drained mineral soils (F1 and F2 ecosystems).

**Community Interests/Values:** most productive sites for commercial grade timber (typically contains the largest trees).

**Use/Development Considerations:** considered to be sites with the fewest development limitations.

**Recommended Actions:** manage on selective harvest/sustained yield basis, encouraging uses that support local value-added processing nearby; retain in long-term timber production.

## 9. Central Gravina Road Corridors *See pages 18-19*

## 10. Bostwick Lake

**Description:** Gravina's largest lake (73 acres); approximately 2 miles from Ketchikan airport via unimproved trail; surrounded by DNR lands.

**Community Interests/Values:** potential to be Gravina's centerpiece attraction; easily accessible (2 hour walk from Airport Ferry); near planned DNR-USFS logging road; excellent fishing (coho, steelhead, cutthroat, rainbow trout) and hunting.

**Use/Development Considerations:** trail from airport traverses extensive muskeg, making access difficult when not frozen; anadromous fish populations reach lake via Bostwick Creek; timber harvest activities expected nearby; high use areas need improvements or controls to reduce impacts.

**Recommended Actions:** work with DNR and others to achieve Recreation Area status for the Bostwick Lake area; incorporate recreation values in preparation of DNR Unit K-41 Forest Land Use Plan; incorporate as destination in Gravina trail plan; establish visual & sound buffer around lake; assess visual impact of proposed cutting activity; identify closed seasons for fishing & hunting due to spawning activity or wildlife sensitivity; develop beach site with destination facilities; evaluate feasibility of small RV campground accessible from DNR-USFS logging road (see p 28 for conceptual plan).

## 11. Upper Bostwick Creek Watershed

**Description:** Bostwick Creek is Gravina's largest watershed (upper elevations only in this plan unit).

**Community Interests/Values:** one of Gravina's most important salmon streams and hunting areas; contains significant commercial timber stands; creates natural pass through California Ridge enabling easiest land access to interior.

**Use/Development Considerations:** site roads carefully; maintain screens to preserve wild character along road and trail corridors; protect stream side vegetation with appropriate setbacks.

**Recommended Actions:** follow best practices for road building/maintenance; provide adequate setbacks from Bostwick Creek.

## 12. Pass Lake

**Description:** a small lake situated below the saddle between Curve and Nipple mountains.

**Community Interests/Values:** source of anadromous creek draining into Blank Inlet; not a key destination, but attractive stopping/resting point on the proposed trail system.

**Use/Development Considerations:** poor soil drainage requires trail improvements; adjacent to proposed USFS Nipple Mountain Old Growth Reserve.

**Recommended Actions:** include in Bostwick Lake recreation area and as stopping point on Bostwick Lake loop/ Curve Mtn viewpoint trails; use as trailhead for Nipple Mountain trail.

## 13. Curve Mountain

**Description:** one of California Ridge peaks, 1680 ft.

**Community Interests/Values:** part of natural mountain backdrop seen from Ketchikan; accessible from Bostwick Lake; spectacular viewpoint with low elevation gain; some commercial timber on lower northern and western slopes.

**Use/Development Considerations:** very steep slopes (north, west and south sides); generally wet soil conditions; open forest on east side affords view opportunities; commercial timber on lower slopes highly visible from Ketchikan.

**Recommended Actions:** establish trail from Bostwick Lake to top viewpoint; evaluate and mitigate visual impacts of any timber harvest activities.

## 14. High Value Wetlands & Anadromous Streams

**Description:** includes estuaries, tall sedge fens, muskegs and areas with scrub willow and alder as well as 8 anadromous streams.

**Community Interests/Values:** numerous functions, including habitat, stream bank/shoreline protection, stream flow regulation & water quality maintenance.

**Use/Development Considerations:** unsuitable for development; projects that impact such areas require a Corps permit and mitigation plan.

**Recommended Actions:** map/incorporate into Borough database; manage as open space with buffers; require developments to mitigate adverse impacts, and establish mitigation bank.

## 15. Hazard Avoidance Areas

**Description:** steep slopes (over 67%), slide paths, floodplains, v-notch drainages.

**Community Interests/Values:** protect public safety and minimize costs from environmental accidents.

**Use/Development Considerations:** generally unsuitable for development and should be avoided.

**Recommended Actions:** map/incorporate into Borough database; manage as open space; avoid road/trail crossings; promote awareness of locations and risks.

## 16. Northeast Facing Slopes, California Ridge

**Description:** northeast slopes of Sullivan, High, Irvin Thompson, House, Curve and Nipple mountains.

**Community Interests/Values:** combine to create the natural backdrop for views from Ketchikan and along Tongass Narrows; no visible signs of human use other than communications towers on High Mt; some commercial timber relatively close to PL&L sawmill.

**Use/Development Considerations:** steep access makes timber harvest difficult in some locations; conventional harvest practices (clearcutting) may be visible from Ketchikan.

**Recommended Actions:** timber harvest proposals to evaluate visual impacts and employ mitigation practices; non-road dependent harvesting preferred.



*The North Gravina Road from the airport terminal to Pacific Log & Lumber crosses wetlands such as these. As mitigation for the environmental impacts of this road and certain other airport development projects, approximately 80 acres of wetlands needed to be protected from development. The Borough designated 21 acres in the Moser Bay estuary and approximately 59 acres in the Blank Inlet estuary/Long Lake areas as open space reserve to meet this mitigation requirement.*

*Part Two: Policies*  
**5/Proposed Zoning**

Zoning regulations protect the rights of individuals and the public. They affect the future of Gravina more than almost anything else that is done at the local level. Zoning defines the extent of the industrial reserves north and south of the airport, locations for commercial development, and standards for resource management and the use of large tracts. The zoning ordinance consists of two parts; a text and a map. In the Central Gravina & Airport Reserve area, there are two types of zoning recommendations:

- No changes to existing zones (Airport Development within the Airport Reserve); and
- New zoning classifications for those areas and situations where existing Borough zone classifications may not satisfactorily guide development activities (e.g., Development Reserve, Resource Management, Public Lands & Institutions)

Below is a summary of recommended zoning actions. The page numbers indicate where policies and additional information are to be found.

**AD Airport Development**

(1,928 acres) (see pp 16-17)

Intended Uses: Commercial and Industrial uses which are a part of or compatible with operation of the Airport.

Development Considerations: 87 acres at the north end of the Reserve (including the PL&L lease) to be rezoned Industrial Park; 120 acres at the south end of the Reserve also to be rezoned Industrial Park and 85 acres at the west side of the reserve.

**IP Industrial Park**—North Airport Reserve and beyond (186 acres) (see North Gravina Area Plan, pp 16-17).

Intended Uses: Light and heavy industrial activities; master plan needed to guide development.

Development Considerations/Uplands: Tracts range from 5 to 20 acres; 10 acres to be reserved for wastewater treatment facilities; provide for access to waterfront.

Development Considerations/waterfront: Existing approx. 2 acre lots may be combined; activities subject to shoreline development recommended practices (land clearing, site grading, drainage, public access along shoreline, setbacks, etc.).

**IP Industrial Park**—South Airport Reserve

(120 acres) (pp 20-21 & Clam Cove/Blank Inlet Plan).

Intended Uses: Commercial fisheries services/processing.

Development Considerations (Uplands): Tracts range from 5-15 acres and designated for specific uses (cold storage, warehousing, manufacturing, gear storage, etc.); provide waterfront access, stream buffers, and Gravina shoreline trail corridor.

Development Considerations (Waterfront): Provide for 2000' of wharf frontage; provide 200,000 sf of apron at wharf face; zone waterfront for specific uses.

**DR Development Reserve**

(1,120 acres)

Intended Uses: Future residential, commercial and recreational uses.

Development Considerations: Dispersed recreational and resource management activities permitted (e.g. trails, primitive roads, selective timber harvest) until other, more intensive and permanent uses are feasible; recreational access and use subject to landowner approval for MHT lands.

**MR Resource Management**

(5,557 acres) (see pp 22-25 for information on management units and allowed activities).

Intended Uses: Upland areas managed for watershed, habitat and viewshed protection, while allowing for dispersed recreation and timber harvest activities.

Development Considerations: Resource harvest activities by private owners to require harvest plan that addresses road layout and standards and watershed, visual and habitat mitigation measures.

