AGENDA
COUNCIL MEETING
MUNICIPAL DISTRICT OF PINCHER CREEK
September 9, 2014
1:00 pm

A. ADOPTION OF AGENDA

B. DELEGATIONS

C. MINUTES

(1) Council Meeting Minutes
- Minutes of August 26, 2014

(2) Public Hearing Minutes for Bylaw No. 1253-14
- Minutes of August 26, 2014

D. UNFINISHED BUSINESS

(1) Land Use Amendment Bylaw No. 1253-14
- Bylaw No. 1253-14, being the Land Use Amendment Bylaw, presented for second and third readings

(2) Range Road 29-2 Bruder Hill and Bridge 2064
- Report from Director of Operations, dated September 3, 2014

(3) Beaver Mines Trail System
- Report from Director of Operations, dated September 3, 2014

E. CHIEF ADMINISTRATOR'S REPORTS

(1) **Operations**

a) 2014-2015 Road Project Update
- Report from Director of Operations, dated September 5, 2014

b) Operations Report
- Report from Director of Operations, dated September 4, 2014

(2) **Planning and Development**

a) Oldman Watershed Council – Headwaters Action Plan
- Report from Director of Development and Community Services, dated September 3, 2014

(3) **Finance and Administration**

Nil

(4) **Municipal**

a) Emergency Management Agency Bylaw
- Bylaw 1254-14 presented for consideration

b) Appointment of Director of Emergency Management
- Report from CAO, dated September 5, 2014

c) Upcoming Council Meeting Schedule
- Report from CAO, dated September 5, 2014

d) CAO Report
- Report from CAO, dated September 4, 2014

F. CORRESPONDENCE

(1) **Action Required**

a) Heritage Acres Harvest Gala
- Letter from Heritage Acres Harvest Gala Committee, dated August 20, 2014

b) Chamber Luncheon Invite
- Email from Chamber of Commerce, dated August 27, 2014

c) Emergency Management Bylaw/Organization
- Letter from Town of Pincher Creek, dated September 2, 2014

d) Alberta Historical Resources Foundation
- Letter from Town of Pincher Creek, dated August 26, 2014

(2) **For Information**

a) Thank You Letter
   - Letter from Doug Goodfellow, dated August 15, 2014

b) Application for Alberta Community Resilience Program Grant – Municipal District of Pincher Creek No. 9 – Regional Water System Intake Relocation
   - Letter, with Grant Application, from the MD, dated August 18, 2014

c) Thank You Card
   - Thank you card from Pincher Creek Rodeo Club

d) MD of Pincher Creek No. 9 Application for Disaster Recovery Program
   - Letter from Alberta Emergency Management Agency, dated August 14, 2014

G. COMMITTEE REPORTS / DIVISIONAL CONCERNS

Councillor Grant McNab – Division 1

Councillor Fred Schoening – Division 2
- Chinook Arch Regional Library System
  - Financial Statements, December 31, 2013
- Agriculture Service Board
  - Minutes of August 7, 2014

Councillor Garry Marchuk – Division 3
- Alberta Southwest Regional Alliance
  - Bulletin September 2014
  - Minutes of August 6, 2014

Reeve Brian Hammond - Division 4

Councillor Terry Yagos – Division 5

H. IN-CAMERA

(1) Property
(2) Personnel
(3) Personnel

I. NEW BUSINESS

J. ADJOURNMENT

MINUTES
MUNICIPAL DISTRICT OF PINCHER CREEK NO. 9
REGULAR COUNCIL MEETING
AUGUST 26, 2014

The Regular Meeting of the Council of the Municipal District of Pincher Creek No. 9 was held on Tuesday, August 26, 2014 in the Council Chambers of the Municipal District Building, Pincher Creek, Alberta.

PRESENT Reeve Brian Hammond, Councillors Garry Marchuk, Fred Schoening, Terry Yagos, and Grant McNab

STAFF Chief Administrative Officer Wendy Kay, Director of Operations Leo Reedyk, Director of Development and Community Services Roland Milligan, Director of Finance and Administration Mat Bonertz, and Executive Assistant Tara Cryderman

Reeve Brian Hammond called the Council Meeting to order, the time being 1:04 pm.

A. ADOPTION OF AGENDA

Councillor Fred Schoening 14/300

Moved that the Council Agenda for August 26, 2014, be approved as presented.

Carried

B. DELEGATIONS

(1) Flood Repairs – Road/Bridge

Tony Bruder appeared as a delegation before Council to speak to his letter, dated July 8, 2014, regarding flood repairs.

With the bridge out to the North and washouts to the South, Mr. Bruder is concerned about access to his residence.

The history of the bridge was discussed.

The bridge itself was discussed.

The importance of emergency evacuation was mentioned.

(2) Walking Path with Hamlet of Beaver Mines

Greg Hession appeared as a delegation before Council to speak to the email, dated August 18, 2014, regarding the possibility of a walking path within the Hamlet of Beaver Mines.

Walking along Highway 774 can be quite dangerous.

Kevin Kelly appeared as a delegation before Council to present letters of support for the walking path.

Neige Kelly appeared as a delegation before Council to speak to the importance of a pathway for the youth in the Hamlet.

Kim Gelber appeared as a delegation to speak to the number of children currently residing in the Hamlet and the number of children that visit on weekends. Active living is also an important reason for the walking path.

The properties along the proposed walking path was mentioned and whether all property owners are in favour of the path. Not all owners are in favour.

The material of the path was discussed. The ideal is a paved surface.

Mike Lynch appeared as a delegation to speak against the walking path. He constructed his residence further back on his lot for privacy, the path is adjacent to his back property boundary.

C. MINUTES

(1) Special Council Meeting Minutes

Councillor Terry Yagos 14/301

Moved that the Special Council Meeting Minutes of August 5, 2014, be amended, the amendment as follows:

Page 8395 - Resolution 14/298:
Change “withdrawl” to “withdraw”;

And that the Minutes be approved as amended.

Carried

(2) Council Meeting Minutes

Councillor Garry Marchuk 14/302

Moved that the Council Meeting Minutes of July 8, 2014, be amended, the amendment as follows:

Page 8393 – Councillor Terry Yagos – Division 5
Change “Okanogan” to “Oldman River”;

And that the Minutes be approved as amended.

Carried

(3) Public Hearing Minutes for Bylaw No. 1252-14

Councillor Fred Schoening 14/303

Moved that the Public Hearing Minutes of July 8, 2014, for Bylaw No. 1252-14, being the bylaw to reflect the required changes to Land Use Bylaw 1140-08 with regards to Aquaponics and Greenhouses, be approved as presented.

Carried

D. UNFINISHED BUSINESS

(1) Land Use Amendment Bylaw No. 1252-14

Councillor Fred Schoening 14/304

Moved that Bylaw No. 1252-14, being the bylaw to reflect the required changes to Land Use Bylaw 1140-08, with regards to Aquaponics and Greenhouses, be given second reading.

Carried

Councillor Garry Marchuk 14/305

Moved that Bylaw No. 1252-14, being the bylaw to reflect the required changes to Land Use Bylaw 1140-08, with regards to Aquaponics and Greenhouses, be given third and final reading.

Carried

(2) Claresholm and District Transportation Society

Councillor Terry Yagos 14/306

Moved that the email, and presentation, from Claresholm Transportation Society, dated June 11, 2014, be received;

And that this item be tabled pending follow up information from the Town of Pincher Creek's Transportation Committee meeting.

Carried

E. CHIEF ADMINISTRATOR'S REPORTS

1) Operations

a) Alberta Agriculture and Rural Development Agricultural Service Board Grant

Councillor Fred Schoening 14/307

Moved that the report from the Director of Operations, dated August 6, 2014, regarding Alberta Agriculture and Rural Development Agricultural Service Board Grant, be received;

And that Council authorize the Reeve and Chief Administrative Officer to sign the Grant Agreement.

Carried

b) Environmental Cleanup of Public Works Yards

Councillor Terry Yagos 14/308

Moved that the report from Director of Operations, dated August 8, 2014, regarding Environmental Cleanup of Public Works Yards, be received;

And that Council direct Administration to initiate a contract with Tervita Waste Management to dispose of the outdated material with costs being coded to Public Works Road Oil and Asphalt Account No. (2-32-0-534-2534), in the amount of $30,510.

Councillor Fred Schoening 14/309

Moved that this item be tabled to the next Council meeting for further information regarding the removal of the tankers and the material contained within.

Carried

c) Johnson Controls Planned Maintenance Proposal

Councillor Garry Marchuk 14/310

Moved that the report from the Director of Operations, dated August 8, 2014, regarding Johnson Controls Planned Maintenance Proposal, be received;

And that this item be tabled pending further information with regards to local contractor's availability.

Carried

d) Spring Point Colony Access Follow-Up

Councillor Terry Yagos 14/311

Moved that the report from the Director of Operations, dated August 8, 2014, regarding Spring Point Colony Access Follow-Up, be received;

And that the Access Agreement request be granted for access to Range Road 29-1 through the property.

Defeated

Councillor Fred Schoening 14/312

Moved that the report from the Director of Operations, dated August 8, 2014, regarding Spring Point Colony Access Follow-Up, be received;

And that Administration be directed to respond to the Hutterian Brethren Church of Spring Point informing them that the practice of accessing Range Road 29-1 for maintenance from the North will continue;

And further that the Hutterian Brethren Church of Spring Point be thanked for their proposal on easement agreements.

Carried

e) Operations Report

Councillor Garry Marchuk 14/313

Moved that the Operations Report for the period of July 3, 2014 to August 20, 2014, be received as information.

Carried

Council directed a status report be brought forward on road projects identified by Council.

2) Planning and Development

Nil

3) Finance and Administration

a) Summary of Projects at June 30, 2014

Councillor Terry Yagos 14/314

Moved that the report from the Director of Operations and the Director of Administration and Finance, dated August 13, 2014, regarding Summary of Projects at June 30, 2014, be received as information.

Carried

b) Statement of Cash Position

Councillor Fred Schoening 14/315

Moved that the Statement of Cash Position for the months of June 2014 and July 2014, be received as information.

Carried

4) Municipal

a) Chief Administrative Officer (CAO) Report

Councillor Garry Marchuk 14/316

Moved that the CAO report for the period of July 4, 2014 to August 21, 2014, be received as information.

Carried

F. CORRESPONDENCE

(1) Action Required

a) Negative Impacts of the New Home Warranty Program

Councillor Garry Marchuk 14/317

Moved that the letter from Cardston County, dated July 7, 2014, regarding Negative Impacts of the New Home Warranty Program, be received as information.

Carried

b) Village of Cowley Green Space

Councillor Garry Marchuk 14/318

Moved that the letter, received July 11, 2014, regarding the Village of Cowley Green Space, be received as information.

Carried

c) Rotary Theatre Donation Request

Councillor Fred Schoening 14/319

Moved that the email from the Town of Pincher Creek, dated August 5, 2014, regarding the Rotary Theatre Donation Request, be received;

And that Administration be directed to communicate with the Rotary Club requesting a delegation appear before Council, to speak to their funding request.

Carried

d) Chinook Arch Regional Library Budget

Councillor Fred Schoening 14/320

Moved that the email from Chinook Arch Regional Library System, dated August 9, 2014, regarding the Chinook Arch Regional Library Budget, be received;

And that the Chinook Arch Library Board 2015-2018 Budget be approved.

Carried

e) Proposed Windy Point Wind Farm Project

Councillor Terry Yagos 14/321

Moved that the email from AltaLink, dated August 12, 2014, regarding the Proposed Windy Point Wind Farm Project, be received as information.

Carried

f) Pincher Creek Awards of Excellence

Councillor Terry Yagos 14/322

Moved that the email from Pincher Creek Chamber of Commerce, dated August 14, 2014, regarding the Pincher Creek Awards of Excellence, be received;

And that the MD of Pincher Creek sponsor the 18th Annual Award of Excellence by donating $250 and becoming a gold sponsor.

Carried

g) Stars of Alberta Volunteer Awards 2014 – Call for Nominations

Councillor Garry Marchuk 14/323

Moved that the letter from Alberta Culture, received August 19, 2014, regarding Stars of Alberta Volunteer Awards 2014 – Call for Nominations, be received as information.

Carried

h) Turcott Building Funding Request

Councillor Terry Yagos 14/324

Moved that the letter from Kootenai Brown Pioneer Village, dated August 20, 2014, regarding the Turcott Building Funding Request, be received;

And that this funding request be referred to Joint Funding.

Carried

i) Remembrance Day Services – Lieutenant Governor of Alberta

Councillor Fred Schoening 14/325

Moved that the letter from the Office of the Lieutenant Governor of Alberta, dated August 12, 2014 and the letter of the Royal Canadian Legion, received August 21, 2014, regarding the Remembrance Day Services, be received as information.

Carried

(2) For Information Only

a) Alberta Community Partnership (ACP)

Councillor Terry Yagos 14/326

Moved that the letter from Alberta Municipal Affairs, dated July 7, 2014, regarding the ACP, be received as information.

Carried

b) Follow Up – Bridge Funding

Councillor Grant McNab 14/327

Moved that the letter from the Office of the Premier, dated July 16, 2014, regarding a follow up to a recent phone conversation, with respect to bridge funding, be received as information.

Carried

c) Municipal Sustainability Initiative (MSI)

Councillor Garry Marchuk 14/328

Moved that the letter from Alberta Municipal Affairs, dated July 22, 2014, regarding MSI, be received as information.

Carried

d) Thank You Card

Councillor Fred Schoening 14/329

Moved that the Thank You Card from McMan, received July 28, 2014, regarding the donation to the food bank, be received as information.

Carried

e) Local Road Bridge Program Grant – Remaining Funds

Councillor Garry Marchuk 14/330

Moved that the letter from Alberta Transportation, dated July 29, 2014, regarding Local Road Bridge Program Grant – Remaining Funds, be received as information.

Carried

f) Goose Lake Telecommunications Upgrade: Notice of Project Approval

Councillor Terry Yagos 14/331

Moved that the email from AltaLink, dated July 31, 2014, regarding Goose Lake Telecommunications Upgrade: Notice of Project Approval, be received as information.

Carried

g) Safety Codes Act

Councillor Fred Schoening 14/332

Moved that the letter from Alberta Municipal Affairs, received August 6, 2014, regarding the Safety Codes Act, be received as information.

Carried

h) Thank You Card

Councillor Garry Marchuk 14/333

Moved that the Thank You Card from Pincher Creek District Citizens on Patrol, received August 19, 2014, regarding the donation to their program, be received as information.

Carried

i) Natural Resources Conservation Board (NRCB) Annual Report and Alberta Energy Regulator (AER)

Councillor Fred Schoening 14/334

Moved that the NRCB Annual Report 2013-14 and the AER 2013/2014 Annual Report, be received as information.

Carried

G. COMMITTEE REPORTS

Councillor Grant McNab – Division 1

- Concern regarding graveling on the Township Line Road and the size of rocks contained in the gravel

Councillor Fred Schoening – Division 2

- Chinook Arch Regional Library System
  - Board Report, August 5, 2014
- Agricultural Service Board Minutes
  - Minutes of July 3, 2014
    - Aquatic species invasion monitoring
- Kerr Road, heading West - soft spot

Councillor Garry Marchuk – Division 3

- Oldman River Regional Services Commission (ORRSC)
  - Executive Committee Meeting, Minutes of June 12, 2014
  - Annual Report and Financial Statements 2013
- Beaver Mines Community Association
  - Walking Path
  - Gravel for the signage
  - Speed sign / Speeding within the Hamlet

Reeve Brian Hammond - Division 4

- Dust control
- Transportation Meeting
- 2019 Winter Games Bid Rally
- Cemetery Committee
- Meeting with the Minister of Municipal Affairs

Councillor Terry Yagos – Division 5

- Landfill
- Maycroft Road

Councillor Fred Schoening 14/335

Moved that the committee reports be received as information.

Carried

H. IN CAMERA

Councillor Fred Schoening 14/336

Moved that Council and Staff move In-Camera to discuss three (3) land issued and two (2) personnel issues, the time being 3:44 pm.

Carried

Councillor Grant McNab 14/337

Moved that Council and Staff move out of In-Camera, the time being 4:44 pm.

Carried

Minutes
Council Meeting
August 26, 2014

I. NEW BUSINESS

a) Road Closure Request – Tough Country Communications

Councillor Fred Schoening 14/338

Moved that Council not consider the closing of the road allowance and suggest that the developer find an alternate location for the proposed communication tower.

Carried

b) Roadway not within Road Plan – SE 26-10-3 W5M

Councillor Terry Yagos 14/339

Moved that Council direct Administration to proceed with the preparation of a road plan to get the portion of a roadway within the SE 26-10-3 W5M within the road right-of-way.

Carried

c) 2013 Disaster Recovery Project – SE 19-6-1 W5M

Councillor Garry Marchuk 14/340

Moved that the MD apply for Disaster Recovery to funding to replace the berm at SE 19-6-1 W5M.

Carried

d) Janitorial Contract Follow Up

Councillor Fred Schoening 14/341

Moved that Administration be directed to respond that we continue with the one year contract, and if the current contractor is not successful securing the new contract, that Council would entertain further discussions regarding the additional costs to her company.

Carried

J. ADJOURNMENT

Councillor Terry Yagos 14/342

Moved that Council adjourn the meeting, the time being 4:50 pm.

Carried

_____
REEVE

_____
CHIEF ADMINISTRATIVE OFFICER

MINUTES
PUBLIC HEARING
Bylaw No. 1253-14 – Land Use Bylaw Amendment
Tuesday, August 26, 2014 – 1:00 pm

A Public Hearing conducted by the Council of the Municipal District of Pincher Creek No. 9 was held on Tuesday, August 26, 2014 at 1:00 pm in order to receive input on Bylaw No. 1253-14.

In attendance:

Council: Reeve Brian Hammond, Councillors Terry Yagos, Fred Schoening, Garry Marchuk, and Grant McNab

Staff: Chief Administrative Officer Wendy Kay, Director of Development and Community Services Roland Milligan, and Executive Assistant Tara Cryderman.

Reeve Brian Hammond opened the Public Hearing, the time being 1:00 pm.

Reeve Hammond read the Advertisement Clause. This Public Hearing has been advertised in accordance with Section 606 of the MGA. This Public Hearing was advertised in the Pincher Creek Echo on Wednesday, August 13, 2014 and Wednesday, August 20, 2014.

Reeve Hammond read the Purpose of the Hearing. The purpose of this Public Hearing is to receive public input on proposed Bylaw No. 1253-14.

The purpose of proposed Bylaw No. 1253-14 is to amend the land use designation of lands legally described as Portion of NW 12-7-29 W4M from "Agriculture – A" to "Multi-lot Heavy Rural Industrial" – MHR". The purpose of the proposed amendment is to allow for the establishment of a natural resource extractive use.

Director of Development and Community Services Roland Milligan reviewed Bylaw No. 1253- 4.

Reeve Hammond asked if there were any questions at this time. None were asked.

Reeve Hammond asked if anyone wished to make an oral presentation. No one declared their intention to speak.

Reeve Hammond asked if there were any written submissions. None were submitted.

Reeve Hammond asked if there were any questions or comments at this time. None were asked.

Councillor Terry Yagos moved to adjourn the Public Hearing, the time being 1:03 pm.

_____ _____

Brian Hammond
Reeve

Wendy Kay
Chief Administrative Officer

MUNICIPAL DISTRICT OF PINCHER CREEK NO. 9
BYLAW NO. 1253-14

Being a bylaw of the Municipal District of Pincher Creek No. 9 in the Province of Alberta, to amend Bylaw No. 1140-08, being the Land Use Bylaw.

WHEREAS Section 639 of the Municipal Government Act, Revised Statutes of Alberta 2000, Chapter M-26, as amended, provides that a municipality must pass a Land Use Bylaw;

AND WHEREAS The Municipal District of Pincher Creek No. 9 is in receipt of a request to amend the land use designation of lands legally described as:

A portion of the NW 12-7-29 W4M;

And as shown on Schedule 'A' attached hereto, from "Agriculture - A" to "Multi-lot Heavy Rural Industrial - MHRI";

AND WHEREAS Council recognizes that the "Multi-lot Heavy Rural Industrial - MHRI" designation is appropriate for a site developed with a sand and gravel operation;

AND WHEREAS The purpose of the proposed amendment is to allow for the establishment of a natural resource extractive use.

NOW THEREFORE, under the authority and subject to the provisions of the *Municipal Government Act*, Revised Statutes of Alberta 2000, Chapter M-26, as amended, the Council of the Municipal District of Pincher Creek No. 9, in the Province of Alberta, duly assembled does hereby enact the following:

1. This bylaw shall be cited as "Land Use Bylaw Amendment No. 1253-14".

2. Amendments to Land Use Bylaw No. 1140-08 as per "Schedule A" attached.

3. This bylaw shall come into force and effect upon third and final passing thereof.

READ a first time this 24th day of June, 2014.

A PUBLIC HEARING was held this 26th day of August, 2014.

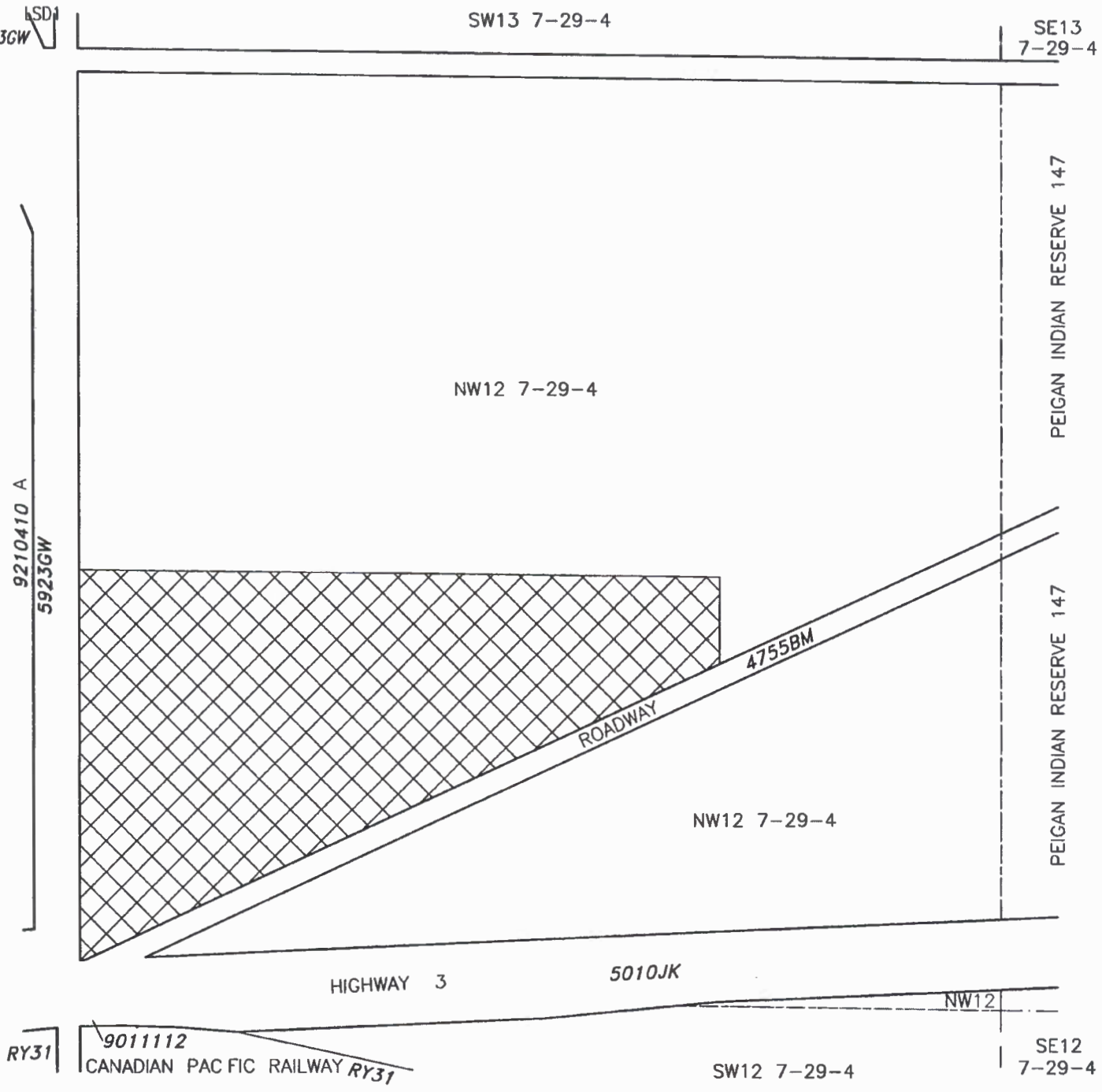
READ a second time this ____ day of _____, 2014.

READ a third time and finally PASSED this ____ day of _____, 2014.

_____ _____

Reeve *Brian Hammond* ***Chief Administrative Officer*** *- Wendy Kay*

Attachment
- "Schedule A"



LAND USE DISTRICT REDESIGNATION
SCHEDULE 'A'

Bylaw #: 1253-14

Date: _____

FROM: Agriculture 'A'

TO: Multi-Lot Heavy Rural Industrial 'MHRI'

PORTION OF NW 1/4 SEC 12, TWP 7, RGE 29, W 4 M

MUNICIPALITY: MUNICIPAL DISTRICT OF PINCHER CREEK NO. 9

DATE: JUNE 12, 2014

OLDMAN RIVER REGIONAL SERVICES COMMISSION

0 Metres 100 200 300 400

MAP PREPARED BY:
OLDMAN RIVER REGIONAL SERVICES COMMISSION
3105 16th AVENUE NORTH, LETHBRIDGE, ALBERTA T1H 5E8
TEL. 403-329-1344

June 12, 2014 N:\Pincher-Creek-MD\Pincher-Creek-MD LUD & Land Use Redesignations\MD of Pincher Creek Bylaw 1253-14 - NW12-7-29-4.dwg

LAND USE DISTRICT REDESIGNATION
SCHEDULE 'A'

Bylaw #: 1253-14

Date: _____

FROM: Agriculture 'A'

TO: Multi-Lot Heavy Rural Industrial 'MHRI'

PORTION OF NW 1/4 SEC 12, TWP 7, RGE 29, W 4 M

MUNICIPALITY: MUNICIPAL DISTRICT OF PINCHER CREEK NO. 9

DATE: JUNE 12, 2014

PHOTO DATE: 2012

OLDMAN RIVER REGIONAL SERVICES COMMISSION

0 Metres 100 200 300 400

N

MAP PREPARED BY:
OLDMAN RIVER REGIONAL SERVICES COMMISSION
3105 16th AVENUE NORTH, LETHBRIDGE, ALBERTA T1H 5E8
TEL. 403-329-1344
"NOT RESPONSIBLE FOR ERRORS OR OMISSIONS"

June 12, 2014 N:\Pincher-Creek-MD\Pincher-Creek-MD LUD & Land Use Redesignations\MD of Pincher Creek Bylaw 1253-14 - NW12-7-29-4.dwg

D2

MD OF PINCHER CREEK

SEPTEMBER 3, 2014

TO: Wendy Kay, CAO

FROM: Leo Reedyk, Director of Operations

SUBJECT: RANGE ROAD 29-2 BRUDER HILL AND BRIDGE 2064

---

1. Origin:

On June 17-20, 2014 a significant rain event caused damage to the road leading to the bridge and additional material sloughed below the road upslope of the Bruder residence. On August 26, 2014 Tony Bruder appeared before Council as a delegation to present his concerns.

2. Background:

Following the rain event, considering the damage to the creek crossing and the potential for further damage to the road, administration requested WSP to look at options for repair to the two areas of concern.

In August, following their investigation, WSP provided reports giving options for the bridge and road (attached). The options include minimal work to allow for continued use to complete realignment to minimize future disruption.

In addition to funding from the Alberta Disaster Recovery Program should the Province declare the event a disaster, funding may also be available from the Alberta Community Resilience Program.

There are no bridges between Highway 6 and the Waterton River Dam that are adequate to transport large farm equipment across the Drywood Creek.

Options that Council could move forward with include:

- Do nothing and wait for the Disaster Recovery Program to be announced for 2014 prior to rehabilitating the bridge and or the hill;
- Take action to ensure the hill to the South is stable and do nothing to the bridge until a funding source is identified;
- Relocate the existing bridge structure over the new creek channel using 2015 MSI funding;

- As the repairs have been ongoing, and the bridge is inadequate, apply for an Alberta Community Resilience Program grant to cover the cost of upgraded approaches to and bridge over the Drywood Creek.

3. Recommendation No 1:

THAT the report from the Director of Operations, dated September 3, 2014 regarding Range Road 29-2 Bruder hill and Bridge 2064 be received;

AND THAT Council direct administration to reply to Mr. Bruder that the Municipal District is waiting for a Disaster Recovery Program to be announced for 2014 prior to rehabilitating the bridge and or the hill.

Recommendation No 2:

THAT the report from the Director of Operations, dated September 3, 2014 regarding Range Road 29-2 Bruder hill and Bridge 2064 be received;

AND THAT Council direct administration to take action to ensure the hill to the South is stable and apply for 2015 MSI funding to relocate the existing bridge structure over the new creek channel.

Recommendation No 3:

THAT the report from the Director of Operations, dated September 3, 2014 regarding Range Road 29-2 Bruder hill and Bridge 2064 be received;

AND THAT Council direct administration to take action to ensure the south hill is stable by shifting the road to the east around the slough and apply for an Alberta Community Resilience Program grant to upgrade the bridge and approaches.

Respectfully Submitted,

Leo Reedyk

Attachments: WSP Report Range Road 29-2
WSP Report Bridge File 2064
Tony Bruder Submission

Reviewed by: Wendy Kay, Chief Administrative Officer W. Kay Date: Sept. 4, 2014

B1

Twin Butte Simmentals

Tony & Lorraine Bruder

Box 454, Twin Butte, AB T0K 2J0

403-627-5425

July 8, 2014

Municipal District of Pincher Creek

Pincher Creek, AB

Council Members & Administration,

We are writing this letter to Council and Administration of the MD of Pincher Creek regarding the state of the MD bridge (Bruder Bridge) on Township road 29-2 and landslides below MD Township Road 29-2A, as well as the condition of MD Township Road 4-1A and MD Range Road 29-3 as suggested by Councilors Terry Yagos and Fred Schoening, as well as CO Leo Reedyk.

The bridge has been a constant problem since its construction in the 1950's, as it is too small to handle the Drywood Creek during high water events. After the high water event of 1995 it was decided to lower the abutment on the south side of the bridge to accommodate future high water events. This has caused the creek to go over the road for an average of two weeks every spring as well as other high water events during the year (August long weekend 2013). As this is a school bus route on an MD road and bridge, this was and still is unacceptable. While the road is out of use we are required to drive our kids 4 miles to meet another bus route. While the MD road is out of use, it adds 8 miles for us to get to Pincher Creek (one way) as we have to go around past Twin Butte. We have been hearing from MD Council and staff since the MD took over the road from Gulf Canada back in 1984 that there will be improvements made. At one time the MD was offered a larger bridge by the Department of Transportation with the clause that the MD was to carry out the road work, the MD turned it down. We feel that this has gone on too long and it is time to get something done on this issue.

As well as this bridge being too small to handle high water events, it is also too narrow to accommodate most farm machinery. Many of the local farms and ranches use this road to access other properties of their operations. This means a creek crossing, which in the spring or winter cannot be done, or traveling extra miles by having to go around on Highway #6 which during summer tourism months is quite dangerous. I talked with Leo Reedyk in May of this year about building a better approach on the north end of the bridge onto the MD road to make it easier for large equipment to access the road after crossing the creek. He, in that conversation, suggested a wider "forestry bridge", and that I write a letter to council suggesting such.

I have enclosed photos of the flood damage showing the silt deposit under the bridge as well as how the creek has made a new channel through the south abutment. The creek will not be diverted under the bridge without a large amount of time and money invested.

Farther south on MD Range Road 29-2A there has been major sliding below the road above Yarrow Creek. In two places within 75 yards of one another, the bank has been cut to the base of the MD road. This has been going on since the 1995 flood as well. The MD did some road work just south of these two slides about 4 years ago. When meeting with Leo Reedyk about this issue we discussed the sliding in the other two areas. It was decided By MD administration that nothing had to be done at that time. If the sliding continues at the current rate, Range Road 29-2A will not be passable within 5 years. This will leave us no access to our place if there is not work done on either the bridge or the slides.

I have attached photos showing the slides from below the road at creek level.

Regarding MD Township Road 4-1A south of our place. This road was very poorly built causing extreme drifting during winter months. It is also below MD standards for width.

Regarding MD Range Road 29-3 north of Township Road 4. This road also was very poorly constructed. It is below MD standard for width, has very poor visibility due to many rolling hills, and has extreme drifting problems in the winter months as well. There have been many near misses on this road due to width and the fact that you cannot see very far ahead due to the roller coaster type road. It is almost impossible for large vehicles to pass due to width.

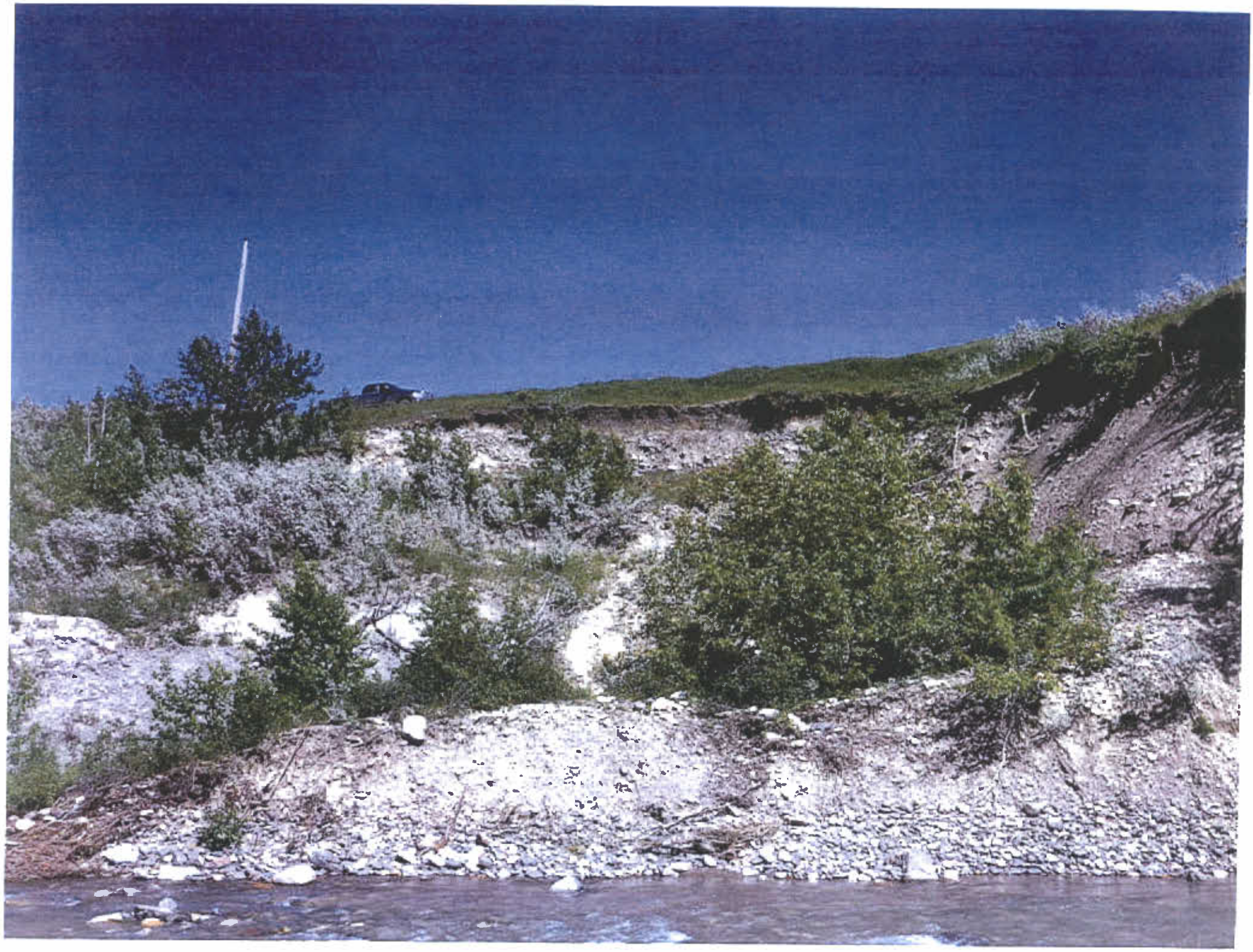
If this is the only access to the residents in this area due to the frequent bridge closers, these roads will have to be improved. If not, it will not be long before there is a major accident.

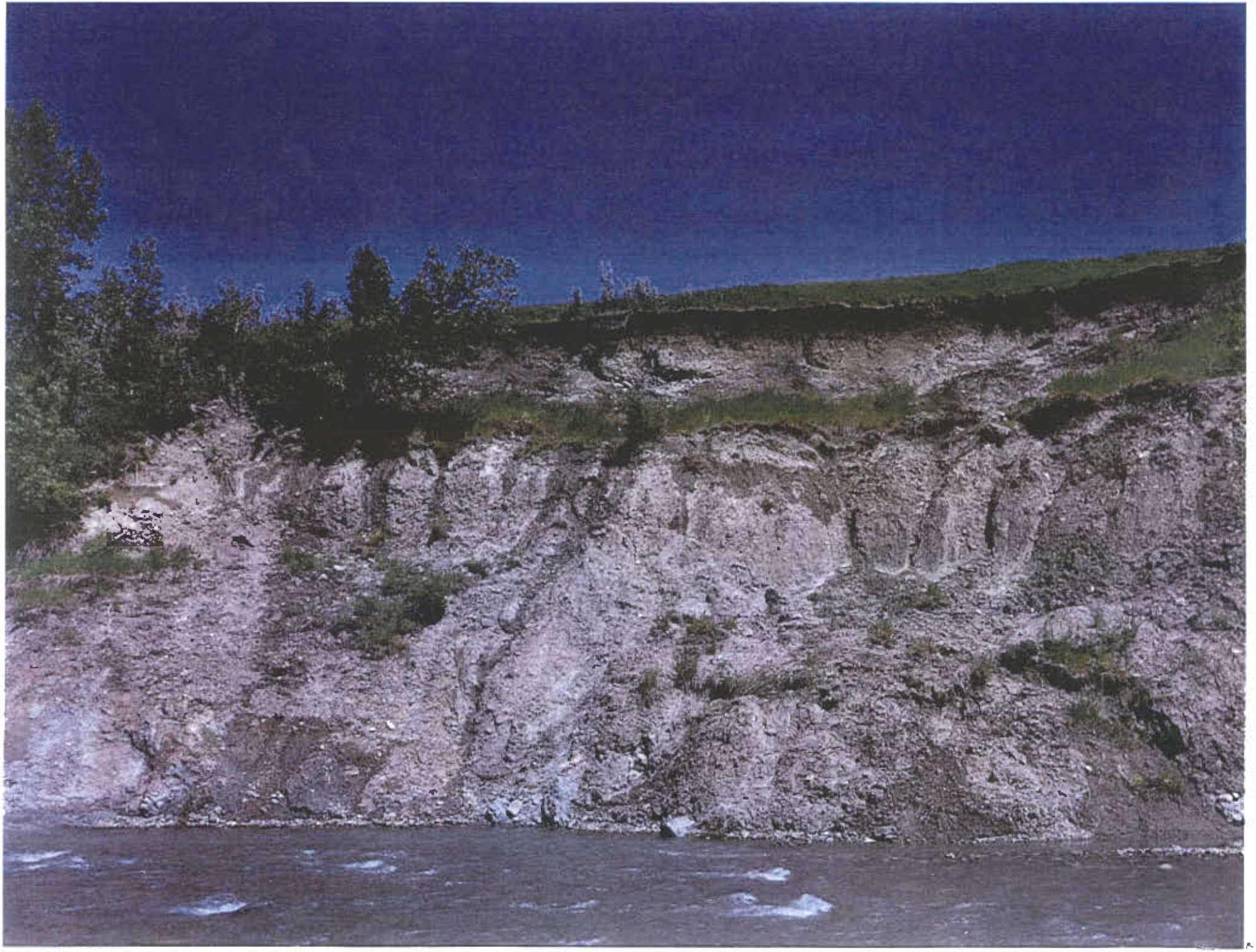
This is not an issue for only the Bruder Family. There are many residents in the area that frequently use this road. The employees of Twin Butte Energy use this road as their main access to their gas field to the south of the main facility. It is also used by many non-residents as a short cut from the east to the Twin Butte Store and well as Waterton Park.

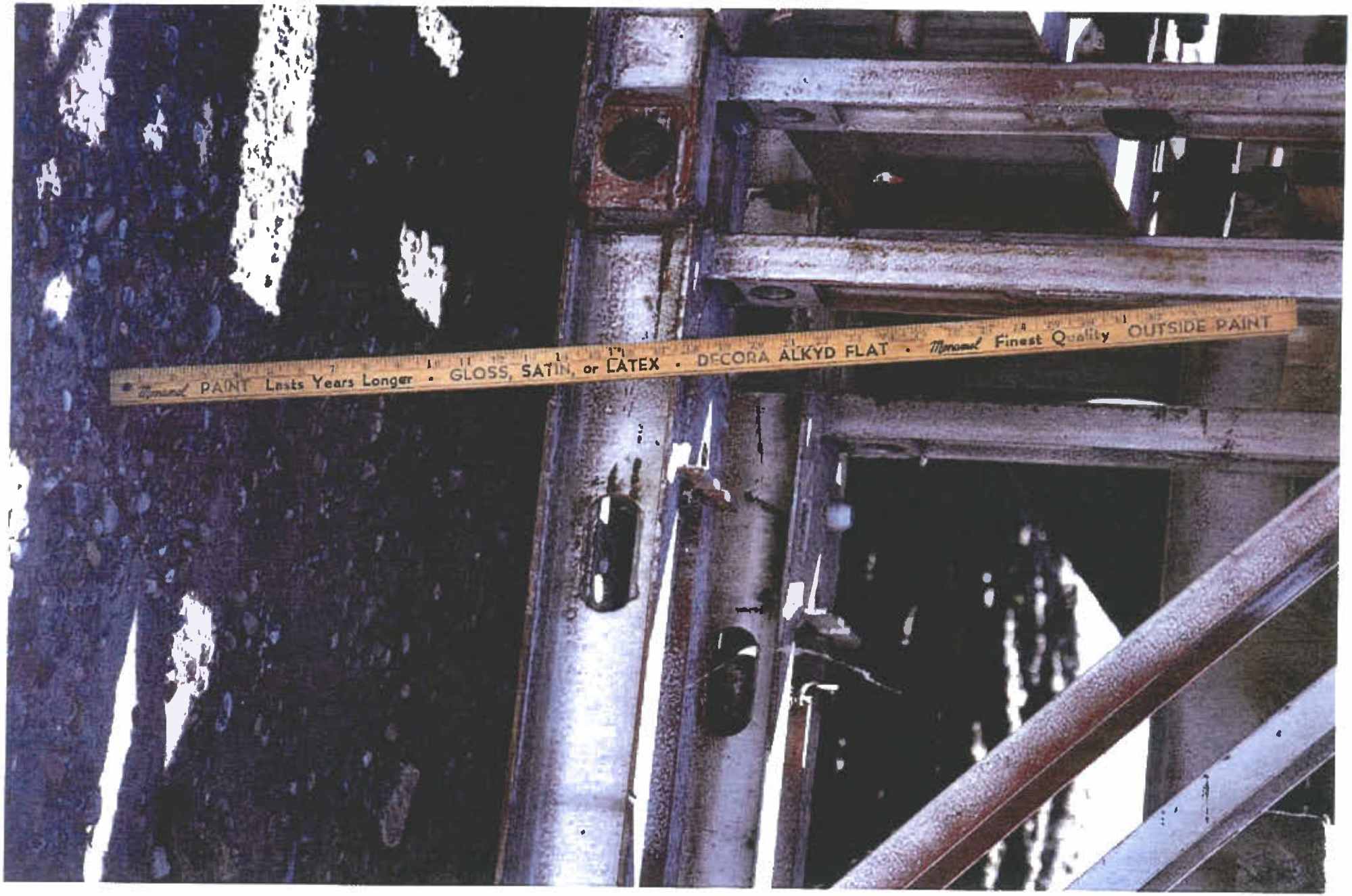
We would like to meet with Council on this matter at your earliest convenience.

We await your response.

Tony & Lorraine Bruder






Monamel PAINT Lasts Years Longer • GLOSS, SATIN, or LATEX • DECORA ALKYD FLAT • Monamel Finest Quality OUTSIDE PAINT

August 21, 2014

Bruder's Bridge – Bridge File 2042
WSP File No. 141-19272-00

Municipal District of Pincher Creek #9
P.O. Box 279
Pincher Creek, Alberta T0K 1W0

Attention: L. J. (Leo) Reedyk, A.A.E., Director of Operations
Stu Weber; C.E.T., Assistant Public Works Superintendent

Re: Summary and Recommendations
Bridge File 2064 – Drywood Creek, SW 14-4-29-W4, "Bruder's Bridge"

Following is a summary of the damages noted at the above noted site resulting from the high water flows in June of 2014, a history of the structure, discussion and preliminary recommendations.

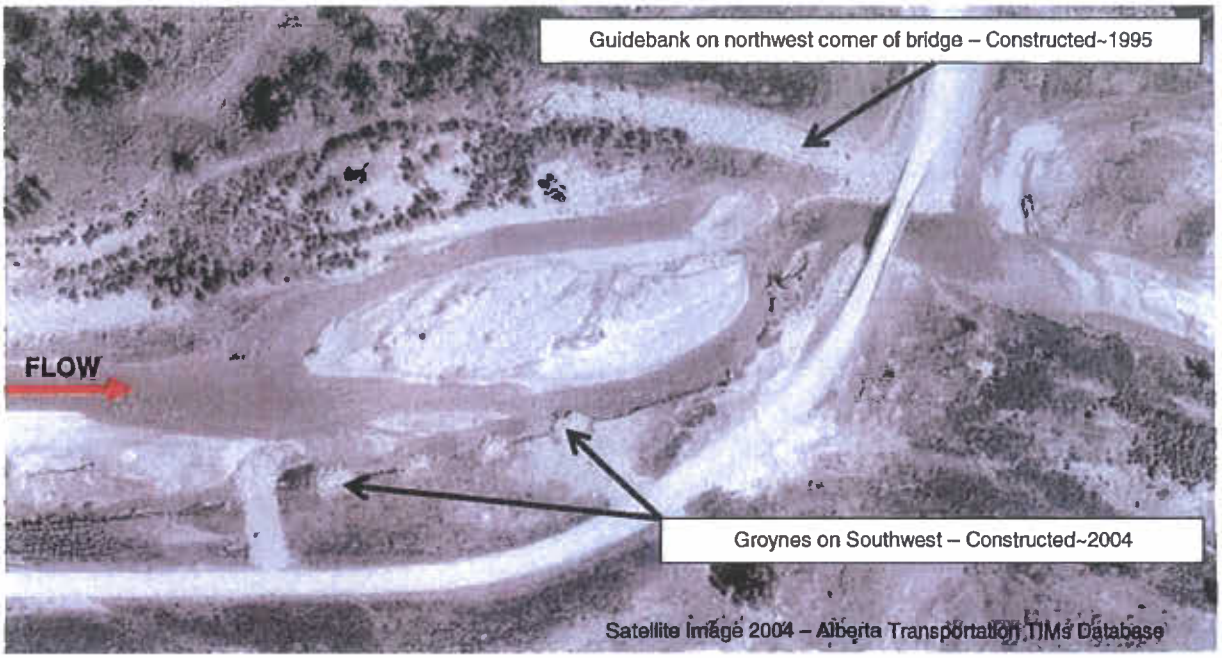
Damages: Currently, the roadway is closed to public traffic. The river washed away a substantial portion of the roadway leading to the south abutment in June 2014 and the river is now flowing in this location.

Existing Structure: This is a single span 18.3 m long Type SSB (Bailey) Bridge. The bridge itself is narrow (3.3 m) and the latest inspection indicates it is in good structural condition.

History:
(based on review of available file information in Alberta Transportation Lethbridge Office):

1984: The M.D. of Pincher Creek obtained title of both the bridge and roadway from a private company (Gulf). It is noted in the file that the bridge is in good condition but in a deep valley and likely only designed to accommodate a 1:10 year design flood. In later correspondence it is suggested 1:5.
1987: High flows washed out the north roadway behind the bridge abutment.
1991: High flows washed out the north roadway a second time. Correspondence from Alberta Transportation suggested that the M.D. consider eliminating the road/bridge and consider constructing an extension to Twp. Rd. 42 southwest of the existing crossing in Section 9 as an alternate route.
1995: Construction of a guidebank on the northwest corner of the bridge to direct flow beneath the bridge and prevent further washouts.
2002-2004: Design and construction of spurs/groynes southwest of the bridge to resist further erosion toward the south.

7710 Edgar Industrial Court, Red Deer, Alberta, Canada T4P 4E2
Telephone: 403-342-7650 ~ Fax : 403-342-7691 ~ www.wsp.com



Discussion: This bridge structure is too short for the crossing and will potentially continue to have problems handling high flow events. Drywood creek is a highly mobile watercourse as can

be seen at various locations and upstream and downstream structures. Multiple options have been considered at this location for attempting to control the flow or direct the flow beneath the existing bridge but the bridge opening can only handle so much flow. More river training options can be considered, but they would likely be short term repairs.

Preliminary Recommendations: There are potentially three high level options which should be considered here:

- Elimination of the crossing entirely
- Construction of a new crossing (either at this location or on an alternate alignment at a different location)
- Repairs/Modification to this existing crossing.

First consideration should be given to taking a critical look at the local infrastructure and determining whether this crossing is required.

If it is determined that a crossing must be maintained, then a new crossing on an alternate alignment would be the ideal solution. The existing crossing location is a poor choice for a bridge structure and functional planning would be recommended to determine cost effective alignments to minimize bridge length, road work and environmental impacts. The cost of a new crossing is difficult to predict, but looking at the upstream and downstream structures, BF 903 on Highway 6 is 113m long and BF 479 downstream is 62m long we could assume a new structure would be a 60-70m long bridge. A structure of this type would cost approximately $4M in addition to engineering and any roadwork to realign the roadway. Depending on the alignment chosen, 1-2 km of roadwork may be required, at an estimated cost of $500K/km.

A third option, which would likely be the least expensive, would be to continue to repair the existing bridge and look at options for enhancing it. Some of those options considered are adding an additional span (likely another bailey bridge or two longer ones), a low level crossing, moving the existing span across the new channel or repairing the roadway and realigning the creek back beneath the existing bridge. Of these options, we would suggest investigating adding an additional span or possibly reusing the existing substructure to install two new, longer bailey-type bridges.

Low level crossings typically require frequent maintenance (any high flow will mean the roadway is closed and leave drift, the road likely gets closed during spring flows due to ice jamming, etc.), environmental agencies very seldom will approve low level crossings and are actively trying to remove existing ones. The size of culverts required, the amount of concrete and rock protection to protect them make them cost prohibitive. Low level crossings are also designed for only 10-15 years of service.

As has been evident historically, repairing the road and attempting to direct flow beneath the existing structure has been temporary and costly. Relocating the existing span over the new channel location may be physically possible, but from both a hydraulic and environmental point of view it would still be perceived as constricting the channel and be a short term solution. Environmental agencies tend to look at the history of a structure and are critical of short term solutions. Repairs may be permitted once but not multiple times. Should the MD prefer a short term solution, the most favorable would be to relocate the existing span but there would likely be resistance from Environment.

If using an additional bailey bridge is acceptable, then our estimated cost for adding a new span would be $350,000 plus engineering and any rock rip rap required. This is based on the assumption that a new 30 m (100ft) prefabricated single lane bailey bridge could be installed directly south of the existing bridge. This option would likely also be of least concern to the environmental agencies as we would be spanning the new channel and lengthening the bridge.

Preliminary Cost Summaries:

Elimination of Existing Bridge:

Removal/transport of Bailey Bridge		$50,000
Removal/disposal of Abutments		$30,000
Engineering (Permitting) (10%)		$8,000
	Total	$88,000

New bridge Structure:

Functional Plan For New Crossing		$60,000
New Bridge Structure		$4,000,000
Road Construction (~2km)		$1,000,000
Engineering for New Structure (10%)		$500,000
	Total	$5,560,000

Relocation of Existing Bridge (Short Term):

New South Abutment		$100,000
Relocation of Existing Bridge		$50,000
Rock Rip Rap – Class 3	Approx. 400m^3 @$250/$m^3$	$100,000
Engineering (~15%)		$40,000
	Total	$290,000

Addition of a new span to existing:

100' "Jimbob" Bridge		$120,000
New Substructure		$230,000
Rock Rip Rap – Class 3	Approx. 200m^3 @$250/$m^3$	$50,000
Engineering (15%)		$60,000
	Total	$460,000

Please feel free to contact us if you wish for more information or have any questions.

Sincerely,

Kurt Petrica, P. Eng.
Senior Bridge Engineer

cc: Jim Bester, P. Eng., Russell Pinchak, C.E.T., WSP, Lethbridge
Ming Jiao, P. Eng., WSP, Red Deer Bridges

WSP

August 22, 2014

Range Road 29-2 (Tony Bruder)
WSP File No. 141-19272-00

Municipal District of Pincher Creek No. 9
P.O. Box 279
Pincher Creek, Alberta T0K 1W0

Attention: L. J. (Leo) Reedyk, A.A.E., Director of Operations
Stu Weber; C.E.T., Assistant Public Works Superintendent

Re: Summary and Recommendations
Range Road 29-2 (Tony Bruder)

Following is a summary of the damages at the above noted site resulting from the high water flows in June of 2014, discussion and preliminary recommendations.

Damages: Currently, the roadway is closed to public traffic further to the north, due to a washout adjacent to BF 2064. The creek has eroded portions of the bank which has caused sections of the roadway embankment to become unstable. In addition, surface drainage from the hill side is contributing to further erosion.

Discussion: The roadway has be slightly shifted to the east over a number of years to avoid the slope erosion. To address this issue there are three options available. Option 1 is to shift the roadway over to the east a minimal amount. Option 2 is to shift the roadway further to the east into the hill side. Option 3 is to construct a new section of roadway on the other side of the hill and obliterate the existing section of roadway within this location.

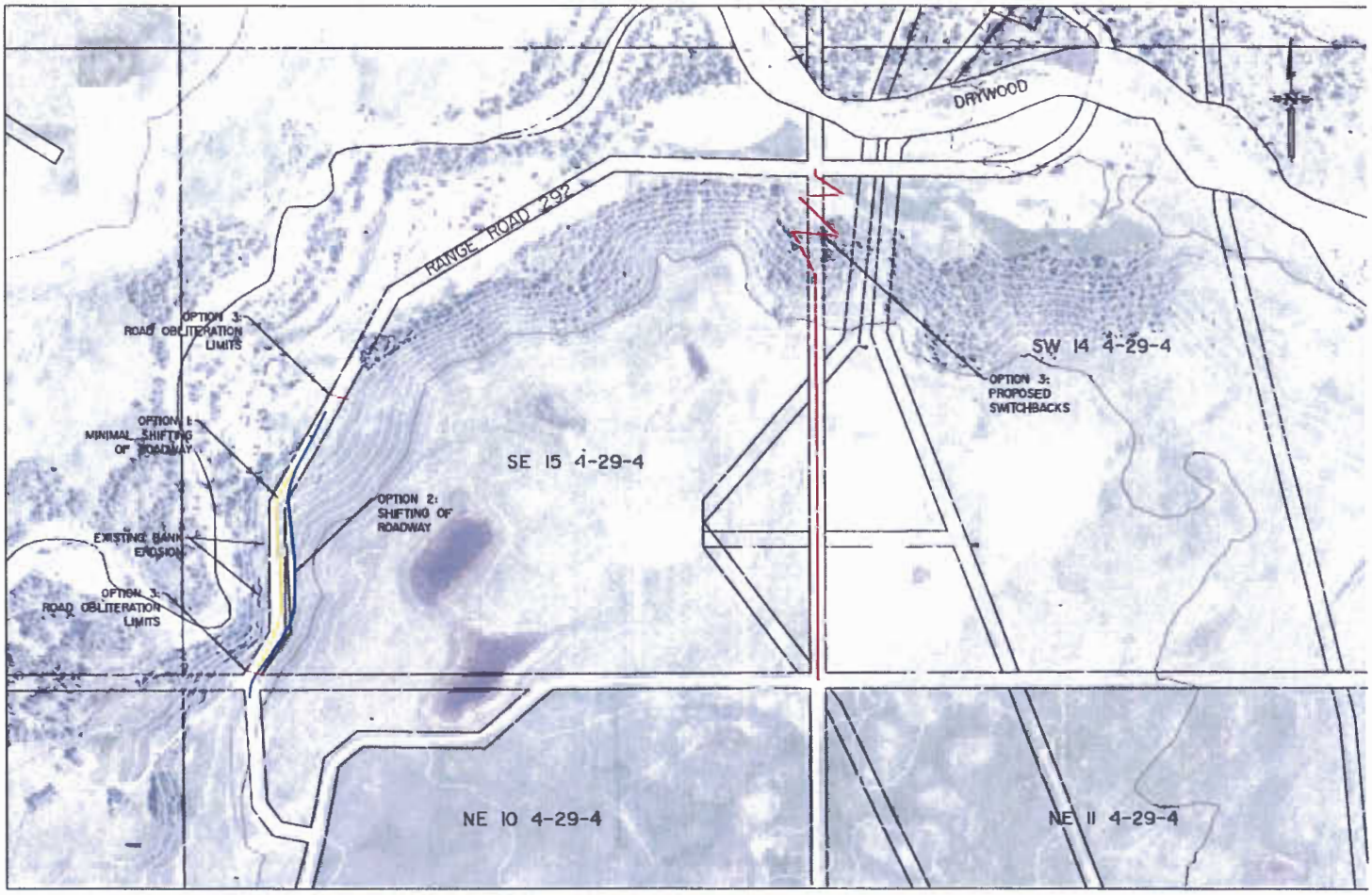
Preliminary Recommendations:

The first option would be the most economical solution at this time. However, it would result in further shifting to occur as the slope erosion continues. This option would be temporary in nature and depending on future rainfall events is estimated to last around 5 years.

