Cold Lake Marina Master Plan

PREPARED BY:

Moffatt & Nichol
777 W. Broadway, Suite 301,
Vancouver BC, Canada
V5Z 4J7
(604)-707-9004

&

Brook McIlroy Inc.
51 Camden Street, Suite 300,
Toronto, Ontario
M5V 1V2
(416) 504-5997

moffatt & nichol BrookMcIlroy/

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1.0/ INTRODUCTION

1.1 Introduction

The City of Cold Lake engaged Moffatt & Nichol (M&N) to prepare a master plan for the Cold Lake Marina and Waterfront. The 250 slip marina, constructed in the early 1990's, has been at full occupancy since the early 2000's and has maintained a wait list with over 100 people for the past several years. Anecdotal reports suggest wait times range from 4 to 7 years to obtain a slip.

The waterfront area adjacent to the marina includes restaurants, bars, hotels, and other small businesses. Several of the existing businesses and properties are outdated, for sale, or are unused suggesting the potential to improve business opportunities and to revitalize the area.

This report outlines the basis for the concepts developed to achieve an expanded marina and to revitalize the waterfront area.

1.2 Objectives

The marina and waterfront master plan, developed by M&N and Brook McIlroy, expands the Cold Lake Marina capacity and promotes marina user experience while simultaneously providing opportunities for revitalization and further development of the adjacent waterfront. Specifically, the upland components are intended improve opportunities for businesses on the waterfront by increasing use of and visitation to the waterfront by boaters and non-boaters. The master plan is intended to provide marina and waterfront guidance through 2035.

1.3 Approach

M&N and Brook McIlroy worked with the City to develop the following 6 guiding principles for the Marina and Waterfront Master Plan

6 Guiding Principles

1. Expand Marina Capacity
2. Improve Marina Services
3. Revitalize the waterfront as a mixed-use area to attract both residents and visitors.
4. Provide additional public amenities and activities attractive to all citizens/all age groups
5. Public investments in the waterfront should be strategically designed to leverage private sector investment
6. Demonstrate design excellence and environmentally sustainable practices

The Cold Lake Marina and Waterfront Master Plan is founded on meeting these guiding principles.

Developing a feasible plan requires a clear understanding of the regional marina market and waterfront usage. A marina market analysis provides guidance on regional slip demand, including slip size demand, and market standard amenities. Marina market research includes identifying trends in regional marina market drivers including population and demographics as well as review of comparable marinas in the region.

The master plan also reflects first hand observation of the existing marina and waterfront operations gathered over several days in July and August of 2012 as well as public opinion on the marina and waterfront, solicited during public outreach sessions and focused workshops with stakeholders and interested parties.

The results of the marina market analysis combined with the public opinion and observations of the existing operations are used to develop the three marina and waterfront master plan concepts described in this report.

1.4 Goals

In addition to meeting the guiding principles outlined above, specific goals for this master plan can be categorized into "marina" and "waterfront" components.

Marina: The primary goal of the marina master planning is to expand marina capacity to accommodate the boaters on the existing wait list as well as accommodate boating growth into the future. The master plan is also expected to improve marina operations including resolving issues with boat ramp queuing and traffic, fuel dock conflicts with the boat ramp, and parking for cars and boat ramp trailers.

Waterfront: The waterfront upland goals include encouraging use of the waterfront as an entertainment destination for boaters and non-boaters. Providing more entertainment and shopping options is expected to enhance the experience for the existing boating population while simultaneously appealing to non-boaters to grow the group of potential waterfront visitors and users.

1.5 Study Area

The study area is located centrally around the existing marina northeast of the City along the southwest shoreline of Cold Lake. The study area is bounded by 7th St. and 6th Ave extending from the marina south to 12th St. The study area was selected to include the existing commercial properties that may be expected to benefit from further development of the waterfront. Consideration was given to adjacent residential neighborhoods and Indian Reserve #149A located east of the marina, especially with regards to privacy, traffic flow, and potential parking concerns.

Cold Lake Marina Context

Pedestrian Seawall

Cenotaph Park

Boat Launch Area

Waterfront Building

Edgewater Cottage

Marina View Hotel

2.0/ MARKET ANALYSIS

2.1 Existing Market Analysis

An analysis of the regional marina market provides guidance for marina planning. Analysis of comparable facilities and market drivers offers insight into market demand and identifies typical marina features prevalent in the market area.

2.2 Market Area

The Cold Lake marina market area may be defined both geographically and by marina type.

Market areas are defined geographically by the expected distance that local boaters are willing to travel to use the marina facilities and include the competing marinas within that area. Studies suggest boaters are willing to travel by car up to one hour from home to reach their boat for daysailing. Weekend users are willing to travel further, expanding travel time to 3-4 hours. Boater and dockmaster interviews support this limit, confirming the geographic marina market region centred on Cold Lake encompasses daysailors from Cold Lake with additional weekend boaters and competing marinas from Cold Lake to the greater Edmonton Area (see Figure 1).

Boaters living or working outside of the market are not expected to seek long-term berthing at Cold Lake. However, weekend boaters from Edmonton are expected to visit throughout the boating season and may take a slip for the season.

Marina market areas defined based on marina type are often distinguished by the type of associated upland development and the targeted owner demographic. Different demographic types include marinas supporting home porting boats, campgrounds, residential developments, boat and yacht clubs, or transient and tourism boaters.

A cursory survey of in the market area shows 11 existing marinas and boating facilities. Of the 11 marinas and boating facilities identified in the market area, 6 are yacht or sailing clubs with limited wet slips and 3 facilities that are associated with campgrounds and RV sites. The remaining 2 facilities are public marinas with only Cold Lake Marina located in a downtown setting. The other public marina, Wabamun Marina, has 102 slips.

2.3 Comparable Facilities

Cold Lake Marina is the only public marina on Cold Lake. The lake is also accessed via boat ramps at the Provincial Park.

Most other boating facilities within the marina market are geared towards sailing clubs and campgrounds. Outside of Cold Lake, the Wabamun Marina, located 45 minutes west of Edmonton, offers 102 public boat slip rentals. The marina offers fuel, sewage pumpout, security, and a clubhouse with facilities for cook-outs but does not have shorepower at the slips.

All marinas in the market area use floating steel frame docks with various surface treatments including concrete and composite timber. The docks are arrayed in either along-side or double slip configurations.

Table 1: Marinas in the Cold Lake Market

	Marina Name	Wet Slips
1	Cold Lake	250
2	Cooking Lake Sailing Club	0*
3	Pelican Point Campground	40
4	Sylvan Lake Sailing Club	80
5	RV Heaven & Marina	200
6	Itaska Yacht Club	0*
7	Edmonton Yacht Club	16
8	Sunshine Bay Yacht Club	32
9	Wabamun Sailing Club	16
10	Wabamun Marina	102
11	Canyon Creek Marina	20
	Total	756

**Boat ramp only*

None of the identified marinas offer shore power and few offer water on the docks. Most have boat ramps to supplement the wet slips and to facilitate launching and retrieving boats throughout the season. Most also have showers and laundry facilities in a marina building or clubhouse.

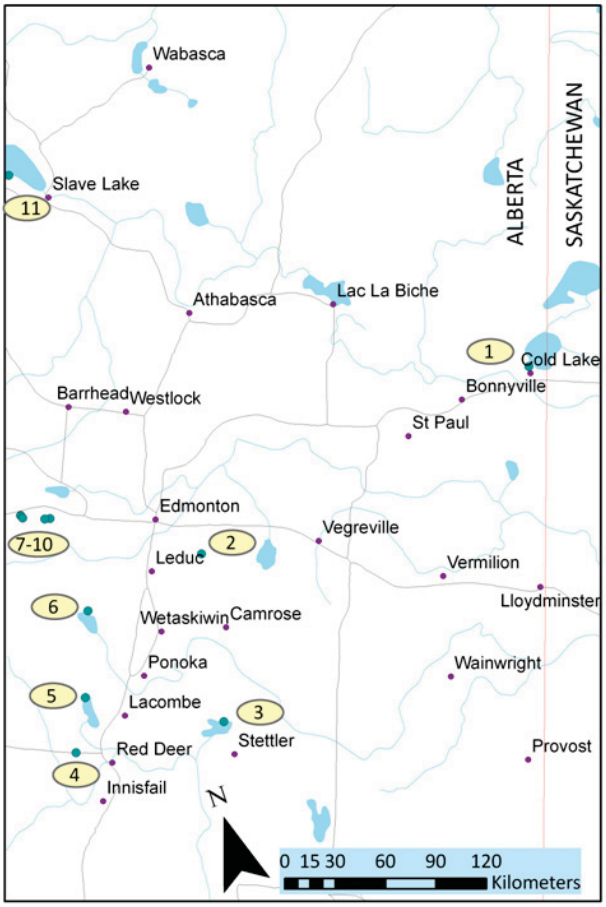


Figure 1: Competing Marinas

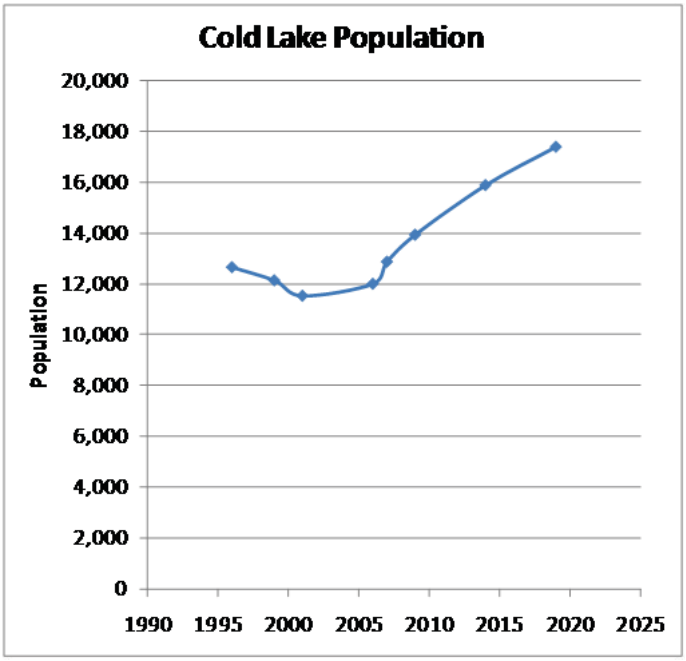


Figure 2: Cold Lake Population – Historic and Forecast

2.4 Market Drivers

Market drivers are factors that affect the supply and demand of the subject commodity. Marina market drivers typically include growth in local population, changes in population demographics (age, wealth) and projected changes in tourism.

Population Growth

The approximate population of Cold Lake in 2001 was 11,527 people (3,256 families). The population in 2006 was 12,000 people (3,390 families) growing to 13,840 people (3,860 families) in 2011. The projected population is nearly 18,000 people by 2020 as shown in Figure 2.

Calculating the number of slips per capita suggests that there was 1 slip for every 46 residents at the time the marina became fully occupied in 2001. Assuming the relative interest in boating for the Cold Lake populous is the same or higher in the future relative to 2001, Cold Lake would need 380 to 400 slips by 2020 and approximately 500 slips by 2030 to satisfy the demand.

The marina wait list suggests that demand is even higher with over 130 names in 2012. Combining the wait list with the fully occupied marina results a ratio of 1 slip for every 36 residents.

Demographics

Boating demand is typically driven by males aged 15 to 64. The number of Cold Lake residents in this key demographic increased nearly 20% from 2006 to 2011 compared to an overall increase in population of 15% indicating that the demand for boating may be growing at a rate quicker than the overall population growth.

The Cold Lake household median income increased from $74,375 in 2000 to $84,569 in 2006 with the trend expected to continue. The increase in household median income suggests increased disposable income for recreation. This may also lead to increased demand for boating.

