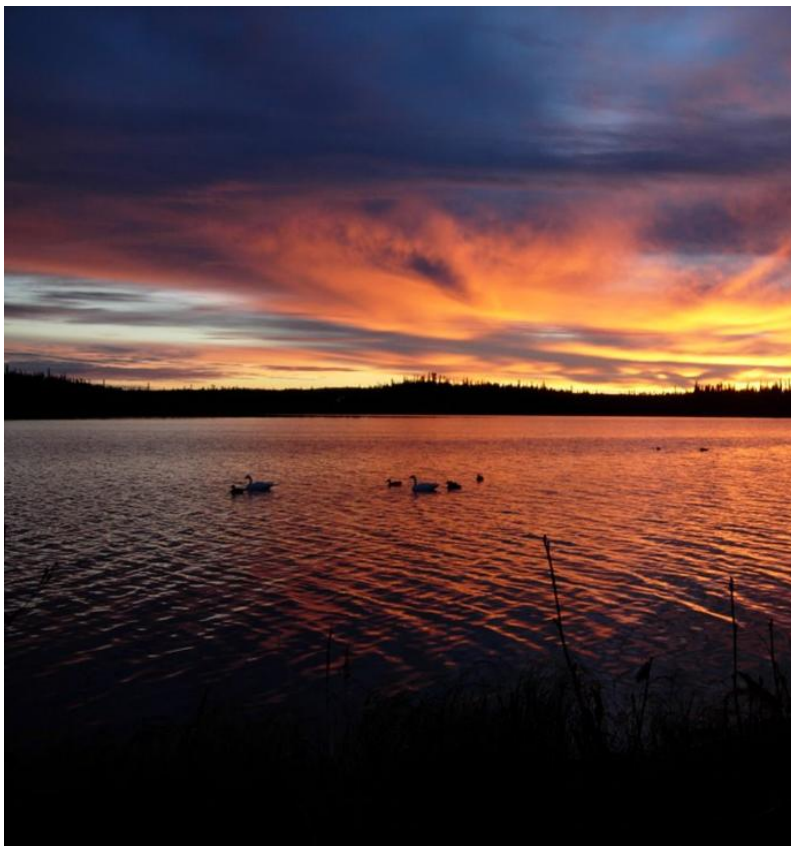


# Louise Susitna and Tyone Lakes Comprehensive Plan

2016 Update

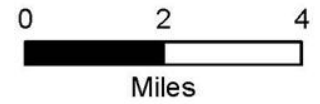
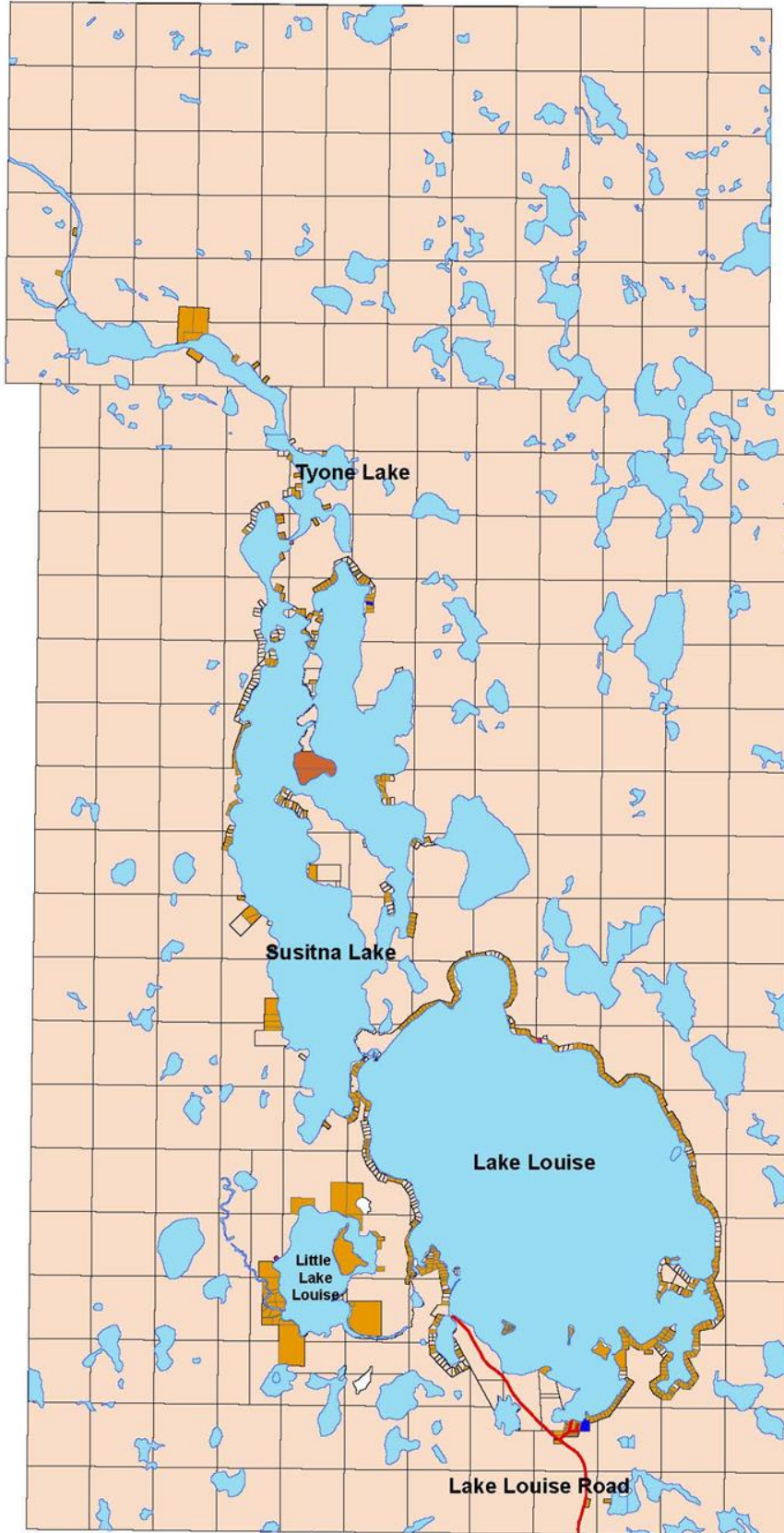
Adopted June 21, 2016



Matanuska Susitna Borough



# Louise, Susitna, Tyone Planning Area Land Ownership



Prepared by  
Planning and Land Use  
Department  
September 2015

The planning area consists of MSB Tax Maps Lake Louise 1-16 and Tyone 1-16.

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# ACKNOWLEDGMENTS

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Kelly Campbell

Jim Else

Uve Kalenka

Ted Kinney

Claire Marie

Ken Perkins

Tim Thornock

And a few stalwart community members who attended many team meetings





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## PURPOSE OF PLANNING

Plans exist to provide residents, property owners and other members of the community the ability to make effective decisions about the needs and goals for their community. A comprehensive plan is a compilation of policy statements, goals, standards, and maps for guiding the physical, social, and economic development, both private and public, of a community. It is necessary for the immediate preservation of the public's peace, health, and safety.

The comprehensive plan provides the community with a method of analyzing past development and influencing the future outlook of their community. Information about a community, its economy, land use, public facilities, and transportation facilities are collected and analyzed. Projections of community growth and future needs are made. Through citizen participation, community goals and objectives are identified. Recommendation for land use, public facilities, and transportation facilities are developed based on these goals and objectives.

Alaska Statutes Title 29.40.030 requires a second-class borough adopt a comprehensive plan by ordinance. The Matanuska-Susitna Borough (Borough) was incorporated as a second-class borough in 1964. In 1970 the Borough wrote the first Borough-Wide Comprehensive Plan, when the population was just 6,509 people. In the late 1990's the Lake Louise Community undertook writing their own comprehensive plan which was adopted in 1998. At that time the estimated population of the Borough was 54,153; there are now almost 100,000 people in the Borough.

Planning should be an ongoing process. A comprehensive plan is based on information available at a particular time. In the future, new developments may occur and the needs of the community may change. The comprehensive plan should therefore be reviewed periodically, and updated as necessary.

## BOROUGH PLANNING PROCESS

The Planning Commission established a process for developing community based comprehensive plans and what shall be included in the plans. Basic elements of a comprehensive plan include: a brief history of the area; an inventory of existing conditions, issues and concerns; and goals, objectives and recommendation for land use, transportation, public facilities, green infrastructure, watershed/water quality protection and any other topic the community requests.

Under the process, local planning activities may be initiated by request of a community or area. A request for local planning assistance is forwarded to the Planning Commission for consideration. Upon Planning Commission approval of the request, planning staff advertises for members of a local advisory planning "team."

The Borough requires that an individual be a resident, property owner, business owner, or agency with an interest within the planning area boundaries in order to participate in the planning process. All

applications for membership on the planning team are reviewed and appointments made by the Planning Commission.

