

JACKFISH LAKE

AREA STRUCTURE PLAN

PARKLAND COUNTY



NOVEMBER 1997
(Office Consolidation July 2013)

Consolidation Summary

Bylaw	Date	Subject
32-97	25/11/1997	Adoption of Jackfish Lake Area structure Plan
54-01	23/04/2002	Deletion and replacement of sections 4.3 to 4.7 in their entirety

BY-LAW NO. 54-01
PARKLAND COUNTY

BY-LAW OF PARKLAND COUNTY FOR THE PURPOSE OF
THE JACKFISH LAKE AREA STRUCTURE PLAN.

Parkland County has adopted the Jackfish Lake Area Structure Plan by By-law

Jackfish Lake Area Structure Plan provides a framework for the subdivision
development of lands within the Jackfish Lake area; and

WHEREAS The Council of Parkland County deems it appropriate to amend the Jackfish Lake Area Structure Plan to recognize changes arising from concerns raised by Jackfish Lake stakeholders, and as addressed by a stakeholders group and a public participation process;

NOW THEREFORE the Council of Parkland County duly assembled and under the authority of the Municipal Government Act RSA 1994 and amendments thereto, hereby adopts the following:

1. That By-law No. 32-97, as amended, being the Jackfish Lake Area Structure Plan, be amended by deleting Sections 4.3 to 4.6 inclusive, in their entirety, and replaced with Sections 4.3 to 4.7 inclusive attached to and forming part of this By-law; and
2. That By-law No. 32-97, as amended, being the Jackfish Lake Area Structure Plan, be amended by re-numbering Sections 4.7 to 4.10 inclusive, to 4.8 to 4.11 inclusive.

READ A FIRST TIME this 27th day of November, 2001.

READ A SECOND TIME this 23rd day of April, 2002.

READ A THIRD TIME and finally passed this 23rd day of April, 2002.


MAYOR


COUNTY COMMISSIONER

CERTIFIED TRUE COPY OF ORIGINAL



Jim Simpson, County Commissioner

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1. INTRODUCTION

1.1 BACKGROUND

Jackfish Lake, located approximately 60 km west of Edmonton, (see Exhibit 1) has long been the focus of local and regional recreation demands. Conflicts have occurred between recreational groups on this busy lake since the 1970's. Concerns regarding recreation capacity and the environmental capability of the Lake to support more "intensive" residential development are growing.

In the fall of 1995, the Jackfish Lake Management Association, formed by a significant number of Jackfish Lake stakeholders formally requested that Parkland County undertake the preparation of a cooperatively developed management plan for the Jackfish Lake area. In April of 1996, Parkland County initiated the preparation of an Area Structure Plan for the Jackfish Lake area.

1.2 PURPOSE OF THE PLAN

The Municipal Government Act RSA 1994, provides for the preparation of Area Structure Plans. The purpose of such a plan is to provide a framework for the subsequent subdivision and development of an area of land. Essentially, Area Structure Plans are intended to provide the means by which the principles for growth and development, as outlined in the Municipal Development Plan, shall be elaborated upon in greater detail.

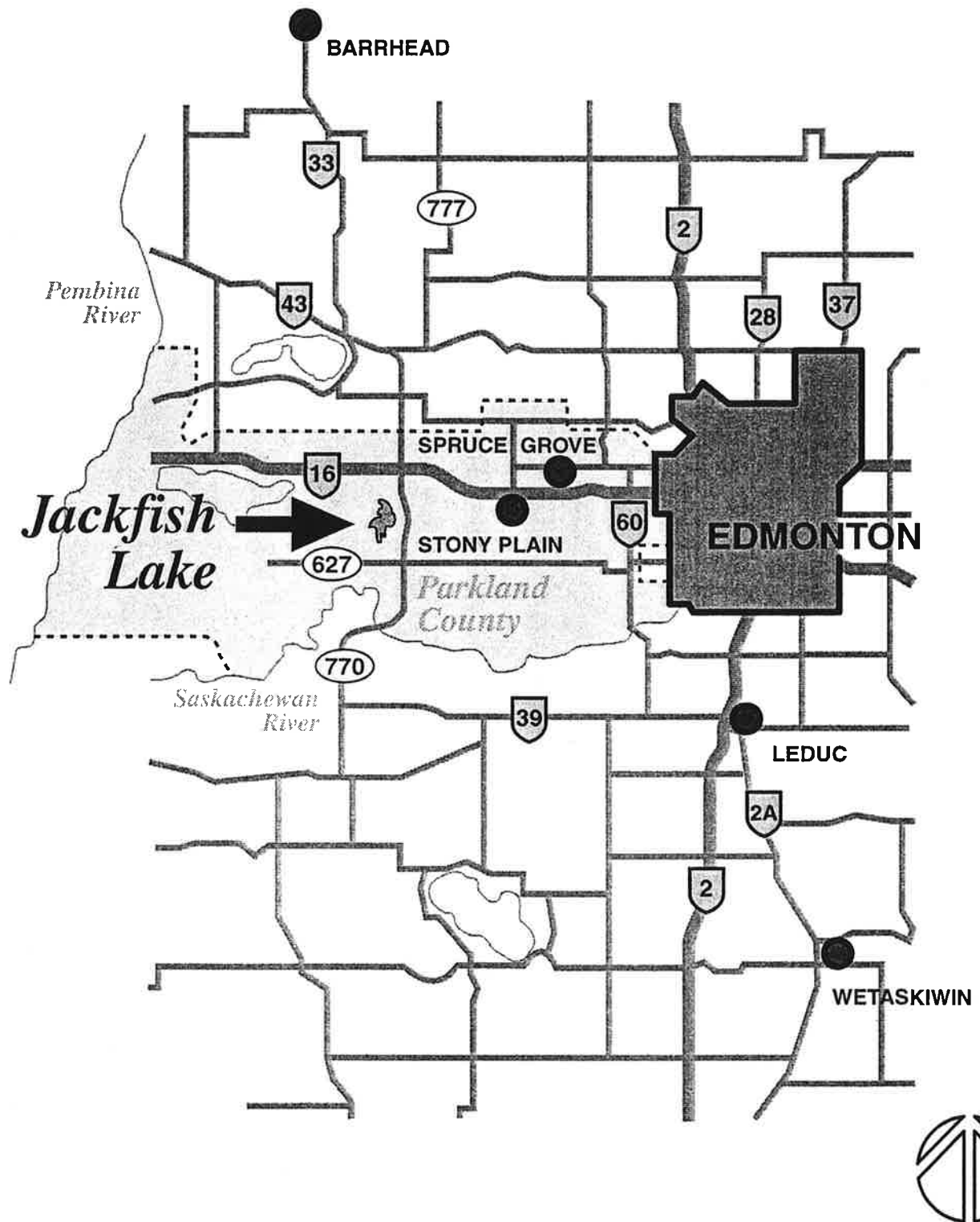
Unlike more urban areas for which traditional ASP's are prepared, the Jackfish Lake area is characterized by heavy recreational use, limited servicing potential and the presence of a significant environmental resource that is governed by a wider body of authorities. For this reason, the Jackfish Lake Area Structure Plan encompasses a lake management component to ensure that environmental and recreational sustainability are considered. As a result, this Plan addresses a number of areas beyond the scope of the traditional Area Structure Plan and beyond the scope of what is envisioned through the Municipal Government Act.

