



ENVIRONMENTAL CONSERVATION MASTER PLAN

UPDATE TO COUNCIL

FEBRUARY 13, 2018

PURPOSE OF PRESENTATION

- Present Environmental Conservation Master (ECMP) project
- Present ECMP Implementation Plan
- Council approval of:
 - ECMP
 - ECMP Implementation Plan

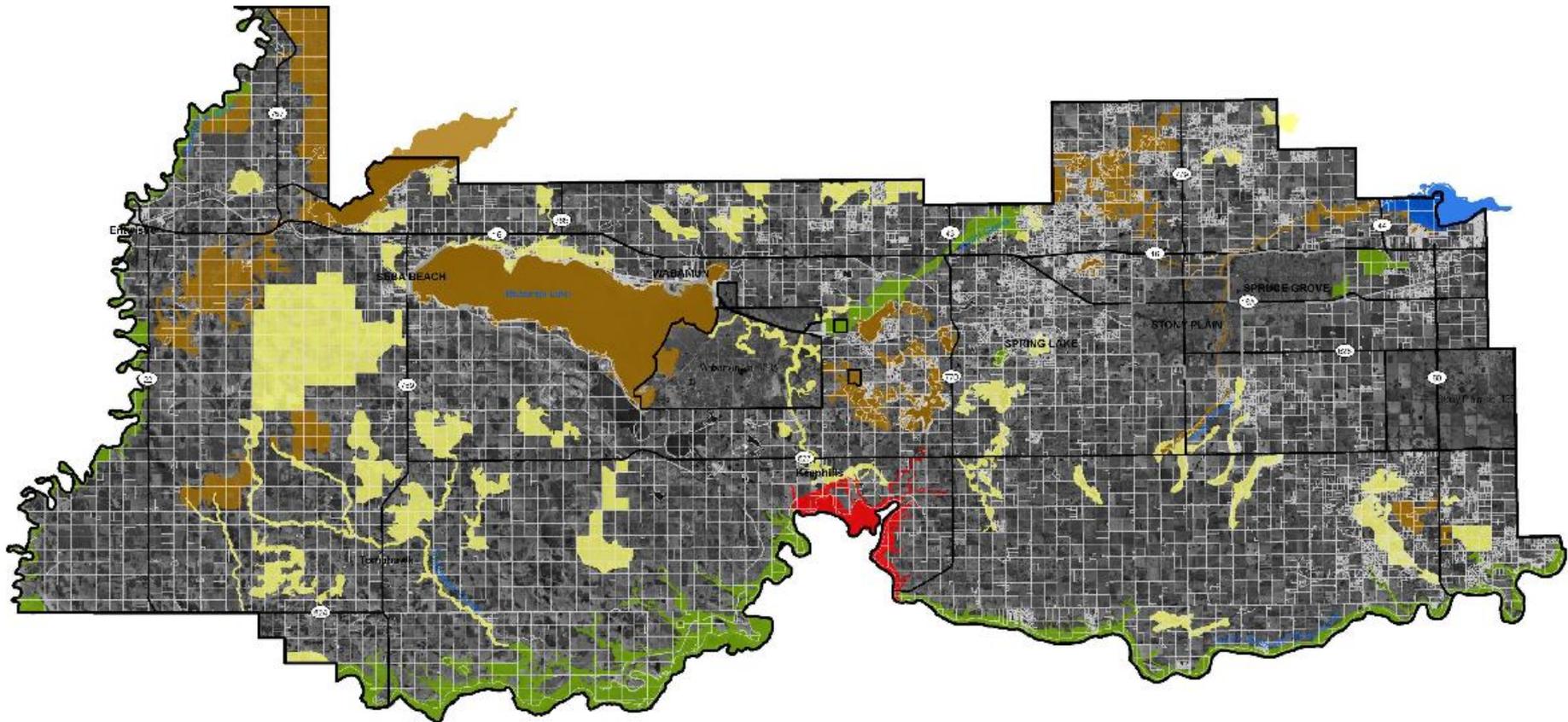
ECMP Plan outcomes and next steps
ECMP Fact Sheet

ENVIRONMENTAL CONSERVATION MASTER PLAN

- Initiated in August 2013
 - outdated methodology (inconsistent)
 - acts, regulations, and plans
 - Municipal Development Plan
- Three phases:
 - phase 1: updated ECMP document, ESA map and factsheets
 - phase 2: draft “environmental” policies for the MDP
 - phase 3: draft County policies and Riparian Setback Matrix Model