The second option would be to shift the roadway further into the hill side. This option would involve a significant amount of excavation into the hillside to move the road away from the slope erosion. This option would be temporary in nature as well and is estimated to last around 10 years depending on future rainfall events. As the existing slope is unstable and the creek will continue to erode the bank, slope erosion will continue to occur and will eventually reach the roadway.

3509 – 6th Ave N, Lethbridge, Alberta, Canada T1H 5C1
Telephone: 403-327-7746 ~ Fax : 403-380- ~ www.wsp.com

The final option would be to relocate the roadway to the other side of the hill. This option would be the most conservative with no impact from the creek. However, this option will require land acquisition for switchbacks that would reduce the maximum traveling speed of the roadway. Depending on the final alignment chosen approximately 1 km of new roadway construction would be required, at an estimated cost of $600K/km.



Preliminary Cost Summaries:

Minimal Road shifting:

Roadwork		$60,000
Land Acquisition		$5,000
Engineering		$10,000
	Total	$75,000

Road shifting:

Roadwork		$250,000
Land Acquisition		$15,000
Engineering		$40,000
	Total	$305,000

Road relocation:

Roadwork		$600,000
Land Acquisition		$20,000
Engineering		$85,000
	Total	$705,000

Please feel free to contact us if you require further information or have any questions.

Sincerely,

James Herian, P. Eng.
Project Engineer

cc: Jim Bester, P. Eng., WSP, Lethbridge
Russell Pinchak, C.E.T., WSP, Lethbridge

D3

MD OF PINCHER CREEK

SEPTEMBER 3, 2014

TO: Wendy Kay, CAO

FROM: Leo Reedyk, Director of Operations

SUBJECT: BEAVER MINES TRAIL SYSTEM

---

1. Origin:

On August 26, 2014 various residents from Beaver Mines appeared before Council as a delegation to present their vision of a trail system for the Hamlet.

2. Background:

The Hamlet of Beaver Mines straddles Highway 774 with a posted speed limit of 50 km/hr. The road structure is pavement with swale drainage ditches and there are no formal sidewalks necessitating residents walk on the paved surface.

Highway 774 is a major thoroughfare to Castle Mountain Resort and the forestry. Recent placement of a speed detecting and reporting trailer in the community adjacent to the highway has lowered the average vehicle speed, but safety along the corridor is still a concern.

Residents have requested a trail system that would allow them to walk, jog or ride bikes around the community without walking on streets or the highway. A trail system could be funded from various sources.

3. Recommendation:

THAT the report from the Director of Operations, dated September 3, 2014 regarding Beaver Mines Trail System be received;

AND THAT Council defer the discussion on the trail system to the 2015-2018 budget deliberations.

Respectfully Submitted,

Leo Reedyk Leo Reedyk

Reviewed by: Wendy Kay, Chief Administrative Officer W Kay Date: Sept. 4, 2014

E1a

MD OF PINCHER CREEK

SEPTEMBER 5, 2014

TO: Wendy Kay, CAO

FROM: Leo Reedyk, Director of Operations

SUBJECT: 2014-2015 ROAD PROJECT UPDATE

---

1. Origin

At their July 8, 2014 meeting Council approved a series of projects for the 2014 and 2015 construction seasons.

2. Background:

The projects identified and a current timeline are as follows;

Projects to be completed by contract include:

- Lundbreck Street Drainage – 2014 - Completed;
- Heritage Acres cold mix – 2014 to be completed the week of September 22nd;
- Bill Cyr Road, engineering 2014 – engineering completed to be tendered fall 2014;
- Christy Mines Cold Mix – 2015 – planning ongoing;
- Summerview Bridge, sub deck and deck replacement – 2015 – budget quotes being requested;
- TR 8-4, Paridaen Hill, engineering 2014 - $20,000, construction 2015- Engineering is proceeding with design to be completed this fall;
- North Burmis – RR 3-1A intersection improvement engineer 2015 - Engineers have been commissioned to complete this work next year;
- RR 1-0A Tanner – engineer 2015 construct 2016 - Engineers have been commissioned to complete this work next year;
- Southfork Drainage – engineer 2015, construct 2016 - - Engineers have been commissioned to complete this work next year.

Projects to be completed at a reduced scope by municipal staff include:

- Oczkowski driveway, summer 2014, 2 days - completed;
- Maycroft Road cold mix, summer 2014, - To begin September 8th.
- RR 30-2 north of Kerr road – fall 2014 est 1 week – to begin week of September 15th ;
- TR 8-2 geogrid test fall 2014, est 1 week; $95,000 + gravel, manpower, equipment and trucking – to begin September 8th ;

- Heath Creek slide, fall 2014, est 1 week – to begin late September;
- RR 30-1, Inabnit Creek Crossing, fall 2014, est 1 week – culvert purchased, one call completed, on site work to begin week of September 8th ;
- TR 6-1 Noble flats fall 2014, est 1 week, Mitigation Project funding – waiting for funding approval to schedule:
- North Burmis – RR 3-1A intersection improvement construction 2015;
- RR 1-5 Old Airport Road Summer/Fall 2014, est 1 week per mile – Secheduled for October:

The schedule for work is completely reliant on weather.

3. Recommendation:

THAT the report from the Director of Operations, dated June 27, 2014 regarding the 2014-2015 Road Project Update be received as information.

Respectfully Submitted,

Leo Reedyk

Reviewed by: Wendy Kay, Chief Administrative Officer W Kay Date: September 5, 2014

Director of Operations Report September 4, 2014

Operations Activity Includes:

- August 20, Road projects tour with WSP;
- August 25, Agricultural and Environmental Services budget development;
- August 26, Regular Council meeting;
- August 28, Staff and Management meetings;
- September 2, Facility Dude work order webinar;
- September 4, ASB meeting;
- September 4, Cottonwood Bridge and Goat Creek Tender close.

Agricultural and Environmental Services Activity Includes:

- 2 Spotted Knapweed Biocontrol releases (August 19)
- Weed Program
  - Third runs through the gravelpits (August 19 – 31)
- Roadside Program (August 17 – 30)
  - MD shoulder spraying
  - Canada Thistle and Perennial Sow Thistle spraying, with Leafy Spurge and Yellow Toadflax for spot spraying crews
- Development of ASB Agenda (ongoing, focus on August 26 – 27)
- SRD contract work, specifically the Carbondale and the Crowsnest rivers with inspections being carried out in numerous areas to the end of the month (August 15 – 30)
- Oldman Watershed Council Rural Team meeting (August 22)
- Most (6) of AES Summer Weed Crew finished August 22
- Meeting with Carla Bick (MD of Ranchland) to discuss riparian project assistance program and the status of SACP (August 26)
- MD Staff appreciation lunch (August 28)
- 2014 – Provincial Legislative & Environmental Grant reporting requirements (August 28)

Public Works Activity Includes:

- Beaver Mines tennis court back stop repair;
- Castle River Intake 2013 Disaster Recovery Repair
- Snake Trail slough repair;
- Lost Creek Road repair complete;
- Gorge Creek Contract awarded;
- Monthly Public Works safety meeting.

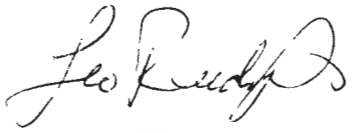
Upcoming:

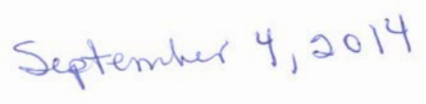
- September 4, Public Works Capital Planning session;
- September 9, Regular Council meeting;

- September 10, Joint worksite health and safety meeting;
- September 11, Staff meetings.

Recommendation:

That the Operations report for the period August 20, 2014 to September 4, 2014 be received as information.

Prepared by: Leo Reedyk  Date: September 4, 2014

Reviewed by: Wendy Kay  Date: 

Submitted to: Council Date: September 9, 2014

Municipal District of Pincher Creek 2014 Call Log Concerns

4	August 22, 2014		Originlly called on June 30th regarding a sign laying on the ground that needs to be put in securely. It is a sign indicating a dead-end road (checkered). It was propped up once but has since fallen over again. The concern is someone is not going to realize it is a dead-end road and go over. Near Cowley Glider airstrip TWP 8-2 RR1-3A	
1	August 22, 2014		Road needs some work, holes and washboardy. Oil Basin Road NW4 Sec 7 Twp 3 RR29	
2	August 21. 2014		Windering if we were still going to be able to grade the fence line out to impove drainage. He is hoping it can be done after the crop is off before he reseeds to hay later this fall. NE5 and SE8 - 6 -29 -W4M	
5	August 21, 2014		With the significant amount of rain in Lundbreck, his yard at 318 railway was flooding. Water coming north on Hamilton comes across his driveway and into his garage. He did manage to get some of gthe water to move north across the driveway but would like us to look at what can be done. 318 Railway Avenue Lundbreck	
2	August 21, 2014		Applied for winter driveway snow removal. Also, again mentioned that Crook Road east of Hwy 6 up the hill needs attention and also ruts on Kerr road and water is running down it; she thinks too much gravel is on the edge. Prior concerns were made on August 18th as well	mentioned to her that dust control just not there yet.
4	Auguat 25		Would like road graded and also would like information regarding a gravel pit run North side of Old Man Dam NE30 7 - 29 - W4 Phone 403 625-1163	August 26: PW has looked into this and has spoken to resident. The main road needs grading around the loop
5	August 26, 2014		Lundbreck: Road work was recently done and the boulevard has become like a boghole beside the fence where she usually parks her vehicle. There was topsoil and seed put in but to no avai. Unable to park by her house and is presently using the store area for parking. Directlhy across the street (south) of Obies Store, (Very old grey housse and huge yard), site ID #3104300.	August 26 PW had a look at it and wants to wait for it to dry before taking any action and he spoke to resident
4	August 22, 2014		Stopped by the office and indicated taking a call that Snake Trail was rough for driving	The Grader was there on August 26, 2014

Basic Volume Summary: ALBRANCH 140729

Grand Total For Data From: 09:00 - 2014-07-29 To: 12:59 - 2014-08-14

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	4	5	2	2	0	0	20	44	46	57	73	73	61	65	59	59	67	51	43	36	15	13	15	9	819
Lane #3	7	5	2	0	0	0	9	20	31	58	57	56	56	60	83	63	87	67	57	35	47	35	18	13	866
TOTAL	11	10	4	2	0	0	29	64	77	115	130	129	117	125	142	122	154	118	100	71	62	48	33	22	1685

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	0%	1%	0%	0%	0%	0%	2%	5%	6%	7%	9%	9%	7%	8%	7%	7%	8%	6%	5%	4%	2%	2%	2%	1%
Lane #3	1%	1%	0%	0%	0%	0%	1%	2%	4%	7%	7%	6%	6%	7%	10%	7%	10%	8%	7%	4%	5%	4%	2%	2%
TOTAL	1%	1%	0%	0%	0%	0%	2%	4%	5%	7%	8%	8%	7%	7%	8%	7%	9%	7%	6%	4%	4%	3%	2%	1%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	0	0	0	0	0	0	1	3	3	3	4	4	4	4	4	4	4	3	3	2	1	1	1	1	50
Lane #3	0	0	0	0	0	0	1	1	2	3	3	3	3	4	5	4	5	4	4	2	3	2	1	1	51
TOTAL	0	0	0	0	0	0	2	4	5	6	7	7	7	8	9	8	9	7	7	4	4	3	2	2	101

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	101	105	155	149	121	97	91	Weekday (Mon-Fri) :	627	77%
# Days :	2.0	2.0	2.6	3.0	2.5	2.0	2.0	ADT :	52	
ADT :	51	53	59	50	48	49	46	Weekend (Sat-Sun) :	192	23%
Percent :	12%	13%	19%	18%	15%	12%	11%	ADT :	48	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	108	93	156	148	118	122	121	Weekday (Mon-Fri) :	637	74%
# Days :	2.0	2.0	2.6	3.0	2.5	2.0	2.0	ADT :	52	
ADT :	54	47	59	49	46	61	61	Weekend (Sat-Sun) :	229	26%
Percent :	12%	11%	18%	17%	14%	14%	14%	ADT :	57	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	209	198	311	297	239	219	212	Weekday (Mon-Fri) :	1264	75%
# Days :	2.0	2.0	2.6	3.0	2.5	2.0	2.0	ADT :	104	
ADT :	105	99	118	99	94	110	106	Weekend (Sat-Sun) :	421	25%
Percent :	12%	12%	18%	18%	14%	13%	13%	ADT :	105	

Basic Volume Summary: bEAVER LAKE

Grand Total For Data From: 10:00 - 2002-05-14 To: 10:59 - 2014-06-09

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	148	194	151	156	144	131	83	100	100	88	113	135	156	110	113	107	94	93	112	120	125	122	145	178	3018
Lane #3	170	171	158	177	138	103	95	72	90	98	107	114	139	113	103	130	90	86	84	120	116	161	165	153	2953
TOTAL	318	365	309	333	282	234	178	172	190	186	220	249	295	223	216	237	184	179	196	240	241	283	310	331	5971

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	5%	6%	5%	5%	5%	4%	3%	3%	3%	3%	4%	4%	5%	4%	4%	4%	3%	3%	4%	4%	4%	4%	5%	6%
Lane #3	6%	6%	5%	6%	5%	3%	3%	2%	3%	3%	4%	4%	5%	4%	3%	4%	3%	3%	3%	4%	4%	5%	6%	5%
TOTAL	5%	6%	5%	6%	5%	4%	3%	3%	3%	3%	4%	4%	5%	4%	4%	4%	3%	3%	3%	4%	4%	5%	5%	6%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	4	5	4	4	4	3	2	2	2	2	3	3	4	3	3	3	2	2	3	3	3	3	4	4	75
Lane #3	4	4	4	4	3	3	2	2	2	2	3	3	3	3	3	3	2	2	2	3	3	4	4	4	72
TOTAL	8	9	8	8	7	6	4	4	4	4	6	6	7	6	6	6	4	4	5	6	6	7	8	8	147

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	426	253	330	311	366	675	657	Weekday (Mon-Fri) :	1935	64%
# Days :	6.0	5.5	5.5	6.0	5.8	5.9	6.0	ADT :	68	
ADT :	71	46	60	52	64	114	110	Weekend (Sat-Sun) :	1083	36%
Percent :	14%	8%	11%	10%	12%	22%	22%	ADT :	90	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	658	280	237	259	258	504	757	Weekday (Mon-Fri) :	1538	52%
# Days :	6.0	5.5	5.5	6.0	5.8	5.9	6.0	ADT :	54	
ADT :	110	51	43	43	45	85	126	Weekend (Sat-Sun) :	1415	48%
Percent :	22%	9%	8%	9%	9%	17%	26%	ADT :	118	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	1084	533	567	570	624	1179	1414	Weekday (Mon-Fri) :	3473	58%
# Days :	6.0	5.5	5.5	6.0	5.8	5.9	6.0	ADT :	122	
ADT :	181	98	104	95	109	199	236	Weekend (Sat-Sun) :	2498	42%
Percent :	18%	9%	9%	10%	10%	20%	24%	ADT :	208	

Basic Volume Summary: CARBONDALE

Grand Total For Data From: 12:00 - 2013-07-27 To: 06:59 - 2013-08-07

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	2	1	3	8	7	5	3	7	11	7	5	2	7	7	1	15	8	5	3	0	0	0	0	0	107
Lane #3	1	1	4	8	5	13	6	22	8	10	8	10	11	14	10	15	8	5	1	4	0	0	0	1	165
TOTAL	3	2	7	16	12	18	9	29	19	17	13	12	18	21	11	30	16	10	4	4	0	0	0	1	272

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	2%	1%	3%	7%	7%	5%	3%	7%	10%	7%	5%	2%	7%	7%	1%	14%	7%	5%	3%	0%	0%	0%	0%	0%
Lane #3	1%	1%	2%	5%	3%	8%	4%	13%	5%	6%	5%	6%	7%	8%	6%	9%	5%	3%	1%	2%	0%	0%	0%	1%
TOTAL	1%	1%	3%	6%	4%	7%	3%	11%	7%	6%	5%	4%	7%	8%	4%	11%	6%	4%	1%	1%	0%	0%	0%	0%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	0	0	0	1	1	0	0	1	1	1	1	0	1	1	0	1	1	0	0	0	0	0	0	0	10
Lane #3	0	0	0	1	0	1	1	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	14
TOTAL	0	0	0	2	1	1	1	3	2	2	2	1	2	2	1	2	2	0	0	0	0	0	0	0	24

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	44	30	8	0	0	0	25	Weekday (Mon-Fri) :	38	36%
# Days :	2.0	2.0	2.0	1.3	1.0	1.0	1.5	ADT :	5	
ADT :	22	15	4	0	0	0	17	Weekend (Sat-Sun) :	69	64%
Percent :	41%	28%	7%	0%	0%	0%	23%	ADT :	20	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	78	59	8	0	0	0	20	Weekday (Mon-Fri) :	67	41%
# Days :	2.0	2.0	2.0	1.3	1.0	1.0	1.5	ADT :	9	
ADT :	39	30	4	0	0	0	13	Weekend (Sat-Sun) :	98	59%
Percent :	47%	36%	5%	0%	0%	0%	12%	ADT :	28	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	122	89	16	0	0	0	45	Weekday (Mon-Fri) :	105	39%
# Days :	2.0	2.0	2.0	1.3	1.0	1.0	1.5	ADT :	14	
ADT :	61	45	8	0	0	0	30	Weekend (Sat-Sun) :	167	61%
Percent :	45%	33%	6%	0%	0%	0%	17%	ADT :	48	

Basic Volume Summary: CASTLE FALLS

Grand Total For Data From: 16:00 - 2014-05-14 To: 10:59 - 2014-06-10

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	12	7	5	3	1	5	15	22	42	97	174	260	249	272	215	252	187	165	167	125	94	69	47	16	2501
Lane #3	13	3	5	4	1	1	2	22	29	85	188	218	198	230	234	229	227	180	182	191	125	98	38	17	2520
TOTAL	25	10	10	7	2	6	17	44	71	182	362	478	447	502	449	481	414	345	349	316	219	167	85	33	5021

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	0%	0%	0%	0%	0%	0%	1%	1%	2%	4%	7%	10%	10%	11%	9%	10%	7%	7%	7%	5%	4%	3%	2%	1%
Lane #3	1%	0%	0%	0%	0%	0%	0%	1%	1%	3%	7%	9%	8%	9%	9%	9%	9%	7%	7%	8%	5%	4%	2%	1%
TOTAL	0%	0%	0%	0%	0%	0%	0%	1%	1%	4%	7%	10%	9%	10%	9%	10%	8%	7%	7%	6%	4%	3%	2%	1%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	0	0	0	0	0	0	1	1	2	4	6	10	10	10	8	10	7	6	6	5	3	3	2	1	95
Lane #3	0	0	0	0	0	0	0	1	1	3	7	8	8	9	9	9	8	7	7	7	5	4	1	1	95
TOTAL	0	0	0	0	0	0	1	2	3	7	13	18	18	19	17	19	15	13	13	12	8	7	3	2	190

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	710	385	142	96	199	342	627	Weekday (Mon-Fri) :	1164	47%
# Days :	4.0	4.0	3.5	3.3	4.0	4.0	4.0	ADT :	62	
ADT :	178	96	41	29	50	86	157	Weekend (Sat-Sun) :	1337	53%
Percent :	28%	15%	6%	4%	8%	14%	25%	ADT :	167	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	537	209	139	135	280	581	639	Weekday (Mon-Fri) :	1344	53%
# Days :	4.0	4.0	3.5	3.3	4.0	4.0	4.0	ADT :	72	
ADT :	134	52	40	40	70	145	160	Weekend (Sat-Sun) :	1176	47%
Percent :	21%	8%	6%	5%	11%	23%	25%	ADT :	147	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	1247	594	281	231	479	923	1266	Weekday (Mon-Fri) :	2508	50%
# Days :	4.0	4.0	3.5	3.3	4.0	4.0	4.0	ADT :	133	
ADT :	312	149	81	69	120	231	317	Weekend (Sat-Sun) :	2513	50%
Percent :	25%	12%	6%	5%	10%	18%	25%	ADT :	314	

Basic Volume Summary: CASTLE FALLS 1

Grand Total For Data From: 10:00 - 2013-06-28 To: 06:59 - 2013-07-12

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	7	6	3	6	3	2	13	42	54	88	148	211	221	225	257	251	183	214	188	173	143	88	57	25	2608
Lane #3	8	6	4	2	7	9	11	40	67	124	211	255	296	294	227	228	205	172	144	162	112	78	46	20	2728
TOTAL	15	12	7	8	10	11	24	82	121	212	359	466	517	519	484	479	388	386	332	335	255	166	103	45	5336

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	0%	0%	0%	0%	0%	0%	0%	2%	2%	3%	6%	8%	8%	9%	10%	10%	7%	8%	7%	7%	5%	3%	2%	1%
Lane #3	0%	0%	0%	0%	0%	0%	0%	1%	2%	5%	8%	9%	11%	11%	8%	8%	8%	6%	5%	6%	4%	3%	2%	1%
TOTAL	0%	0%	0%	0%	0%	0%	0%	2%	2%	4%	7%	9%	10%	10%	9%	9%	7%	7%	6%	6%	5%	3%	2%	1%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	1	0	0	0	0	0	1	3	4	7	11	15	16	16	18	18	13	15	13	12	10	6	4	2	185
Lane #3	1	0	0	0	1	1	1	3	5	10	15	18	21	21	16	16	15	12	10	12	8	6	3	1	196
TOTAL	2	0	0	0	1	1	2	6	9	17	26	33	37	37	34	34	28	27	23	24	18	12	7	3	381

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	486	229	207	208	158	694	626	Weekday (Mon-Fri) :	1496	57%
# Days :	2.0	2.0	2.0	2.0	2.0	1.9	2.0	ADT :	151	
ADT :	243	115	104	104	79	370	313	Weekend (Sat-Sun) :	1112	43%
Percent :	19%	9%	8%	8%	6%	27%	24%	ADT :	278	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	721	597	225	194	117	321	553	Weekday (Mon-Fri) :	1454	53%
# Days :	2.0	2.0	2.0	2.0	2.0	1.9	2.0	ADT :	147	
ADT :	361	299	113	97	59	171	277	Weekend (Sat-Sun) :	1274	47%
Percent :	26%	22%	8%	7%	4%	12%	20%	ADT :	319	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	1207	826	432	402	275	1015	1179	Weekday (Mon-Fri) :	2950	55%
# Days :	2.0	2.0	2.0	2.0	2.0	1.9	2.0	ADT :	299	
ADT :	604	413	216	201	138	541	590	Weekend (Sat-Sun) :	2386	45%
Percent :	23%	15%	8%	8%	5%	19%	22%	ADT :	597	

Basic Volume Summary: 6-2A 30-3 2 lane

Grand Total For Data From: 03:00 - 2013-07-12 To: 03:59 - 2013-07-29 CHRISTIE MWES

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	89	63	98	117	121	98	92	106	101	68	38	14	6	1	1	0	1	5	34	51	63	91	101	92	1451
Lane #3	10	14	12	26	63	31	32	29	35	25	13	4	6	1	0	0	0	3	6	11	13	41	38	17	430
TOTAL	99	77	110	143	184	129	124	135	136	93	51	18	12	2	1	0	1	8	40	62	76	132	139	109	1881

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	6%	4%	7%	8%	8%	7%	6%	7%	7%	5%	3%	1%	0%	0%	0%	0%	0%	0%	2%	4%	4%	6%	7%	6%
Lane #3	2%	3%	3%	6%	15%	7%	7%	7%	8%	6%	3%	1%	1%	0%	0%	0%	0%	1%	1%	3%	3%	10%	9%	4%
TOTAL	5%	4%	6%	8%	10%	7%	7%	7%	7%	5%	3%	1%	1%	0%	0%	0%	0%	0%	2%	3%	4%	7%	7%	6%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	5	4	6	7	7	6	5	6	6	4	2	1	0	0	0	0	0	0	2	3	4	5	6	5	84
Lane #3	1	1	1	1	4	2	2	2	2	1	1	0	0	0	0	0	0	0	0	1	1	2	2	1	25
TOTAL	6	5	7	8	11	8	7	8	8	5	3	1	0	0	0	0	0	0	2	4	5	7	8	6	109

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	268	290	277	141	243	174	58	Weekday (Mon-Fri) :	1125	78%
# Days :	3.0	2.2	2.0	2.0	2.0	2.9	3.0	ADT :	102	
ADT :	89	134	139	71	122	61	19	Weekend (Sat-Sun) :	326	22%
Percent :	18%	20%	19%	10%	17%	12%	4%	ADT :	54	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	1	0	0	31	0	205	193	Weekday (Mon-Fri) :	236	55%
# Days :	3.0	2.2	2.0	2.0	2.0	2.9	3.0	ADT :	21	
ADT :	0	0	0	16	0	71	64	Weekend (Sat-Sun) :	194	45%
Percent :	0%	0%	0%	7%	0%	48%	45%	ADT :	32	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	269	290	277	172	243	379	251	Weekday (Mon-Fri) :	1361	72%
# Days :	3.0	2.2	2.0	2.0	2.0	2.9	3.0	ADT :	123	
ADT :	90	134	139	86	122	132	84	Weekend (Sat-Sun) :	520	28%
Percent :	14%	15%	15%	9%	13%	20%	13%	ADT :	87	

Basic Volume Summary: CROOK 140611

Grand Total For Data From: 12:00 - 2014-11-06 To: 14:59 - 2014-11-27

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	3	3	0	1	0	3	41	42	71	47	37	49	35	42	45	24	48	51	45	26	40	29	20	8	710
Lane #3	7	1	0	2	0	1	3	12	17	25	27	42	45	48	31	52	53	59	67	43	37	46	38	21	677
TOTAL	10	4	0	3	0	4	44	54	88	72	64	91	80	90	76	76	101	110	112	69	77	75	58	29	1387

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	0%	0%	0%	0%	0%	0%	6%	6%	10%	7%	5%	7%	5%	6%	6%	3%	7%	7%	6%	4%	6%	4%	3%	1%
Lane #3	1%	0%	0%	0%	0%	0%	0%	2%	3%	4%	4%	6%	7%	7%	5%	8%	8%	9%	10%	6%	5%	7%	6%	3%
TOTAL	1%	0%	0%	0%	0%	0%	3%	4%	6%	5%	5%	7%	6%	6%	5%	5%	7%	8%	8%	5%	6%	5%	4%	2%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	0	0	0	0	0	0	2	2	3	2	2	2	2	2	2	1	2	2	2	1	2	1	1	0	31
Lane #3	0	0	0	0	0	0	0	1	1	1	1	2	2	2	1	2	3	3	3	2	2	2	2	1	31
TOTAL	0	0	0	0	0	0	2	3	4	3	3	4	4	4	3	3	5	5	5	3	4	3	3	1	62

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	91	94	101	89	124	96	115	Weekday (Mon-Fri) :	504	71%
# Days :	3.0	3.0	3.0	3.0	3.1	3.0	3.0	ADT :	33	
ADT :	30	31	34	30	40	32	38	Weekend (Sat-Sun) :	206	29%
Percent :	13%	13%	14%	13%	17%	14%	16%	ADT :	34	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	98	100	98	89	105	81	106	Weekday (Mon-Fri) :	473	70%
# Days :	3.0	3.0	3.0	3.0	3.1	3.0	3.0	ADT :	31	
ADT :	33	33	33	30	34	27	35	Weekend (Sat-Sun) :	204	30%
Percent :	14%	15%	14%	13%	16%	12%	16%	ADT :	34	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	189	194	199	178	229	177	221	Weekday (Mon-Fri) :	977	70%
# Days :	3.0	3.0	3.0	3.0	3.1	3.0	3.0	ADT :	65	
ADT :	63	65	66	59	73	59	74	Weekend (Sat-Sun) :	410	30%
Percent :	14%	14%	14%	13%	17%	13%	16%	ADT :	68	

Basic Volume Summary: CROOK RD

Grand Total For Data From: 08:00 - 2013-07-31 To: 06:59 - 2013-08-30

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	5	2	0	0	6	5	52	65	77	72	67	58	56	52	54	53	53	50	51	41	51	42	33	8	953
Lane #3	7	4	4	2	1	0	3	11	27	33	64	50	54	48	46	73	86	103	101	81	57	55	47	26	983
TOTAL	12	6	4	2	7	5	55	76	104	105	131	108	110	100	100	126	139	153	152	122	108	97	80	34	1936

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	1%	0%	0%	0%	1%	1%	5%	7%	8%	8%	7%	6%	6%	5%	6%	6%	6%	5%	5%	4%	5%	4%	3%	1%
Lane #3	1%	0%	0%	0%	0%	0%	0%	1%	3%	3%	7%	5%	5%	5%	5%	7%	9%	10%	10%	8%	6%	6%	5%	3%
TOTAL	1%	0%	0%	0%	0%	0%	3%	4%	5%	5%	7%	6%	6%	5%	5%	7%	7%	8%	8%	6%	6%	5%	4%	2%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	0	0	0	0	0	0	2	2	3	2	2	2	2	2	2	2	2	2	2	1	2	1	1	0	32
Lane #3	0	0	0	0	0	0	0	0	1	1	2	2	2	2	2	2	3	3	3	3	2	2	2	1	33
TOTAL	0	0	0	0	0	0	2	2	4	3	4	4	4	4	4	4	5	5	5	4	4	3	3	1	65

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	106	145	138	173	142	122	127	Weekday (Mon-Fri) :	720	76%
# Days :	4.0	4.0	4.0	4.7	5.0	4.3	4.0	ADT :	33	
ADT :	27	36	35	37	28	28	32	Weekend (Sat-Sun) :	233	24%
Percent :	11%	15%	14%	18%	15%	13%	13%	ADT :	29	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	117	151	146	169	155	123	122	Weekday (Mon-Fri) :	744	76%
# Days :	4.0	4.0	4.0	4.7	5.0	4.3	4.0	ADT :	34	
ADT :	29	38	37	36	31	29	31	Weekend (Sat-Sun) :	239	24%
Percent :	12%	15%	15%	17%	16%	13%	12%	ADT :	30	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	223	296	284	342	297	245	249	Weekday (Mon-Fri) :	1464	76%
# Days :	4.0	4.0	4.0	4.7	5.0	4.3	4.0	ADT :	67	
ADT :	56	74	71	73	59	57	62	Weekend (Sat-Sun) :	472	24%
Percent :	12%	15%	15%	18%	15%	13%	13%	ADT :	59	

Basic Volume Summary: KERR RD 140611

Grand Total For Data From: 12:00 - 2014-~~12-06~~ 06-11 To: 14:59 - 2014-~~12~~ 06-27

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	0	1	0	0	2	2	4	15	11	29	14	15	15	24	19	9	19	22	15	7	5	4	2	0	234
Lane #3	12	5	3	1	2	13	13	59	59	94	72	73	78	94	85	71	90	87	97	50	48	45	29	20	1200
TOTAL	12	6	3	1	4	15	17	74	70	123	86	88	93	118	104	80	109	109	112	57	53	49	31	20	1434

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	0%	0%	0%	0%	1%	1%	2%	6%	5%	12%	6%	6%	6%	10%	8%	4%	8%	9%	6%	3%	2%	2%	1%	0%
Lane #3	1%	0%	0%	0%	0%	1%	1%	5%	5%	8%	6%	6%	7%	8%	7%	6%	8%	7%	8%	4%	4%	4%	2%	2%
TOTAL	1%	0%	0%	0%	0%	1%	1%	5%	5%	9%	6%	6%	6%	8%	7%	6%	8%	8%	8%	4%	4%	3%	2%	1%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	11
Lane #3	1	0	0	0	0	1	1	3	3	4	3	3	4	4	4	3	4	4	5	2	2	2	1	1	55
TOTAL	1	0	0	0	0	1	1	4	4	5	4	4	5	5	5	3	5	5	6	2	2	2	1	1	66

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	46	48	3	3	29	59	46	Weekday (Mon-Fri) :	142	61%
# Days :	3.0	3.0	3.0	3.0	3.1	3.0	3.0	ADT :	9	
ADT :	15	16	1	1	9	20	15	Weekend (Sat-Sun) :	92	39%
Percent :	20%	21%	1%	1%	12%	25%	20%	ADT :	15	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	175	131	234	176	171	142	171	Weekday (Mon-Fri) :	854	71%
# Days :	3.0	3.0	3.0	3.0	3.1	3.0	3.0	ADT :	56	
ADT :	58	44	78	59	55	47	57	Weekend (Sat-Sun) :	346	29%
Percent :	15%	11%	20%	15%	14%	12%	14%	ADT :	58	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	221	179	237	179	200	201	217	Weekday (Mon-Fri) :	996	69%
# Days :	3.0	3.0	3.0	3.0	3.1	3.0	3.0	ADT :	66	
ADT :	74	60	79	60	64	67	72	Weekend (Sat-Sun) :	438	31%
Percent :	15%	12%	17%	12%	14%	14%	15%	ADT :	73	

Basic Volume Summary: LANDFIL 140729

Grand Total For Data From: 04:00 - 2014-07-29 To: 19:59 - 2014-08-07 BACK ROAD

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	7	42	1	18	5	9	6	38	27	10	7	39	33	10	16	7	59	8	14	5	25	51	6	8	451
Lane #3	6	55	3	22	5	5	10	35	29	5	3	52	42	4	13	11	70	9	9	8	34	56	7	6	499
TOTAL	13	97	4	40	10	14	16	73	56	15	10	91	75	14	29	18	129	17	23	13	59	107	13	14	950

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	2%	9%	0%	4%	1%	2%	1%	8%	6%	2%	2%	9%	7%	2%	4%	2%	13%	2%	3%	1%	6%	11%	1%	2%
Lane #3	1%	11%	1%	4%	1%	1%	2%	7%	6%	1%	1%	10%	8%	1%	3%	2%	14%	2%	2%	2%	7%	11%	1%	1%
TOTAL	1%	10%	0%	4%	1%	1%	2%	8%	6%	2%	1%	10%	8%	1%	3%	2%	14%	2%	2%	1%	6%	11%	1%	1%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	1	5	0	2	1	1	1	4	3	1	1	4	3	1	2	1	6	1	1	1	3	6	1	1	51
Lane #3	1	6	0	2	1	1	1	4	3	1	0	5	4	0	1	1	7	1	1	1	4	6	1	1	53
TOTAL	2	11	0	4	2	2	2	8	6	2	1	9	7	1	3	2	13	2	2	2	7	12	2	2	104

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	37	71	77	108	59	30	69	Weekday (Mon-Fri) :	345	76%
# Days :	1.0	1.0	1.8	2.0	1.8	1.0	1.0	ADT :	45	
ADT :	37	71	42	54	32	30	69	Weekend (Sat-Sun) :	106	24%
Percent :	8%	16%	17%	24%	13%	7%	15%	ADT :	53	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	37	85	83	100	71	44	79	Weekday (Mon-Fri) :	383	77%
# Days :	1.0	1.0	1.8	2.0	1.8	1.0	1.0	ADT :	50	
ADT :	37	85	45	50	39	44	79	Weekend (Sat-Sun) :	116	23%
Percent :	7%	17%	17%	20%	14%	9%	16%	ADT :	58	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	74	156	160	208	130	74	148	Weekday (Mon-Fri) :	728	77%
# Days :	1.0	1.0	1.8	2.0	1.8	1.0	1.0	ADT :	95	
ADT :	74	156	87	104	71	74	148	Weekend (Sat-Sun) :	222	23%
Percent :	8%	16%	17%	22%	14%	8%	16%	ADT :	111	

Basic Volume Summary: LANK BR 140611

Grand Total For Data From: 10:00 - 2014-11-06 To: 18:59 - 2014-11-19

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	14	33	10	29	23	6	14	19	12	28	21	21	3	15	28	41	11	45	13	6	30	12	9	38	481
Lane #3	9	39	3	25	29	7	13	23	4	23	13	21	6	20	16	56	26	38	9	19	33	21	12	38	503
TOTAL	23	72	13	54	52	13	27	42	16	51	34	42	9	35	44	97	37	83	22	25	63	33	21	76	984

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	3%	7%	2%	6%	5%	1%	3%	4%	2%	6%	4%	4%	1%	3%	6%	9%	2%	9%	3%	1%	6%	2%	2%	8%
Lane #3	2%	8%	1%	5%	6%	1%	3%	5%	1%	5%	3%	4%	1%	4%	3%	11%	5%	8%	2%	4%	7%	4%	2%	8%
TOTAL	2%	7%	1%	5%	5%	1%	3%	4%	2%	5%	3%	4%	1%	4%	4%	10%	4%	8%	2%	3%	6%	3%	2%	8%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	1	3	1	2	2	0	1	1	1	2	2	2	0	1	2	3	1	3	1	0	2	1	1	3	36
Lane #3	1	3	0	2	2	1	1	2	0	2	1	2	0	1	1	4	2	3	1	1	3	2	1	3	39
TOTAL	2	6	1	4	4	1	2	3	1	4	3	4	0	2	3	7	3	6	2	1	5	3	2	6	75

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	37	65	62	56	47	117	97	Weekday (Mon-Fri) :	347	72%
# Days :	2.0	2.0	2.0	1.8	1.6	2.0	2.0	ADT :	37	
ADT :	19	33	31	31	30	59	49	Weekend (Sat-Sun) :	134	28%
Percent :	8%	14%	13%	12%	10%	24%	20%	ADT :	34	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	47	65	71	59	46	121	94	Weekday (Mon-Fri) :	362	72%
# Days :	2.0	2.0	2.0	1.8	1.6	2.0	2.0	ADT :	39	
ADT :	24	33	36	33	29	61	47	Weekend (Sat-Sun) :	141	28%
Percent :	9%	13%	14%	12%	9%	24%	19%	ADT :	35	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	84	130	133	115	93	238	191	Weekday (Mon-Fri) :	709	72%
# Days :	2.0	2.0	2.0	1.8	1.6	2.0	2.0	ADT :	76	
ADT :	42	65	67	64	59	119	96	Weekend (Sat-Sun) :	275	28%
Percent :	9%	13%	14%	12%	9%	24%	19%	ADT :	69	

Basic Volume Summary: MAYCROFT 140514

Grand Total For Data From: 15:00 - 2014-05-14 To: 07:59 - 2014-06-02

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	6	4	0	3	0	2	13	31	40	68	119	115	100	112	155	99	146	118	148	126	105	85	35	28	1658
Lane #3	2	3	0	2	0	4	15	31	46	90	125	157	208	214	154	139	107	131	66	75	39	47	25	18	1698
TOTAL	8	7	0	5	0	6	28	62	86	158	244	272	308	326	309	238	253	249	214	201	144	132	60	46	3356

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	0%	0%	0%	0%	0%	0%	1%	2%	2%	4%	7%	7%	6%	7%	9%	6%	9%	7%	9%	8%	6%	5%	2%	2%
Lane #3	0%	0%	0%	0%	0%	0%	1%	2%	3%	5%	7%	9%	12%	13%	9%	8%	6%	8%	4%	4%	2%	3%	1%	1%
TOTAL	0%	0%	0%	0%	0%	0%	1%	2%	3%	5%	7%	8%	9%	10%	9%	7%	8%	7%	6%	6%	4%	4%	2%	1%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	0	0	0	0	0	0	1	2	2	4	7	6	6	6	9	5	8	6	8	7	6	4	2	1	90
Lane #3	0	0	0	0	0	0	1	2	3	5	7	9	12	12	9	7	6	7	3	4	2	2	1	1	93
TOTAL	0	0	0	0	0	0	2	4	5	9	14	15	18	18	18	12	14	13	11	11	8	6	3	2	183

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	191	122	83	96	270	592	304	Weekday (Mon-Fri) :	1163	70%
# Days :	3.0	2.3	2.0	2.4	3.0	3.0	3.0	ADT :	92	
ADT :	64	52	42	40	90	197	101	Weekend (Sat-Sun) :	495	30%
Percent :	12%	7%	5%	6%	16%	36%	18%	ADT :	83	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	412	575	106	92	139	160	214	Weekday (Mon-Fri) :	1072	63%
# Days :	3.0	2.3	2.0	2.4	3.0	3.0	3.0	ADT :	84	
ADT :	137	246	53	39	46	53	71	Weekend (Sat-Sun) :	626	37%
Percent :	24%	34%	6%	5%	8%	9%	13%	ADT :	104	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	603	697	189	188	409	752	518	Weekday (Mon-Fri) :	2235	67%
# Days :	3.0	2.3	2.0	2.4	3.0	3.0	3.0	ADT :	176	
ADT :	201	299	95	79	136	251	173	Weekend (Sat-Sun) :	1121	33%
Percent :	18%	21%	6%	6%	12%	22%	15%	ADT :	187	

Basic Volume Summary: MAYCROFT 140729

Grand Total For Data From: 13:00 - 2014-07-29 To: 12:59 - 2014-08-14

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	5	3	2	0	1	1	14	36	93	170	160	167	145	168	176	175	164	147	162	183	149	94	50	18	2283
Lane #3	5	0	0	0	2	12	11	24	37	81	144	184	233	224	223	221	205	159	132	136	113	49	25	6	2226
TOTAL	10	3	2	0	3	13	25	60	130	251	304	351	378	392	399	396	369	306	294	319	262	143	75	24	4509

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	0%	0%	0%	0%	0%	0%	1%	2%	4%	7%	7%	7%	6%	7%	8%	8%	7%	6%	7%	8%	7%	4%	2%	1%
Lane #3	0%	0%	0%	0%	0%	1%	0%	1%	2%	4%	6%	8%	10%	10%	10%	10%	9%	7%	6%	6%	5%	2%	1%	0%
TOTAL	0%	0%	0%	0%	0%	0%	1%	1%	3%	6%	7%	8%	8%	9%	9%	9%	8%	7%	7%	7%	6%	3%	2%	1%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	0	0	0	0	0	0	1	2	6	11	10	10	9	11	11	11	10	9	10	11	9	6	3	1	141
Lane #3	0	0	0	0	0	1	1	2	2	5	9	12	15	14	14	14	13	10	8	9	7	3	2	0	141
TOTAL	0	0	0	0	0	1	2	4	8	16	19	22	24	25	25	25	23	19	18	20	16	9	5	1	282

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	242	179	220	279	318	664	381	Weekday (Mon-Fri) :	1660	73%
# Days :	2.0	2.0	2.5	3.0	2.5	2.0	2.0	ADT :	138	
ADT :	121	90	89	93	125	332	191	Weekend (Sat-Sun) :	623	27%
Percent :	11%	8%	10%	12%	14%	29%	17%	ADT :	156	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	576	597	211	237	179	182	244	Weekday (Mon-Fri) :	1406	63%
# Days :	2.0	2.0	2.5	3.0	2.5	2.0	2.0	ADT :	117	
ADT :	288	299	86	79	70	91	122	Weekend (Sat-Sun) :	820	37%
Percent :	26%	27%	9%	11%	8%	8%	11%	ADT :	205	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	818	776	431	516	497	846	625	Weekday (Mon-Fri) :	3066	68%
# Days :	2.0	2.0	2.5	3.0	2.5	2.0	2.0	ADT :	256	
ADT :	409	388	175	172	196	423	313	Weekend (Sat-Sun) :	1443	32%
Percent :	18%	17%	10%	11%	11%	19%	14%	ADT :	361	

Basic Volume Summary: SNAKE TRAIL

Grand Total For Data From: 12:00 - 2013-07-12 To: 15:59 - 2013-07-29

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	6	2	1	0	0	1	14	11	31	35	30	43	57	54	54	68	57	97	62	41	52	41	15	8	780
Lane #3	1	0	1	0	6	14	32	79	51	60	52	49	64	64	48	42	45	45	29	31	20	19	19	10	781
TOTAL	7	2	2	0	6	15	46	90	82	95	82	92	121	118	102	110	102	142	91	72	72	60	34	18	1561

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	1%	0%	0%	0%	0%	0%	2%	1%	4%	4%	4%	6%	7%	7%	7%	9%	7%	12%	8%	5%	7%	5%	2%	1%
Lane #3	0%	0%	0%	0%	1%	2%	4%	10%	7%	8%	7%	6%	8%	8%	6%	5%	6%	6%	4%	4%	3%	2%	2%	1%
TOTAL	0%	0%	0%	0%	0%	1%	3%	6%	5%	6%	5%	6%	8%	8%	7%	7%	7%	9%	6%	5%	5%	4%	2%	1%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	0	0	0	0	0	0	1	1	2	2	2	3	3	3	3	4	3	6	4	2	3	2	1	0	45
Lane #3	0	0	0	0	0	1	2	5	3	4	3	3	4	4	3	2	3	3	2	2	1	1	1	1	48
TOTAL	0	0	0	0	0	1	3	6	5	6	5	6	7	7	6	6	6	9	6	4	4	3	2	1	93

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	118	104	91	77	81	149	160	Weekday (Mon-Fri) :	502	64%
# Days :	3.0	2.7	2.0	2.0	2.0	2.5	3.0	ADT :	45	
ADT :	39	39	46	39	41	60	53	Weekend (Sat-Sun) :	278	36%
Percent :	15%	13%	12%	10%	10%	19%	21%	ADT :	46	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	119	107	103	78	92	132	150	Weekday (Mon-Fri) :	512	66%
# Days :	3.0	2.7	2.0	2.0	2.0	2.5	3.0	ADT :	46	
ADT :	40	40	52	39	46	53	50	Weekend (Sat-Sun) :	269	34%
Percent :	15%	14%	13%	10%	12%	17%	19%	ADT :	45	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	237	211	194	155	173	281	310	Weekday (Mon-Fri) :	1014	65%
# Days :	3.0	2.7	2.0	2.0	2.0	2.5	3.0	ADT :	91	
ADT :	79	79	97	78	87	112	103	Weekend (Sat-Sun) :	547	35%
Percent :	15%	14%	12%	10%	11%	18%	20%	ADT :	91	

Basic Volume Summary: SNAKETRAI140815

Grand Total For Data From: 12:00 - 2014-08-15 To: 23:59 - 2014-09-01

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	30	62	52	36	41	50	33	42	52	77	65	29	22	21	15	34	12	45	34	11	14	16	6	18	817
Lane #3	46	92	54	32	62	50	37	40	54	75	41	6	23	21	19	32	11	54	52	14	16	42	34	42	949
TOTAL	76	154	106	68	103	100	70	82	106	152	106	35	45	42	34	66	23	99	86	25	30	58	40	60	1766

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	4%	8%	6%	4%	5%	6%	4%	5%	6%	9%	8%	4%	3%	3%	2%	4%	1%	6%	4%	1%	2%	2%	1%	2%
Lane #3	5%	10%	6%	3%	7%	5%	4%	4%	6%	8%	4%	1%	2%	2%	2%	3%	1%	6%	5%	1%	2%	4%	4%	4%
TOTAL	4%	9%	6%	4%	6%	6%	4%	5%	6%	9%	6%	2%	3%	2%	2%	4%	1%	6%	5%	1%	2%	3%	2%	3%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	2	4	3	2	2	3	2	2	3	5	4	2	1	1	1	2	1	3	2	1	1	1	0	1	49
Lane #3	3	5	3	2	4	3	2	2	3	4	2	0	1	1	1	2	1	3	3	1	1	2	2	2	53
TOTAL	5	9	6	4	6	6	4	4	6	9	6	2	2	2	2	4	2	6	5	2	2	3	2	3	102

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	182	127	92	105	84	115	112	Weekday (Mon-Fri) :	523	64%
# Days :	3.0	3.0	2.0	2.0	2.0	2.5	3.0	ADT :	45	
ADT :	61	42	46	53	42	46	37	Weekend (Sat-Sun) :	294	36%
Percent :	22%	16%	11%	13%	10%	14%	14%	ADT :	49	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	231	172	102	105	74	129	136	Weekday (Mon-Fri) :	582	61%
# Days :	3.0	3.0	2.0	2.0	2.0	2.5	3.0	ADT :	51	
ADT :	77	57	51	53	37	52	45	Weekend (Sat-Sun) :	367	39%
Percent :	24%	18%	11%	11%	8%	14%	14%	ADT :	61	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	413	299	194	210	158	244	248	Weekday (Mon-Fri) :	1105	63%
# Days :	3.0	3.0	2.0	2.0	2.0	2.5	3.0	ADT :	96	
ADT :	138	100	97	105	79	98	83	Weekend (Sat-Sun) :	661	37%
Percent :	23%	17%	11%	12%	9%	14%	14%	ADT :	110	

Basic Volume Summary: SPREADEAGLE RD

Grand Total For Data From: 09:00 - 2013-07-30 To: 06:59 - 2013-08-29

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lane #2	5	10	5	3	0	7	5	65	89	139	117	111	89	135	115	108	148	93	62	60	74	39	20	17	1516
TOTAL	5	10	5	3	0	7	5	65	89	139	117	111	89	135	115	108	148	93	62	60	74	39	20	17	1516

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane #2	0%	1%	0%	0%	0%	0%	0%	4%	6%	9%	8%	7%	6%	9%	8%	7%	10%	6%	4%	4%	5%	3%	1%	1%
TOTAL	0%	1%	0%	0%	0%	0%	0%	4%	6%	9%	8%	7%	6%	9%	8%	7%	10%	6%	4%	4%	5%	3%	1%	1%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lane #2	0	0	0	0	0	0	0	2	3	5	4	4	3	5	4	4	5	3	2	2	3	1	1	1	52
TOTAL	0	0	0	0	0	0	0	2	3	5	4	4	3	5	4	4	5	3	2	2	3	1	1	1	52

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	0	0	0	0	0	0	0	Weekday (Mon-Fri) :	0	0%
# Days :	4.0	4.0	4.0	4.0	3.9	4.0	4.0	ADT :	0	
ADT :	0	0	0	0	0	0	0	Weekend (Sat-Sun) :	0	0%
Percent :	0%	0%	0%	0%	0%	0%	0%	ADT :	0	

LANE #2

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	231	310	201	188	213	147	226	Weekday (Mon-Fri) :	1059	70%
# Days :	4.0	4.0	4.0	4.0	3.9	4.0	4.0	ADT :	53	
ADT :	58	78	50	47	54	37	57	Weekend (Sat-Sun) :	457	30%
Percent :	15%	20%	13%	12%	14%	10%	15%	ADT :	57	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	231	310	201	188	213	147	226	Weekday (Mon-Fri) :	1059	70%
# Days :	4.0	4.0	4.0	4.0	3.9	4.0	4.0	ADT :	53	
ADT :	58	78	50	47	54	37	57	Weekend (Sat-Sun) :	457	30%
Percent :	15%	20%	13%	12%	14%	10%	15%	ADT :	57	

Basic Volume Summary: SUMMERVIEW

Grand Total For Data From: 14:00 - 2013-07-12 To: 15:59 - 2013-07-29

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	15	7	7	2	4	10	55	144	130	131	101	96	100	128	155	119	93	106	101	84	77	67	51	16	1799
Lane #3	23	11	4	3	1	6	17	34	70	67	60	85	103	90	96	127	169	139	108	105	98	104	54	32	1606
TOTAL	38	18	11	5	5	16	72	178	200	198	161	181	203	218	251	246	262	245	209	189	175	171	105	48	3405

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	1%	0%	0%	0%	0%	1%	3%	8%	7%	7%	6%	5%	6%	7%	9%	7%	5%	6%	6%	5%	4%	4%	3%	1%
Lane #3	1%	1%	0%	0%	0%	0%	1%	2%	4%	4%	4%	5%	6%	6%	6%	8%	11%	9%	7%	7%	6%	6%	3%	2%
TOTAL	1%	1%	0%	0%	0%	0%	2%	5%	6%	6%	5%	5%	6%	6%	7%	7%	8%	7%	6%	6%	5%	5%	3%	1%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	1	0	0	0	0	1	3	8	8	8	6	6	6	8	9	7	5	6	6	5	5	4	3	1	106
Lane #3	1	1	0	0	0	0	1	2	4	4	4	5	6	5	5	7	10	8	6	6	6	6	3	2	92
TOTAL	2	1	0	0	0	1	4	10	12	12	10	11	12	13	14	14	15	14	12	11	11	10	6	3	198

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	333	281	256	186	116	313	314	Weekday (Mon-Fri) :	1152	64%
# Days :	3.0	2.7	2.0	2.0	2.0	2.4	3.0	ADT :	104	
ADT :	111	105	128	93	58	130	105	Weekend (Sat-Sun) :	647	36%
Percent :	19%	16%	14%	10%	6%	17%	17%	ADT :	108	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	275	253	231	149	111	294	293	Weekday (Mon-Fri) :	1038	65%
# Days :	3.0	2.7	2.0	2.0	2.0	2.4	3.0	ADT :	94	
ADT :	92	95	116	75	56	122	98	Weekend (Sat-Sun) :	568	35%
Percent :	17%	16%	14%	9%	7%	18%	18%	ADT :	95	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	608	534	487	335	227	607	607	Weekday (Mon-Fri) :	2190	64%
# Days :	3.0	2.7	2.0	2.0	2.0	2.4	3.0	ADT :	198	
ADT :	203	200	244	168	114	251	202	Weekend (Sat-Sun) :	1215	36%
Percent :	18%	16%	14%	10%	7%	18%	18%	ADT :	203	

Basic Volume Summary: SWAMPR 140611

Grand Total For Data From: 11:00 - 2014-11-06 To: 13:59 - 2014-11-27

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	9	2	4	0	0	4	30	154	99	78	71	60	82	95	81	51	65	56	68	47	47	43	14	10	1170
Lane #3	18	9	5	1	0	1	5	16	65	51	54	49	63	84	74	65	135	77	75	65	65	55	62	58	1152
TOTAL	27	11	9	1	0	5	35	170	164	129	125	109	145	179	155	116	200	133	143	112	112	98	76	68	2322

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	1%	0%	0%	0%	0%	0%	3%	13%	8%	7%	6%	5%	7%	8%	7%	4%	6%	5%	6%	4%	4%	4%	1%	1%
Lane #3	2%	1%	0%	0%	0%	0%	0%	1%	6%	4%	5%	4%	5%	7%	6%	6%	12%	7%	7%	6%	6%	5%	5%	5%
TOTAL	1%	0%	0%	0%	0%	0%	2%	7%	7%	6%	5%	5%	6%	8%	7%	5%	9%	6%	6%	5%	5%	4%	3%	3%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	0	0	0	0	0	0	1	7	5	4	3	3	4	4	4	2	3	3	3	2	2	2	1	0	53
Lane #3	1	0	0	0	0	0	0	1	3	2	3	2	3	4	4	3	6	4	4	3	3	3	3	3	55
TOTAL	1	0	0	0	0	0	1	8	8	6	6	5	7	8	8	5	9	7	7	5	5	5	4	3	108

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	141	123	181	155	186	198	186	Weekday (Mon-Fri) :	843	72%
# Days :	3.0	3.0	3.0	3.0	3.1	3.0	3.0	ADT :	56	
ADT :	47	41	60	52	60	66	62	Weekend (Sat-Sun) :	327	28%
Percent :	12%	11%	15%	13%	16%	17%	16%	ADT :	55	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	127	131	176	150	176	213	179	Weekday (Mon-Fri) :	846	73%
# Days :	3.0	3.0	3.0	3.0	3.1	3.0	3.0	ADT :	56	
ADT :	42	44	59	50	56	71	60	Weekend (Sat-Sun) :	306	27%
Percent :	11%	11%	15%	13%	15%	18%	16%	ADT :	51	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	268	254	357	305	362	411	365	Weekday (Mon-Fri) :	1689	73%
# Days :	3.0	3.0	3.0	3.0	3.1	3.0	3.0	ADT :	112	
ADT :	89	85	119	102	116	137	122	Weekend (Sat-Sun) :	633	27%
Percent :	12%	11%	15%	13%	16%	18%	16%	ADT :	106	

Basic Volume Summary: TOWNSHIP140815

Grand Total For Data From: 11:00 - 2014-08-15 To: 08:59 - 2014-09-05

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	0	0	0	0	0	2	12	5	20	39	41	32	35	37	19	14	25	31	24	25	14	8	2	0	385
Lane #3	4	1	1	0	0	0	2	7	16	39	21	21	23	34	28	30	37	21	28	15	25	24	10	1	388
TOTAL	4	1	1	0	0	2	14	12	36	78	62	53	58	71	47	44	62	52	52	40	39	32	12	1	773

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	0%	0%	0%	0%	0%	1%	3%	1%	5%	10%	11%	8%	9%	10%	5%	4%	6%	8%	6%	6%	4%	2%	1%	0%
Lane #3	1%	0%	0%	0%	0%	0%	1%	2%	4%	10%	5%	5%	6%	9%	7%	8%	10%	5%	7%	4%	6%	6%	3%	0%
TOTAL	1%	0%	0%	0%	0%	0%	2%	2%	5%	10%	8%	7%	8%	9%	6%	6%	8%	7%	7%	5%	5%	4%	2%	0%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	0	0	0	0	0	0	1	0	1	2	2	2	2	2	1	1	1	1	1	1	1	0	0	0	19
Lane #3	0	0	0	0	0	0	0	0	1	2	1	1	1	2	1	1	2	1	1	1	1	1	0	0	17
TOTAL	0	0	0	0	0	0	1	0	2	4	3	3	3	4	2	2	3	2	2	2	2	1	0	0	36

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	54	75	50	57	45	45	59	Weekday (Mon-Fri) :	272	71%
# Days :	3.0	3.0	3.0	3.0	3.0	2.9	3.0	ADT :	18	
ADT :	18	25	17	19	15	15	20	Weekend (Sat-Sun) :	113	29%
Percent :	14%	19%	13%	15%	12%	12%	15%	ADT :	19	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	52	73	46	56	49	56	56	Weekday (Mon-Fri) :	280	72%
# Days :	3.0	3.0	3.0	3.0	3.0	2.9	3.0	ADT :	19	
ADT :	17	24	15	19	16	19	19	Weekend (Sat-Sun) :	108	28%
Percent :	13%	19%	12%	14%	13%	14%	14%	ADT :	18	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	106	148	96	113	94	101	115	Weekday (Mon-Fri) :	552	71%
# Days :	3.0	3.0	3.0	3.0	3.0	2.9	3.0	ADT :	37	
ADT :	35	49	32	38	31	35	38	Weekend (Sat-Sun) :	221	29%
Percent :	14%	19%	12%	15%	12%	13%	15%	ADT :	37	

Basic Volume Summary: TREMBLAY

Grand Total For Data From: 02:00 - 2013-07-12 To: 01:59 - 2013-07-27

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	62	45	56	48	55	65	58	32	69	29	22	25	49	49	28	40	21	25	64	26	39	63	96	86	1152
Lane #3	62	42	61	48	48	67	60	28	67	25	14	24	47	46	22	43	22	30	58	40	45	63	88	74	1124
TOTAL	124	87	117	96	103	132	118	60	136	54	36	49	96	95	50	83	43	55	122	66	84	126	184	160	2276

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	5%	4%	5%	4%	5%	6%	5%	3%	6%	3%	2%	2%	4%	4%	2%	3%	2%	2%	6%	2%	3%	5%	8%	7%
Lane #3	6%	4%	5%	4%	4%	6%	5%	2%	6%	2%	1%	2%	4%	4%	2%	4%	2%	3%	5%	4%	4%	6%	8%	7%
TOTAL	5%	4%	5%	4%	5%	6%	5%	3%	6%	2%	2%	2%	4%	4%	2%	4%	2%	2%	5%	3%	4%	6%	8%	7%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	4	3	4	3	4	4	4	2	5	2	1	2	3	3	2	3	1	2	4	2	3	4	6	6	77
Lane #3	4	3	4	3	3	4	4	2	4	2	1	2	3	3	1	3	1	2	4	3	3	4	6	5	74
TOTAL	8	6	8	6	7	8	8	4	9	4	2	4	6	6	3	6	2	4	8	5	6	8	12	11	151

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	166	170	149	178	156	188	145	Weekday (Mon-Fri) :	841	73%
# Days :	2.0	2.0	2.0	2.0	2.0	2.9	2.1	ADT :	77	
ADT :	83	85	75	89	78	64	70	Weekend (Sat-Sun) :	311	27%
Percent :	14%	15%	13%	15%	14%	16%	13%	ADT :	76	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	179	157	155	158	156	171	148	Weekday (Mon-Fri) :	797	71%
# Days :	2.0	2.0	2.0	2.0	2.0	2.9	2.1	ADT :	73	
ADT :	90	79	78	79	78	59	71	Weekend (Sat-Sun) :	327	29%
Percent :	16%	14%	14%	14%	14%	15%	13%	ADT :	80	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	345	327	304	336	312	359	293	Weekday (Mon-Fri) :	1638	72%
# Days :	2.0	2.0	2.0	2.0	2.0	2.9	2.1	ADT :	150	
ADT :	173	164	152	168	156	123	141	Weekend (Sat-Sun) :	638	28%
Percent :	15%	14%	13%	15%	14%	16%	13%	ADT :	156	

Basic Volume Summary: TREMBLAY140815

Grand Total For Data From: 02:00 - 2014-08-15 To: 20:59 - 2014-09-04

Total Count	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	79	118	117	117	123	117	108	88	75	62	41	21	7	3	3	10	6	1	10	44	95	84	103	90	1522
Lane #3	101	91	75	107	106	137	102	88	98	86	52	15	16	6	7	8	1	14	29	64	40	68	58	88	1457
TOTAL	180	209	192	224	229	254	210	176	173	148	93	36	23	9	10	18	7	15	39	108	135	152	161	178	2979

Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Lane #1	5%	8%	8%	8%	8%	8%	7%	6%	5%	4%	3%	1%	0%	0%	0%	1%	0%	0%	1%	3%	6%	6%	7%	6%
Lane #3	7%	6%	5%	7%	7%	9%	7%	6%	7%	6%	4%	1%	1%	0%	0%	1%	0%	1%	2%	4%	3%	5%	4%	6%
TOTAL	6%	7%	6%	8%	8%	9%	7%	6%	6%	5%	3%	1%	1%	0%	0%	1%	0%	1%	1%	4%	5%	5%	5%	6%

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	4	6	6	6	6	6	5	4	4	3	2	1	0	0	0	0	0	0	0	2	5	4	5	5	74
Lane #3	5	5	4	5	5	7	5	4	5	4	2	1	1	0	0	0	0	1	1	3	2	3	3	4	70
TOTAL	9	11	10	11	11	13	10	8	9	7	4	2	1	0	0	0	0	1	1	5	7	7	8	9	144

LANE #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	227	285	268	175	58	281	228	Weekday (Mon-Fri) :	1067	70%
# Days :	3.0	3.0	3.0	3.0	2.9	2.9	3.0	ADT :	72	
ADT :	76	95	89	58	20	96	76	Weekend (Sat-Sun) :	455	30%
Percent :	15%	19%	18%	11%	4%	18%	15%	ADT :	76	

LANE #3

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	215	237	274	247	53	205	226	Weekday (Mon-Fri) :	1016	70%
# Days :	3.0	3.0	3.0	3.0	2.9	2.9	3.0	ADT :	69	
ADT :	72	79	91	82	18	70	75	Weekend (Sat-Sun) :	441	30%
Percent :	15%	16%	19%	17%	4%	14%	16%	ADT :	74	

ALL LANES

	Sun	Mon	Tue	Wed	Thu	Fri	Sat		Total	Percent
DW Totals :	442	522	542	422	111	486	454	Weekday (Mon-Fri) :	2083	70%
# Days :	3.0	3.0	3.0	3.0	2.9	2.9	3.0	ADT :	141	
ADT :	147	174	181	141	39	167	151	Weekend (Sat-Sun) :	896	30%
Percent :	15%	18%	18%	14%	4%	16%	15%	ADT :	149	

E2a

MD OF PINCHER CREEK

September 3, 2014

TO: Reeve and Council

FROM: Roland Milligan, Director of Development and Community Services

SUBJECT: **Oldman Watershed Council – Headwaters Action Plan**

1. Origin

- In a letter dated May 14, 2014, the Oldman Watershed Council made the following request:

  To support the spirit and outcomes of the Headwaters Action Plan 2013-14, the Oldman Watershed Council requests endorsement of the plan by the Municipal District of Pincher Creek.