Tourism and Commercial

Designated transient boat slips at the Cold Lake Marina are made available at the start of each season. Due to the lack of available long term slips, the transient slips are typically "sold-out" the day they are made available. This inhibits boating tourism on Cold Lake.

Commercial charters operating out of the Cold Lake Marina must follow the same slip rental rules as non-commercial boaters. As such, a commercial operator

seeking to expand his business must go on the wait list until a slip becomes available. In addition, the commercial business owner that is interested in selling his business is unable to transfer his slip to the new business owner which dramatically reduces the value of the business. These factors inhibit commercial boating operations on Cold Lake.

Expansion of the marina and dedicated commercial and transient slips would likely result in increased tourism and commercial operations in the marina. Approximately 2% to 3% of the slips may be reserved for tourism and commercial operations.

2.5 Marina Slip Size Projection

As of July 2012 the marina wet slip wait list was 131 people mostly requesting slips for boats 7.3m to 8.2m (24 to 27 ft.) (Graig Walsh, email). The dock piers have been shifted to provide wider fairways for some piers to accommodate longer boats. Table 2 shows the existing slip mix for the marina vs. the original design criteria. Boats that are longer than the existing 6.4m (21ft) slips are either placed on the T-docks at the end of each pier, overhang the dock into the fairway between piers, or berth along the edge of the breakwater wall.

The existing boat size mix compared to the original design mix suggests boats are getting larger. The majority of boats continue to be less than 9.1m (30 ft.) long but additional slips from 7.6m to 9.1m (25ft to 30ft) are necessary.

2.6 Market Projections

The existing marina serves approximately 250 boats in wet slips plus an estimated additional 30 to 50 boats via the boat ramp. The marina reports approximately 130 names on the marina wet slip wait list. Existing demand and population growth projections combined with tourism and commercial operations suggest that the market could support 500 to 600 slips by 2030.

The slips should be wider than the current slips to accommodate beamier modern boats and the marina should include slips 7.6m to 9.1m (25ft to 30ft) and longer to support the longer boats entering the market area.

Table 2: Existing (2012) Marina Boat Mix

Boat Length m (ft)	Original Design(%)	Existing No.Boat	Percentage
0-6.1m (0-20)	90%	107	45%
6.1m to 7.3m (20-24)		74	31%
7.3m to 8.2m (24-27)	10%	37	16%
Over 8.2m (27)		18	8%

Photo 1: Cold Lake Marina Security Gates

3.0/
EXISTING CONDITIONS

3.1 Existing Marina & Waterfront Conditions

This section describes the existing marina and waterfront operations and conditions. The descriptions are based on meetings with City staff, interviews with marina users, and observations of the marina during various site visits.

3.2 Marina Infrastructure

The marina infrastructure includes the wet slips, boat ramp, fuel docks, and upland amenities including management offices, restrooms, and parking lots.

Marina Wet Slips

The Cold Lake Marina consists of approximately 236 defined wet slips with approximately 10 to 15 additional side-tie docks along the breakwater wall for a total of approximately 250 slips. The floating timber and steel frame docks were originally constructed with 6.4m (21 ft.) long finger docks spaced 4.6m (15 ft.) apart. Two boats berth between each set of finger piers.

Two of the six original docks have been replaced with new floating aluminum frame docks. The new docks include wider slips to accommodate beamier vessels and the locations have been shifted laterally to provide additional space for longer boats. As a result, some of the marina fairways (open water lanes) have been narrowed, reducing accessibility of the docks by boat. The new docks include curbing that doubles as tie downs in lieu of a cleats. These curbs provide berthing flexibility but may be tripping hazards.

The marina does not currently provide shorepower to any of the slips; however some owners of the larger vessels have begun to request power. Portable water was plumbed to each dock but is reportedly out of order. Most boaters report using lake water to wash down their boat if necessary.

Marina Ramp

The marina has a two-lane publicly accessible boat ramp. Ramp users pay per day or for the season. Day users pay at the marina manager's office located adjacent to the ramp.

The ramp is accessed via a roundabout that facilitates users aligning the boat trailers with the ramp prior to launching or retrieving. The roundabout allows one lane of traffic; as such, users of the ramp can't easily pass other boat trailers, causing delays and congestion, while boats stage to launch.

Photo 2: Cold Lake Marina Boat Ramp

The boat ramp has a single staging dock located between the ramps that can accommodate 2 to 4 boats as well as space adjacent to the fuel dock. Launched boats and boats waiting to use the staging dock and ramp idle in the open water area fronting the ramp or dock temporarily at the adjacent fuel dock. This causes congestion and impacts boat access to adjacent docks.

After retrieval, boat owners typically move to the side of the exit lane to finish securing the boat to the trailer. However, the short distance from the ramp to the road and the narrow entrance to the ramp area from the road leads to congestion as boaters wait for other boats and trailers to move out of the way.

The western ramp is located adjacent to the marina building. This ramp lane may be too close to the building for some boaters due to restricted to maneuverability and visibility, putting extra load on the eastern lane. In addition the boat ramp slope appears to be too flat. Some users were observed having difficulty launching and retrieving without submerging the tow vehicle exhaust.

Boat trailer parking is located in the City owned lot across the street from the marina. Parking is limited and trailers are often parked on the local streets during busy periods, impacting the roadway and residents around the marina.

Marina Fuel

The fuel dock has one dispenser with two nozzles and one sewage pump out device. A floating dock provides boaters access to the dispenser. Prior to and following dispensing, boat owners must walk from the fuel dock to the marina office to make a fuel purchase, prolonging the fueling process and increasing congestion during busy periods.

The fuel dispenser is located approximately 20m from the boat ramps. The proximity of the fuel dispenser to the boat ramps often results in boats that are waiting to use the ramp blocking the fuel dispenser area.

Marina Utilities/Amenities

The marina currently does not provide water or electric service to the docks. Water service was previously provided but the pipes are in disrepair and the water supply is shut off. The marina building offers restrooms and showers. The building also has a restaurant but lacks a ship's store with bait and tackle.

Parking

Parking at the marina is located in the lot located between Lakeshore Drive and the water with boat trailer parking located in an unpaved lot on 8th Street. The parking lot has 62 stalls with temporary parking stalls near the head of each dock access for loading and unloading. The lot is also used by patrons of the businesses along Lakeshore Drive and the marina restaurant.

During busy time periods, the marina lot reaches capacity and cars are forced to park on the neighborhood streets near the marina. Boat trailer parking also reaches capacity and trailers are parked on the neighborhood streets, impacting traffic flow and parking for residents of the neighborhoods.

Upland

The adjacent upland includes several businesses including bars, restaurants, and a bed & breakfast. Patrons either park on the street fronting the business or in the marina parking lot, leading to competition for parking spaces during busy boating periods or events. The City owns two adjacent lots currently used for car and boat trailer parking as well as the firestation and cenotaph park on 10th street.

West of the marina breakwater is a small beach area used by local residents for swimming in the lake. Some residents use this area for exercising their dogs and they refer to the area as the "Dog Beach."

3.3 Opportunities

The marina is well positioned in the market with high demand for wet slips. This demand could be accommodated via marina wet slip expansion, construction of a dry storage facility, or construction of a second marina at a different location.

Sufficient additional slips would allow the marina to reserve slips for transient guests. Encouraging boating events with regional sailing clubs would also increase activity at the marina and waterfront

The marina boat ramp and fuel dock maybe operated more efficiently by employing an attendant during busy times to assist fueling and collecting payments. In addition to improved efficiency this level of service upgrades the marina from a "parking lot for boats" to a service oriented business. This may be furthered by providing dock attendants during busy times to increase staff visibility, improve customer relationships, and assist on the docks. The marina could support a small ships store for bait and tackle, fishing licenses, ice and to-go food service including coffee and sandwiches.

The marina and waterfront area offers enjoyable views and atmosphere that could appeal to the general population of Cold Lake. Additional entertainment options including splash pad, park, playground, or other form of family entertainment could increase visitation to the waterfront. Residents also indicate that the marina would be a good location for a fine dining restaurant.

The marina is well suited to host sailing regattas (with the assistance of the local sailing club), cookouts, and festivals to add to traditional fireworks celebrations. In addition to summer activities, winter sports such as snowmobiling and ice skating should be considered to draw visitors throughout the year. Providing indoor and outdoor public gathering spaces creates the opportunity for winter festivals or social events.

3.4 Challenges

The marina faces several challenges moving forward with room for expansion being the most prominent. The marina is bound on the south by Lakeshore Drive with a high bluff along the eastern extents of the marina and limited land available for further development. The marina is also adjacent to Indian Reservation 149A to the east, limiting expansion in that direction.

Due to the limited space, parking at the marina and the waterfront area is in short supply during busy periods. Expansion of the marina will further strain the available parking. Additional parking may be constructed but would likely be one or more blocks away from the marina and may not fully accommodate the demand during high use periods.

Water quality in the marina is impacted by outflows from the City stormdrain system as well as limited circulation due to the breakwater wall. Improving water quality may be costly, requiring stormwater treatment and flow through areas in the marina perimeter that may expose the docks to wave activity.

The existing marina building is one story and is fully occupied by the restaurant, management office, and restrooms, leaving no room for ships store or to go food service.

Photo 3: Cold Lake Marina Totem Poles

4.0/ PUBLIC CONSULTATION

4.1 Public Consultation

Public consultations were held in Cold Lake during the Race the Base weekend August 23 through 25, 2012. Display boards of the marina study area and precedent imagery were presented at each event and the public was encouraged to fill out a survey and post comments on the displays. See appendix for survey and comments.

General public events were held on August 23 at the A&W Restaurant, August 24 at Original Joe's Restaurant, and August 25 at the marina. The event at the A&W was well attended with good public interaction and suggestions for marina expansion and the waterfront. The events at Original Joe's and the marina had low turnout due to rainy and cooler weather conditions. At each event, the public was encouraged to complete a survey either in person or using an online form.

In addition to the general public, individual consultations were held with the following stakeholders including individuals and groups:

- Mayor Craig Copeland
- Kevin Nagoya Chief Administrative Officer
- Urban Development Institute (UDI)
- First Nations
- Elsie Dennis (Bed and Breakfast Owner)
- Capt. Ronn Cooper
- Splash Pad Committee
- Cold Lake Sailing Association (Joyce Foreman)

1. Community Workshop

This was intended to engage the community in a high-level Visioning-Exercise in order to uncover issues of importance and to establish a long-term vision for the Marina.

Exercises: The exercises included a series of discussion questions that focused on issues of concern, such as desired uses, slips, marina, and business in the marina area. Workshops were set up at the ride for a cause event at the A&W, the Original Joes car show and down at the Marina during the weekend of the Race at the Base. The community was also given the chance to comment online were we received great feedback. See appendix for exhibits.

Outcomes: The workshop successfully established a strong vision and priority directions that provided a foundation for the rest of the study.

2. Stakeholder Workshop

This was intended to engage the stakeholder groups in a high-leveland site specific Visioning-Exercise in order to uncover issues of importance and establish a long-term vision for the Marina.

Exercises: Each of the groups had an opportunity to assess and provide feedback on the master plan and its pro and cons for business in Cold Lake and surrounding areas.

Outcome: The feedback received from the workshop was used to refine and develop preferred options.

3. Council

3 options were presented at a council meeting on November 27, 2012. The community was also asked to review and comment on options presented.

Exercises: A powerpoint presentation was delivered to council along with a draft master plan document for their review and comment.

Outcome: The feedback received from the meeting was used to refine and develop a final Waterfront Master Plan Document.

Photo 4: CAV event during race at the base weekend


Photo 5: UDI Stakeholder meeting

The following sections summarize the comments received.