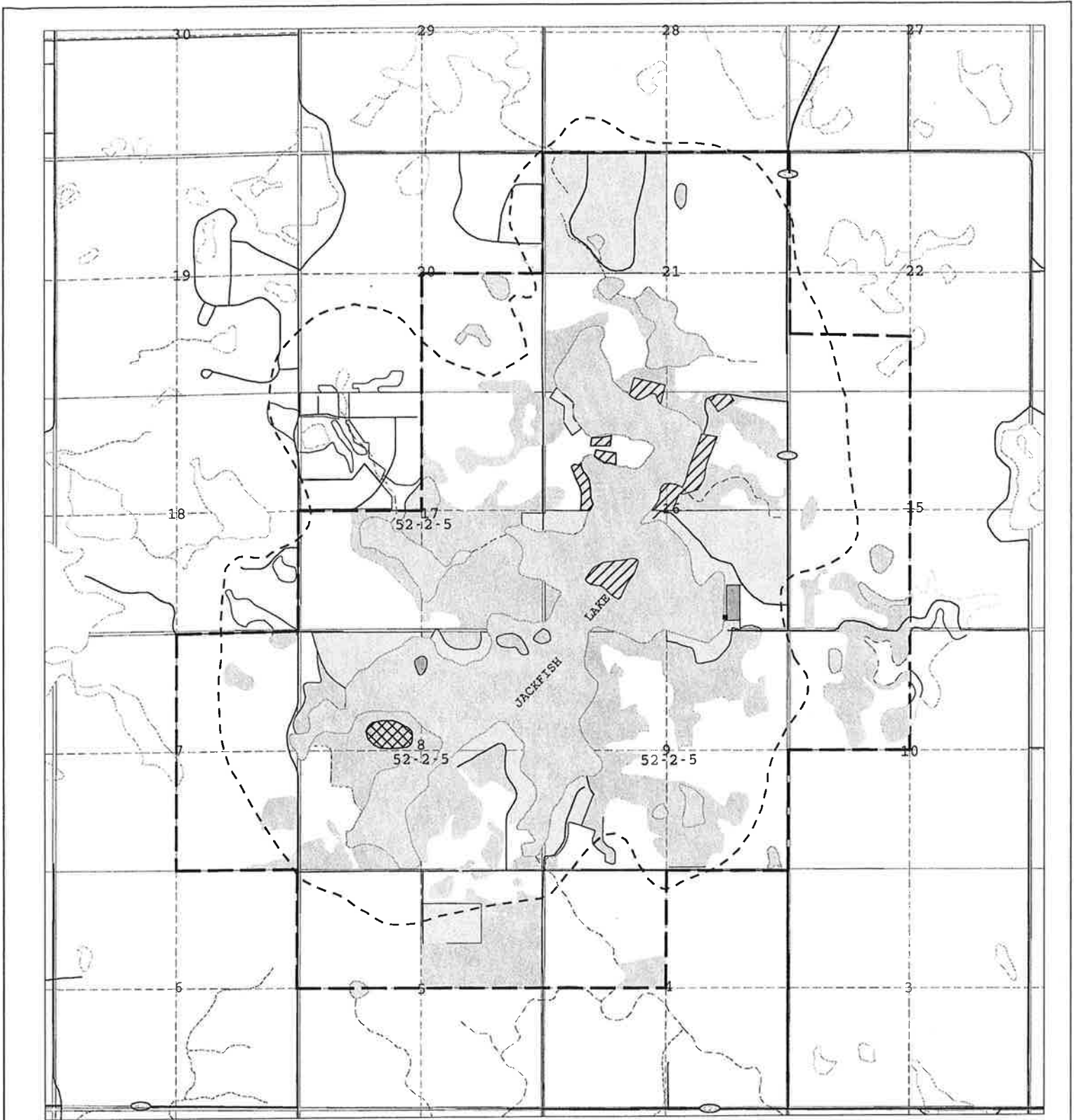
1.3 PLAN AREA

The Plan area includes the lakefront and backshore areas of Jackfish Lake as illustrated in Exhibit 2 and is generally bounded by Secondary Road 627, 1/2 mile to the south, Secondary Road 770 on the east, Range Road 25 on the west, and Township Road 524 on the north. This area encompasses approximately 80% of the Lake's total drainage basin.

1.4 PUBLIC PARTICIPATION

A comprehensive public participation process has provided a sound basis for the Plan's preparation. Components of the program included surveys, open houses/workshops and press releases and newsletters. The surveys included a mail-out and on site interviews with non-resident Lake users.





Jackfish Lake

AREA STRUCTURE PLAN



LEGEND

- BOAT LAUNCH
- STUDY AREA BOUNDARY
- - - WATERSHED BOUNDARY
- CONTROL STRUCTURE
- RECREATIONAL DEVELOPMENT
- FOREST / BUSH
- AGRICULTURAL / OPEN
- RESIDENTIAL (Seasonal and Permanent)
- INSTITUTIONAL
- PRIVATE RECREATIONAL DEVELOPMENT
- COTTAGE LEASED

TITLE:

STUDY AREA AND
EXISTING LAND USE



EXHIBIT NO. 2



2. CONTEXT

2.1 INTRODUCTION

A review of background documents, field inspections, and surveys of property owners and non-resident lake users was used to determine limiting factors to development. Limiting factors are discussed in terms of land-based, water-based, and socially-based constraints to development. The following is an assessment of the limiting factors to development and an assessment of the capacity of Jackfish Lake to accommodate additional development.

2.2 CRITICAL LIMITING FACTORS

2.2.1 Land-Based Limiting Factors

Although a series of base maps depicting various levels of planning and environmental data, including various levels of environmental analyses of the Jackfish Lake area from previous studies, were compiled for this planning process, the lack of detailed site specific analysis made it impossible to reach any definitive conclusion regarding land-based limiting factors on any particular parcel.

For referral, the information compiled for this Plan is contained in the background studies document and accompanying maps entitled the "Jackfish Lake Area Structure Plan Situational Analysis". This document was prepared by IBI Group 1995, and is available under separate cover. It should be stressed that the aforementioned information is based to a large degree on secondary sources and very limited field work. Further research will be required to determine the specific capability of individual sites to accommodate multiparcel country residential subdivision.

Where further research is undertaken, development capability for subdivision will be determined based on the occurrence of identified development constraints. These constraints include permanently high water table, temporary high water table, areas subject to flooding, soil instability, topography (slopes greater than 15%), and low groundwater availability. Areas that are determined to have the occurrence of any of these limiting factors will not be permitted to be developed.

Past studies have indicated that there should be sufficient groundwater supplies available for low density country residential subdivision development within the major portion of the study area. The area east and south of Jackfish Lake may have some development restrictions due to low yields and poor chemical water quality available from bedrock aquifers, however, surficial sand associated with tributaries of the Pre-Glacial Beverly Channel form an alternative aquifer within parts of this area.

2.2.2 Water-Based Limiting Factors

Water-based limiting factors or constraints play a significant role in evaluating the future development capability of Jackfish Lake. Although water quality is considered the most critical water-based constraint, fish and waterfowl habitat, morphology (shape) and bathymetry (depth) of the lake are also important.

Jackfish Lake is a relatively small and shallow lake with a very irregular shoreline. There are a number of distinct basins, two of which reach 9.0 meters in depth. The lake bottom sediment is mainly sand in shallower areas with localized areas of clay. There are also a few areas of gravel and rubble substrate suitable for walleye spawning. Approximately 42% of the shoreline (including islands) was developed at the time the plan was initiated. During the plan preparation process approximately 15% of the developed shoreline was reverted back to an undeveloped status through actions of the County, therefore, the lake shoreline is at present approximately 36% developed.