- The Oldman Watershed Council then presented the Headwaters Action Plan (the Plan) portion of the Oldman Integrated Watershed Management Plan to the MD at the June 24, 2014 Policy and Plans meeting.

2. Background/Comment

- Prior to the endorsement of the plan, it was forwarded to the MD's Planner, Gavin Scott, for review and comment.
- Enclosed is a memo dated August 29, 2014 from our Planner.

3. Recommendation

- That after review of the MD planner's comments, Council endorse the Headwaters Action Plan 2013-2014.

Respectfully Submitted,

Roland Milligan

Enclosure(s): 1) Memorandum from Gavin Scott, Planner
2) Headwaters Action Plan

Reviewed by: Wendy Kay, CAO W. Kay September 4, 2014

Presented to Council September 9, 2014

OLDMAN RIVER REGIONAL SERVICES COMMISSION

3105 - 16th Avenue North
Lethbridge, Alberta T1H 5E8

Phone:(403) 329-1344
Toll-Free:1-877-329-1387
Fax:(403) 327-6847
E-mail:admin@orrsc.com
Website:www.orrsc.com

Memorandum

To: MD of Pincher Creek

From: Gavin Scott, Planner

Date: August 29, 2014

Re: Oldman Watershed Council – Headwaters Action Plan

With the release of the Head Waters Action Plan 2013-2014, the Oldman Watershed Council (OWC) has taken another step toward completing the 8 priority planning goals under there Integrated Watershed Management Plan. The non-profit organization works under the Alberta Government's umbrella document "Water for life" as a government partner. Partnerships help to effectively tackle the challenges of watershed management in Alberta, providing proactive approaches that help guide stewardship and prevent crisis situations. Government partners also provide an education component that helps to build awareness about positive behaviors, best practices, and how the environment is an integral part of everyone's lives.

The OWCs mandate focuses on scientific data gathering and analysis, education, facilitation among diverse groups, and liaising with decision makers such as municipal councils. In their own words, "*The Integrated Watershed Management Plan is a process focused on continual improvement of watershed health, learning from the lessons and outcomes of each initiative, and integrating our understanding and actions across all 8 priority goals for the Oldman Watershed.*"

Within the Municipal District of Pincher Creek, the Headwaters Action Plan document is physically focused on a 30-mile reach from essentially the British Columbia border eastward into the municipality. This area is predominately crown land with pockets of private land and leased crown land. From a land use management perspective, this places much of the control for headwaters action with the provincial government and its ministries.

The strongest policy direction from the document in reference to municipal governance's role is stated as follows:

> *"Governance/Enforcement: Land use plans, management and strategies need to link with and be built upon grassroots needs, values, actions. Line of sight required between LUF and Water for Life, through regional and municipal planning, to grassroots stewardship. Regulatory enforcement is mandatory in coordination with government. It is important to define conservation areas and stewardship opportunities under SSRP and ALSA, and manage/enforce accordingly. Enforcement is a clear government role and expectation e.g. NRCB, AESRD."*

Here, we see a clear link to provincial legislation as a key to implementation of policy regarding watersheds. The release of the South Saskatchewan Regional Plan (SSRP) and required compliance will force all municipal planning documents to be reviewed and aligned with provincial planning policies.

Therefore, current planning objectives and policy within the MD of Pincher Creek Municipal Development Plan (2002), Land Use Bylaw (2008), and all other statutory plans will be reviewed over the next 5 years. During which time, the Oldman Integrated Watershed Management Plan (and its associated parts including the Headwaters Action Plan) will be utilized as discussion documents.

OLDMAN INTEGRATED WATERSHED MANAGEMENT PLAN

HEADWATERS ACTION PLAN 2013-14

OWC OLDMAN WATERSHED COUNCIL

watershed management – watershed health

ACKNOWLEDGEMENTS

INTEGRATED WATERSHED MANAGEMENT PLANNING TEAM

Karen Armstrong	City of Lethbridge
Richard Burke	OWC Board Member; Trout Unlimited Canada, Oldman River Chapter
Linda Cerney	Alberta Environment and Sustainable Resource Development
Cheryl Dash	Alberta Alberta Environment and Sustainable Resource Development
Bill Dolan	OWC Board Member; Alberta Tourism, Parks and Recreation
Ian Dyson	OWC Board Member; Alberta Environment and Sustainable Resource Development
Shannon Frank	Oldman Watershed Council, Executive Director
Cheryl Fujikawa	OWC Board Member; Southern Alberta Group for the Environment
Rosemary Jones	Alberta Tourism, Parks and Recreation
Erin McIlwraith	City of Lethbridge
Shirley Pickering	OWC Board Member; Member at Large
Connie Simmons	Oldman Watershed Council, Planning Manager

INDICATORS TEAM

Axel Anderson	Foothills Research Institute
Tony Bruder	OWC Board Member, Drywood Yarrow Conservation Partnership
Richard Burke	OWC Board Member; Trout Unlimited Canada, Oldman River Chapter
Matthew Coombs	Alberta Environment and Sustainable Resource Development, Fish and Wildlife
John Diiwu	Alberta Environment and Sustainable Resource Development
Bill Dolan	OWC Board Member; Alberta Tourism, Parks and Recreation
Ian Dyson	Alberta Environment and Sustainable Resource Development
Sarah Elmeligi	Canadian Parks and Wilderness Society
Shannon Frank	Oldman Watershed Council, Executive Director
Cheryl Fujikawa	OWC Board Member; Southern Alberta Group for the Environment
Brian Hills	Alberta Environment and Sustainable Resource Development
Andrew Hurly	OWC Board Member; University of Lethbridge
Shirley Pickering	OWC Board Member, Member at Large
Connie Simmons	Oldman Watershed Council, Planning Manager

CONSULTANTS

Fiera Biological Consulting Ltd.	Oldman Headwaters Indicators Project
ALCES Landscape and Landuse Ltd.	Oldman Watershed Historical Trends Mapping Project

Message from the OWC Executive Director:
I am very excited that together we have set targets and identified actions to achieve them. Now we can focus on putting those actions on the ground to really make a difference for the health of the headwaters. It has been inspiring to see the passion people have for the mountains! Water connects us and we owe it to ourselves and to future generations to protect it.
A huge thank you to Connie Simmons, OWC Planning Manager, and the volunteers on the IWMP Team for all your enthusiasm, wisdom and hard work!

Shannon Frank, OWC Executive Director

Message from the Chair:
The Headwaters Action Plan is a big accomplishment for the OWC and for all the local residents, organizations and governments who were a part of its creation. Having specific targets for what the community wants to achieve in the headwaters can now guide the practices of all users. Working collaboratively towards these targets will be challenging at times but nowhere is it more important than in the headwaters, the source of 90% of our water. I'd like to thank the Integrated Watershed Management Plan Team for all the time and energy they have put into facilitating this plan and especially to Connie Simmons, OWC's Planning Manager, for leading the process.

Andy Hurly, OWC Vice-Chair and Acting Chair

Photo: Anne Stevick; inset: Craig Ellis

TABLE OF CONTENTS

LIST OF FIGURES

"...working together is beneficial for all of us."
(Partnership Advisory Network participant)

Photo: Jollin Charest; inset: Brian Coffey

EXECUTIVE SUMMARY

The Oldman headwaters are the source of 90% of the water in the Oldman River. The headwaters area lies along the Rocky Mountains and foothills of southwest Alberta and into Montana, from Chain Lakes in the north to Glacier National Park in the south. The area is an iconic landscape, rich in beauty, wildlife, history and opportunity - and as such, attracts a myriad of uses, from communities and rural residential development to recreation, tourism, forestry, mining, agriculture and grazing.

In a region where water is precious, the health of the headwaters region is very important and requires focused commitment and effort to address increasing pressures and risk to key headwaters values and functions. These include surface water quality and quantity, biodiversity, and the integrity of the headwaters terrestrial and aquatic landscape.

The Oldman Watershed Council (OWC) is committed to working with the greater watershed community to ensure that we maintain and protect the headwaters and source waters in the Oldman River watershed. This is one of eight important goals of the 'Oldman Integrated Watershed Management Plan' - a key task under Alberta's Water For Life Strategy for Sustainability. www.oldmanbasin.org

The **Headwaters Action Plan (HAP)** process was initiated in 2012 and has moved through several steps to develop a foundation for an iterative process of adaptive management for headwaters health over time. Each element of the process was essential and has been shared and integrated into the process of developing the plan:

- scientific assessment of headwaters health
- hearing what the community has to say about headwaters health and stewardship needs
- engagement of key stakeholders who have capacity and commitment to work for headwaters health
- a review of other initiatives related to the headwaters to include their work into the process of the Headwaters Action Plan

The Headwaters Action Plan is starting with three important indicators of headwaters health, and has achieved agreement from participating stakeholders on targets (desired outcomes), recommendations to decision-makers, and stewardship action needed to begin to address issues and concerns related to each indicator. The first three indicators of headwaters health addressed are:

- presence and abundance of native fish (indicator a measure of biodiversity and watershed integrity; linked to water quality/quantity in some situations)
- density of linear features (linear disturbance footprint across all sub-watersheds in the headwaters area)
- aquatic Invasive Species (AIS, a major threat to headwaters health that we need to keep out of Alberta)

A Headwaters Action Plan Steering Committee, comprised of representatives from key sectors who participated in the development of the plan, will work on an implementation strategy of prioritized actions in 2014-15, and will monitor, evaluate and report on progress annually. The Headwaters Action Plan 2013-14 is the first iteration of a plan that is committed to implementing actions on the ground to begin the task of addressing key risks to headwaters health, and depends on the collaborative strength and commitment of key stakeholders, the public and the OWC to make it happen.

We are starting here to work for headwaters health - together we make a difference.

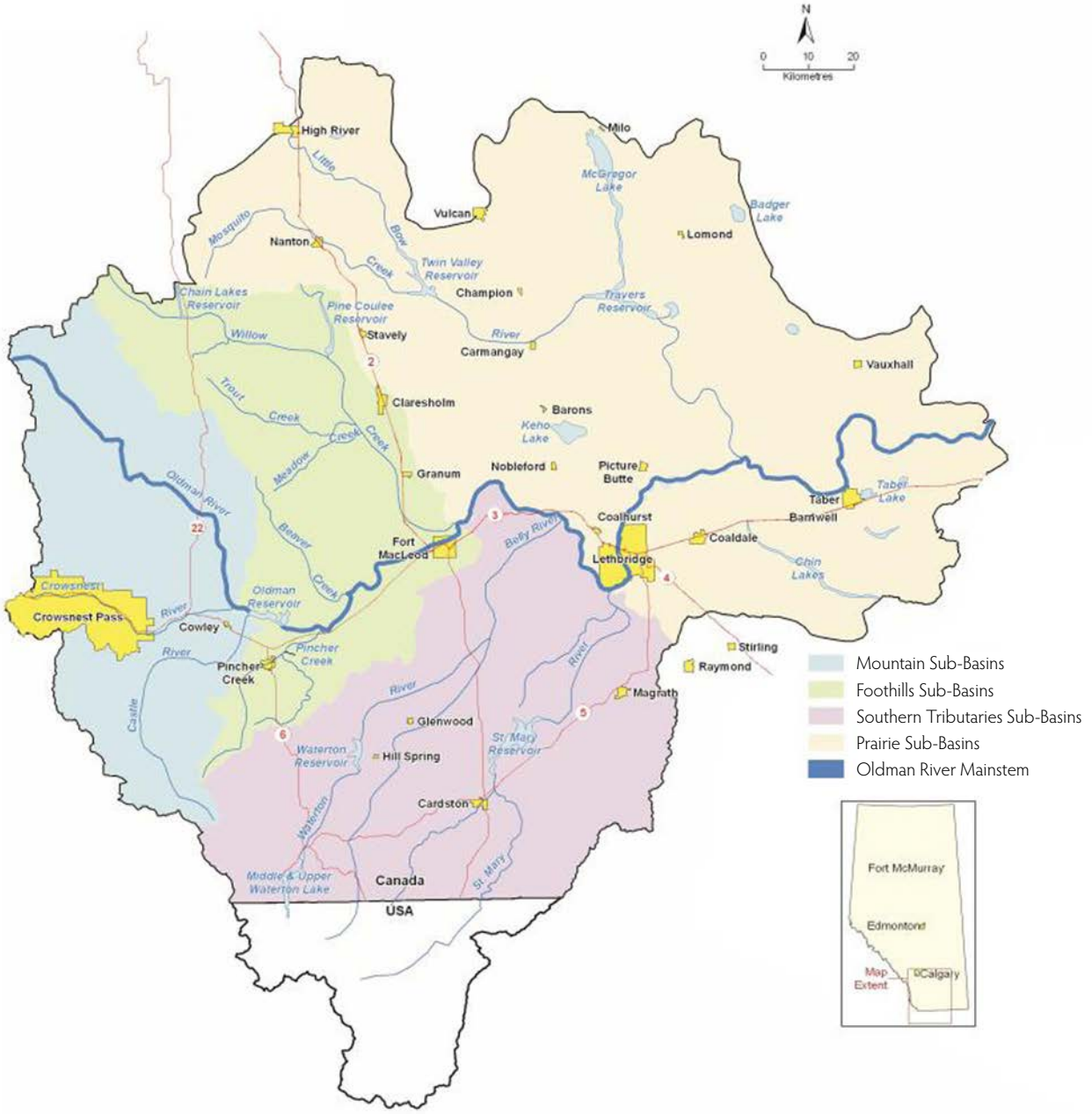


FIGURE 1: The Oldman Watershed

The Oldman watershed is the area of land that drains, through small to large streams and rivers into the Oldman River.

The Oldman River watershed extends from the Canadian Rocky Mountains in the west to Grassy Lake in the east. There the Oldman River meets the Bow River and joins the South Saskatchewan River, which flows across Saskatchewan and into Lake Winnipeg.

The Oldman River is 362km long, with a watershed area of 26,700 km^2, and is home to approximately 210,000 people.

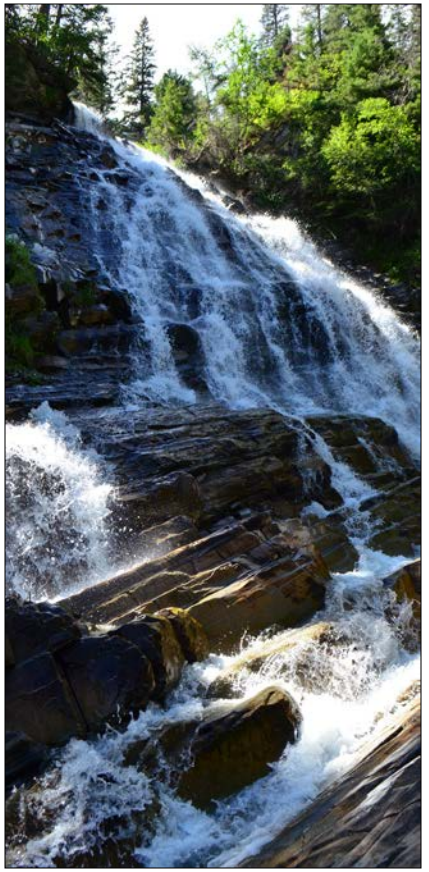


Photo: Connie Simmons

OLDMAN WATERSHED COUNCIL

What is the Oldman Watershed Council?

The Oldman Watershed Council (OWC) is a not-for-profit organization working in partnership with communities and residents to improve the Oldman River watershed through sustainable water management and land use practices. The OWC is one of eleven designated Watershed Planning and Advisory Councils (WPACs) who work to achieve the three principles of Government of Alberta's Water for Life Strategy for Sustainability[1]:

- safe, secure drinking water,
- healthy aquatic ecosystem, and
- reliable quality water supply for a sustainable economy.

As a designated WPAC, the OWC is tasked with completing scientific assessments of the condition of the watershed, and learning from local and traditional knowledge about watershed health concerns and issues. From this foundational information, the OWC informs and works with the greater watershed community (individuals, groups, stakeholders, and First Nations) to develop an Integrated Watershed Management Plan (IWMP) that results in measureable on-the-ground stewardship actions to maintain, protect and continually improve watershed health.

[1] Water For Life - Alberta's Strategy for Sustainability was renewed in 2003. http://environment.gov.ab.ca/info/library/8035.pdf

Photo: Oldman Watershed Council

What do we do?

The OWC supports the responsible management of the watershed, while working with the challenges of a growing population and a vibrant economy by partnering with stakeholders, planning for the future and adapting to the needs of local communities.

The OWC is active in the greater watershed community

As an action-oriented organization with dedicated volunteers, a wealth of expertise and strong partnerships, the OWC continues to promote environmental/watershed stewardship practices, work with people from all walks of life, improve and share watershed knowledge, build stakeholder partnerships, and engage watershed residents on issues related to watershed management.

How do we do this?

The OWC benefits from the diverse knowledge and abilities of volunteers from the community – our Watershed Partners. Project Teams develop and implement a variety of projects to improve watershed health:

- lead the development of the Integrated Watershed Management Plan that sets specific environmental targets for watershed health and outlines actions to achieve them
- determine the scientific metrics of assessment needed to provide a 'report card' of health of the watershed
- support agricultural producers and encourage the adoption of beneficial management practices through programs like the Holding the Reins Landowner Summit and the Watershed Legacy Program
- work with municipal governments to provide input on policy/plans and encourage environmental action through programs like the Prairie Urban Garden project
- complete research projects, encourage collaboration within the research community and raise awareness of research taking place in the Oldman Watershed through science forums and tours and a Research and Monitoring Directory.

OLDMAN INTEGRATED WATERSHED MANAGEMENT PLAN

A process to achieve our community vision for the Oldman watershed

An Integrated Watershed Management Plan (IWMP) process is intended to address priority land and water resource issues within a specific watershed. This process enables residents, stakeholders and all levels of government to make informed decisions and take responsible action.

An IWMP is a collaborative effort between sectors, stakeholders, First Nations and the public that engages people so that it becomes the community's plan. It is recognized that an IWMP is a shared responsibility for maintaining and improving watershed health.

An IWMP is an iterative process – it builds over time on past accomplishments, improvements in knowledge and understanding, and makes adjustments after evaluating and reporting on actions taken.

The IWMP process works to gather the best available science, and local and traditional knowledge about the condition of the watershed in relation to the goals of the IWMP. This information is shared with the broader community to help identify actions that are needed to meet the goals.

With a good understanding of the current ecological condition of the watershed, and input from local communities, the IWMP process engages community members and stakeholders to determine environmental targets for watershed health, and ways to achieve the targets through creating, implementing and evaluating Action Plans through a cycle of adaptive management, and through creating recommendations to governments to develop policy to help achieve targets.

The IWMP process focuses on the ecological needs of improving watershed integrity, while keeping in mind the social, cultural and economic needs of communities. Recognizing that a strong, resilient economy depends on a healthy environment, working together for watershed integrity is the foundation for a sustainable future.

IWMP Foundations
Important phases along the way

The OWC IWMP process is a long-term commitment to the watershed and the OWC is in it for the duration. Each phase in the process will build from and integrate existing research and process outcomes, while having the ability to adapt to changing priorities and issues in the watershed.

The key to success will be the identification and affirmation of clear goals or outcomes to be achieved in the watershed. In order to achieve these outcomes, the OWC has completed several important milestones in the IWMP process that provide important information on the risks and priorities for planning, action and ongoing evaluation and adjustments that are part of an IWMP process.[2]

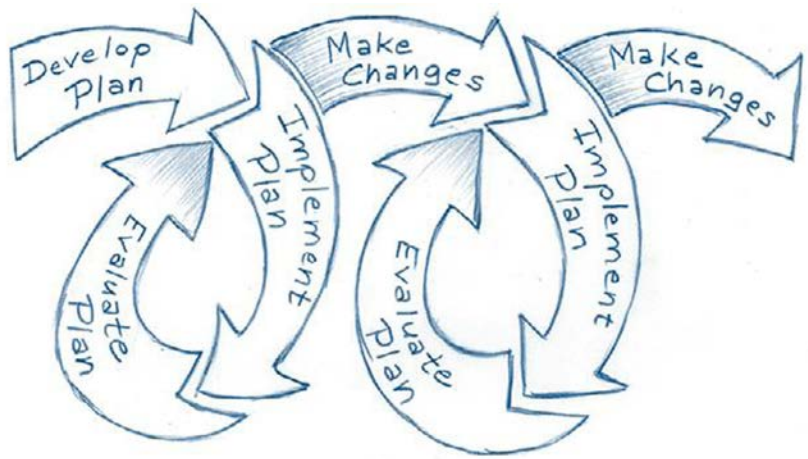
1. Oldman River State of the Watershed Report (2010) is the first assessment of the condition of the Oldman watershed. The report provides solid foundation for understanding the health of the watershed, but also points to areas that need further assessment at smaller sub-watershed scales. The Oldman River State of the Watershed Report is also a key deliverable under Alberta's Water for Life Strategy, and is required of the Oldman Watershed Council as a designated Watershed Planning and Advisory Council in Alberta.

2. In 2009-10, extensive community input and direction was gathered to create a planning vision for the Oldman Watershed. The process is outlined in 'Oldman Watershed Planning Vision: A Process Summary' (2010).

3. In 2011, the OWC brought together experts in various science disciplines and local people who had actively participated in the visioning and priority and risk assessment process to determine the priorities for the IWMP process in the Oldman watershed. The outcomes of this work are documented in the 'Oldman Watershed Planning Priorities: Process Summary and Recommendations' which outlines 8 priority goals for the Oldman IWMP:

[2] See all documents of the IWMP process at www.oldmanbasin.org

Photo: Ian Dyson



Adaptive Watershed Management (US EPA 2005)

The Oldman Integrated Watershed Management Plan: Eight Priority Planning Goals

Goal 1 Improve the understanding and strengthen the commitment of residents to the health of the Oldman watershed.

Goal 2 Optimize the availability of water for the natural ecosystem while supporting the social and economic needs of the community.

Goal 3 Manage and protect the integrity of headwaters and source waters.

Goal 4 Identify and prioritize thresholds to manage threats and impacts on terrestrial and aquatic habitat.

Goal 5 Understand groundwater and how it interacts with surface water.

Goal 6 Identify water quality outcomes and assess factors impacting them for adaptive watershed management.

Goal 7 Prevent and control invasive species.

Goal 8 Understand the status and implications of emerging contaminants.

The eight IWMP goals are prioritized by the OWC and the watershed community to develop Action Plans. Although the goals are broad and general, they provide a foundation for integration of issues that benefit the watershed as a whole.

Action Plans: Moving to action for watershed health

Action Plans are critical elements of the IWMP process; they engage the greater community to address the 8 goals of the IWMP process by:

1. setting targets (desired outcomes) for watershed integrity based on the best available science, local and traditional knowledge;
2. developing a plan of collaborative stewardship action;
3. making recommendations to decision-makers for policy development that help achieve defined targets.

Implementation of the action plans is a collective endeavor by the OWC, key stakeholders, the Government of Alberta and the public. Each action plan of the IWMP will have an implementation strategy that engages and encourages key stakeholders and the public to work towards maintaining and protecting watershed health.

Goal 1: Action Plan

The OWC completed the Action Plan for Goal 1 - Improve the understanding and strengthen the commitment of residents to the health of the Oldman watershed in 2012.[3] While there is natural linkage and interconnection between the eight planning goals, Goal 1 - Action Plan supports, connects, communicates and emphasizes the OWC's direction in understanding and improving the watershed throughout the IWMP process. As the other seven action plans are developed, education and communication activities will be identified to help improve understanding and commitment to the health of the watershed.

[3] See the OWC-IWMP Goal 1 Action Plan at: www.oldmanbasin.org/index.php/download_file/view/691/89/

The Integrated Watershed Management Plan is a process focused on continual improvement of watershed health, learning from the lessons and outcomes of each initiative, and integrating our understanding and actions across all 8 priority goals for the Oldman Watershed.

Photo: Rochelle Coffey

OLDMAN HEADWATERS ACTION PLAN 2013-14

In 2012-13 the OWC began work on the second action plan of the IWMP process, addressing IWMP planning Goal 3: Manage and protect the integrity of headwaters and source waters. The decision to address this goal was fourfold:

1. The headwaters region is a priority because it is the main source of water for the greater Oldman watershed. The headwaters area is approximately 30 kilometres wide, encompasses 24% of the total area of the Oldman watershed, and accounts for 90% of the flow at the mouth (end) of the Oldman River.
2. The Headwaters area is a growing 'hotspot' of land-use concerns and cumulative effects on watershed integrity.
3. The Headwaters is in need of an informed watershed constituency willing to implement stewardship action to meet the greater community's defined targets for headwaters health, and provides recommendations for policy development to maintain and protect source waters and headwaters in the Oldman watershed.
4. The OWC recognized the importance of providing strong, credible science, community and stakeholder input to support the maintenance and protection of Oldman headwaters and sources water to the South Saskatchewan Regional Plan (SSRP).[4]

The 3 key objectives of Goal 3 provide guidance for action plan:

1. Identify and understand the hydrologically significant areas in the headwaters.
2. Identify, mitigate and prevent threats to headwaters and source waters.
3. Define the kinds and intensity of land use activities as they relate to source water and headwater significant areas.

The aim of the Headwaters Action Plan is to begin a process of collaborative stewardship work that will address key issues to headwaters health - over time, and within the capacity of participating stakeholders, First Nations and the public.

[4] South Saskatchewan Regional Plan - Alberta Land-Use Framework: https://landuse.alberta.ca/REGIONALPLANS/SOUTHSASKATCHEWANREGION/Pages/default.aspx

Where are the Oldman Headwaters?

The Headwaters of the Oldman River watershed are found in the western portion of the Oldman Watershed, along the eastern slopes of the Rocky Mountains. The primary rivers include the Crowsnest, Castle, Upper Oldman and the Alberta portions of the St. Mary River, Belly River, Waterton River and northwest reaches of Willow Creek.

The Headwaters planning area includes the mountains that receive the highest levels of precipitation and contribute the majority of the flow to rivers in the Oldman watershed. The headwaters of these streams rise in the high peaks of the continental divide. Dams are absent in this area, so these streams have near natural flows. The western boundary of the planning area is the B.C./Alberta border; the northern boundary extends from the continental divide to the Chain Lakes Reservoir; the eastern boundary is Highway 22 to Highway 3, then east on Highway 3 to Pincher Creek, then south on Highway 6 to the Canada/U.S.A border; the southern boundary is the Canada/U.S.A. border.

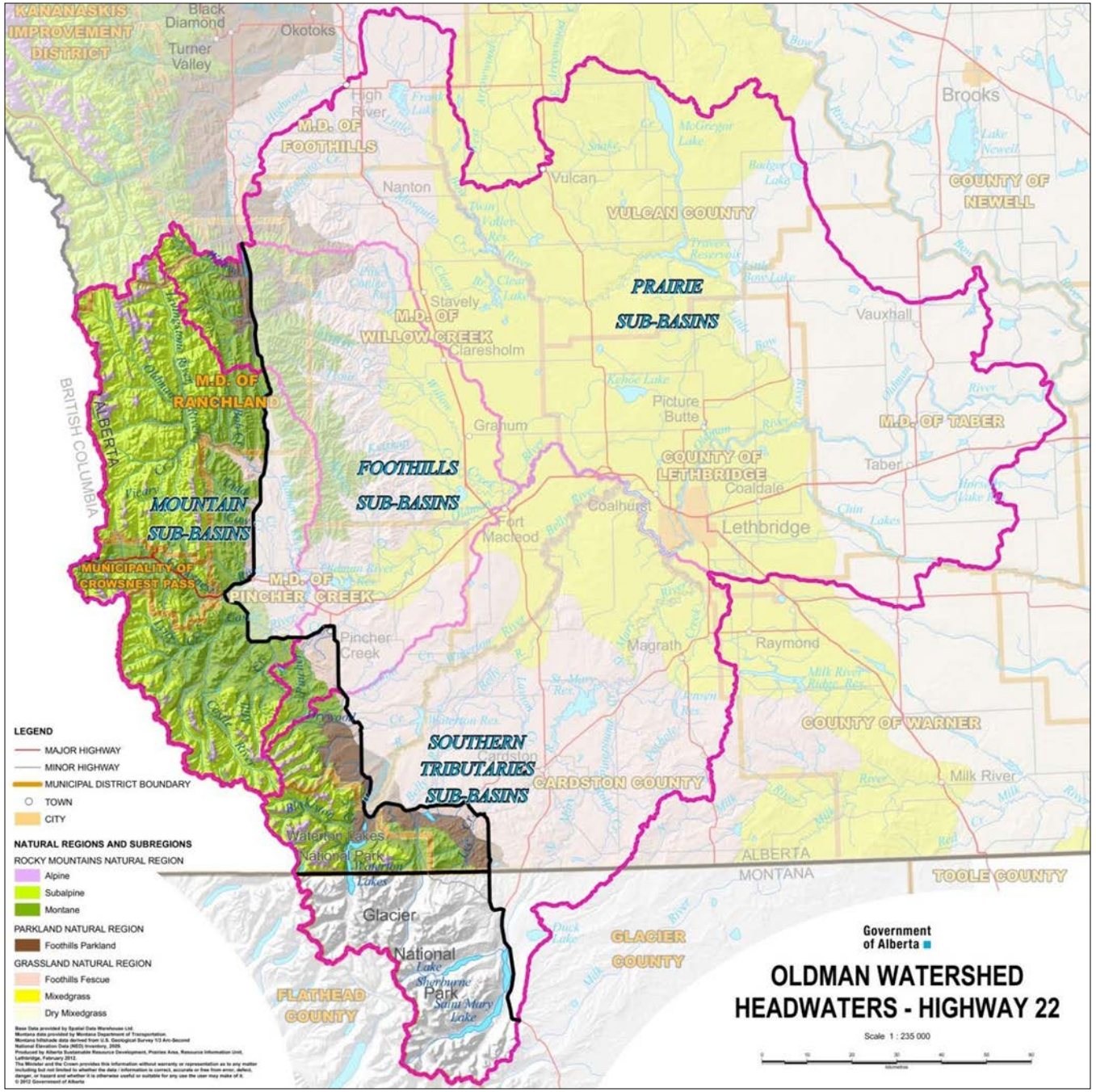
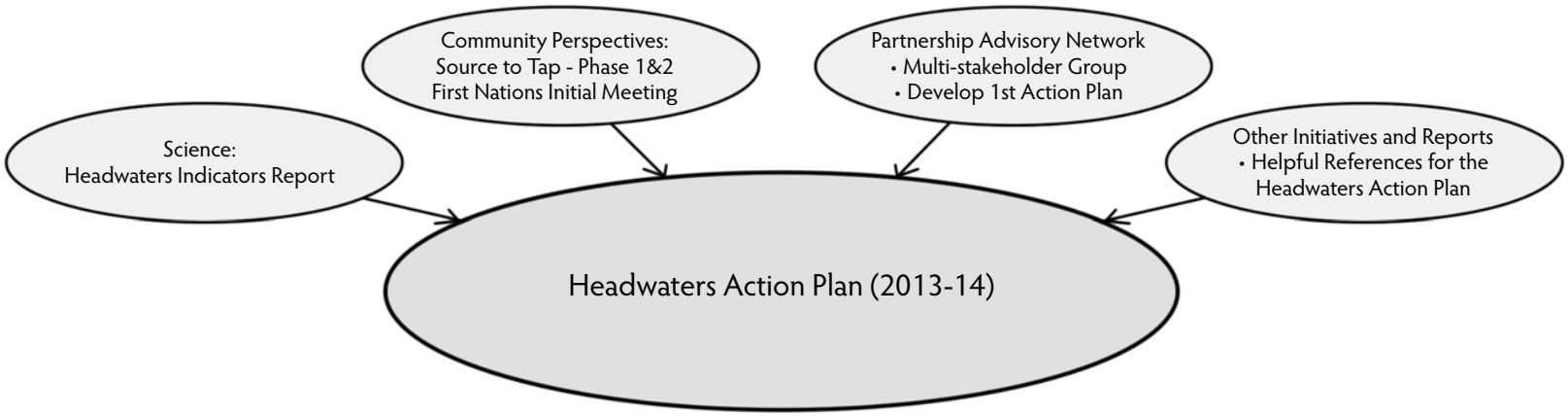


FIGURE 2: Oldman headwaters area



Moving Forward

Through 2012-13, the OWC has moved forward with the Headwaters Action Plan process with key initiatives:

1. Oldman Headwaters Indicator Project[5]: a scientific assessment of headwaters health.
2. Community Perspectives: Source to Tap Community meetings: gaining perspectives from local residents on what they think of the health of the headwaters, and what stewardship actions are most important to address. An introductory meeting with a few members of the Piikani Nation and Kainai First Nation people as a first step to initiate a relationship of understanding on water and headwaters concerns that are important to First Nations communities.
3. Partnership Advisory Network: inviting and engaging stakeholders who have the capacity and commitment to begin real on-the-ground actions to improve headwaters health.
4. A review of initiatives and reports: a review of relevant reports and initiatives developed by other groups/organizations to ascertain how they support and inform the priority indicators of headwaters health in the Headwaters Action Plan process.

[5] Oldman Headwaters Indicator Project (Nov. 2013), Fiera Biological Consulting, Ltd. http://www.oldmanbasin.org

Preparation for the Headwaters Action Plan process

The Headwaters Action Plan 2013-14 process was initiated in 2012 and the Terms of Reference was approved by the OWC Board of Directors in October 2012.

As an important foundation for the Headwaters Action Plan process, the OWC completed several scientific research projects to provide the best available, scientifically defensible foundations for the planning process. The research projects completed are:

- Oldman Headwaters Indicator Project (Fiera Biological Consulting Ltd.)
- ALCES Historical Trends Mapping for the Oldman watershed (ALCES Landscape and Land Use Ltd.)
- Crowsnest Pass Aquifer Mapping and Groundwater Management Planning Study (Waterline Resources Inc.)
- Landscape Patterns Environmental Quality Analysis. (O2 Planning and Design)

Each report provides important information for understanding cumulative effects in the Oldman headwaters, and supports the development and outcomes of the Headwaters Action Plan 2013-14.

OLDMAN HEADWATERS INDICATORS PROJECT

The Oldman Headwaters Indicators Project was the initial stage in the development and implementation of a watershed assessment design for evaluating the pressures on or condition of the Oldman headwaters area.

As a key element of this project, a watershed criteria and indicators framework was developed to be relevant and meaningful in the context of local and regional stewardship initiatives in the Oldman Headwaters area, and to simplify and summarize complex ecological information to ensure ecological values are effectively communicated and integrated into land-use planning policies and processes.

The Oldman Headwaters Indicators Project determined four Criteria for watershed assessment, and accessed data for six indicators to provide a scientifically defensible report on headwaters integrity (see Table 2). The project used the most current and accessible data from the Government of Alberta, Water Survey of Canada and the Alberta Riparian Habitat Management Society (more commonly known as 'Cows & Fish').

Four of the six indicators (intact landscapes; road density; linear features density; soil erosion risk) are considered pressure indicators, and were used in an indicator 'modeling' process using Geographic Information System (GIS) to create visual mapping of pressure ratings of these indicators across 180 sub-watersheds in the headwaters area. Two other indicators (riparian condition and stream flow regime) are condition indicators, and provide an assessment of the general condition of the riparian areas surveyed by Cows and Fish, and the seasonal flow rates and quantity of water recorded at Water Survey of Canada gauge stations in or near the headwaters area.

The Oldman Headwaters Indicators project utilized 4th order Strahler sub-watershed boundaries.[6] This geographical scale of assessment was used to provide the best possible detail in understanding the condition or pressure on smaller sub-watersheds in the headwaters area. In the headwaters area, 4th order watershed boundaries resulted in assessment of 180 sub-watersheds ranging in size from 3 to 200 km^2.

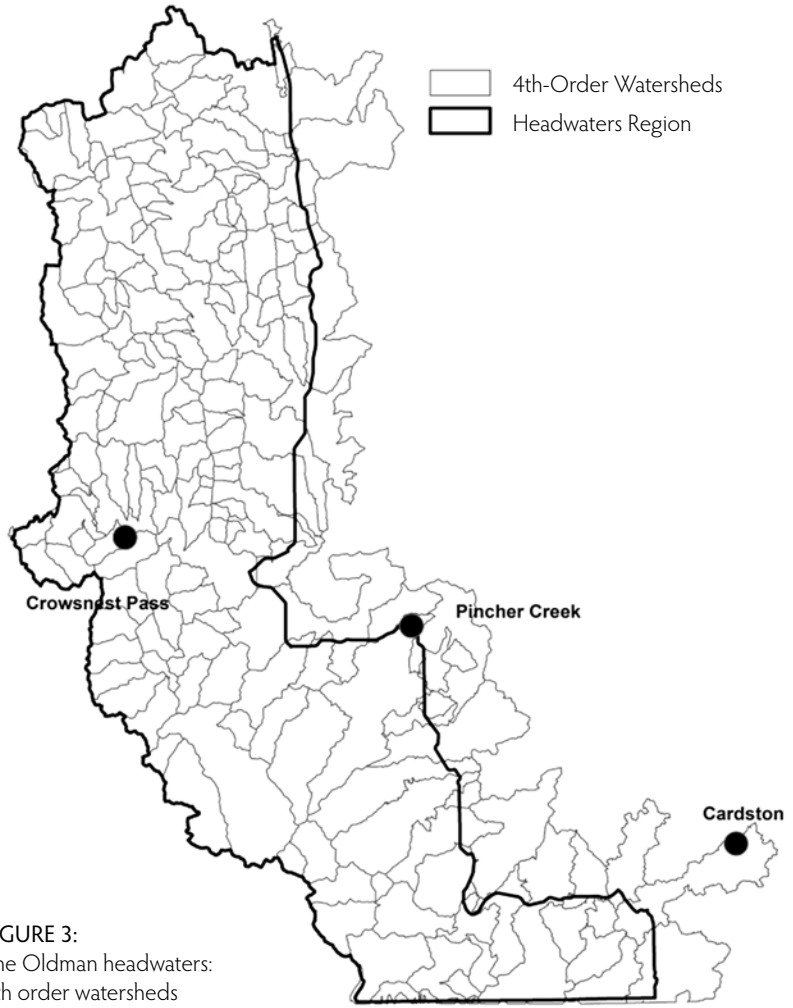


FIGURE 3:
The Oldman headwaters: 4th order watersheds

[6] Strahler stream order is used to define stream size based on a hierarchy of tributaries. A fourth order stream is where tributary streams of a first, second and third order have merged to become a 4th order stream.

Overview of results of Oldman Headwaters Indicator Project (version 2013.3)

In determining the level of headwaters integrity in the 180 sub-watersheds of the Oldman headwaters area, pressures ratings were used to create a report card of watershed health. Pressure ratings were derived from scientific thresholds in peer-reviewed research studies and government management documents. Each of the 180 sub-watersheds is rated at a high, moderate, low or negligible pressure ranking.

FIGURE 4: Results of headwaters integrity assessment

Criteria **Landscape Composition and Condition**	Criteria **Biological Diversity**	Criteria **Surface Water Quality**	Criteria **Water Levels and Flow**
Indicator (pressure) Intact Landscapes	Indicators (pressure) Road Density Density of all linear features Indicator (condition) Riparian condition	Indicator (pressure) Sedimentation/Erosion Potential	Indicator (condition) Stream Flow Regime
Results of assessment of the 180 sub-watersheds in the Oldman headwaters			
Intact Landscapes: 67 watersheds (38%) with Negligible Risk 52 watersheds (30%) with Low Risk 37 watersheds (20%) with Moderate Risk 22 watersheds (12%) with High Risk	Road Density: 71 watersheds (40%) with Negligible Risk 57 watersheds (32%) with Low Risk 32 watersheds (18%) with Moderate Risk 18 watersheds (10%) with High Risk Density of all linear features 19 watersheds (11%) with Negligible Risk 23 watersheds (13%) with Low Risk 103 watersheds (58%) with Moderate Risk 33 watersheds (19%) with High Risk Riparian Condition (at the scale used by Cows and Fish Program): 9 watersheds are considered healthy with problems. 2 are considered healthy (healthy with problems: at risk of losing function)	Sedimentation/Erosion Potential: 11 watersheds (11%) with Negligible Risk 26 watersheds (20%) with Low Risk 83 watersheds (64%) with Moderate Risk 9 watersheds (7%) with High Risk	Stream Flow Regime: Metrics used with data from Water Survey of Canada (WSC) gauge stations show: Overall magnitude of flows has declined over time at most WSC stations. Total Spring flows are significantly decreasing in 5 out of 10 WSC stations Patterns of daily base flow (lowest amount) is inconsistent across all WSC stations, with some increasing, and others decreasing.

What are Criteria and Indicators?
Criteria are categories of watershed conditions or processes that characterize aquatic and terrestrial environments used to evaluate watershed condition. They include a suite of conservation values and goals for watershed management and are representative or related to specific watershed elements (e.g. water quality, water quantity)
Indicators are measures of watershed condition within each Criteria. They are used to observe, evaluate and describe trends within each watershed assessment Criteria. (E.g. under Water Quality Criteria, an indicator would include (but not limited to) measures of surface water quality and sediment loads).

Historical Trends Mapping of the Oldman Watershed

An understanding of how the Oldman watershed has changed over time is important information for planning its future. Fourteen land use trends were mapped from 1905 to 2010, including native landscapes, edge density, population growth and well density. Maps are presented in a time lapse format to give a powerful visual representation of how the landscape has changed over time and to demonstrate cumulative effects by layering changes onto one map. These maps show where development has been concentrated and how the watershed has changed over the years.

Crowsnest River Watershed Aquifer Mapping and Groundwater Management Planning Study

The objective of the study was to compile existing groundwater information in the Crowsnest watershed and to set the stage for what needs to be done in the near future to fill knowledge gaps. The Crowsnest study summarizes what groundwater resources exist; groundwater quality; groundwater geology in the region; how groundwater is connected to surface water; and how much groundwater is being used.

Landscape Patterns and Environmental Quality Analysis

The OWC, along with 7 other partners, commissioned an extensive literature review to identify metrics (thresholds) of environmental quality to assist in planning, monitoring and resource management decision-making. The report is structured to provide 1) foundational understanding of the principles and theories in landscape ecology established to date, and 2) a toolbox of ecological targets and thresholds relating to major landscape indicators of environmental quality drawn from published literature. Concise pattern-based indicators and targets for environmental quality inform cumulative effects management by providing measurable criteria for how resource extraction and other human activities can be managed on the landscape in concert with ecosystem function.

Integration of science in the Headwaters Action Plan process

The Headwaters Action Plan requires a scientifically defensible assessment of headwaters health[7] to help guide stewardship action on key concerns and threats to watershed integrity. Science also provides assistance in determining root causes of issues and threats to headwaters health, and helps focus discussion on potential solutions to maintain and protect important watershed values.

Science has been part of all aspects of the Headwaters Action Plan process. It has been an essential element of community meetings, stakeholder forums and workshops, and presentations to groups, municipalities and Government of Alberta agencies. The outcomes of the Oldman Headwaters Indicators Project have been shared with the South Saskatchewan Regional Planning consultation process to assist in understanding cumulative effects and issue in the Oldman headwaters area.

7 The Oldman Headwaters Indicators Project underwent an independent third party review and was acknowledged as a credible assessment of headwaters health using available Government of Alberta data sources.

Photo: Saikut Basu

Photo: Connie Simmons

HEADWATERS ACTION PLAN 2013-14
Community and Stakeholder Engagement

The Headwaters Action Plan is an iterative process, building on successive years of headwaters health assessment and stewardship work to maintain and protect headwaters and source waters health. Through working with stakeholders and the public, the Oldman Watershed Council has heard that watershed management is a shared responsibility, and that action to manage and protect headwaters and source waters is best accomplished through collaboration with those who live, work, recreate or otherwise have an interest in the Headwaters area.

In 2012-13, the Headwaters Action Plan (2012-13), the process involved three streams of engagement:

1. Community Engagement: 'Source to Tap' public meetings in 8-9 communities (Phase 1: Nov-Dec. 2012; Phase 2: Feb-March 2013).

The OWC and Water Matters (a not-for-profit group committed to fostering watershed stewardship in Alberta) agreed to work together on Source to Tap, a community-based initiative to engage people in sharing their local knowledge and thoughts on priorities for stewardship in the Oldman headwaters and source waters. The two phases of Source to Tap community meetings focused on connecting urban and rural residents together with people who use and steward the land in the headwaters (e.g. ranchers, resource industry, recreation groups) to build common understanding of issues and stewardship practices related to the Oldman headwaters area.

2. First Nations: The OWC and Water Matters initially invited a small group of people from Kainai First Nation (Blood Tribe, Standoff, AB) and the Piikani Nation (Brocket, AB) to an introductory meeting on January 4th, 2013 at Head Smashed In Buffalo Jump World Heritage Site. The meeting resulted in a request from the OWC to meet with Elders and youth to ask them what they saw as important about water, and how to if they wanted to begin a relationship to further conversations about water with their communities.

Following this initial meeting, the Piikani Traditional Knowledge Services (PTKS) worked with the OWC to co-host a "Protect Our Water" Sharing Circle meeting in Brocket, AB on January 23, 2014. Seventeen people from the Piikani and Kainai tribes attended the meeting, and as a result of their comments and suggestions, the OWC and PTKS are now working on three potential initiatives to raise awareness and education of Blackfoot traditional knowledge and science on water and watershed well-being.

The OWC will continue to build a relationship of understanding with the Blackfoot people to hear their concerns related to water and watershed health, and to work on water or watershed initiatives that they feel are of benefit to their people and communities.

3. Stakeholder Engagement: The OWC invited stakeholders to participate in a broad-based collaborative effort to assist in development of the Headwaters Action Plan. The Partnership Advisory Network (PAN) participants are encouraged to work together with the foundational values of inclusivity, respectful dialogue, and willingness to find common ground despite different interests and values. Each of the stakeholders represent a public, private or municipal sector that has interest in the headwaters area, and also has the organizational capacity to commit to implementing stewardship action for headwaters health.

Photo: Denise Pezderic

Sectors invited to participate as members of the Partnership Advisory Network include:

- agriculture (irrigated and non-irrigated)
- business
- recreation
- academia
- industry
- municipalities
- provincial government
- non-government organizations
- environmental non-government organizations

The Partnership Advisory Network members were asked to fulfill these tasks:

- advise the OWC of their interests and provide a description of their current stewardship activities in the Headwaters that relate to managing and protecting headwaters integrity (May 2013 Stewardship Inventory);
- inform their sector or group of the Headwaters Action Plan process, and invite their sector or group to become involved in the process;
- participate in Headwaters Action Plan meetings and workshops;
- request their sector or group endorse the Headwaters Action Plan 2013-14 outcomes (targets, recommendations and actions) that are achieved through consensus agreement of the PAN;
- commit (within organizational mandates and capacity) to implement or support stewardship action as a contribution to the Headwaters Action Plan in an adaptive management cycle over time.

During 2013-2014, The Partnership Advisory Network worked collaboratively with the OWC through several key steps to develop the Headwaters Action Plan 2013-14 (see Figure 5).

All community and stakeholder processes were integrated with other streams of input and information in the development of the Headwaters Action Plan 2013-14. These included scientific assessment of headwaters health; public perspectives on headwaters health and stewardship; supporting information from other initiatives related to the headwaters; and engagement and sharing of information and knowledge between the members of the Partnership Advisory Network.

STEP 1
Public Engagement
November-December 2012
OWC and Water Matters

Source to Tap
Community Meetings
in 5 communities

Source to Tap
Interim Report
(shared with
stakeholders)

STEP 2
Public Engagement
February-March 2013
OWC and Water Matters

Source to Tap
Community Meetings
in 8 communities

Source to Tap
Final Report
(shared with
stakeholders)

Stakeholders welcome to community meetings

Summary of Headwaters Forum shared with communities

STEP 1
Stakeholder Engagement
Partnership Advisory Network
Orientation Meeting
January 23, 2013

- Introduction to process
- Learning what stewardship action is already underway

STEP 2
Stakeholder Engagement
Partnership Advisory Network
Headwaters Indicators Forum
February 5, 2013

- Current headwaters integrity assessment results
- AECES historical trends mapping
- Aquatic Invasive Species
- Climate change
- Source to Tap Interim Report

STEP 3
Stakeholder Engagement
Partnership Advisory Network
Headwaters Action Plan -
Stewardship Inventory
May 2013

Partnership Advisory Network contribute to Headwaters Stewardship Inventory of current actions

STEP 4
Stakeholder Engagement
Partnership Advisory Network
Workshop #1
Determining Indicators of
Headwaters Integrity
June 24, 2013

Review and discussion of Headwaters Indicators; report findings; determining priority indicators for the Headwaters Action Plan 2013-14

STEP 5
Stakeholder Engagement
Partnership Advisory Network
Preliminary Meeting to
Workshop #2
September 10, 2013

How decisions will be made; principles of collaborative engagement and decision-making; Headwaters Integrity Handbook overview

STEP 6
Stakeholder Engagement
Partnership Advisory Network
Headwaters Integrity
Workshop #2
October 2-3, 2013

A collaborative approach on targets, policy, recommendations and stewardship action for headwaters health

STEP 7
Stakeholder Engagement
Draft Headwaters Action Plan
Partnership Advisory Network
Review
October-November 2013

Comments from PAN by November 8, 2013

STEP 8
Public Engagement
Draft Headwaters Action Plan
Public Review
November 13-21, 2013

Presentation and review in 5 communities: Cordston, Nanton, Lethbridge, Cowley, Springpoint

STEP 9
Oldman Watershed Council (OWC), Alberta Environment and Sustainable Resource Development (AESRD)
Review and approval of the Headwaters Action Plan 2013-14

Dec 13, 2013: OWC Board of Directors
Jan 2014: AESRD

Photos: Connie Simmons

FIGURE 5: Headwaters Action Plan
Community and stakeholder integrated process

SOURCE TO TAP

Public Engagement: Conversations about water and headwaters health

Source to Tap Community Meetings

(Phase 1 - Nov/Dec 2012; Phase 2 - Feb/March 2013)

In Source to Tap Community meetings, Water Matters and the Oldman Watershed Council co-hosted local conversations in two phases of community meetings that focused on the use, health and stewardship action needs in the Oldman headwaters. Community participants shared local knowledge and understanding about water use, water quality, the health of headwaters and source waters, and identified activities or factors that impacted headwaters health. Community members also provided ideas and suggestions on stewardship action solutions to headwaters issues - an important foundation of public input in the development of the Headwaters Action Plan 2013-14.

Photo: Connie Simmons

Source to Tap
Phase 1: Use and Health of the Headwaters

Key focus: To share local knowledge and increase understanding about water use, water quality, and river health, and to identify activities or factors that impact headwaters health.

Phase 1 community conversations provided important perspectives on activities and factors that impact the health of the Oldman headwaters, and allowed community members to learn from each other, share their concerns and begin to consider what could be done for stewardship action in the headwaters.

1. Activities and factors that **negatively** impact the health of the Oldman River headwaters. The following themes, discussed by workshop participants across the Oldman Basin, identify activities or factors perceived or known by local residents to affect headwaters health in a negative way, thus providing opportunity for mitigation or stewardship activities to improve headwaters health:

- cumulative effects and linear disturbances
- recreation
- fire management
- grazing
- industrial and residential development
- invasive species
- regulatory and enforcement capacity
- political influence
- public awareness and education
- climate change and snowpack

2. Activities and factors that **positively** impact the health of the Oldman River headwaters and need to be encouraged, strengthened and supported:

- implementation of 'best management practices'
- recreation stewardship
- forest management practices
- local and traditional knowledge
- increased engagement and capacity of local citizens
- municipal government support
- provincial government support
- non-government organization and collaborative efforts

The themes of activities and factors that negatively or positively impact health of the Oldman headwaters provided a framework to move to community discussions in Phase 2 meetings.

Source to Tap
Phase 2: Caring for the Headwaters

In Source to Tap: Phase 2, community participants were informed about the outcomes of the first round of community Source to Tap meetings; provided an overview of the outcomes of the science research on the headwaters indicators assessment; and heard local stewardship presentations from ranchers, groups, industry and individuals. Community participants were then asked to consider what key priorities for stewardship action and potential solutions to the issues would be to manage and protect the integrity of headwaters and source waters.

Key focus: To encourage and gather local input on ways to protect the health of the Oldman headwaters.

Outcomes of Phase 2 community conversations provide important perspectives and ideas for stewardship action in the headwaters, and key points from participants were grouped to provide important context for consideration in the Headwaters Action Plan process.

A. Current Stewardship Practices

Community participants shared their understanding of current stewardship action and were supportive of what is currently happening to support headwaters health. Key points made:

- healthy diversity of groups working on stewardship from a variety of interest perspectives and agendas – common concern re: sustainability of landscape for long-term health and human use. Recognition that all land uses have an impact
- general awareness of other stewardship efforts however lack of coordination between groups and agencies, therefore gaps and redundancies exist. Also, there is limited funding between players
- importance of working at the community level to engage local people and users recognized by many
- important to balance economic and environmental benefits of stewardship; e.g. landowner stewardship activities must allow for economic and environmental benefits to landowners themselves, as well as to the public.

B. Stewardship Requirements and Opportunities

Community participants provided significant input on requirements and opportunities for stewardship in the headwaters and source water areas of the Oldman watershed.