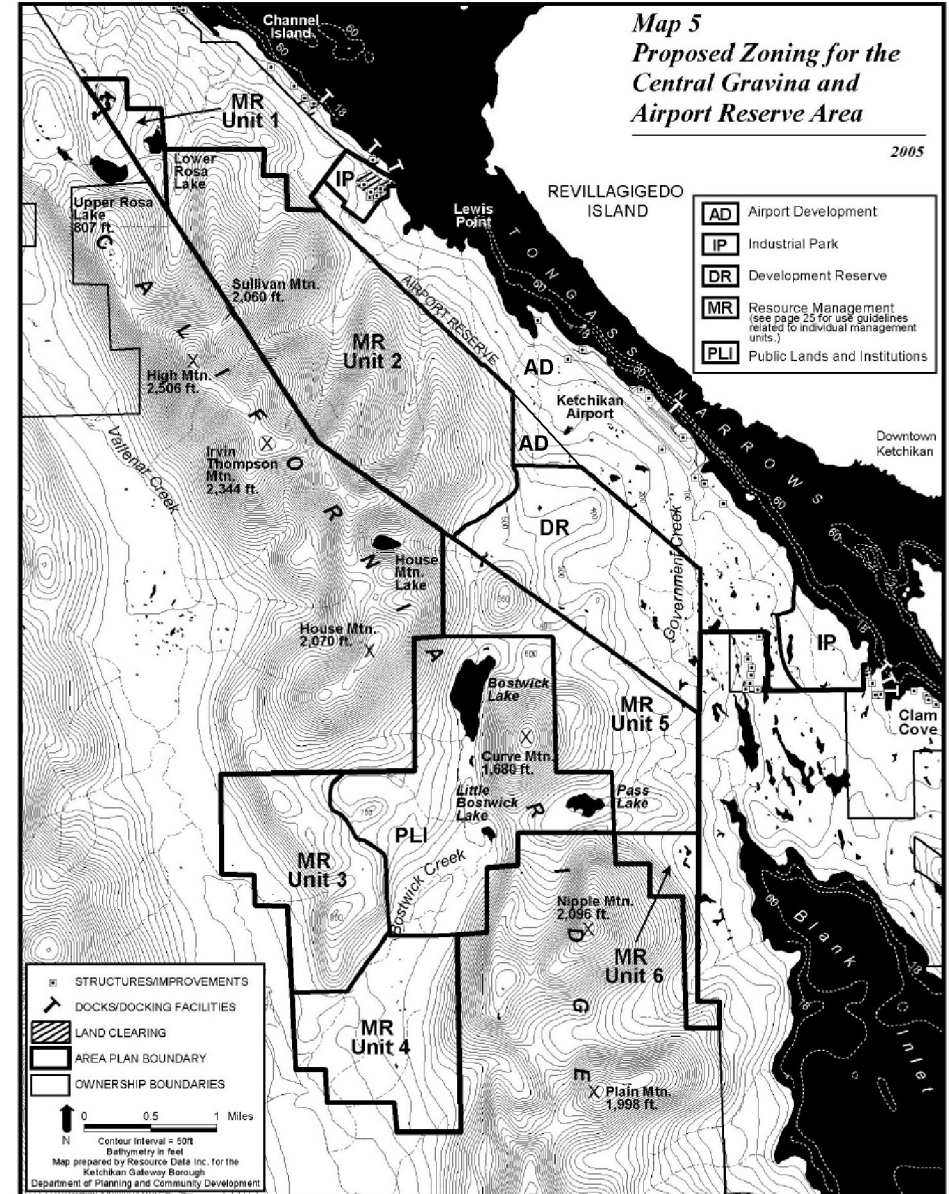
**PLI Public Lands and Institutions**

(1,747 acres) (see pp 26-28)

Intended Uses: Year round public recreation (hiking, fishing, x-country skiing, ice skating, berry picking, camping, non-motorized boating, etc.).

Non-permitted Uses: Hunting, ORV activities only in designated areas, timber harvest (except with viewshed protection).

Development Considerations: May include a seasonal RV campground near Boswick Lake (summer use) accessible from proposed DNR-USFS logging road as well as day-use facilities for hikers and picnickers.



**Map 5**  
**Proposed Zoning for the**  
**Central Gravina and**  
**Airport Reserve Area**

2005

<b>AD</b>	Airport Development
<b>IP</b>	Industrial Park
<b>DR</b>	Development Reserve
<b>MR</b>	Resource Management (see page 25 for use guidelines related to individual management units.)
<b>PLI</b>	Public Lands and Institutions

*Part Two: Policies*  
**6/Airport Development**

The 6 Airport Reserve development categories and examples of aviation and airport-related economic development uses from the DOTPF Airport Master Plan shown on map to right are as follows:

**AV Area** - Existing airport and aviation uses

**AR Area** - Expansion of AV uses, such as:

- Terminals, runways, taxiways, and aids
- Floatplane facilities
- Airport security
- Search & rescue, law enforcement, defense
- Airport operations, facilities and services
- Inter-regional air service operations
- Air taxi and charter operations/maintenance
- Fixed base operations and general aviation
- Aviation fuel service
- Transient aircraft and aircrew services
- Public access, viewshed and rec. facilities

**AD Area** - Commercial & private aviation uses with airport access, such as:

- Aircraft rentals and sales
- Flight schools and flying clubs
- Light aircraft A & E & avionics maintenance
- Aviation equipment and materials retail
- Aircraft and related equipment storage
- Airport-related hospitality services
- Airport-related surface transport services
- Public access, open space, buffers, recreation

**IH Area** - Heavy industrial uses, compatible with airport, especially water-dependent uses benefited by airport proximity, such as:

- Lumber & related products manufacturing
- Public access, viewshed, buffers, recreation

**IL Areas** - Light industrial uses compatible with airport, especially water dependent uses benefited by proximity to airport, such as:

- Seafood processing & related fishery industry services (south of AD)
- Public access, open space, buffers, recreation

**CG Areas** - Commercial uses compatible with airport, esp. uses complementing AR & AD:

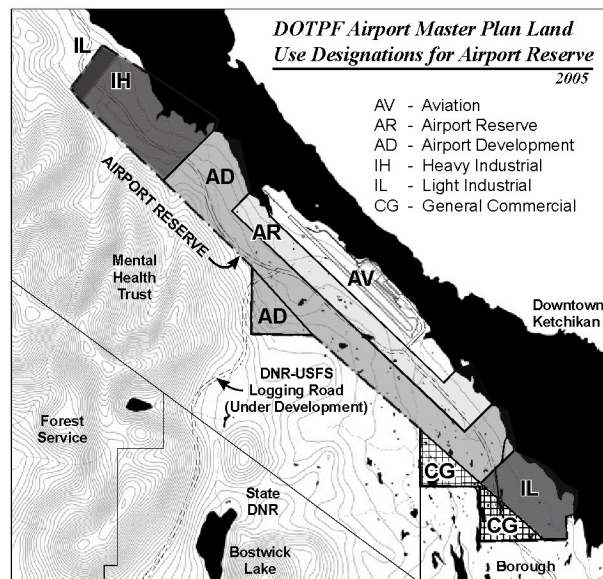
- Automotive fuel and service
- Convenience retail

**Findings: Airport Reserve**

Central Gravina land use planning centers on Ketchikan International Airport. The airport is both the primary resource for further development within this area, and is the primary constraint over other uses.

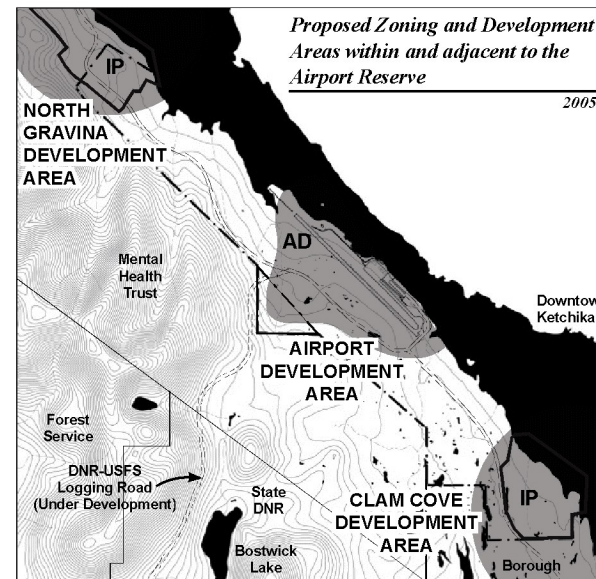
Land use at the airport and in the surrounding area is governed generally by the DOTPF Airport Master Plan, portions of which are iterated in detail by the current Airport Layout Plan. The Airport Master Plan specifies six development categories within the boundaries of the 2,689-acre Airport Reserve (see below). These categories are capable of change only with State and Federal consent, pursuant to an approved modification of the Airport Master Plan.

While lands within the Airport Reserve are to be used to support airport operations and aviation-related activities, other uses are possible with increasing distance from airport facilities. The Master Plan land use designations give the impression that extensive industrial and commercial activity is possible within the Airport Reserve, however, there are limiting forces that reduce the amount of suitable land. These include security concerns, conflicts with airport operations and the presence of sensitive areas (anadromous streams and wetlands).



The Borough's proposed development areas and zoning (see map below) are consistent with the Master Plan and focus more concentrated centers of development activity on suitable lands at the north and south ends of the Airport Reserve and beyond. Within the Airport Reserve, the land use categories IH and IL have the scarce resource of waterfront suitable for industrial uses situated adjacent to large tracts of vacant land largely suitable for industrial development. At present, about 25% of the IH area is included in the Pacific Log and Lumber Inc. lease, on which the mill currently occupies 30 acres.

The IL area to the south may be the only readily accessible and serviceable site in the entire Borough where at least 2,000 lineal feet of moorage suitable for a service wharf for fishing vessels is located adjacent to over 120 acres of potential industrial land, suitable for fish processing plants and related facilities. Development of such a site for expansion of value-added fish processing might enable Ketchikan to compete more effectively with large publicly-financed facilities for fishing vessel services and fish processing at Pacific NW ports, such as Bellingham/Blaine, Anacortes and Seattle, each of which captures substantial employment income from harvesting and processing Alaska's fisheries resource.



This Gravina Island Plan recommends three development centers linked and serviced by the North Gravina Road and the proposed road to the south crossing Pennock Island to Revilla. By concentrating infrastructure and service investments in these areas, more efficient development is possible. The planned industrial parks at the north and south ends of the Airport Reserve support these development strategies and effectively use lands within the Airport Reserve without impacting airport operations and aviation-related growth. By focusing development on suitable lands that do not impact wetlands and anadromous streams, Borough economic development projects will more readily receive necessary permits and the development costs will be minimized.

**Airport Reserve (AR) Policies**

**AR/1** The Borough recognizes the long-term economic importance of the Airport Reserve and will exercise management authority for land uses on the Airport Reserve within a framework approved by relevant State and Federal agencies.

**AR/2** The Borough will recommend a land use plan for the Airport Reserve that identifies appropriate airport-related economic development uses and provides for land areas and access conditions sufficient to implement the plan.

**AR/3** The Borough will promote concentration of development around the existing airport facilities as well as use of appropriate areas at the north and south ends of the Airport Reserve for industrial and airport-related activities that do not conflict with safe operation of the airport.

**AR/4** Road development in the Airport Reserve shall be guided by the Gravina Road System Master Plan in order to ensure efficiency, consistent standards and cost effectiveness. The Borough will work with DOTPF, USFS and private interests to determine alignments, ROW widths, standards, financing and maintenance responsibilities.

**AR/5** The Borough will secure tidelands management authority for those tidelands within the Airport Reserve and manage them for uses that support planned industrial development in the north and south Airport Reserve.