Water Quality

The water quality of Jackfish Lake was first sampled in 1980 and 1981. A comparison of those data with data collected in 1996 indicates no evidence of deteriorating water quality, however, due to annual fluctuations another year of data will be required to definitively evaluate the Lake's water quality.

Despite the above noted indications of stable water quality, it should not be assumed that improvements in managing the Lake's water quality are not necessary. Jackfish Lake has no defined outlet streams and the outlet flows only periodically. As such, the flushing rate for the Lake is estimated to be in excess of 100 years. This means that what goes into the Lake, stays in the Lake. If the nutrient supply is larger than is reflected in present-day phosphorus and chlorophyll levels the lake quality may eventually deteriorate.

Water quality in a lake is a reflection of its watershed, or the land draining into the lake. Central Alberta Lakes are situated in sedimentary soils. These soils are naturally fertile, and therefore the lakes situated in them have a relatively large supply of nutrients and a resultant luxuriant growth of suspended algae and shoreline vegetation. Although these lakes are naturally fertile, human activities can aggravate the problem by increasing the level of nutrients entering the lake.

Cottage properties can release very high concentrations of nutrients from the use of lawn fertilizers, grey water dumping, animal waste or other sources. As well, streams draining agricultural lands, particularly livestock operations, can contribute large amounts of nutrients. Exposed soil will erode easily and the resulting silt contains phosphorus. Removal of natural vegetation on land surrounding the lake increases nutrient supply, because plants that would intercept and take up phosphorus and nitrogen for their growth are no longer present.

Even though sewage is a source nutrients of great concern to many people, it is not practical (perhaps not even possible) to measure the amount of phosphorus actually contributed by leaking septic systems around the lakeshore. Even if a single leaking system does not affect the lake as a whole, it could have significant impacts on plant populations in the area of the leakage. As well as being illegal, there are health implications for lake users in the vicinity of the leaking septic system.

Sediments on the bottom of the lake could be a major source of nutrients in Jackfish Lake. During summer, phosphorus stored in the bottom sediments can move into the water and act as a "fertilizer" for growing algal populations. One study has shown that motor boats (28 - 165 hp) can disturb the sediments in shallow lakes (maximum depth of the test area was 3.4m), and cause an increase in turbidity and phosphorus in the water. In the shallowest areas, the total phosphorus concentration increased by 55%. (Note these studies refer to other lakes and it is not concluded if this will increase the overall greenness of a lake, however, these studies do indicate that motor boat activity can cause a significant increase in the nutrients available to growing algal populations in shallow lakes. Short term control of this nutrient source can be achieved by minimizing the man-made disturbances to the bottom sediments (i.e. reduced boating in shallow areas). Long-term control of this source would be to further reduce the supply of nutrients from outside the lake.

A theoretical phosphorus budget has been constructed for Jackfish Lake. The budget is based on estimates determined for other Alberta lakes and was extrapolated to fit Jackfish Lake. In this budget, released in the "Atlas of Alberta Lakes", the phosphorus supply from sewage was estimated at 8% of the total phosphorus budget. For Jackfish Lake, if all sewage generated around the Lake were placed directly in the Lake the supply of phosphorus from sewage would increase to an estimated 67% of the total external supply of nutrients. This percentage is higher than for any other Alberta Lake (for which phosphorus budgets have been prepared). This highlights the long term importance of addressing sewage disposal in managing water quality in Jackfish Lake.

Runoff from agricultural and cleared land is the next largest source of phosphorus, and one that can be controlled to some extent. This source, and that from runoff from cottage property, should not be minimized in importance because the potential contribution from sewage is so large. It is quite possible that no septic systems around Jackfish Lake are leaking. If so, controlling other sources of nutrients is extremely important.

Any alteration in natural vegetation within a lake watershed, particularly near the lake, could increase the nutrient supply and thereby negatively affect the water quality. However, it is possible to design new subdivisions in such a way that their impact would be so small as to be negligible. Design principles that eliminate or reduce the movement of phosphorus from the land or septic systems include:

- Minimum setback from the shore for cottages and homes. Some literature suggests 30 meters.

- Cluster arrangements for cottages, rather than a strip along the shore.
- Zoning to limit density, types of buildings and uses.
- Bylaws to regulate erosion and runoff from development during construction and after the work is completed.
- Regulation of vegetation removal to the bare minimum. Natural vegetation should be maintained between the cottages and the lake.
- Carefully designed, maintained and inspected septic systems to ensure no leakage toward the Lake.

Environmentally Sensitive Areas

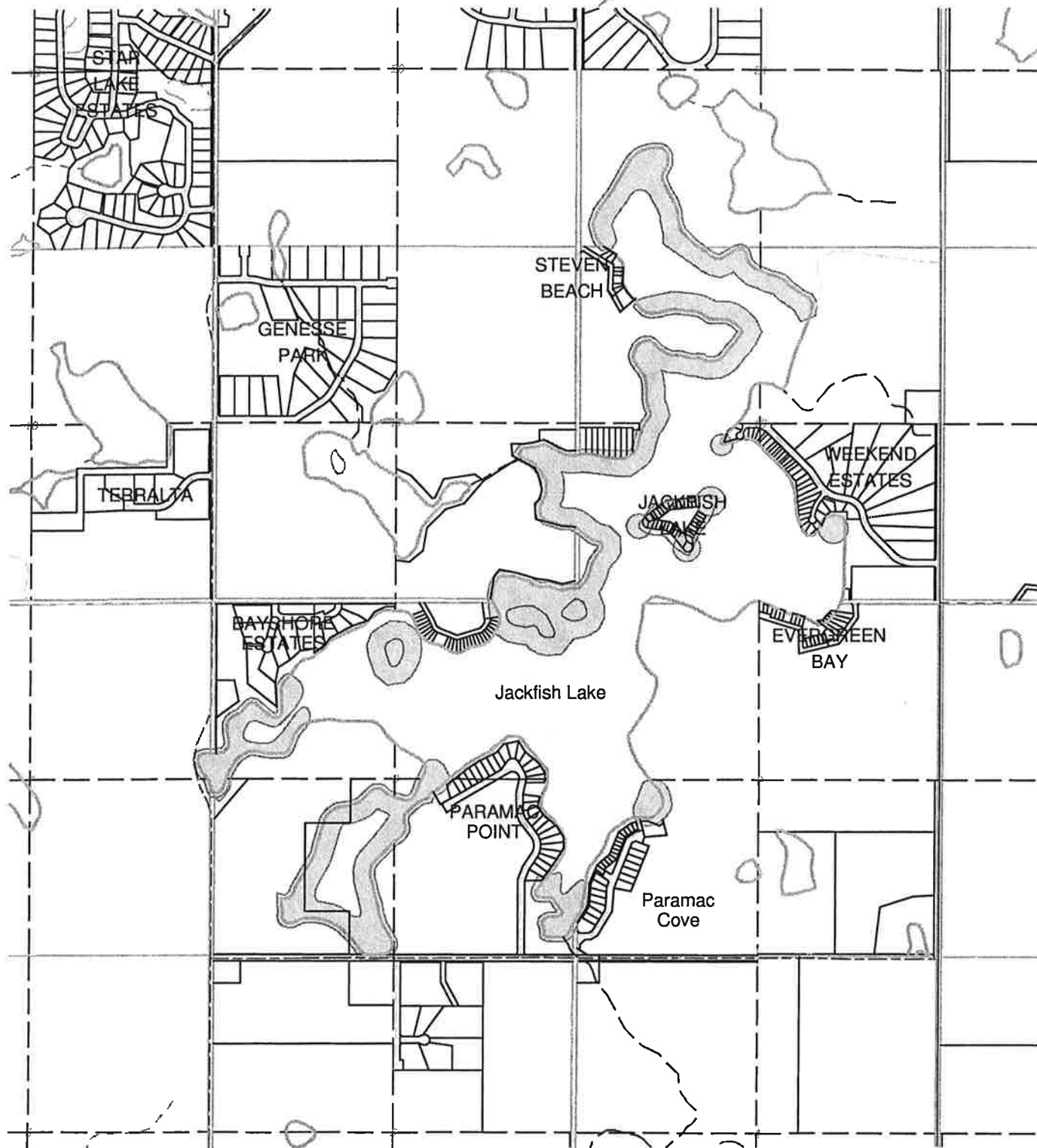
Potential environmentally sensitive areas were identified through a combination of public survey, review of published data sources and a field survey by Alberta Environmental Protection Fish and Wildlife Personnel. The sensitive areas identified were associated with fish spawning habitat, waterfowl nesting areas, as well as general areas of undisturbed shoreline. As significant portions of the Lake shoreline have been disturbed to the extent that they no longer serve a primary fish and wildlife habitat, it is critical that all future subdivision/development protect those areas of the shoreline which have remained in their natural state. However, it is equally important that existing damaged shoreline areas be reclaimed to the extent possible to improve the natural habitat of the Lake.