Overarching requirements:

Land/Water Integration: The integration of land use and watershed planning and management, through the Land Use Framework, is essential to headwaters protection in the Oldman Basin. Water (both surface and groundwater) and the maintenance of the integrity and health of the watershed, must be considered a primary value in land use decision-making.

Increased Funding Necessary for Stewardship Projects: Consolidation of and access to funding sources (grants, tax and cash incentives, compensation, rewards, etc.) is necessary to support individual landowners and watershed stewardship groups who are doing stewardship work to improve watercourses and riparian areas. Important to evaluate the benefits of good stewardship compared to the costs of mitigating damage to watersheds and water quality.

More Monitoring: Enhanced and ongoing monitoring and citizen science efforts that provide data and information are important for decision-making and provide a meaningful way of educating and engaging local people. Water and air quality are important monitoring objectives, especially in relation to oil and gas activity.

Education and Awareness/Capacity Building: The call for education, information sharing and capacity building was a strong theme across all communities, to help people to better understand the issues, impacts of land and human use activities on the headwaters ecosystems, and stewardship practices/tools available. Communications need to focus on certain audiences to maximize impact e.g. youth audiences can be reached through social media, school field trips, outdoor clubs. Other ideas include:

- education for stewardship project planning
- education for school children; NGOs to work collaboratively to deliver classroom (school) programs so it is coordinated and adds value
- more youth education outdoors, especially in the headwaters to connect them to water that come out their tap
- adopt a stream bank/river bank
- educational presentations for communities, landowners
- connect art with stewardship - a strong link
- education for kids, parents/teachers, ranchers/farmers/landowners, recreationalists, governments, Chambers of Commerce.

Communities engaged in Source to Tap: Phases 1 & 2
Cardston, Picture Butte, Twin Butte (phase 1 only), Lethbridge, Springpoint Hall, Crowsnest Pass, Stavely, Pincher Creek, Fort McLeod (phase 1 only), Lundbreck (phase 2 only).

Research, Information Sharing and Celebration of Best Practices: Recognition of successful stewardship activities and lesson learned are important to share and analyze. Research is needed on innovative ideas from other countries and regions, and impacts/benefits of certain practices. More targeted/applied science and specifically, the sharing of science studies that already exist is called for to support the application of stewardship projects. Important to recognize and celebrate stewardship work and share stories amongst landowners, government agencies, communities, etc.

Building Partnerships and Collaboration: There is recognition that working through partnerships and collaborative efforts greatly enhances the chances of success for headwaters stewardship. Necessary to work with others - neighbors, WPACs, MDs and conservation coordinators, Cows and Fish, ACA, DU, local communities, ranchers, conservation, community and recreation groups, churches, schools, etc. to get the whole job done. Collaboration is a skill and needs support in order to be accessible to all.

Governance/Enforcement: Land use plans, management and strategies need to link with and be built upon grassroots needs, values, actions. Line of sight required between LUF and Water for Life, through regional and municipal planning, to grassroots stewardship. Regulatory enforcement is mandatory in coordination with government. It is important to define conservation areas and stewardship opportunities under SSRP and ALSA, and manage/enforce accordingly. Enforcement is a clear government role and expectation e.g. NRCB, AESRD.

Participants also provided specific input on the needs and opportunities for stewardship focused key areas of concern: ranching, recreation, forestry, resource extraction and farming and irrigation.

Idea Generation: How to Build Long Term Stewardship Support

Community participants addressed the question of how to build support for stewardship, and provided substantial input on overarching ideas, as well as specific input for the key areas of concern: ranching, recreation, forestry, resource extraction, and farming and irrigation.

Overarching ideas for stewardship support include:

Water as Priority of Public Land Management: Set a higher political priority for water management in land use planning and implementation, redirecting public funding to support management. Enhancing and strengthening enforcement of regulations is critical. Public and community groups have a role to play in funding and supporting watershed management and stewardship.

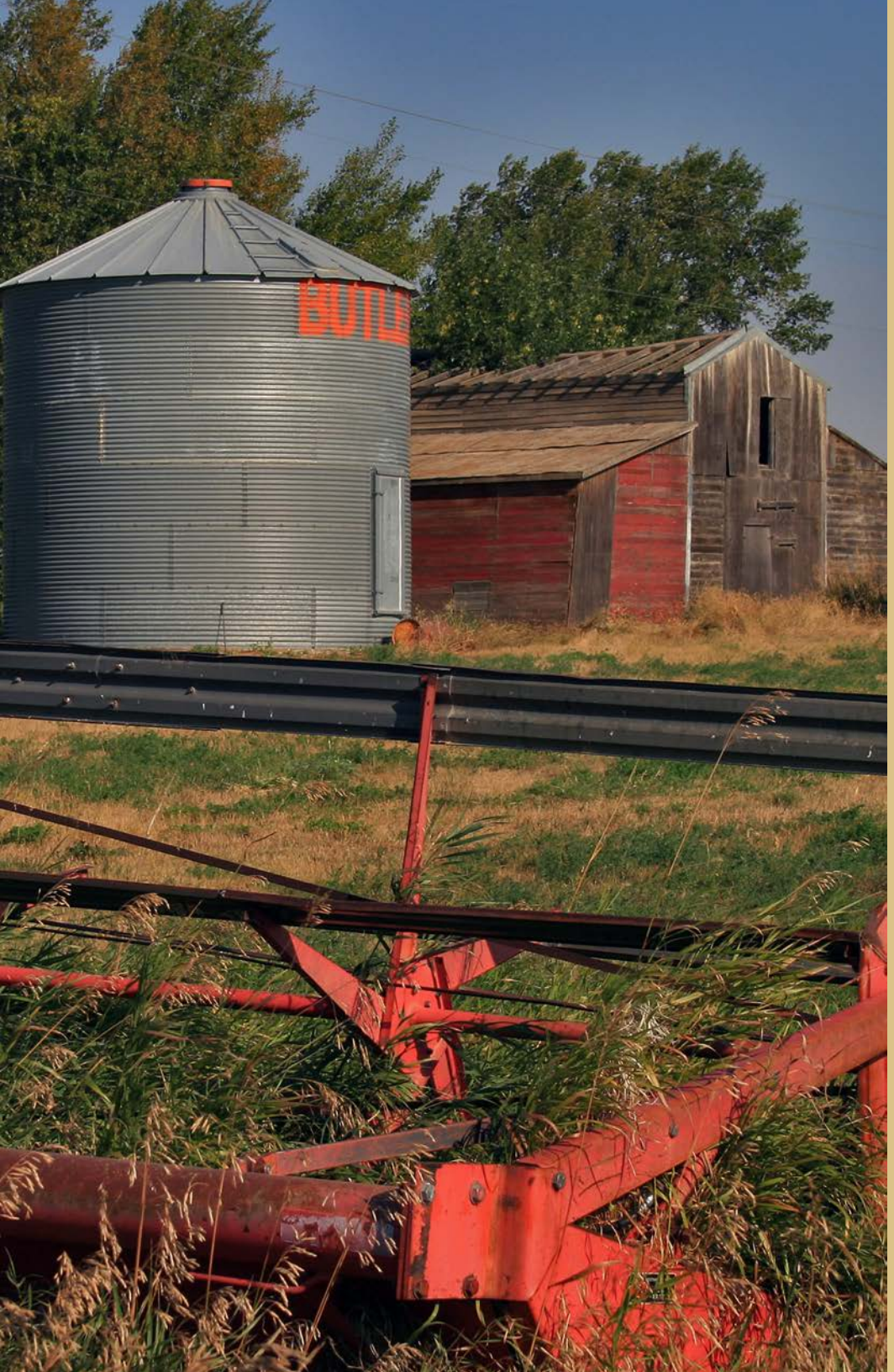
Enhance and Support Future Watershed Stewards: Stewardship initiatives need to attract more committed and active participation with the support of municipal governments, along with sustainable funding and resources for projects. Recruitment and engagement of the younger generation is important as a way of building future support for legislation, regulations and tools for stewardship. Ownership by the younger generation is necessary for long-term stewardship implementation.

Stewardship and Public Input into Land and Watershed Planning: Conservation and stewardship requires a stronger value and role in land use planning, and could be integrated into the planning and regulation of a number of land uses e.g. recreational activities, rural residential expansion, industrial development. Ongoing and meaningful public consultation in watershed management is called for. Public input is critical regarding changes in land use planning and changes to status of by-laws e.g. permitted uses or discretionary uses.

Strengthening the Link Between Education and Stewardship Action: Stewardship education is most meaningful when it links people with a special place or geography, especially if it is a home place. Important to develop understanding of watershed values and stewardship in schools and neighbourhoods, focused on local interests and hands on learning. Also important to connect people between sectors to share knowledge and perspectives, and build cross-sector partnerships: recreation groups, farmers, oil and gas, ranchers, consumer groups like Slow Food. Link education to action projects related to stewardship initiatives to build appreciation and deliver concrete results.

Source to Tap Phase 1 and 2 provide invaluable insights into public concerns about watershed and headwaters health, as well as input on stewardship action challenges, needs and opportunities. Of particular focus and importance is the growing recognition of the need for a collaborative approach across all sectors to address the complexity and growing need for real action on the ground to ensure long term sustainability and health of source waters and headwaters. The need to work with the public, private land-owners, government (municipal and provincial) and stakeholders has received support from the community participants. Information and support for focused stewardship action generated at the Source to Tap community meetings was shared with the Partnership Advisory Network for consideration in their work to develop the first iteration of the Headwaters Action Plan 2013-14.

Photo: Barry Olson



PARTNERSHIP ADVISORY NETWORK (PAN) Stakeholder Engagement

The Headwaters Action Plan 2013-14 process included several key steps for the Partnership Advisory Network; each step provided important context and information for the planning process, and allowed the PAN members to work together to build the foundations for a collaborative approach to maintaining and protecting headwaters integrity.

Step 1: Headwaters Action Plan Orientation Meeting – January 23, 2013

An orientation meeting for invited stakeholders was held in Cowley, AB to introduce the concept and process of the Headwaters Action, and to request participation in the Partnership Advisory Network. The participants acknowledged that concerns related to headwaters health required a broader stewardship response from stakeholders and communities. A discussion about the meaning of stewardship also reflected the diversity of ideas, values and actions inherent in this central concept of the Headwaters Action Plan.

Step 2: Headwaters Indicators Forum - February 5, 2013

The Headwaters Indicators Forum, held in Pincher Creek, provided current information from scientific assessments of watershed integrity; an overview of current issues related to headwaters health; and a review of preliminary public input from the Source to Tap community conversations. The Forum provided participants the opportunity to hear from watershed science experts on the risks and pressures on headwaters health, and to hear and consider the general themes of public concern for the headwaters area. This information provided an important foundation for the next steps in the development of the Headwaters Action Plan 2013-14.

Headwaters Indicators Forum presentations included:

- Historical Trends Mapping of the Oldman Watershed
- Oldman Headwaters Indicators Report - assessment of indicators of headwaters health
- Aquatic Invasive Species - a threat to aquatic ecosystem health
- Climate Change and the Oldman Headwaters
- Source to Tap - Phase 1: Community input on themes of concern related to headwaters health.

Step 3: Headwaters Action Plan Interim Report - Stewardship Inventory - May 31, 2013

An interim report on the progress of the Headwaters Action Plan process included an inventory of current stewardship actions by members of the Partnership Advisory Network. Understanding the good work already being done in the headwaters provides a foundation for the Headwaters Action Plan 2013-14.

Step 4: Determining Indicators of Headwaters Integrity - Workshop #1 - June 24, 2013

The Partnership Advisory Network met in Pincher Creek for a full day workshop to review the finer points of the Headwaters Indicators Report (scientific assessment of headwaters health) and to determine the priority indicators of headwaters health the group will address in the Headwaters Action Plan 2013-14.

At the workshop, the Partnership Advisory Network provided:

- input on the Indicators of headwaters integrity from the Headwaters Indicators Report: what was most useful, what was missing, and what was most important to work on for additional information for the Headwaters Action Plan;
- input on what the PAN participants felt were the most important priority indicators to address in the current Headwaters Action Plan;
- input on the principles of engagement in the PAN as we move forward with the Headwaters Action Plan process;
- input on decision-making processes – what the PAN suggested would be the best way to collectively make decisions in the Headwaters Action Plan process.

After a thorough review and discussion on the outcomes of the scientific assessment of headwaters health, the Partnership Advisory Network voted on the priority indicators to address in the Headwaters Action Plan 2013-14.

> "We live and work in the headwaters. Our biggest and simplest action is to minimize impacts."
>
> "If you want to adapt, then you need to try different new things and move forward…. (but) how do you embrace adaptive management if rules stop this?"
>
> "We need to collaborate with education…. whatever we can promote collectively will be positive."
>
> (Partnership Advisory Network members, Feb. 5, 2013)

Partnership Advisory Network - Priority Indicators vote (June 24, 2013) (top 10 highlighted)

Indicator of Headwaters Integrity	Votes by the PAN members
Linear Features (intensity of use)	18
Water Quality	12
Intensity of Recreation use	11
Urban and industrial human land use	10
Riparian and range conditions	8
Invasive Species	8
Intact Landscapes	7
Soil Erosion Risk	7
Presence and abundance of native fish	6
Cumulative effects management	5
Changes in Climate	4
Natural disturbance and water flows	3
Storage capacity of wetlands	3
Stream Flow regime	3
Sediment disposition	3
Human population density and growth	1
Effectiveness of setback from water	1
Soil quality	0
Road density	0

The OWC took the advice of the PAN group, and where data was available, worked to fill gaps in information related to the priority ranking of headwaters indicators.

Linear features density with intensity of use was the top ranked priority concern of the PAN. A linear features density risk assessment rating is provided for 180 4th order sub-watersheds in the headwaters area in the Oldman Headwater Indicator Project. The OWC recognizes that reliable, current information and mapping of intensity of use (recreation and all other uses) in relationship to linear features density in the headwaters was a key request of the Partnership Advisory Network. In discussion with researchers and Environment and Sustainable Resource Development (ESRD), the OWC found that there is no complete and reliable database available to provide a reasonable assessment of intensity of use of linear features in the Oldman headwaters at this time.

To address this key issue as it relates to headwaters health, the PAN worked from local knowledge of intensity of use in specified sub-watersheds in the Headwaters. During the June 24th workshop, PAN participants noted several geographic areas of concern related to intensity of use. These areas include (but may not be limited to):

- Racehorse Creek
- Dutch Creek
- Livingstone area
- West and South Castle River watersheds
- Crowsnest Pass/Star Creek
- Lynx Creek/Carbondale River
- Hidden Creek

Surface water quality was the second priority concern for the PAN. Government of Alberta (GOA) data sets for water quality monitoring in the Oldman headwaters were not available at this time due to the need to the immediate need to address June 2013 flood water assessments, and to complete 'Quality Assurance/Quality Control' (QAQC) reviews on the data before releasing it to the public. The OWC was assured that this would be completed in the near future.

Further to the unavailability of water quality data at this time, the OWC was also advised by ESRD that water quality testing in the Oldman headwaters may not provide a fine enough scale to pick up on certain aspects of headwaters water quality concerns - in particular, sediment loading and impacts on aquatic species.

As an important part of the Oldman Integrated Watershed Management Plan, the OWC will be working towards a full basin assessment on specific parameters of water quality assessment in the future. For this large task, a more in-depth discussion with the Partnership Advisory Network, and other key stakeholders across the Oldman Watershed will be needed to determine what standard of water quality (metrics) will be used for comparative analysis (i.e.: Alberta Water Quality Guidelines; Environment Canada Water Quality Objectives and Guidelines; U. S. Environmental Protection Agency Water Quality Standards). This discussion will also need to address exactly what parameters for testing need to be analyzed within the OWC's Water Quality Study.

To increase understanding of urban and industrial land-use and riparian and range condition, the OWC requested these additional assessments and mapping to be included in the Oldman Headwaters Indicator Project. A cumulative watershed integrity index assessment and map was also requested to provide a cumulative watershed integrity rating based on sound science and mapped at the 4th order sub-watershed level. The Watershed Integrity Index (WII) provides an overall assessment of risk to the headwaters, ranking each sub-watershed as either high-medium-low integrity, and is an important tool to assist prioritizing focused attention for stewardship and policy action. All of this information is provided in the Oldman Headwater Indicator Project report, version 2013.3, and was shared with the Partnership Advisory Network members.

The OWC also requested a mapping overlay on what is currently known on the Presence and Abundance of Native Fish. ESRD Fish and Wildlife provided GIS spatial data on what is currently known in sub-watersheds that have been surveyed to date about critical habitat and spawning grounds for Westslope cutthroat trout and Bull trout. It is important to note that the entire headwaters region was historically home to Bull trout and Westslope cutthroat trout, and they have been extirpated from most of this historic range.

In 2002, bull trout (BTR) were listed under the Wildlife Act as a Species of Special Concern because of the declines in distribution and abundance, as well as continued threats from habitat alteration and introduced competitive species. The Alberta Bull Trout Conservation Management Plan 2012-2017 (AESRD; 2012) provides important information on impacts to bull trout population persistence, and management direction for the recovery of this important native fish species.

In 2013, the Alberta population of Westslope Cutthoat Trout (WSCT) was listed as threatened under the Federal Species at Risk Act. WSCT are now listed in Alberta as threatened and an Alberta Westslope Recovery Plan (WSCT Recovery Plan) has been approved by the Minister of Environment and Sustainable Resource Development. The goal of the WSCT Recovery Plan is "to protect and maintain the existing ≥0.99 pure populations at self-sustaining levels and re-establish additional pure populations to self-sustaining levels, within the species historical range in Alberta. (Government of Alberta; March 2013). The WSCT Recovery Plan lists several threats to continued persistence of self-sustaining populations of this important native fish, including adverse impacts on habitat, invasive species and climate change.

Native fish are sensitive to both terrestrial and aquatic adverse impacts, and as such provide an important way to address the Oldman headwaters overall watershed integrity and biodiversity concerns. Adverse impacts on WSCT populations include threats from changes in water flow; forest removal (harvest; fire); water extraction (surface and groundwater); sedimentation (forest harvest, linear disturbance, grazing, OHV recreational access etc.); habitat loss and alteration; and loss of connectivity. Native fish can be linked also to water quality concerns (in particular - sediment loading on key spawning areas). In recognition of both terrestrial impacts on fisheries habitat and sedimentation as a top water quality concern in the headwaters area, the OWC included Presence and abundance of fish - especially native populations as a priority indicator to be addressed in the Headwaters Action Plan 2013-14.

Invasive Species is also a priority concern of the PAN, and is included as a key goal to address in the Oldman Integrated Watershed Management Plan. In partnership with AESRD and the Crown Manager's Partnership, the OWC agreed to address the looming threat of three aquatic invasive species (AIS): zebra mussels, quagga mussels and Eurasian water milfoil. These three AIS are considered a high threat to aquatic ecosystem health. Once introduced to a water-body, these species are virtually impossible to eradicate. They can transform and damage entire ecosystems, impact native species, and threaten Alberta's biodiversity. They can also damage boats, water equipment and are especially damaging to water infrastructure such as municipal water intakes, treatment plants and irrigation systems. The inclusion of AIS in the first iteration of the Headwaters Action Plan makes sense due to the immediate threat level of contamination in Alberta.

The OWC addressed further gaps in the assessment of the headwaters by requesting a map of unique landscapes and native plant communities in the Oldman headwaters. This map was created using data requested from ACIMS (Alberta Conservation Information Management Systems), and identifies where unique landscapes and known rare plant communities are in the headwaters area.

Photo: (US) National Park Service, Lake Mead

Through this work and from the priority ranking of indicators by the PAN members, the main focus for the Headwaters Action Plan 2013-14 was determined to be on these 3 important indicators of headwaters integrity:

1. presence and abundance of fish - especially native populations (an indicator of biodiversity and watershed integrity)
2. density of linear features (cumulative disturbance of roads, seismic lines, pipelines, power-lines, railroads, cut-lines, off-road vehicle trails across each sub-watershed in the headwaters area)
3. aquatic invasive species (AIS: zebra mussels; quagga mussels and Eurasian watermilfoil[8] - all are classified as major threats to aquatic ecosystem health that we need to keep out of Alberta.

A Headwaters Indicators Workbook was developed and shared with the Partnership Advisory Network members in to assist their respective stakeholder groups to review the maps and information on the three selected indicators of headwaters health, and to work through a series of questions in preparation for the development of the first iteration of the Headwaters Action Plan.

Step 5: Setting the Stage Meeting - consensus decision-making; priority indicator selection update; Headwaters Indicators Workbook introduction - September 10, 2013

Partnership Advisory Network members were invited to a short meeting to review the Headwaters Indicators Workbook, and have an opportunity to discuss the selection of indicators for the first step to develop the Headwaters Action Plan 2013-14. A group discussion on how the PAN will work together through the process included clarification of representation of each stakeholder group, and agreement on a consensus decision-making model to use in the development of the Headwaters Action Plan.[9] PAN members were also advised that they would have opportunity to review and comment on the draft of the Headwaters Action Plan 2013-14, and would also be requested, through a signatory of their stakeholder group, to endorse the Final Headwaters Action Plan 2013-14. Endorsement of the plan is purely voluntary.

[8] Zebra mussel (Dreissena polymorpha); Quagga mussel (Dreissena rostriformis bugensis); Eurasian watermilfoil (Myriophyllum spicatum).

[9] Consensus Decision-Making Toolkit - a Martha Kostuch Legacy, Clean Air Strategic Alliance (CASA), May 2010. http://www.casahome.org/DesktopModules/Bring2mind/DMX/Download.aspx?Command=Core_Download&EntryId=670&PortalId=0&TabId=78

Step 6: Headwaters Integrity - Targets, Recommendations and Actions for Headwaters Health - Workshop #2 - October 2-3, 2013

The Partnership Advisory Network attended a two-day workshop to develop the first iteration of the Headwaters Action Plan. Representation at the workshop included 18 stakeholder groups, including municipalities, ranchers, non-government organizations, land-owners, industry and provincial government. The focus of the workshop was to address the 3 priority indicators of headwaters health, as determined at the June 24th workshop and availability of data and information related to these indicator priorities. The main goals of the workshop were to achieve three outcomes:

1. reach agreement on targets (desired outcomes) for headwaters health
2. reach agreement on recommendations for policy development to assist in achieving defined targets
3. develop a draft plan of stewardship action to achieve targets for headwaters health.

The Headwaters Indicators Workbook provided a foundation for discussion among the workshop participants. Additional supporting information and resources were also available for reference:

- Oldman Headwaters Indicators Project - Dr. Gillian Holloway (Fiera Biological Consulting Ltd) attended the second day of the workshop to clarify questions on the scientific assessment of headwaters integrity
- synthesis of public dialogue from Source to Tap Phase 2 community forums
- overview of other initiatives and reports related to headwaters integrity.

The Partnership Advisory Network participants were able to address each priority indicator of headwaters health and through in-depth group discussion and respectful consideration of all points of view, reach consensus agreement on targets, recommendations to decision-makers, and stewardship actions for each indicator. These outcomes are included in this report in a table format outlining the target, action, target area, time-frame, links to other initiatives, community support, evaluation of success and progress to date.

Step 7: Stakeholder review of the Draft Headwaters Action Plan 2013-14 (Oct-Nov. 2013)

The Draft Headwaters Action Plan was reviewed by stakeholders (Partnership Advisory Network) in early November 2013. The outcomes of Workshop #2 (targets, recommendations and actions) were not open to amendment, as determined through consensus agreement of the PAN; however, minor wording revisions were included for clarification. PAN members agreed to a consensus decision process that allowed dissenting opinions to outcomes to submit a minority report as an addendum to the Headwaters Action Plan.

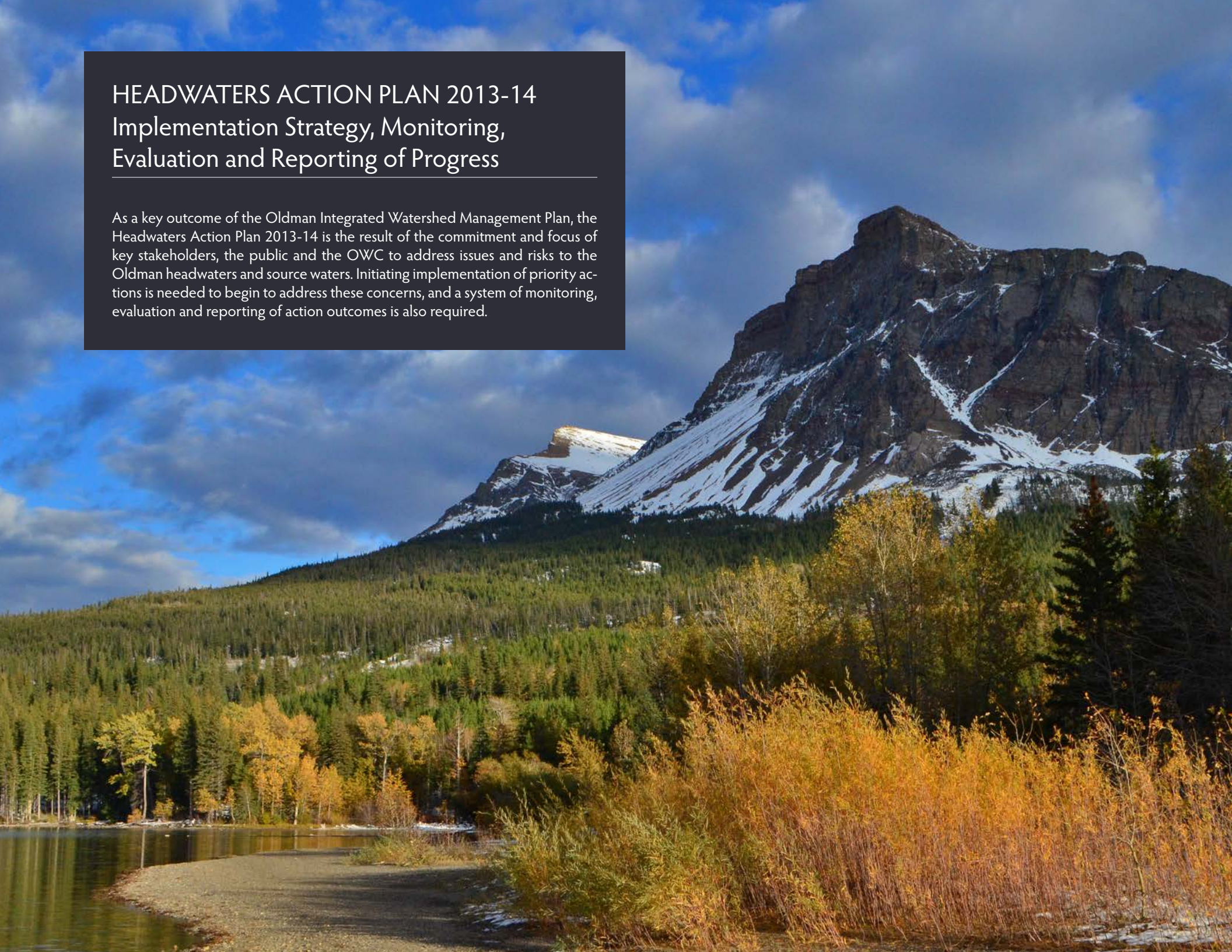
Step 8: Community review of the Draft Headwaters Action Plan 2013-14 (Nov. 2013)

The Oldman Watershed Council hosted 5 public meetings for community review of the Draft Headwaters Action Plan 2013-14. Meetings were held in November 2013 in Cardston, Springpoint, Nanton, Cowley and Lethbridge. Presentations on the draft plan and facilitated group discussions were completed to evaluate and record community response to the Draft Headwaters Action Plan 2013-14. An online survey was also shared with the OWC membership to encourage further public input.

A report on "Headwaters Action Plan 2013-14 Public Review - November 2013 - "What We Heard" was completed and the outcomes shared with the Partnership Advisory Network and the greater public. The community evaluation provided suggestions for revisions and clarification to the action plan, and helped determine priority actions for implementation. These concerns were subsequently reviewed and discussed by the Partnership Advisory Network members, and revisions to the plan to address these concerns were agreed upon by consensus.

Step 9: Approval of the Plan (January-February 2014)

The Headwaters Action Plan 2013-14 will be reviewed and approved by the Oldman Watershed Council Board of Directors, and then submitted to the Government of Alberta for review and approval as a deliverable of the Oldman Integrated Watershed Management Plan.



HEADWATERS ACTION PLAN 2013-14
Implementation Strategy, Monitoring, Evaluation and Reporting of Progress

As a key outcome of the Oldman Integrated Watershed Management Plan, the Headwaters Action Plan 2013-14 is the result of the commitment and focus of key stakeholders, the public and the OWC to address issues and risks to the Oldman headwaters and source waters. Initiating implementation of priority actions is needed to begin to address these concerns, and a system of monitoring, evaluation and reporting of action outcomes is also required.

The OWC and the Partnership Advisory Network met January 31, 2014 for an 'Implementation Strategy' workshop. The purpose of the workshop was to:

1. agree on priority actions for Year 1 and Year 2 of implementing the Headwaters Action Plan 2013-14
2. form the Headwaters Action Plan Steering Committee as a representative group of the Partnership Advisory Network. The purpose of the Steering Committee is to begin the work of implementing the priority actions of the Headwaters Action Plan 2013-14 through seeking and engaging collaborative partnerships for each action; fund-raising and/or requesting in-kind contributions; and completing a monitoring, evaluation and annual reporting process for the Headwaters Action Plan 2013-14
3. request endorsement of the Headwaters Action Plan 2013-14.

Headwaters Action Plan 2013-14 - Implementation Strategy

The Headwaters Action Plan 2013-14 Steering Committee (HAP-SC) is comprised of 9 members (with confirmation pending for two additional members) representing 6 stakeholder sectors: Agriculture/land-owners; Recreation; Industry; Municipal Government; Provincial Government; Non-Government organizations.

The HAP-SC will be working through 2013-2015 (2 year commitment) put an evaluation, monitoring and reporting structure in place, and to implement priority actions for the Oldman headwaters.

Key tasks of the Headwaters Action Plan 2013-14 Steering Committee:

Key Tasks	Timeline
Draft and approve the Terms of Reference for the Headwaters Action Plan Steering Committee.	May - June 2014
Develop an Implementation Plan for HAP 2013-14 priority actions.	May - June 2014
Develop a monitoring, evaluation and reporting protocol as part of the adaptive management process of the Headwaters Action Plan.	July - August 2014
Communicate progress to the Partnership Advisory Network and the public.	Ongoing (monthly)
Seek and request collaborative partnerships to achieve priority actions within the Partnership Advisory Network and others with interest in the health of the Oldman headwaters.	Ongoing

Photo: Connie Simmons

Prioritizing Action for the Headwaters

The Headwaters Action Plan 2013-14 was reviewed by the Partnership Advisory Network participants, and priority actions were agreed upon through a consensus process. For the first two years of implementation of the Headwaters Action Plan (2014-15), four key actions were rated as highest priority:

1. complete a 'Classification of Linear Features' project (a priority prerequisite action)
2. complete a fine scale cumulative effects assessment of fish populations and habitat streams
3. assist AESRD with education and awareness program (Stop Aquatic Hitchhikers!) for stakeholders and the public on how to prevent AIS from entering Alberta
4. explore/implement options for recreation user fees to fund enforcement, education and stewardship projects.

In addition to these priority actions, the PAN participants also saw awareness and education action as important to address in the first two years of implementation. Working with the diversity of PAN participants within their organizational capacities, these projects allow innovative and collaborative opportunities between sectors, and are an important part of the Headwaters Action Plan 2013-14 implementation strategy.

Next Steps

The Oldman Watershed Council will be working with Environment and Sustainable Resource Development to determine how the Headwaters Action Plan 2013-14 aligns with the South Saskatchewan Regional Plan (SSRP), and to work together on initial steps for implementation of actions that are mutually supportive. Outcomes of the discussion on alignment with the SSRP will be shared with the Headwaters Action Plan Steering Committee to inform the development of the HAP 2013-14 strategy for implementation.

The Headwaters Action Plan Steering Committee will meet in April 2014 to continue the Headwaters Action Plan 2013-14 process to implement priority actions for headwaters health.

GLOSSARY

Alluvial Aquifer
Subsurface geological unit along a river or stream that is hydraulically connected to the surface water body. This is an unconfined aquifer but not all unconfined aquifers are in alluvial deposits (Bow River Basin Council, 2008).

Aquatic Ecosystem
The Water Act defines the aquatic environment as the components of the earth related to, living in or located in or on water or the beds or shores of a water body, including but not limited to: 1. all organic an inorganic matter, and2. living organisms and their habitat, including fish habitat, and their interacting natural systems (Alberta Environment, 2011).

Criteria
Criteria are categories of watershed conditions or processes that characterize aquatic and terrestrial environments used to evaluate watershed condition. They include a suite of conservation values and goals for watershed management and are representative or related to specific watershed elements (e.g. water quality, water quantity).

Ecological Goods and Services (EGS)
Economic and social benefits resulting from the natural processes of a healthy environment and biodiversity. These are available to all of society and are essential to sustaining a healthy and prosperous way of life. They include groundwater recharge, flood and erosion control, wildlife habitat, productive soils, carbon dioxide sequestration and abundant clean air and water (Bow River Basin Council, 2008).

Goal (as used in this report)
A goal is the desired result a person or a system envisions, plans and commits to achieve; personal or organizational desired end-point in some sort of development within a finite time period through setting deadlines Objectives, Goals, Strategies. (http://en.wikipedia.org/wiki/Objective_(goal)).

Groundwater
Water located beneath the ground surface in soil pore spaces and in the fractures of geologic formations. A formation of rock/soil is called an aquifer when it can yield a useable quantity of water. Groundwater that is in an aquifer that readily flows naturally under the ground to surface water bodies is considered surface water for licensing purposes in Alberta (Alberta Environment, 2006).

Hydrologically Significant Areas
Hydrologically significant areas most actively contribute to runoff generation. They are the regions more susceptible to producing run off which provide a direct hydrological link between landscape and primary source water bodies. They are the areas within a watershed where the distribution of surface water is concentrated i.e., lakes, rivers, swamps.

Headwaters
The source for a stream, located in the upper tributaries of a drainage basin. (South Saskatchewan Regional Advisory Council, 2011).

Indicator
Indicators are measures of watershed condition within each Criteria. They are used to observe, evaluate and describe trends within each watershed assessment Criteria. (E.g. under Water Quality Criteria, an indicator would include (but not limited to) measures of surface water quality and sediment loads).

Instream Objectives (IO)
Flows that are to remain in the stream to protect instream values or some portion of them. IOs in the Oldman watershed have been developed using a variety of methodologies, some of which have a more scientific basis and provide a higher degree of protection than others. Some IOs provide limited protection of the aquatic environment (Oldman Watershed Council, 2010a).

Integrated Land Management (ILM)
The strategic planned approach to managing and reducing the human-caused footprint on public land. ILM is not a plan or a process. ILM is a way of doing business and a way of thinking, by sharing the land and working together so that land users can reduce their impact on the land (South Saskatchewan Regional Advisory Council, 2011).

Main Stem
In relation to hydrology, a main stem is "the primary downstream segment of a river, as contrasted to its tributaries". Another common term for the main stem, the final large channel of a riverine system, is the trunk. Water enters the main stem from the river's drainage basin, the land area through which the main stem and its tributaries flow (http://en.wikipedia.org/wiki/Main_stem).

Native Fish
Fish species that are native to the Oldman watershed. These species include (but not limited to) Westslope cutthroat trout, bull trout and mountain whitefish.

Naturalized fish
Fish species that have been introduced, and have adapted to a new range of aquatic habitat, e.g. Rainbow Trout in the Oldman headwaters area.

Non-point Source
Pollution that cannot be traced to a single site or source. It is often characterized by garbage, trash, fertilizers, oils, pesticides and other waste and debris (La Salle River Watershed Planning Authority, 2010).

Objective (as used in this report)
An end that can be reasonably achieved within an expected timeframe and with available resources. In general, an objective is broader in scope than a goal, and may consist of several individual goals. Objectives are basic tools that underlie all planning and strategic activities. They serve as the basis for policy and performance appraisals. Objectives, Goals, Strategies (http://www.businessdictionary.com/definition/objective.html).

Point Source
Pollution from a single identifiable source, such as a wastewater effluent pipe discharging into a river (La Salle River Watershed Planning Authority, 2010).

Potable Drinking Water
Drinking water or potable water is water pure enough to be consumed or used with low risk of immediate or long term harm. (http://en.wikipedia.org/wiki/Drinking_water)

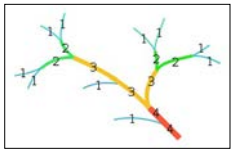
Private Water Source
A surface or groundwater source that provides water to a single connection, most often a home or farm (Little Saskatchewan River Conservation District, 2010).

Public Water Source
A surface or groundwater source that provides water to a system with 15 or more service connections (Little Saskatchewan River Conservation District, 2010).

Riparian
The area along streams, lakes and wetlands where water and land interact. These areas support plants and animals, and protect aquatic ecosystems by filtering out sediments and nutrients originating from upland areas (South Saskatchewan Regional Advisory Council, 2011).

Source Water
Raw/untreated water received for treatment to provide potable water to municipal, industrial or private users. Sources may include high quality groundwater, groundwater under the influence of surface water and surface water from a lake, stream, river or watercourse (South Saskatchewan Regional Advisory Council, 2011).

Strahler 4th Order Stream
Strahler stream order is used to define stream size based on a hierarchy of tributaries. A fourth order stream is where tributary streams of a first, second and third order have merged to become a 4th order stream.
(See: www.http://en.wikipedia.org/wiki/Strahler_number)



Stream Channelization
Stream channelization describes any activity that moves, straightens, shortens, cuts off, diverts, or fills a stream channel, whether natural or previously altered. Such activities include the widening, narrowing, straightening, or lining of a stream channel that alters the amount and speed of the water flowing through the channel. Examples of channelization are: lining channels with concrete; pushing gravel from the stream bed and placing it along the banks; and placing streams into culverts (from US EPA; Fact Sheet 1; Region 7).

Terrestrial Ecosystem
A terrestrial ecosystem is an ecosystem found only on a landform. Five primary terrestrial ecosystems exist: tundra, taiga, temperate, deciduous forest and grassland. A community of organisms and their environment that occurs on the land masses of continents and islands. Terrestrial ecosystems are distinguished from aquatic ecosystems by the lower availability of water and the consequent importance of water as a limiting factor (http://en.wikipedia.org/wiki/Terrestrial_ecosystem).

Total Suspended Solids (TSS)
A qualitative measure of the solid organic or inorganic particles that are held in suspension in wastewater, effluent, or water bodies, determined by tests for "total non-filterable residue" (Oldman Watershed Council, 2010a).

Tributary
A tributary or affluent is a stream or river that flows into a main stem (or parent) river or a lake. A tributary does not flow directly into a sea or ocean. Tributaries and the mainstem river serve to drain the surrounding drainage basin of its surface water and groundwater by leading the water out into an ocean or sea. A confluence where two or more bodies of water meet together, usually referring to the joining of tributaries (http://en.wikipedia.org/wiki/Tributary).

Water Conservation Objective (WCO)
The Water Act defines WCOs as the amount and quality of water necessary for the protection of a natural water body or its aquatic environment, or any part of them; protection of tourism, recreational, transportation or waste assimilation uses; or management of fish or wildlife. WCOs were established in the Oldman watershed following completion and government approval of the South Saskatchewan River Basin Water Management Plan (Oldman Watershed Council, 2010a).

Watershed Integrity
The quantity and quality of water a watershed produces relative to natural conditions and climate variability; a measure of the degree of natural ecological structure and function within a watershed (South Saskatchewan Regional Advisory Council, 2011).

Wetland
Land saturated with water long enough to promote wetland or aquatic processes as indicated by the poorly drained soils, vegetation and biological activity that is adapted to a wet environment (South Saskatchewan Regional Advisory Council, 2011).

REFERENCES

Alberta Environment, 2003. *Water for Life: Alberta's Strategy for Sustainability,* Alberta Environment, November 2003. http://www.waterforlife.gov.ab.ca

Alberta Environment, 2008. *Water for Life: A Renewal.* Alberta Environment, November 2008. http://www.waterforlife.alberta.ca

Alberta Environment and Sustainable Resource Development, 2012. *Stepping Back from the Water: A Beneficial Management Practices Guide for new development near water bodies in Alberta's settled region.* http://environment.gov.ab.ca/info/library/8554.pdf

Alberta Environment and Sustainable Resource Development, 2008. *Alberta Grizzly Bear Recovery Plan 2008-2013.* Alberta Species at Risk Recovery Plan No. 18. http://esrd.alberta.ca/fish-wildlife/wildlife-management/bear-management/grizzly-bears/documents/GrizzlyBear-RecoveryPlan2008-13-revJuly23-2008.pdf

Alberta Environment and Sustainable Resource Development, 2012. *Watershed Management Audit of Risks to Regional Water Supply as a Result of Forest Management - C5 Forest Management Unit.* Prepared for the Forest Management Branch, Forestry Division, Alberta Sustainable Resource Development; Urban Systems Ltd; July 31, 2012. USL File No. 3021.0008.01

Alberta Environment and Sustainable Resource Development. *Stop Aquatic Hitchhikers from entering Alberta.* http://aesrd.wordpress.com/2013/06/19/stop-aquatic-hitchhikers-from-entering-alberta/

Alberta Water Council, 2008. *Strengthening Partnerships - A Shared Governance Framework for* Water For Life *Collaborative Partnerships, September 2008.* http://www.albertawatercouncil.ca/Portals/0/pdfs/SG%20Final%20Report%2009-01-28.pdf

Chief Mountain Cumulative Effects Study, 2011. Prepared by Silvatech Consulting Ltd. for the Chief Mountain Landowners Information Network. www.watertonbiosphere.com

Clean Air Strategic Alliance, 2010. *Consensus Decision-Making Toolkit - a Martha Kostuch Legacy.* Clean Air Strategic Alliance (CASA), May 2010. http://www.casahome.org/DesktopModules/Bring2mind/DMX/Download.aspx?Command=Core_Download&EntryId=670&PortalId=0&TabId=78

Community Values Assessment for M.D. Pincher Creek No. 9, 2009. Prepared by: The Praxis Group for the Southwest Alberta Sustainable Community Initiative and the Municipal District of Pincher Creek No. 9, March 2012. http://www.sasci.ca/display/ShowFiles?moduleId=5001781&directoryId=777662&SSScrollPosition=173

Government of Alberta, 2013. *Alberta Westslope Cutthroat Trout Recovery Plan 2012-2017 - Alberta Species at Risk Recovery Plan No. 28.* Government of Alberta, March 2013.
Publication No: I/604.
ISBN No. 978-1-4601-0231-2 (on line edition)
ISSN: 1702-4900 (On-Line Edition)
http://www.srd.gov.ab.ca/fishwildlife/speciesatrisk/default.aspx

Government of Alberta, 2012. *Bull Trout Conservation Management Plan 2012-2017 - Alberta Conservation Management Plan No. 8.* Government of Alberta, March 2012
Publication No.: 1/604
ISBN: 978-1-4601-0230-5 (Printed Edition)
ISBN: 978-1-4601-0231-2 (On-line Edition)
ISSN: 1922-9976 (Printed Edition)
ISSN: 1922-9984 (On-line Edition)
http://srd.alberta.ca/BioDiversityStewardship/SpeciesAtRisk/Default.aspx

Holroyd, Peggy. Towards Acceptable Change: A Thresholds Approach to Cumulative Effects of Land use Change in the Southern Foothills of Alberta. Masters Thesis, Faculty of Environmental Design, University of Calgary, January 2008. http://www.salts-landtrust.org/sfs/docs/D_080128_holroyd_thesis_thresholds.pdf

Landscape Patterns Environmental Quality Analysis, 2013. Prepared by: O2 Planning and Design, May 9, 2013 for Department of National Defense: Canadian Forces Base Suffield; U.S. Fish and Wildlife Service: Great Northern and Plains; Prairie Potholes Landscape Conservation Cooperatives; Alberta Environment and Sustainable Resource Development; Crown Managers Partnership; Prairie Conservation Forum; The Oldman Watershed Council. May 2, 2013. http://environment.gov.ab.ca/info/library/8882.pdf

Mirau, Neil A. *South Saskatchewan Regional Plan (SSRP) Traditional Use Studies Project,* March 2009. Additional contributors: First Rider, Dorothy. http://epl.bibliocommons.com/item/show/829659005_south_saskatchewan_regional_plan_(ssrp)_traditional_use_studies_project#sthash.ak2dy0Mx.dpuf

Oldman Watershed Council, 2010. *Oldman River State of the Watershed Report 2010.* Oldman Watershed Council, Lethbridge, Alberta. 284 pgs.
ISBN: printed 987-0-09866051-2-3
ISBN: online 987-0-9866031-3-0
http://oldmanbasin.org/index.php/teams-and-projects/state-of-the-watershed-report/

Oldman Watershed Council. 2010. *Oldman Watershed Planning Vision: A Process Summary.* Oldman Watershed Council. Lethbridge, Alberta. 32pp.
ISBN: printed 978-0-9866051-0-9
ISBN: online 978-0-9866051-1-6
http://oldmanbasin.org/assets/files/IWMP/Oldman%20Watershed%20Planning%20Vision%20-%20A%20Process%20Summary.pdf

Oldman Watershed Council, 2011. *Oldman Watershed Planning Priorities: Process Summary and Recommendations.* Oldman Watershed Council, Lethbridge, Alberta. 96pp.
ISBN: printed 978-0-9866051-4-7
ISBN: online 978-0-9866051-5-4
http://oldmanbasin.org/index.php/teams-and-projects/integrated-watershed-management-plan-team/

Oldman Watershed Council, 2011. *Priorities for the Oldman Watershed: Promoting action to maintain and improve our watershed.* Oldman Watershed Council, Lethbridge, Alberta. 54pp.
ISBN: printed 978-0-9866051-6-1
ISBN: online 978-0-9866051-7-8
http://oldmanbasin.org/index.php/teams-and-projects/integrated-watershed-management-plan-team/

Oldman Watershed Council, 2012. *Goal 1 – Action Plan "Promoting Action to Maintain and Improve our Watershed".* http://oldmanbasin.org/index.php/teams-and-projects/integrated-watershed-management-plan-team/

Oldman Watershed Council, 2013. *Crowsnest River Watershed Aquifer Mapping and Groundwater Management Planning Study - TWPS 006 to 009, RGES 01 to 06 W5.* Prepared for the Oldman Watershed Council by Waterline Resources Inc., Calgary, AB., March 2013. 2170-12-001 ALBERTA. http://www.oldmanbasin.org

Oldman Watershed Council, 2014. *Headwaters Action Plan 2013-14 Public Review - November 2013 - "What We Heard" Report.* http://www.oldmanbasin.org

Oldman Watershed Council, 2014. *Oldman Headwaters Indicators Project - Final Report version 2014.1.* Prepared for the Oldman Watershed Council by Fiera Biological Consulting Ltd., February 20, 2014. http://www.oldmanbasin.org

Southern Foothills Study - the Changing Landscape of the Southern Alberta Foothills, 2007. Prepared for the Southern Alberta Land Trust Society by Alan Gardner; Southern Alberta Land Trust Society and Dr. B. Stelfox; Alberta Landscape Cumulative Effects Simulator (ALCES). http://www.salts-landtrust.org/sfs

United States Environmental Protection Agency, 2008. *Handbook for Developing Watershed Plans to Restore and Protect our Waters.* Office of Water. Non-point Source Control Branch, Washington, D.C. 20460. EPA 84-B-08-002. March 2008.
http://water.epa.gov/polwaste/nps/handbook_index.cfm

University of Alberta, 2008. Southern Rockies Watershed Project: *Impact of natural disturbance by wildfire on hydrology, water quality, and aquatic ecology of Rocky Mountain watersheds.* Phase I (2004-2008). http://www.srwp.ualberta.ca/ or
http://oldmanbasin.org/assets/files/Publications/SouthernRockiesWatershedProject-FinalReport-(Phase-I-2004-2008).pdf

Values and Voices: Stewardship Priorities for the Southern Alberta Foothills, 2011. Report of the Southern Foothills Community Stewardship Initiative, November 2011. http://www.pekisko.ca or http://www.aref.ab.ca/resourcelibrary/documents/values-and-voices.pdf

Water Matters Society of Alberta; 2013. *Source to Tap: Community Conversations on Headwaters Health and Stewardship in the Oldman Basin.* Summary of Community Dialogues, November 2013. http://www.oldmanbasin.org

Photo: Jollin Charest

ACTION PLAN • Indicator 1: Presence and abundance of fish, especially native populations

TARGET 1: Maintain current native and naturalized fish populations within the headwaters and explore opportunities to increase native fish populations in their current range.

Action	Target Area	Time-frame	Potential Partners	Support from Community	Link to South Saskatchewan Management Plan (SSRP) (Land-Use Framework)	Link to Other Initiatives	Watershed Criteria addressed by the action	OWC Facilitate, recommend, Action	Evaluation of Success	Progress
1. Complete a fine scale cumulative effects assessment of fish populations and habitat streams to: • determine where native and naturalized fish populations remain • monitor population trends over time • determine what impacts are contributing to declining populations. Ensure information of the assessment is clear and publicly accessible and offer opportunities for citizen science and stewardship action to support species persistence.	Headwaters	Ongoing	Alberta Environment and Sustainable Resource Development Alberta Conservation Association Cows & Fish Trout Unlimited Alberta Conservation Association	*Source to Tap* community conversations identified research and information sharing is needed to determine impacts of practices, and focus stewardship efforts. *MD Pincher Creek Community Values Survey* rated erosion of ecosystems as undesirable. *Oldman Watershed Planning Priorities* identifies cumulative effects as a top risk to watershed health.	Outcome 2: Biodiversity and ecosystem function are sustained with shared stewardship. Objectives: Terrestrial and aquatic biodiversity are maintained. Species at risk are recovered; long term forest ecosystem health and resiliency are maintained. (Draft SSRP; 66) South Saskatchewan Biodiversity Framework: focus on key species that represent broad range of biodiversity... and important habitats where specific direction is provided in recovery plans (eg: grizzly bears) and maintain key landscapes (protection of headwaters...) (Draft SSRP; 66) Manage forests in the Green Area with headwaters protection and integrity (water storage, recharge, and release functions) as the highest management priority. Other values such as biodiversity (grizzly bear, limber pine, and whitebark pine recovery), forest ecosystem resiliency (natural disturbance patterns) and timber supply will be key secondary management priorities. (Draft SSRP; 69) Linear footprint disturbance will be minimized through linear footprint planning with an initial focus on key headwater areas and core grizzly bear habitat areas.(Draft SSRP; 41) Monitoring of the indicators (biodiversity) will be through the Alberta Biodiversity Monitoring Institute and other finer scale monitoring by the Gov't of Alberta and partners.... ...develop a linear footprint management plan for the White and Green Area public lands... by 2017. These plans will outline a system to minimize the extent, duration and rate of linear footprint development in order to meet objectives and targets established in the South Saskatchewan Biodiversity Management Framework.(Draft SSRP; 67).	Alberta Westslope Cutthroat Trout Recovery Plan - threat assessment identifies cumulative and synergistic effects on WSCT including: • Invasive species • Adverse effects on habitat • Consumptive use/ exploitation; • Stocking • Pollution • Climate change Bull Trout Conservation Management Plan 2012-2017 - limiting factors for bull trout distribution and abundance are: • Habitat fragmentation • Culvert (movement barriers) • Dams • Irrigation canals • Stream flow • Peak flow intensity • Roads • Groundwater flow • Sedimentation (water quality) • Stream temperature • Cumulative impacts Further research and inventory of Bull Trout populations, ecology, habitat requirements and impacts of industrial activities and non-native species is needed for management of this species.	Biodiversity Water quality Watershed integrity Water Levels and Flow	Facilitate Recommend	An inventory and cumulative effects assessment on native fish populations in the headwaters is complete. Reasons for declining populations are identified and mitigation measures are in place. Monitoring of populations continues. Information from the assessment is shared with stakeholders and the public; and citizen science and stewardship action is encouraged and supported.	AESRD Fish and Wildlife: 1. Westslope Cutthroat Trout and Bull Trout surveys are continuing in the headwaters. Not all watersheds have been surveyed - incomplete data on where remnant populations exist. 2. Detailed land use assessment in Westslope Cutthroat Trout watersheds is ongoing. Shell Waterton - funding provided to Alberta Conservation Association to continue bull trout population and habitat studies in the headwaters. Trout Unlimited is involved in the Alberta Westslope Cutthroat Trout Recovery Plan.

ACTION PLAN • Indicator 1: Presence and abundance of fish, especially native populations (continued)

TARGET 1: Maintain current native and naturalized fish populations within the headwaters and explore opportunities to increase native fish populations in their current range.

Action	Target Area	Time-frame	Potential Partners	Support from Community	Link to South Saskatchewan Management Plan (SSRP) (Land-Use Framework)	Link to Other Initiatives	Watershed Criteria addressed by the action	OWC Facilitate, recommend, Action	Evaluation of Success	Progress
2. Develop an education and outreach program to address: 1. importance of headwaters health and healthy trout streams 2. impacts on headwaters integrity caused by proliferation/intensity of use of linear disturbance 3. impacts of sedimentation in streams 4. importance of fish populations as an indicator of biodiversity/watershed integrity 5. encouragement of a stewardship ethic in motorized recreation users to safeguard headwaters health 6. how people can be part of the solution to headwaters concerns. The program will include: a) Adopt a Watershed Program to engage people and groups to understand pressures and risks to their watershed; implement stewardship actions; and share information about their adopted watershed b) encourage users to adopt practices that reduce sediment in streams c) target youth and user groups.	Headwaters	2014-Ongoing	Oldman Watershed Council AESRD NGO's	*Source to Tap* community conversations identified education and awareness as a major need, especially for recreational users and youth, suggested focus on local place-based issues and BMPs and get people engaged with hands on activities outdoors. *Priorities for the Oldman Watershed: Promoting action to maintain and improve our watershed* identifies community engagement as the top priority of the Integrated Watershed Management Plan for the Oldman basin. *South Eastern Slopes Task Force:* emphasized recommendation for Gov't of Alberta to develop broad public education and awareness around appropriate use and conduct on public lands	Stewardship and Conservation on Private Lands: contribution of landowners for their stewardship and conservation efforts on private lands are recognized.... encourage and support continued stewardship of Alberta's private lands through... piloting of regionally appropriate conservation tools. (Draft SSRP; 74).	Cows and Fish is working to improve riparian habitat around Westslope Cutthroat Trout streams, and have provided workshops and citizen restoration opportunities to reclaim/replant riparian areas. Southern Rockies Watershed Project - showed wildfire causes major sedimentation; salvage logging after wildfire causes even more sedimentation in streams.	Biodiversity Water quality Watershed integrity	Facilitate Action	Awareness and education programs/ projects to foster a stewardship ethic for headwaters and source waters values is efficient and effective at reaching a broad recreation-user audience. Mitigation/restoration measure are clearly communicated and in place. Good practices are adopted by all users. Sediment loading preformance monitoring programs are in place to assure implemented practises are effective in decreasing sediment load. Sediment loadings decrease. Starting with one sub-watershed, the program will target adoption of 10 sub-watersheds over time.	OWC's Watershed Legacy Program provides resources for landowners to adopt beneficial management practices and has funded several landowner projects for watershed protection. Crowsnest Conservation Society - Maintaining and Restoring Crowsnest River Riparian Areas - community education project. Cows and Fish - Bioengineering and Riparian Restoration for Westslope Cutthroat Trout - community hands-on restoration project. Pincher Creek Watershed Stewardship

ACTION PLAN • Indicator 1: Presence and abundance of fish, especially native populations (continued)

TARGET 1: Maintain current native and naturalized fish populations within the headwaters and explore opportunities to increase native fish populations in their current range.

Action	Target Area	Time-frame	Potential Partners	Support from Community	Link to South Saskatchewan Management Plan (SSRP) (Land-Use Framework)	Link to Other Initiatives	Watershed Criteria addressed by the action	OWC Facilitate, recommend, Action	Evaluation of Success	Progress
3. Initiate a pilot restoration project in one sub-watershed to increase existing native and naturalized fish populations and improve water quality.	To be determined Suggestions include South Castle River, Dutch Creek, Racehorse Creek, Upper Oldman, Carbondale River.	2014-2015 (initiate)	AESRD Cows and Fish OWC Partnership Advisory Network	*Source to Tap* community conversations identified restoration of degraded areas as a need. *MD Pincher Creek Community Values Survey* showed strong support for protecting water resources and environmental conservation.	Outcome 2: Biodiversity and ecosystem function are sustained with shared stewardship. Objectives: Terrestrial and aquatic biodiversity are maintained. Species at risk are recovered; long term forest ecosystem health and resiliency are maintained. (Draft SSRP; 66)	Cows and Fish - Bioengineering and Riparian Restoration for Westslope Cutthroat Trout - community hands-on restoration project - knowledge and expertise resource. *Watershed Management Audit of Risks to Regional Water Supply as a Result of Forest Management* report identified old roads as a threat to water quality	Biodiversity Water quality Watershed integrity	Facilitate	Native fish populations increase and water quality improves. The project serves as a demonstration site for how the headwaters can be restored. Linear features and degraded riparian habitat are reclaimed.	Cows and Fish - Bioengineering and Riparian Restoration for Westslope Cutthroat Trout - community hands-on restoration project - knowledge and expertise resource.
4. Explore options for recreational user fees to fund enforcement, education and stewardship projects.	Crown Land	2014-2015 (initiate)	AESRD Alberta Justice Alberta Solicitor General	*Source to Tap* community conversations identified user pay model as desirable for all types of recreation, strong support for directing the funds to enforcement, education and local management. *Southeast Slopes Task Force* report supports user fees to cover costs of emergency services, policing and road maintenance. *'What We Heard'* Headwaters Action Plan (HAP) 2013-14 - Public Review (November 2013): significant support within communities for sustainable funding of enforcement needs.		Crowsnest Pass Quad Squad concept/proposal.	Biodiversity Water quality Watershed integrity	Facilitate	Options for collecting and using recreation user fees to fund enforcement, education and stewardship project have been explored and shared with the Government of Alberta.	