PHASE 1

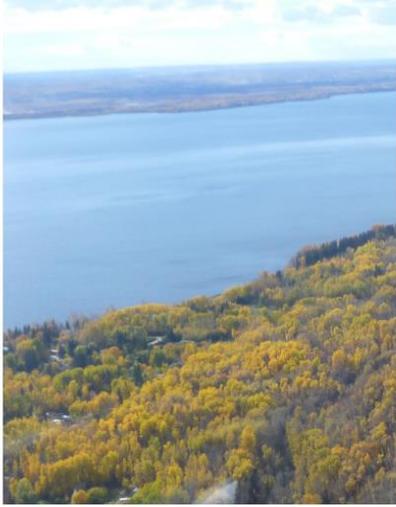
ENVIRONMENTALLY SIGNIFICANT AREAS OF PARKLAND COUNTY (NEW 2013)



- | | |
|-----------------------|---------------------|
| County Boundary | Significance |
| First Nations Reserve | International |
| Municipal Boundary | National |
| Highway | Provincial |
| | Regional |
| | Local |

PHASE 1

- Categories:
 - Local, regional, provincial, national, international
- Factsheets and beneficial management practices for each significant area
- BMP's for specific activities (agriculture, industrial development, aggregate development, residential, recreation)
- Scientific and objective approach



170 Parkland County Environmental Conservation Master Plan - Phase 1

Wabamun Lake ESA

Site Location: Wabamun Lake is situated south of Highway 16, east of Highway 31, and west of Highway 770. There are multiple access points including the town of Wabamun, Seba Beach, and Wabamun Lake Provincial Park.

Area: 8,905 ha

Description:

The Wabamun Lake ESA is comprised of the lake, several surrounding wetlands associated with the lake, and a precautionary planning buffer around the lake—a measure designed to promote careful development. Wabamun Lake, listed as White Lake on Palliser's map of 1865, is a large shallow lake with a capacity of 513 million m³. Despite the large drainage basin, groundwater is also an important feature in a wide glacial meltwater channel with a catchment area of 25,900 ha. Its long fetch and depth results in periodic heavy wave action. The average depth is 6.3 m, reaching 11 m in some places. Residence time of over 100 years. Outflows are periodic through Wabamun Creek in times of high water, along much of the shoreline, but emergent vegetation restricts their use. The littoral zone is sandy areas are found at depths less than 2 m with soft clay or organic sediments over more silt.

The water quality is moderate to good, and has been determined to be mesotrophic to eutrophic. There are blue-green algae blooms and low dissolved oxygen in the winter. Lower water quality is associated with the lake's shallow nature.

Main types of woody vegetation surrounding the lake include trembling aspen, balsam poplar, and white birch. Wetlands containing sedges and cattails are also present along the lake fringe. Several grasslands are present near the lakeshore within the watershed. A combination of rolling moraine, parkland, and agricultural lands adjacent to the lake supports many ungulates and birds. Bird species include common nuthatches, which are normally expected further to the north and west. Migrating, breeding and wintering species include gulls, terns, rails, herons, loons, kingfishers, sandpipers, and even American white pelicans.

Large colonies of red-necked and western grebes nest on the lake and nesting of western grebes is common in the area. The cooling ponds associated with the power plants at Wabamun, open water for hooded mergansers, bald eagles, and several thousand mallards. Ospreys and peregrine falcons nest in the area, and peregrine falcons nest at the three power plants. They also occur in the vicinity of Wabamun Lake, as do a selection of rare plant species. Common lake whitefish, northern pike, yellow perch, white sucker, stickleback, spottail shiner, bowfin, and northern pike fisheries are important for lake whitefish and northern pike fisheries.

Wabamun Lake ESA

Environmental Sensitivity: Moderate

- Due to some groundwater sensitivity, with few occurrences of rare plants

Land Status:

- Crown Land surrounds small portions of the lake. The Village of Wabamun is located on the north side and the Summer Village of Seba Beach is on the west end. The Wabamun Indian Reserve borders the east side of the lake, while TransAlta Utilities Company owns most of the land along the south shore, and Coal Point has a YWCA camp. Most of the north side has privately owned lakeside lots, including permanent residences and seasonal cabins.