4.2 Community Workshop

Comments received directly during the public events and survey are categorized below as boating related and non-boating comments.

Boating related comments are as follows:

- The marina does not have enough slips
- Many residents want slips but aren't on the list due to the time it takes to get a slip
- Can take 7 years to get a slip
- Parking at the marina and waterfront area is problematic
- Consider dedicated slip-holder parking for boaters
- Marina needs dedicated transient slips for visitors
- Need a ship's store for bait, rope, supplies as well as grab and go food
- Multi-storey marina building with meeting place, restaurant, ship's store, and management offices
- Steeper boat ramp needed
- Unsure about a dry boat storage facility
- Boaters want their boat in the water and available for use all the time
- Improve water quality – reduce runoff, improve circulation

Non-boaters Comments:

- Patrons enjoy walking on the boardwalk and breakwater
- Would enjoy a waterfront park
- Would enjoy a high-end restaurant with water view
- Should consider winter uses

4.3 Stakeholder Workshop

Meetings with the stakeholder groups produced the following comments:

- Marina should expand to 600 slips
- Slips should be wider to accommodate trend towards wider boats
- Fairways are too narrow in the marina
- Shorepower at some slips is desirable
- Need to maintain security at the marina
- Dedicated and transferable commercial slips should be established
- Need a ship's store for bait, rope, supplies as well as grab and go food
- Fishing licenses should be available for purchase at the marina
- The sailing club currently hosts 3 regattas with local and neighboring sailing clubs with up to 15 races per season
- Rather than redeveloping the existing marina, suggest developing a second marina at the MP Park with the following:
- Inland marina
- Hotel/commercial
- Boat Ramp
- Waterfront property is currently very expensive to purchase
- Developers need more foot traffic and year round activity to support high cost to develop
- Waterfront needs a "sense of place"
- A seasonal splash pad is being planned for the City. Currently the splash pad is planned for the beach area. The marina area is a possibility.
- The current splash pad design includes water cannons and buckets on a foam pad.

- Not designed for winter use as an ice rink
- First Nation residents of Indian Reserve 149A do not support marina expansion
- Lake is already crowded with boats
- Perceive that the marina is polluting the lake
- Marina proximity to Reserve 149A results in boat propeller damage to fishing lines and nets
- Public occasionally trespasses on Reserve land via the beach and Lakeshore Drive
- If the marina must expand, prefer expanding to the west

4.4 Council Comments

These comments are in regards to the marina master plan concepts presented to City Council:

- The boat ramp area looks inefficient
- How long would development of these concepts take?
- Clarify how fill in the lake impacts permitting effort and duration

City of Cold Lake

City of Cold Lake Marina Master Plan

Community Engagement, August 23-25, 2012

Public comment sheet

Go to www.surveymonkey.com/s/ColdLakeMarina

to fill out online and submit electronically

Survey card handed out at public consultation

5.0/
CONCEPT CRITERIA

5.1 Concept Criteria

The following sections outline the criteria used to develop the marina expansion and upland concepts.

5.2 Marina

The marina expansion criteria include number and mix of slips, and dimensions, utilities, boat ramps, fueling, and other amenities.

Slip number and mix

Analysis of the existing marina market and projected slip demand suggests the Cold Lake market will support expansion to 400 to 600 total boat slips. The size of the slips is based on existing boat sizes with additional larger slips to support industry trends. Table 3 shows the target marina slip mix.

Table 3: Proposed Marina Slip Size Mix

Slip Length	%	# Slips	# Slips
<7.6m (25 ft.)	30-40%	120-160	180-240
7.6m(25ft) to 9.1m(30ft)	30-40%	120-160	180-240
9.1m(30ft) to 10.7m(35ft)	10-12%	40-48	60-72
10.7m(35ft) to 12.2m(40ft)	3-5%	12-20	18-30
>12.2m(40ft)	<3%	<12	<18
Total	~100%	~400	~600

The marina should be expanded in phases, if possible, to allow slip absorption in reasonable amount of time. Phased construction also allows the mix and number of slips to be updated in response to market changes.

Marina Dock Construction

Marina docks in the market are steel or aluminum frame with encapsulated polystyrene floats and concrete or composite timber decking. The docks should be secured using chains or cables to anchors on the lake bottom. The docks should be in a double slip configuration - two boat slips between each set of fingers.

The docks should have a minimum freeboard of 0.46m (18 inches) including any utilities or fixtures on the dock. The docks should be constructed to withstand winter conditions including ice and snow loads or a minimum of 2.4kN/m^2 (50psf) live load. The docks should also be designed to withstand a 0.6m 2 second storm wave condition.

Marina Dimensions

The marina dock dimensions are based on accommodating the majority of boats in the market. Marina dock slip and finger width, based on slip length, are shown in Table 4.

Table 4: Dock Dimension Table

Slip Length Width	Slip Width (double)	Finger Dock
6.1m (20ft)	6.5m	1m
7.6m (25ft)	7.75m	1m
9.1m (30ft)	9.0m	1m
10.7m (35ft)	10.5m	1.5m
12.2 (40ft)	11.5m	1.5m

The main docks should be 2.4m to 3m wide with marginal docks 3m to 4.5 m wide depending on projected traffic levels and usage.

The width of marina fairways between docks should be a minimum of 1.5 times the length of the longest boat that will dock along the fairway. The width of marina fairways in common areas should be a minimum of 2 times the length of the longest boat expected to use the fairway.

Minimum marina depth should be 2.0m to 2.5m at low water conditions with deeper depths available at slips further off shore.

Gangways

Marina gangways are fixed to land via a hinged connection to a concrete platform. The gangways should slope at 1:12 or flatter to facilitate access for disabled persons. Security gates with keyed or electronic access should be located on the support platforms, preventing unauthorized access to the gangways and docks.

Utilities

Typical marina utilities include potable water for rinsing and general maintenance and shore power. Shore power is especially desirable for larger boats with power intensive electronics.

Potable water should be provided on each main dock at several locations. Slips for larger boats may have water at each slip integrated into a power pedestal.

Shore power should be provided for all slips greater than 10.7m (35ft.) and some or all slips greater than 9.1m (30ft.) including transient slips. The power should be 30A 120V or 50A 120/240V

The electricity and water are housed in a pedestal. The pedestal may be located at the head of the slip finger or centered on a double slip to serve two boats. A pedestal option includes removable pedestals, allowing for easier maintenance and winterization.

The utilities may be metered and the cost paid by the slipholder directly or the cost may be integrated into the slip lease price.

Fire water should be provided via a dry standpipe that is fed from land via a pumper truck. The standpipe should be augmented by fire extinguishers on the docks.

Wifi internet access is also desirable. Access may be free to slip holders or available for a seasonal fee.

Boat ramps

Typical boat ramp use allows 6 to 10 launches or retrievals per hour. Based on usage of the existing ramp and anecdotal reports of long delays, the number of boat ramp lanes may be doubled from 2 to 4.

The ramps should be 4.5m to 5m wide with a slope ranging from 12% (1:8.3) to 15% (1:6.7) with a 4.5m to 6m vertical curve at the top of the ramp transitioning to the upland. The toe of the ramp should be 1m below the 25-year low water level and the crest a minimum of 0.5m above the 25-year high water elevation.

The ramp should include a turn-around area that allows ramp users to orient the boat trailer in line with the ramp. The turn-around should have a minimum turn radius of 9m to accommodate trailers.

The ramp area should also include room for vehicles queuing to use the ramp on both land and water. The landside approach area should have room for 4 to 6 trailers to queue. Each ramp should be bordered by a staging dock that is 2m to 3m wide and long enough to accommodate 2 or more boats simultaneously. The ramps should be positioned to limit conflicts with other marina traffic, especially pedestrian traffic accessing the boat docks.

The ramps should be constructed of cast in place or pre-cast concrete panels. The surface treatment should include v-grooves for traction and drainage. The v-grooves should be angled down slope and the direction of the angle should alternate for each ramp to delineate each ramp area.

Fuel

Marine grade fuel should be offered for sale at the marina. A fuel pier should be designed to accommodate two fuel dispensers with two nozzles each to allow simultaneous fueling of four (4) boats. The fuel dock should be independent of the boat ramp staging docks (no overlap) and should allow simultaneous docking of 6 to 8 boats including boats actively fueling. Each fuel dispenser should have a corresponding sewage pump-out station.

The fuel dock should be attended by marina staff during busy periods. A small shelter with drinks, snack, and other convenience items may be located on the fuel dock.

Amenities

Typical marina amenities include parking, provisioning, and comfort facilities.

Marina guidelines suggest a minimum of 1 car parking stall for every 2 boat slips. Thirty or more trailer parking stalls may be required to support 4 boat ramps. This amount of parking maybe sufficient for busy weekends but may not accommodate peak demand and overflow parking should be considered.

A ships store should be provided for basic provisioning. Provisioning includes last minute items that boaters may require including fishing licenses, bait, tackle, ice, softdrinks, and snacks. Additional items may include basic boat maintenance and repair items including motor oil, rope, chains, and charts.

Comfort facilities include restrooms, showers, laundry machines, and waiting areas. These facilities may be combined into a multi-storey building with room for a restaurant, retail, and management offices. Additionally, to encourage a sense of community at the marina, the marina should include gathering places with picnic tables, grills, and shade.

Where possible the marina should be accessible to the public. Public walking paths should be designated and benches and shade structures provided.

5.3 Upland

The upland master plan is designed to integrate the marina into the waterfront district, creating a destination and a "sense of place" for citizens that will promote business growth in the area. The upland should have a unifying aesthetic appeal that helps identify the area. There should be a defined traffic flow pattern and sufficient parking to support the retail and casual visitors as well as the marina.

A 3-level amenities space, as requested by the public, enhances the waterfront architecture and usable space. This may require demolition of the existing City owned building. This space would accommodate a high end restaurant on the third level overseeing the lake, a convention centre for business on the second level and a pavilion/multi use space on the first floor for the City and public.

The master plan should integrate a splash pad/ice rink into the design. With a splash pad committee in place and monies to be spent this is a great fit for the waterfront bringing year round enjoyment for the boater and non-boater alike. Spray heads in the summer/wading pool and ice rink/fire pit in the winter this becomes the central point of the waterfront district. With a strong connection to the amenities building this becomes the meeting place for the entire area.

Currently there is a lack of green space in the marina area.Areas of interest, viewing areas/lookouts should be placed to allow for public use of the marina. A fluid connection and ability to connect to the City beach would help the walkability of this area. An enhanced sea wall and beach with activities like fishing, lawn bowling, chess, etc will bring people to this area daily.

Restaurants, shops, bars etc. will all thrive in a well-developed marina that allows space for current properly suited businesses within the area. The City of Cold Lake is working towards this and with a new marina working together business interests will start to pick up and will eventually boom.

A boathouse with tackle, grab and go food, boat supplies etc. will bring major convenience and usage to the site which is lacking right now. This is also a great place for commercial fisherman and tournament use year round.

Parking is one of the major issues in the waterfront district. A successful parking plan will not be achieved without the use of City resources to pick up lands necessary to allow for enough parking to supplement this area.