ACTION PLAN • Indicator 1: Presence and abundance of fish, especially native populations (continued)

TARGET 2: Restore native fish populations on selected streams* in the headwaters

Action	Target Area	Time-frame	Potential Partners	Support from Community	Link to South Saskatchewan Management Plan (SSRP) (Land-Use Framework)	Link to Other Initiatives	Watershed Criteria addressed by the action	OWC Facilitate, recommend, Action	Evaluation of Success	Progress
1. Develop a plan to restore native fish in key streams/sub-watersheds of their historic range. The plan will include: 1. Identification of the best options of where to restore native fish and fisheries habitat, with input from GOA scientists, the public and stakeholders 2. Determine what is needed to successfully restore habitat and repopulate native fish in top priority streams (e.g. land-use changes) 3. Set timeframe for implementation of the plan.	To be prioritized	Initiate prioritization process - 2014	AESRD Partnership Advisory Network NGOs	*Values and Voices* community workshops identified fish and wildlife as an important value *MD Pincher Creek Community Values Survey* rated conservation and protection of water resources as a top priority.	Outcome 2: Biodiversity and ecosystem function are sustained with shared stewardship. Objectives: Terrestrial and aquatic biodiversity are maintained. Species at risk are recovered; long term forest ecosystem health and resiliency are maintained. (Draft SSRP; 66) Under the SSRP - Biodiversity Management Framework, management approaches will include: • minimizing the duration and extent of linear disturbances; • managing public motorized access in specific locations; • maintaining a diverse range of forest seral stages; • maintaining stream • continuity (minimizing fragmentation of watercourses due to barriers at stream crossings) • managing wildfire risk tin key species at risk habitats which depend on natural disturbance. (Draft SSRP; 121-22)	Westslope Cutthroat Trout Recovery Plan. Bull Trout Conservation Management Plan.	Biodiversity Water quality Watershed integrity	Facilitate	Identification and prioritization of stream/sub-watershed area restoration for BTR and/or WSCT is completed. Land use planning is revised and a timeframe for restoration of prioritized habitat steams is sets; preparatory actions for restoration are initiated	AESRD - Fish and Wildlife: Westslope Cutthroat Trout (WSCT) and Bull Trout surveys - identifying hydrologically significant areas in the headwaters (supportive of important population / spawning habitat)
2. Add Mountain Whitefish to list of native fish species to be considered in management planning and stewardship actions to ensure population persistence in the headwaters.	Headwaters	Ongoing	AESRD OWC	*'What We Heard'* HAP Public Review (November 2013) - suggestion that all cold-water fish should be considered and included in stewardship actions for headwaters health.	If biodiversity is not properly managed, species at risk designations can occur which further restrict access to resources, and impact Alberta's reputation for environmental management. Collectively this impacts Alberta's economy. (Draft SSRP; 119)		Biodiversity Watershed Integrity	Facilitate	Mountain Whitefish are included (where possible) in habitat restoration and population retention actions for fish species in the headwaters. Mountain Whitefish are considered in land-use planning in the headwaters.	

(*selected streams = streams with sufficient or restored habitat value for native fish; streams where native fish have been extirpated from their historic range)

ACTION PLAN • Indicator 1: Presence and abundance of fish, especially native populations (continued)

TARGET 2: Restore native fish populations on selected streams* in the headwaters

Action	Target Area	Timeframe	Potential Partners	Support from Community	Link to South Saskatchewan Management Plan (SSRP) (Land-Use Framework)	Link to Other Initiatives	Watershed Criteria addressed by the action	OWC Facilitate, recommend, Action	Evaluation of Success	Progress
3. Reintroduce beavers into the headwaters area.	Headwaters	2014-15 - review research support for re-introduction of beavers for watershed health, and options for re-introduction in the headwaters area.	AESRD Partnership Advisory Network OWC	*Values and Voices* community workshops identified fish and wildlife as an important value. Miistakis Institute: *Leave It To Beavers* Project: beavers have traditionally played an important role in ecosystem health through the provision of healthy wetlands which also serve to hold high quality water in upper watershed areas for groundwater recharge and surface run-off. In a water-stressed landscape, such as southern Alberta, beavers could be used as an effective strategy to improve water quality and quantity. Beavers can be relocated to areas where they will provide natural engineering to improve water quantity and quality and provide a natural climate change adaptation strategy.	Manage forests in the Green Area with headwaters protection and integrity (water storage, recharge, and release functions) as the highest management priority. (Draft SSRP; 69).		Biodiversity Watershed integrity	Facilitate	The best options for re-introduction of beavers are assessed. A self-sustaining population of beavers in the headwaters contributes to water retention; watershed health. Information on the value of beavers for watershed health is shared with the greater watershed community.	Miistakis Institute of the Rockies, in partnership with the Anne and Sandy Cross Conservation Area, Calgary Science School and Cows and Fish are working on a beaver re-introduction project to determine the ecological benefits of beavers to watershed health. www.rockies.ca/beavers/

(*selected streams = streams with sufficient or restored habitat value for native fish; streams where native fish have been extirpated from their historic range)

RECOMMENDATIONS TO DECISION-MAKERS • Indicator 1: Presence and abundance of fish, especially native populations

TARGET 1: Maintain current native and naturalized fish populations within the headwaters area and explore opportunities to increase native fish populations in their current range.

Recommendations to Decision-makers	To Whom	Time-frame	Support from Community	Link to SSRP	Watershed Criteria Addressed by the Recommendation	Evaluation of Success	Progress
1. Adopt the linear features density targets as determined in the Headwaters Action Plan (2013-14) into the South Saskatchewan Regional Plan. Linear features density targets are: 1. No net increase in linear features density in each sub-watershed of the Oldman headwaters 2. Set linear disturbance threshold of .15-0.2 km/km2 in sub-watersheds where Bull Trout and Westslope Cutthroat Trout currently exist 3. Maintain negligible-low linear feature pressure/risk rating in sub-watersheds where it currently exists 4. Lower density of linear features in high priority 4th order watersheds by one pressure/ risk rating (e.g. high to moderate pressure/risk). (Reference: Oldman Headwater Indictor Project, version 2014.1)	Government of Alberta Alberta Environment and Sustainable Resource Development	SSRP Plan - March 2014	18 organizations were involved in consensus decision-making process that set targets for density of linear features in the Oldman headwaters. *Source to Tap* community conversations identified a need to integrate watershed planning into the Land-use Framework, the need to focus land use planning on what the local community wants and needs. *'What We Heard'* Headwaters Action Plan Public Review (November 2013) - agreement from participants that linear features density thresholds should be set in the headwaters area, with some reservations that there may not be political will to accomplish this.	Linear footprint disturbance will be minimized through linear footprint planning with an initial focus on key headwater areas and core grizzly bear habitat areas.(Draft SSRP; 41) Under the SSRP - Biodiversity Management Framework, management strategic approaches will include: • minimizing the duration and extent of linear disturbances; • managing public motorized access in specific locations; • maintaining a diverse range of forest seral stages; • maintaining stream • continuity (minimizing fragmentation of watercourses due to barriers at stream crossings) • managing wildfire risk in key species at risk habitats which depend on natural disturbance. (Draft SSRP; 121-22)	Biodiversity Water quality Watershed integrity	The Alberta Legislature approves the South Saskatchewan Regional Plan, including targets for density of linear features as determined in the Headwaters Action Plan 2013-14, and implements the target thresholds into regional and sub-regional management plans. Linear features density targets threshold pressure/risk ratings in the Headwaters Action Plan 2013-14 determine the level of reclamation of linear features in select 4th order watersheds, specifically watersheds with fisheries species at risk (e.g. Westslope Cutthroat Trout and Bull Trout).	
2. Develop Access Management Plans for the headwaters that will: 1. focus on watershed health as the first priority 2. clearly designate acceptable uses 3. manage the intensity/volume of use 4. recommend setting linear disturbance threshold .15-0.2 km/km2 in sub-watersheds with where Bull Trout and Westslope Cutthroat Trout exist and level of linear disturbance is higher than this threshold value 5. for user groups, address displaced activities and recommend alternative locations that are not in high impact/ sensitive areas.	Government of Alberta Environment and Sustainable Resource Development	2014-2017	*Source to Tap* community conversations show support for water protection as the first priority on Crown lands, designated areas for protection and different types of recreational use to minimize conflict, limiting access in sensitive areas. *Southeast Slopes Task Force* report supports limiting access to reduce human footprint; alternatives must be provided. *Values and Voices* community workshops identified watershed health as the first priority. *MD Pincher Creek Community Values Survey* rated increased OHV use of Crown land as undesirable and rated protecting water resources as a top priority.	Linear footprint disturbance will be minimized through linear footprint planning with an initial focus on key headwater areas and core grizzly bear habitat areas. (Draft SSRP; 41)	Biodiversity Water quality Watershed integrity	Access Management Plans are developed and enforced to maintain and protect key watershed health parameters: water quality; fish species at risk; lower linear disturbance in critical areas; management of intensity of use. Linear features density targets of the Headwaters Action Plan 2013-14 will require reclamation of density of linear features in select 4th order watersheds (targeting linear disturbance threshold of 0.2 - .15 kms/kms2), specifically for sub-watersheds with fisheries species at risk: Westslope Cutthroat Trout and Bull Trout.	

RECOMMENDATIONS TO DECISION-MAKERS · Indicator 1: Presence and abundance of fish, especially native populations (continued)

TARGET 1: Maintain current native and naturalized fish populations within the headwaters area and explore opportunities to increase native fish populations in their current range.

Recommendations to Decision-makers	To Whom	Time-frame	Support from Community	Link to SSRP	Watershed Criteria Addressed by the Recommendation	Evaluation of Success	Progress
3. Increase enforcement of existing laws and policies related to recreational use in the headwaters.	Government of Alberta Environment and Sustainable Resource Development Alberta Justice and Alberta Solicitor General	Begin immediately, ongoing	*Source to Tap* community conversations identified increased enforcement of recreational use laws and policies as a major need. *Southeast Slopes Task Force* report supports increased enforcement. *MD Pincher Creek Community Values Survey* strongly supported increased enforcement. *'What We Heard'* Headwaters Action Plan - Public Review (November 2013). The need for enforcement of motorized recreation use in the headwaters was reinforced during the HAP review community meetings.	Where it is permitted off-highway vehicle use in Wildland Provincial Parks and the Castle Conservation Area will be managed to designated trails and areas to mitigate potential impacts to biodiversity associated with random motorized access. (Draft SSRP; 41) Off-highway vehicle use is permitted on existing trails and areas or where a management plan, trails plan or regulation specifies. In areas where designation of trails has not yet occurred, use of existing access can continue, but no new trails or routes or access may be developed without an access management plan. No motorized access is permitted in wetlands and water courses. Off-highway vehicle use will continue to be prohibited in beds and shores of permanent water-bodies. (Draft SSRP;41)	Biodiversity Water quality Watershed integrity	Existing laws and policies related to land-use and conservation are addressed throughout the headwaters, and violations are reduced significantly.	
4. Develop a Recreation Management Plan for the Eastern Slopes (including the Oldman headwaters). The plan would include (but is not limited by): 1. retaining negligible-low linear feature pressure/risk rating in key sub-watersheds, including the South Castle and other headwaters sub-watersheds 2. development of motorized and non-motorized trail staging areas 3. monitoring and controlling intensity of use 4. limiting linear features to maintain and protect 'last of the best' watershed integrity values 5. referring to a current, successful access plan as an example for developing the recreation plan (e.g. Kananaskis Country) 6. meeting recreation needs of Albertans.	Government of Alberta Alberta Environment and Sustainable Resource Development		*Source to Tap* Community Conversations: Factors negatively affecting headwaters health: Recreation: Across the headwaters, recreation activities along and in water courses are affecting water quality. Impacts are particularly felt with: unregulated random camping, overuse of motorized vehicles such as ATV's and dirt bikes, back and front country campsites located along water courses, and boating on reservoirs. Participants noted that recreation use is the primary way that most people relate to the Oldman Basin headwaters area, and that overuse and abuse due to recreation uses is broadly recognized as a significant issue to be addressed. *Recreation Management a Priority:* The widespread effect of recreation activities on ecosystem integrity and water quality was the most commonly identified human use that negatively impacts the landscape. Recreation use of the headwaters is seen to be increasing in numbers and types of uses, and to be continually opening access in new areas. Recreation users, specifically organized recreation groups, also represent a tremendous opportunity for stewardship of the Oldman headwaters through promotion activities that involve education, monitoring, and compliance to/enforcement of regulations.	SSRP Draft - Proposed Approach to Public Land Use Zones: upon approval of the plan, implementation will include: • future access and camping management determined through trail mapping and through recreation and access management planning and linear footprint management planning with consultation... • new public land recreation areas (low infrastructure will be established in conjunction with other strategies for enhancing recreation and tourism opportunities. • expanded Public Land Use Zones will be established after trails are identified through mapping and posting of signs. • as recreation and access management plans, the linear footprint management plan and the South Saskatchewan Trail System Plan are completed, the Public Land Use Zones Schedule(s) will be updated as part of implementation of these plans. (Draft SSRP;126)	Watershed Integrity Biodiversity Water Quality	A Recreation Management Plan for the East Slopes (including the Oldman headwaters area) is developed and enforced. The South Castle sub-watershed is managed to retain the negligible-low pressure/risk rating for linear features. All highly impacted recreation areas in the headwaters region are managed to provide recreation needs for Albertans, but with a focus on water and watershed protection; no net increase in linear features; reduction in linear features in key-sub-watersheds with fisheries species at risk.	

RECOMMENDATIONS TO DECISION-MAKERS • Indicator 1: Presence and abundance of fish, especially native populations (continued)

TARGET 2: Restore native fish populations on selected streams* in the headwaters.

Recommendation	To Whom	Time-frame	Support from Community	Link to SSRP	Watershed Criteria Addressed by the Recommendation	Evaluation of Success	Progress
1. The Government of Alberta will work diligently to ensure effective decision-making and regulatory action for watershed health.	Government of Alberta Alberta Environment and Sustainable Resource Development Alberta Justice Alberta Solicitor General	Ongoing	*Source to Tap* Community Conversations on Headwaters Health and Stewardship in the Oldman River Basin: Major Discussion Themes: • Provincial Gov't support is recognized as being a positive factor through the policies and regulations that provide structure and tools for watershed planning and management in the Oldman headwaters area. However, in addressing regulatory and enforcement capacity, participants perceive that government agencies do not adequately recognize or acknowledge the ecological values of the watershed and develop policy based on community and watershed health. Further, participants are frustrated by their inability to have a local or regional voice heard in provincial decision-making regarding land and water issues.	The complex relationship between water, the land and all those that live on it has been recognized and our collective knowledge, understanding and appreciation of this complexity has grown and improved significantly over time..... Recognizing the priority for headwaters management and protection, for both water supply and water quality, is a key element of this regional plan. (Draft SSRP; 45).	Watershed Integrity Biodiversity Surface Water Quality Water Levels and Flows	Government of Alberta is effective with decision-making and regulatory action that assists with maintaining and protecting headwaters integrity. From *Source to Tap* community conversations, success would come with a clear linkage between land use plan management /strategies and grass-roots needs, values and actions. A line of sight is required between the Land Use Framework and Alberta's Water For Life Strategy through regional and municipal planning to grassroots stewardship. Regulatory enforcement is mandatory in coordination with government. It is important to define conservation areas and stewardship opportunities under the SSRP and the Alberta Land Stewardship Act to manage and enforce accordingly. Enforcement is a clear government role and expectation.	The Draft South Saskatchewan Regional Plan will be finalized in Spring 2014.
2. Harmful stream channelization is avoided; current harmful channelization is removed or remediated.	Government of Alberta Alberta Environment and Sustainable Resource Development		*'What We Heard'* Headwaters Action Plan Public Review (November 2013): Need to look at best practices when stream channelization cannot be avoided.		Watershed Integrity Biodiversity	Harmful channelization of streams is avoided; and current harmful channelization is removed or remediated. Alternatives to harmful stream channelization are fully explored and implemented to address flood mitigation and development needs. Alternatives include (but are not limited to) riparian setbacks and protection; floodplain and meander protection; development disallowed in flood hazard areas.	

(*selected streams = streams with sufficient or restored habitat value for native fish; streams where native fish have been extirpated from their historic range)

RECOMMENDATIONS TO DECISION-MAKERS · Indicator 1: Presence and abundance of fish, especially native populations (continued)

TARGET 2: Restore native fish populations on selected streams* in the headwaters.

Recommendation	To Whom	Support from Community	Link to SSRP	Watershed Criteria Addressed by the Recommendation	Evaluation of Success	Progress
3. Complete a fine scale analysis of linear disturbance in the Upper Oldman and Carbondale sub-watersheds, including criteria to establish a restoration plan to reduce linear disturbance to a lower pressure/risk rating (e.g high to moderate, or moderate to low) (Reference: density of linear features pressure/ risk ratings: Oldman Headwaters Indicators Report, 2014.1).	Government of Alberta Alberta Environment and Sustainable Resource Development	*Source to Tap* Community conversations: activities or factors perceived or known by local residents to affect headwaters health in a negative way included cumulative effects and linear disturbances. With increased population pressure and increased human use of the landscape in the Oldman headwaters, the cumulative effects of land uses (human activities) continues to intensify. In particular, participants see increased evidence of linear disturbances. *Westslope Cutthroat Trout Recovery Plan* - Detailed Threat Assessment: Forest harvest, linear disturbance, grazing, OVH recreational access, in-stream construction and municipal run-off were all listed as a high threat rating for Westslope Cutthroat Trout recovery, especially in or upstream of spawning areas. Potential of high severity impact on small, isolated populations. (WSCT Recovery Plan; 16).	Linear footprint disturbance will be minimized through linear footprint planning with an initial focus on key headwater areas and core grizzly bear habitat areas. (Draft SSRP; 41) SSRP Biodiversity Management Framework - management approaches include: development of a linear footprint management plan in the Green Area and White Area - will reduce the extent, duration and rate of total linear footprint development, through detailed planning, setting of limits and targets in favor of key biodiversity indicators such as grizzly bear exposure, and maintaining intact native prairie. (Draft SSRP; 122).	Watershed Integrity Biodiversity Water Quality	An analysis of watershed restoration through lowering density of linear features in the Upper Oldman and Carbondale sub-watersheds is completed. Information is shared with the public and stakeholders. The criteria for restoration of linear disturbance to a lower risk rating is shared with the public and stakeholders.	
4. Angling regulations are amended to prevent stress or harm to native fish. (Regulatory changes may include closure of key reaches or sub-watersheds to angling; control of invasive species harmful to native fish.)	Government of Alberta Alberta Environment and Sustainable Resource Development	*Westslope Cutthroat Trout Recovery Plan* - Detailed Threat Assessment: Angling (legal harvest; catch and release), Incidental or accidental mortality through angling are considered low threats to WSCT recovery. Invasive species, however, pose various levels of threat to WSCT recovery: Rainbow trout - high threat Yellowstone cutthroat trout - medium threat Brook Trout - high threat Brown Trout - Medium threat	Outcome 2: Biodiversity and ecosystem function are sustained with shared stewardship. Objectives: Terrestrial and aquatic biodiversity are maintained. Species at risk are recovered; long term forest ecosystem health and resiliency are maintained. (Draft SSRP; 66)	Biodiversity	Regulation is updated to prevent stress or harm to native fish, including closure of some headwaters streams or stream reaches; and control of invasive species harmful to native fish (e.g.: rainbow trout; brook trout).	AESRD: Stewardship License Pilot Project - removal of non-native fish by angling, from stream reaches where they are invading and competing with native salmonids.
5. Restore native fish in prioritized streams where: 1. populations have been extirpated 2. habitat values for native fish are sufficient and/or have been restored 3. the threat of invasive species to native fish populations has been addressed.	Government of Alberta Alberta Environment and Sustainable Resource Development	*Alberta Westslope Cutthroat Trout Recovery Plan* identifies invasive species as a threat *Values and Voices* community workshops identified fish and wildlife as an important value *Priorities for the Oldman Watershed:* Promoting action to maintain and improve our watershed identifies aquatic invasive species as a primary concern to be addressed by an Integrated Watershed Management Plan	Draft SSRP: Biodiversity Management Framework - regional objectives include: Terrestrial and aquatic biodiversity are maintained; species at risk are recovered... (Draft SSRP; 119) Draft SSRP: Continue to work with other government agencies, other levels of government, landholders, non-government organization, industry, the research community and other partners within and outside the province to manage risk associated with invasive species. (Draft SSRP; 70)	Biodiversity Watershed Integrity	Selected streams within historic range are repopulated with self-sustaining populations of native fish. Streams prioritized for restoration of native fish would be where these species have been extirpated; where habitat values are sufficient or restored; and where invasive species threats are addressed to maintain and protect self-sustaining populations of native fish.	AESRD: Stewardship License Pilot Project - removal of non-native fish by angling, from stream reaches where they are invading and competing with native salmonids.

(*selected streams = streams with sufficient or restored habitat value for native fish; streams where native fish have been extirpated from their historic range)

ACTION PLAN • Indicator 2: Density of Linear Features

TARGET 1: In urban centres and major transportation corridors, no linear thresholds will be set; however, mitigation of the impact of linear features will be actively pursued.

Action	Target Area	Time-frame	Potential Partners	Support from Community	Link to South Saskatchewan Management Plan (SSRP) (Land-Use Framework)	Link to Other Initiatives	Watershed Criteria addressed by the action	OWC Facilitate, recommend, Action	Evaluation of Success	Progress
1. OWC will continue to build a good working relationship with local municipalities to strive for consistency in land-use planning that maintains and protects source water and headwaters integrity.	Municipalities that have jurisdiction in the Headwaters: MD Ranchlands Municipality of Crowsnest Pass MD Pincher Creek MD Willow Creek Cardston County	Immediate-ongoing	OWC and Municipalities	*Source To Tap:* Water as Priority of Public land management was viewed as a high political priority. Conservation and stewardship require a stronger value and role in land-use planning. Public input is critical regarding changes in land use planning and changes to status of by-laws. *South Eastern Slopes Task Force:* committed to land use planning of the east slopes to safeguard water quality and address environmental degradation from inappropriate recreation use.	Municipalities will: Utilize or incorporate measures which minimize or mitigate possible negative impacts on important water resources or risks to health, safety and loss to property damage. Municipalities are encouraged to: identify values of water resources an features within their boundaries; consider local impacts as well as impacts on the entire watershed; consider protection of water features and protect sensitive aquatic habitat and other aquatic resources and use available guidance, where appropriate, from water and watershed planning initiatives in support of municipal planning. (Draft SSRP; 94) Corridors for the Co-location of Linear Infrastructure: Work with municipalities, landowners and industry to explore multi-use corridors for co-location of linear infrastructure that supports critical economic linkages to markets for expanded access.(Draft SSRP;60) Tourism: work with municipal governments and other partners to identify, establish and promote scenic byways in and around areas with high-quality attractions and recreation and tourism features. This would include routes, trails and waterways to create distinctive travel experiences and showcase the regions' unique scenic resources and cultural landscapes. (Draft SSRP; 65)	Pincher Creek Community Values Study: support for conserving and protecting water resources and protecting the natural environment were listed in the top 10 values.	Watershed Integrity Biodiversity Surface Water Quality Stream Levels and Flows	Facilitate Action	1. The OWC has a good working relationship with Municipalities. 2. The maintenance and protection of headwaters and source waters integrity, and the mitigation of impacts from linear disturbance and other cumulative impacts is addressed in municipal land-use plans.	OWC has initiated this work; meetings have been held with all five Municipal Councils related to the Headwaters Action Plan process. Municipalities have indicated interest and have participated in the development of the Headwaters Action Plan 2013-14. Municipalities are represented on the Headwaters Action Plan Steering Committee to work on the implementation of priority actions, monitoring, evaluation and reporting of progress of the first iteration of the HAP.

ACTION PLAN • Indicator 2: Density of Linear Features (continued)

TARGET 1: In urban centres and major transportation corridors, no linear thresholds will be set; however, mitigation of the impact of linear features will be actively pursued.

Action	Target Area	Time-frame	Potential Partners	Support from Community	Link to South Saskatchewan Management Plan (SSRP) (Land-Use Framework)	Link to Other Initiatives	Watershed Criteria addressed by the action	OWC Facilitate, recommend, Action	Evaluation of Success	Progress
2. Take measures to reduce impacts by addressing connectivity for aquatic and terrestrial biodiversity in the headwaters area, and encourage/ support initiatives that improve connectivity across the Highway 3 corridor.	Headwaters	Ongoing	AESRD Partnership Advisory Network	*Source to Tap:* significant community recognition of a number of stewardship initiatives that benefit ecological values and contribute to headwaters health. *Grizzly Bear Recovery Plan:* Maintaining connectivity of habitat is necessary to maintain Grizzly Bear population persistence.		Grizzly Bear Recovery Plan Miistakis Institute: Road Watch in the Pass Project Westslope Cutthroat Trout Recovery Plan; Bull Trout Conservation Management Plan. Connectivity is a concern for both Westslope Cutthroat Trout and Bull trout - management implications exist for connectivity for each species at risk	Biodiversity Watershed Integrity		Aquatic and terrestrial habitat connectivity issues are improved throughout the headwaters. Initiatives and projects that address connectivity for biodiversity values are encouraged and actively supported	Miistakis Institute - Road Watch in the Pass project - citizen science web-mapping of wildlife movement across Hwy 3. Further research is being completed as part of the Crown of the Continent Ecosystem - Crown Managers Partnership to determine critical wildlife crossing areas. (ie: "Protecting and Connecting Headwater Havens - Vital landscapes for vulnerable fish and wildlife - Southern Canadian Rockies of Alberta" John. L. Weaver, Wildlife Conservation Society Report No. 7, July 2013.)

ACTION PLAN • Indicator 2: Density of Linear Features (continued)

TARGET 2: Maintain negligible and low linear features density where it currently exists, and ensure no net gain of linear features in each sub-watershed.*

Action	Target Area	Time-frame	Potential Partners	Support from Community	Link to South Saskatchewan Management Plan (SSRP) (Land-Use Framework)	Link to Other Initiatives	Watershed Criteria addressed by the action	OWC Facilitate, recommend, Action	Evaluation of Success	Progress
1. Complete a 'Classification of Linear Features Project' which will include: 1. inventory and classification of linear features in key sub-watersheds of priority concern 2. analysis of reclamation priorities 3. linear features impacts on headwaters health 4. intensity of use monitoring program: collect data on the types and intensity of recreational use in the headwaters to better understand impacts on headwaters integrity, native fish, and water quality.	Key sub-watersheds of concern in the headwaters.	Initiate in 2014-15	AESRD OWC Partnership Advsiory Network	*Source To Tap:* linear features was not addressed specifically, however, community participants recognized management issues related to proliferation of roads and linear features - specifically by motorized recreation, and impacts on wildlife values. Source to Tap community conversations identified intensity of use data as lacking. Headwaters Action Plan 2013-14 - stakeholder group (Partnership Advisory Network) clearly stated the need for intensity of use data to maintain and protect key headwaters values. Headwaters Action Pla 2013-14: 18 organizations were involved in consensus decision-making process that set targets for density of linear features in the Oldman headwaters.	Linear footprint disturbance will be minimized through linear footprint planning with an initial focus on key headwater areas and core grizzly bear habitat areas. (Draft SSRP; 41) Monitoring of the indicators (biodiversity) will be through the Alberta Biodiversity Monitoring Institute and other finer scale monitoring by the Gov't of Alberta and partners.... develop a linear footprint management plan for the White and Green Area public lands... by 2017. These plans will outline a system to minimize the extent, duration and rate of linear footprint development in order to meet objectives and targets established in the South Saskatchewan Biodiversity Management Framework. Key features: 1. Requirements related to linear footprint intensity, including limits where applicable, in specific areas such as species at risk habitat... (core grizzly habitat in eastern slopes); 2. Required use of Integrated Land Management (ILM) tools to minimize the extent and duration of linear footprint including coordinated industry planning or major access corridor, development infrastructure, re-use of existing linear disturbances; and progressive and timely reclamation of linear disturbances. 3. A practical system for monitoring, measuring and reporting on linear footprint. (Draft SSRP; 67)	AESRD Fish and Wildlife: Reviews of land use proposals that could impact fish and fish habitat. Westslope Cutthroat Trout Recovery Plan and Bulltrout Conservation Management Plans cite high density linear disturbance as a threat to species persistence. Southern Foothills Study: Increase in access - increase in OHV use. Wildlife species reduced due to habitat fragmentation. Landscape Patterns Environmental Quality Analysis: provides metrics for density of roads in relationship to wildlife persistence and impacts on watershed health.	Watershed Integrity Biodiversity Surface Water Quality Stream Levels and Flows	Recommend Facilitate	An inventory and classification of linear features in key sub-watersheds of concern is completed. An analysis of the reduction of linear features that improves headwaters health provides direction for reclamation priorities in the key sub-watersheds of concern. Intensity of recreation use is monitored and correlated to impacts on native fish populations. Incidence/location of infractions are monitored. Data is provided to support enforcement and adaptive watershed management	OWC and ESRD will meet to discuss the implementation of HAP actions related to the SSRP Linear Footprint Management Plan.

(*Reference: Oldman Headwaters Indicator Project, 2014.1)

ACTION PLAN • Indicator 2: Density of Linear Features (continued)

TARGET 2: Maintain negligible and low linear features density where it currently exists, and ensure no net gain of linear features in each sub-watershed.*

Action	Target Area	Time-frame	Potential Partners	Support from Community	Link to South Saskatchewan Management Plan (SSRP) (Land-Use Framework)	Link to Other Initiatives	Watershed Criteria addressed by the action	OWC Facilitate, recommend, Action	Evaluation of Success	Progress
2. Engage in conversation with the public, stakeholders and the Government of Alberta to control access in South Castle watershed.	South Castle sub-watershed	Immediate Input to SSRP Draft Plan. Participation in access management planning.	AESRD Partnership Advisory Network NGOs Municipal Government	*Source to Tap* Community Conversations: Access management is needed - restoration of current footprint of logging and roads to below thresholds for water quality and biodiversity. Implementation and enforcement of current plans (e.g. Castle sub-watershed) requires commitment to enforcement. *'What We Heard'* Headwaters Action Plan Public Review (November 2013) : the Castle sub-watershed was recognized as having high integrity rating (Watershed Integrity Index - Headwaters Indicators Report) and needing attention for retention of key headwaters values.	A focus will be to collaboratively develop an integrated trail system, appropriate access and staging opportunities and a range of facilities to meet the range of needs and desires for recreational experiences. Existing access management plans will be expanded upon and stakeholder work use to support comprehensive and integrated recreation and access management planning. North Castle, Porcupine Hills, Livingstone and Willow Creek areas have been identified as priority locations for creating comprehensive and integrated recreation and access management plans. (Draft SSRP; 42-43). Green Area Public Land: A management approach for motorized access or "open route density - a key action identified in Alberta's grizzly bear recovery plan.... species recovery planning initiatives... have shown managing linear human footprint is one of the most significant actions that can be taken to support biodiversity. The linear footprint plan will have an initial focus on key headwaters, grizzly bear habitat.... (Draft SSRP; 68)	Bull Trout Conservation Recovery Plan - South Castle sub-watershed mapped as high risk for Bull trout conservation. Density of roads a key threat to persistence. Near pure strain populations of Westslope Cutthroat Trout populations are in the Castle River sub-watershed. Grizzly Bear Recovery Plan requires sound access management in critical habitat areas. The Castle sub-watershed is classified as a core area of high habitat value for grizzly bears.	Watershed Integrity Biodiversity Surface Water Quality	Action Recommend	Access in the South Castle sub-watershed is controlled to maintain and protect headwaters integrity; protect key species at risk; and provide appropriate recreation access that supports source water and headwaters integrity.	Castle Access Management Plan (requires enforcement action) Integration of current Access and Recreation Management Plans are an implementation action of the SSRP.

(*Reference: Oldman Headwaters Indicator Project, 2014.1)

ACTION PLAN • Indicator 2: Density of Linear Features (continued)

TARGET 2: Maintain negligible and low linear features density where it currently exists, and ensure no net gain of linear features in each sub-watershed.*

Action	Target Area	Time-frame	Potential Partners	Support from Community	Link to South Saskatchewan Management Plan (SSRP) (Land-Use Framework)	Link to Other Initiatives	Watershed Criteria addressed by the action	OWC Facilitate, recommend, Action	Evaluation of Success	Progress
3. Maintain the current low-negligible pressure/risk rating for density of linear features in headwaters sub-watersheds with high integrity rating (e.g. South Castle sub-watershed) (Reference: Watershed Integrity Index - Oldman Headwaters Indicator Project, 2014.1).	South Castle and other sub-watersheds currently at low-negligible risk rating for linear features in the headwaters.	Immediate - ongoing	AESRD	*Pincher Creek Community Values Assessment:* fragmentation of landscapes and clearcut logging were listed as an environmental concern. There were clear statements about the importance of maintaining healthy, functioning ecosystems conserving ecological diversity, sustaining wildlife and protecting water resources. Headwaters Action Plan 2013-14: 18 organizations were involved in consensus decision-making process that set targets for density of linear features in the Oldman headwaters.	Linear footprint disturbance will be minimized through linear footprint planning with an initial focus on key headwater areas and core grizzly bear habitat areas.(Draft SSRP; 41) North Castle, Porcupine Hills, Livingstone and Willow Creek areas have been identified as priority locations for creating comprehensive and integrated recreation and access management plans. (Draft SSRP; 42-43). The aquatic environment and the water people in the region rely on cannot be sustained unless headwaters are protected. The importance of headwaters has been recognized in the unique geography of the eastern slopes. Headwaters is other parts of the region, although in smaller watersheds are equally important. Collaboration and shared stewardship will be essential to achieving responsible management. (Draft SSRP; 91).	Bull Trout Conservation Recovery Plan - South Castle sub-watershed mapped as high risk for Bull trout conservation. Density of roads a key threat to persistence. Near pure strain populations of Westslope Cutthroat Trout populations are in the Castle River sub-watershed. Grizzly Bear Recovery Plan requires sound access management in critical habitat areas. The Castle sub-watershed is classified as a core area of high habitat value for grizzly bears.		Recommend	The South Castle and other sub-watersheds in the headwaters remain at the low to negligible / pressure risk-rating for density of linear features.	

(*Reference: Oldman Headwaters Indicator Project, 2014.1)

ACTION PLAN • Indicator 2: Density of Linear Features (continued)

TARGET 3: Decrease density of linear features where there is moderate to high pressure/risk rating in headwaters sub-watersheds.*

Action	Target Area	Time-frame	Potential Partners	Support from Community	Link to South Saskatchewan Management Plan (SSRP) (Land-Use Framework)	Link to Other Initiatives	Watershed Criteria addressed by the action	OWC Facilitate, recommend, Action	Evaluation of Success	Progress
1. Lower the density of linear features in sub-watersheds with moderate to high pressure/risk rating where high-value habitat for fish species at risk also exists (e.g. Lost Creek - Carbondale).	Initiate in all sub-watersheds with high-value habitat for Bull Trout and West Slope Cutthroat Trout.	Initiate 2014-15, ongoing	AESRD Partnership Advisory Network NGO's	*Source to Tap* - Phase 1: participants see increased evidence of linear disturbance and cumulative effects of land use as negatively impacting the headwaters. Headwaters Action Plan: 18 organizations were involved in consensus decision-making process that set targets for density of linear features in the Oldman headwaters.	Linear footprint disturbance will be minimized through linear footprint planning with an initial focus on key headwater areas and core grizzly bear habitat areas.(Draft SSRP; 41)	AESRD Fish and Wildlife: Reviews of land use proposals that could impact fish and fish habitat. Westslope Cutthroat Trout Recovery Plan and Bulltrout Conservation Management Plans cite high density linear disturbance as a threat to species persistence. Landscape Patterns Environmental Quality Analysis: provides metrics for density of roads in relationship to bulltrout persistence and impacts on watershed health.	Watershed Integrity Biodiversity Surface Water Quality	Facilitate Recommend	Density of linear features is decreased in sub-watersheds with high value habitat for bull trout and west slope cutthroat trout.	
2. Develop and implement a plan to lower density of linear features in high priority 4th order watersheds that includes: 1. prioritization of sub-watersheds with high ecological value (e.g. connectivity requirements; aquatic and terrestrial habitat needs for species at risk) 2. mapping the intersection of high ecological value sub-watersheds with density of linear features and intensity of use to determine high priority areas for reclamation 3. selection of high priority sub-watershed(s) and reclamation of linear features to achieve a lower pressure/risk rating (e.g. high to moderate pressure risk).	High priority 4th order sub-watersheds in the headwaters.	Initiate 2014-15, ongoing.	AESRD Partnership Advisory Network	*Source to Tap* - Phase 1: participants see increased evidence of linear disturbance and cumulative effects of land use as negatively impacting the headwaters. *Pincher Creek Community Values Assessment:* Five of the 15 highest rated 'value statements' pertained to environmental conservation (protecting the natural environment within the MD, conserving and protecting water resources, practicing sustainable agriculture protecting the natural environment around the MD and maintaining natural wildlife and fish populations. Headwaters Action Plan 2013-14: 18 organizations were involved in consensus decision-making process that set targets for density of linear features in the Oldman headwaters .	Linear footprint disturbance will be minimized through linear footprint planning with an initial focus on key headwater areas and core grizzly bear habitat areas.(Draft SSRP; 41) Trails in sensitive source water or ecological areas will be assessed and may be relocated, closed or reclaimed. (Draft SSRP; 54)	Landscape Patterns Environmental Quality Analysis: provides a review of metrics of linear disturbance impacts for key species of concern: grizzly bear; bull trout and the necessity to address connectivity for these species. Grizzly Bear Recovery Plan - core and secondary conservation areas of high habitat value overlap a significant number of 4th order sub-watersheds in the headwaters. Westslope Cutthroat Trout Recovery Plan and Bulltrout Conservation Management Plans cite high density linear disturbance as a threat to species persistence.	Watershed Integrity Biodiversity Surface Water Quality	Facilitate Recommend	High priority 4th order sub-watersheds are prioritized for ecological and watershed integrity values; linear features and intensity of use is overlaid priority sub-watersheds; reclamation is completed to reduce risk rating by one category (Reference risk ratings: Headwaters Indicators Report, Oct. 2013)	

(*Reference: Oldman Headwaters Indicator Project, 2014.1)

ACTION PLAN • Indicator 2: Density of Linear Features (continued)

TARGET 3: Decrease density of linear features where there is moderate to high pressure/risk rating in headwaters sub-watersheds.*

Action	Target Area	Time-frame	Potential Partners	Support from Community	Link to South Saskatchewan Management Plan (SSRP) (Land-Use Framework)	Link to Other Initiatives	Watershed Criteria addressed by the action	OWC Facilitate, recommend, Action	Evaluation of Success	Progress
3. Review the Draft South Saskatchewan Regional Plan for consistency with headwaters targets and provide feedback on gaps and inconsistencies.	Headwaters	Nov-Dec. 2013	Partnership Advisory Network OWC	*Source to Tap* Phase 2: Water is a priority for public land management. Conservation and stewardship require a stronger value and role in land use planning, and ongoing and meaningful public consultation in watershed management is called for.	Advancing Watershed Management: increasing pressures and demands require an integrated view across water supply water quality and aquatic ecosystems... A key partnership under Water For Life strategy is with watershed planning and advisory councils (WPACS). These councils have demonstrated leadership in their contributions to watershed assessment and planning in the region, and the Gov't of Alberta is committed to enhancing its relationship with them. (Draft SSRP; 45)	Headwaters Action Plan Oldman Headwaters Indicators Report Source to Tap Community Conversations	Watershed Integrity Biodiversity Surface Water Quality Stream Levels and Flows	Facilitate Recommend Action	Feedback to the SSRP is provided by the Partnership Advisory Network members and the OWC to: 1. Highlight where the Headwaters Action Plan 2013-14(HAP) and the Draft SSRP are in alignment. 2. Where the HAP and the Draft SSRP are inconsistent - why the HAP is important to incorporate into the SSRP; and key points made on where to improve the SSRP outcomes in relation to headwaters and source water planning priorities.	
4. Update the Minister (Environment and Sustainable Resource Development) on the Headwaters Action Plan 2013-14.	Headwaters	Nov-Dec. 2013	OWC	*Source to Tap* Phase 2: Water is a priority for public land management. Conservation and stewardship require a stronger value and role in land use planning, and ongoing and meaningful public consultation in watershed management is called for.	Advancing Watershed Management: increasing pressures and demands require an integrated view across water supply water quality and aquatic ecosystems... A key partnership under Water For Life strategy is with watershed planning and advisory councils (WPACS). These councils have demonstrated leadership in their contributions to watershed assessment and planning in the region, and the Gov't of Alberta is committed to enhancing its relationship with them. (Draft SSRP; 45)	Headwaters Action Plan Oldman Headwaters Indicators Report Source to Tap Community Conversations	Watershed Integrity Biodiversity Surface Water Quality Stream Levels and Flows	Action	The Minister (Environment and Sustainable Resource Development) is updated on the outcomes of the Headwaters Action Plan 2013-14 and the need for integration with the Draft SSRP on key points related to headwaters and source water planning priorities.	

(*Reference: Oldman Headwaters Indicator Project, 2014.1)

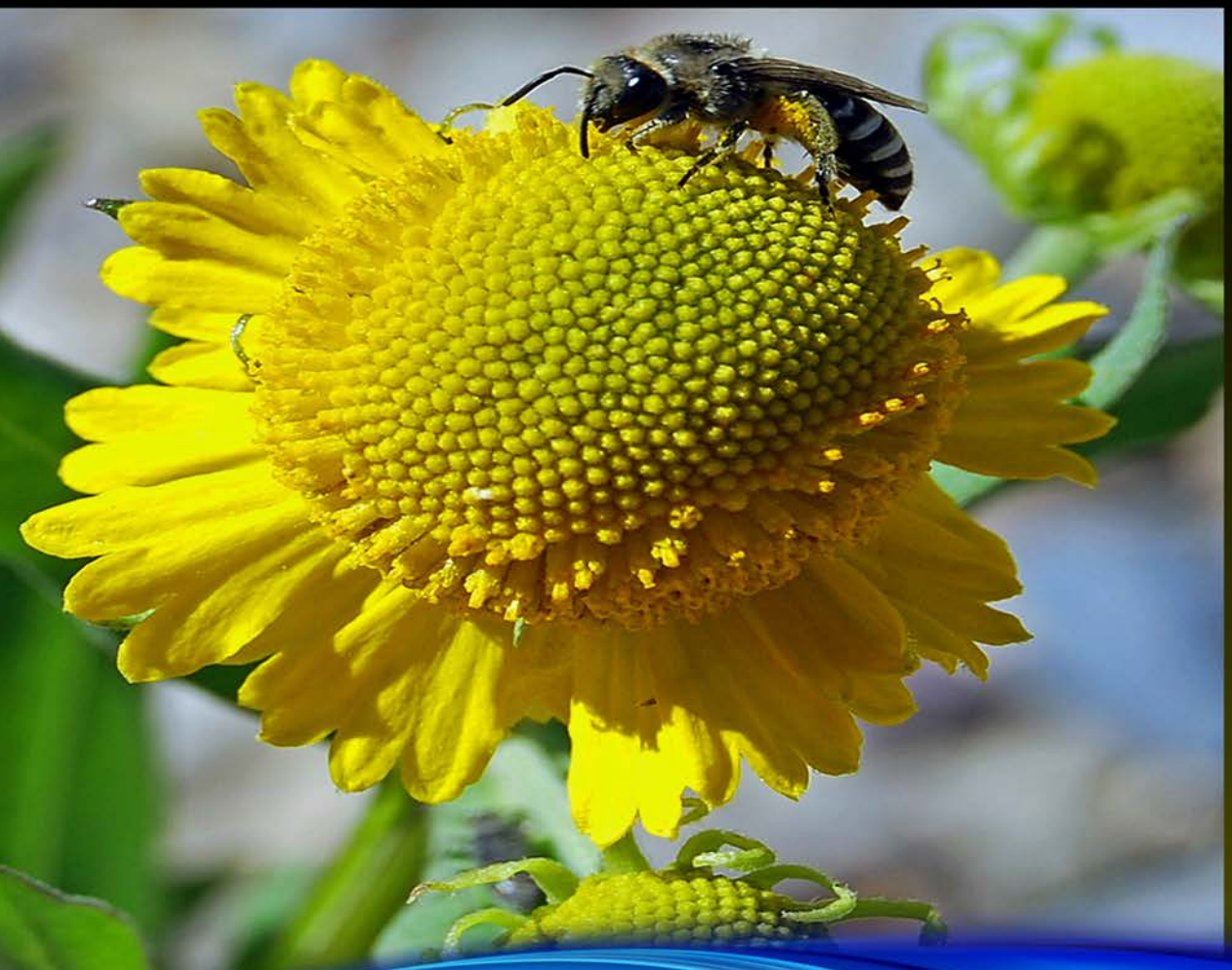
RECOMMENDATIONS TO DECISION-MAKERS · Indicator 2: Density of Linear Features

Recommendation	To Whom	Timeframe	Support from Community	Link to SSRP	Watershed Criteria Addressed by the Recommendation	Evaluation of Success	Progress
1. Develop policy to ensure there will be no net increase in density of linear features in the Oldman headwaters sub-watersheds.	Government of Alberta Alberta Environment and Sustainable Resource Development Municipal Governments	Include policy in the SSRP (March 2014)	*Source to Tap* - Phase 1: participants see increased evidence of linear disturbance and cumulative effects of land use as negatively impacting the headwaters. *Headwaters Action Plan 2013-14*: 18 organizations were involved in consensus decision-making process that set targets for density of linear features in the Oldman headwaters. *Pincher Creek Community Values Assessment:* Five of the 15 highest rated 'value statements' pertained to environmental conservation (protecting the natural environment within the MD, conserving and protecting water resources, practicing sustainable agriculture protecting the natural environment around the MD and maintaining natural wildlife and fish populations.) *Westslope Cutthroat Trout Recovery Plan, Bull Trout Conservation Management Plan and Grizzly Bear Recovery Plan* all list proliferation of linear features and access issues as threats to species persistence.	The Gov't of Alberta is committed to manage the cumulative effects of development on air, water land and biodiversity, and ensuring the value and benefit of these are sustained at a regional level and contribute to provincial outcomes. (Draft SSRP;2) The proposed Castle Wildland Park and Castle Conservation area: intent of these areas will be maintaining biodiversity and headwaters protection. Forestry practices which support this management objective will be permitted in the Castle Conservation Area. (Draft SSRP: 39-40) Conservation areas will be managed to minimize or prevent new land disturbance. This means the land disturbance associated with oil and gas, mining, cultivated agriculture and commercial forestry operations are not considered compatible with the management intent of conservation areas. (Draft SSRP; 40.) Linear footprint disturbance will be minimized through linear footprint planning with an initial focus on key headwater areas and core grizzly bear habitat areas.(Draft SSRP; 41)	Watershed Integrity Biodiversity Surface Water Quality	The SSRP includes a policy for no net gain of linear features in the Oldman headwaters. The SSRP ensures that there will be no net gain of linear features in the Castle Conservation Area - core habitat for grizzly bears and key habitat for Bull Trout and Westslope Cutthroat Trout populations.	
2. Permits for construction of roads or other linear disturbance should include timeframe for active use and date for decommission and reclamation.	Government of Alberta Alberta Environment and Sustainable Resource Development Municipal Governments		*Westslope Cutthroat Trout Recovery Plan, Bull Trout Conservation Management Plan and Grizzly Bear Recovery Plan* all list proliferation of linear features and access issues as threats to species persistence.	To contribute to tourism and recreational opportunities industrial access resource roads or developments and areas scheduled to be reclaimed may be deferred or amended for recreational uses. (Draft SSRP; 55)	Watershed Integrity Biodiversity Surface Water Quality	All permits for new roads or other linear features include a timeframe for active use and a date for decommission and reclamation	

ACTION PLAN • Indicator 3: Aquatic Invasive Species (AIS)

TARGET: Keep AIS out of Alberta (AIS: zebra mussels, quagga mussels and Eurasian water milfoil).

Action	Target Area	Time-frame	Potential Partners	Support from Community	Link to South Saskatchewan Management Plan (SSRP) (Land-Use Framework)	Link to Other Initiatives	Watershed Criteria addressed by the action	OWC Facilitate, recommend, Action	Evaluation of Success	Progress
1. The Alberta Environment and Sustainable Resource Development (ESRD) strategy to address response if aquatic invasive species get into Alberta will be shared, and action taken where OWC and others can add effectiveness to help the strategy.	Headwaters	Immediate - ongoing	AESRD will be the lead with this initiative	Invasive species are recognized as a problem in the headwaters *(Source to Tap; Chief Mt Cumulative Effects Study; Southern Foothills Study; OWC Vision, Risk Analysis and Priority Reports).* Aquatic invasive species of greatest concern (zebra mussels, quagga mussels, eurasion watermilfoil) were not specifically mentioned in *Source to Tap* community conversations. This is a significant gap in public awareness and knowledge.	Aquatic Invasive Species are of concern to maintain healthy aquatic ecosystems. The current focus is on preventing the establishment of the three most noxious aquatic invasive species: zebra mussels; quagga mussels and Eurasian water-milfoil. In addition to aquatic ecosystem impacts, there are high economic costs associated with affected water infrastructure. The Gov't of Alberta is committed to continued prevention and control work with multi-jurisdictional organizations such as the Crown Managers Partnership (Crown of the Continent) (Draft SSRP: 48).	Alberta Environment and Sustainable Resource Development Crown Manager's Partnership Alberta Lakes Management Society	Watershed Integrity Biodiversity Water Quality	Facilitate Recommend Action	Aquatic Invasive species are kept out of Alberta.	ESRD and the Crown Manager's Partnership (CMP) have initiated the AIS 'Stop Aquatic Hitchhikers' program.
2. Assist ESRD with awareness and education program (Stop Aquatic Hitchhikers!) for stakeholders and the public on how to prevent AIS from entering Alberta.	Headwaters	Immediate - ongoing	OWC AESRD Partnership Advisory Network Alberta Lake Management Society Interested citizens	There is a significant gap in public and stakeholder awareness of zebra mussels, quagga mussels, and eurasion watermilfoil.	Continue to work with other government agencies, other levels of government, landholders, non-government organization, industry, the research community and other partners within and outside the province to manage risk associated with invasive species. (Draft SSRP; 70)	Alberta Environment and Sustainable Resource Development Crown Manager's Partnership Alberta Lakes Management Society	Watershed Integrity Biodiversity Water Quality	Facilitate Recommend Action	Awareness and education programs on AIS prevention is out to the greater watershed community. Monitoring for AIS is in place at boat launches at select headwaters lakes.	ESRD and CMP have initiated the AIS *'Stop Aquatic Hitchhikers'* program.
3. AIS monitoring program: a citizen-science monitoring program is active at specified boat launch areas in headwaters lakes.	Headwaters	Spring 2014 - ongoing	OWC AESRD Partnership Advisory Network Alberta Lake Management Society Interested citizens	Ongoing monitoring for the presence of AIS is needed - early warning of this significant threat to aquatic ecosystem health and water-use infrastructure.	Continue to work with other government agencies, other levels of government, landholders, non-government organization, industry, the research community and other partners within and outside the province to manage risk associated with invasive species (Draft SSRP; 70).	Alberta Environment and Sustainable Resource Development Crown Manager's Partnership Alberta Lakes Management Society	Watershed Integrity Biodiversity Water Quality	Facilitate Recommend Action	Monitoring for AIS is in place at boat launches at select headwaters lakes.	ESRD and the Alberta Lakes Management Society are prepared to assist local stewardship groups and individuals to implement AIS monitoring programs.



Our vision is a healthy, resilient watershed where people, wildlife and habitat thrive.

The Oldman Watershed Council, or OWC, is a community-based, not-for-profit that works with everyone to find practical solutions to environmental challenges that impact us all. People depend on a healthy watershed to provide economic, social and cultural benefits. Everything in the watershed is connected, so we need to work together to make trade-offs, solve problems, plan for the future, and safeguard our quality of life.

It takes time and effort to work collaboratively, but the OWC is building a new way of managing our collective impacts on water and land - where we can all do our part, work together and keep in mind the long term benefits of a healthy watershed.

We believe it's worth the investment.

www.oldmanbasin.org

OWC OLDMAN WATERSHED COUNCIL

watershed management – watershed health

Photo credits
Front: Rochelle Coffey
Above (L-R): Ruth Christie, Jollin Charest, Karen Armstrong

MUNICIPAL DISTRICT OF PINCHER CREEK NO. 9
BYLAW NO. 1254-14

BEING A BYLAW OF THE MUNICIPAL DISTRICT OF PINCHER CREEK NO. 9, IN THE PROVINCE OF ALBERTA, RESPECTING EMERGENCY MANAGEMENT

WHEREAS pursuant to the *Emergency Management Act*, RSA 2000c.E-6.8 the Council of a municipality is required or authorized to establish committees to declare local emergencies, develop emergency plans and direct emergency response;

NOW THEREFORE the Council of the Municipal District of Pincher Creek No. 9, ENACTS AS FOLLOWS:

1. This bylaw may be cited as the "Emergency Management Bylaw No. 1254-14".

2. In this bylaw:

   a. "Act" means the *Emergency Management Act*, RSA 2000 c. E-6.8 as amended from time to time, or any legislation substituted for it;

   b. "Agency" means the Emergency Management Agency established by this bylaw;

   c. "Committee" means the Emergency Management Committee established by this bylaw;

   d. "Council" means the Council of the Municipal District of Pincher Creek No. 9;

   e. "Director" means the Director of the Agency;

   f. "Disaster" shall have the same meaning as given to it by the Act;

   g. "Emergency" shall have the same meaning as given to it by the Act;

   h. "Municipal District" means the corporation or the area contained within the boundaries of the Municipal District as the context may require.

EMERGENCY MANAGEMENT COMMITTEE

3. a. There is hereby established an Emergency Management Committee.

   b. The Committee shall consist of all council members of the Municipal District of Pincher Creek.

   c. The Committee shall advise Council on the development of emergency plans and programs, as required by Section 11 of the Act, and to establish a yearly budget to carry out the function and training for emergency management.

STATE OF LOCAL EMERGENCY

4. a. The Council may at any time when they are satisfied that an emergency exists or may exist for their jurisdiction make a declaration of a State of Local Emergency. In the event that a quorum of Council is not available, any two members of Council are given the same authority to declare a State of Local Emergency. Any declaration must be accompanied by a recommendation from the Director of Emergency Management.

   b. Upon the making of a declaration of a State of Local Emergency and for the duration of the state of local emergency, the Local Emergency Committee shall, in accordance with the Act, exercise and perform all of the powers and duties given to the Municipal District by the Act.

c. At all other times, and except as otherwise provided in the bylaw, the Emergency Management Committee shall exercise and perform all of the powers and duties given to the Municipal District.

EMERGENCY MANAGEMENT AGENCY

5. a. There is hereby established an Emergency Management Agency.

b. The Agency shall consist of:

(1) Director of Emergency Management;

(2) the Chief Administrative Officer of the Municipal District;

(3) the administrative head of the following Departments or agencies or their identified representative for emergency management purposes:

(a) Pincher Creek RCMP

(b) Emergency Medical Services

(c) Fire Department

(d) Director of Community Services

(e) Director of Operations

(f) Director of Finance

(g) Public Works Superintendent

(h) Family and Community Support Services (FCSS)

(i) Information Technology

(4) In addition to the members appointed by Subsection (2) the following organizations may be invited by the Director to nominate representatives to serve as members of the Agency:

(a) Alberta Energy Regulator

(b) Alberta Utilities Commission

(c) AltaLink

(d) Fortis

(e) Atco Gas

(f) Alta Gas

(g) Chief Mountain Gas Co-op

(h) Alberta Environment and Sustainable Resource Development

(i) Alberta Tourism, Parks and Recreation

(j) Shell Canada

(k) Pincher Creek Humane Society

(l) Livingston Range School Division

(m) Holy Spirit (Catholic School)

(n) Pincher Creek Health Centre

(o) Alberta Emergency Management Agency

(4) In the event of any name change or corporate reorganization or merger of any one or more of the organizations listed in Subsection (3), the Director may determine an appropriate successor organization and invite a representative from that organization to serve as a member of the Agency in order to continue broad representation from industry, government agencies, and the community within the Agency.

(5) The Agency shall provide assistance and guidance to the Director and, as requested by the Director, to the Committee.

DIRECTOR

6. (1) The Director of Emergency Management shall be appointed by resolution of Council.

(2) The Director, shall with the advice and assistance of the agency:

(a) prepare and coordinate emergency plans and programs;

(b) coordinate all emergency services and resources used in an emergency; and

(c) submit to Council annually, a report on the status of emergency preparedness.

READ A FIRST TIME THIS day of , 2014

READ A SECOND TIME THIS day of , 2014

READ A THIRD TIME
AND FINALLY PASSED THIS day of , 2014

_____
Reeve

_____
Chief Administrative Officer

MUNICIPAL DISTRICT OF PINCHER CREEK

E4b

September 5, 2014

TO: Reeve and Council

FROM: Wendy Kay, Chief Administrative Officer

SUBJECT: Appointment of Director of Emergency Management

1.0 Origin

During the past several months MD Council has discussed the current roles and responsibilities of the Emergency Management Agency.

2.0 Background

On August 5, 2014, MD Council passed a resolution to provide notice to the Town of Pincher Creek and the Village of Cowley of their wish to withdraw from the current Joint Agreement for Emergency Management.

With the establishment of the MD`s own Emergency Management Agency, consideration for the appointment of the Director of Emergency Management should also be determined.

3.0 Recommendation

That the report from the Chief Administrative Officer, dated September 5, 2014, regarding Appointment of Director of Emergency Management, be received;

And that the interim appointment of Chief Cox as Director of Emergency Management, hereby be repealed;

And further that the CAO of the MD of Pincher Creek, be appointed as Director of Emergency Management.

Respectfully submitted,

W. Kay

Wendy Kay

MUNICIPAL DISTRICT OF PINCHER CREEK

September 5, 2014

TO: Reeve and Council

FROM: Wendy Kay, Chief Administrative Officer

SUBJECT: Upcoming Council Meeting Schedule

1.0 Origin

Due to upcoming statutory holidays and availability during the Christmas Season, there is a need to change the regular meeting schedule of Council.

2.0 Background

The first regularly scheduled meeting in November is November 11th. Due to this being Remembrance Day, it is being suggested that Policies and Plans, and the Regular Council Meeting be scheduled for November 4, at 9:00 am and 1:00 pm, respectively.

A suggestion to change the regularly scheduled meetings of Council for December 2014 on the second and fourth Tuesdays, be changed to the first and third Tuesdays of December, to avoid conflicts with the Christmas season.

3.0 Recommendation

That the report from the Chief Administrative Officer, dated September 5, 2014, regarding Upcoming Council Meeting Schedule, be received;

And that the November 11th Regular Council Meeting be rescheduled to November 4, 2014, at 1:00 pm;

And further that the meetings scheduled for December 9 and 23, 2014, be rescheduled to December 2 and December 16, at 1:00 pm.