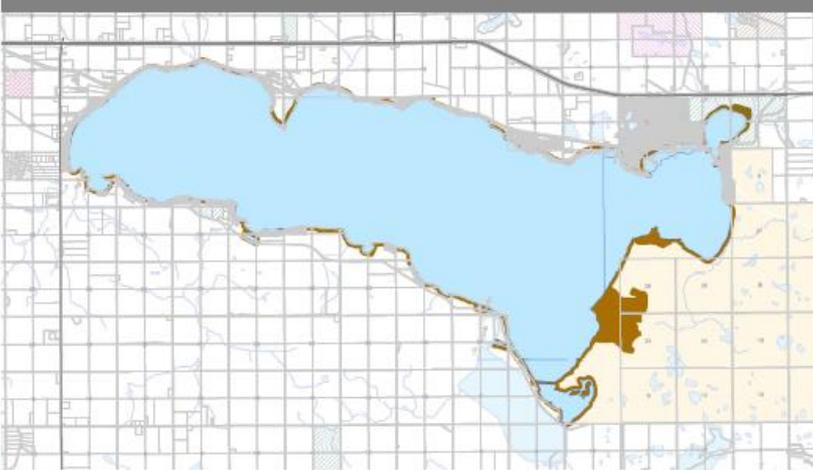
Key features:

- Large lake system with significant wildlife and fish habitat, and recreational values

Recommended Planning Strategies:

- Concerns have been expressed that operation of coal-fired power plants adjacent to the lake and discharge of cooling water have significantly altered the ecology of Wabamun Lake. Negotiate with TransAlta to develop mitigation practices.
- A western grebe nesting colony along the north shore of lake is vulnerable to human disturbance. Adequate development set-backs from the lakeshore environment would be beneficial to the ecological integrity of the lake.
- Peregrine falcon nesting sites are also vulnerable to disturbance. Development set-backs should be considered in these areas as well.
- Historical overfishing on the lake is a concern. As of fall 2013, all fishing in Lake Wabamun was catch and release only; management of recreational and commercial fisheries is the responsibility of the Fish and Wildlife Division, Alberta Environment and Sustainable Resource Development. A walleye reintroduction program has been recommended with complete restriction to breeding and rearing areas (Schindler, 2004).
- Encourage cabin owners to follow good shoreline protection practices by maintaining a vegetated buffer along the lake. Residents should be aware of the effects and consequences of modifying shorelines and pulling weedbeds (Schindler, 2004) and how to manage nuisance plants.
- Land uses around the lake should be managed from an ecological perspective.
- It has been recommended to allow water levels in the lake to naturally fluctuate and not artificially alter them using the weir (Schindler, 2004).
- The industrial lands in the contributing watershed should be reclaimed to locally common habitats as soon as they are no longer required for operations (Schindler, 2004).
- Concern has been expressed about degrading water quality in the lake due to surrounding cottage development, agriculture, the 2005 CN Rail oil spill and adjacent industrial development. CN Rail train derailed on the shores of Wabamun Lake on August 3, 2005, spilling more than 700,000 L of a variety of fuel oils and pole treating oils into the lake. It has been recommended to provide more stringent guidelines for fertilizer use, development, thermal pollution and waste disposal to improve water quality, and develop a monitoring program to evaluate water nutrients and other contaminants (i.e., metals and coliforms) (Schindler, 2004).
- Boat speed limits fall under the purview of Transport Canada with the Federal Government responsible for enforcement.
- Prohibit residential fertilizer use in the ESA boundary area. Increase education and (where necessary) enforcement for non-compliance.
- Implement all Alberta Environment and Sustainable Resource guidelines for waste and stormwater management to eliminate direct runoff into the lake. Examples include *The Water Act*, and *The Environmental Protection and Enhancement Act*.
- Refer to the Wabamun Lake State of the Watershed report (2013)
- Undertake completion of a Lake Management Plan for Wabamun Lake

WABAMUN LAKE ESA



Map Legend:

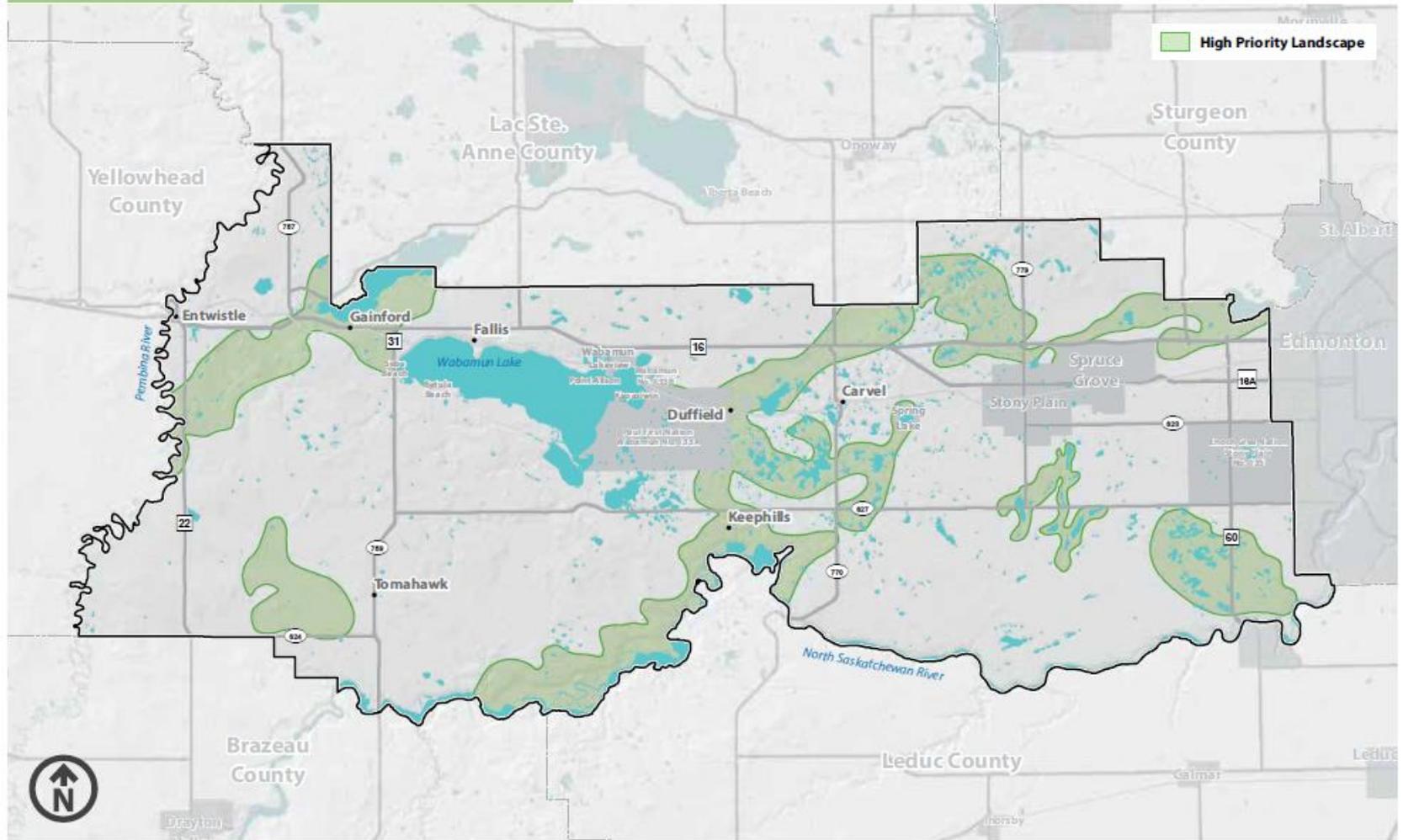
- 100 Feet
- 1:25,000
- 1:50,000
- 1:100,000
- 1:200,000
- 1:400,000
- 1:800,000
- 1:1,600,000
- 1:3,200,000
- 1:6,400,000
- 1:12,800,000
- 1:25,600,000
- 1:51,200,000
- 1:102,400,000
- 1:204,800,000
- 1:409,600,000
- 1:819,200,000
- 1:1,638,400,000
- 1:3,276,800,000
- 1:6,553,600,000
- 1:13,107,200,000
- 1:26,214,400,000
- 1:52,428,800,000
- 1:104,857,600,000
- 1:209,715,200,000
- 1:419,430,400,000
- 1:838,860,800,000
- 1:1,677,721,600,000
- 1:3,355,443,200,000
- 1:6,710,886,400,000
- 1:13,421,772,800,000
- 1:26,843,545,600,000
- 1:53,687,091,200,000
- 1:107,374,182,400,000
- 1:214,748,364,800,000
- 1:429,496,729,600,000
- 1:858,993,459,200,000
- 1:1,717,986,918,400,000
- 1:3,435,973,836,800,000
- 1:6,871,947,673,600,000
- 1:13,743,895,347,200,000
- 1:27,487,788,714,400,000
- 1:54,975,577,428,800,000
- 1:109,951,154,857,600,000
- 1:219,902,309,715,200,000
- 1:439,804,619,430,400,000
- 1:879,609,238,860,800,000
- 1:1,759,218,477,721,600,000
- 1:3,518,436,955,443,200,000
- 1:7,036,873,910,886,400,000
- 1:14,073,747,821,772,800,000
- 1:28,147,495,643,545,600,000
- 1:56,294,991,287,091,200,000
- 1:112,589,982,574,182,400,000
- 1:225,179,965,148,364,800,000
- 1:450,359,930,296,729,600,000
- 1:900,719,860,593,459,200,000
- 1:1,801,439,721,186,918,400,000
- 1:3,602,879,442,373,836,800,000
- 1:7,205,758,884,747,673,600,000
- 1:14,411,517,769,495,347,200,000
- 1:28,823,035,538,990,694,400,000
- 1:57,646,071,077,981,388,800,000
- 1:115,292,142,155,962,777,600,000
- 1:230,584,284,311,925,555,200,000
- 1:461,168,568,623,851,110,400,000
- 1:922,337,137,247,702,220,800,000
- 1:1,844,674,274,495,404,441,600,000
- 1:3,689,348,548,990,808,883,200,000
- 1:7,378,697,097,981,617,766,400,000
- 1:14,757,394,195,963,235,532,800,000
- 1:29,514,788,391,926,471,065,600,000
- 1:59,029,576,783,852,942,131,120,000
- 1:118,059,153,567,705,884,262,240,000
- 1:236,118,307,135,411,768,528,480,000
- 1:472,236,614,270,823,537,056,960,000
- 1:944,473,228,541,647,074,112,192,000
- 1:1,888,946,457,083,294,148,224,384,000
- 1:3,777,892,914,166,588,296,448,768,000
- 1:7,555,785,828,333,176,572,896,936,000
- 1:15,111,571,656,666,353,145,157,372,000
- 1:30,223,143,313,332,706,286,284,744,000
- 1:60,446,286,626,665,412,572,569,488,000
- 1:120,892,573,253,330,825,145,113,936,000
- 1:241,785,146,506,661,650,290,289,872,000
- 1:483,570,293,013,323,300,580,579,744,000
- 1:967,140,586,026,646,600,116,115,936,000
- 1:1,934,281,172,053,293,200,232,231,872,000
- 1:3,868,562,344,106,586,400,464,463,744,000
- 1:7,737,124,688,213,172,800,928,927,488,000