**AR/6** The Borough will promote development of a Gravina shoreline trail along the length of the Airport Reserve and development of the Government Creek and "Port Gravina" Creek estuaries as open space, with interpretive trails to promote recreational access, use and appreciation.

**Findings: Airport Facilities**

Ketchikan International Airport (KIA) is the focus of economic activity on Gravina. Airport services provide numerous jobs and bring millions of dollars into the local economy annually. Over 200,000 people leave and arrive by air each year in Ketchikan. The Visitors Bureau estimates that in 2004, over 45,300 of Ketchikan's tourists arrived by air (almost half of all traffic arriving by air).

The airport facilities and the Airport Reserve are owned by the State and the Borough has the legal responsibility and authority to operate and maintain KIA through a lease agreement with DOTPF. The State is accountable to FAA for the continued operation and maintenance of the airport and for major capital improvements. As a player at the airport management table, the Borough has been able to facilitate economic growth and development, e.g., the leasing and partial financing for the PL&L sawmill and the design and development of the North Gravina Road.

In 2003, there were seven airport improvement priorities (see map below):

- Terminal building improvements (now essentially complete)
- South runway extension to meet FAA standards (\$20.2 million)
- Northeast taxiway (\$14 million, completed in 2004)
- Expansion of airport rescue/firefighting building and snow removal equipment building (\$1.1 million)

- Apron and hangar expansion to support general aviation and air cargo operations (\$2.1 million)
- New public float plane terminal and support facilities (to be located next to the Airport Ferry parking area on Revilla) (\$20 million)
- Seaplane pullout ramp improvements (\$2.8 million)

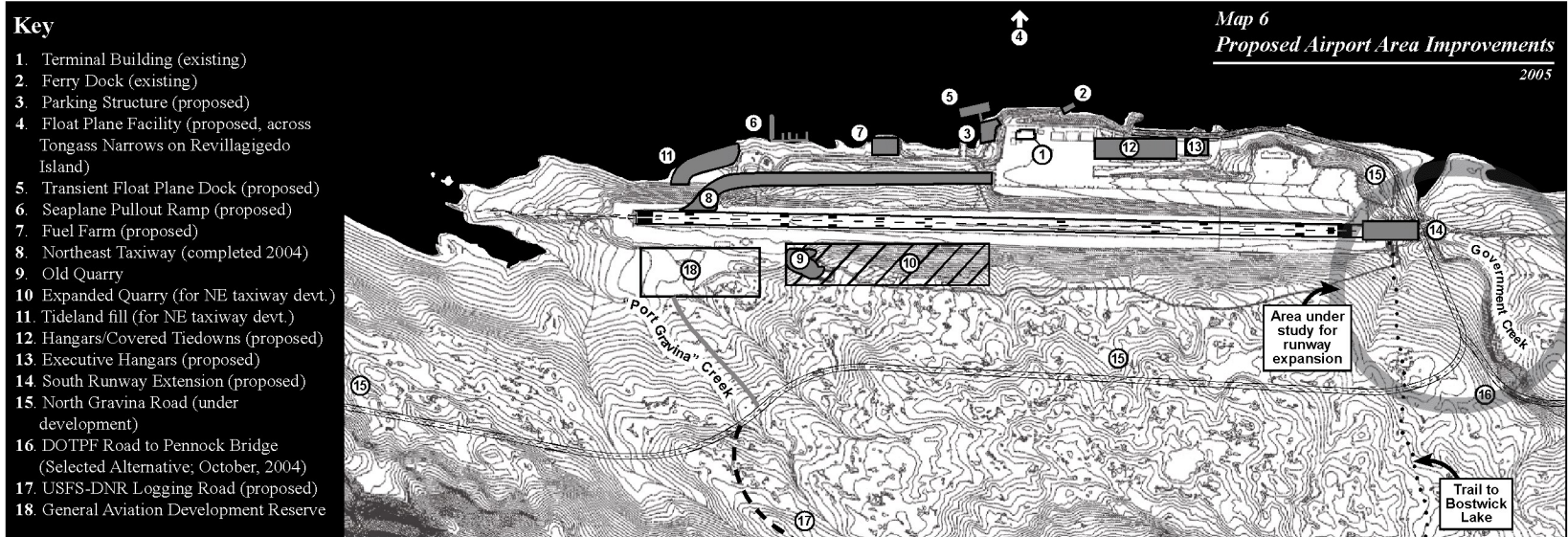
Longer term priorities for improvements are:

- Airport parking structure and access road (to meet parking needs when improved access is in place) (\$1.08 million)
- Fuel storage farm near airport (\$0.1 million)
- Airport runway extension most likely to the south (approximately 1,600 feet) and runway width expansion (from 300 to 500 feet), including new NAVAIDS and additional runway lighting (total project cost estimated in 2004 at \$28 million).

Perhaps the single most significant airport improvement will be that related to access from Revilla Island (now pending financing). The project is to include construction of a two-lane, 35 mph driving standard roadway from a Pennock Island crossing near Clam Cove north around the south end of the airport to the terminal area (see pp 18-19). This will connect to the North Gravina Road (see map below) now under construction.



*In 2000, of the estimated 621,164 visitors arriving at Ketchikan, 4% arrived by air, 4.4% via the ferry, and 91.6% on cruise ships. It is expected that some of these over 24,000 visiting air passengers passing through the Ketchikan International Airport would consider visiting some of the natural attractions near the airport if they knew about them and some improvements were made to make them more visitor accessible.*



Part Two: Policies  
**7/Road & Infrastructure  
 Extensions**

**Road & Infrastructure (R&I) Policies**

**R&I/1** Road development shall be guided by a Gravina Road System Master Plan in order to ensure efficiency, consistency and cost effectiveness. The Borough will work with DOTPF, USFS and private interests to determine alignments, ROW widths, design standards, financing and maintenance responsibilities.

**R&I/2** The planned DNR/USFS logging road shall remain open for public use to a Bostwick Lake trailhead after harvest to accommodate recreation activities and provide access to MHT lands.

**R&I/3** Pioneer and logging roads shall be consistent with the Master Plan. Improvement and maintenance costs are to be borne by the landowner(s). Such roads are to be gated and closed to the public until demand warrants inclusion in the public road system. At such time they shall be upgraded to Borough standards.

**R&I/4** The Road System Master Plan shall consider alternative means of movement within road ROW, including bus, bicycles and pedestrians as appropriate.

**R&I/5** Road corridors shall provide for infrastructure and community services.

**R&I/6** The Borough shall extend services as an incentive and means to guide development activities and shall recover costs of roads, infrastructure and services from landowners and direct beneficiaries.

**R&I/7** The Borough will help to identify the most cost effective options for providing infrastructure and services (from airport, integrated into bridge crossing, independent local systems) to North Gravina and Clam Cove areas, and work with appropriate entities to implement.

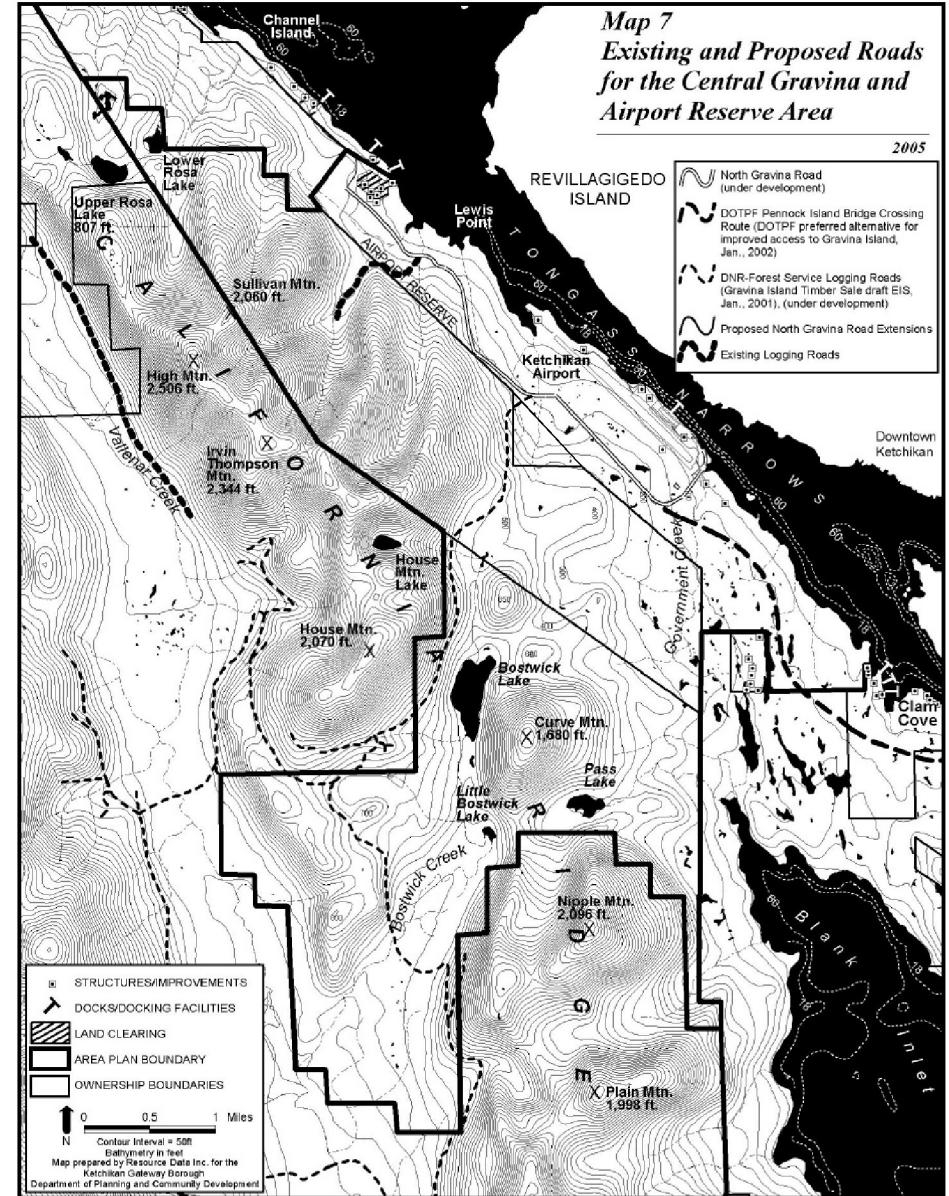
**Findings**

Two roads are under development and two roads are being proposed for the Central Gravina & Airport Reserve plan area (see facing map for locations). The design, standards and management policies of these roads will be key forces affecting the timing and location of development on Gravina.