Respectfully submitted,

Wendy Kay

E4d

CHIEF ADMINISTRATIVE OFFICER'S REPORT

AUGUST 22, 2014 TO SEPTEMBER 5, 2014

DISCUSSION

- August 26, 2014 — Policies and Plans
- August 26, 2014 — Regular Council
- August 27 2014 — RCMP – Management Review
- August 27 2014 — Castle Mountain
- August 28, 2014 — Staff Appreciation Luncheon
- August 28, 2014 — Emergency Services
- September 2, 2014 — Council Strategic Planning
- September 2, 2014 — Subdivision Authority
- September 3, 2014 — Town of Pincher Creek – Committee of the Whole
- September 3, 2014 — Alberta Parks

UPCOMING:

- September 9, 2014 — Policies and Plans
- September 9, 2014 — Regular Council
- September 11, 2014 — Emergency Services
- September 11, 2014 — Elected Officials
- September 12, 2014 — Ortho Photos – Lethbridge
- September 15, 2014 — Patton Park – Lundbreck
- September 19, 2014 — Foothills Little Bow
- September 23, 2014 — Policies and Plans
- September 23, 2014 — Regular Council
- October 1, 2014 — Joint Funding
- October 2, 2014 — MD Open House

OTHER

RECOMMENDATION:

That Council receive for information, the Chief Administrative Officer's report for the period of August 22, 2014 to September 5, 2014.

Prepared by:	CAO, Wendy Kay	Date:	September 5, 2014
Presented to:	Council	Date:	September 9, 2014

Council
Corresp - Action

F1a

Heritage Acres Farm Museum

Box 2496

Pincher Creek, AB T0K 1W0

August 20, 2014

Dear Brian,

The Zooteman / Vogelaar barn has been moved and now it is time to finish the project by restoring the barn so that it can be used to enhance the displays at Heritage Acres. Once the project is complete it will be a magnificent representation of agriculture in Western Canada.

The Municipal Council of Pincher Creek is cordially invited to attend the fund raiser which is to be held October 11, 2014 at the Pincher Creek Community Hall. As Reeve we would appreciate it if you would say a few words at the opening of the evening.

It is hoped that we can raise enough money to begin the restoration. Connie Kaldor will be providing entertainment and there will be a silent and live auction. There will also be a delicious harvest dinner. Tickets are $40.00 per person and are available from any committee member or at Blackburn Jewellers and Pincher Creek Office Products. The evening is in recognition of volunteer and monetary contributors to the project.

We look forward to your attendance. Thank you in advance for participating.

Heritage Acres Harvest Gala Committee

Rob Mitchell President of Heritage Acres

Art Bonertz

Sandra Reed

Susan Vogelaar

F1b

Tara Cryderman

From: Wendy Kay
Sent: Wednesday, August 27, 2014 4:09 PM
To: Tara Cryderman
Subject: Fwd: Chamber Luncheon invite

Sent from my iPhone

Begin forwarded message:

From: Pincher Creek Chamber of Commerce <info@pincher-creek.com>
Date: August 27, 2014 at 4:04:56 PM MDT
To: 'Pincher Creek Chamber of Commerce' <info@pincher-creek.com>
Subject: Chamber Luncheon invite

We hope you all got a great summer.

The Pincher Creek & District Chamber of Commerce starts September with the 3rd Annual Trade Show on September 5 & 6 at the Pincher Creek Arena followed by the next activity, another Chamber Luncheon with plenty of networking opportunities.

INVITE to our next Chamber Luncheon!

When: Wednesday September 17, 11:45am-1pm
Where: Heritage Inn, Pincher Creek

Guest Speaker: Keith Bott, community liaison person with Riversdale Resources. Riversdale Resources Limited (Riversdale) is a coal exploration and development company.

Topic: Keith will be introducing the Grassy Mountain Coal Mine Project and potential business opportunities.

Please RSVP before September 15th by email: info@pincher-creek.com or by phone: 403-627-5199. Tickets are $15 for chamber members and $18 for non-chamber members. We accept cash, cheque, debit, VISA or MC.

Looking forward to seeing you there.

Lieve Parisis
Chamber Administrator
403-627-5199

Council Corresp - Action

F1c

TOWN OF PINCHER CREEK

962 St. John Ave. (BOX 159), PINCHER CREEK, AB. T0K 1W0
PHONE: 403-627-3156 FAX: 403-627-4784
e-mail:reception@pinchercreek.ca
web page: www.pinchercreek.ca

September 2, 2014

M.D. of Pincher Creek
Box 279
Pincher Creek, AB
T0K 1W0

Re: Emergency Management Bylaw/Organization

Please be advised that the Town of Pincher Creek passed the following resolution at their August 25, 2014 Regular Council meeting;

> *That the Council for the Town of Pincher Creek advise the Councils for the Municipal District of Pincher Creek No. 9 and the Village of Cowley that they support the proposed Municipal Emergency Management Bylaw included in the Emergency Services Commission documents provided to Alberta Municipal Affairs.*

Trusting this information to be satisfactory however, should you have any questions or concerns, please contact our office.

Yours Truly,

Laurie Wilgosh, CAO
Town of Pincher Creek

/lg

Council Corresp- Action

TOWN OF PINCHER CREEK

962 St. John Ave. (BOX 159), PINCHER CREEK, AB. T0K 1W0
PHONE: 403-627-3156 FAX: 403-627-4784
e-mail:reception@pinchercreek.ca
web page: www.pinchercreek.ca

F1d

RECEIVED
AUG 29 2014
M.D. OF PINCHER CREEK

August 26. 2014

Reeve Brian Hammond
Box 279
Pincher Creek, AB
T0K 1W0

Dear Reeve and Council,

On September 12-13, 2014 the Board of Directors of the Alberta Historical Resources Foundation will be holding their fall meeting here in Pincher Creek. As you may be aware, the Foundation is the primary funder of heritage related initiatives in Alberta including the Municipal Heritage Partnership Program, Alberta Main Street Program, Heritage Awareness Grants etc. With the allocation from the Alberta Lottery Fund, the Foundation is the Government of Alberta's primary window for heritage funding to preserve and interpret Alberta's rich heritage.

In the early afternoon of September 12, 2014 the Foundation Board members and staff will be provided with a short tour to highlight the history and heritage museums and buildings in our community. The tour will include a quick tour/stop at Heritage Acres, Lebel Mansion and Kootenai Brown Pioneer Village as well as a driving tour within the town to view some of the older properties that may be eligible for heritage designation in the future.

The last stop will be at Pioneer Place where a "meet and greet reception" will be hosted by the Board. This will be a wonderful opportunity for municipal and community members to learn more about the Foundation and how our community could benefit from their programs.

Representatives from Council and Administration are invited to attend the reception to be held on September 12, 2014 at Pioneer Place, Kootenai Brown Pioneer Village from approximately 4:30pm to 6:00pm. Please RSVP to the Recreation Office by September 10, 2104 with the number of those planning to attend. If you require additional information on the event please feel free to contact me at 403-627-4322 or email dbstuckey@pinchercreek.ca.

Yours truly,

Diane Burt Stuckey

Diane Burt Stuckey
Director of Community Services
Town of Pincher Creek

Council
Corresp-For Info

RECEIVED
AUG 15 2014
M.D. OF PINCHER CREEK

F2a

To MD of Pincher Creek,

August 15, 2014

I would like to thank you for the immediate response in getting the "non-approved" signs installed along the roadways of TR 5-4 and TR 5-2A for the "Camp Gladstone" removed on July 24, 2014. I would also like to thank Roland Milligan for promptly meeting with me to hear my concerns over the signs that were being moved to different locations to confuse people travelling to the "Camp Gladstone". I was narrowly missed by one of the campers as they raced out of my yard on during the evening of July 23, 2014 as they had been directed into my yard by the "Camp Gladstone" signs.

Doug Goodfellow

NW 15 005 1W5


RGE RD 1-3A
TWP RD 5-2A


CAMP GLA STONE

Council
Corresp – For Info

ADMINISTRATION OFFICE
P.O. BOX 279
PINCHER C
T0
F2b
PHONE 627-3130 • FAX 627-5070
E-MAIL: info@mdpinchercreek.ab.ca
www.mdpinchercreek.ab.ca

August 18, 2014

Ms. Micaela Gerling, Program Coordinator
Alberta Community Resilience Program
Environment and Sustainable Resource Development
3rd Floor Deerfoot Square
2938 – 11 Street NE
Calgary, AB T2E 7L7

Re: Application for Alberta Community Resilience Program Grant – Municipal District of Pincher Creek No. 9 – Regional Water System Intake Relocation

Please find attached our application and additional information to support our project. The Municipal District of Pincher Creek for the Hamlet of Lundbreck and Village of Cowley received Water for Life Funding for our Regional Water System in 2013 and completed construction of the infrastructure in the summer of 2014.

Only after the project was nearing completion during an exercise to transfer the point of diversion for the Municipal Districts water allocation, did Alberta Environment and Sustainable Resource Development determine that the amount of water available in the Castle River was going to be inadequate for the needs of the communities. Their report indicated that we should expect between six (6) and forty one (41) weeks per year when there is insufficient water available.

We have been working with the Town of Pincher Creek, the other major water user from the Castle River, to determine if there is a possibility to temporarily transfer some of their water allocation to the Regional Water System when the river water levels are low. We were recently informed that for a number of reasons they were not going to be able to assist us with that option.

Council of the Municipal District considers water to be a priority for its residents and as such, is looking at options for the water intake to the Regional Water System. The water treatment plant is situated north west of the village of Cowley, approximately one mile away from the Oldman Dam Reservoir. The water allocations for the Municipal District and the Village of Cowley, both ultimately end up within the Oldman Dam Reservoir making the relocation of the intake to that location a preferred option.

The Municipality has commissioned a study to determine the feasibility of relocating the intake structure to the reservoir to ensure a viable long term water supply is available for

the communities on the Regional Water System. Without a more secure water supply, the subsequent phases of the Regional Water System that includes the communities of Beaver Mines, Pincher Station and rural users would only make the water shortage on the Castle River worse.

The water intake on the Castle River was impacted by the June 2013 flood event. During that event the Castle River overtopped the riverbank, cutting a new channel to the west and redistributing the material mid-stream that was placed there following the 1995 flood event. The mid-stream gravel deposit was required to ensure some flow was diverted to the water system intake gallery. Following the spring flooding in 2014 the river channel has now moved to the east shore some 100 feet away from the intake requiring additional in-stream work to secure consistent water supply.

Our request for grant funding from the Community Resilience Program is because of the impact that flooding and drought have had and will continue to have on our community water intake. The proposed relocated intake, in the Oldman Dam Reservoir, will mitigate both of those circumstances.

We look forward to a positive outcome to this application. Please contact us at your earliest opportunity should you have any questions or concerns.

Sincerely,

Leo Reedyk, A.A.E.
Director of Operations

Attachments

cc: Council, MD of Pincher Creek
Council, Village of Cowley

Alberta Community Resilience Program Grant Application

Alberta Community Resilience Program

The Alberta Community Resilience Program (ACRP) will provide grants to municipalities for the design and construction of projects that protect critical municipal infrastructure from flooding and drought and help to ensure public safety is protected.

Applicant Information

Application is hereby made to the Minister of the Environment and Sustainable Resource Development (hereinafter called the "Minister") for Grant pursuant of the Environment Grant Regulation, A.R. 182/2000 [refer also to the Designation and Transfer of Responsibility Regulation, Section 21(6)].

Name of Applicant (Municipality): **Municipal District of Pincher Creek No. 9**		
Contact Name: **Leo Reedyk, Director of Operations**		
Address: (Indicate Street No./P.O. Box, City/Town or Others and Postal Code) **Box 270, Pincher Creek, AB, T0K 1W0**		
Phone #: **403-627-3130**	**Fax #:** **403-627-5070**	**E-mail:** **lreedyk@mdpinchercreek.ab.ca**

Project Name: Regional Water System Raw Water Intake Relocation

GPS Marker:	**Latitude: SE 2-7-1-W5M**	**Longitude:**

Project Description:

The raw water intake for the Cowley Lundbreck Regional Water System on the Castle River was significantly eroded during the 2013 flooding. Preliminary estimates indicate that the Disaster recovery cost to rehabilitate the intake at its current location is $825,000. The repair still leaves the system vulranable to future flood events. Preliminary estimates for relocating the raw water intake to a groundwater source adjacent to the Oldman River Dam Reservoir or below the low water level are $1,250,000 to $2,000,000. The relocation of the intake would effectivley eliminate future flooding or drought as a hazard to the supply of water for local residents of the Village of Cowley, Hamlet of Lundbreck and rural residents who get their water from the regional system.

How well does the project address "Community Resilience," which is defined as the capacity of a system to cope with, adapt to, or recover from a recurrent disturbance, such as flood or drought?

- ☐ Project will allow Municipality to cope short-term with the identified issue
- ☐ Project allows Municipality to adapt to the identified issue long-term
- ☑ Project eliminates need for future mitigation

Please describe:

By relocating the intake, the community water supply infrastructure would not be effected by future flood events or drought conditions. The January 15, 2014 ESRD report indicated between 6 and 41 weeks per year that the Castle River does not have adequate water to meet the needs of the community. The Municipality has exausted attempts to temporarily transfer water during low water conditions to ensure community needs are met.

How has the project location been previously affected by flood or drought? Please describe:

The current intake structure was significantly impacted during the 1995 flood event. High water overtopped the intake well flooding the intake pump structure and electrical supply infrastructure. In 2013 gravel material in the river channel was redistributed causing the channel overtop of the intake structures to run dry. The Castle River has inadequate water supply to maintain the needs of the communities involved in the Regional Water System.

Is project located in or does it impact a flood plain area? ☑ Yes ☐ No ☐ Unknown

Please check one: ☑ Floodway ☐ Flood Fringe ☐ Unmapped

Has Water Act Approval been applied for, or is application in preparation? ☑ Yes ☐ No

Project Duration:

Estimated Start Date: Fall 2014

Estimated Completion Date: Fall 2015

Schedule for implementation, considering regulatory requirements (please identify key milestones):

Complete Preliminary design and prepare application to AESRD to transfer the point of diversion for the Regional Water System raw water intake, fall of 2014. Complete final design and tender the project for construction fall of 2014. Construct the new raw water line and ground water well adjacent to the reservoir in the summer of 2015.

Estimated Total Cost of Project: $1,250,000-$2,000,000

Is Project eligible for funding from another program? ☐ Yes ☐ No ☑ Unknown

Has funding been applied for and/or received for the proposed project? ☐ Yes ☐ No

If yes, please list:

The repairs to the existing raw water infiltration gallery are currently eligible for funding under the 2013 Disaster Recovery Program as a Village of Cowley project. The Village of Cowley is a partner in the Regional Water System. That component of the project must go ahead during the Fish Window of August/September 2014. Funds from that program May be available to offset an intake relocation project.

Have you included your supporting documentation? See Program Guide for more information

☑ Statement of Municipal Priorities
☑ Preliminary Engineering Report

☐ Risk Assessment, if required
☑ Other information that will benefit the decision-making process

What are the immediate consequences, if proposed project does not proceed:

The immediate consequances of not doing the project is that the province will fund a $825,000 Disaster Recovery Project that will not reduce the risk of future flooding of critical infrastructure. Additionally the comunities who rely on the Regional Water System for their water will be short of water during a drought.

Applicant Name: Municipal District of Pincher Creek No. 9	
Contact Name: Leo Reedyk, Director of Operations	**Date:** August 18. 2014
Signature: Leo Reedyk	

Freedom of Information

The Applicant acknowledges that the *Freedom of Information and Protection of Privacy Act* applies to all information and records provided by the Applicant to the Minister and to any information and records which are in the custody or under the control of the Minister.

Statement of Municipal Priorities

Alberta Community Resilience Program

Introduction

As part of the Alberta Community Resilience Program (ACRP), municipalities are being asked to submit a Community Statement of Priorities prior to (or with) their first application to the program.

The purpose of this statement is to provide the Grant Review Committee with context on the overall mitigation issues facing a community, specific issues of chronic flood/erosion/drought, overall community mitigation goals and priorities, and the projects being planned to achieve those goals and priorities. The statement should be historical in nature and identify a community's highest priority projects in the next 2 to 3 years. With this information, the Grant Review Committee can make recommendations for funding that hopefully represent the cumulative priorities of Alberta's communities.

Preparation of these statements need not be complex or lengthy, as long as they provide a clear indication of community priorities which are not likely to change.

Section 1: Community Overview

Name of Municipality: Municipal District of Pincher Creek No. 9

Population: 3158

Community location:

SW corner of the Province.

Rivers, streams, or creeks that intersect in your community:

Oldman River, Crowsnest River, Castle River, Waterton River, Pincher Creek, Kettles Creek, Indian Farm Creek, Drywood Creek and numerous others.

Major industries near identified water bodies (please name industrial facilities, if possible):

No major industries adjacent to our major waterways. Mostly agricultural land and parks/camping facilities.

Major public infrastructure near identified water bodies (hospitals, roads, etc.):

Regional Water System raw water intake, 169 bridges and associated roadways and one residential Hamlet.

Section 2 Description of Water Issues

Please identify which are chronic issues (historical) and which occur occasionally.

Flooding: ☑ Chronic ☐ Occasional ☐ Unknown

Has Flood Hazard Mapping been undertaken in your community? ☑ Yes ☐ No ☐ Unknown
If yes, please provide a copy with your Statement

Some flood hazard mapping has been done for the Hamlet of Lowland Heights. All other areas of the Municipality have not been assessed.

Erosion: ☑ Chronic ☐ Occasional ☐ Unknown

The topography of the municipality is quite steep. Heavy rain events lead to sudden flooding that causes significant erosion to water channells putting our water supply, road and bridge infrastructure at risk.

Debris flows: ☐ Chronic ☑ Occasional ☐ Unknown

Sudden flood events typically include debris flows consisting of trees, shrubs and gravel deposits scoured from the banks of water bodies. The debris flows put our water infrastructure at risk, get deposited on roads, in culverts and lodged under bridges resulting in additional ancillary damage.

Drought: ☐ Chronic ☑ Occasional ☐ Unknown

Drought conditions within the Municipality are requiring additional concerns to be addressed with our water intake infrastructure. A receint AESRD study (attached) has concluded that there may be insufficient water in the Castle River for as many as 41 consecutive weeks a year resulting in a compromised Regional Water System. A low water plan to be included in our Regional Water System Operational Plan is intended to address water shortages that would ultimatley require water rationing in our communities.

Section 3: Description of Priorities

Please describe specific areas of the community that are most vital to protect (hospital, access, roads, bridge, low lying residential areas, etc.)

The priorities of the Municipality in decending order are, Regional Water System infrastructure, bridges, roads including culverts and low lying residential areas.

Section 4 Project Priority

Please provide a list of specific projects that could assist with addressing community priorities projects. Projects **must** be placed in priority order. Note that we do not require a detailed project description at this point; the intent is to simply give an idea of what may be submitted and its overall priority to the community.

Regianal Water System Raw Water Intake Relocation and additional flood hazard mapping.

Section 5 Watershed Assessment

Please provide an assessment of how the works proposed by the municipality maintain and potentially enhance the health of the watershed and sub-watersheds the community is located in and how they enhance the overall resiliency of the community to future flood and drought events. The components of this assessment should include:

Provide an overview of any other mitigation options considered, including non-structural options such as wetland assessment and riparian protection.

The proposed relocation would improve the instream objectives for the reach of the Castle River below the current intake during low water years as the point of diversion would be within the Oldman River Dam structure. Additionally the required instream work to repair the existing flood damage and retrain the river would not need to occour. The positive impact to the river would be ongoing.

The two mitigation options being considered are a series of ground water wells adjacent to the dam reservoir to eliminate and future flood impact or a intake in the reservoir below low water level to ensure that the Regional Water System is able to remain operational during flood and drought conditions.

Identify any relationship to other projects being proposed by other communities in the watershed.

We are unaware of any projects from other communities that have an impact on this one. We have two other Hamlets in the Municipality that are included in phase 2 and 3 of our Regional Water System development. A secure raw water intake for the Regional Water System is paramount.

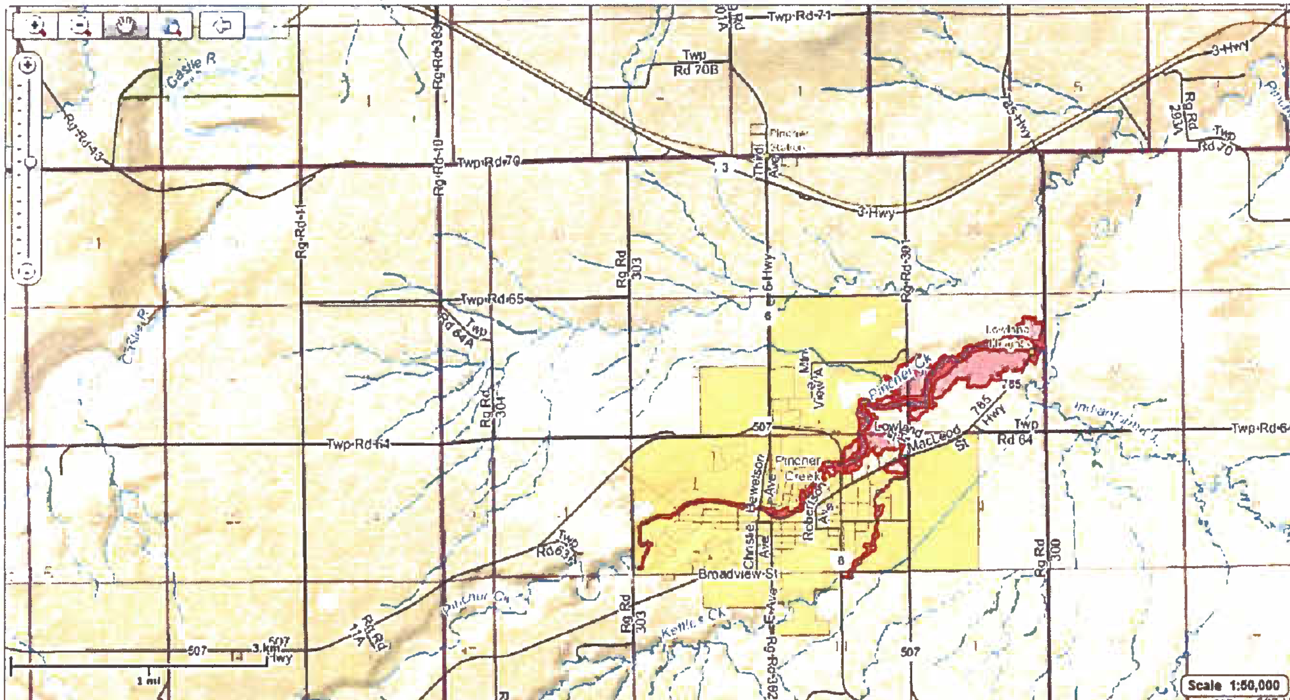
Please engage your local Watershed Planning and Advisory Council (WPAC) and identify how the projects proposed by the municipality fit within the WPAC's Integrated Watershed Management Plan.

The Municipality is a member of the Oldman Watershed Council and is involved in the WPAC. This project will be brought forward to them for consideration at their next meeting.

Contact Name: Leo Reedyk, Director of Operations	Date: August 18, 2014
Signature: Leo Reedyk	

Government of Alberta Home | Ministries | Services | Contact Government

Alberta.ca > Environment and Sustainable Resource Development > Water > Programs / Services > Flood Hazard Identification Program > Flood Hazard Map Application



Introduction | Find | Measure | Print

Flood Hazard Map Application

This application uses Geographical Information System (GIS) technology to display flood hazard mapping prepared for Alberta communities under the Flood Hazard Identification Program.

Legend

- Floodway
- Flood Fringe
- Overland Flow (Flood Fringe)
- Under Review
- 855.09 m Cross Section and Design Flood Level
- Water Body
- First Nation Boundary
- Municipal Boundary

Limitations

Flood hazards have not been identified in all communities and may exist in areas without flood hazard mapping. New mapping will be added to the application when available.

Flood hazard areas and design flood levels are based on a design flood under encroachment conditions. The current design flood standard in Alberta is the 100-year flood, determined when a flood hazard study is undertaken. Encroachment conditions assume a future scenario when the flood fringe is fully developed.

Flood hazard areas displayed in this application are digital representations of those defined in detailed engineering maps prepared as part of flood hazard studies.

Additional Information

Alberta

125%

Alberta Government

Application for Disaster Recovery Assistance

Alberta Emergency Management Agency

The personal information being collected on this form is required to appropriately administer the Disaster Recovery Program. The information is being collected under the authority of section 33(c) of the Freedom of Information and Protection of Privacy (FOIP) Act and will be managed in accordance with the privacy provisions in the FOIP Act. If you have any questions concerning the collection of this information, please contact the Program Office at 780-422-9000.

Municipality, First Nations and Government Department Information

Legal Name of Municipality, First Nations or Government Department

Village of Cowley

Mailing Address

Box 40 Cowley AB T0K 0P0

Telephone Number	Fax Number
403-628-3808	403-628-2807
Name of Chief Elected Official/Title	**Name of Administrative Official/Title**
Mayor Linda Findlater	CAO Cindy Cornish
Name of Contact	**Title of Contact**
Cindy Cornish	CAO

Event Details[1]

Time Frame of Event

Start Date *(yyyy-mm-dd)*	Start Time	End Date *(yyyy-mm-dd)*	End Time
2013-06-19		2013-07-?	

Type of Event: *(severe rainstorm, fire, overland flooding, severe wind, etc.)*

Severe rainstorm, flooding

Location/s of Event:

Castle River

Description of Weather Leading up to the Event:

Heavy rain, thunder, lightning

Has this type and scale of event occurred before? If so, when:

☐ Yes ☑ No

In respect to infrastructure damage, what caused the damage: *(hail, ponding, overland flooding, wind, etc.)*

flooding - changed river course

Has environmental data been attached: *(attaching this data will assist with accuracy of determining and measuring the event dates, type and scale)*

☐ Yes ☑ No

Does your municipality/first nation have bylaws/ band council resolutions (BCRs) restricting development in areas deemed a flood risk?

☐ Yes ☑ No If Yes, please attach a copy with your application.

Alberta Government

Application for Disaster Recovery Assistance

Alberta Emergency Management Agency

Damage Description[1] Please provide estimates *(Please attach additional pages if space below is not sufficient)*

Emergency Operations Estimated $ Amount 20,000.00	General Description:	Due to high turbidity in river water the treatment plant was overwhelmed and could not make potable water. Hauled in water to fill reservoir.
Infrastructure Damage: The locations should be identified using Latitude and Longitude, National Topographic System (NTS) coordinates **(please indicate the datum used) or an Address.**	General Description:	Water management works Castle River 5, 1, 7, 2, SE.
Estimated $ Amount 335,000.00	Locations of Infrastructure Damage:	Castle River infiltration gallery.
Small Business & Institutional Loss Estimated # of Cases	General Description:	
Residential Loss Estimated # of Cases	General Description:	
Agricultural Loss Estimated # of Cases	General Description:	

Certification

Linda Findlater Chief Elected Official	2013-08-02 Date *(yyyy-mm-dd)*
Cindy Ozimek Chief Administrative Official	2013-08-02 Date *(yyyy-mm-dd)*
AEMA Field Officer	Date *(yyyy-mm-dd)*

[1] **Please see page 2 for explanatory notes**

Alberta Environment and Sustainable Resource Development

Environmental Operations
Southern Region
2nd Floor, Provincial Building
200 – 5th Avenue South
Lethbridge, AB T1J 4L1
Telephone: 403-382-4254
Fax: 403-381-5337
http://environment.alberta.ca/

File No.: 14389, 23592

January 15, 2014

MD Of Pincher Creek
P.O. Box 279
Pincher Creek, Alberta T0K 1W0

Attention: Leo Reedyk, A.A.E.
Director of Operations

re: Proposed Transfer of Water Allocation Hamlet of Lundbreck to Village of Cowley Point of Diversion

Further to your telephone conversation with Donna McColl and Werner Herrera of this office on October 17, 2013, I have had the opportunity to review the hydrological analysis completed for your proposed transfer of water allocation to the Castle River. Subsequent to my review, Mr. Herrera was requested to do some additional analysis, using the existing Instream Objectives (IOs) as the target numbers.

In the new analysis (copy enclosed), both the annual average of consecutive weeks for not meeting the IO as well as the overall maximum consecutive weeks for not meeting the IO have both been calculated. (See Table 2). Please note that the numbers used throughout the report include the requirements for both the Hamlet of Lundbreck and the Village of Cowley, to reflect the impact of the proposed transfer of water allocation. Table 2 of the report also indicates the range of the volume required to meet the IOs. The level of risk that the parties would be willing to assume would be determined on whether the desire is to meet the average annual deficit amounts or the total maximum deficit amounts.

The overall intent of the analysis was to address the potential impact of changing your source of supply on other users as well as the aquatic environment. Therefore, if it is the intent of the MD of Pincher Creek to proceed with the transfer of water allocation, the MD of Pincher Creek, in co-operation with the Village of Cowley, will need to submit a Water Shortage Response Plan as part of the application package. The Village of Cowley will be contacted separately in this regard.

The Plan needs to address, for both communities, potential shortages on an annual basis when the IOs are not being met and options when there are overall shortages as a result of supply limitations on the Castle River. This would need to include any signed agreement with others for a potential temporary transfer of water allocation if this is one of the options pursued.

Once the Water Shortage Response Plan is received, further processing of your application can be considered. If you have any questions, please contact Donna McColl at (403) 381-5967.

Yours truly,

Robert Burland, P. Biol.
District Approvals Manager

Encl.

cc: MPE Engineering Ltd – Attention: Luke Schoening

Alberta Environment and Sustainable Resource Development

Environmental Operations
Southern Region
2nd Floor, Provincial Building
200 – 5th Avenue South
Lethbridge, AB T1J 4L1
Telephone: 403-382-4254
Fax: 403-381-5337
http://environment.alberta.ca/

Memorandum

From: Werner Herrera M.Eng. P.Eng.

Our File Reference:

Application Reference:

To: Donna McColl

Date: November 25, 2013

Phone: (403) 381-5994

Fax:

Email:

Subject: **Hydrological analysis and IO Performance for the proposed transfer of file # 14389 for the M.D. of Pincher Creek**

Introduction

This memorandum summarizes the results of a hydrological analysis conducted for the proposed transfer of File # 14389. The Municipal District of Pincher Creek is looking to transfer three priorities under File # 14389 that serves the Hamlet of Lundbreck out of the Crowsnest River to the Castle River through Cowley's water treatment plant as part of a regional line (See Figure 1).

Included in this memorandum is the performance analysis of the Instream Objectives (IO) and the Water Conservation Objectives (WCO) for the Castle River at Cowley.

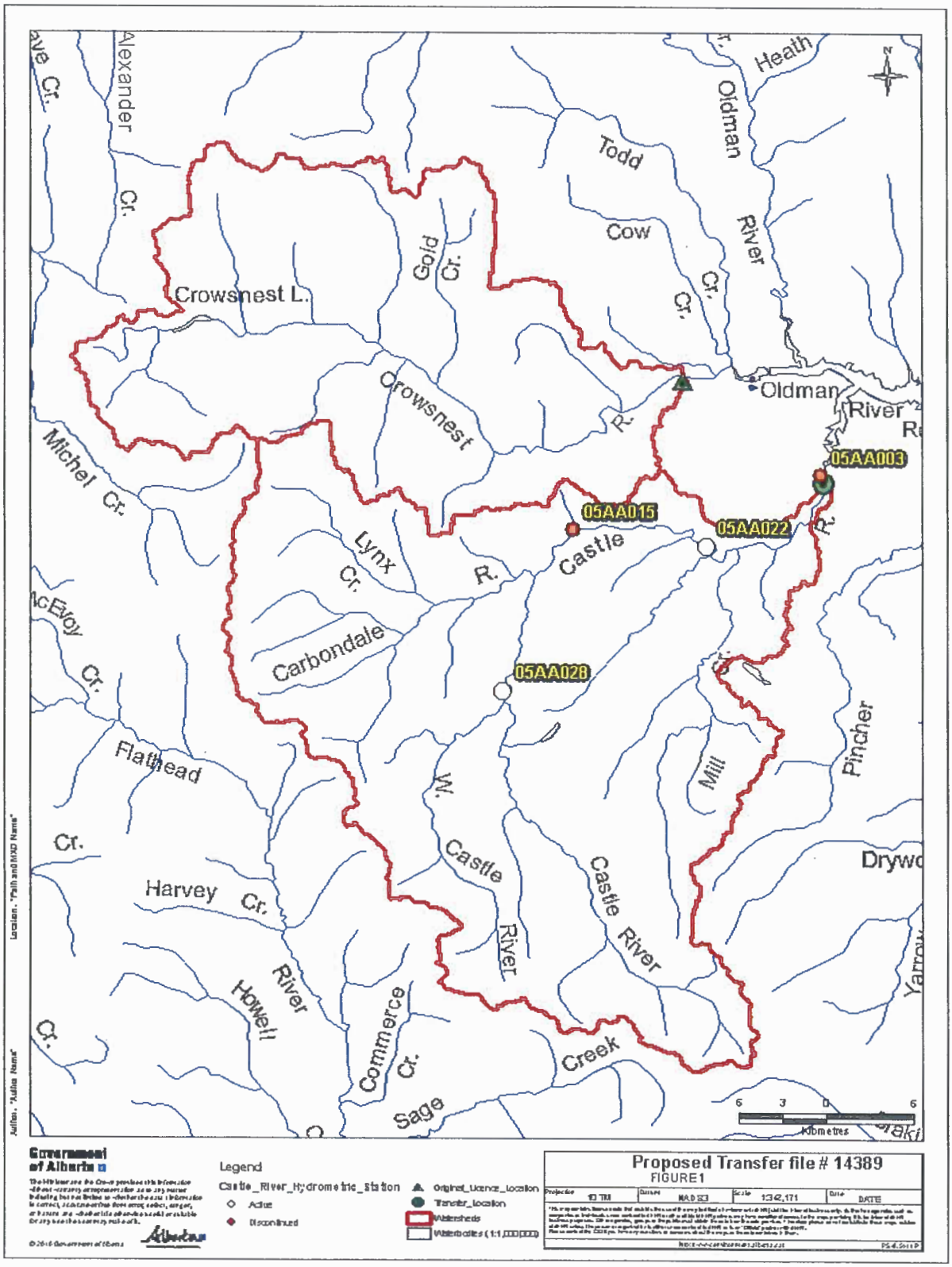
Licence Details

The current licence located at NE-26-7-2-W5 withdraws water for municipal purpose with 1978, 1983 and 1985 licence priorities. The 1978 and 1983 priorities have a maximum allocation of 20 acre feet (24,670 m^3) each; the 1985 priority has a maximum allocation of 40 acre feet (49,339 m^3). All three priorities have a combined maximum diversion rate of 1.6 ft^3/s (0.045 m^3/s). The transfer proposes to move the maximum combined allocation of

about 80 acre feet (98,679 m^3) from the three aforementioned priorities with the same maximum diversion rate of 0.045 m^3/s for the same purpose of municipal use. The proposed transfer considers moving file # 14389 to the water treatment intake for the Village of Cowley located at SE-2-07-01-W5 on the Castle River. Based on the purpose of the licence the withdrawal is considered to be all year round, therefore; if available, winter flows will be part of the analysis on the IO and WCO performance.

Currently there is no physical connection between the licence and proposed transfer location. In other words if the licence is issued, the proposed transfer currently does not have the ability to access Crowsnest River water at times of water shortage. Therefore this is neither an upstream nor downstream, but a special case transfer that may require special conditions or mitigation plans to avoid any adverse effects to any other users or the environment. One such condition would be to add Instream Objectives (IOs) to the licence; this would mitigate potential adverse effects to the Environment. In order to mitigate any potential adverse effect on junior licences, the cumulative estimated rate of diversion from these licences should be considered as a condition of the new licence transfer. This cumulative rate of diversion would be in addition to the IO, meaning that the licence transfer would need to meet the Instream Objective plus the cumulative rate of diversion from junior licensees each period prior to diverting water from the Castle River.

Presently the Instream Objectives come from the Alberta Modified Tessman (AMT) method and are attached to a total of five licences in the Castle River Basin. It is possible that in the future these numbers may change due to better approved science such as the Alberta Desktop method (ADM). Therefore this memo contains an analysis based on the current IOs (AMT) and the Alberta Desktop Method (ADM).


Alexander Cr.
Heath
Oldman River
Todd
Cow Cr.
Gold Cr.
Crowsnest L.
Crowsnest R.
Oldman River
Michel Cr.
05AA003
05AA015
05AA022
Castle R.
Lynx Cr.
Carbondale
05AA028
McEvoy Cr.
Flathead Cr.
Harvey Cr.
Howell River
Commerce Cr.
Sage Creek
W. Castle River
Castle River
Mill
Pincher
Drywood
Yarrow
6 3 0 6
Kilometres
Government of Alberta
Legend
Castle_River_Hydrometric_station
Active
Discontinued
Original_Licence_location
Transfer_location
Watersheds
Waterbodies (1:1,000,000)
Proposed Transfer file # 14389
FIGURE1
Projection
10 TM
Datum
NAD 83
Scale
1:32,171
Date
DATE

Data used in the analysis:

Since there is no connectivity between the original licence location and the proposed transfer location the hydrological analysis is only required at the transfer location. In order to complete the IO and WCO performance both the recorded and naturalized flows from a station within the same reach of the transfer location is required.

Figure 1 above shows the locations of the active and non-active hydrometric stations operated by Water Survey of Canada (WSC) within the reach of the proposed transfer location on the Castle River. The only active hydrometric station near the proposed transfer location at the time of this memo is Castle River near Beaver mines 05AA022; with data from 1945 to 2011. The other hydrometric station on the Castle River near Cowley; WSC station 05AA003 has some historical data from 1909 to 1931 prior of being discontinued. Even though station 05AA003 has been discontinued natural and recorded flows are estimated by means of area proration from station 05AA022. For the rest of the analysis only data from station 05AA003 is used.

Both recorded and natural flow data for station 05AA003 was downloaded from the South Saskatchewan River (SSASK) database owned by AESRD. Currently the SSASK database contains data from 1912 to 2009 as to the latest update of natural flows in 2012. For this analysis all available data was used; therefore, the period of record used was from 1912 to 2009.

The current methodology to calculate natural flows at station 05AA003 sets the natural flow to be equal to the recorded or calculated flow at station 05AA003. This methodology assumes that the basin consumptive use is much smaller than the flows in the river; and therefore the error is small when computing the Natural flows. For the performance analysis of the IO and WCO a new data series of natural flows was calculated by adding an estimate of consumptive use in the basin.

The Instream Objectives used in the analysis come from either the Alberta Modified Tessman or Alberta Desktop Method.

Analysis and Results

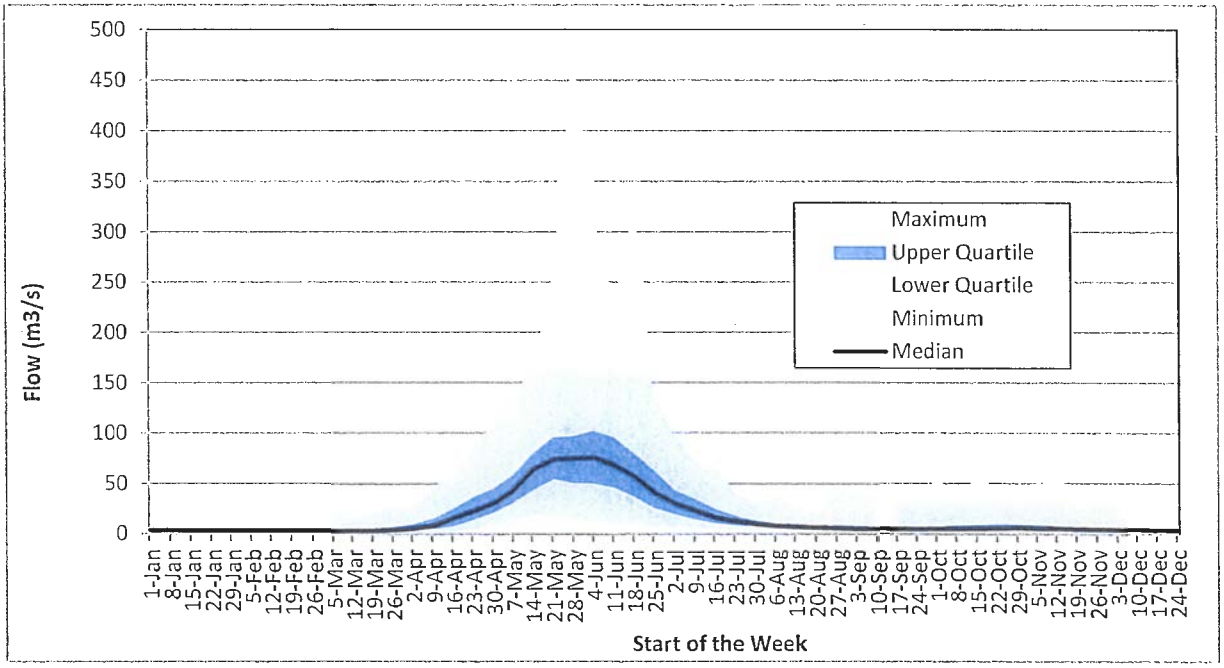
A series of analysis was conducted in order to compute the IO and WCO performance at hydrometric station 05AA003. Each analysis is described in more detail below:

Flow Analysis

As previously mention the analysis was based on WSC hydrometric Station 05AA003 Castle River at Cowley. For the flow analysis only the natural flow hydrograph was computed, since both the recorded and natural flow data sets are the same. The modified natural flow that contains the addition of an estimation of consumptive use is very similar to the natural flow hydrograph. Therefore instead of having two almost identical hydrographs the estimated consumptive use percentage of natural flow was calculated.

Figure 2 below presents the weekly hydrograph for the natural flows computed at station 05AA003. Based on Figure 2 it can be observed that winter natural flows can be quite low, and based on the analysed data it was observed that flows could be as low as 0.7m^3/s. The rest of the hydrograph is typical of mountain runoff streams with the highest flows observed during the last week of May and first week of June.

Figure 2: Weekly Natural Flow at Hydrometric Station 05AA003 Castle River near Cowley (1912 – 2009).



Estimate of consumptive use Analysis

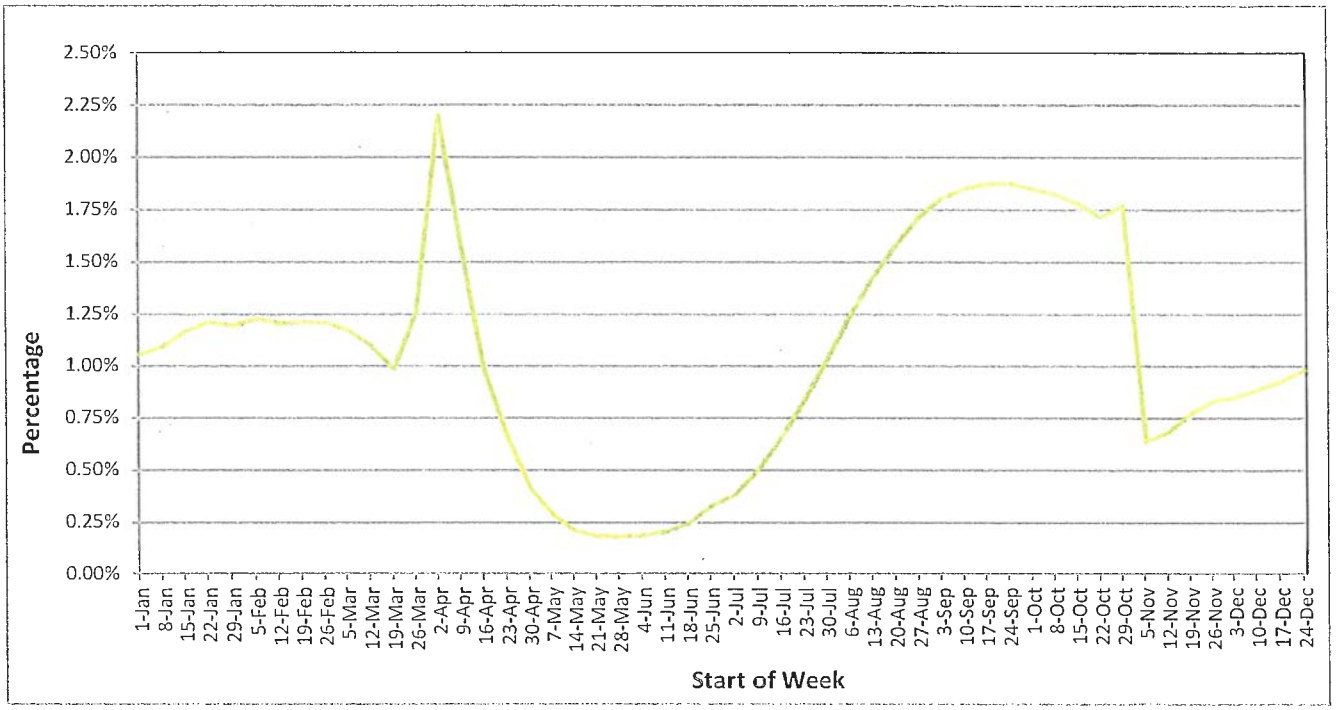
The consumptive use was computed for each year from 1912 to 2009 on a weekly time step using data from the Environmental Management System (EMS). For example, as a licence or group of licences was issued on any given year the licence or group of licences was added to the cumulative sum of all prior allocations. The total was then distributed on a weekly time step

based on the purpose of the licence. For example, municipal licences were distributed all year round compared to irrigation licences which were only distributed between weeks 14 and 44.

As previously mentioned the estimated consumptive use was compared to the natural flow by calculating a percent difference between the estimated consumptive uses to the natural flow (see Figure 3). For this analysis the current estimate of consumptive use as of 2013 was superimposed on past hydrology from 1912 to 2009.

Figure 3 below presents the results from the analysis computing the percent of estimated consumptive use to the natural flow. Based on Figure 3 it can be observed that the maximum Average difference between the estimated consumptive use and the natural flow is about 2%. As previously assumed during the natural flow updates the percent difference of the estimated consumptive use is small in comparison to the natural flow in the river.

Figure 3: Weekly Average Percent Difference between Estimated Consumptive use and natural flow at Station 05AA003 Castle River near Cowley (1912 - 2012).



Junior to 1978 Estimated Rate of Diversion

Licences junior to the 1978 priority have a high risk of being affected by the proposed transfer because of the lack of connectivity between the original licence and transfer location. In order to mitigate the potential adverse effect to any junior licence it is recommended to add an estimated cumulative rate of diversion of all junior licences. This rate is considered to be additive to the Instream Objectives. Table 1 below contain and estimate of the diversion rates recommended to be added to the proposed transfer. The rates were estimated based on the licences allocations and distributed on a weekly time step based on their purpose.

Table 1: Estimated Rate of Diversion (m^3/s) of Licences Junior to the 1978 Priority

Week 1	0.032	Week 14	0.056	Week 27	0.049	Week 40	0.038
Week 2	0.032	Week 15	0.056	Week 28	0.049	Week 41	0.038
Week 3	0.032	Week 16	0.056	Week 29	0.049	Week 42	0.038
Week 4	0.032	Week 17	0.056	Week 30	0.049	Week 43	0.038
Week 5	0.032	Week 18	0.056	Week 31	0.049	Week 44	0.038
Week 6	0.032	Week 19	0.056	Week 32	0.049	Week 45	0.032
Week 7	0.032	Week 20	0.056	Week 33	0.049	Week 46	0.032
Week 8	0.032	Week 21	0.056	Week 34	0.049	Week 47	0.032
Week 9	0.032	Week 22	0.056	Week 35	0.049	Week 48	0.032
Week 10	0.032	Week 23	0.056	Week 36	0.049	Week 49	0.032
Week 11	0.032	Week 24	0.056	Week 37	0.049	Week 50	0.032
Week 12	0.032	Week 25	0.056	Week 38	0.049	Week 51	0.032
Week 13	0.032	Week 26	0.049	Week 39	0.038	Week 52	0.032

IO and WCO performance Analysis

The performance analysis for either the IO or WCO consists in comparing the recorded flow and the IO or WCO requirements for the same week at the same hydrometric station. As previously mention the IO values come from either the Alberta Modified Tessman or the Alberta Desktop Method. It should be noted that for this analysis the estimated diversion rates of junior licences to the 1978 priority have been added. Even though the results from this analysis show the overall performance which includes junior diversion rates; both should be considered as separate tables. The IO is available as an appendix attached to the transfer.

The WCO for any given time step is the greater of 110% of the existing Instream Objective (IO) or 45% of the Natural flow.

This memorandum presents four analysis conducted for Castle River near Cowley 05AA003 for the IO and WCO performance:

1) Weekly Performance of IO based on AMT and ADM.
2) Weekly Performance of WCO based on AMT and ADM.
3) Weekly Resiliency for IO and WCO based on AMT and ADM.
4) Volume required based on the weekly resiliency.

When establishing the IO or WCO values for every week; if the IO or WCO calculated value was found greater than the natural flow then the IO or WCO requirement for that week was set equal to the natural flow for the week.

Analysis 1 and 2

For analysis 1 and 2 the weekly performance for either the IO or WCO is calculated as the percent probability of not meeting the IO or WCO on any given week. The percentage is calculated by counting all years where the IO or WCO was not met in that week and dividing it by the total number of years available for that week. For example if 5 years out of a total of 20 show as negative in Week 1 then the probability of not meeting the IO or WCO for week 1 is 25%.

Figures 4 and 5 below contain the result of analysis 1 and 2 using the Modified Tessman Method. From Figure 4 it can be seen that the AMT method is very restrictive during the winter period with about 40 to 60 percent probability of not meeting the IO. During the summer period the probability of not meeting the IO is about 5 percent. Figure 5 contains the probability of not meeting the WCO based on the IO and the AMT method. From Figure 5 it can be seen that the shape of the curve is similar to the IO probability with the difference that most probabilities increased by 10%. This is because the IO is the dominant criteria when computing the WCO.

Figures 6 and 7 below contain the result of analysis 1 and 2 using the Alberta Desktop Method. From Figure 6 it can be seen that the probability of not meeting the IO is between 20 to 25 percent for any given week. The 20% is inherited from the methodology used to calculate the IO values from the Alberta Desktop Method, which protects the 80^{th} percentile of the flow in the river (low flow). The additional 5 percent from 20 is due to the junior licences to the 1978 priority. From Figure 7 it can be seen that the probability of not meeting the WCO is higher than the IO to as high of 35%. The difference is mainly because of the 110% of existing IO criteria.

Figure 4: Percent probability of NOT meeting the Instream Objective + Junior to 1978 Priority Diversion Rate (Based on the Modified Tessman Method)

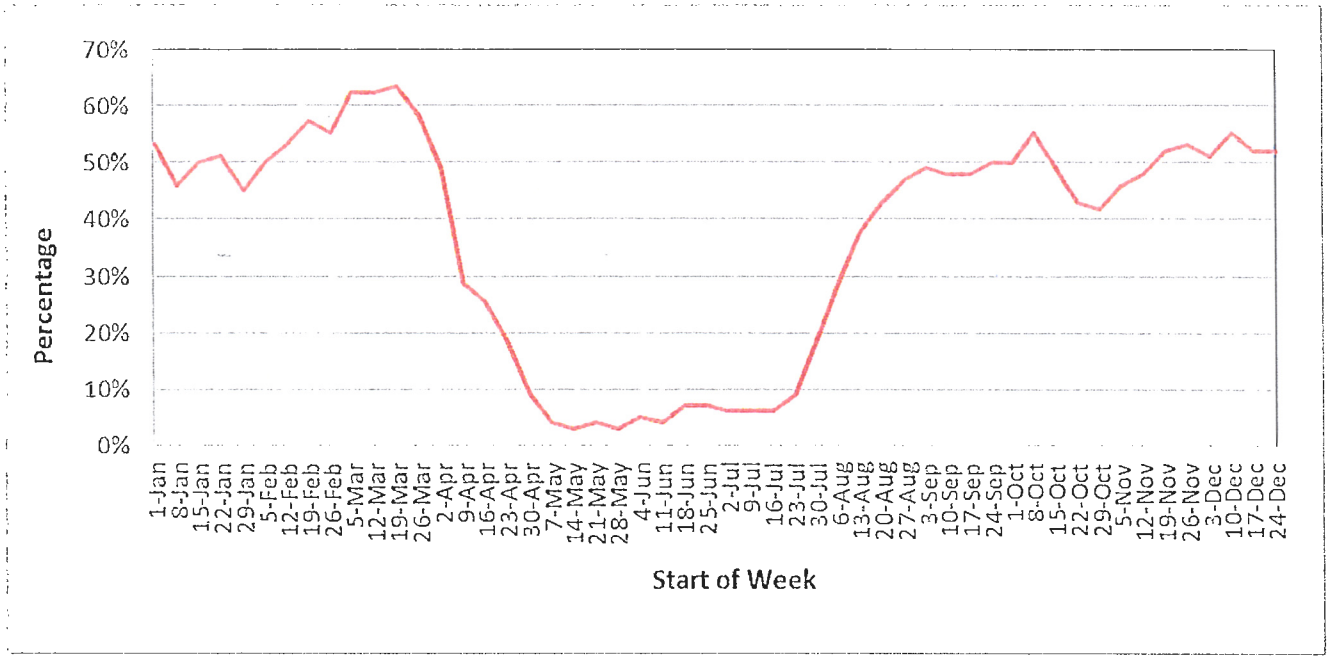


Figure 5: Percent probability of NOT meeting the Water Conservation Objective (Based on IO from the Modified Tessman + Junior to 1978 Priority Diversion Rate).

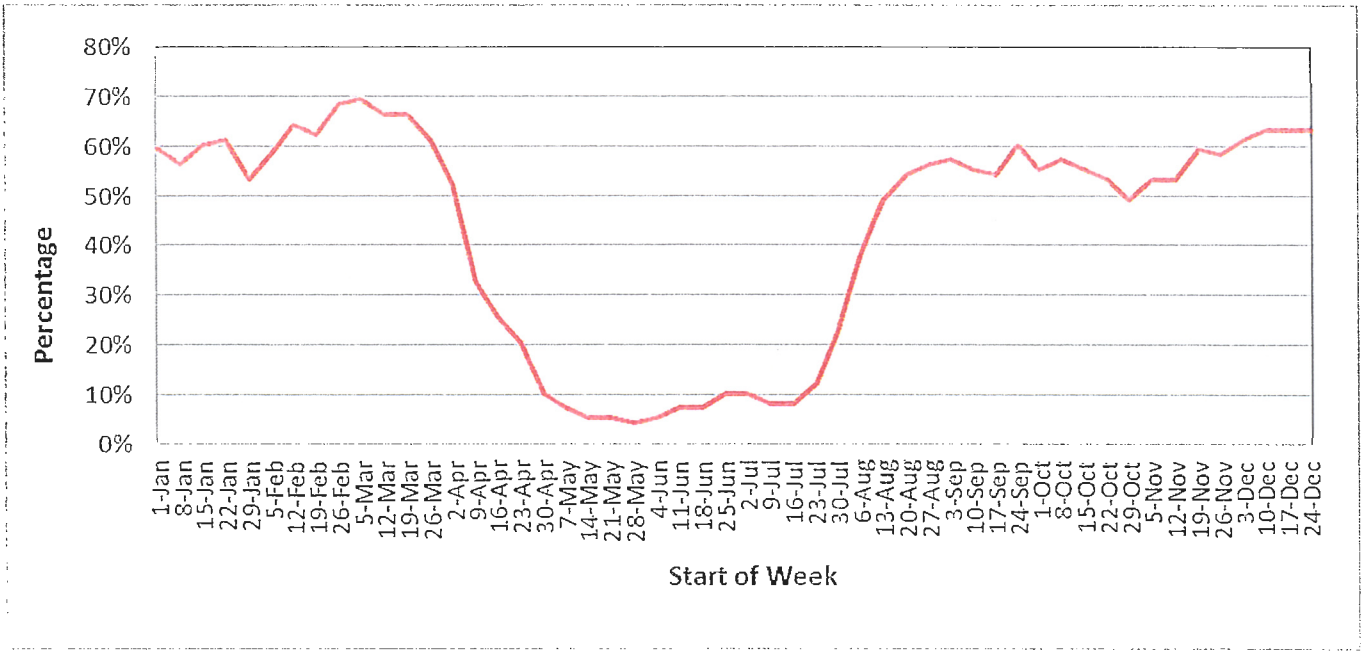


Figure 6: Percent probability of NOT meeting the Instream Objective + Junior to 1978 Priority Diversion Rate (Based on the Alberta Desktop Method)

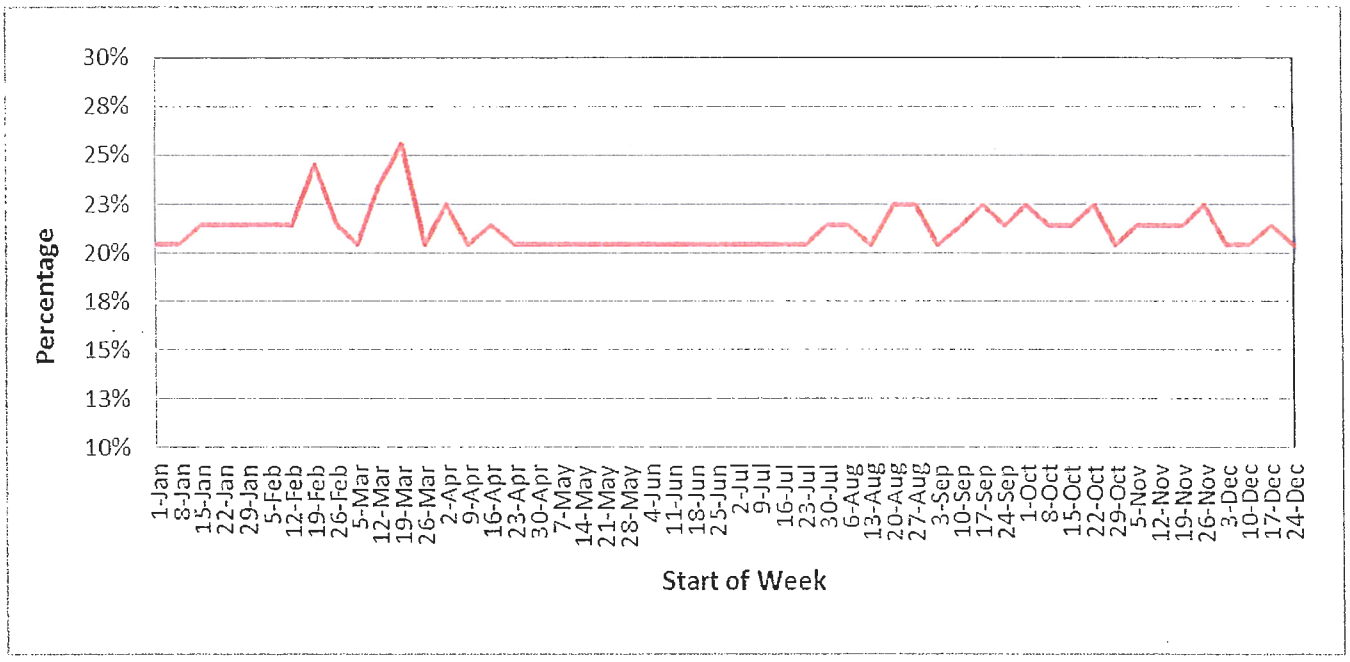
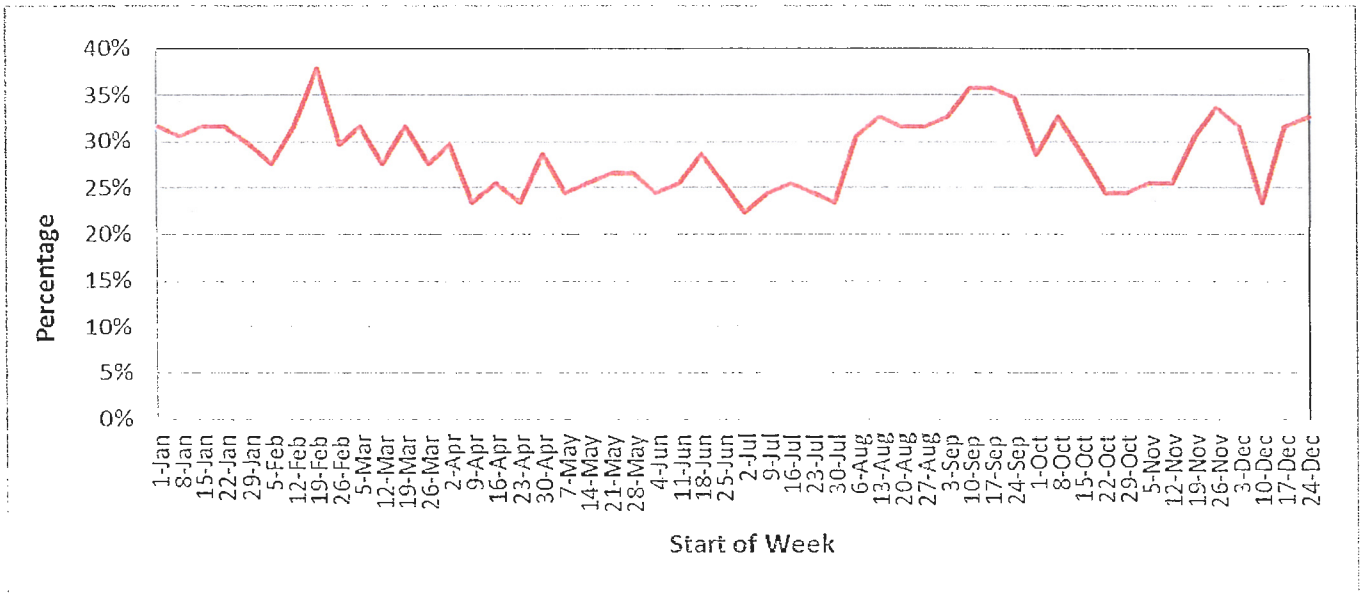


Figure 7: Percent probability of NOT meeting the Water Conservation Objective (Based on IO from Alberta Desktop Method + Junior to 1978 Priority Diversion Rate).