In 2013, the Lake Louise Community Non-Profit Corporation requested staff assistance to update the 1998 plan. The Mat-Su Borough Code 2.76 establishes community councils to afford citizens an opportunity for maximum community involvement and self-determination (MSB 2.76.010). While the Louise Susitna Tyone Community Association does not meet the definition of the code, according to MSB 2.76, the Borough does recognize the organization as the voice of the community. The Borough makes this accommodation for areas with few residents, but many property owners.

In January, 2014 a Planning Team of interested community members was appointed by the Planning Commission, and they began to meet on a monthly basis. At the beginning of the process, the Planning Team requested a survey be distributed to property owners within the Lake Louise planning area to help ensure community involvement in the process. A total of 497 surveys were mailed, and 202 responses were received, for a 41% return rate. Throughout the document survey results will be highlighted by the star symbol.



The Team requested a follow-up survey be sent to property owners seeking input on the goals and strategies drafted. The survey was mailed in May 2015 and reviewed at a community meeting in July, 2015. The survey showed a high community concurrence with the Planning Team's goals. The comment period ran throughout July and August of 2015. The Planning Team reviewed the comments and readied the draft document for review for the Non-Profit Community Board Meeting in January, 2016. After a brief meeting in February, the Planning Team and Non-Profit Organization were in agreement with the final version of the plan. The Planning Commission passed a resolution recommending adoption of the plan at their April 4, 2016 meeting.

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## INTRODUCTION

Lake Louise, Susitna and Tyone are at the far eastern edge of the Matanuska-Susitna Borough, but they consistently attract generations of families to their shores for fishing, recreation, hunting, and just plain relaxing from throughout south central Alaska. Land owners are eager to share their passion for the area with their children and grandchildren. As a legacy area, folks are eager to protect life as it exists currently. In the late 1990's, the community came together and drafted a comprehensive plan for Lake Louise and the surrounding areas. The plan was passed by the Matanuska-Susitna Borough (Borough) Assembly in 1998.

Although the Borough has grown substantially in the intervening years, the population of the lakes has stayed constant while the number of full time residents has decreased slightly. The vast majority of the property in the area is owned and used as cabins and second homes. Lake lodges are important as they provide fuel, propane, boat launches, parking, social gathering spots, and a strong continuity in the area.

The overall goal of the plan highlights the importance of natural resources and recreation in the area.

***“To provide and promote recreational opportunities while maintaining and protecting the natural resources and the rural character of the area”.***



The goal is to strike a balance between recreation and protecting the natural resources of the area which people find so compelling. Overall, most residents would like the area to remain as it is, but that is highly improbable.

The topic which generated the most robust discussion was about infrastructure. The State of Alaska intends to offer an additional 74 parcels for sale around the lakes which will impact a number of things, including parking, channel operations, and increased use of all the resources.

Some people see the need for additional infrastructure to serve additional landowners and a growing visitor population. Others are fearful that an increase in infrastructure will lead to more casual visitors



turning the lake experience closer to that of Nancy Lake in Willow, or Big Lake. Comments from the first survey say it best:

*“The existing infrastructure within the community is already challenged. We need additional public parking, a deep water boat launch, mooring and a safe way to access those lakes north of Lake Louise.”*

Survey Comment

*“Yes, the state is putting pressure on the resource by selling additional lots. I feel the response to is not to overreact by establishing a comprehensive plan that embraces development but instead embraces a set of values reflective of conservation and a serene life style”*

Survey Comment

This comprehensive plan update seeks to find the common ground between these two sentiments.

**LOUISE, SUSITNA AND TYONE LAKES  
COMPREHENSIVE PLANNING PROCESS TIME LINE**

<b>Date</b>	<b>Activity</b>
<i>May 2013</i>	Lake Louise Community Non-Profit Corporation requests assistance to update 1998 Community Comprehensive Plan
<i>July 2013</i>	Assembly authorizes planning process through Resolution 13-082
<i>August 2013</i>	Planning Commission authorizes planning process through Resolution 13-37
<i>Fall 2013</i>	Notices and mailings sent asking for planning team members
<i>February 2014</i>	Planning team of 15 members appointed by Planning Commission
<i>February 2014</i>	First monthly planning team meetings begin; organizational meeting
<i>March 2014</i>	<ul style="list-style-type: none"> <li>• Vision Statement discussion</li> <li>• Other plans affecting the area</li> <li>• Review of 1998 Introduction and Background</li> </ul>
<i>April 2014</i>	Survey discussion
<i>May 2014</i>	First survey questions finalized; survey mailed
<i>June 2014</i>	<ul style="list-style-type: none"> <li>• Guest Speakers: Melanie Troust MSB Water Quality Coordinator</li> <li>• Eileen Probasco, MSB Director Planning and Land Use Department</li> </ul>
<i>July 2014</i>	<ul style="list-style-type: none"> <li>• Survey results discussed</li> <li>• Prepare for Community Meeting</li> </ul>
<i>July 19, 2014</i>	First Community Meeting and Workshop – Lake Louise, AK
<i>August 2014</i>	<ul style="list-style-type: none"> <li>• Guest Speaker: Roy Robertson, AK DEC, Drinking Water Program</li> <li>• Community Meeting review</li> </ul>
<i>Sept &amp; Oct 2014</i>	No meetings – hunting season & staff illness
<i>November 2014</i>	<ul style="list-style-type: none"> <li>• Planning Area Boundaries</li> <li>• Review Background Section changes</li> </ul>
<i>December 2014</i>	<ul style="list-style-type: none"> <li>• Review Background Section changes</li> <li>• General goal discussion</li> </ul>
<i>January 2015</i>	<ul style="list-style-type: none"> <li>• Great Land Trust Presentation</li> <li>• Review 1998 Plan Recommendations and Implementations</li> </ul>
<i>February 2015</i>	Review 1998 Plan Recommendations and Implementations
<i>March 2015</i>	Two Meetings <ul style="list-style-type: none"> <li>• Update from MSB Solid Waste Division</li> <li>• Land Use Discussion</li> <li>• Review Transportation Section</li> <li>• Review Land Use Section</li> </ul>

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<i>April 2015</i>	<p>Two Meetings</p> <ul style="list-style-type: none"> <li>• Review Transportation Section Review Public Facilities</li> <li>• Water Review</li> <li>• Recreation Review</li> <li>• Land Use Review</li> <li>• Introduction</li> </ul>
<i>May 2015</i>	<p>Two Meetings</p> <ul style="list-style-type: none"> <li>• Full Plan Review</li> <li>• Survey Question Review</li> </ul>
<i>July 2015</i>	<p>Review Survey Results Prepare for Community Meeting</p>
<i>July 18, 2015</i>	Community Meeting – Lake Louise, AK
<i>July – August, 2015</i>	Draft Plan Comment Period
<i>September 29, 2015</i>	Review Comment Summary
<i>January 23, 2016</i>	Non-Profit Community Board Meeting
<i>February 24, 2016</i>	Planning Team Meeting
<i>April 4, 2016</i>	Planning Commission Public Hearing
<i>June 7, 2016</i>	Introduced to Assembly
<i>June 21, 2016</i>	Assembly Adoption

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**Vision Statement**

***“To provide and promote recreational opportunities while maintaining and protecting the natural resources and the rural character of the area”.***

## SUMMARY

Archaeological studies, conducted to date, indicate possible habitation of the area as early as 10,600 years ago. Numerous archaeological and historic sites certainly indicate habitation of the region as long ago as 3,000 to 4,000 years. The western Ahtna known as the "Small Timber People" may have been in the region around 1500 A.D. and radiated out from camps on the Tyone River. As the tribe made incursions westward into Upper Dena'ina territory, a splinter group became known as the "Mountain People" through intermarriage. Fluent in both languages, they occupied predominantly the Talkeetna mountain area. The western Ahtna, reputedly larger in stature, often intimidated the Dena'ina of Upper Cook Inlet. This behavior was observed as recently as the late 19th Century. A network of trails radiated in diverse directions from the area, allowing communication and trade between the inhabitants of Lake Louise and those of the Upper Cook Inlet, Copper River, Susitna, Nenana, and Tangle Lakes. Trails were also used for long journeys to favorite hunting and fishing sites.

The most prominent sites are situated on the north and south peninsulas separating Lake Louise and Susitna Lake, and on the north shore of Tyone Lake at Tyone Village. Historical accounts note Russian contact with interior natives through their coastal trading posts but do not support Russian penetration into the interior other than a disastrous trip taken up the Copper River which ended with the whole party being murdered. It is quite evident by the name of Tyone village, the family name of Secondchief, and a child's name of Olga that there was a strong Russian influence.

Recent history of the region is characterized by a continuance of native occupation in portions of the area, as typified by more contemporary structures in Tyone Village, and by increased uses, primarily for the purposes of mineral exploration work and outdoor recreational activities such as hunting and fishing. For the most part, the physical remnants of these activities are not detectable. A few geophysical exploration trails are still found crossing the countryside but this pattern is indistinct even when viewed from the air.