The environmentally sensitive areas, as well as the areas of damaged shoreline, are shown on figure 3.

Bathymetry/Morphology

The type of recreation activity and intensity of use which can be supported on a lake is determined partly by the bathymetry (depth) and the morphology (shape) of a basin. The following is a summary of areas demonstrating a combination of recreation limiting characteristics, as identified through a field study, analysis of environmental data, and the property owners survey.

- narrow throat, immediately south of Jackfish Lake Island
- the small islands just east of Kenglened subdivision
- the southern end of Paramac Cove
- the shallow access to the bay west of Paramac Point
- the southern end of the bay southwest of Amity Bay
- the narrow throat north of Weekend Estates, and
- the area immediately adjacent to the Jackfish Lake Public Reserve Area and boat launch



Jackfish Lake

AREA STRUCTURE PLAN



LEGEND

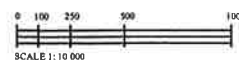
 ENVIRONMENTALLY SENSITIVE AREAS

TITLE:

ENVIRONMENTALLY
SENSITIVE AREAS



FIGURE NO. **3**



2.2.3 Social Limiting Factors

The results of both the property owners survey and the survey of non-resident lake users indicated the perceptions and opinions of these two lake user groups. A number of areas of concern were identified and are described as follows:

Land Use Future Development

- Generally, property owners see the lake as being near or beyond its development capacity. This perception appears to be largely based on their opinions of their local recreation experience on the water. A fairly strong consensus exists among cottage owners who support no additional development on the lake.
- Non-resident lake users perceive a greater threshold for future development potential on Jackfish Lake, for both camping facilities and for residential development. (a marginal preference was shown for additional development that incorporated camping facilities rather than residential developments.

Environment

- Many property owners perceive a problem with diminishing water quality. Many residents perceive that there is a significant problem with sewage entering into the lake.
- Concern was also expressed for diminishing wildlife and fish habitat areas. Preservation of these sites and the restriction of future development were regarded as important measures by a significant number of property owners.

Recreation

- Congestion on the lake was identified as a primary concern for property owners. Safety and noise were cited as the sources of this concern.
- Congestion was perceived as less of an issue for non resident lake users. Concerns related to access to the lake were more important to this lake user group.

2.2.4 Boating Carrying Capacity

Virtually all recent literature reviews suggest that carrying capacity for boating activities is not an absolute number waiting to be discovered, but rather a range of values which must be related to specific management objectives for a given area. A definition reflecting current thinking suggests that carrying capacity is:

“the level or type of use beyond which impacts to the visitor experience exceeds acceptable levels”

For lake environments a variety of boating limits have been developed to address the threshold which impacts the visitor experience. These limits attempt to establish a standard which estimates the amount of recreational use a lake can safely accommodate. Maintaining a reasonable level of user safety and enjoyment is the main consideration in conducting this capacity calculation.

The calculation is based on the observed fact that each water oriented recreational activity requires a certain amount of water surface in order to occur safely and not interfere with other uses. Since boating is the most aggressive, space consuming recreational activity occurring on lakes, the system keys on the lake's capacity for this use. Factors such as public access, navigation hazards, shoreline characteristics and other recreational activities are integrated into the system. This approach is generally appropriate to all lakes. Essentially, it produces, based on a series of factors and assumptions, a total development potential for the lake as determined by its surface capacity.

The Lake's carrying capacity, essentially its ability to support recreational use (boating and related development) was analyzed employing a number of standards from other jurisdictions and studies. Calculations for Jackfish Lake are Based on the following information:

- shoreline distance = 18.1 km (11.25 miles)
- gross water surface area = 239 hectares (590.6 acres)
- estimated net water surface area for boating = 123.8 hectares (306.3 acres) (IBI Group)
- mean of 1.86 boats/Jackfish Lake household (property owners survey, 1996)

The above information has been used to calculate carrying capacity. The detailed calculations are summarized in the Situational Analysis (IBI Group 1996). Application of the various carrying capacity standards indicate that Jackfish Lake has exceeded its carrying capacity for additional boating activity. Two measures indicate that the lake is at or near capacity, one indicates it is 2 times capacity, three measures indicate that it is 5 times capacity, and one measure indicates it is currently at 17 times capacity.

3. SUMMARY OF KEY PLANNING ISSUES

The key planning issues identified are summarized as follows:

- perceived decline of the recreational experience on Jackfish Lake;
- increasing concerns regarding environmental degradation of the Lake, particularly water quality;
- perceived diminishing capacity of the Lake by existing residents to support additional residential development;
- growing concern regarding the loss of natural wildlife habitats and fish spawning areas as recreational uses and development increases;
- increasing fears related to boating safety and conflict between different lake user groups;
- ensuring public access to the Lake is maintained; and
- ensuring that any additional development is done in such a manner so as to not further aggravate water quality and boating capacity concerns;

4. LAKE AND LAND USE POLICIES

4.1 PLAN PHILOSOPHY

The underlying philosophy of the Plan is to successfully manage the environmental and recreational resources of Jackfish Lake in a responsible and sustainable manner.

More specifically, the Plan philosophy is based on a number of key principles:

- The Lake is essentially over capacity with respect to boating with potential implications for safety and participant satisfaction levels. This implies potential limitations on future development opportunities.
- Boating safety and growing conflicts amongst users necessitate the implementation of boating restrictions. The finalization of these regulations is beyond the scope of this Plan and the jurisdiction of the municipality.
- The Plan seeks to recognize environmentally sensitive areas around the Lake, and promote their value/role in enhancing the overall high quality recreational experience for lake users, as well as their role in preserving water quality.
- Rehabilitation of areas of degraded shoreline and the maintenance and improvement of water quality are other principles which underlie this Plan.

4.2 PLAN GOALS

The goals of the Plan provide the foundation for the specific objectives and policies which will serve to guide the future land use and management of Jackfish Lake.