Analysis 3 and 4

For the third analysis; resiliency is based on calculating the consecutive number of weeks where the IO or WCO is not met. The analysis also reflects the inclusion of the junior to 1978 priority diversion rate. The analysis is done on an annual basis and reset at the end of each year. The overall max does not reset every year therefore represents the maximum observed number of consecutive weeks when the IO or WCO is not met.

Based on resiliency, Analysis 4 looks into how much volume would be required to make up the weeks of not meeting the IO or WCO. Also similarly to the resiliency analysis the overall max volume is the maximum volume required for the maximum number of consecutive weeks of not meeting the IO or WCO. The average volume is for the period of record from 1912 to 2009. One of the inputs required for the analysis is the rate of diversion during the times where the IO or WCO is not being met. Based on an email sent to the department on July 9th, 2013 the minimum diversion of 2.6 l/s would provide sufficient water to satisfy the needs of the MD of Pincher Creek, including both Cowley and Lundbreck.

Table 2 below contains the results from analysis 3 and 4 for the resiliency of the IO only. Based on Table 2 it can be seen that the maximum overall resiliency of the IO is similar when using either the Modified Tessman or Alberta Desktop method. The IO average resiliencies are different and higher with the Modified Tessman method because of how restrictive it is during the winter period. Table 2 also presents the required volume to mitigate the maximum overall consecutive weeks of not meeting the Instream Objective.

Table 2: Overall Results for IO and WCO Using the Modified Tessman and Alberta Desktop Method

Methodology	Annual Average of Consecutive Weeks of not meeting the IO or WCO	Overall Maximum of Consecutive Weeks of not meeting the IO or WCO	Volume Required to Cover off the Annual Average** (dam^3)	Volume Required to Cover off the Overall Maximum** (dam^3)
IO based on Modified Tessman Method	11.4	42.0	17.9	**66.0**
IO based on Alberta Desktop Method	6.6	41.0	10.4	**64.5**
WCO based on IO using the Modified Tessman Method	13.2	45.0	20.8	70.8
WCO based on IO using the Alberta Desktop Method	9.0	83.0	14.1	130.5

** Based on a maximum diversion rate of 2.6 l/s

The required volume to cover the overall maximum number of consecutive weeks in analysis 3 is 64.5 dam^3 or 66.0 dam^3 from the Alberta Desktop Method and Modified Tessman method respectively. Both methods yield similar results when computing the overall maximum of consecutive weeks of not meeting the Instream Objective. Using the overall max of 66 dam^3 from the Modified Tessman method would satisfy the needs of the Alberta Desktop Method if the numbers are to be updated at a later time.

Recommendations:

Based on the presented analysis it is recommended that the MD of Pincher Creek provides a Water shortage Response plan that addresses times of low flow. Also because of the lack of connectivity between the original licence and proposed transfer location it is recommended that Instream Objectives are added as a condition to the proposed transfer. The Instream Objectives would be as per the AMT method which is the same as to what has been used in previous issued licences in the watershed. It should be noted that in the future the Instream Objectives may change to reflect the Alberta Desktop Method. However, based on this analysis the overall maximum resiliency of IO would not significantly change for this transfer. In order to mitigate any adverse effect to other junior licences the estimated diversion rates from these licences as per Table 1 should added as a condition to the proposed transfer. The cumulative rate of diversion would be in addition to the IO, meaning that the licence would need to meet the Instream Objectives plus the cumulative rate of diversions from junior licensees prior to diverting water from the Castle River. Table 1 should be in addition to the IO schedule and if Table 1 is not attached to the transfer it is recommended that notifications of the transfer be made available to both upstream and downstream junior licensees.

To cover the estimated 66 cubic decameter of potential shortfall because of consecutive weeks of not meeting the IO and junior licences the MD of Pincher Creek should look into an agreement of a temporary transfer or a permanent transfer.

If you have any questions with respect to this memo or require details of any computation please don't hesitate to contact me.

Sincerely;

Werner Herrera M.eng., P.eng.

TOWN OF PINCHER CREEK

962 St. John Ave. (BOX 159), PINCHER CREEK, AB. T0K 1W0
PHONE: 403-627-3156 FAX: 403-627-4784
e-mail:reception@pinchercreek.ca
web page: www.pinchercreek.ca

July 29th, 2014

Municipal District of Pincher Creek no.9
Attn: Ms Wendy Kay, CAO
PO Box 279
Pincher Creek, Alberta
T0K 1W0

RE: MD #9 request for temporary water licence

Dear Ms Kay,

I am writing with regards to the request for a temporary water transfer between the Town and the Municipal District as outlined by the attached, prospective memorandum of understanding provided by Mr Leo Reedyk on June 16th, 2014. At their regular Council Meeting on July 28, 2014, Council passed the following resolution;

"That Council for the Town of Pincher Creek advise the Municipal District of Pincher Creek No. 9 that the Town of Pincher Creek is unable to proceed with the request to transfer water rights due to uncertainties with our present water supply."

Unfortunately, as a result of the most recent rainfalls we, the town, have found that our raw water intake on the Pincher Creek has become compromised and that our own source of water has become questionable. While we are in the process of addressing our intake issues, we are unable to accommodate any request for transfer until we are able to mitigate our own raw water intake situation.

Sincerely,

Al Roth
Director of Operations

CC: Ms Laurie Wilgosh - CAO

/jna

MEMORANDUM OF UNDERSTANDING

BETWEEN

the

TOWN OF PINCHER CREEK
Hereinafter called the "grantor"

and the

MUNICIPAL DISTRICT OF PINCHER CREEK NO.9
Hereinafter called the "grantee"

WHEREAS the grantee owns and operates a regional water system with the Village of Cowley and has requested the transfer of its diversion point for water destined for Lundbreck to be moved to the Castle River at the raw water intake in the SE 2-7-1-W5M;

AND WHEREAS the Province of Alberta, Environment and Sustainable Resource Development Department has identified that the flow within the Castle River is not adequate to provide the additional water to meet the needs of the Hamlet of Lundbreck during low water conditions given the In stream Objectives and Water Conservation Objectives in the Village's and grantee's Licenses;

AND WHEREAS the grantor has water license on the Castle River upstream of the grantee's point of diversion that is currently surplus to its needs;

THEREFORE the grantee requests of the grantor a temporary transfer of water license from its allocation in License #13814 on the Castle River to a maximum of 66.0 dam^3 (53.5 acre feet) as defined in the following conditions:

1. The temporary transfer would only be drawn from when the Castle River flow is below the limits identified in the water licenses of the Village of Cowley and the grantee.
2. Any amount of water used under this agreement by the grantee will be reported to the grantor on a monthly basis.
3. The grantee as part of its application process with Alberta Environment and Sustainable Resource Development will request of the Director, Water Resources that the option of holding back up to 10% of water license transfers for Water Conservation Objectives not be undertaken in this instance as all three municipalities involved in this agreement have water conservation initiatives in place.
4. The grantee will ensure that they have the ability to assign the water back to the grantor when requested for the grantors use throughout the duration of the temporary transfer agreement. The grantee understands that the grantor has water allocation from multiple sources and that the grantor may be required to draw from the Castle River exclusively therefore eliminating the ability of the grantor to transfer the water to the grantee.

During these conditions the grantee will implement water conservation initiatives within the regional water system to minimize consumption and find alternate sources of water.

5. This agreement will remain in place for a term of 10 years or until the grantee has acquired an alternate source of raw water to meet the needs of the regional water system users.
6. At the time that the grantee no longer requires the temporary transfer of water license they shall initiate the conclusion of the agreement and file the required notice with Alberta Environment and Sustainable Resource Development.
7. The grantee will ensure that the grantor's water needs are considered and prioritized with its own from this day forward.

NOW THEREFORE the Council's of the Town of Pincher Creek and the Municipal District of Pincher Creek No. 9 do hereby enact resolutions to formalize this agreement as of the ____ day of _____, 2014.

For the Town of Pincher Creek:

_____
Mayor

_____
CAO

For the Municipal District of Pincher Creek No. 9

_____
Reeve

_____
CAO

MPE Engineering Ltd.

Municipal District of Pincher Creek, No. 9

Cowley-Lundbreck Regional Raw Water Supply Study

1770-006-00

July 2014

Suite 300, 714 – 5 Avenue South
Lethbridge, AB T1J 0V1
Phone: 403-329-3442
1-866-329-3442
Fax: 403-329-9354

MPE Engineering Ltd.

MD of Pincher Creek, No. 9
PO Box 279
753 Kettles Street
Pincher Creek, AB
T0K 1W0

July 2, 2014

File: 1770\006\00\R01

Attention: **Mr. Leo Reedyk, B.Sc.**
Director of Operations

Dear Mr. Reedyk:

Re: **Cowley-Lundbreck Raw Water Supply Study**
Draft Report

We are pleased to submit two (2) copies of the above noted Study. We have strived to provide a document with feasible recommendations that are within the economic reach of the Municipal District of Pincher Creek.

We thank you for the opportunity to be of service and to have prepared this document on your behalf. We look forward to assisting you in implementing your plans for the future.

Yours truly,

MPE ENGINEERING LTD.

Luke Schoening, P.Eng.
Project Manager

CW/mw
Enclosure

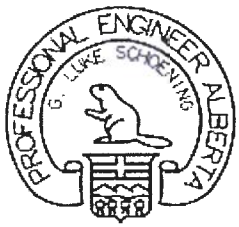
CORPORATE AUTHORIZATION

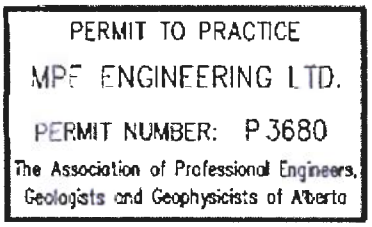
This report has been prepared by MPE Engineering Ltd. under authorization of the Municipal District of Pincher Creek. The material in this report represents the best judgment of MPE Engineering Ltd. given the available information. Any use that a third party makes of this report, or reliance on or decisions made based upon it is the responsibilities of the third party. MPE Engineering Ltd. accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions taken based upon this report.

Should any questions arise regarding content of this report, please contact the undersigned.

MPE ENGINEERING LTD.

Professional Stamp





Luke Schoening, P.Eng.
Project Manager

Professional Seal

Corporate Permit

EXECUTIVE SUMMARY

Completion of the Cowley-Lundbreck Regional Water Treatment Plant requires that the raw water diversion licences for the Village of Cowley and the Hamlet of Lundbreck be combined. Currently raw water is supplied to this new facility from the Castle River through an old supply pipeline. However, the Castle River instream objectives cannot be maintained year-round while accommodating additional diversions. Therefore, a new water priority must be obtained for a different source water body to supply raw water to the Cowley-Lundbreck Regional Water Treatment Plant. By abandoning the Castle River as a regional water source, the pre-existing raw water pipeline may be repurposed to supply potable water which would simplify future expansion of service to Pincher Station, Beaver Mines, and rural users in between.

The Municipal District of Pincher Creek has retained MPE Engineering Ltd. to assess the feasibility of supplying raw water to Cowley and Lundbreck from a new diversion point north of the treatment plant at the Oldman River Reservoir. This study will provide the following:

- Collect and review all previous relevant studies and assessments
- Evaluate potential raw water supply locations from topographic surveys and site inspection
- Review two upgrade alternatives:
    - **Alternative 1 – Groundwater Well Supply**
    - **Alternative 2 – Surface Water Intake**
- Evaluate each alternative based on cost, water quality, ease of operation and maintenance, and feasibility of construction

General Conclusions

The major findings from this study include:

- The Municipal District of Pincher Creek has expressed interest in establishing a new raw water supply to the Cowley-Lundbreck Regional Water Treatment Plant that combines water licences of Cowley and Lundbreck.
- The preferred raw water source is Oldman River Reservoir.
- Range Road 13B provides an attractive alignment for a raw water pipeline.

- Limited hydrogeological and bathymetric data exists for the Oldman River Reservoir.
- Alternative 1 – Groundwater Well Supply and Alternative 2 – Surface Water Intake present themselves as potential raw water supply options.
- Alternative 1 – Groundwater Well Supply offers lower capital costs, enhanced raw water quality, reduced operations and maintenance, and less complicated construction.

Recommendations

The following recommendations should be reviewed by the Municipal District of Pincher Creek:

- Proceed with hydrogeological survey at the proposed location to further evaluate the feasibility of Alternative 1 – Groundwater Well Supply.
- Forward copies of this study to Alberta Transportation along with Council Resolutions supporting the recommendations put forth in this document and make application under the Alberta Water and Wastewater Partnership Program and Regional Water and Wastewater Partnership Initiative for funding approval.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

1.1 Project Overview

Construction of the Cowley-Lundbreck Regional Water Treatment Plant (WTP) was completed in May of 2014. The facility consists of a new flocculation-membrane filtration system. Commissioning of the new plant facilitated the decommissioning of the Lundbreck WTP and its associated raw water supply line from the Crowsnest River and the old Cowley WTP. The Cowley-Lundbreck Regional Waterworks System is operated under a single approval which combines services for the populations of the Village of Cowley and the Hamlet of Lundbreck.

Regionalization of waterworks services requires that the Hamlet of Lundbreck water priorities be combined with that of the Village of Cowley. If the Cowley-Lundbreck Regional WTP was to maintain the pre-existing raw water intake on the Castle River, this would involve the transfer of the Lundbreck diversion licence from the Crowsnest River to the Castle River. This is not a promising option as the Castle River does not carry sufficient flow to accommodate this additional diversion while maintaining instream objectives year-round. The MD of Pincher Creek is currently in negotiations with the Town of Pincher Creek to obtain a temporary transfer of water priority from the Town which would cover the probable instream shortfalls that would result from regionalization.

The Cowley-Lundbreck Regional WTP has been designed to facilitate expansion for supply of other nearby communities such as Beaver Mines and Pincher Station. Decommissioning of the Castle River Intake is attractive because further expansion of service could be economically achieved by repurposing the existing raw water supply pipeline as a potable water pipeline.

Given the temporary nature of the arrangement with the Town of Pincher Creek, the intake for the upgraded facility must be moved to another water body in order to accommodate the potential increase in raw water demand by the municipality. The MD of Pincher Creek retained MPE Engineering Ltd. to assess the feasibility of an alternate diversion point from the Oldman River Reservoir for raw water supply to the Cowley-Lundbreck Regional WTP.

1.2 Project Location

The Cowley-Lundbreck Region is situated in the Municipal District of Pincher Creek, No. 9, approximately 115 km west of Lethbridge, Alberta. The Cowley-Lundbreck Regional WTP is located 2 km north of Cowley just west of Highway 510. The legal land description for this site is SE 28-07-01 W5M.

1.3 Scope of Work

The scope of this study includes the following:

- Collect and review all previous relevant studies and assessments
- Evaluate potential raw water supply locations from topographic surveys and site inspection
- Review two upgrade alternatives:
    - **Alternative 1 – Groundwater Well Supply**
    - **Alternative 2 – Surface Water Intake**
- Evaluate each alternative based on cost, water quality, ease of operation and maintenance, and feasibility of construction

2.0 REGULATORY REQUIREMENTS

2.1 General

The water supply for municipalities is regulated provincially by Alberta Environment and Sustainable Resource Development (ESRD) through the application of two separate pieces of legislation, the *Water Act* and the *Environmental Protection and Enhancement Act (EPEA).* When applied to municipal waterworks systems, the *Water Act* is concerned primarily with water quantity allocations. Terms of water allocation are dictated by water diversion licenses that are held by communities and organizations. When applied to municipal waterworks systems, EPEA is concerned primarily with treated water quality performance and facility operation. The requirements for facility performance and operation are outlined by EPEA approvals and registrations according to a set of Standards and Guidelines.

For surface water intakes, municipalities are regulated federally by Transport Canada Navigable Waters through the *Navigation Protection Act (NPA).* NPA is concerned with any works constructed or placed in, on, over, under, through, or across navigable waters in Canada. They are also regulated under the *Fisheries Act* by the Department of Fisheries and Oceans (DFO). The DFO is concerned primarily with the protection of fish and fish habitat.

2.2 Regulatory Requirements

2.2.1 Water Act

2.2.1.1 Licence to Divert and Use Water

The Municipal District of Pincher Creek originally obtained raw water through two Alberta ESRD diversion licences under Lundbreck and Cowley. With the Lundbreck WTP decommissioned, the Cowley-Lundbreck Regional WTP currently sources its water temporarily from the Castle River. In 2010, Alberta Environment issued an amendment to the Oldman River Basin Water Allocation Order which states that water from the Oldman River Reservoir may be supplied to the MD of Pincher Creek for municipal purposes. Switching raw water supply from the Castle River to the Oldman River Reservoir would involve an application for a new regional diversion license or the transfer of Cowley and Lundbreck diversion

licenses to the new source. Table 2.1 provides a summary of the current water licences held by each community.

Table 2.1 - Allocation and Diversion Rate Summary

Location	*Raw Water Source*	*Priority Year*	*Licence Allocation (acre-ft)*	*Maximum Diversion Rate (L/s)*
Village of Cowley	Castle River	1989	50	8.0
	Aquifer (Crowsnest River)	1975	19	2.3
		1978	11	
Hamlet of Lundbreck		1978	20	
	Crowsnest River	1983	20	45.5
		1985	40	

2.2.1.2 Transfer of Water Allocation

Under the *Water Act*, water priorities may be transferred between owners and source water bodies provided the proposed licence does not interfere with water availability to other licensees. To determine the eligibility of a transfer, an application must be submit to Alberta ESRD outlining licensee information, the proposed diversion rate, the source water body, the proposed location and justification of the transfer. The following should be included as attachments to this application:

- A description of the proposed supply project and construction plan
- Detailed plans for the proposed project
- Written consent from the owner of the appurtenances
- Written consent to access land which the licence is not appurtenant to
- The status of other permits/authorizations with other agencies
- A water shortage response plan

2.2.1.3 Approval to Drill Water Wells

In order to drill a well for diversion and use of groundwater, an approval must be issued by Alberta ESRD under the *Water Act*. For locations or users without groundwater priorities, either a new license to

divert or a transfer of a surface water diversion should be obtained with installation of new wells. Prior to drilling, an application must be submitted to Alberta ESRD to obtain an approval. This application requires the following information:

- The equipment to be used in drilling the proposed wells
- The names and certification/apprenticeship contract number of drillers/apprentices

2.2.1.4 Approval for Shoreline and Water Body Modification

Alberta ESRD regulates shoreline and water body modification under the *Public Lands Act* and the *Water Act*. Pipeline projects located on the shoreline and/or under a water body are regulated under the Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body. An application for approval must be submitted prior to commencement of construction. The following information is required by Alberta ESRD for completion of an application:

- A proposal providing a project description and justification
- The location of the proposed project
- A plan drawing illustrating the proposed work with dimensions
- Section drawings showing existing and proposed modifications

2.2.1.5 Approval to Operate

Waterworks system operation is regulated under the *Environmental Protection and Enhancement Act*. The Alberta ESRD approvals for the Village of Cowley and the Hamlet of Lundbreck waterworks systems were recently replaced by that issued for the Cowley-Lundbreck Regional Waterworks System on April 14, 2014. Submission of an application is required according to EPEA for any major waterworks upgrades or expansions that the Municipal District of Pincher Creek may plan now or in the future prior to any work beginning.

Table 2.2 provides a summary of the system approval and registration history.

Table 2.2 - Current Waterworks System Approval Summary			
Location	Approval No.	Effective Date	Expiry Date
Cowley-Lundbreck Regional Waterworks System	346284-00-00	14-Apr-14	01-Apr-24

2.2.2 Navigation Protection Act

2.2.2.1 Navigation Protection Program

Transport Canada is responsible for the administration of the *Navigation Protection Act* (NPA) through the Navigable Waters Protection Program. NPA applies to any intrusion that is in, on, over, under, though or across any Canadian navigable body of water. Navigable water is defined as any body of water that you can be used for travel by any type of floating vessel for transportation, recreation or commerce.

An approval is required under NPA for construction of or modification to a work in, on, over, under, through or across any navigable waterway. This includes:

- Any man-made structure, device or thing (temporary or permanent)
- Any dumping of fill in navigable water, and
- Any excavation of materials from the bed of any navigable water.

The Municipal District of Pincher Creek would require an Approval under NPA in order to construct a new surface water intake in the Oldman River Reservoir. For major works in navigable waters, an application must be submitted outlining the location and project scope as well as details regarding vessel traffic. The following supplemental information must be attached to this application:

- A map illustrating the location of the project
- A plan view drawing of the project with dimensions
- A profile view drawing of the project with dimensions

The following attachments are recommended to expedite review of applications:

- Photographs of the work site

- Any environmental assessment documents relevant to the area
- Executive summary of large project description
- Water lot lease information

2.2.3 *Fisheries Act* and *Species at Risk Act*

2.2.3.1 Department of Fisheries and Oceans *(DFO) Fish Habitat Management Program*

Under the DFO Fish Habitat Management Program, a request for review is to be submitted to the DFO in order to determine whether work in or around fish-bearing water bodies will result in serious harm to fish as per the under the *Fisheries Act* and *Species at Risk Act.* Serious harm is defined as the death of fish and harmful alteration, disruption, or destruction of fish habitat. Provided the proposed work does not result in a negative impact on fish, the DFO will issue a review stating that the proposed work can move forward.

The following information is required by DFO for completion of a request for review:

- The location and a description of the proposed project
- A description of the aquatic environment
- Details on the potential effects of the proposed project

2.3 Raw Water Supply and Pump Station Design Standards and

2.3.1 General

Alberta Environment and Sustainable Resource Development and the Department of Fisheries and Oceans among others have established acceptable intake and pump station design guidelines under the *Water Act*, the *Fisheries Act*, and the *Species at Risk Act*. Intakes, pump stations, and pipelines should also be designed according to manufacturer recommendations as well as non-regulatory standards such as the American National Standards Institute.

The following information summarizes the standards and guidelines as they relate to the components of surface water and groundwater intakes and pumping design.

2.3.2 Surface Water Supply

2.3.2.1 Intakes

The siting of surface water intakes is regulated according to the Alberta ESRD *Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems* (April 2012). The design of raw water intakes should provide adequate protection against effects of waves, ice, and boat anchors. In navigable waters, intakes should be identified with buoys or reflectors. Inlets should be positioned to prevent the entrainment of bottom sediments. Consideration should be given in design of cleaning methods such as back-flushing.

Intakes in rivers should be located upstream from potential sources of pollution and they should be equipped with trash racks. Furthermore, river intakes should be designed with appropriate anchoring to resist scouring and stream velocities. When the riverbed is composed of gravels and rocks or if the floodplain is demonstrated to have a high water table, an infiltration gallery may be an acceptable alternative to a direct intake. Design of an infiltration gallery should consider sediment load in the river, the use of filter cloth, and the depth of perforated infiltration pipes.

The design and construction of intake pipelines underneath a water body is regulated in accordance with the Alberta ESRD *Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body* (June 2013). Upon completion of pipeline works the aquatic environment as well the hydraulic, hydrologic, and hydrogeological characteristics at the project location must be restored to or enhanced further than that which existed previously.

All pipes for pipeline crossings must be installed at an elevation that is below the one in fifty year bed scour depth. Measures must be implemented to minimize the duration and amount of disturbance of the bed and banks of the water body as well as minimize erosion and sedimentation into the water body. Furthermore, disturbed areas sloping to the water body shall be permanently stabilized within one full growing season. Methods must be applied to prevent the deposition of deleterious substances and materials that are toxic to aquatic organisms into the water body. Measures must be implemented to prevent the transfer of biota that is not indigenous of the environment at the pipeline crossing site. Debris disposal, cleanup, and initial stabilization must be carried out as part of the works.

2.3.2.2 *Screening*

In accordance with the Alberta ESRD *Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems* (April 2012), screens may be constructed at the intake or in-plant just prior to raw water pumping facilities. In-plant screens for small treatment facilities may consist of two fixed screens. Lifting lugs should be provided for removal and washing of fixed screens. The material removed from fixed screens should not be returned to the raw water storage area.

Screen mesh size should be designed with consideration of raw water quality and the species of fish present at this location. Screens are sized in accordance with the federal Department of Fisheries and Oceans. The *Fisheries Act* states that every water intake in any Canadian fisheries waters must provide a fish guard or a screen, covering, or netting over the intake to prevent the passage of fish into the intake.

Under the *Fisheries Act,* the DFO prepared the *Freshwater Intake End-of-Pipe Fish Screen Guideline* (March 1995) to assist in the protection of freshwater fish. In order to protect fish from entrainment the approach velocities of an intake cannot exceed certain limits. The maximum approach velocities are defined based on the types of fish present and the standard is specific to subcarangiform and angulilliform species. The subcarangiform include fish such as walleye and perch, while the angulilliform include the eel and burbot. The Oldman River Reservoir tributaries including the Oldman, Crowsnest, and Castle Rivers contain subcarangiform fish and require intakes to be designed with approach velocities less than 0.11 m/s. The DFO guidelines list the required open screen areas based on flow and species of fish. All end-of-pipe intake screens are to be designed to these minimum open screen areas.

2.3.2.3 *Pumping*

Pumping systems should be designed according to the Alberta ESRD *Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems* (April 2012). Pumps should be designed for the full range of anticipated flows with selection based on their optimum efficiency points and hydraulic design of the discharge piping. Pumps with variable speed motors may be warranted to accommodate minimum flows. A minimum of two pumps are required with one utilized as standby. The provision of three pumps is recommended for operating flexibility. Pumps should be specified such that, with the largest unit out of service, the remainder will be able to supply at least 110% of the projected maximum daily design flow to the water treatment plant.

Pumping systems should be designed to allow for removal of pumps and the installation of future additional pumping units where possible. Adequate space should be provided to allow for servicing of pumps, valves, and other components.

2.3.3 Groundwater Supply

Groundwater wells and associated pump houses are designed according to the Alberta ESRD *Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems* (April 2012).

2.3.3.1 Siting of Wells

Groundwater wells shall be at least 100 m upgradient from sources of pollution such as septic tanks, drainage fields, cesspools, or wastewater lagoons. Wells shall not be located near sanitary landfill sites, underground fuel storage tanks, or cemeteries. Reasonable access should be provided for repair and maintenance of well systems.

2.3.3.2 Well Protection

Precautions must be considered in the design of groundwater wells to seal off undesirable subsurface formations and surface contamination. Wells shall be watertight to a depth of at least 2 m below ground level. The minimum depth protection is site-specific and may be increased if local conditions present a danger of surface contamination. An annular opening extending at least 40 mm outside of the well casing shall be provided and sealed with an approved grouting material.

2.3.3.3 Pump Station Design

Groundwater well pumping design generally follows those presented for raw surface water. Standby pumping should be provided to maintain normal service standards. Additionally, the following should be considered in design of well pumping stations:

1. The elevation of the well casing shall be 200 mm above the ground level or pump station vault floor and at least 200 mm above the highest recorded flood level.

2. A pump pedestal shall be provided around the surface casing to support the full weight of the pump and to prevent any weight from being placed on the production casing or any associated well casing.
3. A water-tight seal shall be provided between the pump base plate or submersible discharge head and the pump pedestal, and between the well casing and the pump discharge column to prevent the entrance of contaminants.
4. An aperture for air venting with proper screening shall be provided to the production well surface casing. Where there are indications of excessive quantities of explosive or toxic gases in the water, both the well casing and pump columns should be vented to the outside of the pump station with protection against freezing provided.
5. Return pipes that will permit water to be recirculated down the well shall be avoided as they may cause contamination of the well. In cases where recirculation is proposed because of severe water shortages, the proponent should provide design details with the application for a permit.
6. The well shall not be located within 1.2 m of an exterior wall of the pump station and should be centred under a hatchway in the roof which is at least 1 (one) metre square to facilitate access for service rigs and to accommodate redevelopment of wells.
7. Well water quality monitoring shall be provided by including a suitable sampling point. Water level monitoring should be provided by including at least one opening in the well head which allows vertical access to the inner casing for equipment installation.
8. Either an electric resistance tape or a water level measuring airline should be installed (clamped to the pump column) complete with a suitably calibrated pressure gauge.
9. The piping layout in the pump station shall include an in-line free discharge pipe to the outside of the building to permit future testing of the well.
10. A flow measurement device shall be provided.

2.3.4 Works in Navigable Waters

Construction within navigable waters is regulated by Transport Canada under the *Navigation Protection Act*. As mentioned in Section 2.2.2, an approval is required through the Navigation Protection Program prior to commencement of works.

2.3.5 Buoys and Marks

No person shall build or place a work in navigable waters unless all lights, buoys, and other marks required are installed and maintained as per the issued approval.

2.3.6 Equipment and Debris

Tools, equipment, vehicles, temporary structures or parts thereof used or maintained for the purpose of building or placing a work in navigable waters shall not remain in such water following the completion of the project.

3.0 REVIEW OF SITE AND SURVEYS

3.1 Site Review

A site visit was conducted to assess potential routing for the new raw water pipeline and suitable locations for the required pump station. There is an existing road allowance that leads from the Cowley-Lundbreck Regional WTP directly north to the Oldman River Reservoir along Range Road 13B. This road allowance at one time provided a Crowsnest River highway crossing before the construction of the Oldman River Dam. The road has not been maintained and is overgrown. However, the water's edge may be accessed by most vehicles. At the reservoir shore, privately-owned property sits to the west of the allowance while the Highway 510 right-of-way and then crown land lie to the east. The shore cannot be readily accessed from the east side of Highway 510 as a steep bluff borders the reservoir. The crown land parcel is fenced but marked with signs indicating the parcel is an "Alberta Recreational Area". Further investigation of this property revealed two groundwater monitoring wells.

3.2 Topographic and Bathymetric Surveys

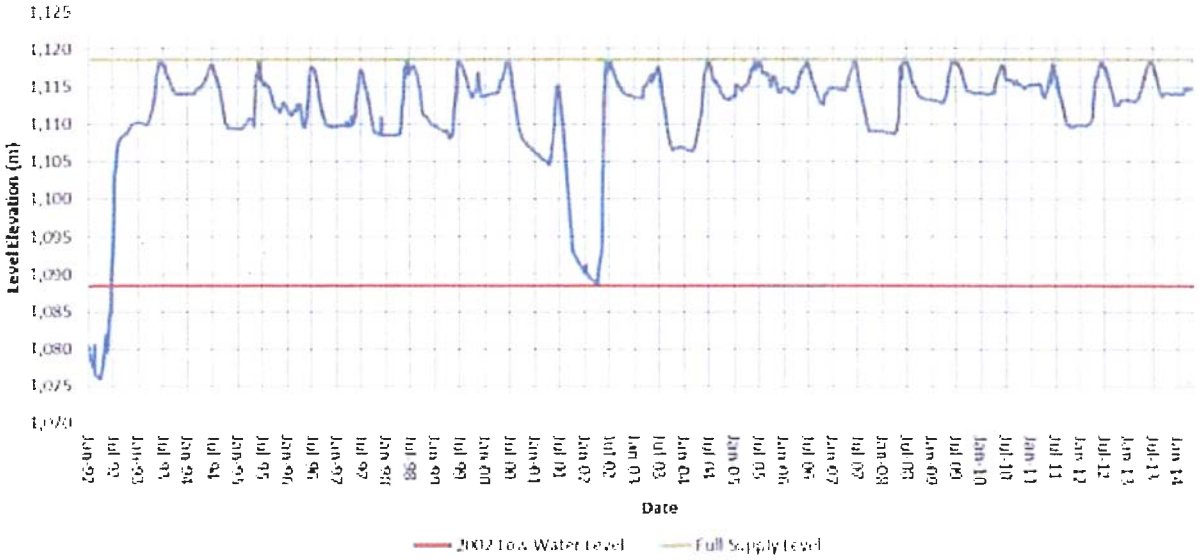
Alberta ESRD provided topographic survey information from before the construction of the Oldman River Dam. A map of 5 m contours for this area is shown in Appendix A. The lowest contours on this map compare well with the pre-existing path of the Crowsnest River.

A bathymetric survey of the Oldman River Reservoir was not available for this location. For the purpose of this study the deepest zone of the reservoir is assumed to be located along the original Crowsnest River alignment.

3.3 Oldman River Reservoir Historical Water Levels

Operation and maintenance of the Oldman River Dam is handled by Alberta ESRD. Reservoir water levels have been recorded since commissioning of the dam in 1992. Reservoir level data was obtained for 1992 to present and are shown in Figure 3.1.

Figure 3.1 - Oldman River Reservoir Water Levels 1992 - 2014



Upon examination of water level data, it is evident that the levels vary considerably over time. Low level periods as long as a year are not historically uncommon. Since construction of the Dam, the lowest reservoir level occurred in 2002 with a water level reaching an elevation of 1088.5 m. this level is 30 m lower than the full supply level of 1118.6 m, the elevation of the water table in this area may vary by as much as 30 m and is well below the lowest contour seen on the available topographic map of the area (see Appendix A). While this report is based on available information, a more detailed bathymetric survey is required prior to surface water intake design in order to accurately locate the deepest areas of the reservoir.

3.4 Review of Hydrogeological Data

In 2013, Waterline Resources Inc. performed an assessment of groundwater resources for the Oldman Watershed Council. This study recommended that additional groundwater monitoring wells are required to adequately map the aquifers existing in the Lundbreck area. Well drilling reports from the Alberta ESRD Water Well Database revealed the existence of sandstone, clay, and shale beneath the bluffs surrounding the Oldman River Reservoir. However, a floodplain had existed south of the Crowsnest River where Highway 510 now crosses the reservoir. A report from a well in this location suggests that sand and gravel may exist as shallow as 3 metres below the reservoir bottom. This report is attached to

this study in Appendix A. It is possible that a groundwater aquifer exists near where the Range Road 13B road allowance meets the shoreline. The two observation wells on the crown land parcel east of Highway 510 did not appear to be recorded on the database.

4.0 PROPOSED RAW WATER SUPPLY ALTERNATIVES

4.1 Site Selection and Supply Pipeline Routing

The preferred access point to the southern shoreline of the Oldman River Reservoir is along Range Road 13B west of Highway 510. The road allowance could be utilized as the corridor for a raw water supply pipeline between the reservoir shore and the Reqional WTP. The raw water supply line would require a pump station which could be constructed just off of this road above the historical high water level. Road access would need to be improved to allow for operation and maintenance. Figure 4.1 presents the proposed supply pipeline route and pump station location relative to the Cowley-Lundbreck Regional WTP.

This study proposes groundwater well and surface water intakes as potential options for raw water supply. Figures 4.2 and 4.3 show a potential configuration of these alternatives utilizing the Range Road 13B allowance.

4.2 Alternative 1 – Groundwater Well Supply

The Oldman River Dam Project was completed in 1992. Prior to its construction, a floodplain extended south from the Crowsnest River. Discussions with a local well driller suggest that a gravel deposit or fractured bedrock may exist near the south shore of the reservoir which may be conducive to the installation of groundwater wells. However, this would need to be confirmed by conducting a hydrogeological survey as no existing well data is available for this location. Provided that the hydrogeological survey proves positive, redundant groundwater wells could be installed to supply water to WTP.

4.2.1 Groundwater Well Supply Upgrades

The proposed alternative to supply groundwater to the Cowley-Lundbreck Regional WTP would consist of the following:

- Installation of two 400 mm HDPE groundwater well casings
- Two 60 HP submersible turbine pumps complete with 150 mm HDPE drop pipes

LEGEND

— — RAW WATER PIPELINE

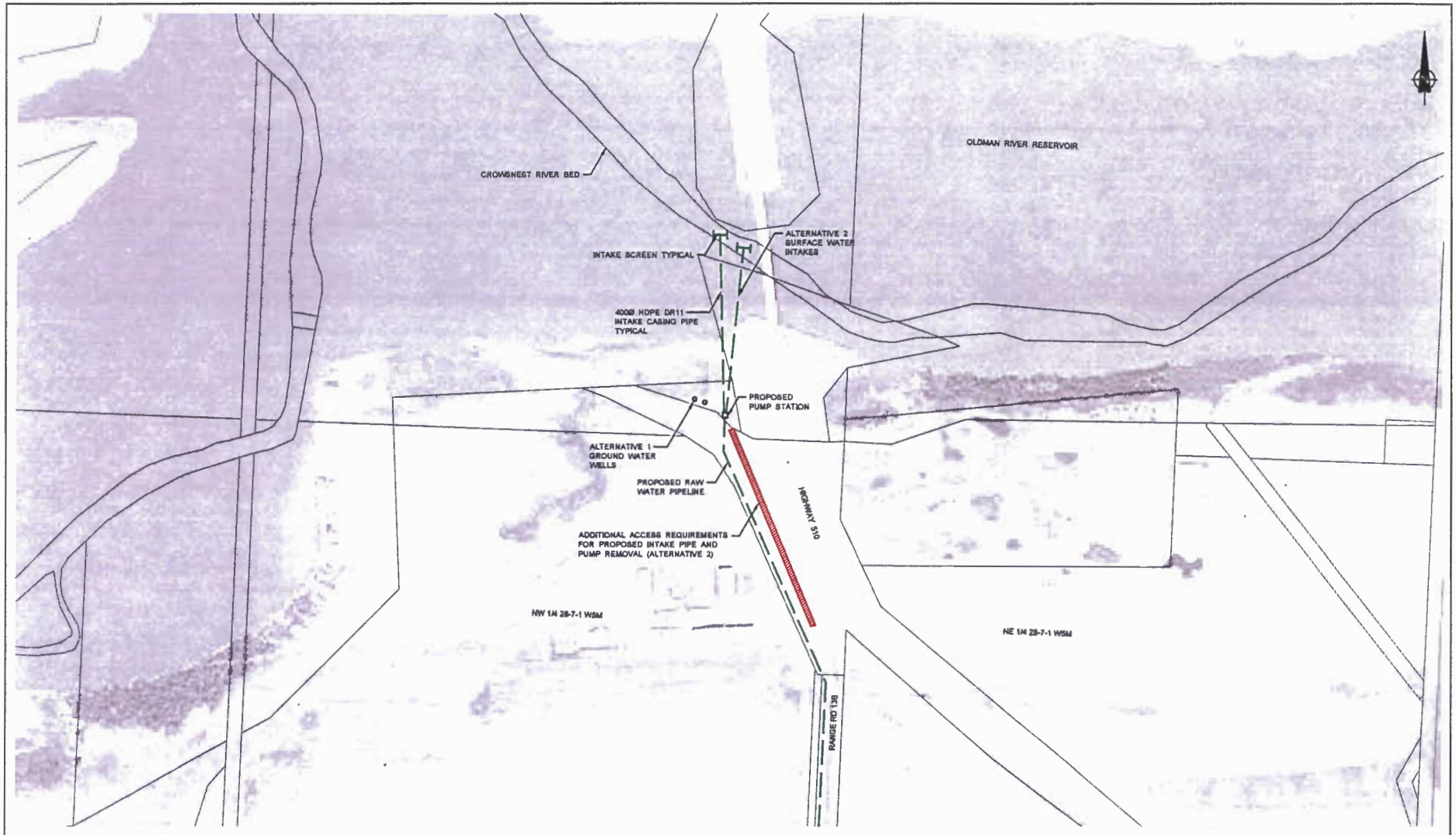
— — TREATED WATER PIPELINE

MPE Engineering Ltd.

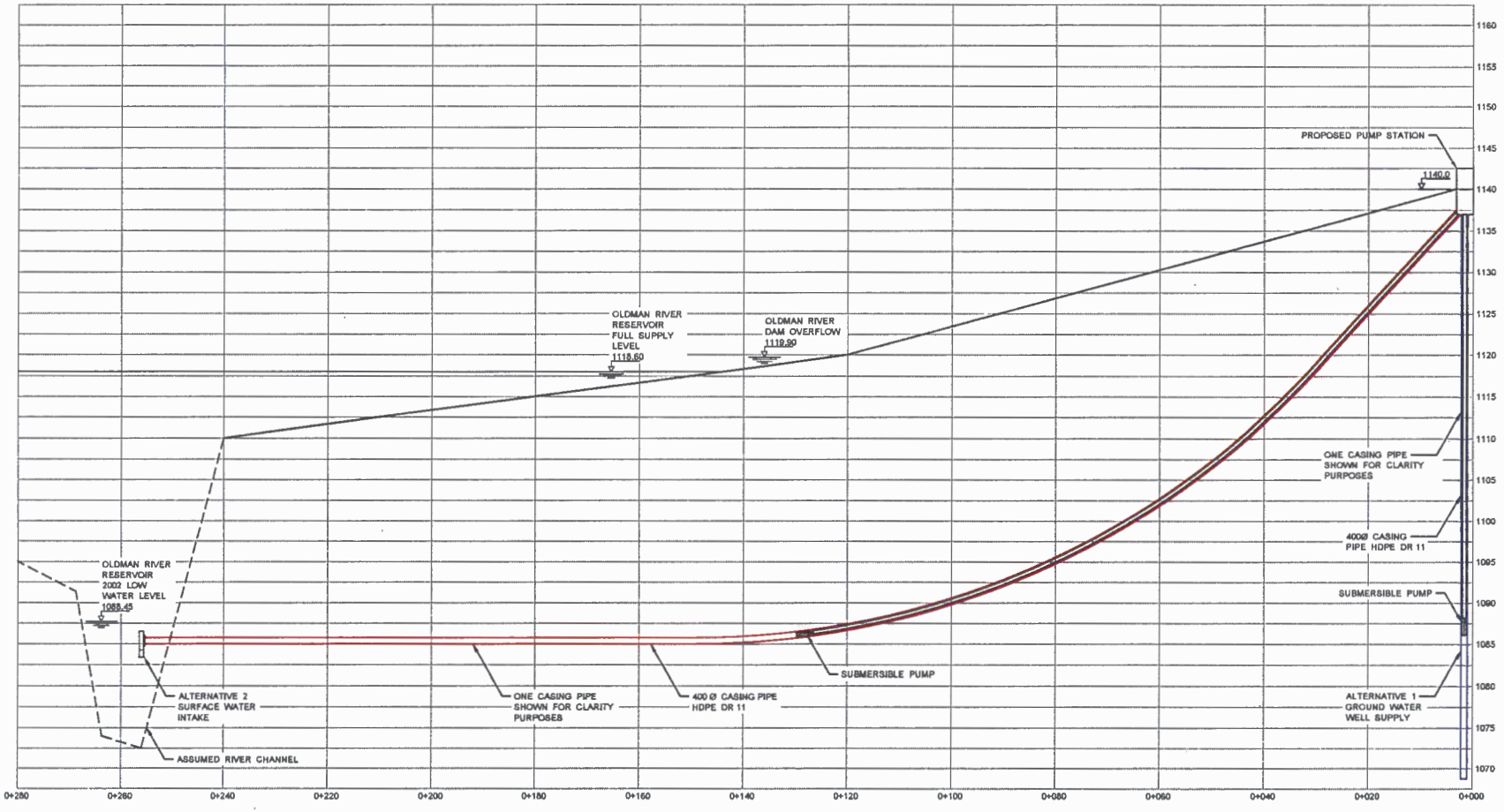
MD OF PINCHER CREEK

COWLEY - LUNDBRECK REGIONAL
RAW WATER SUPPLY STUDY
PROPOSED RAW WATER PIPELINE SITE PLAN

SCALE: 1:7500	DATE: JULY 2014	JOB: 1770-006-00	FIGURE: 4.1



MPE Engineering Ltd.		MD OF PINCHER CREEK	
		COWLEY - LUNDBRECK REGIONAL RAW WATER SUPPLY STUDY RAW WATER SUPPLY ALTERNATIVES	
SCALE: 1:5000	DATE: JULY 2014	JOB: 1770-006-00	FIGURE: 4.2



MPE Engineering Ltd.

MD OF PINCHER CREEK

COWLEY - LUNDBRECK REGIONAL
RAW WATER SUPPLY STUDY
RAW WATER SUPPLY ALTERNATIVES SECTION

SCALE: NTS	DATE: JULY 2014	JOB: 1770-006-00	FIGURE: 4.3

- A precast concrete pump station building complete with pitless well casing adaptors, insulation, liner, electrical, and controls
- Installation of 1,300 m long, 150 mm diameter PVC raw water supply pipeline
- Road access and site security

4.3 Alternative 2 – Surface Water Intake

Since the construction of the Oldman River Dam, the MD of Pincher Creek has experienced significant drought events. During conditions of low supply, the reservoir shrinks to a stream which generally follows the original bed of the Crowsnest River. In the event that a groundwater well system is deemed impractical, a surface water intake could potentially be constructed in the Oldman River Reservoir. This intake would need to be installed at a location in the reservoir that is deep enough to prevent flow interruption during drought conditions. However, the precise selection of this location would require a bathymetric survey of the reservoir.

Hydraulically backwashed "T" intake screens are a potential option for the Oldman River Reservoir. Following bathymetric survey, redundant intake casings could be directional drilled from the shore to the selected intake location. Intake casings and screens would require a barge and divers to install. Submersible pumps and intake pipes would be contained within the casings allowing for hydraulic backwash of screens through circulation of raw water from one intake pump to the opposite intake casing. Based on topographic survey from before the construction of the dam and reservoir level monitoring data, Figures 4.2 and 4.3 show the projected general orientation of the proposed surface water intakes.

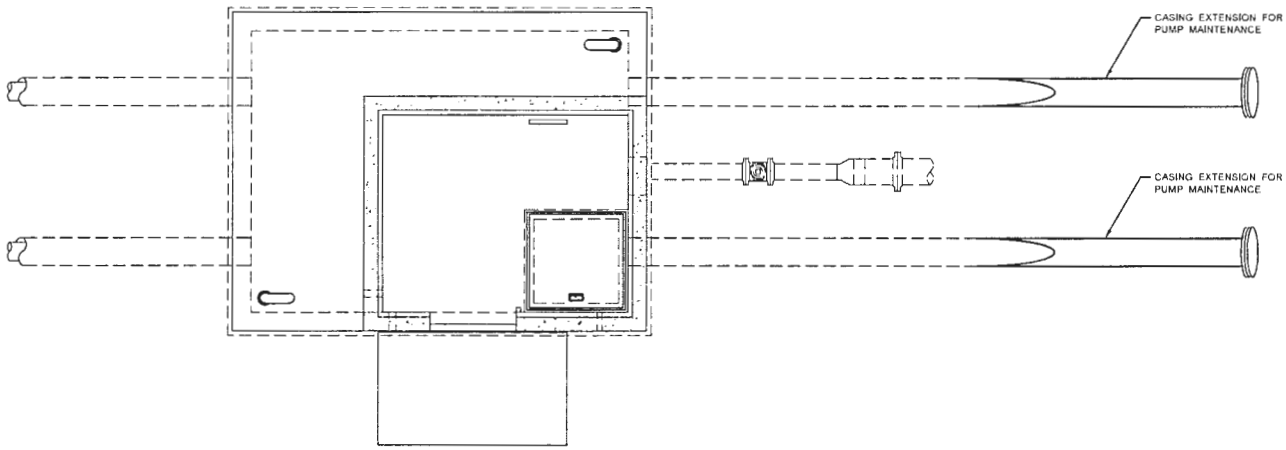
4.3.1 Surface Water Intake Upgrades

The proposed surface water intake system would consist of the following:

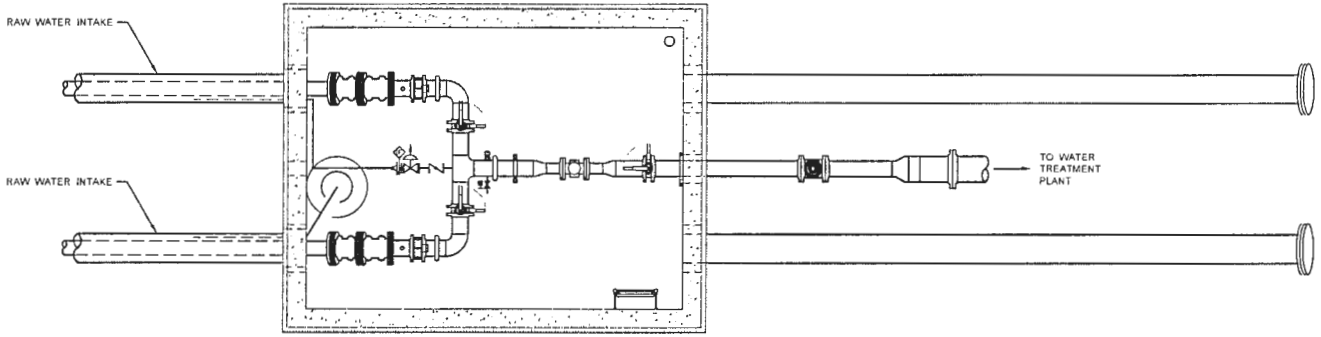
- Installation of two 400 mm HDPE intake casings
- Two 60 HP submersible turbine pumps complete with 150 mm HDPE intake pipelines
- A precast concrete pump station vault and building complete with insulation, liner, electrical, HVAC, and controls
- Installation of 1,300 m, 150 mm PVC raw water supply pipeline

- Road access and site security

Figures 4.4 and 4.5 illustrate the general arrangement of the proposed pump station for Alternative 2.

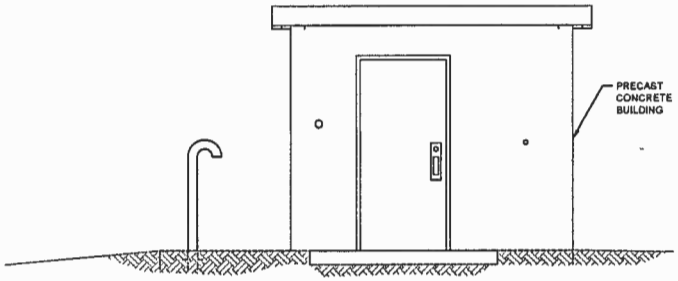


CONTROL BUILDING FLOOR PLAN

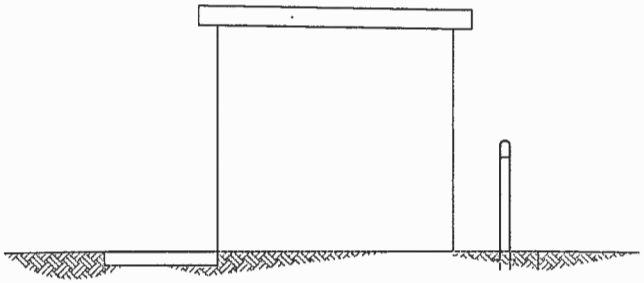


VAULT FLOOR PLAN

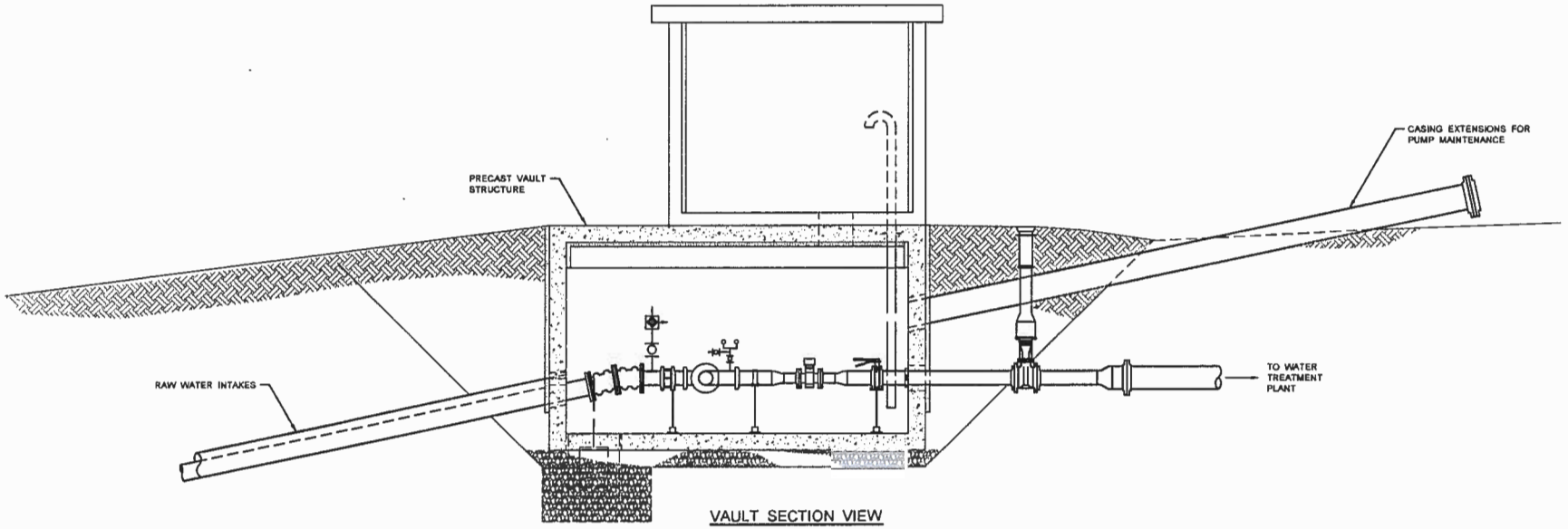
MPE Engineering Ltd.		MD OF PINCHER CREEK COWLEY - LUNDBRECK REGIONAL RAW WATER SUPPLY STUDY ALTERNATIVE 2: SURFACE WATER INTAKE PROPOSED PUMP STATION PLANS	
SCALE: 1:50	DATE: JULY 2014	JOB: 1770-006-00	FIGURE: 4.4



FRONT ELEVATION



SIDE ELEVATION



VAULT SECTION VIEW

Engineering Ltd.

MD OF PINCHER CREEK

COWLEY - LUNDBRECK REGIONAL
RAW WATER SUPPLY STUDY
ALTERNATIVE 2: SURFACE WATER INTAKE
PROPOSED PUMP STATION SECTIONS

SCALE: 1:50	DATE: JULY 2014	JOB: 1770-006-00	FIGURE: 4.5

5.0 COST ESTIMATES

5.1 Opinion of Probable Cost

Cost estimates have been prepared for the proposed raw water supply alternatives. Table 5.1 presents a summary of capital costs.

Table 5.1: Capital Cost Estimates

Alternative	*Description*	*Capital Cost*
1	Groundwater Well Supply	$ 1,175,000.00
2	Surface Water Intake	$ 1,813,000.00

The cost estimates provided in Table 5.1 are an opinion of probable cost and a function of many factors that can change with time and hence must not be relied upon as the actual cost. Capital cost estimates are based on supplier quotes and previous tenders of similar projects constructed in southern Alberta. Refer to Appendix B for details of the capital cost estimates.

5.2 Financing Capital Infrastructure

There are different methods of funding large capital cost projects required by a municipality. These methods range from full cost recovery through base utility billing in which the charge to the customer includes the full cost of delivery (i.e. capital cost debentures, operation and maintenance, overhead, and administration) to special levies on a utility bill that cover the cost of improvements.