- 1. North Gravina Road (under development)**
  - Replaces existing service road and extends to north end of the Airport Reserve. A one lane pioneer road has been constructed from PL&L south to a point 1/2 mile west of the terminal. The State will begin construction in summer, 2005 of the remaining link around the south end of the airport to the terminal area.
  - 3.9 miles, estimated total cost for ultimate two lane roadway and bridges, 35 mph standard @ \$1.25 million/mile=\$5.0 million.
- 2. Airport to Pennock Island bridge crossing**
  - Designed to link airport to planned bridge crossing.
  - Initially two lane road designed for 35 mph, estimated cost of \$1.5 million/mile for the portion on Gravina.
- 3. South Gravina Road**
  - Planned to be alternative access to south end of Airport Reserve Clam Cove area if the Pennock Bridge route is not implemented in near future.
  - 1.5 miles, initially one lane with turnouts, estimated cost @ \$1.0 million/mile=\$1.5 million
  - Estimated cost for two lanes, 35 mph standard, including bridges @ \$1.5 million/mile=\$2.25 million
- 4. Bostwick Lake timber harvest road (under development)**
  - Designed to connect with North Gravina Road to deliver logs to sawmill or to log transfer facility on Tongass Narrows.
  - At least 2 miles depending on road closure policies, initially timber harvest road at an estimated cost of \$1.0 million
  - Estimated total cost for ultimate two lane roadway, 35 mph standard @ \$1.25 million/mile=\$2.5 million

An early priority is to complete the North Gravina Road. For North Gravina Area Plan objectives to be realized, this should be a public road--preferably two-lane, 35 mph standard with integrated utilities. The financing options for road proposals are described in the Implementation section, pp 29-32.

Serving the areas north and south of the Airport Reserve with essential utilities is also important. KPU electric and telephone service is planned to be extended to the PL&L site and looped back to the terminal area. If sufficient funds are available, it will be sized for industrial purposes. Water and sewer infrastructure is also essential to achieve plan objectives. The costs of extending services are described in the Implementation section, pp 29-32.



*Part Two: Policies*  
**B/South Gravina  
 Industrial Park**

**Industrial Park (IP) Policies**

**IP/1** A South Airport Reserve Industrial Park master plan will be prepared to guide land leases and infrastructure development. The plan will provide for varied parcel sizes, waterfront linkages and shared facilities as well as flexibility to meet changing needs.

**IP/2** Borough will work with industrial park users to improve road access and basic infrastructure for which the local match component of public investment is to be repaid by a combination of local property taxes, special assessments and user charges.

**IP/3** Wastewater treatment facilities developed to service the industrial park should--if feasible and cost effective--be designed to meet needs of adjacent Clam Cove and private development.

**IP/4** Adjacent Borough lands will be sold or leased to support Industrial Park development. Borough land sales may be used as incentives to developers.

**IP/5** Common waterfront facilities and services will be established to meet needs of upland parcels.

**IP/6** The Industrial Park master plan will provide for protection of anadromous streams and wetland reserves and for appropriate open space buffers and pedestrian routes through the site, with waterfront access.

**IP/7** The Borough will support research and pilot projects for using overburden from site clearing (soils, brush, trees) in landscaping and restoration activities.

**Findings**

The southern part of the Airport Reserve contains lands well suited for water-dependent industrial purposes requiring upland acreage. Noise-tolerant (in the flight path) and low-emission industrial uses could be appropriately located in this area and industry-supporting roads and infrastructure can be efficiently extended either from the airport south or, if the Pennock Bridge crossing is implemented, from that road alignment.

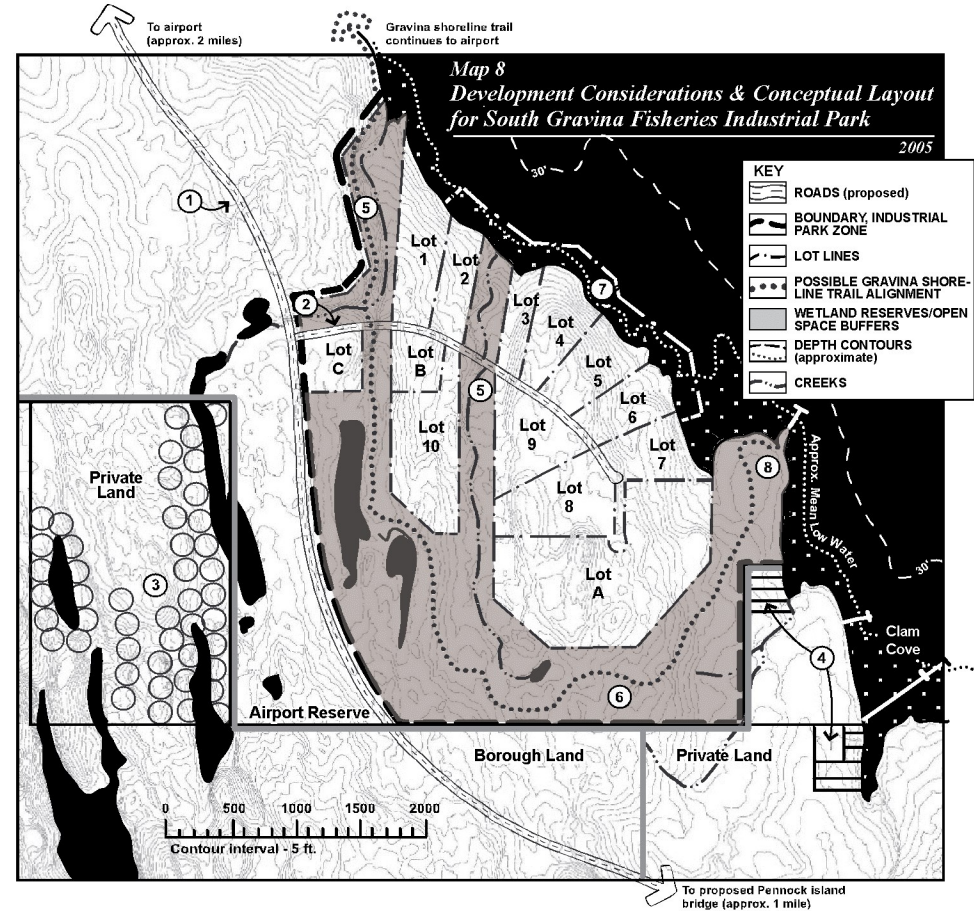
This plan proposes development of this 120-acre site for fish processing plants and related facilities. This initiative is proposed to enable Ketchikan to compete effectively with large publicly-financed facilities for fishing vessel services and fish processing at Pacific NW ports, such as Bellingham/Blaine, Anacortes and Seattle, each of which captures substantial employment income from harvesting and processing Alaska's fisheries resource.

The facilities and services which could be located in this area include:

- approximately 2,000 lineal feet of marginal wharf, with 20-30 foot depth alongside at MLLW, and up to 200,000 square feet of apron at the face, for fishing vessel loading, unloading, and short-term staging and gear and equipment storage for vessels, processors, and freight carriers;
- a 15 acre site adjacent to the wharf, for a multi-tenanted cold storage and warehousing facility and mini-processors' production area;
- four 9-13 acre fish product manufacturing plant sites, adjacent to wharf;
- a 6 acre site for regional fish waste unloading, consolidation and processing;
- a 10 acre site for regional scrap fishing gear and ex-vessel hazmat collection and processing;
- a 12 acre site for fishing gear and equipment manufacturing;
- a 9 acre site for long-term fish gear and equipment storage, including 5 acres of up to two story covered and weatherproof storage;
- approximately 40 acres of expansion area.

These uses and their allocated areas are a conceptual indication of the site's potential, subject to revision in the development planning process. The layout for potential development of this area, shown in Map 8, includes anadromous stream corridors, wetland reserves and scenic buffers, an open space buffer between the industrial area and the Clam Cove residential area to the south, a tideland reserve and pedestrian routes through the site, with waterfront access.

Although it is expected that a large majority of raw fish and fish products will be shipped to and from this site by water, the site's location near the airport will facilitate air transportation of vessel crews, processing and plant employees, air freighting of expedited spare parts and equipment, as well as receipts of flown-in raw fish and shipment of fresh and specialty fish products.



**Map Notes**

1. DOTPF alignment for road linking Pennock Island bridges and airport (October, 2004)
2. Possible road access to industrial park parcels
3. Existing subdivision (circular, recreational lots)
4. Existing private lots around Clam Cove
5. Anadromous stream corridors
6. Open space buffer between Industrial Park activities and residential uses around Clam Cove
7. Service wharf area for vessel loading/unloading and short term open storage (2700 ft. long by 200 ft. wide).
8. Gravina Shoreline Trailhead with possible dock and other facilities

Possible Lot Use Allocations

- Easement/shoreline access for non-waterfront sites (lot 3)
- Processing plant sites with direct water access (lots 1, 2, & 6; 22 acres)
- Cold storage and warehousing (lots 4 & 5; 15 acres)
- Long term storage and gear work area (5 acres covered) (lot 9; 9 acres)
- Fish waste processing (lot 7; 5.5 acres)
- Scrap gear processing (lot 8; 10 acres)
- Manufacturing gear and equipment (lot 10; 12 acres)
- Possible expansion areas (lots A, B, & C; 40 acres)

*Part Two: Policies  
9/Resource  
Management  
(Timber, Fisheries,  
Sand & Gravel,  
Habitat & Views)*

**Findings**

There are several commercial value timber stands within Central Gravina on DNR lands in the Bostwick Lake area and on Mental Health Trust (MHT) lands along drainages on the east face of California Ridge.