- To preserve and enhance the natural environment, and control any activities which contribute to environmental degradation of the watershed and Lake;
- To maintain and improve the quality and safety of the recreation experience for all lake users;
- To promote the safe and responsible recreational use of the Lakes natural resources;
- To ensure the Jackfish Lake remains a public resource that is accessible to the public;
- To develop an efficient land use strategy which minimizes social, environmental and infrastructure costs;
- To recognize and promote the important interrelationships between lake users, residents, Parkland County and other government bodies; and

- To monitor the cumulative effects of lake development and use upon the environmental and social fabric of the Jackfish Lake area.

4.3 PLAN OBJECTIVES, POLICIES AND GUIDELINES

The Plan objectives, policies and guidelines that follow represent the means and mechanisms by which the planning goals may be achieved. The objectives represent specific aspects of the Plan's goals, which are in turn implemented via the Plan policies, which specify particular actions, requirements and standards. Plan objectives, policies and guidelines are organized by issue.

Control and management of the shoreline and waters of Jackfish Lake involves all three levels of government. Each level of government has a specific area of jurisdiction in relation to the lake. The original 1997 Jackfish lake Area Structure Plan did not provide enough detail in this regard. The Jurisdiction section that follows addresses this need. Policies deal with issues that are under the jurisdiction of Parkland County, and over which the County has enforcement authority. Policies must also be read in conjunction with the provisions of the Parkland County Land Use By-law 15-00. Guidelines in this Plan refer to matters that are outside the jurisdiction of Parkland County, and are included for information. Appendices attached to the Plan are also included for information, but do not form part of this Area Structure Plan.

4.4 JURISDICTION

All three levels of government are involved in the management of Jackfish Lake. Parkland County draws its authority from the Municipal Government Act, Statutes of Alberta, 1994, Chapter M-26.1. Under the Municipal Government Act (MGA), Parkland County has jurisdiction over land use planning adjacent to Jackfish Lake.

The MGA allows County Council, as the planning authority for the County, to adopt an Area Structure Plan as a land use planning policy document, for Jackfish Lake. Once Council adopts an Area Structure Plan, other County planning authorities such as the Development Authority, the Subdivision Authority, and the Subdivision and Development Appeal Board, must either comply with or have regard to the policies in the Area Structure Plan. Area Structure Plan policy is also reflected in the County's Land Use By-law 15-00. The By-law formalizes the land use districts called for in the Area Structure Plan's policy statements, and also includes regulations on subdivision and development.

Parkland County has responsibility, through the subdivision and development control processes, for the way in which land adjacent to the Jackfish Lake is developed. The MGA allows Parkland County to require the dedication of municipal reserve (MR) or environmental reserve (ER) lands as part of the subdivision process. When an ER or MR parcel is dedicated at Jackfish Lake, ownership to that parcel is in the name of Parkland County. Parkland County is responsible for the administration and management of the MR or ER parcel.

The County can require a developer to dedicate an ER parcel, through the subdivision process, to protect land that consists of a swamp, gully, ravine, coulee or natural drainage course. ER can be taken to protect land that is not suitable for development,

such as a floodplain, or steep, unstable slopes. ER can also be taken adjacent to any lake, river, stream or other body of water to prevent pollution or to provide public access to and beside the bed and shore of the water body. In the Jackfish Lake context, ER acts as a buffer between privately owned land and the lake. There is also growing evidence that an ER parcel, if left substantially in its natural state, acts as a natural buffer to help preserve fish spawning grounds, protect water quality, and reduce erosion by maintaining shoreline stability.

The primary purpose of an ER parcel, according to the MGA, is to ensure that the land within the ER parcel is “left in its natural state or used as a public park”. In the case of an ER parcel adjacent to a lake, the main intent of the legislation is that ER parcels will remain as vegetated buffers between developed land and the lake. The MGA allows Council to use an ER parcel for other purposes, but Council must advise the public of its intentions through a notification and public hearing process.

An ER parcel ends at the bed and shore of the lake where the jurisdiction of the provincial and federal governments begins. Both the provincial and federal government have jurisdiction over the waters of Jackfish Lake.

The provincial government has jurisdiction over the ownership and use of water, as well as ownership of the land underneath that water (i.e. the lake bed). The provincial government’s authority over the ownership of the bed and shore of a lake is derived from the Public Lands Act, Revised Statutes of Alberta, 1980, Chapter P-30. Under Section 3 of the Public Lands Act “the title to the beds and shores of all permanent and naturally occurring bodies of water, and all naturally occurring rivers, streams, watercourses and lakes is vested in the Crown in right of Alberta”. The definition of the “bed” of Jackfish Lake is all of those lands lying below the bank (i.e. ordinary high water mark or OHWM). The definition of the “shore” of Jackfish Lake is “that part of the lakebed below the OHWM which is exposed when water levels are low”.

The provincial government also has authority over the ownership and use of water under the Water Act, Statutes of Alberta, 1996, Chapter W-3.5. Under Section 3(2) “the property and the right to the diversion and use of all water in the Province is vested in her Majesty in right of Alberta”. The Act also governs activities that may have an impact on the aquatic environment. Approvals are required for most activities related to the waters of a lake.

The federal government also has jurisdiction in two areas involving a provincial water body such as Jackfish Lake. The first is under the Fisheries Act (Canada) and the fish habitat provisions of that Act.. Fish habitat is defined as “spawning grounds and nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly to carry out their life processes” An activity that results in or has the potential to cause the harmful alteration, disruption or destruction of fish habitat may require an authorization from the Department of Fisheries and Oceans (DFO) or require mitigation to ensure that there is no net loss to habitat. The second area is the Navigable Waters Protection Act (Canada), with respect to navigable waters. With respect to an activity that may restrict or obstruct navigation, approval may be required from the Canadian Coast Guard to ensure that the public right of navigation is protected.

This section on jurisdiction clarifies the roles of the various levels of government at Jackfish Lake. Parkland County, for example, has jurisdiction over, and responsibility for, the administration of reserve parcels acquired through the subdivision process. This is an area where the provincial and federal governments do not have jurisdiction. The provincial government does have jurisdiction over, and responsibility for, temporary and permanent docks and piers. Parkland County does not (except for any minimal effect from a pier or dock's contact with an ER parcel). Both the provincial and federal governments have jurisdiction over, and responsibility for, issues related to fish habitat and water quality. The province has jurisdiction and responsibility for the bed and shore of Jackfish Lake, and is the regulatory authority for docks and piers. The federal government may also have a role to play where dock, piers and other development on the bed and shore may affect fish habitat. Parkland County does have some limited jurisdiction and responsibility with respect to water quality under the Soil Conservation Act.

4.5 SHORELINE PROTECTION AND ENHANCEMENT

The protection of a lake's immediate shoreline area is one of the primary ways to ensure the protection of the lake's water quality as well as ensure its role as both a fish and wildlife habitat. To ensure the long-term health of Jackfish Lake it is important to protect the remaining undisturbed shoreline as well as to attempt to return as much of the shoreline to as natural a state as possible.

Although there is always strong public support to establish wide environmental reserve areas along new developments for the purposes of maintaining a natural buffer for the lake, there is a significant problem with the violations to the integrity of existing reserve lands. Most of the lots fronting onto Jackfish Lake have areas of environmental reserve between the private lot and the lake, however, almost all of these reserve areas have been developed into sand beaches and/or mowed lawns. Many of these areas have also been developed with pier structures, boathouses and retaining walls. There is less public support for these areas to be returned to a natural state as there is for the protection of new development areas.