A common look and feel, both for the waterside and landside elements, will help bring the whole area together. Site furnishings, lighting, materials, architecture will all help in giving the feeling of a "sense of place"

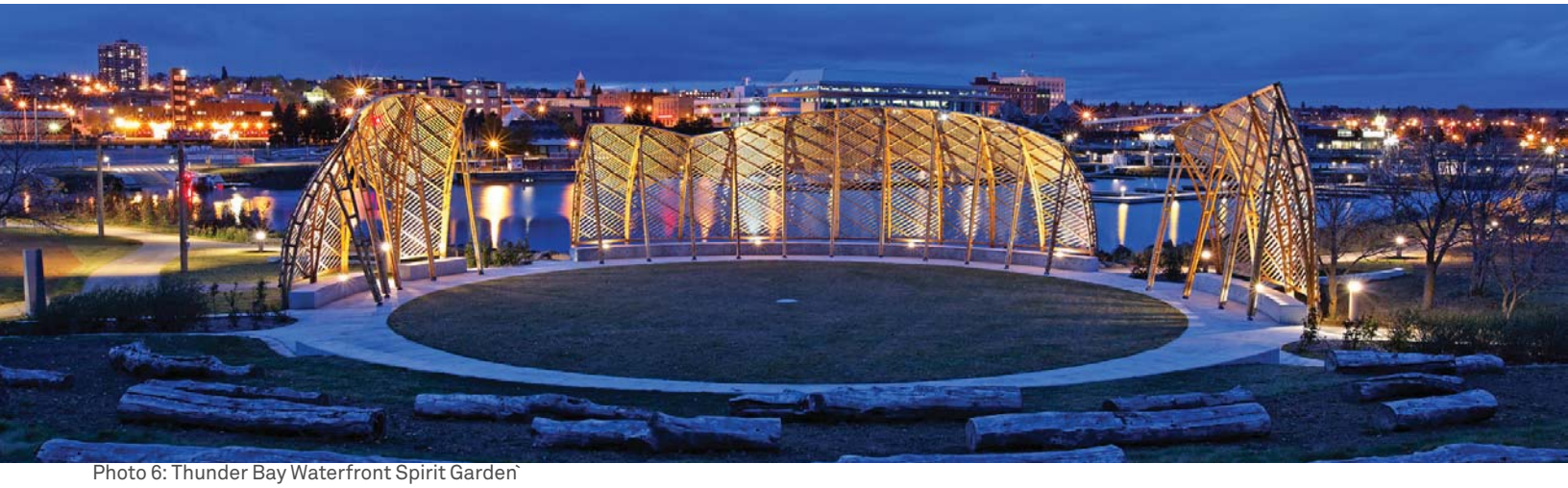


Photo 6: Thunder Bay Waterfront Spirit Garden`

5.4 Permitting

Environmental and land use permitting is required on the federal, provincial, and local level.The following sections outline these permits.

Federal

Federal permitting is performed by the Department of Fisheries and Oceans Canada (DFO). A permit will be required under the Navigable Waters Protection Act (currently undergoing revision). The project will also require a permit under the Fisheries Act for dredging and breakwater construction as the project does not fall into one of the "Operational Statements" for Alberta such as maintenance dredging, which is typically covered.

The federal process require a public notice and will likely include the completion of an Environmental Assessment under the Canadian Environmental Assessment Act (CEAA) due to the number of slips and fill within the lake that is anticipated. Environmental effects, with appropriate mitigation, must be found to be not significant, or if significant, justifiable, before an Authorization can be issued.

The regulatory aspect or authorization portion of DFO's habitat management program is complimented by the department's policy which currently works on a no net loss guiding principle. This means that fish habitat removed in one location must be off-set by the creation of fish habitat in another suitable location. The Policy for the Management of Fish Habitat outlines this principle: http://www.dfo-mpo.gc.ca/habitat/role/141/1415/14155/fhm-policy/page03-eng.asp#c2.2.1

For the purposes of an environmental assessment under CEAA, "mitigation" includes both mitigation and compensation. Under the Habitat Policy, mitigation serves to avoid a finding of Harmful Alteration, Disruption, and Destruction (HADD), while compensation occurs to offset a HADD. Most applications for authorizations are granted if the compensation plan can achieve no net loss of fish habitat.

Historically, federally mandated Harbour Authorities signed leases with the Small Craft Harbours department of the DFO for day to day management and maintenance of harbours. Many federally owned recreational harbours are now being transferred or divested to local municipalities for continuing public use. Cold Lake Marina is currently undergoing this divestiture process (this divestiture will not affect the required permits).

Provincial

Provincial permitting is through the Ministry of Environment and Sustainable Resource Development (ESRD). Provincial permits are issued under the Alberta Water Act and Alberta Public Lands Act. The permit process will involve submitting a permit applications and a public review process. Permitting typically takes 2 to 6 months depending on the public comments received.

A pre-application meeting with ESRD is helpful in determining potential issues and to coordinate the required studies. Studies typically include biological, hydrological, and survey. Consultation with First Nations is also required to solicit concerns and potential impacts to First Nations Rights and Traditional Uses by the proposed project.Consultation early in the process is recommended by ESRD.

The primary concern expressed during concept level discussions is that a bigger marina will bring more people to the lake resulting in less fruitful fishing. Cold Lake has fewer sport fish relative to other water bodies and it takes 7-10 years for the Cold Lake fish to mature due to colder water temperatures.

City of Cold Lake

The City Building Department will also likely require a permit application be submitted for zoning and code review.

Indian and Northern Affairs Canada

Consultation with first nations is required as part of the provincial permit process. During initial public consultations, First Nations representatives indicated that they may have ownership of lake area as well as the upland.This issue has been raised previously and prior research with the Lands Branch of Indian and Northern Affairs Canada (INAC) as well as INAC in Ottawa was unable to produce a treaty agreement that substantiates the claim.

Mitigation

A marina permit may require mitigation to offset the

loss of fish habitat. Mitigation could include treating stormwater prior to discharge to reduce sediments and pollutants entering the lake. The marina should also be designed to encourage water flow into and out of the basin during wind events impacting water levels on the lake.

Revitalizing the Downtown Waterfront

All public sector investments in waterfront amenities should be strategically designed to leverage equal investment by private land-owners and developers in the downtown area.

The types of public sector investments in waterfront amenities should not be limited to the needs of boaters but should merge the excitement and energy of a revitalized marina with other activities that appeal to the widest audience: families, teens, young children, seniors, visitors and non-boaters alike.

These activities should include a place for people to safely enjoy water-based activities. We recommend that a Water Plaza consisting of a splash pad/water feature of (minimum size 10,000 sf) that transforms into a skating rink be a central component of this strategy.

Adjacent to and overlooking both the lake and the splash pad/skating rink a Waterfront Pavilion should be provided with a restaurant/café, public washrooms and change facilities, visitor information centre and a multi-purpose community/conference facility (approximately 20,000 sf on 2 to 3 levels)

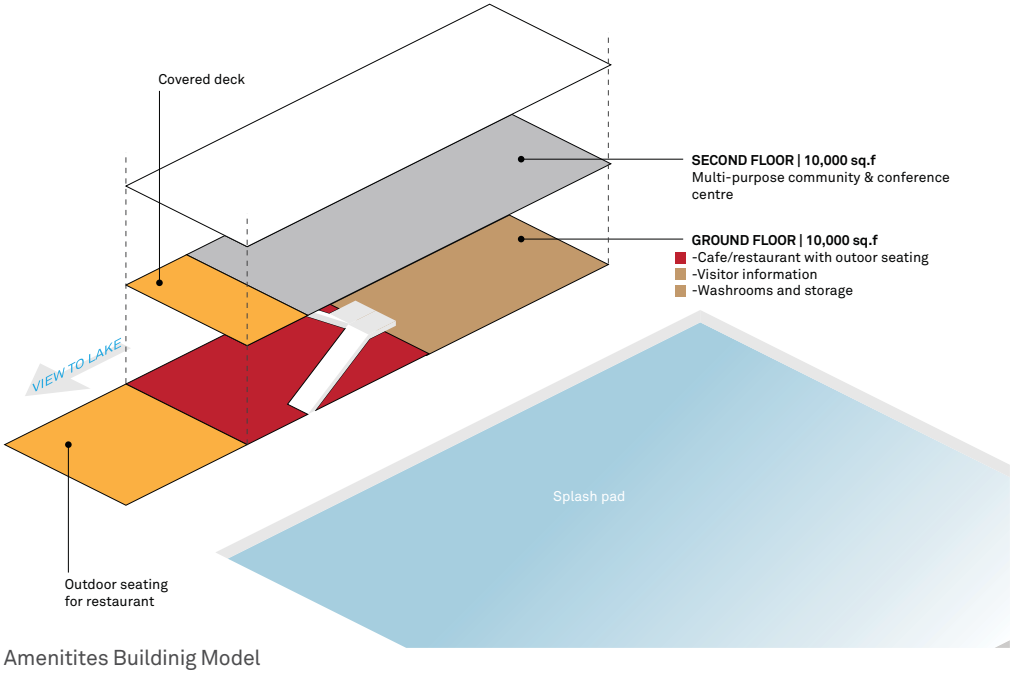
By providing a diversified, year round attraction at the waterfront, not only will Cold Lake see exponentially greater use by residents and visitors, but a renewed economic development climate that will make reinvestment in waterfront development both viable and attractive for adjacent land-owners and developers.

Key opportunities for reinvestment exist on Lakeshore Drive between 8th Street and 4th Avenue and on 6th and 7th Avenues leading to the waterfront.

We estimate the scale of redevelopment opportunities in the range of 700,000 sf based on an average of four storey buildings. New development can include new multi-unit residential buildings, senior's residences, a high quality hotel, shops, restaurants and other business space.

New development will benefit from the investments Cold Lake will make in a revitalized waterfront. In turn the City should require that any new developments within the waterfront district be in accordance with guidelines that ensure the high quality of design for these new developments.

A revitalized marina and waterfront will not only spawn new development but will also transform the community's self-identity, 'pride of place' and vastly improve its quality of life. This in turn will attract new residents to Cold Lake and assist in the retention of existing residents – especially young people and families.



Amenitites Buildinig Model

6.0/ CONCEPTS

Image City of Cold Lake

6.1 Concepts

The following describes the concepts developed based on the criteria above.

6.2 Concept 1

Concept 1, shown in Figure 3, expands the existing marina by extending the existing breakwater wall 124 meters to the east and adding a second marina basin to the west.The two basins have separate entrances with one facing southeast similar to the existing marina and one facing northwest. This concept includes minimal fill in the lake for parking or access.

Slips

Concept 1 includes 457 slips with the slip size mix shown in Table 5.

Table 5: Concept 1 Slip Mix

Slip Size	Proposed	LM	% of Total
6.1m(20ft)	238	1451m(4760ft)	44.7
7.6m(25ft)	176	1342m(4400ft)	41.4
9.1m(30ft)	12	110m(360ft)	3.4
Side Tie	31	342m(1120ft)	10.5
Total	457	3245m(10640ft)	100.0

Larger boats can be accommodated at the "T" slips located at the end of each dock as well as along the side-tie docks.