1,900 acres of DNR lands contain mature timber of commercial quality. Some are located in sensitive areas near Bostwick Lake and within the Bostwick Creek corridor. DNR expects to harvest approximately 13 mmbf on 495 acres southwest of Bostwick Lake, beginning in 2006. The DNR sales, as well as those planned by USFS, require building a road from harvest areas to a Tongass Narrows log transfer facility. These harvests could contribute to a sustained supply of timber to the PL&L sawmill that would support long-term jobs within the local economy.

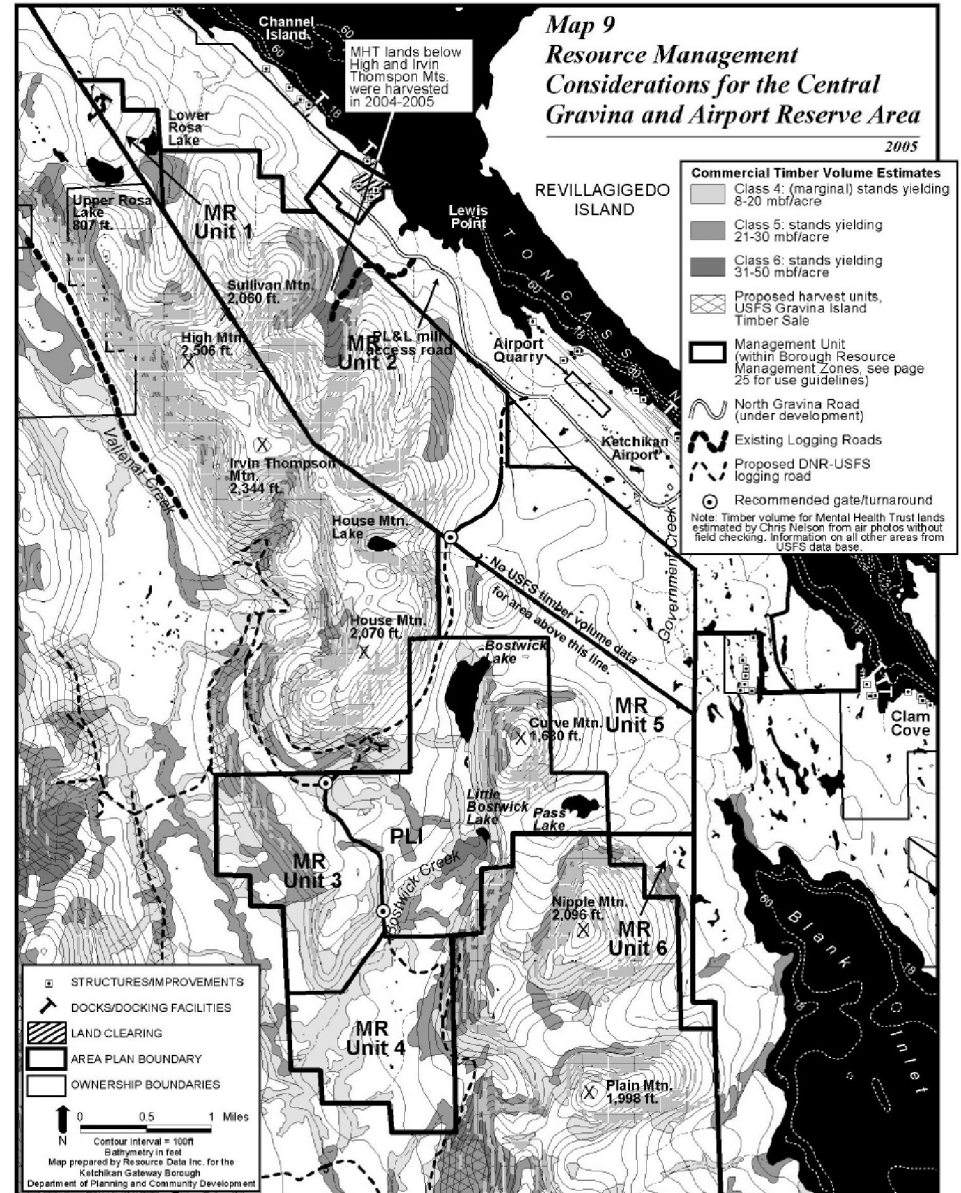
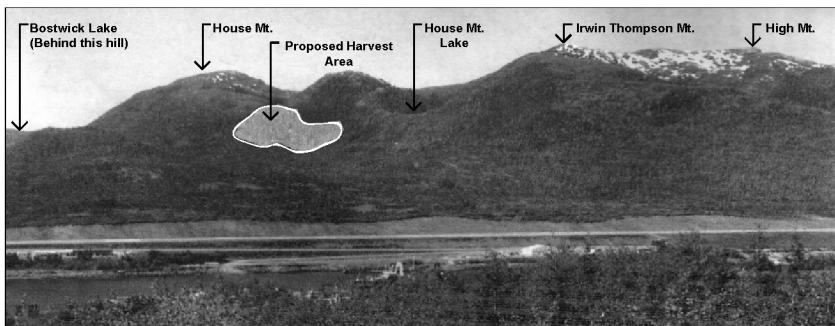
Approximately 176 acres (5 %) of MHT lands are considered to have timber of commercial quality along creek drainages and on steep slopes below High and Irvin Thompson mountains, southwest of PL&L. Much of this timber was harvested in 2004 and early 2005.

While most DNR commercial forest lands are not highly visible from Ketchikan, some would be from the Bostwick Lake area and associated trails. Only one of the proposed USFS harvest areas would be visible from Ketchikan as illustrated by the photo below. The visual impact from Ketchikan of the recent harvest on Mental Health lands was low.

Bostwick is Gravina's largest lake and is popular for coho, steelhead, cutthroat and rainbow trout fishing. The Bostwick Creek watershed is also Gravina's largest. It produces substantial Pink Salmon runs, its water quality is important to the shell fisheries of Bostwick Inlet and it has high habitat values. The lake and the upper reaches of the watershed are popular hunting areas.

An estimated 800,000 cubic yards of rock were extracted from the quarry site adjacent to the runway to meet materials needs for taxiway and runway expansion projects. This site may offer the potential for further materials extraction to meet road construction needs within the Airport Reserve. Another potential quarry site is the small knoll just north of the PL&L sawmill within the proposed North Gravina Industrial Park. One small quarry site was developed adjacent to the new North Gravina Road to meet materials needs for that project.

*Visual impact analysis of proposed timber harvests includes photographic simulations of cut areas such as this one (a clearcut proposed in the USFS Gravina Island timber sale, as seen from the University of Alaska SE campus). Mitigation options include smaller cut areas or different shapes, selective helicopter logging, and replanting.*



Part Two: Policies  
9/Resource Management (continued)

Resource Management (MR) Policies

**MR/1** Central Gravina's commercial timber resources will be used to support small, value-added forest products industries, especially those within the North Gravina industrial park and cottage industry zones.

**MR/2** Natural forested buffers (minimum 100 ft) will be retained along each side of future recreation access roads and trails in areas of timber harvests.

**MR/3** Gates along the proposed logging road system will be used to limit public access during logging activities, close areas during spawning and restricted hunting periods, etc.

**MR/4** MHT, DNR, and USFS timber management and harvest activities will be coordinated to increase economic viability of resource base and minimize costs.

**MR/5** Anadromous stream corridors will be protected with setbacks from timber harvest and roads (minimum 200 ft within portions where salmon spawning occurs; to the top of the slope on v-notch drainages). ADF&G recommendations will be followed for setback width along Bostwick Creek and shoreline of Bostwick Lake.

**MR/6** Master plans shall be prepared for quarry site developments and will include provision for screening noise and dust control during operations as well as land restoration and re-use when mining activities are completed.

**MR/7** Identify and dedicate sites where experimental timber management activities can be tested (e.g. hybrid poplars, spruce and cedar plantations, fuelwood lots, replanting approaches, etc.).

**MR/8** Critical habitat areas identified by ADF&G and USF&WS should be retained in their natural state. Buffer strips may be required to separate such areas from proposed development/management activities such as road building or timber harvest. The width of such buffers are to be determined by ADF&G and/or the USF&WS.

**MR/9** Timber harvest activities on visible slopes below California Ridge and on slopes visible from the Bostwick Lake shoreline shall require a Visual Impact Mitigation Plan (VIMP) prepared by a Landscape Architect or other professional with experience in this field.

**MR/10** Use land trades or transfers to create ownership boundaries (size and/or configuration) which allow for more cost-effective and consistent management.

The following resource management policies, from the Gravina Island Plan Citizen's Guide are important to the Central Gravina area.

10.1 The State of Alaska Forest Resources and Practices Act (AS 41.17) and its regulations and procedures, shall provide the minimum resource protection standards and permit review procedures for timber harvest from federal, state, borough, and private land.

10.2 The Borough's forest management activities shall be planned so as to:

- Create a sustainable supply of direct and indirect jobs within the local economy.
- Provide a range of opportunities for large and small businesses engaged in the wood products industry.
- Improve timber growth and productivity on suitable timberlands made available for timber harvest, and manage these lands for long-term sustained yield.
- Contribute a timber supply to meet market demand.
- Provide a mix of resource use activities to meet recreation, personal resource harvest & other needs.
- Recognize scenic values of timberlands viewed from popular roads, trails, marine travel routes, recreation

sites, bays, and anchorages, and modify timber harvest practices accordingly.

- Minimize adverse impacts to fish and wildlife populations and their habitats.
- Ensure the free passage of anadromous and resident fish in rivers, streams, lakes, and marine waters.
- Minimize sedimentation, erosion, and alteration of natural drainage patterns.
- Maintain long-term productivity of forest soils and ecosystems.
- Promote regeneration of harvested forests.