To maximize the ultimate health of the lake, which was identified as one of the major issues in the plan preparation process, the existing reserve improvements must be addressed. It is also not logical to require new developments or the agricultural community adjacent to the lake to meet stringent guidelines to protect the water quality if existing shoreline developments are permitted to continue to violate all accepted guidelines of proper lake management and the provisions of the Municipal Government Act under which the purpose of environmental reserves are clearly established.

OBJECTIVES

To ensure that any potential shoreline improvements adhere to regulatory and aesthetic standards.

To ensure that shoreline improvements will not impair the sensitive shoreline ecology.

To preserve and enhance the natural environment, wildlife and fish habitats.

To promote the protection of fish and wildlife habitats.

To limit activities which contribute to environmental degradation.

To reclaim areas of disturbed shoreline into a more natural state.

POLICIES

1. Parkland County shall include in all development agreements for approved new subdivisions on lands covered by the Plan a requirement that the developer post public notice signs to mark the boundaries of environmental reserve parcels. Posting of existing subdivisions will be completed as resources allow.
2. A buffer of natural vegetation between privately owned lots and the lakeshore is the best method of ensuring the protection of natural habitat and the health of the lake. Environmental reserve parcels, municipal reserve parcels, and other municipally-owned parcels, including undeveloped roads, that are immediately adjacent to the waters of Jackfish Lake and any other water body in the Plan area shall be left in or allowed to return to their natural state. This applies to all such parcels of land, whether in existence prior to, or created subsequent to, the adoption of amendments to this Area Structure Plan on April 9, 2002. No development by adjacent private landowners shall be allowed on these lands, with the exception of a path to be allowed for access to the lake. The width of the path is to be equivalent to 20% of the average lot width, and to a maximum width of 10 metres. The exception to this policy is Parkland County's boat launch located on Lot R-3, Block 2, Plan 5115 TR.
3. By December 31, 2002 Parkland County shall require the removal of all existing private developments, including but not limited to such uses as boat houses, decks, lawns, man-made beaches, etc., located on existing reserve lands identified in Policy No. 2 above. Exceptions are retaining walls and firepits. Parkland County shall require the landowner(s) responsible for or associated with the development (i.e by way of ownership) to allow natural vegetation to permanently re-establish itself on the affected reserve parcel. A path equivalent to 20% of the average lot width, and to a maximum width of 10 metres, is allowed for access to the lake. This path is not intended for use by automobiles, and/or trucks. No permanent development is allowed on this path.
4. Parkland County supports the concept of common or clustered pier/dock facilities, but recognizes the jurisdiction of the federal and provincial governments over the installation of individual piers and docks within the waters of, and on the bed and shore of Jackfish Lake. Parkland County supports the conditional approval by Public Lands of individual piers and docks in existing environmentally sensitive areas identified in this Plan, and in any emerging environmentally sensitive areas that emerge as natural vegetation buffers regenerate along the lake's shoreline. Emerging environmentally sensitive areas will be subject to re-assessment by the Fish and Wildlife branch of Alberta Sustainable Resource Development. Results of the re-assessments may lead to

revisions to *Schedule A – Environmentally Sensitive Areas* as new areas emerge.

5. Parkland County has no objections to temporary piers and docks approved by Alberta Public Lands that rest on reserve lands and other municipally-owned lands abutting the lake. Parkland County does not support the approval and development of permanent piers and docks on environmental reserve.

GUIDELINES

6. Alberta Public Lands Branch shall be consulted prior to any shoreline modifications and authorizations shall be obtained where necessary.
7. Appropriate shoreline management practices shall be encouraged where modifications are undertaken, in order to maintain the natural integrity of the shoreline and to avoid conflict with the Federal Fisheries Act.
8. For areas of damaged shoreline, a shoreline rehabilitation program shall be implemented in an effort to restore fish and wildlife habitat and natural vegetation necessary for the overall health of the lake's ecosystem.
9. Shoreline modifications that affect the bed and shore of Jackfish Lake, such as weed cutting, are prohibited unless authorized in accordance with the Water Resources Act and the Public Lands Act provisions.

Please see Appendices to this Plan for further information regarding shoreline protection and applications for dock/pier construction.

SUMMARY

The difficulties with establishing policy in this area will be associated with potential changes to long standing development patterns across reserve lands and the shoreline and the coordination of the County and Provincial agencies in their administration of reserve lands, shoreline and aquatic habitat.

Policies will have to be implemented with consistency if they are to be effective in protecting the integrity of the Lake.

4.6 BOATING/LAKE USE CONFLICTS

This is one of the most difficult issues related to the management of the Lake as the use of the lake's surface for boating and other recreation is outside of the jurisdiction of an Area Structure Plan and the County. These issues are under the jurisdiction of the Federal Government and are coordinated at the Provincial level.

Although these issues are beyond the enforcement scope of this plan it is important that objectives and policy statements are addressed in this plan in conjunction with the issues that are under the control of the County.

One of the primary issues that must be addressed in this section is that of the right to access a “public water body”. It must be understood that access to the lake must be equal to all persons and that any rules applied to boating on the lake must be fairly applied to all. Ownership of a lakefront cottage does not bestow any “special” or “additional” recreational rights or privileges to the cottage owner.

OBJECTIVES

To enable the public to enjoy convenient and safe access to the lake while respecting the interests of lake residents.

To minimize the future impact of boating activities on the lake by allowing no further formal boat launch or marina development on the lake.

To encourage coexistence among the various types of water-based recreation activity and fish and wildlife management practices.

To maintain the quality of the recreation experience for all users of Jackfish Lake.