Amenities

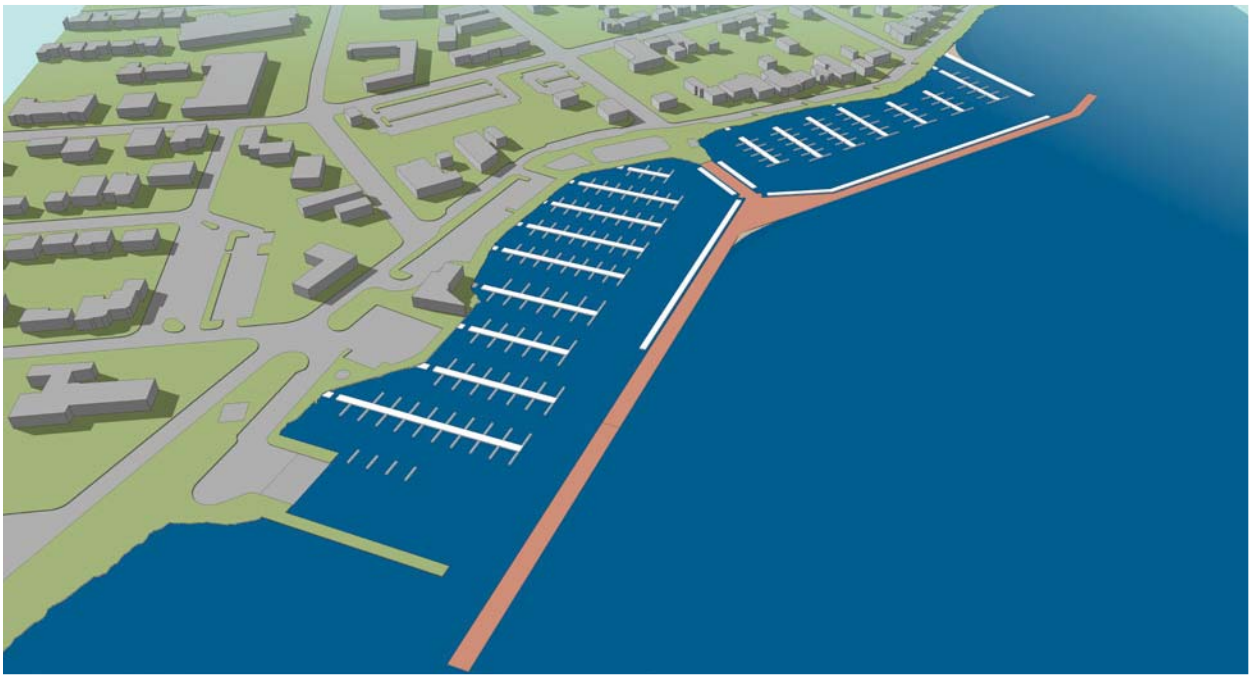
The western expansion of the marina requires modification of the shoreline along Lakeshore Drive to provide parking and easy access to the docks. The shoreline along the western basin is modified to accommodate angled car parking. Additional parking is located at the eastern basin and one block upland from the marina.

Concept 1 relocates the boat ramp to the far eastern limit of the marina basin and doubles the number of ramps from 2 to 4. Cars and trailers queue along the driveway leading to the boat ramp. Release and tie-down lay-by areas are provided along the drive for preparing the boats prior to and after launch and retrieval. The boat ramp is served by 155 linear meters of staging dock to accommodate boats after launch and prior to retrieval. Fuel is separated from the boat ramp on fuel docks located on either side of the dividing wall between basins.

A dedicated commercial dock is located on pier E8 in the east basin. The dock is gated and access for commercial customers is by escort. Commercial customers have access to parking at the small parking area adjacent to the boat ramp. A transient dock should also be established. The transient boats may be located on dock E8 with the commercial boats or on dock E7 and the side-tie docks.

Figure 3

MODEL 1



Perspective VIew of Concept 1 Model

CONCEPT 1

Concept 1 Color Rendering

To limit construction costs, amenities including shore power and potable water may be provided at limited docks including at the side tie docks and at docks E6, E7, and E8 to serve the commercial transient users. Other docks should have potable water at locations along each dock for general use.

Phased Construction

Concept 1 can be constructed in phases to limit disruption of the existing marina as well as to spread construction costs over a longer period and to allow the market to react to additional slip availability and size mix.

Phase 1 includes expansion of the existing marina basin along with reconfiguration of the existing slips to reflect the demand for larger, wider slips and navigable fairways and relocation of the boat ramp and fuel dock to improve the operation of these amenities. Phase 1 includes 273 slips up to 30 ft. long.

Phase 2 includes construction of the western basin and slips. The dock sizes should be verified based on demand after completion of Phase 1. Phase 2 could be further subdivided by constructing docks in two phases after construction of the breakwater wall.

Upland

The central focus of activity is at Lakeshore Drive and 7th Avenue. Properties north of 7th Avenue have generally been revitalized and additional public amenities and activities in this location will benefit from the high-quality of development directly adjacent to the main pier.

This concept places the Waterfront Pavilion/Water Plaza at the foot of 7th Avenue (splash pad/skating rink, and waterfront pavilion with restaurant, café, public washrooms, change facilities, visitor information and conference centre) The Waterfront Pavilion/Water Plaza are adjacent to a central Pier leading to two break-walls. This expands public enjoyment of the area allowing people to walk to the Pier ends from one central area that is also a public activity area. This concept clearly separates public activities from the boat launch area and will reduce vehicular and parking conflicts.

This concept also has the advantage of retaining the existing waterfront building at the foot of 6th Avenue. If a new restaurant is provided in the Waterfront Pavilion, the existing building can be repurposed/reprogrammed for a range of other uses that may target the marina user including expanded boater facilities (washrooms, laundry, marine supplies, sailor's pub etc.).

Parking is provided through a series of lots and on-street parking. A beach area at the western end of the marina may naturally occur or could be man-made to give an additional usage for the area.

Perspective view of Concept 1 Showing the potential Waterfront Development Area

6.3 Concept 2

Concept 2, shown in Figure 4, expands the existing marina to the east, west, and north by constructing 700 meters of new breakwater wall, removing the existing breakwater and docks, and constructing new docks. The overlapped marina entrance opens to the east similar to the existing marina, providing protection for the marina from waves. This concept includes minimal fill in the lake for parking or access.

Slips

Concept 2 includes 596 slips with the slip size mix shown in Table 6.

Table 6: Concept 2 Slip Mix

Slip Size	Proposed	LM	% of Total
6.1m(20ft)	239	1457m(4780ft)	32.5
7.6m(25ft)	245	1867m(6125ft)	41.6
9.1m(30ft)	57	521m(1710ft)	11.6
10.7m(35ft)	11	117m(385ft)	2.6
12.2m(40ft)	9	110m(360ft)	2.4
Side Tie	35	418m(1370ft)	9.3
Total	596	4490m(14730ft)	100.0

Larger boats can be accommodated at the "T" slips located at the end of each dock as well as along the side-tie docks.

Amenities

Access for the docks along the western shoreline of the marina is via temporary unloading zones or angled parking similar to Concept 1. The temporary unloading requires users to relocate their vehicle to parking lots after off loading passengers and supplies at the head of the docks.

Concept 2 features a large central floating platform suitable for hosting parties, fishing tournaments, regattas, and other boating gatherings. The platform includes a boathouse that provides bait and tackle as well as quick food items and boating supplies.

The boat ramp is relocated to the far eastern limit of the marina basin and doubles the number of ramps from 2 to 4. Cars and trailers queue along the driveway leading to the boat ramp. Release and tie-down lay-by areas are provided along the drive for preparing the boats prior to and after launch and retrieval. The boat ramp is served by 190 linear meters of staging dock to accommodate boats after launch and prior to retrieval. Fuel is separated from the boat ramp on a fuel dock located in the center of the basin connected to the large floating platform. This allows boats using the fuel dock to visit the boathouse for last minute supplies.

A dedicated commercial and transient dock is located on pier G. The dock is centralized for easy access and would

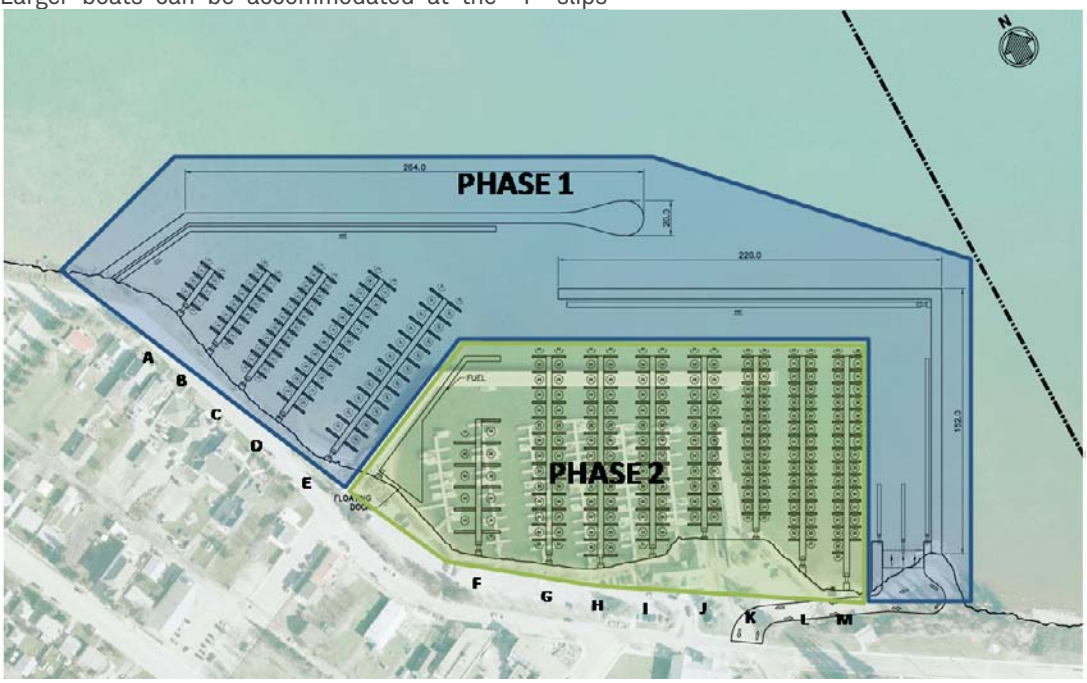


Figure 4

be gated. Commercial customers would have access to parking at the main marina parking area.

To limit construction costs, amenities including shore power and potable water may be provided at a limited number of docks including the side tie docks and at docks F, G, and H to serve the commercial and transient boaters as well as the larger slips. Other docks should have potable water at locations along each dock for general use.

Phased Construction

Concept 2 may be constructed in phases to allow continued use of the existing docks while new docks are installed.Phase 1 includes the outer breakwater walls and docks A through E providing 166 new slips in addition to the existing 250 slips.After the outer breakwater walls are constructed, the existing breakwater may be removed.The new fuel dock should be constructed prior to removing the existing fuel dock structure.

Phase 2 includes replacing the existing docks with new docks and the relocation of the boat ramp.Docks K, L, and M should be constructed first, allowing existing marina patrons to be temporarily relocated while the existing docks are moved or replaced.

Upland

The central focus of activity is at Lakeshore Drive and 6th Avenue with the placement of the Waterfront Pavilion/ Water Plaza serving as a landmark on axis with 6th Avenue.

Properties along 6th Avenue and north and south of 6th on Lakeshore Drive Avenue are ripe for revitalization. Additional public amenities and activities in this location may leverage renewed investment and a higher-quality of development directly adjacent to this area.