10.3 Sites for in-water log storage and transfer shall be selected and these activities conducted so as to minimize adverse affects on the marine ecosystem, conflicts with recreational uses, navigation hazards and exposure to storms.

10.4 Sand and gravel may be extracted from intertidal areas only when there is no feasible alternative to meet public need.

Guidelines for Central Gravina Resource Management Units

Management Unit  
(see map, page 23)

RESOURCE VALUES	1	2	3	4	5	6
Recreation	●			○	●	
Timber		●		○	○	●
Fisheries				●		
Minerals						
Energy						
Habitat	○	○	○	●	○	○
Air & Water Quality		●	○		○	
Hazard Avoidance		○			○	
Visual/Aesthetic	○	●	○	○	●	○
Visitor Attractions	○				○	
Screens & Buffers			○	○	○	○

Values Key

- Primary value (access, use and management decisions should favor this activity)
- Secondary value (access, use and management decisions should favor this activity as long as it does not interfere with primary values)
- Not present or of significance in this area

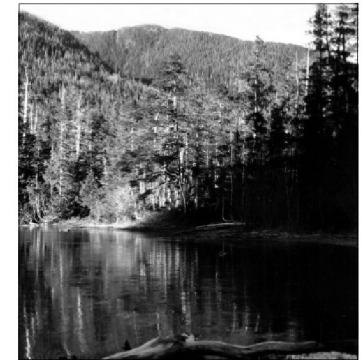
ACTIVITIES	1	2	3	4	5	6
Recreational hunting	●	●	●	●	●	●
Recreational fishing	●	●	●	●	●	●
Motorized recreation, ORVs	■	■	■	■	■	■
Personal fuelwood cutting	■	■	■	■	■	■
Structures (temporary)	■	■	■	■	■	■
Structures (permanent)	■	■	■	■	■	■
Materials site/quarry	■	■	■	■	■	■
Timber harvest	■	■	●	■	■	■
Commercial fishing	■	■	■	■	■	■
Roads (controlled access)	■	■	●	●	■	■
Roads (open access)	■	■	■	■	■	■
RV camping	■	■	■	■	■	■
Tent camping	●	■	■	■	■	●
Hiking	●	●	●	●	●	●
Wild food gathering	●	●	●	●	●	●

Activities Key

- Generally allowed
- Allowed only in designated areas or by permit
- Not generally allowed

Notes:

1. Management Units 1 and 2 are private lands (Mental Health Trust) with access and uses subject to owner permission.
2. ORV/ATV uses are directed primarily to designated areas in Vallenar Creek valley (see pages 26-27).
3. Management activities for unit 6 are to be consistent with adjacent USFS lands (proposed Old Growth Reserve) as well as KGB lands facing Blank Inlet. This area may be considered for land trade with adjacent owners.



The majority of the commercial forest stands within the Central Gravina area are Class 4 (low volume, 8-20 mbf/acre) or non-commercial forests such as the southeastern slopes of House Mountain seen here from Bostwick Lake.

Part Two: Policies  
10/Recreation

**Findings**

As our visitor industry continues to grow, new destinations are in demand. There are several excellent Central Gravina recreation sites that, if managed for that use, would greatly enhance residents' all-season recreational opportunities as well as contribute to Ketchikan's stock of nature tourism products directed especially to the independent traveler. Perhaps the most important is the Bostwick Lake/Pass Lake/Curve Mountain area which would be directly accessible from an improved road to the area on State and Federal lands now planned for timber harvest. The road will make possible a recreation area of statewide significance that could support dispersed camping sites, trailheads, and excellent fishing and hunting (Bostwick is Gravina's largest lake and is popular for coho, steelhead, cutthroat and rainbow trout fishing). DNR timber harvest plans in this sensitive area should accommodate recreation and habitat values, including viewshed protection.

In addition to the independent travel market, it is expected that the very scenic road to the Bostwick Lake area will likely become a popular bus tour. Nature walks, hikes and other recreational uses should expand in popularity. Central Gravina trails and attractions can be promoted by local visitor services and businesses. They could generate revenue either by marketing as another guided tour option, or through trail use registry/ fee collection at the Airport Ferry tollbooth.

The Airport Reserve shoreline could be one of Gravina's best recreational assets, with beautiful natural areas (including Government and Port Gravina Creeks estuaries), dramatic views of Ketchikan, the possibility of a continuous trail (due to single ownership) for an over five-mile stretch of coastline, easy access from the airport, and an absence of altered shoreline except around the airport area. This is a rare opportunity to provide Ketchikan citizens with access to our waterfront and a coastal trail for walkers, bicyclists, and joggers and can be accomplished without sacrificing other development interests.

A large portion of the eastern Gravina landscape is muskeg and poorly drained scrub forest, requiring some kind of improvements (boardwalk, rock overlay/fill) for constructing trails or special routings to avoid such areas. At the same time, muskeg and scrub forest areas are some of the most pleasing for hiking, with nearly continuous views even at low elevations.

The proposed road system (pp 18-19) could support increased recreational access and use of Gravina Island through the provision of scenic turnouts, parking at trailheads, sites for RV camping and reducing hiking time to attractive destinations. There are also opportunities to use the timber harvest roads portion of the system to control use (by gate closures) of certain areas in order to meet recreational management objectives.

There is demand in the Ketchikan area for sites designated for ATV/ORV use. Such sites should be away from hiking trails as well as lakes and shorelines (where sound travels significant distances).

**Recreation (Rec) Policies**

**Rec/1** The Borough shall work with DNR, MHT, USFS and local interest groups to prepare a Gravina Island Trail Plan, incorporating Central Gravina attractions.

**Rec/2** The Borough shall support DNR establishment of a Recreation Area in the Bostwick Lake area with eventual destination services (e.g., picnic area, shelters, small RV park, etc.) to meet local and visitor industry needs.

**Rec/3** The Borough shall assist the Ketchikan Visitors Bureau and visitor industry service providers to increase awareness of Gravina attractions and include them in Ketchikan's tourism product.

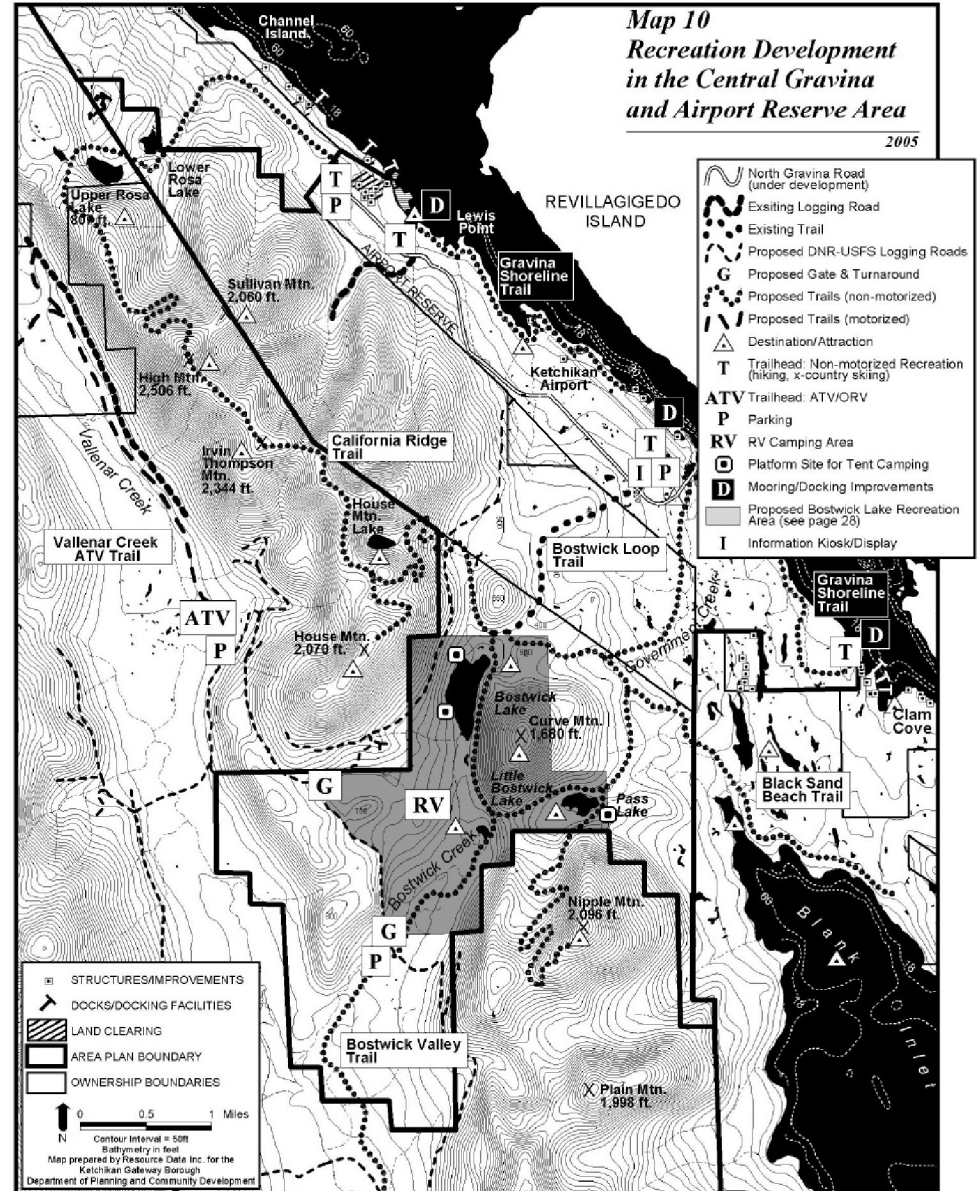
**Rec/4** Priorities for trail development shall be the Gravina Shoreline Trail on the Airport Reserve and the Bostwick Lake Loop Trail.

**Rec/5** ATV/ORV use shall be permitted only in areas so designated. Such areas will typically be along logging roads closed to vehicular use, proposed future road corridors, and routes that provide access to recreational properties such as Vallenar Bay.

**Rec/6** New recreational attractions shall be developed that provide multiple means of access (boat/kayak, vehicle, bicycle, walking, wheelchair) to address the spectrum of recreational needs and preferences.