## EXPANDED ARCHAEOLOGY AND EARLY HISTORY

Lake Louise, Lake Susitna and Lake Tyone, are all located within the Copper-Susitna River lowlands. These lowlands once harbored an extensive preglacial lake, Glacial Lake Atha. As the glaciers retreated, the Copper and Susitna Rivers provided outlets for the once extensive glacial lake. Glacial deposits became reworked by lake currents or buried by lacustrine sediments. The plateau, therefore, supports numerous glacially formed drumlins and eskers, ranging between 2,500 to 3,700 feet high which trend north - south. Today the plateau, with an elevation of 2,000 feet, is dotted and carved by numerous glacial lakes and streams. While most of the tributaries to the Copper River flow south, the Lake Louise chain is drained by the Tyone River which flows north into the Susitna River. The Susitna River flows west through the Talkeetna mountains and south into Cook Inlet. Salmon Berry, Game Trail, Second Hill and Crosswind Lakes, located east of Lake Louise, all drain southeasterly into the Copper River which

continues south, eventually emptying into Prince William Sound and the Gulf of Alaska (P'ew'e & Reger, 1983).

The period following the glacial retreat is often referred to as the Tundra Period. Areas previously locked in ice, opened up as new vegetation took hold along recently formed rivers and streams. Steppe grasslands gave way to shrub tundra, enabling both animals and people greater freedom to search for new subsistence resources. Approximately 10,600 years BP (Before Present) the plateau, supporting numerous lakes and rivers, served as a natural corridor for big game. The scattered drumlins and eskers probably served as "look-out points" and hunting camps for the earliest inhabitants. Spearheads and microblades recovered from area sites indicate a prevalence of hunting camps. Inhabitants of this era probably lived primarily on caribou, moose, bison and possibly fish. Although the date of 10,600 years BP for early hunters in the region has not been totally substantiated, it is probable that the earliest occupants were hunting on the plateau by 3,500 BP at least. It is unknown how these early inhabitants relate to succeeding populations of Athabaskans who are known to have reached this area by 500 AD. For the last several hundred years, the region around Lake Louise has been winter feeding grounds for Nelchina Caribou herds. This provided Athabaskan populations with a fairly predictable meat source during long hard winter months (James E. Dixon, 1985 and Ronald Skoog, 1968).

The Tyone-Susitna Rivers, prior to 1500 A.D., supported one of the largest inland recorded Ahtna village sites. The Western Ahtna expanded westward into the Talkeetna Mountains and northwest into the Nenana River drainage. Known as the *Hwtsaay Hwt'aene* or "Small Timber People" they probably were "Central Based Wanderers" and undertook lengthy trading journeys down river to supplement their supplies, often traveling distances of 40-50 miles. Their main fishing sites, permanent winter villages, and hunting camps were frequently located in close proximity along lake shores (James Fall, 1981).

By the mid-19th Century, the Small Timber People had village camps on Tyone, Susitna, Louise and Tazlina Lakes. When conducting trade with native populations, the Russians would generally seek out the recognized chief and deal with them, thus preserving traditional native social systems. An elaborate system of trails between Lake Louise and the Matanuska Valley enabled the Dena'ina and Ahtna to travel between Upper Knik Arm to and from the Copper River-Susitna plateau. Wrangell made note of a settlement called "Dorf Nuchta" at the head of Knik Arm on his 1839 map (others have referred to the village as Niteh). Wrangell noted: "trails lead from Nuchta to Lakes Chtuben (believed to be Lake Louise) and Mantilbana (Fall and Kari, 1987).

After the sale of Russian America to the United States, the Russian Alaska Company (RAC) trading posts were bought out by the Alaska Commercial Company (ACC). When the Ahtna came to trading posts at the headwaters of Knik to procure their own goods, tensions ran high between them and the Upper Dena'ina. Used to acting as middlemen in the fur trade, the Dena'ina resented and feared the Western Ahtna. This often resulted in the most sought after goods being sold out before the Tyone village people would make it to the trading post.

Lt. Castner, who was leading one of several expeditions under Captain Glenn in search of an "All American Route" to the gold fields, believed his party in 1898 was the first Euro-American contact with

Matanuska natives. His expedition was eventually greeted with enthusiasm as they joined the native camp. Castner had hoped to hire several natives to help shoulder his load, but was unsuccessful in retaining more than one. For a brightly colored blanket and \$2.00 per day he managed to secure a Matanuska native willing to carry 60 pounds and guide them to the Tanana (Lt. Castner, 1998).

After extracting their mules from numerous mud holes, the expedition only traveled 14 miles the following day. Arriving on August 6, 1898, after having sustained a very arduous journey to Lake Louise, Lt. Castner marveled at its beauty, claiming his party was the first white men to see "the largest lake of the Copper plateau region." Upon encountering the beauty of the lake, Castner named it Lake Adah, after a pretty girl of his acquaintance. This name, however, did not last long, after Captain Glenn traversed the region he persuaded Lt. Castner to change the name to Lake Louise after Glenn's own "esteemed" wife. Castner declared the region:

“Well worth a visit by the lover of mountain scenery. To the east of us, and beyond the Copper River, ran that great spur of the St. Elias Alps in which are the mighty glaciated peaks Sanford, Tillman, Blackburn, and the great dome-shaped, ice-covered, smoking volcano, Mt. Wrangell, 14,000 feet in elevation.

South of us stretched the snow caps of our old enemies, the Chugach Range, through which we had at last broken away. West of us more glaciated masses, called Talkeetna Mountains, trended north of the Alaskan Alps. Highest, most snow covered and forbidding of all, these last interposed between us and the Tanana River. We were in a tract made rectangular by four great mountain ranges, and from our position almost in its center, one obtained a view of mountain scenery unequaled anywhere else on earth.”

Once gold was discovered on Maclaren and Valdez Creeks in 1903, the Tyone village people migrated to those locations to participate in the gold rush. Russian authorities often designated the son of a chief "Second Chief" or "hunting chief" (English translation). It is therefore, interesting to note that a family of "Secondchiefs" lived in the village of Tyone at the turn of the 20th Century. Although they continued to return to their ancestral home to hunt, they too, participated in the Valdez-Maclaren gold rush. Today the descendants of the "Secondchiefs" live in Cantwell (James Fall, 1981 and BLM ANSCA).

The Tyone village people who continued to live in the lower villages on Susitna and Louise Lakes were instrumental in locating gold in the Talkeetna Mountains, which precipitated the 1913 Nelchina rush. Although they never staked a claim, they became freighters and haulers for those who joined the rush. Later, in 1916 through the 1920's, as coal mines opened up in the Central Matanuska Valley, the remaining villagers drifted to the coal mining sites or joined larger villages in Cantwell, Glennallen and Copper Center. The 1918 flu epidemic took its toll on the Small Timber People; many succumbed to it in Chickaloon and other regions, which decimated the population. Although few lived on the plateau after the 1920's, native populations still returned to their traditional homes to hunt caribou. It is likely that Euro-American hunters and trappers also used the area for harvesting furs and game (Katie Wade).

## MILITARY PRESENCE

The US Army built recreational camps in the region in the 1940's, as construction of the AlCan and Glenn Highways made inroads into the wilderness. These complexes provided the military with an exclusive recreational location, far away from the rigors of war in the Aleutians. In August, 1947, two years after the close of World War II, the General of All Armies (allied), General Eisenhower (five star) planned to stay one night at the lodge but it appears the peacefulness and beauty of the area persuaded him to relax for four full nights before continuing his journey.

Spotting Lake Louise as a likely place to have a Rest and Recuperation (R & R) site, the U.S. Air Force started construction of cabins and a large comfortable lodge on the southwest shores of Lake Louise in the mid 1950's. The armed services continued to use their facilities until the buildings sustained major damage from the 1964 earthquake, after that use of the complex ceased. An environmental restoration is underway and the military hopes to have it completed after the 2015 field season, have worked on the project since 2009.

After completion of the Glenn Highway in the mid-1940's, people had greater access to the area, which precipitated increased interest in recreational properties. By 1953, the first road into Lake Louise was constructed. Mineral exploration and geophysical work also began in the area during this time frame.

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## THE NATURAL SETTING

The Copper River Basin, where the lakes are located, is bounded on the west by the Talkeetna Mountains, to the east by the volcanic Wrangell Mountains, to the south by the Chugach Mountains, and to the north by the Alaska Range. Elevation in the basin varies in elevation from 500 feet along the Copper River near Chitina to nearly 4,000 feet in the western uplands.

The upland area consists of hummocky hills and undulating terrain, characteristics of the glacial moraine and ice stagnation deposits left by glaciers retreating into the Chugach Mountains during the Pleistocene Age. Drainage of the surrounding basin is by the Copper and Susitna Rivers with the planning area sitting primarily west of the drainage divide.

The area around the lakes is dotted with hundreds of water bodies ranging from ponds to very large lakes of twenty or more square miles in surface area. The largest lakes in the area are Lake Louise (16,100 acres), Susitna Lake (9,425 acres), and Tyone Lake (960 acres). Lake Louise itself is situated in the west central uplands at an elevation of about 2,500 feet. Separated from Lake Louise by an isthmus, Susitna Lake makes up the bulk of the remaining water surface in the planning area. Tyone Lake is generally narrow, and very weedy and shallow in some spots. There are large submerged boulders throughout the lake which can cause navigation challenges in the summer. The lake is sparsely populated with mostly seasonal recreational cabins, which can be accessed in the summer by boat and winter by snow machine, however ice thickness can be questionable due to the varying width and depth of the lake along with changing currents.