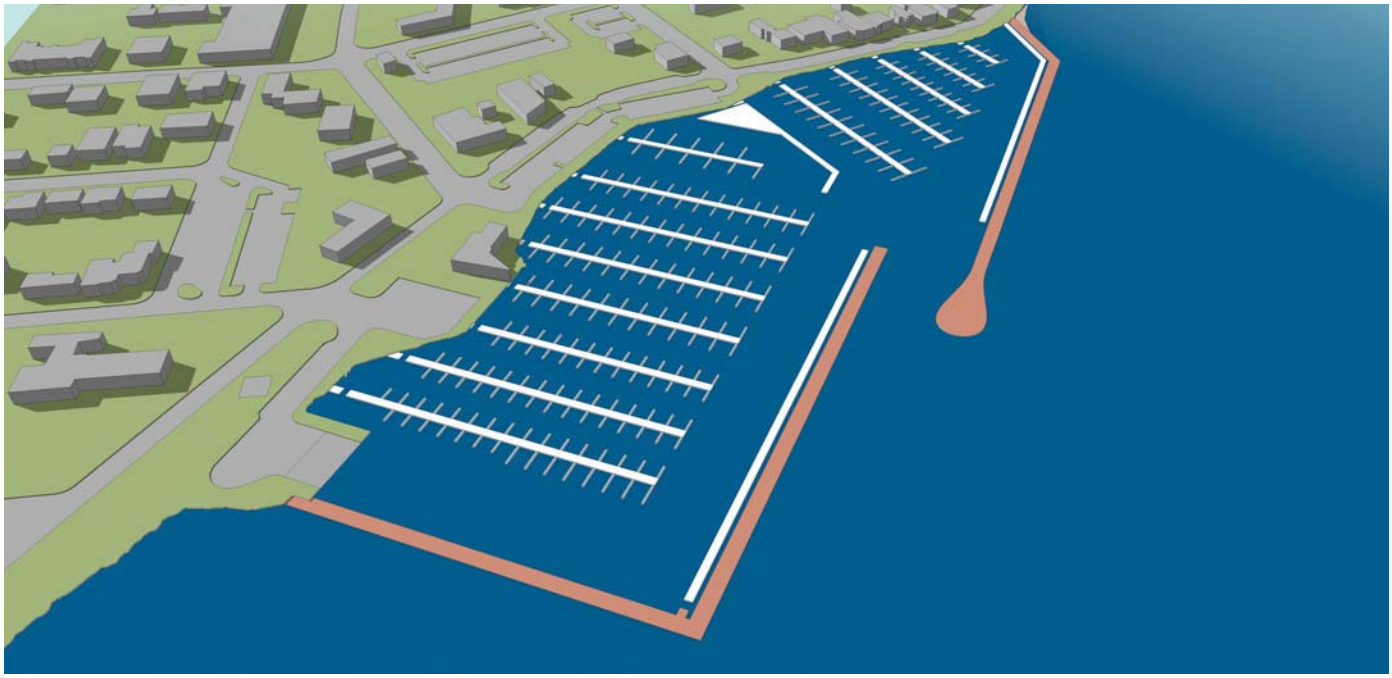
This concept places the Waterfront Pavilion/Water Plaza at the foot of 6th Avenue (splash pad/skating rink, and waterfront pavilion with restaurant, café, public washrooms, change facilities, visitor information and conference centre).

This concept would require demolition of the existing waterfront building

The Piers are two separate unconnected structures with access limited to the extreme north and south ends of the marina. Use of the Piers as a place for walking would be less convenient and less interesting as the access points do not overlap with other public amenities.

Parking is provided through a series of lots and on-street parking. A beach area at the western end of the marina may naturally occur or could be man-made to give an additional usage for the area.

MODEL 2



Perspective View of Concept 2 Model

CONCEPT 2

Concept 2 Color Rendering

Perspective view of Concept 2 Showing the potential Waterfront Development Area

6.4 Concept 3

Concept 3, shown in Figure 5, expands the existing marina to the east, west, and north by constructing 1,000 meters of new breakwater wall, removing the existing breakwater and docks, and constructing new docks. The marina entrance opens to the east north with an east and west basin within the harbour. This concept includes significant fill – 3,900 square meters of area 1 to 2 m deep - in the lake for parking and dock access.

Slips

Concept 3 includes 549 slips with the slip size mix shown in Table 7.

Table 7: Concept 3 Slip Mix

Slip Size	Proposed	LM	% of Total
6.1m(20ft)	253	1542m(5060ft)	38.9
7.6m(25ft)	240	1829m(6000ft)	46.1
9.1m(30ft)	27	247m(810ft)	6.2
10.7m(35ft)	8	85m(280ft)	2.2
12.2m(40ft)	9	110m(360ft)	2.8
Side Tie	12	155m(510ft)	3.9
Total	549	3968m(13020ft)	100.0

Larger boats can be accommodated at the "T" slips located at the end of each dock as well as along the side-tie docks.

Amenities

Concept 3 features a central T dock encompassed by outer docks on the north and east. The T-dock features a boathouse that offers views of the lake from the upper floors while serving as a bait and tackle shop, fuel office, and marina manager office on the lower floor.

The western corner of the western basin features a long temporary docking area suitable for use in fishing tournaments, regattas, boat exhibitions, and other public events. The adjacent land area provides a plaza for hosting the events.

Parking for the western docking area is located on fill in the lake. This area could also be served by the angled parking or temporary drop-off areas as shown in Concepts 1 and 2.

As with Concepts 1 and 2, the boat ramp is relocated to the far eastern limit of the marina basin and doubles the number of ramps from 2 to 4. Cars and trailers queue along the driveway leading to the boat ramp. Release and tie-down lay-by areas are provided along the drive for preparing the boats prior to and after launch and retrieval. The boat ramp is served by 140 linear meters of staging dock to accommodate boats after launch and

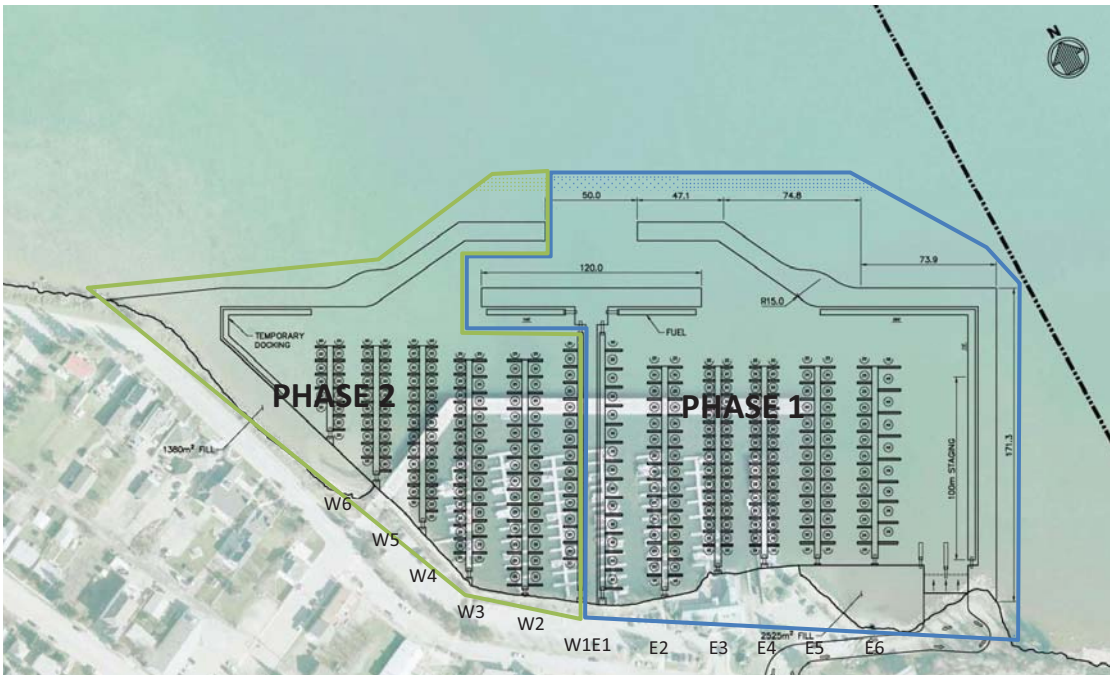


Figure 5

MODEL 3

Perspective VIew of Concept 3 Model

CONCEPT 3

Concept 3 Colour Rendering

prior to retrieval. The fuel dock is located in the center of the basin.

A dedicated commercial dock is indicated located on pier E5 in the east basin. The dock would be gated and access for commercial customers would be by escort. Commercial customers would have access to parking at the small parking area adjacent to the boat ramp.

To limit construction costs, amenities including shore power and potable water may be provided at a limited number of docks including the side tie docks and at docks E1, E5, E6, and W1. Other docks should have potable water at locations along each dock for general use.

Phased Construction

Phased construction for Concept 3 requires demolition of the existing marina to construct the T dock. Phase 1 includes the eastern outer breakwater plus the central T-dock. The resulting marina has 284 slips of varying sizes including several slips over 30 ft long.

Phase 2 includes construction of the remaining western outer breakwater and remaining slips.

Upland

This concept is similar to Concept 2 but has a central Pier adjacent to the Waterfront Pavilion/Water Plaza.

The central focus of activity is at Lakeshore Drive and 6th Avenue with the placement of the Waterfront Pavilion/ Water Plaza serving as a landmark on axis with 6th Avenue.

Properties along 6th Avenue and north and south of 6th on Lakeshore Drive Avenue are ripe for revitalization. Additional public amenities and activities in this location may leverage renewed investment and a higher-quality of development directly adjacent to this area.

This concept places the Waterfront Pavilion/Water Plaza at the foot of 6th Avenue (splash pad/skating rink, and waterfront pavilion with restaurant, café, public washrooms, change facilities, visitor information and conference centre).

This concept would require demolition of the existing waterfront building

The Piers are three separate unconnected structures with a central Pier which is adjacent to the Waterfront Pavilion/Water Plaza and access to the other Piers limited to the extreme north and south ends of the marina.

Parking is provided through a series of lots and on-street parking. A beach area at the western end of the marina may naturally occur or could be man-made to give an additional usage for the area.

Perspective view of Concept 3 Showing the potential Waterfront Development Area

6.5 Additional Options

Combined Concepts

The three concepts presented have components that may be combined with other concepts. For example, the parking and access for the western basin can be via angled parking, drop off area, or parking over fill for each of the three concepts. The temporary docking area in the western corner of Concept 3 may also be accommodated in all three Concepts.

Boat Ramp

The boat ramp expansion is predicated on the current demand.Construction of additional wet slips may reduce the demand for boat launch use. As such, the boat ramp construction should be phased to allow for evaluation of demand as the marina construction progresses. Two ramps should be constructed at first followed by the following 2 ramps, if necessary

Dry Stack Storage

Other boat docking options include construction of a dry storage facility.Dry storage is the storage of boats ranging in length from 6.1m to 12.2m (20ft to 40ft) using racks on land. The boats are removed daily from the water using specially designed forklifts or hoists operated by trained marina staff.Boats are typically cleaned after use by the marina staff and can be fuelled and provisioned by the staff prior to use as an added service for patrons.

The boat storage racks are typically 2 to 3 boats up to 5 boats high and may be on the marina grounds in the open or within a warehouse. Warehouse configurations provide protection from rain and snow and can be heated for winter boat storage.Figure 6 shows a State of the art facility near St. Petersburg Florida – outside and inside (L-shaped building).

A storage area approximately 60m long by 30m wide can store approximately 120 7.6m (25ft) boats. The launch area typically consists of a slipway with staging docks to store boats during busy launch and retrieval periods. Construction of a dry storage facility at Cold Lake Marina would likely require fill into the lake to provide sufficient space for the building and associated operations.

Advantages of dry storage facilities include lower cost per boat stored and less need for water frontage than wet slip storage. Many patrons are hesitant to use dry storage, preferring their boat being in the water and ready to go at all times vs. waiting for the boat to be launched by the dry storage facility. However, once accustomed to the concept many users prefer dry storage as the cost is typically lower than wet slips and the boat is cleaned and protected from bad weather. Boats in dry storage also don't typically require antifouling paints to prevent marine growth.