**Rec/7** Once logging roads are established, the Borough will work with other land owners to establish recreation use policies and use road gates to guide access and use.

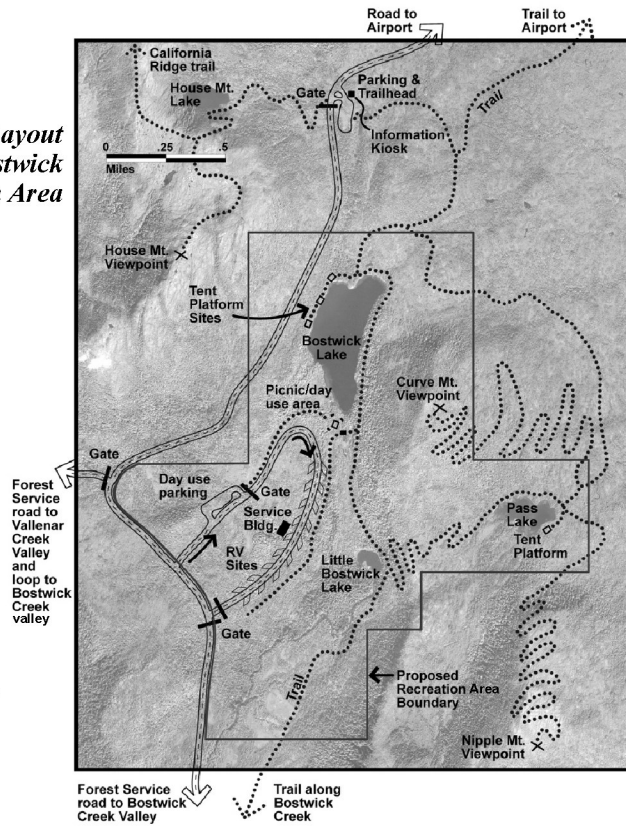
**Rec/8** The Borough will continue to monitor recreational use with the Airport Ferry trail registry and expand it to include a user questionnaire (with map on one side) which provides additional data on areas visited and type of use.



### Conceptual Layout for Proposed Bostwick Lake Recreation Area



Bostwick Lake, on State owned land (DNR management) is one of Gravina's more accessible attractions. New roads to the area would bring increased numbers, necessitating trail improvements, signage, sanitary facilities and possibly campgrounds for hikers and RVs. At 500' in elevation, Bostwick Lake freezes in winter months and thus could become our community's premier wintertime recreation destination for skating, cross-country skiing and other snow activities.



A conceptual plan for the proposed Bostwick Lake Recreation Area is shown above. Improvements would be staged as funding is available and access improved as demand justifies. Initially the trail from the airport should be improved, as well as efforts directed at increasing public awareness and use.

Once a road was opened from the airport to the proposed parking and trailhead area shown above (north of the lake), greater use would be expected. The parking area, trailhead, signage, and connecting trail improvements would then be made. Tent platforms along the west shore might be installed, as well as basic sanitation facilities.

Over the longer term, if a logging access road were extended into the interior of Gravina such as proposed by DNR-USFS, it would be possible to bring increasing numbers of users closer to the Lake. A day-use parking lot, picnic area, and even an RV campground might be developed. Trail extensions to other parts of Gravina would be needed to spread the use beyond the Bostwick Lake area in order to minimize impacts. Year round access might be considered to take advantage of the opportunities for skating, x-country skiing, and snowmobiling. By then the State may decide to elevate the area to State Park status.

### The Borough's Role

The Borough is not a landowner in the Central Gravina & Airport Reserve area but still has a key role in plan implementation. The Borough has the legal authority and responsibility to operate KIA and has local government responsibilities for economic development, transportation planning and regulation of land uses. These responsibilities imply important leadership roles to:

- promote and implement economic development and land use activities within the Airport Reserve and throughout the Central Gravina area;
- determine an effective transportation network for this area;
- operate a safe and efficient airport while promoting economic activities that benefit from direct access to the airport's inter-regional air services, general aviation facilities and services, and air freight and taxi services;
- stimulate private/public partnerships for development initiatives such as the north and south Airport Reserve industrial parks proposed in this area plan;
- develop recreational uses and facilities on selected lands as proposed in this plan;
- secure federal/state funds for infrastructure improvements; and
- work with DNR to secure stable timber supplies for local processing and to provide recreational and visitor industry opportunities on appropriate State lands.

One important early regulatory initiative will be the proper zoning of Gravina's lands to provide the framework for the plan's recommendations to be implemented. New zoning classifications are needed (resource management, industrial park and others) and some existing zones should be modified. The Borough can facilitate priority economic development projects by working with regulatory agencies to pre-qualify sites so that planning and environmental review steps are complete and a project applicant can go directly to site, engineering and construction plan review.

To successfully implement the plan, the Borough will need to commit to sufficient staff (contracted or "in-house") to assume its leadership roles. It will require close cooperation between the Planning Commission, Borough Assembly, and Planning and Public Works Departments. It will also require collaboration between these organizations and the Central Gravina public agency landowners (State, MHT) and with the private sector including individuals and firms interested in investing in the projects conceptually proposed in this plan.

### Interagency Partnerships

Implementation of the Central Gravina area plan requires close working relationships between the Borough and those public agencies and land trusts given responsibility for managing major portions of this area's lands and resources: State DNR, State DOTPF and Mental Health Trust. Each of these has its own mission and objectives. Each needs to coordinate with the others for effective implementation. In order to secure an intergovernmental partnership, it is recommended that a task force of these agencies and trusts be formed and meet at least once a year to define cooperative actions to manage area resources. Cooperative actions may include:

- joint financing for construction of roads, trails and recreational facilities;
- cooperative harvest management to sustain timber flows to local processors;
- land exchanges to facilitate better and more cost effective management;
- identification of quarry locations for construction projects;
- road maintenance and closure policies to manage habitat and contain maintenance costs; and
- agreements on mitigation lands to facilitate projects.



Looking west across Bostwick Lake, the mountains of Dall Ridge can be seen, including Chapin Peak, Gravina's highest point. Bostwick Lake is the land entry point to the interior and western side of Gravina Island. The shoreline and hillsides surrounding the lake are visually sensitive areas, critical to maintaining the recreational values of the lake's setting.

*Part Two: Policies  
11/Implementation Strategy &  
Costs (continued)*

**The Industrial Parks**

Both of the proposed industrial parks at the north and south ends of the Airport Reserve have similar requirements to meet for successful implementation. (For a discussion of the north industrial park, see pp 16-17 of the North Gravina Area Plan; for the south industrial park, see pp 20-21 of this plan.) Both are presented in conceptual form in these area plans. In both cases, Industrial Park Master Plans will need to be prepared that provide strategies for development, including:

- defined land use plan for each industrial site;
- preferred tenant mix and locations;
- shared use facilities/infrastructure (wastewater, roads, power, water, docks);
- financing of infrastructure;
- land sales and lease terms;
- waterfront access measures;
- development guidelines for fencing, site clearing, etc.;
- project marketing; etc.

**Financing Implementation**

To implement the Central Gravina & Airport Reserve Area Plan, an early priority will be to finalize the road and infrastructure network to serve the area. This plan proposes a "Road System Master Plan" that provides for consistent design, standards and management policies for the various road segments outlined on pp 18-19. Three key initial segments of the road system are illustrated in the map below. The order-of-magnitude costs indicated in the sidebar represent a 35-45 mile per hour Forest Highway standard road, water main, and sanitary sewer. Road construction costs could be reduced with lower standards and initial stages might be unpaved, single-lane roads with turnouts.

*Summary of Estimated Road and  
Infrastructure Extension Costs  
(Note: Roads estimated at two-lane 35-45 mph  
driving standards)*

**Segment A: Ferry Terminal to north end of Airport Reserve (N Gravina Road)**

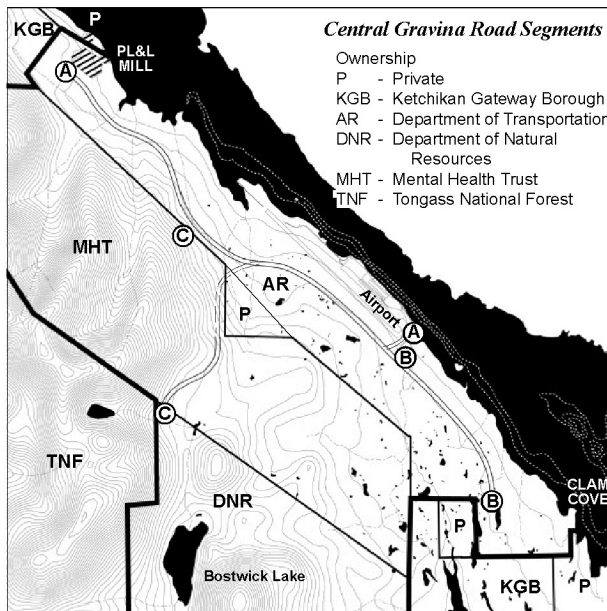
**Road:**  
4 miles @ \$1.25m/mile = \$5m  
**Water:**  
3 miles @ \$0.5m/mile = \$1.5m  
**Sewer:**  
3 miles @ \$0.5m/mile = \$1.5m  
**Total: \$8 million**

**Segment B: South end of runway to south end of Airport Reserve (S Gravina Road)** (this segment needed only if Pennock route not implemented)

**Road:**  
1.5 miles @ \$1.25m/mile = \$1.875m  
**Water:**  
1.5 miles @ \$0.5m/mile = \$0.75m  
**Sewer:**  
1.5 miles @ \$0.5m/mile = \$0.75m  
**Total: \$3.375 million**

**Segment C: Bostwick Lake area access road** (not including harvest roads beyond Mental Health Trust lands)

**Road:**  
2.0 miles @ \$1.25m/mile = \$2.5m  
**Water:**  
Not required  
**Sewer:**  
Not required  
**Total: \$2.5 million**



Water and sewer could be connected to existing treatment facilities at Ketchikan International Airport (extension across Tongass Narrows is not included). Residential, commercial, and some industrial uses can be serviced with a Septic Tank Effluent Pumping (STEP) system, as an alternative to a large-dimension sanitary sewer and fully centralized treatment plant.