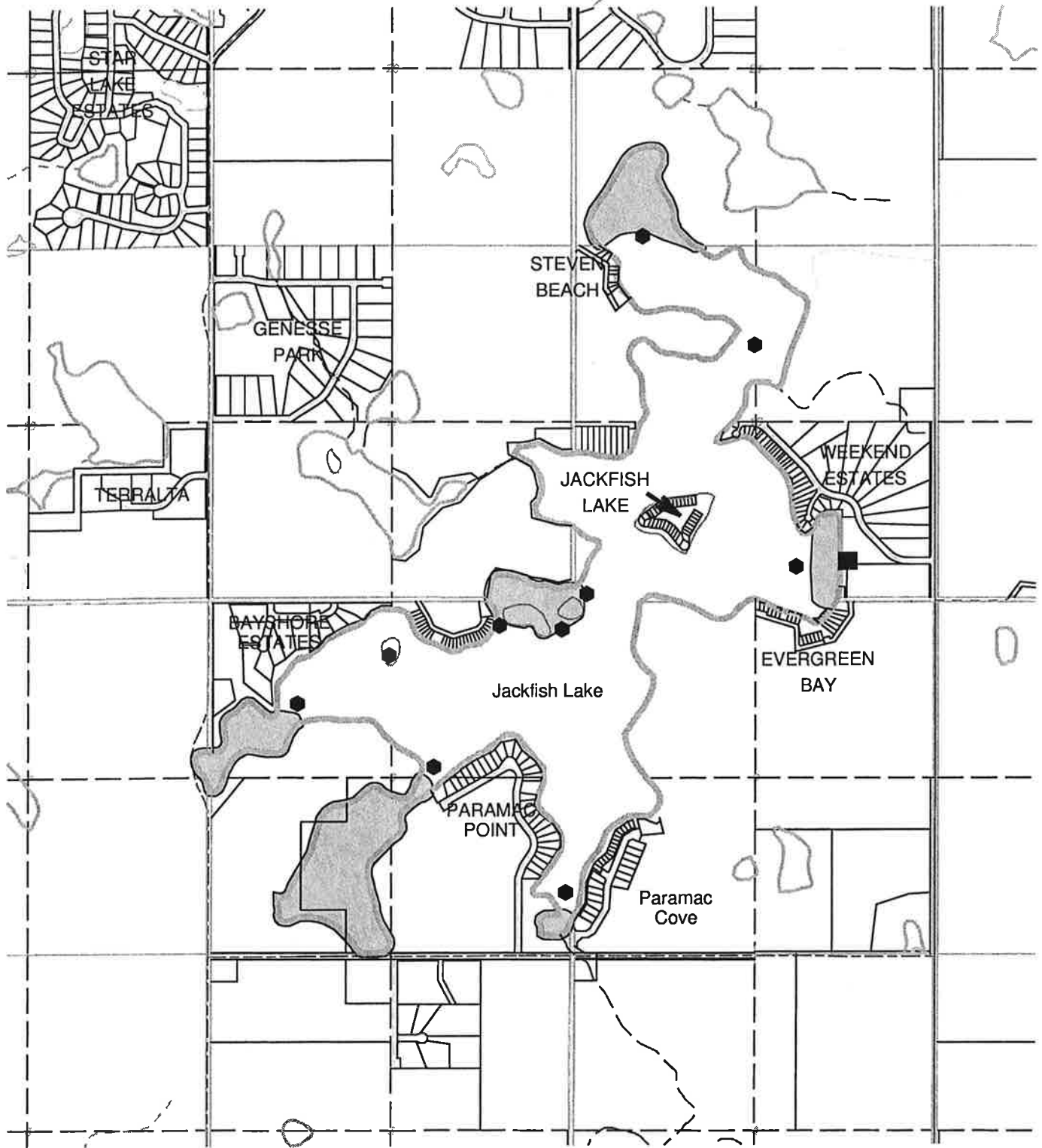
To promote the safe and responsible recreational watercraft use of Jackfish Lake.

To educate lake users on all aspects of boating/regulations.

To develop a boating operations plan to ensure recreational safety and to protect significant natural areas.

POLICIES

1. No further formalized public day use areas, campgrounds or boat launch facilities shall be developed adjacent to Jackfish Lake.
2. Only one boat launch facility, comprised of 23 parking stalls, shall be permitted on Jackfish Lake. Access to the parking lot associated with the public boat launch shall be controlled and enforced.
3. Development of any marina facilities that would encourage an increased level of boating activity on the lake shall not be permitted.
4. The County will initiate the process of an application to the Alberta Fisheries Management Branch for designation of boating regulations under the Canada Shipping Act (Boating Restriction Regulations). The application will include a variety of suggestions that will address the range of regulations identified below:
 - Recreation activities should be restricted in potentially dangerous and environmentally sensitive areas. Uses should be restricted to passive, non-intrusive activities such as wildlife viewing and interpretation and limited speed boating (the areas identified in Exhibit 4 should be considered for boating speed limits of 10 km/h (GMPH))






Jackfish Lake

AREA STRUCTURE PLAN



LEGEND

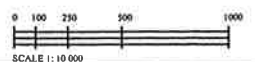
-  RECOMMENDED DESIGNATED SPEED LIMIT AREAS 10 KM/H
-  RECOMMENDED WARNING AND DIRECTIONAL SIGNAGE LOCATIONS
-  BOAT LAUNCH

TITLE:

BOATING POLICIES



EXHIBIT NO. 4



- In order to minimize disturbance resulting from excessive boating noise levels, the activity/speed restrictions should be applied; 10 km/h (6 mph)
 - speed limit before 10:00 a.m. and after 10:00 p.m. Other alternative regulations such as speed limits before noon and at supper hour should also be considered as possible options.
 - A system of warning, directional and speed limit signage should be developed at key locations including but not be limited to those identified in Exhibit 4.
5. Parkland County, in conjunction with the respective enforcement agencies and the Jackfish Lake Management Association shall implement an ongoing education program focused on informing lake residents/users of all aspects of watercraft safety, environmentally significant areas and user rules/regulations on Jackfish Lake. The education material shall be made available for distribution at the public boat launch and to local cottage residents.
 6. The County shall require boat owners wishing to use the public boat launch to ensure that their watercraft are properly registered in accordance with all existing regulations. The registration is to assist the County and other enforcement agencies in their boating regulation enforcement action (This shall be implemented as part of an education process about already existing boating regulations and registration requirements).

4.7 ADDITIONAL LAKE DEVELOPMENT

Although it is accepted that the Lake is beyond its carrying capacity in terms of boating activity, the lake basin has been identified as having additional development capacity if evaluated from a land use perspective. This difference in the two methods of determining development capacity creates significant difficulties in rationalizing either a no-development or pro-development scenario in the plan. As such it is probably most suitable to consider a limited development scenario that attempts to address both environmental and recreational concerns. What is clear, however, is that Jackfish Lake is not able to accommodate any form of additional recreational development that specifically focuses on intensive water based recreation. This serves to place the potential development focus on lower density permanent residential development.

It has been suggested by Alberta Environment that properly designed and managed low density residential development can be developed with a negligible impact on the lake water quality. To accommodate this residential development while minimizing the impact of the development on the environment and on the boating activity level, a variety of design criteria for additional developments have been established.

OBJECTIVES

To protect the water quality of the lake by effectively managing the lake use and watershed activities.

To preserve and enhance the natural environment, wildlife and fish habitats, particularly through the management of any activities which contribute to environmental degradation and watershed and lake contamination.

To promote the protection of fish and wildlife habitats by designating areas of environmental significance.

To consider appropriate (residential) development provided that it does not contribute to the degradation of the lake environment.

To accommodate future development based on the study area's ability to sustain further development.

To maintain high quality recreation experience at Jackfish Lake, as it relates to appropriate densities and concentrations of lake-oriented recreational development.

POLICIES

1. To accommodate development with the Plan area, Council of Parkland County may consider an application to amend the Land Use Bylaw to change the districting on a specific parcel(s) of land to the Country Residential Restricted (CRR) district. This land use district provides for low-density country residential development in accordance with the remainder of the provisions of this Plan. Upon proof of development suitability, and upon tentative acceptance of a subdivision or development scenario in keeping with the site's development suitability and the provisions of this plan, Council may re-district the subject lands to the Country Residential Restricted district.
2. There shall be no new development on leased properties that result in the creation of additional "cottage" units beyond the numbers of units existing under past permits.
3. Where replacement units are to be developed on leased lands, the new units shall be required to be brought into conformance with current building standards as well as standards for sewage disposal for cottages.
4. There shall be no new subdivision on lands that fail to meet Alberta Environment's Guidelines for the evaluation of subdivisions. Constraints to subdivision include permanent or temporary high water table, areas subject to flooding, soil instability, topography (slopes greater than 15%), and low ground water availability.
5. Intensive recreation development shall not be permitted within the plan area. Intensive recreation developments are considered to be those that include facility development and/or generate significant, concentrated lake use including but not limited to waterslides, marinas, boat rental facilities, and campgrounds.
6. At the discretion of Parkland County, any new subdivision proposed adjacent to identified environmentally sensitive areas may be subject to environmental

review. (Consideration in the review should be given to the minimum standards for an Environmental Impact Assessment as established by Alberta Environment.