Figure 6.1

Figure 6.2

Figure 6.3

7.0/
CONCEPT COMPARISON

7.1 Opinion of Probable Cost

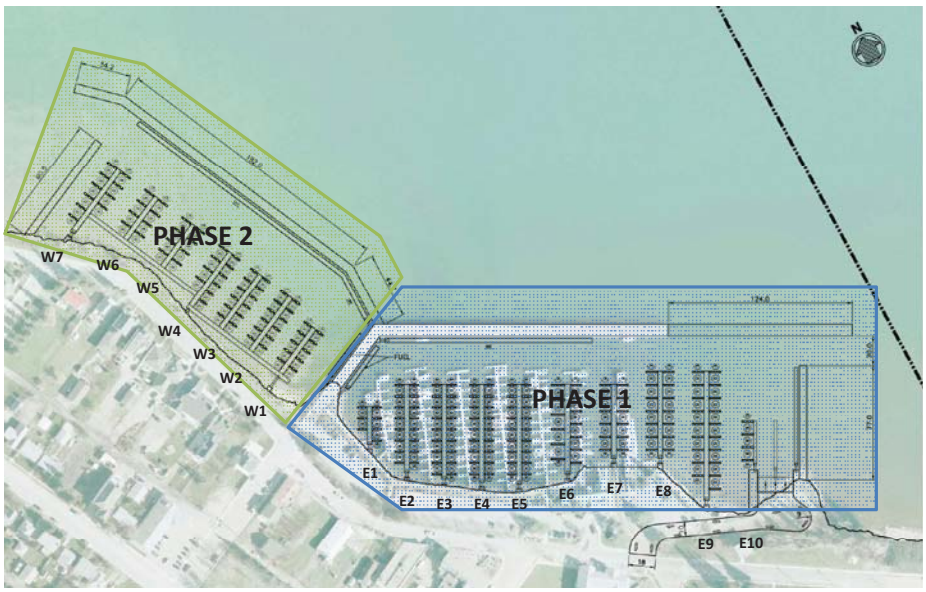
Concept 1

The following opinions of probable construction costs are based on typical construction costs and provide order of magnitude costs as well as comparisons between concepts. Survey, engineering, and design are required to further refine the costs. The costs are based on the following assumptions:

- Demolition - includes the existing breakwater wall and docks
- Breakwater – similar to existing double wall with fill configuration; water depths less than 5.5m
- Dredging - allowance for dredging: on-site disposal if possible
- Floating Docks – steel or aluminum frame
- Utilities – limited to the docks indicated in the descriptions above
- Exclusions to the prepared costs include the following:
- Project management,
- Permitting, engineering design, and construction oversight,
- Permitting costs and environmental habitat compensation,
- Additional mobilization costs associated with phased construction, and
- Land purchase.

Table 8: Concept 1 Opinion of Probable Cost

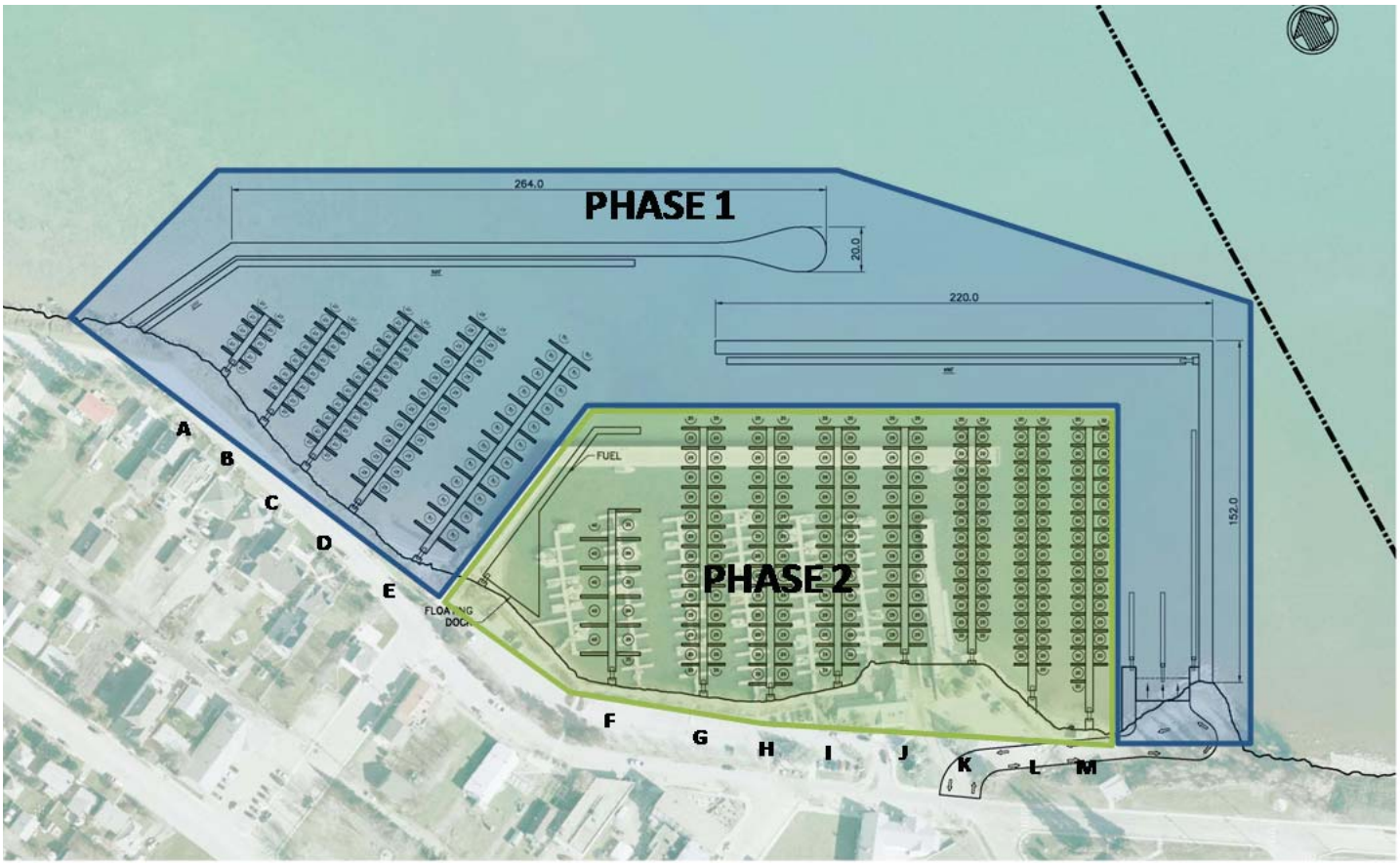
Item	Unit	Quantity	Unit Price	Total Price
Mobilization and General Conditions	LS	1	$150,000	$150,000
Demolition	LS	1	$100,000 to $150,000	$100,000 to $150,000
Breakwater Wall	LM	560	$7,000 to $8,000	$3.92M to $4.48M
Floating Docks	EA	457	$20,000 to $25,000	$9.2M to $11.4M
Fuel System	LS	1	$50,000 to $75,000	$50,000 to $70,000
Utilities	LS	1	$180,000 to $250,000	$180,000 to $250,000
Boat Ramps	LS	1	$200,000 to $250,000	$200,000 to $250,000
Dredging	Allowance	1	$250,000	$250,000
Total				**$14,000,000 to $17,000,000**



Concept 2

Table 9: Concept 2 Opinion of Probable Cost

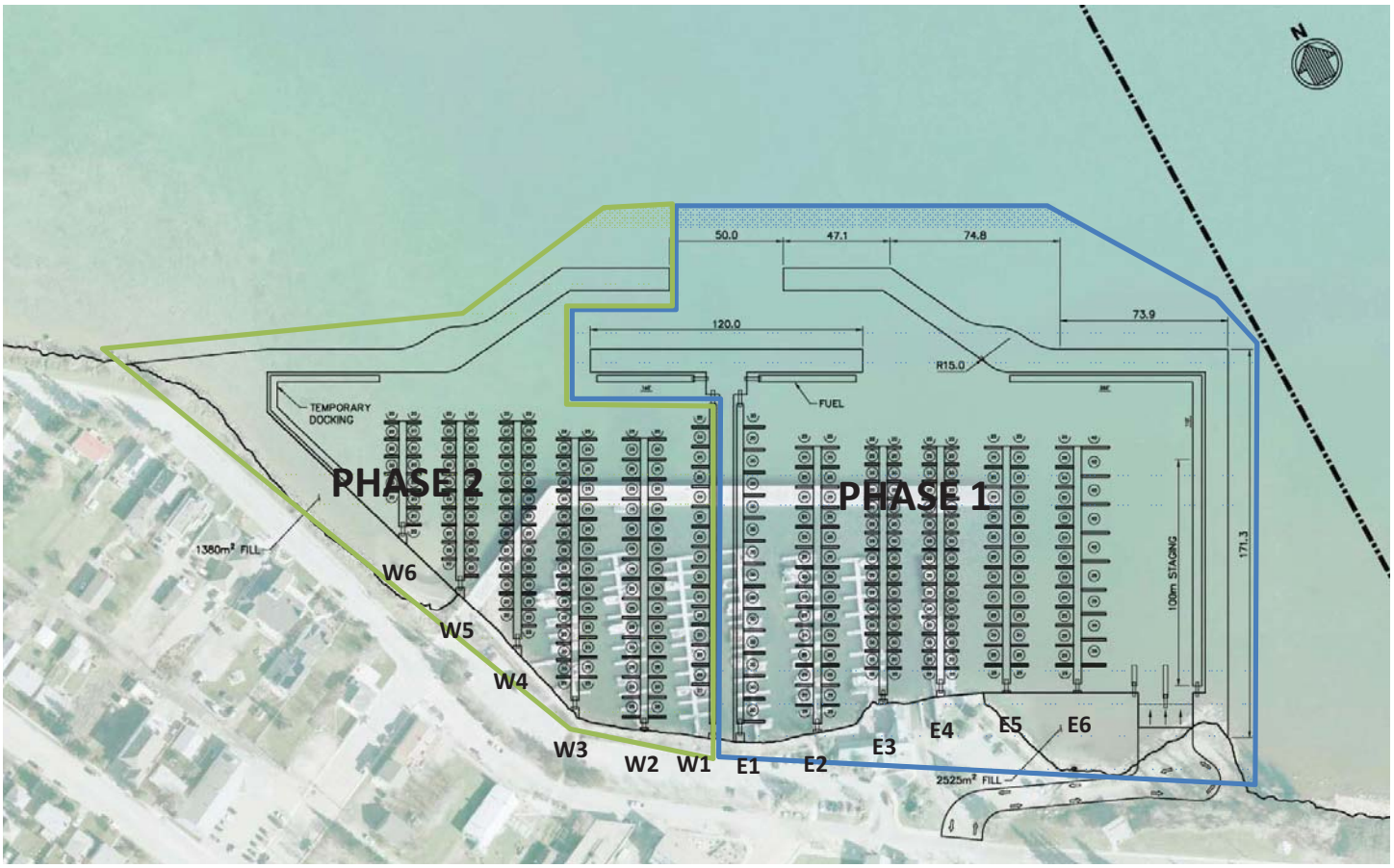
Item	Unit	Quantity	Unit Price	Total Price
Mobilization and General Conditions	LS	1	$150,000	$150,000
Demolition	LS	1	$100,000 to $150,000	$100,000 to $150,000
Breakwater Wall	LM	700	$7,000 to $8,000	$4.9M to $5.6M
Floating Docks	EA	596	$20,000 to $25,000	$11.9M to 14.9M
Fuel System	LS	1	$50,000 to $75,000	$50,000 to $70,000
Utilities	LS	1	$180,000 to $250,000	$180,000 to $250,000
Boat Ramps	LS	1	$200,000 to $250,000	$200,000 to $250,000
Dredging	Allowance	1	$250,000	$250,000
Total				**$17,750,000 to $21,600,000**



Concept 3

Table 10:Concept 3 Opinion of Probable Cost

Item	Unit	Quantity	Unit Price	Total Price
Mobilization and General Conditions	LS	1	$150,000	$150,000
Demolition	LS	1	$100,000 to $150,000	$100,000 to $150,000
Breakwater Wall	LM	1,000	$7,000 to $8,000	$7M to $8M
Floating Docks	EA	549	$20,000 to $25,000	$11M to $13.7M
Fuel System	LS	1	$50,000 to $75,000	$50,000 to $70,000
Utilities	LS	1	$180,000 to $250,000	$180,000 to $250,000
Boat Ramps	LS	1	$200,000 to $250,000	$200,000 to $250,000
Dredging	Allowance	1	$250,000	$250,000
Fill Material (from Dredge)	Cu. M	5,000	$10 to $15	$50,000 to $75,000
Total				**$18,980,000 to 22,895,000**