- 1:15,474,253,376,425,345,600,185,785,536,000
- 1:30,948,506,752,850,691,200,371,571,072,000
- 1:61,897,013,505,701,382,400,743,142,144,000
- 1:123,794,027,011,402,764,800,148,284,288,000
- 1:247,588,054,022,805,529,600,296,568,576,000
- 1:495,176,108,045,611,059,200,593,137,113,600,000
- 1:990,352,216,091,222,118,400,1,186,274,226,227,200,000
- 1:1,980,704,432,182,444,236,800,2,372,548,452,454,400,000
- 1:3,961,408,864,364,888,473,600,4,745,096,904,908,800,000
- 1:7,922,817,728,729,776,947,200,9,490,193,809,817,600,000
- 1:15,845,635,457,459,553,494,400,18,980,387,619,635,200,000
- 1:31,691,270,914,919,106,988,800,37,960,775,239,268,400,000
- 1:63,382,541,829,838,213,977,600,75,921,546,478,536,800,000
- 1:126,765,083,659,676,427,955,200,151,843,092,957,073,600,000
- 1:253,530,167,319,352,855,910,400,303,686,185,914,147,127,200,000
- 1:507,060,334,638,705,711,820,800,607,372,371,828,294,254,400,000
- 1:1,014,120,669,277,411,423,641,600,1,214,744,743,656,588,508,508,800,000
- 1:2,028,241,338,554,822,847,283,200,2,429,489,487,313,177,117,117,600,000
- 1:4,056,482,677,109,645,694,566,400,4,858,978,974,626,354,234,234,200,000
- 1:8,112,965,354,219,291,389,132,800,9,717,957,949,252,708,468,468,400,000
- 1:16,225,930,708,438,582,778,265,600,19,435,915,898,505,416,936,936,800,000
- 1:32,451,861,416,877,165,551,531,200,38,871,831,797,010,832,873,873,600,000
- 1:64,903,722,833,754,331,103,106,400,77,743,663,594,021,665,747,747,200,000
- 1:129,807,445,667,508,662,206,212,800,155,487,327,188,043,331,495,495,400,000
- 1:259,614,891,335,017,212,412,425,600,310,974,654,376,086,682,990,990,800,000
- 1:519,229,782,670,034,424,824,851,200,621,949,308,752,173,373,373,600,000
- 1:1,038,459,545,340,068,849,649,702,400,1,243,898,617,504,346,746,746,400,000
- 1:2,076,919,090,680,137,699,299,404,800,2,487,797,235,008,693,493,493,600,000
- 1:4,153,838,181,360,275,398,598,809,600,4,975,594,470,186,986,986,800,000
- 1:8,307,676,362,720,550,797,197,609,200,9,951,188,940,373,973,973,600,000
- 1:16,615,352,725,441,101,594,395,200,19,902,377,880,747,947,947,200,000
- 1:33,230,705,480,882,202,188,790,400,39,804,757,761,495,895,895,400,000
- 1:66,461,410,961,764,404,377,580,800,79,609,515,522,991,791,791,600,000
- 1:132,922,821,923,528,808,755,161,600,159,219,031,045,983,583,583,200,000
- 1:265,845,643,857,057,617,510,323,200,318,438,062,191,967,167,167,400,000
- 1:531,691,287,714,115,235,026,400,636,876,123,934,334,334,800,000
- 1:1,063,382,574,428,230,470,452,800,1,273,752,247,868,668,668,600,000
- 1:2,126,765,148,856,460,945,915,600,2,547,504,537,737,337,337,200,000