Several funding sources are available for roads and infrastructure:

**Roads:** Segment A: The segment between the Ferry Terminal and the north end of the Airport Reserve is the first being built. This is being financed by a combination of Federal and State funds, Borough loans for private (PL&L) construction of a pioneer road, and Forest Service support.

Segment B: The segment between the south end of the runway (connecting with Segment A) and the south end of the airport reserve would only need to be financed if the Pennock Island access route to Gravina is not implemented. (If implemented, it would be built with Federal highway funds.)

Segment C: The segment between Bostwick Lake area and the North Gravina Road (Segment A) is to be federally funded at harvest road standards and upgraded later to serve recreational users. Forest Highway funds may be available to meet road upgrading costs. Public road access beyond Bostwick Lake is uncertain pending USFS and DNR harvest plans and habitat management and road maintenance decisions.

Design and construction funding for Gravina roads may be available from the U.S. Department of Transportation TEA-21 and other programs, while related pedestrian ways, shoreline access and other amenities may be eligible for TRAAK program funds. These programs typically cover 80-90% of total project costs; the remainder requires local matching funds, all or part of which may be obtained from the State.

**Water and Sanitary Sewer Systems:** Funding for these services is provided by U.S. Environmental Protection Agency programs, which often funds approximately 50% of total project design and construction cost.

**Electrical and Telephone Systems:** Electrical and telephone systems have previously been installed by the City of Ketchikan, Ketchikan Public Utilities, with non-grant portions of their development cost repaid by customers.

The local share of road and infrastructure costs can be provided by assessments to benefited properties, using a Local Improvement District (LID). The LID may be initiated either by the Borough or by property owners in the benefit zone. Assessments upon individual properties are based on factors which can include area of property, property's demand for services, and degree of benefit from the improvements. A majority of property owners within the LID boundaries must approve its establishment and their respective assessments.

In determining the sum to be assessed under an LID, an allocation formula usually determines a public share of the total cost, attributable to community benefits for public safety, recreation and other purposes, as well as the shares representing benefits to private property owners. When public and private shares of the LID are determined, a municipal bond may be sold to cover their cost. The public share of such a bond issue is sometimes collateralized by a pledge of anticipated real estate tax receipts from the benefited properties, while the private shares are collateralized by the agreed assessment of the properties, supported by their fair market value.



*The shoreline along the Airport Reserve offers dramatic views across Tongass Narrows to Ketchikan and Deer Mountain. The Reserve's nearly six miles of undeveloped waterfront could become a popular walking route if trail improvements were made and public awareness increased.*

**2005-2006 Action Plan**

The implementation plan, presented below, outlines 8 action priorities, estimated costs and lead responsibilities for each. The first 4 tasks are common to all three Gravina area plans (North Gravina, Central Gravina & Airport Reserve, and Clam Cove & Blank Inlet). Together they represent a logical strategy for responding to the development issues and opportunities described in this Central Gravina & Airport Reserve area plan.

**1. New Zoning Classifications**

**Objective:** Add two new zoning classifications to meet plan recommendations (Resource Management, Development Reserve).  
**Description/Tasks:** Conduct background research related to new zoning classifications; draft new ordinances; solicit public comment; secure approval by Planning Commission and Borough Assembly; prepare legal descriptions of zone boundaries.  
**Lead Responsibility:** Planning Department.  
**Estimated Costs:** \$8,000 (consultant fees) (this work will be applicable to all three Gravina plan areas and in other planning work underway such as Clover Pass).  
**Financing Strategy:** Planning Department Budget (FY 2005-06).  
**Implementation Actions:** Allocate funds; develop contract scope-of-work; select/manage consultant.

**2. Gravina Interagency Task Force**  
**Objective:** Establish a mechanism for Gravina Island agency and selected private stakeholders to discuss and coordinate management and development plans.  
**Description/Tasks:** Prepare information packet for task force members; establish first year task force priorities and meeting schedule.  
**Lead Responsibility:** Borough Manager's Office  
**Estimated Costs:** Minimal  
**Implementation Actions:** Identify task force membership; secure commitments for participation; prepare information packet.

**3. Gravina Road System Development Master Plan**  
 (Note: this will likely be one of the priority actions recommended by the Task Force described in number 2 above.)  
**Objective:** To integrate all Gravina road development proposals (USFS, DNR, Borough, DOTPF, MHT) into a single master road plan and clarify issues regarding timing, costs, maintenance responsibilities, standards & level of service, public access, etc.  
**Description/Tasks:** Conduct a Gravina roads system workshop, inviting agencies to present plans, frame the issues and invite public comment; create Gravina Roads Task Force to integrate proposals and public comment into proposed master plan.  
**Lead Responsibility:** Borough Planning Department (coordination)  
**Estimated Costs:** \$5,000 (Borough portion) with financial support from other agencies.  
**Financing Strategy:** Planning Dept budget and other agency funds

**Implementation Actions:** Secure commitment to participate by other agencies, including funding; prepare issues presentation and supporting graphics for workshop.

**4. Bostwick Lake Trail Improvements**

**Objective:** Make basic improvements to the Bostwick Lake trail to facilitate public use.  
**Description/Tasks:** Evaluate current trail alignment and conditions; prepare recommendations and work program for changes; prepare funding proposal to implement recommendations.  
**Lead Responsibility:** Borough Recreation Dept with State Parks and Trails Coalition  
**Estimated Costs:** \$5,000 (for technical assistance and project related expenses).  
**Financing Strategy:** Borough Recreation Dept. with solicited grant funds.  
**Implementation Actions:** Secure Borough funding; secure funding from other sources; involve Trails Ketchikan as partner on this project.

**6. Gravina Shoreline Trail Study**

**Objective:** Secure Agency and community commitment to development of a Gravina Shoreline Trail within the Airport Reserve.  
**Description/Tasks:** Meet with State and Federal airport authorities; evaluate routing conditions/options; develop power-point presentation and poster to promote public awareness; outline implementation strategy which includes projected costs, funding sources, and timeline; present findings and recommendations to Borough Assembly.  
**Lead Responsibility:** Borough Planning Department and airport management  
**Estimated Costs:** \$6,000  
**Financing Strategy:** Planning Dept Budget (FY 2005-06).  
**Implementation Actions:** Identify grant funds and consultants, prepare scope of work.

*Borough Responsibilities for Implementation*

	Borough Assembly	Planning Commission	Manager's Office	Planning Department	Public Works Department	Airport Management	Legal Department	Finance Department	Rec Department
Plan approval/policy setting	●	●	○	●				●	
Project planning for roads/infrastructure		●		●	●			●	
Master planning for industrial parks		●	●	●	○		●		
Recreation projects		●		○					●
Land use regulations/zoning		●		●			○		
Grant-writing				●	○			●	●
Creation/coordination of interagency task force	●		●	○	●				●
Airport development				●	○	●		●	
Airport-related economic Activities		●	●	○	●	●	●	●	
Political lobbying	●		●				●		
Formation of LIDs	●			○		●	●		
Financial management	●		●					●	
Project Management			●	○	●			○	●

● Leadership/Coordination Role  
 ○ Major Role  
 ● Advisory/Participation Role



From the air, the flat to gently sloping terrain of the Central Gravina area is clearly evident. Three ownerships dominate this view: the entire shoreline and lowland area is part of the Airport Reserve, under State DOTPF ownership (and Borough management); much of the uplands are owned by the Mental Health Trust; and the higher areas in the left side of the photo are part of Curve Mountain and State DNR owned. The mountain backdrop, called California Ridge, includes House, High, Sullivan and Irvin Thompson mountains, and is within Tongass National Forest.

**7. Bostwick Lake Recreation Area Plan**

**Objective:** Guide management and development activities in and around the Bostwick Lake area to ensure that recreation values are reflected in road development, timber harvests, and other actions.

**Description/Tasks:** Review proposed road and timber harvest plans; evaluate impacts; recommend mitigation options; evaluate Bostwick Lake recreational use conditions; prepare conceptual plan for presentation to Borough Assembly and State agencies.

**Lead Responsibility:** Borough Planning Department in partnership with State Division of Parks

**Estimated Costs:** \$10,000

**Financing Strategy:** Borough portion (\$5,000), State Parks portion (\$5,000)

**Implementation Actions:** secure funding and State Parks participation; prepare scope of work for technical assistance; identify consultant(s).

**8. South Runway Extension Mitigation Strategy**

**Objective:** Ensure that the planned airport south runway extension project incorporates Borough interests for recreational development (Gravina Shoreline Trail), shoreline restoration, and contributions to the Borough's proposed Wetland Mitigation Bank.

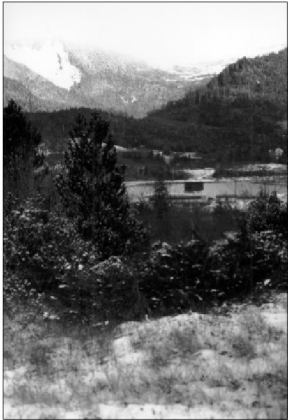
**Description/Tasks:** Include Borough representation on project planning team; involve land restoration and recreational design professionals in developing options and recommendations; seek community comments through public workshop/presentation; present findings and recommendations to Borough Assembly.

**Lead Responsibility:** Borough Airport Management and Planning Department

**Estimated Costs:** \$5,000 (for consultant technical assistance and community participation activities)

**Financing Strategy:** Secure funds from DOTPR project budget.

**Implementation Actions:** Secure commitment by DOTPF regarding funding and recognition of Borough interests and participation.



*The proposed road system on Gravina would afford views of the Airport, Tongass Narrows, Ketchikan and the mountains of Revillagigedo Island. Scenic turnouts should be considered at appropriate locations along the road where topography and natural openings afford panoramic views.*