The Copper River Basin possesses a continental climatic regime; this is modified in the summer by marine influence from the Gulf of Alaska. There is generally a high water table and poor drainage. Tree growth is difficult in such areas and fire can result in retrogression to grass or low shrub communities. Even without fires, the areas may not progress to the climax of white spruce, but will develop into poorly drained areas with black spruce as the dominant species.

### GEOLOGY, GEOGRAPHY, AND SOILS

The lakes lie in a natural basin at an altitude of 2,360 feet above sea level. The drainage is from the south end of Lake Louise through Susitna and Tyone Lakes, into the Tyone River and finally into the Susitna River.

The Copper River Basin has been subject to both mountain building and erosion processes, although the chronology is not clear. During the Triassic era, seas receded from the area and crustal formations resulted, producing the basin's present form.

Glaciation has been the dominant geologic process during the last million years. The glaciers grew, moving along river courses and down the valleys, coalescing and spreading along the fronts of the ranges until the entire basin was filled with ice. It has been estimated that the thickness of this ice was several thousands of feet. Evidence of this extensive glaciation exists today in the form of glaciers still



retreating into the Chugach Mountains (e.g., Tazlina Glacier) and the mantle of glacial debris that is found in the lowlands.

The area related to the plan is situated in a broad lowland floored with glacial silts and gravels. The terrain is poorly drained and lake-dotted with a rolling, nearly level surface broken by gravel ridges. Kettles, kames, eskers, and other glacial depositional forms are common. A bedrock hill of basaltic green stone occurs in the extreme northwest corner of the area south of Tyone Lake. Reaching an elevation of nearly 3,100 feet, it is the topographic high point in the area. Agricultural soils are negligible.

Extreme variations in soil grain sizes, degree of grading, and texture of unconsolidated surface deposits are common in the area. As a result, distribution of the deposits can be mapped only generally by showing dominant materials likely to be encountered and by describing subordinate types. Finer particles generally consist of finely ground glacial rock-flour, silt, or clay. Coarser particles consist primarily of rock types brought by glaciers from outside the area, primarily from the Chugach Mountains. Other than the basaltic green stone bedrock previously described, these coarse, unconsolidated deposits are the only source of resistant rock material suitable for construction.

There is a distribution of six associations of unconsolidated surface materials, nearly all of which are underlain by permafrost. In the unconsolidated deposits, permafrost is at a shallow depth ranging from one to two feet in muskeg with thick sphagnum moss; to two to five feet in lake and glacial deposits depending on drainage conditions, vegetative cover, and slope aspect. In some more favorable locations such as gravelly outwash plains, river terraces, and ice-stagnation knolls and ridges, permafrost is probably deeper than six feet. Beneath small permanent streams, lakes, and grass or sedge marshes that border lakes, permafrost is probably much deeper; perhaps deeper than 20 feet under major rivers such as Tyone River.

During January and February, the most severe winter months, seasonal frost exceeds two feet in all soil associations. Seasonal frost penetration may be retarded in local soils with high levels of dissolved minerals or organic solids, or in which decay of plant material produces heat. In some of the gravelly or sandy unsaturated ridges and ice-stagnation knolls, where the water table is low enough to permit formation of "a dry frost," particles may not be cemented and winter excavation might be possible.

Although there are no indications of faulting on any available geologic or soils maps of the area, the planning area is found within the area of central Alaska, which is seismically active.

## **HYDROLOGY AND WATER QUALITY**

The entire area is dotted with lakes, a product of recent glaciation. These lakes range from shallow marshy ponds to large lakes like Tazlina Lake to the south of Lake Louise, which covers 60 square miles and is as much as 400 feet deep. Many of the small lakes and ponds are subject to large seasonal and annual fluctuation in water level and may change from a marsh to a lake from one year to the next. The drainage network is young and poorly developed with interstream areas containing ponds and lakes with no apparent outlets. Approximately 110 square miles (or 50%) of the area is water surface with the

principal lakes, Lake Louise, Susitna Lake, and Tyone Lake, accounting for over 40 square miles of surface area. These three lakes serve as headwaters to Tyone River which in turn flows into the Susitna River.

The water from Lake Louise (2,362 feet mean sea level) flows into Susitna Lake (2,361 feet mean sea level) through a narrow channel at the northwest end of the lake. The channel has been straightened and deepened by local residents to improve boating access between the lakes. The terrain tributary to Susitna Lake is drained by seven minor unnamed streams. The outlet of this hydrologic system is Tyone Lake which narrows to Tyone River, a broad (80 to 100 feet) deep, slow moving river flowing over mud and gravel. The smaller streams in the area are generally less than 25 feet wide and in most instances are less than two feet deep. Stream bottoms are generally composed of sand and gravel or silty sand.



Susitna Lake has depths which vary from 20' to 120' through the southwestern section of the lake. Lake Louise is a cold, clear lake fed by streams emanating from spring-fed lakes to the north and west. The lake has two deep holes reaching 132 feet. The central portion of the lake reaches 66 feet in depth with most of the islands rising from the 25 to 50 foot level. The shore areas and banks are composed primarily of gravel and some sand. The northwestern end of the lake, being exposed to prevailing south-southeast winds throughout the summer, has developed a considerable expanse of shallow, sandy bottom which, in places, is as little as four feet deep 3/8 mile off-shore. The east and west lake shores are primarily gravel except for the shallow bays. The deeper inlets on the south and west shores are muck-filled with abundant aquatic vegetation.

Mid-day surface temperatures of Lake Louise range around 60° F during July and August. By way of comparison, surface temperatures of Little Lake Louise, just to the west of the larger lake, range around 70° F, reflecting the differences in relative size and depth of the two lakes.

Typically the lakes freeze in October and are ice free by the end of May, although this is variable and depends on climatic factors such as air temperature, amount of snowfall and surface water temperature. Ice thickness on Lake Louise and most other lakes in the immediate vicinity average near four feet and can be as deep as five feet during severe winters (1970-71). Local residents have indicated that a thin spot develops in the ice at the southerly narrow neck between Susitna and Tyone Lakes when the lakes are frozen. Several snow machines and even an automobile have been lost through the ice, resulting in three deaths. Although no data is available to explain this phenomena, the weakness may be

caused by a current developing in the narrow pass, by organic decomposition of the shallow bottom, gas deposits, by warm water seeps on the bottom, or by saline seeps on the bottom.

## VEGETATION

The vegetation that covers the relatively flat rolling terrain has developed in the severe environmental conditions that typify northern latitudes. The interior forests of Alaska struggle in extremely cold winters and very short summer growing seasons. Development towards climax has been interrupted by wildfire; in some continually burned areas, the forest has yielded to brush cover. Permafrost and poor



drainage patterns have brought the water table close to the surface in much of the area, stunting or preventing tree growth. In spite of these conditions, some areas are covered with dense stands of trees, although no commercial quantity of timberlands exist.

Considering the northerly latitude and low relief, there is considerable vegetative diversity. Five tree species, about 50 shrubs, herbs, and several hundred mosses and lichens can be found in the vicinity. There are six vegetative associations which consist of the following:

- Vegetative Association 1 - High Forest. This is typically white spruce mixed with black spruce, quaking aspen, balsam poplar, white birch, willow, and alder are found on the well-drained better soils.
- Vegetative Association 2 - Low Forest. Similar to the high forest except that black spruce predominate, low forest occurs in areas of poor drainage.
- Vegetative Association 3 - High Brush. A transition association typified by white birch, willow, and alder, it occupies areas burned 10 to 50 years ago. Drainage and wildfire determines whether forest or brush will develop.
- Vegetative Association 4 - Low Brush. The low brush association is characterized by fireweed, heath and berry bushes on poorly drained or recently burned sites.
- Vegetative Association 5 - Muskeg. Muskeg consists of a dense growth of dwarf birch, willow, and heath shrubs with a thick ground cover of mosses, sedges, and grasses growing in inundated or wet areas.
- Vegetative Association 6 - Marshes and Bogs. Marshes contain pond lilies, rushes, sedges, grasses, and other plants up to four feet high growing in a shallow water environment. Bogs

consist of acid-loving, semi-aquatic vegetation in local spongy hummocks and tussocks. This association is a valuable habitat for wildlife and waterfowl.

### **FISH AND FOWL**

Some common birds are willow ptarmigan, rock ptarmigan, white-tailed ptarmigan, spruce grouse, cormorant and the trumpeter swan. The planning area plateau supports a sizable nesting population of many duck species. An estimated fall flight of about 212,000 ducks originates from the area. The area is not considered an important migration resting area or wintering area because of the late spring ice break-up and early fall freeze-up.

The Trumpeter Swan is a fairly uncommon species of bird. Studies indicate one-quarter of the continent's population nests in the Copper River region, placing the swan high on the list of important species to consider when developing the area. These huge birds need solitude and freedom from human disturbance during their nesting period. They are migratory and nest in the planning area; and the area's nesting grounds are the key to their continued existence.