- 1:4,253,530,297,713,921,891,831,200,5,095,009,075,474,674,674,400,000
- 1:8,507,060,547,427,783,783,662,400,10,190,018,150,949,349,349,600,000
- 1:17,014,121,094,855,567,567,324,800,20,380,036,301,898,698,698,800,000
- 1:34,028,242,189,711,135,135,649,600,40,760,072,603,797,397,397,600,000
- 1:68,056,484,379,422,270,271,299,200,81,520,145,207,594,794,794,400,000
- 1:136,112,968,758,844,544,542,598,400,163,040,290,415,189,189,600,000
- 1:272,225,937,517,689,089,087,119,600,326,080,580,830,378,378,200,000
- 1:544,451,875,035,378,177,374,239,200,652,160,116,166,756,756,400,000
- 1:1,088,903,750,074,756,354,752,478,400,1,304,320,232,313,513,513,600,000
- 1:2,177,807,500,149,509,709,506,956,800,2,608,640,464,627,027,027,200,000
- 1:4,355,615,000,299,019,019,013,912,000,5,217,280,928,125,404,125,404,400,000
- 1:8,711,230,000,598,038,038,027,824,000,10,434,461,856,250,808,250,808,600,000
- 1:17,422,460,000,1,196,076,076,054,648,000,20,868,923,712,501,616,501,616,800,000
- 1:34,844,920,000,2,392,152,152,109,296,000,41,737,847,424,100,303,100,303,600,000
- 1:69,689,840,000,4,784,304,304,218,592,000,83,475,688,848,200,606,200,606,800,000
- 1:139,379,680,000,9,568,608,608,437,184,000,166,951,377,696,401,201,201,600,000
- 1:278,759,360,000,19,137,217,217,874,368,000,333,902,755,392,802,802,800,000
- 1:557,518,720,000,38,274,434,434,174,736,000,667,805,510,785,604,604,604,800,000
- 1:1,115,037,440,000,76,548,868,868,349,472,000,1,335,611,021,571,209,209,209,600,000
- 1:2,230,074,880,000,153,097,737,737,698,944,000,2,671,222,043,142,418,418,418,800,000
- 1:4,460,149,760,000,306,195,475,475,139,888,000,5,342,444,086,284,836,836,836,800,000
- 1:8,920,299,520,000,612,390,950,950,279,776,000,10,684,888,169,669,673,673,673,600,000
- 1:17,840,599,040,000,1,224,781,901,901,559,552,000,21,369,776,339,339,339,600,000
- 1:35,681,198,080,000,2,449,563,803,803,111,904,000,42,739,552,678,678,678,800,000
- 1:71,362,396,160,000,4,899,127,607,607,223,808,000,85,479,105,357,357,357,600,000
- 1:142,724,792,320,000,9,798,255,215,215,447,616,000,170,958,210,714,714,714,800,000
- 1:285,449,584,640,000,19,596,504,430,430,895,232,000,341,916,421,428,428,428,800,000
- 1:570,899,169,280,000,39,193,008,860,860,179,464,000,683,832,842,842,842,800,000
- 1:1,141,798,338,560,000,78,386,017,721,721,358,928,000,1,367,664,685,685,685,600,000
- 1:2,283,596,677,120,000,156,772,035,443,443,717,856,000,2,735,329,371,371,371,600,000
- 1:4,567,193,354,240,000,313,544,070,886,886,143,712,000,5,470,658,742,742,742,800,000
- 1:9,134,386,708,480,000,627,088,141,773,773,287,424,000,10,941,317,485,485,485,600,000