7.2 Concept Comparison Matrix

Table 11: Concept Comparison Matrix

	No Change	Concept 1	Concept 2	Concept 3
Slip Count	250	457	596	544
Boat Ramp	2 Ramps with limited trailer queuing area and in water staging area that conflicts with the fuel dock	2 to 4 Ramps with trailer queue area and in water staging area	2 to 4 Ramps with trailer queue area and in water staging area	2 to 4 Ramps with trailer queue area and in water staging area
Parking	94 parking stalls and 10 to 15 trailer stalls	348 parking stalls and 18 to 27 trailer stalls Parking for west basin is limited and may require fill	306 parking stalls and 18 to 27 trailer stalls Parking for western docks is limited and may require fill	415 parking stalls and 18 to 27 trailer stalls Parking for west basin is limited and may require fill
Environmental Impacts	No Change	Minimal fill in the lake Two sub-harbours will need to have flushing/circulation culverts connecting to the lake	Minimal fill in the lake Harbour will need to have flushing/circulation culverts connecting to the lake	Covers 3,900 square meters of lake bottom Two sub-harbours will need to have flushing/circulation culverts connecting to the lake Extends into deepest water offshore
Phased Construction	N/A	Phase 1 = 273 new slips in place of original 250 Existing can remain in place during construction of Phase 1	Phase 1 = 166 new slips plus original 250 Existing can remain in place during construction of Phase 1	Phase 1 = 284 new slips in place of original 250 Existing must be removed for construction of Phase 1
Cost	N/A	$14,000,000 to $17,000,000	$17,750,000 to $21,600,000	$18,980,000 to 22,895,000

8.0/ SUMMARY

8.1 Summary

6 Guiding Principles

1. Expand Marina Capacity
2. Improve Marina Services
3. Revitalize the waterfront as a mixed-use area to attract both residents and visitors.
4. Provide additional public amenities and activities attractive to all citizens/all age groups
5. Public investments in the waterfront should be strategically designed to leverage private sector investment
6. Demonstrate design excellence and environmentally sustainable practices

Existing Marina

- Strong demand for slips
- Good wave protection
- Not enough slips
- Slips and fairways are too narrow
- Conflict between boat ramp and fuel dock
- Poor water circulation in the marina

Marina Market

- Cold Lake is unique in the region
- Public marina in a downtown setting
- Market supports expansion to 400 to 600 slips
- Market supports some larger boat slips

Public Comment

- Public generally supports marina expansion
- First Nations request expansion not move eastward
- Demand for fine dining in Cold Lake – waterfront is a good location
- Enjoy walking around the marina area
- Fishing from the breakwater is important
- Need dedicated commercial slips for businesses using the marina to grow

Basis of Concept

- 400 to 600 floating, double wet slips
- 2 to 4 lane boat ramp
- Permitting is feasible – fill in the lake may require mitigation

Concept 1

- Expand existing marina
- 457 slips
- $14,000,000 to $17,000,000 for marina construction
- 348 parking spaces

Concept 2

- Maximum slips – one basin
- 596 slips
- $17,750,000 to $21,600,000 for marina construction
- 306 parking spaces

Concept 3

- Two basins – Central T-dock
- 549 slips
- $18,980,000 to 22,895,000 for marina construction
- 415 parking spaces

9.0/ APPENDIX

9.1 Appendices

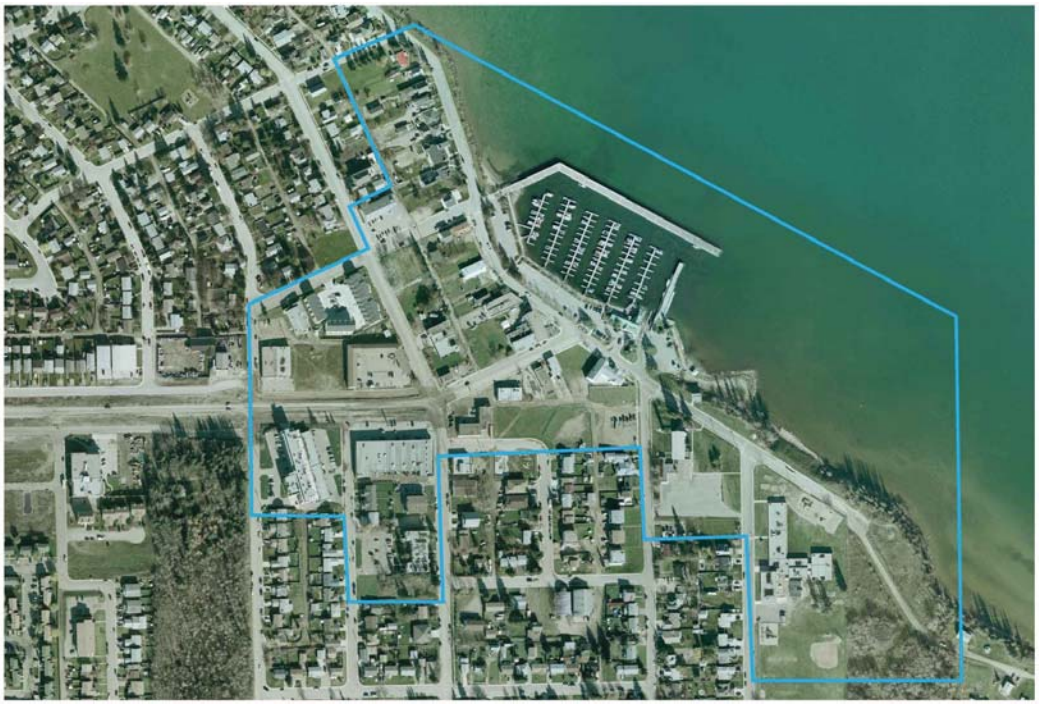
Community Engagement Poster

Cold Lake Marina Master Plan
Public Engagement - August 23 - 25, 2012

City of Cold Lake

THE CITY OF COLD LAKE HAS INITIATED A PROJECT TO PREPARE A MASTER PLAN FOR THE COLD LAKE MARINA AND ADJACENT UPLANDS KNOWN AS THE COLD LAKE WATERFRONT STUDY AREA. THE PURPOSE OF THE STUDY IS TO PREPARE RECOMMENDATIONS REGARDING THE SHORT AND LONG TERM USE FOR THE MARINA AND SURROUNDING AREAS ADJACENT TO THE WATERFRONT. THE STUDY WILL DEVELOP A SUSTAINABLE MASTER PLAN THAT RECOGNIZES IMPORTANT COMPONENTS OF THE CITY AND WATERFRONT USERS.

STUDY AREA:



THE TEAM OF MOFFAT & NICHOL AND BROOK MCILROY WILL BE IN TOWN TO DISCUSS THE MARINA AND WATERFRONT DEVELOPMENT WITH THE PUBLIC ON AUGUST 23-25. 3 EVENTS HAVE BEEN SET UP FOR THE PUBLIC TO REVIEW, DISCUSS AND GIVE INPUT INTO THE VISION OF COLD LAKES MARINA AND WATERFRONT DEVELOPMENT. PLEASE COME JOIN US AT ONE OF THE THREE EVENTS BELOW TO SHARE YOUR VISION FOR FUTURE OF THE COLD LAKE MARINA AND SURROUNDING AREAS.

THURSDAY AUGUST 23 5:30-9:00pm - A&W MS SOCIETY "CRUISIN FOR A CAUSE"

FRIDAY AUGUST 24 5:00-9:30pm - RACE THE BASE DRIVERS MEET AND GREAT (ORIGINAL JOE'S)

SATURDAY AUGUST 25 12:00-3:00pm - MARINA

COME DOWN TO ONE OF THESE EVENTS, LOOK FOR OUR TENT AND TALK TO US ABOUT YOUR VISION FOR THE MARINA AND WATERFRONT DEVELOPMENT. HOPE TO SEE YOU ALL THERE TO TALK ABOUT THE FUTURE OF COLD LAKE.

*go to www.surveymonkey.com/s/ColdLakeMarina to fill out comment sheet online and submit electronically.

moffatt & nichol
BrookMcIlroy/

Public Survey

COLD LAKE MARINA MASTER PLAN

CITY OF COLD LAKE
Community Engagement, August 23-25, 2012

PUBLIC COMMENT SHEET

The City of Cold Lake has initiated a project to prepare a Master Plan for the Cold Lake Marina and adjacent uplands known as the Cold Lake Waterfront Study area. The purpose of the study is to prepare recommendations regarding the short and long term use for the marina and surrounding areas adjacent to the waterfront. The study will develop a sustainable master plan that recognizes important components of the city and waterfront users.

Please complete the form and deposit it in the "Comment Sheet" box or mail, email, fax your completed questionnaire to:

Mr. Gavin Wyman, Landscape Architect
Brook McIlroy
51 Camden Street
Suite #300
Toronto ON M5V 1V2
e-mail: gwyman@brookmcilroy.com
fax: 416.504.7712

*go to www.surveymonkey.com/s/ColdLakeMarina to fill out online and submit electronically.

How do you currently use the Cold Lake Waterfront area?

- ☐ Boater
- ☐ User of the Public Spaces
- ☐ Shop and eat at the stores and restaurants
- ☐ Don't Use the Marina

What do you like about the Marina and adjacent Waterfront today?

What do you dislike about the Marina and adjacent Waterfront today?

What would increase your use and enjoyment of the area? ie: Are there other uses the waterfront would benifit from (recreation, culture, residential, business)

What additional boater services/amenities would you like to see at the Marina?

Is the existing boat slip layout working and if not how would you like to see it changed? Are dry slips for boats an option for residents of Cold Lake?

What is your overall vision for the Cold Lake Waterfront Study Area?

Do you support the Marina expansion and waterfront development? **Yes / No**

Comment:

Other comments:

*Please submit by Monday September 10th 2012.

Thank you for your participation.

COLD LAKE MARINA MASTER PLAN CITY OF COLD LAKECommunity Engagement, August 23-25, 2012PUBLIC COMMENT SHEET

SurveyMonkey

How do you currently use the Cold Lake Waterfront area?

	Response Percent	Response Count
Boater	52.6%	20
User of the public spaces	**73.7%**	**28**
Shop and/or eat at the stores and restaurants	63.2%	24
Don't use the marina	2.6%	1

COLD LAKE MARINA MASTER PLAN CITY OF COLD LAKECommunity Engagement, August 23-25, 2012PUBLIC COMMENT SHEET

SurveyMonkey

Do you support the marina expansion and waterfront development?

	Response Percent	Response Count
Yes	**100.0%**	**28**
No	0.0%	0
	Comments	13
	answered question	**28**
	skipped question	**10**

10.0/ ACKNOWLEDGEMENTS

City of Cold Lake

Craig Copeland - Mayor
Kevin Nagoya - Chief Administrative Officer
Kenneth Rogers -Manager, Planning & Development
Grace de Wit - Development Officer
Amjad Khan - Engineering Manager
Doug Parish - General Manager of Public Services
Jil Northey - Communications Coordinator

Urban Development Institute (UDI)
Cold Lake First Nations - Denesuline (Chipewyan) Tribe
Elsie Dennis - Bed and Breakfast Owner
Capt. Ronn Coooper - Cap n Ronn Charters
Splash Pad Committee
Cold Lake Sailing Association

Consultants

Moffat & Nichol

Robert Nathan
Paul Hoo
Margaret Schwertner
Michael Herrman

BrookMcIlroy

Calvin Brook
Gavin Wyman
Marta Sitek
Alex Willms
Stacy Anderson