Some common fish inhabiting the streams and lakes in the Lake Louise area are arctic grayling, lake trout, fresh water lingcod, whitefish, and long-nose suckers. Fishing is governed by the State of Alaska, Northern Region, Upper Copper - Upper Susitna Drainage regulations.

### **WILDLIFE**

Wildlife resources are abundant in the area. Big game populations including grizzly bear, moose, furbearers, and related broken forest species are numerous. The Nelchina caribou herd with upwards of 40,000 animals migrates through the area each year. A host of smaller species are also plentiful in the area.

### **CLIMATOLOGY**

The climate is controlled primarily by the location and intensity of a semi-permanent low usually centered near the Alaska Peninsula or over the Aleutians, a semi-permanent high south-southeast of Alaska, topographic influences of surrounding high mountains, and, to a lesser degree, marine influences.

In summer the intensification of the Pacific semi-permanent high, coupled with occasional inland thermal low pressures, cause a flow of air from Cook Inlet and Prince William Sound up the Matanuska and Copper River Valley into the Copper River Basin. This moist marine air sometimes condenses with

the increase in elevation, causing clouds and light rain in the basin, producing most of the precipitation that occurs in the area. In winter, high pressure in the inland area and lows in the Gulf of Alaska reverse the flow resulting in little precipitation in the basin. As a result, the summer climate is of a modified marine type with a continental climate in the winter.

At an elevation of 2,300 to 2,800 feet, the area averages about 14 inches of total annual precipitation. Snow cover in the area may vary considerably (average maximum accumulation is about 21 inches) with the exposed open lakes and high areas blown clear and much accumulation in sheltered, tree covered areas. However, the winds are generally light with gradual snow drifting.

Temperatures in the Copper River Basin show continental (as opposed to marine) influences with colder nights and warmer days. Average temperatures remain below freezing from October through May in nearby Gulkana. During June through September, temperatures reach above freezing on a regular basis and can get as high as 60 degrees in July and August.

The area is relatively flat, and winds can come up suddenly. Localized weather is often observed by property owners; however there is no specific data for the lakes. The nearest weather station is Gulkana, which records prevailing winds out of the Copper River Canyon through the Chugach Mountains in the summer (southeast) and reverse during the winter (north). Lake Louise is close to the Matanuska River Valley which provides some of the air flow into the area. Winds will rarely exceed 50 mph.



Relative humidity should, on the average, be above 80% during early morning hours with daytime values below 50% during May through August, the warmest period.

Gulkana cloud data indicates that the maximum cloud cover occurs during the summer rainy season, although the variation through the year is relatively small. Storms in the Gulf of Alaska do not directly affect the Copper River Basin; however, clouds at the higher levels of this storm area probably

contribute significantly to the lack of clouds. During winter, slightly less than one-half of the days are usually cloud free or partly cloudy.

Year-round residents of Lake Louise report that ice fog lays over Lake Louise and other nearby lakes frequently during winter months. The ice fog usually does not extend more than 100 feet above lake level.

Seasonal variation in the length of daylight at the latitude of Lake Louise, 62°N, is great enough to modify recreational activities to a far greater extent than in mid-latitudes. While 20 hours of daylight

may be expected in June at the summer solstice, there is only about six hours of daylight in December at the winter solstice.

Severe storms are uncommon as the mountains generally prevent passage through the area. However, very low temperatures, slightly in excess of -65° F, were recorded during the winter of 1970-71 at Lake Louise. Thunderstorms occur with an average frequency of four per year at Gulkana. These storms may have some short intense showers, but hail is rare and usually small and soft. Winds with these storms are normally less than 30 mph. Unusually high winds of 100 mph occurred in October 1986.

## THE HUMAN FACTOR

### POPULATION

Today there are a small number of families living in the area on a year-round basis with many more recreational cabins present along the lakes shores. The population of the planning area has been erratic over the last 20 years, increasing to a high of 88 residents in 2000 and then decreasing to 46 in 2010 before rising again to 53 in 2013 (see table 1). The number of recorded housing units suggests a high percentage of recreational units around the lakes.

**TABLE 1**  
**Population Information**

1994	2000	2010	2011	2012	2013	2014
50	88	46	49	50	53	38

Sources: 1994 information from the 1998 Lake Louise Comprehensive Plan; 2000 and 2010 Decennial US Census (Lake Louise Census Tract); 2011-2014 State of Alaska, Dept. of Labor, Research and Analysis Division

### HOUSING

Borough assessment data for 2014 show a total of 493 buildings, of which 451 or 99.56% are single family units by borough standards. Most parcels have seasonal cabins and associated outbuildings on them. The 2010 census estimates less than one percent of those single family units are occupied year round.

The average parcel size in the area is 4.67 acres; with the largest parcel at 160 acres and the smallest parcel at .13

### Comparison of MSB & Lake Louise Residential Parcels



acres. Of those, 91% of the parcels are owned by Alaskans and account for just less than one percent of all Matanuska-Susitna Borough parcels at .95%. (Source: MSB Assessment Data)

## **ECONOMY**

The local economy is based on recreation for visitors and property owners. The primary recreation opportunities include hunting, fishing, snow machining, dog mushing, cross country skiing, skijoring and boating. Area lodges operate on a seasonal basis. The lodges provide essential services including fuel, storage for boats, snowmachines and cars, boat docks, boat launches, as well as offering food and beverage. This is the primary economic activity in the area. The community of Glennallen, located about 35 miles to the southeast is the planning area's commercial center.

## **ASSESSED VALUATION AND TAXES**

The 2014 assessed valuation for land was \$10,030,300, and buildings were \$10,540,050 for a total of \$20,626,400. This is approximately double what the assessed valuation for real property in 1994 was; \$10,377,800. Approximately \$240,250 of property tax is collected annually.

Area accommodations also collect a bed tax in the Borough; the current rate is 5%.

## EXISTING LAND USE

Land use patterns are primarily related to cabins and second-home residential use. The 2013 estimated number of permanent residents in the area was 53 individuals. Property owners and visitors increase the population to more than 500 persons throughout the summer and fall months, when people visit the area to fish, hunt or camp. Spring break in March and summer holiday weekends, particularly the Fourth of July are crowded on the lake. Winter sports activities attract visitors as well. The present road access into the planning area is a paved road, rife with frost heaves, extending from an intersection at Mile 159 of the Glenn Highway and running approximately 21 miles north to the southwest end of Lake Louise.

The area is a popular visitor destination throughout the year for many different recreational groups. Visitors to the planning area come primarily to enjoy the area's recreational opportunities which abound throughout the year. The exception is during ice break-up and freeze up when travel on the lakes is minimal.



The majority of summer visitors come to the area to participate in water oriented recreational pursuits which include fishing, boating, sightseeing, camping, wildlife observation, limited hiking, and swimming.

With the opening of the hunting season and the colder nights in late summer, few visitors enter the area except to hunt. Ice usually forms on the larger lakes in mid to late October. Off-road transportation during this period is difficult until a sufficient buildup of ice occurs to permit operation of over-ice vehicles and ski planes. Recreational activities in winter months include hunting, ice fishing, cross country skiing, dog mushing, and snow machining. The Lake Louise Snow Machine Club, aka the “Wolf Pack”, a non-profit organization, groom a network of snow machine trails in the planning area popular with property owners and visitors.

Few hiking trails exist. Motorized use during break-up results in rutted trails which become difficult for foot traffic.



## LAND OWNERSHIP

Private property in the area was originally obtained from the Federal Bureau of Land Management prior to Statehood in 1959, and the State of Alaska after that time. Some land has also been sold from private citizen to private citizen. The State of Alaska plans to sell another 74 remote recreational parcels on the three lakes sometime in the future.

The State of Alaska owns the majority of land in the planning area, which is currently covered by the 1985 Susitna Area Plan. The Borough's parcel data is based on assessment data and since the Borough does not tax the State of Alaska, the data is incomplete. However some State properties have been identified and for illustrative purposes are used in the table below. Private property amounts to 3,406 acres divided into 558 parcels.

Parcel Size	Private Land		State Land		Total Parcels	
Less than 3.5 Acres	197	35%	29	12%	226	29%
Less than 10 Acres	326	58%	168	72%	494	62%
Less than 100 Acres	30	5%	21	9%	51	6%
Over 100 Acres	5	1%	15	6%	20	3%
<b>Total Parcels</b>	558		233		791	



When asked whether property owners favored large lots of 3.5 acres or more for future development, the response was overwhelmingly in favor, with over 85% of the respondents favoring the larger lot size.

## FUTURE STATE LAND DISPOSALS

In 2012, the State of Alaska Department of Natural Resources (DNR) proposed to sell a total of 94 lots in the planning area. The sale was challenged by individuals which resulted in the Commissioner's office issuing a Final Finding and Decision in 2012. The decision was appealed but denied in October, 2014. The Final Finding and Decision (FFD) decreased the number of lots to be offered from 94 to 74. The 20 lots eliminated from the proposed sale (all located on Lake Susitna) will be retained in state ownership in light of the issues raised in public comments to the FFD and the observations made by DNR during their site visit.