- 1:18,268,773,416,960,000,1,254,176,283,547,547,574,848,000,21,882,634,970,970,970,800,000
- 1:36,537,546,833,920,000,2,508,352,567,095,095,114,968,000,43,765,269,941,941,941,600,000
- 1:73,075,093,667,840,000,5,016,705,134,134,229,936,000,87,530,539,883,883,883,800,000
- 1:146,150,187,335,680,000,10,033,410,268,268,459,872,000,175,061,079,767,767,767,600,000
- 1:292,300,374,671,360,000,20,066,820,536,536,919,744,000,350,122,159,535,535,535,600,000
- 1:584,600,749,342,720,000,40,133,641,073,073,183,888,000,700,244,319,071,071,071,800,000
- 1:1,169,201,498,685,440,000,80,267,282,146,146,367,776,000,1,400,488,638,142,142,142,800,000
- 1:2,338,402,997,370,880,000,160,534,564,292,292,735,552,000,2,800,977,276,276,276,600,000
- 1:4,676,805,994,741,760,000,321,069,128,584,584,471,104,000,5,601,954,552,552,552,800,000
- 1:9,353,611,989,483,520,000,642,138,257,169,169,942,208,000,11,203,909,104,104,104,600,000
- 1:18,707,239,978,967,040,000,1,284,276,514,338,338,188,416,000,22,407,818,208,208,208,800,000
- 1:37,414,479,957,934,080,000,2,568,553,028,676,676,376,832,000,44,815,636,416,416,416,600,000
- 1:74,828,959,915,868,160,000,5,137,106,057,353,353,753,664,000,89,631,272,832,832,832,800,000
- 1:149,657,919,831,736,320,000,10,274,212,114,706,706,151,328,000,179,262,545,664,664,664,800,000
- 1:299,315,839,663,472,640,000,20,548,424,229,413,413,302,656,000,358,525,091,328,328,328,600,000
- 1:598,631,679,326,945,280,000,41,096,848,458,826,826,605,312,000,717,050,182,656,656,656,800,000
- 1:1,197,263,358,653,890,560,000,82,193,696,917,653,653,121,024,0

PHASE 2

- “Environment” policies for the new MDP
- Council workshops: June & October 2014
- Integrated in new MDP Bylaw 2017-14:
 - Healthy Ecosystems and High Priority Landscapes
 - Biodiversity
 - Surface Water, Groundwater and Wetlands

PHASE 2

FIGURE 14 | HIGH PRIORITY LANDSCAPES



PHASE 3

- Draft County Policies and RSMM:
 - Environmental Reserve Policy
 - Environment Policy
 - Wetland Policy

Completed:

- C-PD15 – Dedication and Use of MR, ER, ERE and procedures
- Riparian Setback Matrix Model
- C-CS01 Biophysical Assessment
- Wetland Inventory and Historical Loss Assessment
- County Wetland Policy (*forthcoming*)

ECMP IMPLEMENTATION PLAN

- Actions to be completed by Administration.
- Not included in June 2014 presentation to Council.
- Items have been completed or are in process of completion.

SUMMARY AND NEXT STEPS

- Environmental Conservation Master Plan (ECMP) accepted as info in 2014.
- Implementation nearly complete.
- Council approval of:
 - ECMP
 - ECMP Implementation Plan