7. Notwithstanding the above policy, proponents of any future new subdivision within the Jackfish Lake study area must demonstrate through detailed site analyses development suitability along with any required mitigation measures to ameliorate identified environmental impacts associated with said development.
8. New development shall be developed at a maximum density of 1 residential parcel per 3 acres of developable land. This may be achieved with a minimum parcel area of 3 acres or through the use of lots of as little as 1 acre in size and subject to the transfer of development densities within existing quarter sections and large parcels. Lands remaining after a transfer of development densities shall be dedicated to the municipality as either municipal or environmental reserve, depending on the characteristics of the lands in question.
9. The minimum mean parcel width for a 1 acre parcel shall be 30 meters. The minimum mean parcel width for a 3 acre parcel shall be 60 meters.
10. The irregular nature of the Jackfish Lake shoreline works against the imposition of a conceptual subdivision standard, such as cluster design over linear design. Given the irregular shoreline, as subdivisions are applied for on specific parcels of land, a proposed subdivision design will be evaluated in relation to the characteristics of the shoreline of the subject parcel, with the intention of creating as large an environmental reserve parcel as practically possible to provide the necessary buffer between lots to be subdivided and the lake. At the time of subdivision a minimum 30 meter environmental reserve shall be dedicated between the lake and any newly created parcel.

SUMMARY

There is continual pressure for additional development adjacent to Lakes. This pressure is likely to increase significantly as undeveloped land around lakes becomes scarcer and the population continues to increase. Because of its proximity to the city and its quality, Jackfish Lake will continue to experience some of the strongest of these pressures.

Although it is recognized, by most measurable standards, that Jackfish Lake has reached its boating capacity, it may not be reasonable to close the entire planning area to all additional development. Rather, it may be more reasonable to find a way to allow some additional development in a way that is likely to have a minimal additional environmental and recreational effect on the lake. It is suggested through this plan that low density residential development that is properly designed is the best way to minimize overall impact on the lake, while continuing to offer development opportunities to existing and future land owners.

4.8 WATER QUALITY/SEWAGE DISPOSAL

To ensure the integrity of the lake water quality it is critical that sewage disposal systems are managed properly. This is particularly critical on existing high density subdivisions and leased lot developments where parcels are much smaller than would be allowed under current standards.

The upgrading of sewage systems may create significant costs and concerns for some individuals who may have minimal investment in a seasonal cottage or leased lot development, however it is not possible to ignore these substandard developments when considering the overall future health of the Lake.

OBJECTIVES

To provide the water quality of the lake by effectively managing lake use and watershed activities.

To ensure that new development in the planning area does not adversely affect water quality.

To develop/upgrade sewage treatment systems to an acceptable standard to eliminate the possible migration of sewage effluent into the lake.

POLICIES

1. All new and existing developments shall have properly permitted, installed and maintained sewage disposal systems for all waste water (including all grey water waste).
2. Agricultural land practices shall ensure that run-off is controlled at source. No intensive livestock operations shall be permitted within the lake watershed.
3. Parkland County, in conjunction with the Jackfish Lake Management Association and the local Health Unit shall prepare and distribute educational material, which will provide information on options for sewage treatment, including costs.
4. The County shall request the Regional Health Authority to investigate identified nuisance situations, with a view to requiring corrective measures deemed necessary.
5. The County shall attempt to undertake, or encourage others to undertake, water quality monitoring on timely and regular intervals (every five years). The primary purpose of the monitoring program shall be to determine the effectiveness of the watershed management practices implemented as part of the Plan.

4.9 TRANSPORTATION

Given the relatively small planning area, the limited development scenario, absence of “through” traffic, access to a secondary highway and the existing network of township and range roads, there are few transportation objectives to be achieved through this plan. This is also supported by public comments which have indicated very few concerns with traffic or transportation linkages.

OBJECTIVES

To provide a hierarchy of roads which meets the needs of local residents and Lake users.

To develop a road network which permits efficient and unobstructed movement of traffic to and from the areas while at the same time, providing for a safe local environment for residents.

POLICIES

1. The Parkland County Transportation Study (1996) identifies a recommended road network which shall serve as the basis for the Plan.
2. Secondary Road 770 shall serve as a north/south arterial, providing access between Highway 39 and Highway 16. Access to Secondary Road 770 shall be limited to one mile intervals except where additional access is necessitated by terrain restrictions or previous development commitments.
3. Range Road 25 shall serve as a minor collector. Upgrading of this road to a higher standard will require consideration to prevent surface run off into the lake during construction.
4. The east/west municipal roads on the north and south boundaries of the Plan area shall serve as minor collector roads.
5. The balance of the transportation network for the Plan area shall consist of internal local and county roads providing access between individual developments and identified collector and arterial roads.
6. Direct residential access will generally only be allowed onto local internal roads.
7. The development of the local roads shall have consideration for development on adjacent lands. Careful planning and design control shall be required to ensure the integration of future development into the existing, and proposed network. Where possible additional traffic should not be routed through existing developed local roads.

4.10 RECREATION OPEN/SPACE

To maintain the environmental quality of the lake, maximize opportunities for wildlife, and enhance the quality of the recreational experience around Jackfish lake, it is important to identify and develop, where possible, a comprehensive open space network for the entire Plan area.

OBJECTIVES

To provide a usable network of open space for residents/lake users.

To develop an open space system which protects drainage courses, natural vegetation and environmentally sensitive areas.

To provide for a continuous natural open space system, linking natural area, residential area, and the Lake.

POLICIES

1. Future subdivision shall include access corridors and linkages which connect open space areas so as to optimize the potential of the total open space network for recreational or other general use activities compatible with the terrain characteristics.
2. All municipal reserve dedication taken at the time of subdivision shall be taken in the form of land. This land should be used to separate existing subdivisions from new development. Reserve lands should also be used to attempt to provide pedestrian access to the water without requiring new developments to access through existing subdivisions.
3. Roadways required by subdivision activity may be located across open space areas, provided that their location and design will result in a minimum disturbance to the open space areas and will permit the construction, operation and maintenance of the road without restricting the natural function of the areas. Parkland County, in connection with Alberta Environmental Protection and other relevant conservation agencies shall investigate opportunities for acquiring and managing lands identified as potential open space. These could include:
 - ER and MR dedication as part of the subdivision process;
 - Crown purchase;
 - Designation as natural areas;
 - Other forms of stewardship (i.e. conservation easements.)

4.11 IMPLEMENTATION AND ADMINISTRATION

AUTHORITY OF THE PLAN

Pursuant to the provisions of the Municipal Government Act, this Plan shall be adopted by Parkland County as the Jackfish Lake Area Structure Plan.

Subdivision, development, and redevelopment of lands within the plan area shall be in accordance with the provisions of this Plan.

Parkland County shall encourage the Provincial and Federal governments to have regard for the provisions of this plan in the development of Crown lands and in the formulation of related Provincial or Federal policies and programs and in the issuance of any permits within the planning area.

LAND USE BY-LAW

Any proposed subdivision or development shall be required to comply with the provisions of this Plan as well as any provisions set forth under the Land Use By-law.

The Land Use By-law shall be amended to incorporate and accommodate the provisions set forth in this Area Structure Plan.

PLAN REVIEW AND MONITORING

The County of Parkland County may amend this plan to incorporate new goals, lake and land use policies. The Council shall review and amend the plan where necessary.

The County of Parkland County shall consult relevant Provincial agencies, and refer amendments as deemed necessary by such agencies for review and comments and shall consider such comments prior to the adoption of any amendments.