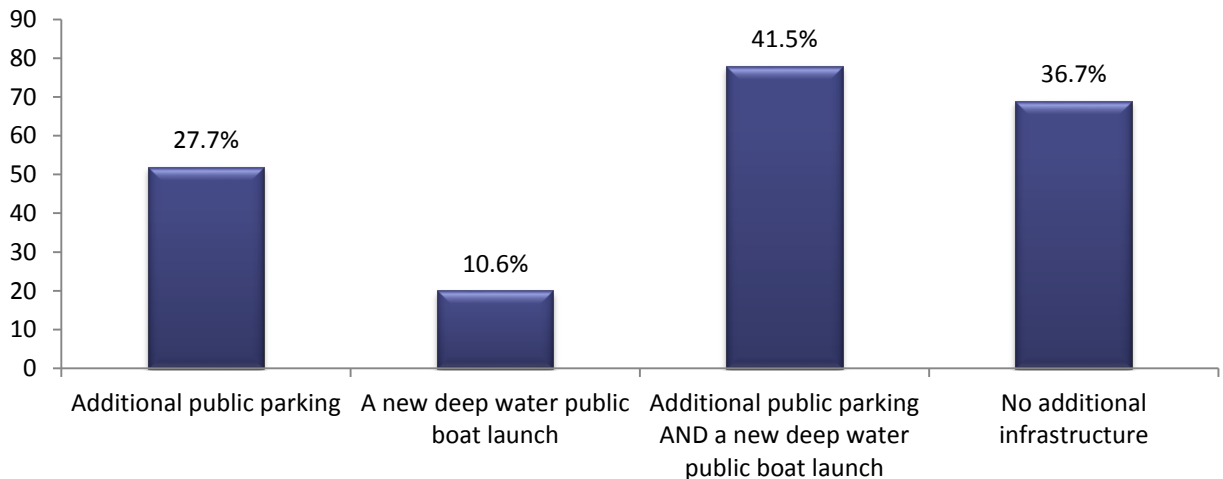
The sale of the remaining lots will be achieved incrementally with the first offering being in 2015. The first sale is limited to eight (8) parcels located on Lake Louise offered at auction. The number of lots offered in each phased sale or auction will continue to be limited and these sales may not occur every year. When this sale is completed, it will have transferred into public ownership those lots originally

surveyed by BLM and transferred to the state. For a map of the sale parcels, visit the DNR website, Division of Mining, Land & Water and enter “Auction #477” into the search bar, select Copper River Valley as the region, and click on “The Lakes”.



The survey addressed state land sales in a couple of questions. An overwhelming majority – 76% do not support future land sales by the State. However, as described above, the state’s mission is to put land in private hands and the intention is to go forward with future land sales. One survey question stated lot sales by the State would have a significant impact on existing infrastructure and asked respondents what they would support.

## Community Opinions on DNR Land Sales



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## Land Use Goals

### **Goal 1: Maintain the rural and recreational character of Louise, Susitna and Tyone Lakes.**

While difficult to define rural character exactly, property owners suggest it includes a strong connection to nature, scenic views, low population density, hunting and fishing, recreational uses and recreational uses.

#### Strategies to Achieve this Goal

- Support development that is visually unobtrusive and that addresses the importance of protecting the scenic vistas and environment.
- Encourage residential, recreational and commercial areas to develop and/or maintain visual buffers.

- Monitor State Plans for Recreational Development and offering for state-owned land.

**Goal 2: Respect existing private property rights while minimizing impacts to neighboring property owners.**

**Strategies to Achieve this Goal**

- Encourage a fair and reasonable balance between private property rights and community interests.
- Encourage Louise, Susitna, Tyone Lakes property owners to be active in the planning process to ensure their interests and rights are adequately protected.
- Work with the Borough to ensure land use regulations are consistent with this comprehensive plan.



a fire truck, and miscellaneous equipment and supplies. Volunteers have worked hard to maintain an active force, ready equipment, a dispatch system, and keep current with training. Between 2001 and 2014, the volunteer fire department responded approximately 10 times to incidents including vehicle, wild land, and structure fires.

### **EMERGENCY MEDICAL SERVICE (EMS)**

There is a long history of volunteerism around the lakes. Long time property owners served the needs of the community before the Lake Louise Emergency Medical Service (LLEMS) was organized in 1995 to serve all three lakes. Volunteers trained to become Emergency Trauma Technicians (ETT) with the Copper River EMS service initially, and later with the Borough. Throughout the years, the number of trained responders ebbed and flowed (see Appendix One for more statistics).

An ambulance was donated to the service from the Valdez Creek Mine, via the Borough. Over the years, the Borough has provided a patient transportation sled, two new snow machines with a trailer, two GPS units, a SAT phone, and equipment and supplies to stage at responder locations necessary for patient stabilization. For the first 10 to 12 years of the service, volunteer equipment, fuel, and personal time was not compensated. In 2011, the Borough required all responders to become Borough employees for insurance purposes and responders now receive some payment for services based on time and level of training. Fuel and equipment is still voluntary.

Lakes Louise, Susitna, and Tyone are supported by the Borough's paid on-call responders who strive to provide quality care in a safe manner as quickly as possible. Trained by Matanuska-Susitna Borough personnel adhering to Alaska State Standards, the staff consists of certified medical responders. Responders keep up their skills by attending monthly training meetings. Consolidated headquarters for all three lakes is located in the Matthews Public Safety Building located approximately 1 mile off Lake Louise Road. The area is served by the 911 dispatch system or 9G Base; however, due to the immense size and locality, the EMS system is hampered not only by terrain but by distance.

### **HEALTH SERVICES**

The nearest medical facility is Cross Road Medical Center in Glennallen. The Clinic offers a family practice clinic staffed with a doctor, a nurse practitioner, and three physician assistants as well as a pharmacy, laboratory services, counseling, and urgent care. For patients needing advanced care, MEDEVAC services to Anchorage are available. The Copper River Native Association also operates a health care clinic in Tazlina.

The nearest hospital is Mat-Su Regional Medical Center in Palmer, which is located approximately 140 miles away. Additionally, there is a state public health office in Glennallen. It is staffed full-time by a clerk, with an itinerant public health nurse based in Wasilla.

## UTILITIES

There are no publically owned water, sewer, or energy distribution systems in the Lake Louise area. Electrical power is generated by privately owned and maintained systems of generators, solar panels and wind turbines. The majority of residences use the lakes as a source of water for at least some purposes. Sewage disposal is handled throughout the area with open pit toilets, seepage pits and DEC approved septic systems. There is a public transfer station for solid waste disposal presently located at Dinty Bush Services.

## SOLID WASTE

Solid waste is collected at two dumpsters located at mile 15.5 of Lake Louise Road through a contract provider on private land. Some hazardous materials, including waste oil, paint, and batteries are accepted. The dumpsters have made a significant difference in the overall cleanliness of the area. Their prominence along Lake Louise Road helps to increase usage by visitors. The community desires better access to the dumpsters. Currently people lift garbage into the dumpsters, which is problematic with heavy containers.

## ELECTRICAL POWER

There are no electrical utility lines providing power to the area. Electricity used is supplied from private generators, solar panels, and some wind turbine generators.

## COMMUNICATIONS

Cell phone service is available at Lake Louise and satellite internet and phones are available through commercial companies. Radio-telephone service is available through Alaska Communications and Copper Valley Telephone Co-op. Citizen Band radio and several cellular services provide other communication options. Marine VHF radios are also used in the lakes community.

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# PUBLIC FACILITIES GOALS

## **Goal 1: Continue to improve Fire and EMS training, equipment, and response in the Louise, Susitna and Tyone Lake area.**

### Strategies to Achieve this Goal

- Work with the Borough Emergency Medical Service to obtain training for Emergency Trauma Technicians or Emergency Medical Technician.
- Continue to train throughout the year to keep on-call responder responses sharp.
- Improve communications for emergency purposes.

- Seek funding for EMS and Rescue equipment through a variety of funding sources, including the Borough’s Capital Improvement Program.
- Encourage the Community Association to seek funding for firefighting equipment through a variety of funding sources.
- Encourage maintenance of a local dispatch option in conjunction with the Borough’s 911 call center and State Troopers.

**Goal 2: Improve access to the dumpsters.**

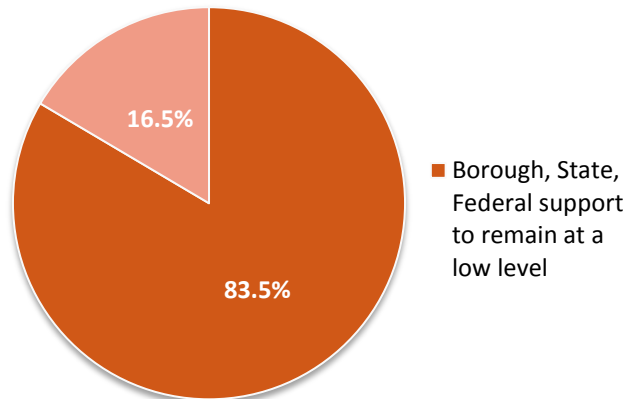
Strategies to Achieve this Goal

- Work with the Borough to devise an easier method of putting trash into the dumpster. Ideas include stairs next to the empty dumpsters or a ramp for vehicles to pull up parallel to the dumpsters, allowing trash to be placed, rather than thrown.
- Encourage the Borough to effectively and efficiently manage the contract with the solid waste provider and prepare for event weekends.



Survey respondents were asked about their wishes for the area in the next 20 years.

**Government Services**



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# TRANSPORTATION

## CURRENT TRANSPORTATION MODES

Transportation in the planning area consists of a state maintained road, state maintained airport, and lake travel. The State of Alaska Department of Transportation and Public Facilities own and operate the Lake Louise Airport, with the identifier Z55. Runway 13-31 is a gravel strip 3,000 feet long with a parking apron. The state classifies the facility as having low levels of activity and minimum amounts of maintenance. The airport receives little use due to difficulties with transportation from the airport to the lakes and boats, although it was instrumental in fighting the Talbert Lake Fire in 2013.



## LAKE LOUISE ROAD

The Lake Louise Road is an approximately 21 mile road which connects the community to Mile 159 on the Glenn Highway. For many years it was a gravel road; graded in the summer months. The road is paved, however it is susceptible to frost heaves making travel at a constant speed impossible. Maintenance of the road is intermittent during the summer months due to the remoteness of the area and there are very few pull outs along the roadway. This becomes an issue during hunting season when people simply pull over and park on the side of the road. There is also a subdivision adjacent to the road with no access which presents the same scenario.

## PARKING

Parking throughout the area is limited. Each of the lodges offers storage and parking, but not enough to accommodate all the property owners, day visitors or casual users. Consequently, large vehicles with boat trailers and/or campers require additional parking. There is a limited parking area near the Dinty Lake Causeway, often creating an overflow where the only option for people is to park on the road, making it difficult to maneuver and launch boats. The State of Alaska has announced plans to sell an additional 74 lots in the lakes area, which will only compound this problem.

There is a parcel of State of Alaska, Department of Natural Resource land near the causeway which is under the management of the State Department of Transportation and Public Facilities which would make a convenient area for parking expansion.



## LAKE TRAVEL

Water transportation has played a key role in the development of the area. In summer months, the three interconnected lakes provide boat access to over 100 miles of shoreline. However, weather conditions on the main lakes often make small boat operations hazardous. The wind can rise quickly resulting in small craft warnings and unsafe conditions. Unmarked gravel bars and rock outcroppings are navigational hazards.

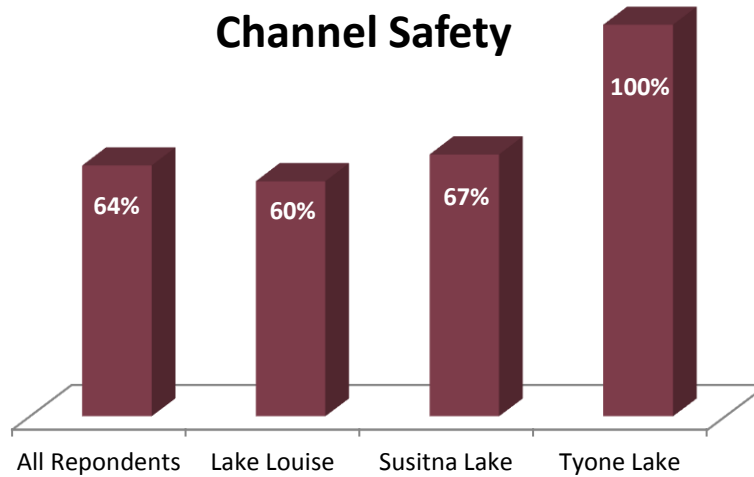
### THE CHANNEL

There is an S shaped, narrow channel that connects Lake Louise to Susitna Lake that presents two blind curves with shallow approaches on both lakes. When entering the channel from either side, the operator cannot see the other end. The local community has posted a channel traffic schedule at all boat ramps. North bound traffic goes through during the first half hour (as an example: 1:00 to 1:30) and south bound traffic goes through during the second half hour (as an example: 1:30 to 2:00).



As the channel is very shallow, most boats go through it on step; however, there is limited navigational space. The Department of Natural Resources Boating Safety has no record of reported accidents at the channel, however there have been numerous sightings of boats run aground in the shallow waters. Some people walk their boat through and cannot be seen, which produces another hazard. When coming from Susitna Lake into Lake Louise during an extreme SE Wind, Lake Louise presents a wall of white capped waves that cannot be seen until the last blind corner is rounded. This presents a serious issue as rising winds can result in small craft warnings.

## Overall Concern for Channel Safety



The survey asked property owners a series of questions regarding the channel; with 84% of the respondents noting they use the channel. When asked if channel boat travel was a safety concern, folks on the different lakes had slightly different viewpoints; see the table below for a breakdown.

Channel Safety			
Location	# of Responses	# of People Concerned	% of People Concerned
<b>Lake Louise</b>	113	68	60%
<b>Lake Susitna</b>	70	47	67%
<b>Tyone Lake</b>	5	5	100%

One possible solution might be a road to Susitna Lake, but respondents were consistently against that idea, with 70% of all respondents, 72% of Susitna Lake respondent, and 60% of Tyone Lake respondents saying they were not interested in the possibility of a road being constructed.

### TYONE WEIR PROJECT

The 1998 Comprehensive Plan included language on investigating a weir on the Tyone River to help balance the water levels between Louise and Susitna Lakes. In 1999, the Borough received a state grant to address the difference in water level and channel passage between Lake Louise and Susitna Lake. The Borough requested an evaluation by the U.S. Fish and Wildlife Service of a proposal received from the Navy SeeBees to install a control structure for Tyone River and Tyone Lake. The goal of the water control structure was to raise lake water levels to facilitate travel through a shallow channel in the lake and dock access to adjacent lodges regardless of seasonal changes to water level. This became known as the Tyone Weir Project.

At the conclusion of the evaluation in 2008, the U.S. Fish and Wildlife Service found that further analysis and design of the weir was necessary and environmental documents would need to be filed for a variety of permits.

Additionally they determined that other factors had a substantial impact on the channel depth and concluded:

“The control of boat wake is necessary to control sand erosion at the shallow channel. Discussions indicated that natural wave action and ice movement creates some of the shallow channel conditions and that **may not change even with lake elevation increase** (*emphasis added*). Boat traffic exacerbates the shallow channel problems and alternatives analyzed for permitting should include evaluation of management practices that control boat speed and size on the lake system. Evaluation should be part of a lake management plan and may be required for any future permit applications (U.S. Fish & Wildlife Service, 2008).”

The Borough returned the state grant and the project did not move forward.

## CONCLUSION

The planning team did not arrive at a definitive answer for the channel, however everyone agrees that safe passage is a goal. In November 2008, the MSB returned the weir project grant funds to the State of Alaska and the weir project was cancelled. Currently, there are no pending projects at the Federal, State or Borough levels of government to resolve either the channel safety or the water level stabilization issues. The Community Association continues to cut brush around the channel to improve visibility, short of implementing any other actions.

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# TRANSPORTATION GOALS

## Goal 1: Seek a safe, dependable passage between all the lakes

### Strategies to Achieve this Goal

- Support and encourage plans for repairs and improvements to the Lake Louise/Susitna Lake Channel.
- Encourage the Community Association to submit a nomination to the Borough’s Capital Improvement Program to make repairs to the channel.
- Encourage the Community Association to work with the Department of Natural Resources to make improvements to the channel.

## **Goal 2: Create a parking area for use by property owners and visitors**

### Strategies to Achieve this Goal

- Encourage the Community Association to make a request to the Borough's Capital Improvement Program for development improvements to the boat launch at the Dinty Lake Causeway.
- Seek additional parking at Army Point.
- Investigate the potential of working with the Department of Natural Resources and the Department of Transportation to utilize the state land near the causeway for parking.

## **Goal 3: Improve Lake Louise Road**

### Strategies to Achieve this Goal

- Retain paved road.
- Work with the Department of Transportation and Public Facilities to create off road parking near trailheads and subdivisions with no access.
- Request more regular maintenance of the road, instead of additional warning signs.

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# WATER RESOURCES

Healthy fish and wildlife habitats translate into healthy human habitats by supporting a full range of ecosystem services, such as water filtration, flood mitigation, and food chain productivity. Lakes are important for scenic views, wildlife habitat, recreational opportunities, and an overall enhancement of quality of life. As the Borough's population continues to grow and urbanization increases, so does the need for information about our waterbodies.

## WATER SUPPLY

Local aquifers are unconsolidated sands, gravels, silts and clays yielding water that may be of high mineral content at low rates. Drilling wells is expensive and problematic, although two of the lodges have water wells. One person acquainted with the area says that there are some sand-point wells in the area, which would be shallow, hand dug wells. Being very shallow, these wells also extract water from the lake, but via locally saturated sand and gravel adjacent to the lake.



When asked how owners got potable water, 73% replied they transported water, while 51.3% said they use the lakes. Many respondents indicated their source of water was dependent upon the usage - for instance they haul drinking water, but use the lakes for dish washing and showering.

The lack of road access to most properties in the area, permafrost requiring deeper wells, and low product aquifers combine to make well development an expensive proposition. This in turn makes use of the lake as a water source a popular option.

Two of the lodges operate Class B water systems with wells. One lodge operates a Class C water system, with treated and filtrated water from the lake.

## SANITARY AND WASTEWATER DISPOSAL

Conventional soil absorption wastewater treatment systems will apparently work in the area although the cold climate and soil conditions make it difficult if the system is not in continuous use. By far the majority of private properties are serviced by pit privies. The three lodges have on-site septic systems. There is no dump station for the use of recreational vehicles. One would best be located in the State campground.

## WATER QUALITY

The importance of water quality is the number one issue on property owners' minds according to the survey – 87% said water quality is a high priority, although when asked if overall water quality was a problem, 47% said no, and another 30% mildly agreed with the statement. People are concerned about water quality before it develops into an issue. When asked how people got potable water, 73% replied they transport it, and 51% use the lakes for



some of their water needs (many respondents reported they boiled the water first).



Louise, Susitna and Tyone Lakes are all included in the Borough's Volunteer Lake Monitoring Program. One of the advantages of the program is the creation of baseline water quality data. Years of data can demonstrate cycles in the lakes. Fortunately for the lakes, data is available from tests performed every year (except 2013) since 2002 thanks to stalwart volunteers. Volunteers use their own boats to take measurements at the deepest spot of the lakes. Measurements include:

- Secchi disk reading (for water clarity)
- Observations (weather, wildlife, human activity, aquatic plants, water level)
- Lake profile (multi-parameter sensor is used to read temperature, conductivity, dissolved oxygen and pH at each meter depth)
- Collecting a water sample for lab analysis of chlorophyll *a* and phosphorus

One of the most common and serious health concerns of contaminated water supply is bacteria and other microcosms. The Borough's program does not currently test for hydrocarbons or bacteria which are under the purview of the State of Alaska Department of Environmental Conservation (DEC). It is a possibility that the community could help pay for testing for hydro-carbons and/or bacteria.

The comprehensive plan update encourages good practices for healthy lakes and healthy shorelines. Run off can be tempered by rain gardens or bioswales which help to slow down run off and spread it out. More information about rain gardens is on the Borough's website. A natural shoreline landscape reduces negative impacts from pollutants, sediment and algae blooms that can lead to loss of recreation use and lower fish and wildlife populations (Michigan State Extension). As development of the lakes expands, it is important to keep natural shoreline vegetation in place to keep the lakes healthy.

## **WATERSHEDS**

A watershed, or drainage area, is a geographic area where all rainwater, snowmelt, and any other type of precipitation drains into lakes, rivers, or other bodies of water. The boundaries of these areas are defined by the movement of water throughout a region. Watersheds provide a number of essential services to communities. They are necessary for water supply and filtration, flow regulation, and erosion and sedimentation control. Properly functioning watersheds can reduce the need for constructing and operating expensive infrastructure systems to provide these services. Healthy watersheds also provide

the benefits of water quality, flood damage prevention, habitat protection, biodiversity, agriculture, fishing and forestry industries, aesthetic enjoyment, and recreation. The population of the Borough relies on surface and ground water for drinking water, magnifying the importance of watershed protection.

The preservation, restoration, and maintenance of a watershed requires communities to establish a balance among needs for water supply, water quality, flood control, navigation, hydropower generation, fisheries, biodiversity, habitat conservation, and recreation. Watersheds containing higher proportions of forest lands, wetlands, vegetation, and other permeable surfaces provide greater capacity for filtering pollutants, moderating water flow, and erosion and sedimentation control. Maintaining greater proportions of forest land, wetlands, and other vegetated areas provides improved wildlife habitat and increased biodiversity. Increased vegetation can also assist in climate stabilization by providing more shade.

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## WATER RESOURCE GOALS

### **Goal 1: To protect the water resources of Lake Louise, Susitna and Tyone and maintain its quality and quantity.**

#### Strategies to Achieve this Goal

- Continue the water quality testing program on all three lakes to add to the database and monitor future conditions.
- Provide information at specified locations for residents, recreational users and visitors concerning:
  - Setbacks and “best management” practices for shoreline development.
  - Dangers and hazards existing in the area.
  - The area’s special features and recreational opportunities.
  - Emergency and safety systems, environmental concerns, sanitary waste locations, etc.
  - Trail maps.
- Work with the Alaska State Department of Fish and Game to protect environment, wildlife, and community.
- Work with the Borough and the State to develop remote public campsite.

## **Goal 2: Encourage property owners to retain as much natural shoreline as possible.**

### **Strategies to Achieve this Goal**

- Encourage property owners to curve paths that head down to the water – straight paths down slopes channel the water into gullies.
- Encourage property owners to keep the shoreline vegetated with a minimum of 20 to 25 foot wide buffers to decrease erosion along the lakeshores.

## **Goal 3: Encourage visitors and boaters to be good stewards of the lakes.**

### **Strategies to Achieve this Goal**

- Provide educational material about invasive aquatics, particularly elodea, at boat launches.
- Work with the Community Association to provide educational material about how boats and float planes can help avoid transferring invasives in to the lakes by dumping water from other areas prior to introduction in the lake system.
- Raise awareness that ice houses, houseboats, and other uses directly on the lake do not have the benefit of natural buffers to help clean material filtering into the lakes and encourage users to keep a clean campground.



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## RECREATION

Louise, Susitna and Tyone Lakes have significant recreational resources, which are important to the area's quality of life, the local economy, and the community's identity. The community's lakes, fish and wildlife, and mix of opportunities—for both solitude and quiet and for active recreation, and for both summer and winter activities—are a primary reason people choose the site for cabins and second homes. Outdoor recreation including hunting and fishing are also major draw for visitors to the area.

The lodges play an important role in recreational life at the lakes. In addition to providing lodging for day visitors, they offer parking, fuel, information, and a gathering place. The ebb and flow of the local economy is mirrored in lodge operations.

Life in the area revolves around the lakes which are ice-free from May to September. Boat launches are available at each of the area lodges, and at the end of the road near the state campground. The Division of State Parks also operates a summer campground at the old Army Point recreation site. A boat launch also is located at the site. Parking for vehicles and trailers is becoming problematic as more people purchase property and visitors increase, especially over holiday weekends in the summer and hunting season. The need for additional parking areas is noted in the transportation chapter.



Recreational activities in the summer months include fishing, camping and other water activities such as sailing and kayaking. Activities in the winter months include ice fishing, snow machining, cross country skiing, and snowshoeing. In the past there have been dog races, snowmachine poker runs, and cross country ski races which attract visitors to the lakes.

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## RECREATION GOALS

**Goal 1: To protect the resources of Lake Louise, Susitna and Tyone and maintain its quality and quantity.**

Strategies to Achieve this Goal

- Provide information at specified locations for residents, recreational users and visitors concerning:

- Dangers and hazards existing in the area.
- The area's special features and recreational opportunities.
- Emergency and safety systems, environmental concerns, sanitary waste locations, etc.
- Trail maps.
- Work with the Borough and the State to develop remote public campsites with a fire ring and provision for trash.
- Encourage recreational uses to support local businesses.

## **Goal 2: Maintain a healthy fish, game, and bird population.**

### Strategy to Achieve this Goal

- Request Alaska Fish and Game to study the fish resource and release a report.
- Inform local Fish and Game Advisory Board of lake concerns.

# Appendix One

## Lake Louise Emergency Medical Service Calls and Responses

Emergency Trauma Technician Snap Shot		
Year	Number of trained ETT	Became Inactive
1995 - 1997	Seven (7)	
1998	Two (2) - full time residents	5
1997-2002	Eleven (11) - seven full time residents; remainder seasonal	
2001 – 2008	Eight to ten (8-10)	
2003 – 2009	Six (6)	
2004		4
2007		2

Between 2001 and 2008 the LLEMS maintained 8 - 10 active and dependable responders.

Volunteer Responses to EMS Calls March 2001 to May 2013		
Month	# of Responses	Seasonal Data
Jan	3	Winter Months - 23
Feb	3	
Mar	12	
April	5	
May	3	Summer Months – 24 Incidents
June	10	
July	5	
August	2	
September	4	
October	2	Winter Months - 5
November	1	
December	2	

Origin of EMS Calls	
Direct	21
Alaska State Troopers	9
Wolverine Lodge	5
9GB (Dispatch)	9
The Point Lodge	2
Lake Louise Lodge	6

<b>EMS Response Made to:</b>	
<b>Lake Louise Lodge</b>	9
<b>Wolverine Lodge</b>	7
<b>The Point Lodge</b>	1
<b>Evergreen Lodge</b>	1
<b>Lake Louise</b>	7
<b>Tyone Lake</b>	3
<b>Crosswind Lake</b>	2
<b>Misc. Locations: Lake Louise Road, Island Lake, Dinty Bush, Glenallen, etc.</b>	22

These tables help emphasize the difficulties of terrain and sheer size of response area.