Alternatively municipalities can charge offsite levies for any new development. These levies should be applied so that costs of improvements that are required as a result of the new development are recovered.

To assist municipalities with ensuring that residents have access to high quality drinking water and wastewater treatment and disposal, the Province of Alberta and the Federal Government of Canada have put in place programs to fund these projects.

5.2.1 Grant Programs

The following sections describe the funding assistance that will be most applicable to water and wastewater treatment capital projects.

5.2.1.1 Alberta Municipal Water and Wastewater Partnership (AMWWP)

The Alberta Municipal Water and Wastewater Partnership (AMWWP) program will be the most significant possible source of capital funding for this project. The AMWWP offers shared funding to municipalities for the development of municipal water supply and treatment systems as well as wastewater treatment and disposal facilities. This fund is accessible to cities with a population of less than 45,000, towns, villages, summer villages, regional commissions, and eligible hamlets within rural municipalities. Water distribution and wastewater collection systems are not eligible for funding.

Under AMWWP for municipalities with a population of less than 1,000, the project costs are shared 75% by the Provincial government and 25% by the local government. According to the program's funding policy, the AMWWP also encourages water conservation and consumption based rate structures. Municipalities that do not meter and that have an average annual consumption rate exceeding the norm for the area could be subject to a ten percent reduction in grants.

5.2.1.2 Regional Systems Initiative – AMWWP/Water for Life Strategy

In 2006, as part of the "Water for Life Strategy" the Province of Alberta began the Regional Systems Initiative. The Province will cover 90% of the capital costs of constructing regional municipal water or wastewater pipelines. The Province will provide 100% funding to the "hub" suppliers to make the necessary expansions and improvements to service the regional customers.

At this time, the availability of funding through the Water for Life Strategy is low. Alberta Transportation is in the process of allocating the remaining funds to approved projects based on priority and it is likely that not all approved projects will receive financial assistance. The AMWWP now prioritizes projects on the following criteria:

- Priority 1 – Health related improvements involving upgrading water treatment facilities and/or water supply and water treatment facilities

- Priority 2 – Environmental protection Improvements usually related to wastewater treatment projects affecting the environment
- Priority 3 – System and development related improvements such as safety, fire protection and operational improvements

5.2.1.3 The New Building Canada Fund (NBCF)

In 2014, the Government of Canada announced the changes made to the Building Canada Fund. The New Building Canada Fund provides financial assistance for projects that enhance economic growth, environment, and community. The NBCF is made up of specific allocations for national, national-regional, and small community infrastructure improvements

Communities with populations under 100,000 may be eligible for assistance through the Small Communities Fund as allocated by the New Building Canada Fund Provincial-Territorial Infrastructure Component. This may include water and wastewater treatment facilities as well as raw water, supply, and sanitary infrastructure. Most approved municipal projects will receive funding on a one-third basis where equal contributions are made by the federal government, provincial government, and the municipality.

The application guidelines for project funding under the NBCF are currently in development. Therefore, Alberta Infrastructure is not currently accepting project applications at this time.

6.0 DISCUSSION

6.1 Discussion of Upgrades

6.1.1 Alternative 1 – Groundwater Well Supply

The selection of a groundwater or surface water supply system depends on the results of a hydrogeological survey and subsequent well development.

A groundwater well supply system is the preferred option provided that production rates can satisfy projected water needs. The capital expenditure required to construct wells would be significantly lower than that required to drill surface water intakes into the Oldman River Reservoir. Furthermore, construction planning is simplified with this option as regulatory input regarding navigable waters, shoreline modification, and environmental protection is reduced.

Sourcing from groundwater aquifers offers the potential benefit of improved raw water quality over surface water. The infiltration of water through soils results in the exclusion of some raw water particles. Raw water screening requirements at the WTP are diminished with this type of application which offers reduced operational and maintenance costs compared to a surface water intake. However, it should be noted that raw water from wells may have higher levels of metal constituents such as iron and manganese compared to that of reservoir water. In this scenario, equipment for aeration and filtration may be required at the well to oxidize and reduce these compounds prior to conveyance of raw water to the WTP.

6.1.2 Alternative 2 – Surface Water Intake

In the event that an adequate groundwater aquifer cannot be located near the Cowley-Lundbreck Regional WTP, a surface water intake in the Oldman River Reservoir would be the successive option. However, the installation of these intakes requires directional drilling to the deepest zone of the reservoir to avoid flow interruption during low reservoir conditions. To confirm the lowest point in the reservoir, a bathymetric survey would be required to design and install intakes at this location.

Prior to construction of intakes in the Oldman River Reservoir, approvals from several relevant regulatory authorities must be obtained, including Alberta ESRD, Transport Canada, and DFO.

Construction of surface water intakes at this location necessitates significantly greater capital expenditures compared to establishing wells. Directional drilling costs ultimately depend on the type of soils encountered on site. Given the lack of geological data available for this location, an allowance has been included in the costs to account for challenging drilling conditions.

7.0 CONCLUSIONS

The major findings from this study include:

- The Municipal District of Pincher Creek has expressed interest in establishing a new raw water supply to the Cowley-Lundbreck Regional Water Treatment Plant that combines water licences of Cowley and Lundbreck.
- The preferred raw water source is Oldman River Reservoir.
- Range Road 13B provides an attractive alignment for a raw water pipeline.
- Limited hydrogeological and bathymetric data exists for the Oldman River Reservoir.
- Alternative 1 – Groundwater Well Supply and Alternative 2 – Surface Water Intake present themselves as potential raw water supply options.
- Alternative 1 – Groundwater Well Supply offers lower capital costs, enhanced raw water quality, reduced operations and maintenance, and less complicated construction.

8.0 RECOMMENDATIONS

The following recommendations should be reviewed by the Municipal District of Pincher Creek:

- Proceed with hydrogeological survey at the proposed location to further evaluate the feasibility of Alternative 1 – Groundwater Well Supply.
- Forward copies of this study to Alberta Transportation along with Council Resolutions supporting the recommendations put forth in this document and make application under the Alberta Water and Wastewater Partnership Program and Regional Water and Wastewater Partnership Initiative for funding approval.

9.0 REFERENCES

Alberta Environment, "Standards and Guidelines for Municipal Waterworks, Wastewater and Strom Drainage Systems", Drinking Water Branch, Environmental Policy Branch, Environmental Assurance Division, Edmonton, Alberta, January 2006.

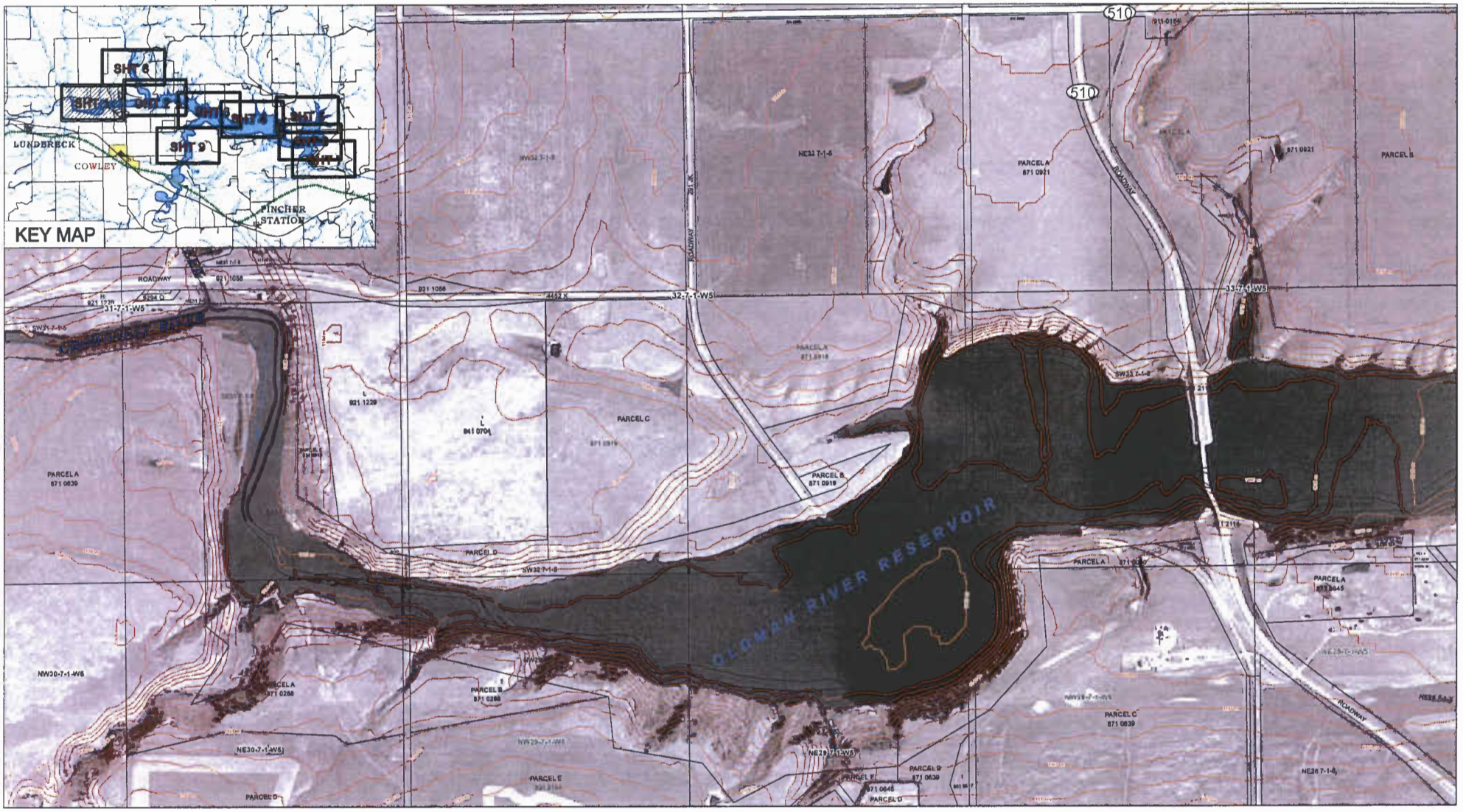
Alberta Transportation, "Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body", Water Act and the Water (Ministerial) Regulation, June 2013.

Department of Fisheries and Oceans, "Freshwater Intake End-of-Pipe Fish Screen Guideline", March 1995.

Transport Canada, "Navigation Protection Act", Navigable Waters Protection Program, April 2014.

Oldman Watershed Council, "Crowsnest River Watershed Aquifer Mapping and Groundwater Management Planning Study TWPS 006 to 009, RGES 01 to 06 W5 Alberta", Waterline Resources Inc., February 2013.

Appendix A – Existing Site Information



NOTES:
1) AERIAL PHOTO CAPTURE DATE: SUMMER, 2006
2) ELEVATION CONTOUR DATA BASED ON PRE-RESERVOIR SITE CONDITIONS
3) PROJECTED COORDINATE SYSTEM: ALBERTA 10TM, CENTRAL MERIDIAN -115, NAD83 DATUM
4) SCALE APPLIES ONLY WHEN PLOTTED ON "D"-SIZED 22"X34" INCH PAGE

Elevation Contours: 5 meter interval

MARK	NATURE OF REVISION	DATE	ENG	DWN
	REVISIONS: 2006 IMAGERY ADDED, DRAFTING EDITS	MAR/09		
	DRAWING SET COMPLETE	OCT/05		

Alberta Environment

ENVIRONMENTAL MANAGEMENT - WATER MANAGEMENT OPERATIONS

SUBMITTED _____ DESIGNED _____
DATE _____ CHECKED _____
APPROVED _____ DRAWN CJW
DATE _____ CHECKED _____

OLDMAN RIVER DAM

RESERVOIR TOPOGRAPHIC AND CADASTRAL PLAN
SHEET 1 OF 9

SCALE 1:5,000 SHEET 1 OF 9
DATE OCTOBER, 2005 DWG No

Government of Alberta

Water Well Drilling Report

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

View in Metric | Export to Excel

GIC Well ID 401333
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1984/02/17

Well Identification and Location

Measurement in Imperial

Owner Name	Address	Town	Province	Country	Postal Code
COWLEY, TOWN OF #1	COWLEY				

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	04	33	007	01	5				

Measured from Boundary of
ft from
ft from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 49.598710 Longitude -114.088564
How Location Obtained
Not Verified

Elevation ft
How Elevation Obtained
Not Obtained

Drilling Information

Method of Drilling
Rotary

Proposed Well Use
Municipal

Type of Work
New Well

Formation Log

Measurement in Imperial

Depth from ground level (ft)	Water Bearing	Lithology Description
4.00		Silty Topsoil
10.00		Sand & Gravel
20.00		Gravel
21.00		Shale

Yield Test Summary

Measurement in Imperial

Recommended Pump Rate 0.00 igpm

Test Date	Water Removal Rate (igpm)	Static Water Level (ft)
1983/11/14	75.00	11.00

Well Completion

Measurement in Imperial

Total Depth Drilled	Finished Well Depth	Start Date	End Date
21.00 ft		1983/11/08	1983/11/14

Borehole

Diameter (in)	From (ft)	To (ft)
0.00	0.00	21.00

Surface Casing (if applicable)
Steel
Size OD : 10.75 in
Wall Thickness : 0.279 in
Bottom at : 18.00 ft

Well Casing/Liner
Size OD : 0.00 in
Wall Thickness : 0.000 in
Top at : 0.00 ft
Bottom at : 0.00 ft

Perforations

From (ft)	To (ft)	Diameter or Slot Width(in)	Slot Length(in)	Hole or Slot Interval(in)

Perforated by

Annular Seal Driven
Placed from 0.00 ft to 18.00 ft
Amount

Other Seals

Type	At (ft)

Screen Type Stainless Steel
Size OD : 9.00 in

From (ft)	To (ft)	Slot Size (in)
18.00	21.00	0.060

Attachment Attached To Riser
Top Fittings Riser Pipe
Bottom Fittings Bail

Pack
Type Natural
Grain Size
Amount

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
UNKNOWN NA DRILLER

Certification No
1

Company Name
CAMFIELD DRILLING SERVICES LTD.

Copy of Well report provided to owner
Date approval holder signed

Government of Alberta

Water Well Drilling Report

View in Metric | Export to Excel

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

GIC Well ID 401333
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1984/02/17

Well Identification and Location

Measurement in Imperial

Owner Name	Address	Town	Province	Country	Postal Code
COWLEY, TOWN OF #1	COWLEY				

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	04	33	007	01	5				

Measured from Boundary of
ft from
ft from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 49.598710 Longitude -114.088564
How Location Obtained
Not Verified

Elevation ft
How Elevation Obtained
Not Obtained

Additional Information

Measurement in Imperial

Distance From Top of Casing to Ground Level in
Is Artesian Flow
Rate igpm
Is Flow Control Installed
Describe

Recommended Pump Rate 0.00 igpm
Recommended Pump Intake Depth (From TOC) 0.00 ft
Pump Installed
Depth ft
Type
Make
H.P.
Model (Output Rating)

Did you Encounter Saline Water (>4000 ppm TDS)
Depth ft
Gas
Depth ft
Well Disinfected Upon Completion
Geophysical Log Taken
Submitted to ESRD
Sample Collected for Potability
Submitted to ESRD Yes (Excel)

Additional Comments on Well
DRILLER REPORTED MED HARD WATER, WELL #1.

Yield Test

Measurement in Imperial

Test Date	Start Time	Static Water Level
1983/11/14	12:00 AM	11.00 ft

Taken From Ground Level
Depth to water level

Drawdown (ft)	Elapsed Time Minutes:Sec	Recovery (ft)

Method of Water Removal
Type Pump
Removal Rate 75.00 igpm
Depth Withdrawn From 14.00 ft

If water removal period was < 2 hours, explain why

Water Diverted for Drilling

Water Source	Amount Taken	Diversion Date & Time
	ig	

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
UNKNOWN NA DRILLER

Certification No
1

Company Name
CAMFIELD DRILLING SERVICES LTD.

Copy of Well report provided to owner Date approval holder signed

Appendix B – Capital Cost Estimate

Project:	Cowley-Lundbreck Regional Raw Water Supply Study	Project Manager: Luke Schoening	
		Prepared By: Connor Wilson	
File:	N:17/70/006/SS00.Feasibility Study Cost Estimate.xls	Revision No.	1
Date:	July 2, 2014		
		Checked By:	
		Signature and Date:	

MPE Engineering Ltd.

Cowley Raw Water Supply Study Cost Estimate
Alternative 1 - Groundwater Well Supply

COST ESTIMATE

	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
Supply and Pump Station Upgrades					
General					
1	Mob/Demob/Bonding/Insurance/Profit	1	LS	-	$ 111,000.00
2	Hydrogeological Survey	1	LS	$ 15,000.00	$ 15,000.00
3	Legal Survey	1	LS	$ 15,000.00	$ 15,000.00
		SUBTOTAL			$ 141,000.00
Groundwater Well Upgrades					
1	16" HDPE DR11 Well Casing	140	m	$ 120.00	$ 17,000.00
2	6" HDPE DR9 Well Drop Pipe	140	m	$ 50.00	$ 7,000.00
3	Drilling and Well Install	2	ea	$ 50,000.00	$ 100,000.00
4	60 HP Submersible Turbine Pump	2	ea	$ 25,000.00	$ 50,000.00
5	Pitless Adaptors	2	ea	$ 30,000.00	$ 60,000.00
		SUBTOTAL			$ 234,000.00
Pump House Upgrades					
1	Land Acquisition	3	acre	$ 5,000.00	$ 15,000.00
2	Access Road	1	LS	$ 20,000.00	$ 20,000.00
3	Precast Concrete Building	1	LS	$ 50,000.00	$ 50,000.00
4	Controls and Instrumentation	1	LS	$ 15,000.00	$ 15,000.00
5	Valves, Piping and Fittings	1	LS	$ 20,000.00	$ 20,000.00
		SUBTOTAL			$ 120,000.00
Supply Pipeline					
1	6" PVC SDR21 Pipeline	1300	m	$ 120.00	$ 156,000.00
2	Farm Access Road Crossings	1	ea	$ 2,000.00	$ 2,000.00
3	Flushing Hydrant	1	LS	$ 5,000.00	$ 5,000.00
4	Valves and Fittings	1	LS	$ 25,000.00	$ 25,000.00
5	Grass Seeding	1	LS	$ 15,000.00	$ 15,000.00
		SUBTOTAL			$ 203,000.00
Electrical					
1	Electrical Service	1	LS	$ 35,000.00	$ 35,000.00
2	VFDs	2	ea	$ 15,000.00	$ 30,000.00
3	Main Service Equipment (Panels, Transformer, Disconnects)	1	LS	$ 20,000.00	$ 20,000.00
4	Controls Panel	1	LS	$ 20,000.00	$ 20,000.00
5	General Cable Costs	1	LS	$ 10,000.00	$ 10,000.00
6	PLC, Radio and HMI Equipment	1	LS	$ 15,000.00	$ 15,000.00
7	Programming and Commissioning	1	LS	$ 25,000.00	$ 25,000.00
		SUBTOTAL			$ 155,000.00
		GRAND SUBTOTAL			**$ 853,000.00**
	Contingency (20%)				**$ 171,000.00**
	Geotechnical				**$ 25,000.00**
	Engineering (12%)				**$ 126,000.00**
		GRAND TOTAL			**$ 1,175,000.00**

Project:	Cowley-Lundbreck Regional Raw Water Supply Study	Project Manager: Luke Schoening	
		Prepared By: Connor Wilson	
File:	N:17/70/006/SS00.Feasibility Study Cost Estimate.xls	Revision No.	1
Date:	July 2, 2014		
		Checked By:	
		Signature and Date:	

MPE Engineering Ltd.

Cowley Raw Water Supply Study Cost Estimate
Alternative 2 - Surface Water Intake

COST ESTIMATE

	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
Intake and Pump Station Upgrades					
General					
1	Mob/Demob/Bonding/Insurance/Profit	1	LS	-	$ 173,000.00
2	Hydrogeological Survey	1	LS	$ 15,000.00	$ 15,000.00
3	Bathymetric Survey	1	LS	$ 10,000.00	$ 10,000.00
4	Legal Survey	1	LS	$ 15,000.00	$ 15,000.00
5	Regulatory Approvals	1	LS	$ 5,000.00	$ 5,000.00
		SUBTOTAL			$ 218,000.00
Surface Water Intake Upgrades					
1	Intake Screen	2	ea	$ 10,000.00	$ 20,000.00
2	16" HDPE DR11 Well Casing Pipeline	600	m	$ 120.00	$ 72,000.00
3	6" HDPE DR9 Well Intake Pipeline	600	m	$ 50.00	$ 30,000.00
4	Directional Drilling and Intake Install	1	LS	$ 350,000.00	$ 350,000.00
5	Barge and Boat Rentals	1	LS	$ 10,000.00	$ 10,000.00
6	Divers	1	LS	$ 30,000.00	$ 30,000.00
7	60 HP Submersible Turbine Pump	2	ea	$ 25,000.00	$ 50,000.00
8	Valves and Fittings	1	LS	$ 10,000.00	$ 10,000.00
		SUBTOTAL			$ 572,000.00
Pump House Upgrades					
1	Land Acquisition	3	acre	$ 5,000.00	$ 15,000.00
2	Access Road	1	LS	$ 20,000.00	$ 20,000.00
3	Precast Concrete Vault with Precast Building Structure	1	LS	$ 100,000.00	$ 100,000.00
4	Controls and Instrumentation	1	LS	$ 15,000.00	$ 15,000.00
5	Valves, Piping and Fittings	1	LS	$ 30,000.00	$ 30,000.00
		SUBTOTAL			$ 180,000.00
Supply Pipeline					
1	6" PVC SDR21 Pipeline	1300	m	$ 120.00	$ 156,000.00
2	Farm Access Road Crossings	1	ea	$ 2,000.00	$ 2,000.00
3	Flushing Hydrant	1	LS	$ 5,000.00	$ 5,000.00
4	Valves and Fittings	1	LS	$ 25,000.00	$ 25,000.00
5	Grass Seeding	1	LS	$ 15,000.00	$ 15,000.00
		SUBTOTAL			$ 203,000.00
Electrical					
1	Electrical Service	1	LS	$ 35,000.00	$ 35,000.00
2	VFDs	2	ea	$ 15,000.00	$ 30,000.00
3	Main Service Equipment (Panels, Transformer, Disconnects)	1	LS	$ 20,000.00	$ 20,000.00
4	Controls Panel	1	LS	$ 20,000.00	$ 20,000.00
5	General Cable Costs	1	LS	$ 10,000.00	$ 10,000.00
6	PLC, Radio and HMI Equipment	1	LS	$ 15,000.00	$ 15,000.00
7	Programming and Commissioning	1	LS	$ 25,000.00	$ 25,000.00
		SUBTOTAL			$ 155,000.00
		GRAND SUBTOTAL			$ 1,328,000.00
	Contingency (20%)				$ **266,000.00**
	Geotechnical				$ **25,000.00**
	Engineering (12%)				$ **194,000.00**
		GRAND TOTAL			$ **1,813,000.00**

F2c

July 2014

To the Joint Council for M.D. of Pincher Creek & Town of Pincher Creek.

On behalf of the Pincher Creek Rodeo Club please accept our thanks for continuing to Sponsor our annual rodeo.

Sincerely,

Photo taken by AHS employee:
Catherine Mitchell

Alberta Health Services

Council
Corresp - For Info

Alberta Emergency Management Agency

14515 - 122 Avenue
Edmonton, Alberta
Canada
Telephone 780-415-2924
Fax 780-422-1549

F2d

RECEIVED
AUG 25 2014
M.D. OF PINCHER CREEK

August 14, 2014

Reeve Brian Hammond
P.O. Box 279
Pincher Creek AB T0K 1W0

RE: MD of Pincher Creek No.9 Application for Disaster Recovery Program

Dear Reeve Hammond:

Thank you for submitting your Disaster Recovery Assistance Application following the flood event in your municipal district from June 17-19, 2014.

In order for a Disaster Recovery Program (DRP) to be approved, the following three criteria must be met:
- damage or loss is caused by a widespread event;
- the event is considered extraordinary; and
- insurance is not reasonably or readily available to cover the damages.

The Alberta Emergency Management Agency (AEMA) will review the application to determine if it meets the above-mentioned criteria. After the review process, and if the event meets the criteria for establishing a DRP, a recommendation is made to the Minister responsible for the AEMA and then forwarded to cabinet for approval. Once a decision is made, the AEMA will notify you. If a DRP has been approved, you will receive further program details and information regarding assistance for your community.

Should you require any further information, please feel free to contact your Alberta Emergency Management Agency Field Officer or myself by dialing toll-free 310-0000, then 780-446-0178.

Best regards,

Kevin Taron,
Manager, Recovery Operations
Alberta Emergency Management Agency

cc: Wendy Kay, Chief Administrative Officer
Rein Tonowski, Manager of Field Operations

G1

Chinook Arch
Regional Library
System

2902 - 7th Avenue North, Lethbridge, Alberta T1H 5C6, Phone: 403-380-1500, Fax: 403-380-3550

CHINOOK ARCH LIBRARY BOARD

FINANCIAL STATEMENTS

DECEMBER 31, 2013

McNiven Newman LLP
Professional Accountants

INDEPENDENT AUDITOR'S REPORT

To the Board of Directors of
Chinook Arch Library Board

Report on the Financial Statements
We have audited the accompanying financial statements of the Chinook Arch Library Board, which comprise the statements of financial position as at December 31, 2013 and the statement of operations, statement of net assets and the statement of cash flows for the year then ended, and a summary of accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements
Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian not-for-profit accounting standards and for such internal controls as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility
Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatements.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion
In our opinion, the financial statements present fairly, in all material respects, the financial position of Chinook Arch Library Board, as at December 31, 2013, and its statement of operations, statement of net assets and the statement of cash flow for the year then ended in accordance with Canadian not-for-profit accounting standards.

McNiven Newman LLP

Vauxhall, Alberta
April 3, 2014

McNiven Newman LLP
Professional Accountants

Box 21 . 413 – 3rd Avenue, Vauxhall, AB T0K 2K0
Phone (403) 654-4231 . Fax (403) 654-4239
Email: mn@beencounting.ca

CHINOOK ARCH LIBRARY BOARD

STATEMENT OF FINANCIAL POSITION
AS AT DECEMBER 31, 2013

	2013	2012
ASSETS		
Current Assets		
Cash and Temporary Investments	$ 1,421,182	$ 1,245,934
Accounts Receivable (net)	$ 69,242	$ 56,131
GST Recoverable	$ 21,802	$ 25,825
Prepaid Expenses	$ 86,407	$ 44,513
Current Portion Due on Loans Receivable	$ 1,184	$ 706
	$ 1,599,817	$ 1,373,109
Loans Receivable (note 4)	$ -	$ 255
Capital Assets (note 5)	$ 840,191	$ 997,859
	$ 2,440,008	$ 2,371,223
LIABILITIES		
Current Liabilities		
Accounts Payable and Accrued Liabilities	$ 123,867	$ 88,491
Deferred Revenue (note 6)	$ 1,087	$ 13,479
Employee Benefit Obligations (note 7)	$ 129,607	$ 131,605
	$ 254,561	$ 233,575
NET ASSETS		
Net Assets Invested in Capital	$ 840,191	$ 997,859
Net Assets Internally Restricted (note 8)	$ 1,328,360	$ 810,965
Net Assets Externally Restricted (note 8)	$ 1,597	$ 1,597
Unrestricted Net Assets	$ 15,299	$ 327,227
	$ 2,185,447	$ 2,137,648
	$ 2,440,008	$ 2,371,223

Approved by the Board:

Director — Date April 3/2014

Director — Date April 3/2014

CHINOOK ARCH LIBRARY BOARD

STATEMENT OF OPERATIONS

YEAR ENDED DECEMBER 31, 2013

	2013	2012
REVENUE		
Library Boards	$ 562,642	$ 555,913
Library Boards Additional Contributions	$ 328,625	$ 304,125
Municipal Levies	$ 1,321,319	$ 1,202,963
Municipal Rural Services Fees	$ 63,988	$ 64,616
Other Grants	$ 7,830	$ 79,122
Resource Sharing Contract Grant (note 9)	$ 130,695	$ 191,800
Provincial Operating Grant	$ 864,575	$ 864,188
Establishment Grant	$ 386	$ 79,346
Provincial Rural Library Services Grant	$ 185,103	$ 185,104
Other Income (schedule 1)	$ 211,980	$ 315,497
	$ 3,677,143	$ 3,842,674
EXPENDITURES		
Library Materials and Collections	$ 636,315	$ 751,434
Shipping & Delivery (schedule 2)	$ 53,866	$ 47,973
Network Services (schedule 3)	$ 156,092	$ 161,344
Bibliographic Services (schedule 4)	$ 65,914	$ 66,971
Programs and Services (schedule 5)	$ 425,244	$ 409,376
Training & Development (schedule 6)	$ 91,331	$ 95,148
Salaries and Benefits	$ 1,774,866	$ 1,723,350
Administration (schedule 7)	$ 46,447	$ 48,127
Building and Maintenance	$ 75,540	$ 68,904
Board Expenses	$ 33,930	$ 32,820
Contract & Other Services (schedule 8)	$ 163,028	$ 298,712
Amortization Expense	$ 106,771	$ 97,520
	$ 3,629,344	$ 3,801,679
EXCESS (DEFICIENCY) OF REVENUE OVER EXPENDITURES	$ 47,799	$ 40,995

CHINOOK ARCH LIBRARY BOARD

STATEMENT OF NET ASSETS

YEAR ENDED DECEMBER 31, 2013

	Unrestricted Surplus	Internally restricted Surplus (note 8)	Externally restricted Surplus (note 8)	Invested in Capital Assets	Total 2013	Total 2012
BALANCE BEGINNING OF YEAR	$ 327,227	$ 810,965	$ 1,597	$ 997,859	$ 2,137,648	$ 2,096,653
Excess(Deficiency) of Revenue Over Expenditures	$ 47,799				$ 47,799	$ 40,995
Internally Imposed Restrictions	$ (517,395)	$ 517,395				
Externally Imposed Restrictions	$ -					
Capital Assets Purchases	$ (93,659)			$ 93,659		
Capital Assets Grants	$ 142,418			$ (142,418)		
Reduction of Assets Sold	$ 89,558			$ (89,558)		
Accumulated Amortization on Assets Sold	$ (87,420)			$ 87,420		
Annual Amortization Expense	$ 106,771			$ (106,771)		
BALANCE END OF YEAR	$ 15,299	$ 1,328,360	$ 1,597	$ 840,191	$ 2,185,447	$ 2,137,648
BALANCE END OF YEAR - 2012	$ 327,227	$ 810,965	$ 1,597	$ 997,859		

CHINOOK ARCH LIBRARY BOARD

STATEMENT OF CASH FLOW

YEAR ENDED DECEMBER 31, 2013

	2013	2012
OPERATING ACTIVITIES		
Cash Received for Operations	$ 3,644,959	$ 3,757,146
Cash Paid to Suppliers and Employees	$ (3,531,089)	$ (3,676,626)
	$ 113,870	$ 80,520
INVESTING ACTIVITIES		
Purchase of Property, Plant and Equipment	$ 61,378	$ (306,029)
	$ 61,378	$ (306,029)
INCREASE (DECREASE) IN CASH	$ 175,248	$ (225,509)
CASH AND TEMPORARY INVESTMENTS, BEGINNING OF YEAR	$ 1,245,934	$ 1,471,443
CASH AND TEMPORARY INVESTMENTS, END OF YEAR	$ 1,421,182	$ 1,245,934

CASH AND TEMPORARY INVESTMENTS ARE COMPRISED OF:		
Cash	$ 1,322,752	$ 1,148,025
Temporary Investments	$ 98,430	$ 97,909
	$ 1,421,182	$ 1,245,934

CHINOOK ARCH LIBRARY BOARD

SCHEDULE 1 - OTHER INCOME
YEAR ENDED DECEMBER 31, 2013

	2013	2012
Interest & Investment Income	$ 19,276	$ 20,326
Contracts	$ 47,871	$ 64,858
Fundraising & Donations - General	$ 1,551	$ 5,840
Rural Information Service Initiative	$ -	$ 5,240
LPL Billbacks	$ -	$ 5,929
Employment Programs	$ 4,948	$ 9,320
Regional Libraries Promotional Mat.	$ 10,690	$ 7,978
Southern Alberta Library Conference	$ 20,045	$ 24,491
Lost Materials Reimbursement	$ 708	$ 1,119
Book Purchases	$ 2,000	$ 2,099
Summer Reading Club Materials	$ -	$ 26,191
Gain on Disposal of Capital Assets	$ 10,481	$ 24,200
Reimbursement for Purchases	$ 93,630	$ 117,566
Miscellaneous	$ 780	$ 340
TOTAL	$ 211,980	$ 315,497

SCHEDULE 2 - SHIPPING AND DELIVERY
YEAR ENDED DECEMBER 31, 2013

	2013	2012
Freight	$ 5,768	$ 6,722
Postage and Shipping	$ 4,886	$ 4,879
Vehicle Insurance	$ 2,278	$ 1,867
Vehicle Expenses	$ 40,934	$ 34,505
TOTAL	$ 53,866	$ 47,973

SCHEDULE 3 - NETWORK SERVICES
YEAR ENDED DECEMBER 31, 2013

	2013	2012
Telecommunications	$ 28,866	$ 26,920
Network Support and Maintenance	$ 102,538	$ 98,743
RISE Bridge and Network Support	$ -	$ 15,900
Equipment and Software	$ 24,688	$ 19,781
TOTAL	$ 156,092	$ 161,344

CHINOOK ARCH LIBRARY BOARD

SCHEDULE 4 -BIBLIOGRAPHIC SERVICES

YEAR ENDED DECEMBER 31, 2013

	2013	2012
Cataloguing Subscriptions	$ 4,270	$ 5,552
Supplies for Library Materials	$ 13,477	$ 14,002
Support Services	$ 48,167	$ 47,417
TOTAL	$ 65,914	$ 66,971

SCHEDULE 5 - PROGRAMS

YEAR ENDED DECEMBER 31, 2013

	2013	2012
Summer Programs	$ 2,833	$ 4,416
Reading Programs	$ 1,034	$ -
Membership Programs	$ 7,860	$ 7,638
Rural Library Services Grant Transfers	$ 218,656	$ 219,283
Library Membership Cards	$ 3,392	$ -
Marketing and Communications	$ 13,263	$ 17,443
Regional Resource Sharing	$ 174,485	$ 159,922
Special Projects	$ 3,721	$ 674
TOTAL	$ 425,244	$ 409,376

SCHEDULE 6 -TRAINING AND DEVELOPMENT

YEAR ENDED DECEMBER 31, 2013

	2013	2012
Librarians Meetings and Training	$ 12,739	$ 10,881
Southern Alberta Library Conference	$ 24,700	$ 28,470
Conferences, Courses, Staff Travel	$ 53,892	$ 55,797
TOTAL	$ 91,331	$ 95,148

CHINOOK ARCH LIBRARY BOARD

SCHEDULE 7 -ADMINISTRATION

YEAR ENDED DECEMBER 31, 2013

	2013	2012
Bank Charges	$ 253	$ 173
Subscriptions	$ 1,758	$ 1,496
Professional Fees	$ 8,850	$ 6,791
Advertising	$ 624	$ 2,919
Memberships	$ 1,284	$ 1,799
Recruitment	$ 2,676	$ 1,379
Office Supplies and Equipment	$ 7,991	$ 10,257
Maintenance Office Equipment	$ 16,348	$ 14,615
Coffee Services	$ 4,377	$ 5,951
Printing	$ 2,286	$ 2,747
TOTAL	$ 46,447	$ 48,127

SCHEDULE 8 -CONTRACTS AND OTHER SERVICES

YEAR ENDED DECEMBER 31, 2013

	2013	2012
Better Beginnings Card Coupons	$ -	$ 1,223
Provincial Summer Reading Club Materials	$ -	$ 23,335
Provincial ILL Resource Sharing	$ 3,028	$ 6,780
ILL VDX Maintenance	$ 11,951	$ 13,727
VDX Upgrade Project	$ -	$ 28,400
ILS Maint. & Subscriptions Contract Services (SLS)	$ 33,393	$ 44,833
Internet Services Contract (SLS)	$ 5,198	$ 6,600
Purchasing Services for Member Libraries	$ 95,058	$ 144,793
Regional Libraries Promotional Mat.	$ 12,344	$ 9,111
Transfer to Libraries for CAP	$ -	$ 17,584
Staff Purchases Materials	$ 2,056	$ 2,326
TOTAL	$ 163,028	$ 298,712

1. NATURE OF OPERATIONS

Chinook Arch Library Board assists a network of cooperating libraries in southwest Alberta to provide cost-effective, convenient access to information and library resources.

Chinook Arch Library Board is a volunteer Board established as a Library under the Alberta Libraries Act. The Board is also a registered charity under the Income Tax Act. The Board operates Chinook Arch Regional Library System.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

These financial statements are prepared in accordance with Canadian Not-For-Profit accounting standards applied on a basis consistent with prior periods.

Outlined below are those policies the organization considers particularly significant:

a) Fund Accounting

For reporting purposes, established funds consist of the operating, capital, restricted and reserve funds. Transfers between funds are recorded as adjustments to the appropriate equity account. Capital fund debt interest is recorded as an expense in the capital equity fund. Amortization expense is recorded as an expense in the Statement of Operations.

b) Investments

Investments that are cashable T-Bill funds have a carrying value that equal their estimated fair market value and are classified as held to maturity. Held to maturity investments are accounted for at amortized cost using the effective interest method.

c) Capital Assets

Capital assets are stated at cost. Amortization is provided using the declining balance method for the following assets at the following annual rates:

Building	-	4%
Automotive (passenger vehicles)	-	50%

Amortization is provided on a straight-line basis for the following assets at the following annual rates:

Automotive (delivery vehicles)	-	50%
Office furniture and equipment	-	10%
Computer equipment	-	25%

d) Reserves for Future Expenditures

Internally restricted reserves are established at the discretion of the Board to set aside funds for future operating and capital expenditures. Transfers to and/or from reserves are reflected as adjustments to the Statement of Net Assets.

Externally restricted reserves arise from funding received for specific projects. Transfers to and/or from these reserves arise as funds are received or expenditures are incurred for the specific projects.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (cont.)

e) Restricted Fund – Book Allotment

Funds allocated to member libraries for book allotment are restricted for purchases of library materials in subsequent years. Unspent allocations are added to the library's allocation in the following year. Transfers to and/or from reserves are reflected in Note 8 – Reserves and Restricted Funds.

f) Revenue Recognition

Revenue is recognized when the requirements as to performance for transactions involving the sale of goods are met and ultimate collection is reasonably assured at the time of performance.

Government transfers, contributions and other amounts are received from third parties pursuant to legislation, regulation or agreement and may only be used for certain programs, in the completion of specific work, or for the purchase of capital assets. These funds are accounted for as deferred revenue until used for the purpose specified.

Government transfers for operations are recognized in the period when the related expenses are incurred and any eligibility criteria have been met.

Government grants for the purchase of capital assets are applied against the asset cost and the balance of the cost is amortized over the useful life of the asset. During 2013 $142,418 was received for the acquisition of capital assets (2012 - 0).

g) Use of Estimates

The preparation of financial statements in accordance with Part III of the CICA Handbook – Accounting ("Part III") requires management to make estimates and assumptions that affect the reported amount of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenue and expenditure during the period. These estimates are reviewed periodically, and as adjustments become necessary, they are reported in the period in which they become known. Actual results could differ from those estimates.

h) Financial Instruments

Fair Value

Financial instruments of the organization consist mainly of cash, temporary investments, accounts receivable, loans receivable, accounts payable and accrued liabilities. There are no significant differences between carrying values of these amounts and their estimated market value due to the short term maturities of these instruments. Unless otherwise noted, it is Management's opinion that the organization is not exposed to significant interest, currency or credit risk arising from these financial instruments.

(i) Measurement of Financial Instruments

Chinook Arch Library Board measures its financial assets and financial liabilities at amortized cost. Financial assets measured at amortized cost include cash, temporary investments, accounts receivable, and loans receivable. Financial liabilities measured at amortized cost consist of accounts payable and accrued liabilities. Changes in fair value are recognized in the statement of operations in the period incurred.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (cont.)

h) Financial Instruments (cont.)

(ii) Impairment

At the end of each reporting period, Chinook Arch Library Board assesses whether there are any indications that a financial asset measured at amortized cost may be impaired. Objective evidence of impairment includes observable data that comes to the attention of Chinook Arch Library Board. When there is an indication of impairment, Chinook Arch Library Board determines whether a significant adverse change has occurred during the period in the expected timing of future cash flows from the financial asset.

When Chinook Arch Library Board identifies a significant adverse change in the expected timing of future cash flows from a financial asset, it reduces the carrying amount of the asset to the highest of the following:

a) the present value of the cash flows expected to be generated by holding the asset discounted using a current market rate of interest appropriate to the asset;

b) the amount that could be realized by selling the asset at the statement of financial position date; and,

c) the amount Chinook Arch Library Board expects to realize by exercising its rights to any collateral held to secure repayment of the asset net of all costs necessary to exercise those rights.

The carrying amount of the asset is reduced directly or through the use of an allowance account. The amount of the reduction is recognized as an impairment loss in the statement of operations.

When the extent of impairment of a previously written-down asset decreases and the decrease can be related to an event occurring after the impairment was recognized, the previously recognized impairment loss is reversed to the extent of the improvement, directly or by adjusting the allowance account. The amount of the reversal is recognized in the statement of operations in the period the reversal occurs.

(iii) Transaction Costs

Transactions costs are recognized in the statement of operations in the period incurred, except for financial instruments that will be subsequently measured at amortized costs. Transaction costs associated with the acquisition and disposal of fixed income investments are capitalized and are included in the acquisition costs or reduce proceeds on disposal. Investment management fees associated with the fixed investments and mutual funds are expensed as incurred.

3. SIGNIFICANT REVENUE SOURCE

In 2013, 80% (2012 – 68.3%) of total revenue is based on per capita municipal levies, per capita payments from library boards, and per capita grants from Alberta Municipal Affairs.

A significant percentage of revenue is attributed to the membership of the City of Lethbridge. In 2013, the Lethbridge population represented 46.5 % (2012 – 46.3%) of the System's total population and created 35.9 % of the total revenue (2012- 34%) Although the organization would continue to operate without that membership there would be a need for additional sources of revenue.

4. LOANS RECEIVABLE

The Board has a policy on loans for the purchase of computers and software to a maximum of $2,500 per employee. These loans are payable in monthly blended payments, with interest at prime rate.

	2013	2012
Loans Receivable	$ 1,184	$ 961
Less Principal included in current assets	$ 1,184	$ 706
	$ -	$ 1,667

Principal repayments due over the next two years are as follows:

2014 $ 1,184

5. CAPITAL ASSETS

	Cost	Accumulated Amortization	Net 2013	2012
Land	$ 40,580	$ -	$ 40,580	$ 40,580
Building	$ 1,320,083	$ 588,010	$ 732,073	$ 855,641
Office Furniture and equipment	$ 57,811	$ 41,712	$ 16,099	$ 19,318
Computer equipment	$ 588,657	$ 552,649	$ 36,008	$ 45,976
Automotive	$ 121,595	$ 106,164	$ 15,431	$ 36,344
	$ 2,128,726	$ 1,288,535	$ 840,191	$ 997,859
Building cost			$ 1,437,501	$ 1,413,931
Less: Grants Roof repair			$ (117,418)	$ -
			$ 1,320,083	$ 1,413,931
Automotive Equipment cost			$ 146,595	$ 115,865
Less: Government grant			$ (25,000)	$ -
			$ 121,595	$ 115,865
Computer Equipment Cost			$ 638,539	$ 659,782
Less: Government grant			$ (49,882)	$ (49,882)
			$ 588,657	$ 609,900

6. DEFERRED REVENUE

The change in deferred revenue related to expenses of future periods are as follows:

	Balance 2012	Amount Received	Amount Recognized	Balance 2013
Southern Alberta Library Conference	$ 3,380	$ -	$ 3,380	$ -
Kainai Library Fundraising	$ 1,798	$ -	$ 711	$ 1,087
Alvin Schrader (speaker fee returned)	$ 200	$ -	$ 200	$ -
VDX Project funds	$ 7,830	$ -	$ 7,830	$ -
Town of Vauxhall Invoice overpaid	$ 270	$ -	$ 270	$ -
Total Deferred	$ 13,478	$ -	$ 12,391	$ 1,087

7. EMPLOYEE BENEFIT OBLIGATIONS

	2013	2012
Vacation	$ 113,955	$ 114,696
Health Spending Account	$ 15,652	$ 16,909
	$ 129,607	$ 131,605

Vacation is a liability comprised of the vacation that employees have earned. Health spending benefits arise from unused benefits that are accumulated for two years. Employees have earned these benefits and are entitled to them within the next budgetary year.

8. RESERVES AND RESTRICTED FUNDS

	2012	Increase	Decrease	2013
Reserves Internally Restricted				
Technology Reserve	$ 300,000	$ 50,000	$ -	$ 350,000
Vehicle	$ 141,457	$ -	$ -	$ 141,457
Building	$ 250,873	$ 100,000	$ -	$ 350,873
Operating	$ -	$ 350,000	$ -	$ 350,000
Book Allotment carry over	$ 118,635	$ 17,395	$ -	$ 136,030
	$ 810,965	$ 517,395	$ -	$ 1,328,360
Externally Restricted Reserves				
Better Beginnings	$ 1,597	$ -	$ -	$ 1,597
	$ 1,597	$ -	$ -	$ 1,597

9. RESOURCE SHARING GRANT

Chinook Arch Library Board receives a resource sharing grant from Alberta Municipal Affairs to fund the coordination of the provincial interlibrary loan service in Alberta. Funds for the provincial fiscal year 2012-2013 were received in 2012. In 2013 the grant was received for the provincial fiscal year April 2013 to March 2014. The 2013 calculation indicates a total for the 2012-2013 provincial fiscal year ended March 31 2013 as well as the simple total for the Chinook Arch fiscal year 2013.

Technological changes were made to the administration and management of interlibrary loan that enabled a reduction in interlibrary loan staff beginning in April 2013.

*The total expenditures from April 2012 to March 2013 are $192,459.

Interlibrary Loan Grant/Expenditures	Jan-Mar 2013	Apr-Dec 2013	Total 2013	Jan-Mar 2012	Apr-Dec 2012	Total 2012
Revenue						
Resource Sharing Grant from Municipal Affairs		**$ 130,695**	**$ 130,695**		**$ 191,800**	**$ 191,800**
Expenditures						
Staffing costs	$ 40,329	$ 44,327	$ 84,656	$ 33,592	$ 115,061	$ 148,653
Hardware/software maintenance	$ 251	$ 13,105	$ 13,357	$ 2,755	$ 11,714	$ 14,469
Staff Training	$ -	$ -	$ -	$ 120	$ -	$ 120
Sub total	*$ 40,580*	*$ 57,432*	*$ 98,012*	*$ 36,467*	*$126,775*	*$163,242*
Administrative charge	$ 6,087	$ 8,615	$ 14,702	$ 5,470	$ 19,016	$ 24,486
Total	***$ 46,667**	**$ 66,047**	**$ 112,714**	**$ 41,937**	***$ 145,792**	**$ 187,729**

10. LOCAL AUTHORITIES PENSION PLAN

Employees of the organization participate in the Local Authorities Pension Plan (LAPP), which is one of the plans covered by the Alberta Public Sector Pension Plan Act. The LAPP services about 223,643 employees and about 428 employers. The LAPP is financed by the employer, employee and Government of Alberta contributions and investment earnings of the LAPP fund.

Contributions for current service are recorded as expenditures in the year in which they become due.

The organization is required to make current service contributions to the LAPP of 10.43% of pensionable earnings up to the year's maximum pensionable earnings under the Canada Pension Plan and 14.47% on pensionable earnings above this amount. Employees of the organization are required to make current service contributions of 9.43% of pensionable salary up to the year's maximum pensionable salary and 13.47% on pensionable salary above this amount.

Total current service contributions by the organization to LAPP in 2013 were $149,715 (2012 - $131,316). The current service contributions by the employees of the organization to the LAPP 2013 were $136,483 (2012 - $118,988).

As at December 31, 2012 the plan disclosed an actuarial deficiency of $4.98 Billion

11. FINANCIAL INSTRUMENTS

Chinook Arch is exposed to various risks through its financial instruments. The risks at December 31, 2013 are as follows: credit risks, liquidity risks, currency risks and other price risks.

Chinook Arch has a specific investment policy which details the asset quality and proportion of fixed income and equity securities in which investments are made. Chinook Arch does not use derivative financial instruments to manage its risks.

Credit Risk

Chinook Arch is exposed to credit risk resulting from the possibility that parties may default on their financial obligations, or if there is a concentration of transactions carried out with the same party, or if there is a concentration of financial obligations which have similar economic characteristics that could be similarly affected by changes in economic conditions, such that Chinook Arch could incur financial loss. Chinook Arch mitigates this risk by dealing with major financial institutions in Canada that are regulated, as well as a large customer base.

Liquidity Risk

Liquidity risk is the risk that Chinook Arch will not be able to meet a demand for cash or fund its obligations as they become due. Chinook Arch meets its liquidity requirements by preparing and monitoring budgets of cash flows from operations, anticipating investing and financing activities and holding assets that can readily be converted to cash.

Market Risk

Market Risk is the risk that the fair value or future cash flow of a financial instrument will fluctuate because of changes in market prices. Market risk is comprised of currency risk, interest rate risk, and other price risk.

a) Currency Risk

Currency risk refers to the risk that the fair value of financial instruments or future cash flows associated with the instruments will fluctuate relative to the Canadian dollar due to changes in foreign exchange rates. Chinook Arch transacts approximately $60,000 US$ funds a year which is insignificant compared to the total expenditures. The risk at December 31, 2013 is minimal.

b) Interest Rate Risk

Interest rate risk refers to the risk that the fair value of financial instruments or future cash flows associated with the instruments will fluctuate due to changes in market interest rates.

The exposure of Chinook Arch to interest rate risk arises from its interest bearing assets. Chinook Arch's cash includes amounts on deposit with financial institutions that earn interest at market value.

Chinook Arch manages its exposure to the interest rate risk of its cash by maximizing the interest income earned on excess funds while maintaining the liquidity necessary to conduct operations on a day-to-day basis. Fluctuations in market rates of interest on cash do not have a significant impact on Chinook Arch's result of operations.

11. FINANCIAL INSTRUMENTS (cont.)

Market Risk (cont.)

b) Interest Rate Risk (cont.)

The primary objective of Chinook Arch with respect to its fixed income investments is to ensure the security of principal amounts invested, provide for a high degree of liquidity, and achieve a satisfactory investment return. The risk at December 31, 2013 is minimal.

c) Other Price Risk

Other price risk refers to the risk that the fair value of financial instruments or future cash flows associated with the instruments will fluctuate because of changes in market prices (other than those arising from currency risk or interest rate risk), whether those changes are caused by factors specific to the individual instrument or its issuer or factors affecting all similar instruments traded in the market. The risk at December 31, 2013 is minimal.

Changes in Risk

There has been no change in Chinook Arch's risk exposure from the prior year.

12. COMPARATIVE FIGURES

Where applicable, certain 2012 comparative figures have been reclassified to conform to the financial statements presentation adopted in the current year.

13. APPROVAL OF FINANCIAL STATEMENTS

The Board and management have approved these financial statements.

Meeting Minutes
of the
Agricultural Service Board – Municipal District of Pincher Creek No. 9
August 7, 2014 – MD Council Chambers

Present: Chairperson Susan Vogelaar, Vice Chair Dallis McGlynn, Members John Lawson, Tony Bruder, Councillors Fred Schoening and Terry Yagos

Also Present: Director of Operations Leo Reedyk, Agricultural Fieldman Shane Poulsen, Assistant Agricultural Fieldman Lindsey Cockerill, Jim Hansen, AARD Representative, Director of Operations Assistant Jessica McClelland

Chairperson Susan Vogelaar called the meeting to order 9:30 am.

A. Adoption of Agenda 14/052

Councillor Yagos

Moved to accept agenda as amended. The amendments were as follows:

(1) Agricultural Service Board Grant under For Information
(2) Seed Cleaning Plant Color Sorter under For Information
(3) CPR Spraying Weeds under Discussion

Carried

B. Adoption of Minutes

John Lawson 14/053

Moved to accept minutes of July 3, 2014 as presented.

Carried

C. Unfinished Business

D. Agricultural Fieldman Reports for July

Shane Poulsen explained that in June and July we are staying on top of weed spraying. The road side spraying unit has been in the shop several times this summer and is going to be ready for fall weed spraying.

Dallis McGlynn 14/054

Moved that the July Agricultural Fieldman report by Shane Poulsen be accepted as information.

Carried

E. Overspray of non-selective herbicides

Councillor Schoening 14/055

Be it resolved that the Agricultural Service Board supports Council in their efforts to take measures to control and preserve grass and growth due to overspraying along MD property.

Carried

F Correspondence

(1) Jim Hansen, AARD Representative Report
Jim Hansen, AARD Representative provided an oral synopsis of some recent activity affecting the agriculture industry.
(2) Southern Alberta Weed Coordinators Report for May
(3) Prairie Pest Monitoring Network
(4) Alfalfa Weevil Update
Information will be placed on MD Website
(5) ASB Grant Grants received were $168,359.46 ASB grant and $20,000 environmental funding stream.
(6) Seed Cleaning Plant Color Sorter
Seed Cleaning Plant received notification that they received approval for the grant for $200,000 from MSI

Tony Bruder 14/056

Moved that all correspondence received as information.

Carried

G. 2015 AES Programming Budget

Program headings and budget information suggested was read out:

Biological Weed Control – increase to accommodate additional bug releases.
Invasive aquatics – increase as no funding is currently allocated to increase awareness and provide training to staff on water safety.
Extension activities – increase to include sessions for residents on Environmental farm plan, growing forward, water well and other extension events.
Dead Stock – reduce as no increase in the large carnivore conflict area is expected so additional bins are not required.

Pest control – stay the same as no changes are anticipated.
Water conservation – increase to accommodate changes coming from the SSRP.
Soil Erosion – increase time allocated to look at options for educating farmers on establishing grass in draws to minimize water erosion of soil.
Weed Control – keep the same.
New weed free Gravel Policy – reduce as initial spraying of pits has occurred, monitor for 2015 and then re-evaluate program requirements.
Policy – no new policies were identified that require additional time. License of Occupation Policy review is ongoing.
Move AES to Town – ASB recommended that a SWOT analysis (Strengths, Weaknesses, Opportunity, Threats) to identify some of the issues surrounding the move. Funds will be required to move staff.

H. New Business

I. Next Meeting – September 4, 2014 at 9:30am

J. Adjournment

Councillor Schoening 14/057

Moved to adjourn the meeting, the time being 11:59 pm.

Carried

_____ _____

ASB Chairperson ASB Secretary

Alberta SouthWest Bulletin September 2014

Regional Economic Development Alliance (REDA) Update

John Barlow MP, Macleod Riding

MP Barlow addressed the AlbertaSW Board and provided an update on establishing his new office. Disaster Relief Programs remain a priority and there is a positive level of collaboration with the province to resolve issues.

Ending of the Temporary Foreign Worker program has created serious difficulties for many of our regional businesses. It will be helpful and appreciated to gain broad input and examples of those resulting impacts. Contact Bev for further details.

Bringing Investment Home

This joint initiative between AlbertaSW and CF Alberta Southwest and CF Crowsnest Pass continues to have excellent community participation and outcomes over the last six-month period:

- Interviews generated almost 100 contacts, connections and referrals for businesses in the communities;
- Three training sessions engaged almost 50 individuals in the region;
- The participants in the training will continue to meet as a Regional Task Team and move forward with developing a regional investment attraction and business development strategy.

❖ **The next Regional Task Team meeting will be held October 28, 2014.** We welcome all those interested. Call Bev for more details.

Broadband for Economic Development

The first phase, "Current State Report" on the Broadband for Economic Development project observes:

- There is a suitable amount of fiber optic infrastructure in the region but it is not all accessible;
- In the current digital environment prices are not competitive and services are not freely available;
- Community readiness for economic development is increasingly judged on the ability to provide accessible, high speed, low cost digital infrastructure;
- Community broadband initiatives are growing because of the capability to reduce municipal operating costs, to generate new municipal revenues, and to attract new business.

The next phase of the project will focus on how the region can build specifically upon these opportunities.

UPCOMING EVENTS

❖ **5th Annual Crown Roundtable Conference**, Waterton Lakes AB
Wednesday September 10, 2014 – Friday September 12, 2014
Theme: "Living in the Crown: A Balancing Act for Community, Culture and Conservation"
Registration, draft agenda and information available at www.crownroundtable.org

❖ **Tourism Investment Forum, Telus Convention Centre, Calgary AB**
Wednesday November 5, 2014 - 1:30-5:30pm

❖ **Accelerate South 50, Coast Hotel and Convention Centre, Lethbridge**
Wednesday November 5 and Thursday November 6, 2014
Presentations and workshop for the entrepreneurs and small business www.south50accelerate.com

Alberta SouthWest Box 1041 Pincher Creek AB T0K 1W0
403-627-3373 or 1-888-627-3373
bev@albertasouthwest.com

Alberta SouthWest Regional Alliance

Minutes of the Board of Directors Meeting

Wednesday August 6, 2014 MD Ranchland Municipal Office

Board Representatives
Barney Reeves, ID#4 Waterton
Tammy Rubbelke, Pincher Creek
Beryl West, Nanton
Garry Marchuk, MD Pincher Creek
Jordan Koch, Glenwood
Janice Binmore, Stavely (alternate)
Ron Davis, MD Ranchland
John Connor, Granum
Shelley Ford, Claresholm

Guest Councillor, MD Ranchland
Cam Gardner

Resource Representatives
Kathy Wiebe, MD Ranchland
Greg Brkich, MD Ranchland
Leah Wack, Lethbridge College
Paul Nelson, Ventus Development Services
James Tessier, Community Futures Alberta Southwest
Bob Dyrda, Communications Coordinator, AlbertaSW
Bev Thornton, Executive Director, AlbertaSW

1. Welcome and Introductions
   Barney Reeves called the meeting to order

2. Approval of Agenda
   Moved by Tammy Rubbelke THAT the agenda be approved as presented.
   Carried. [2014-08-378]

3. Approval of Minutes
   Moved by John Connor THAT the minutes of May 7, 2014 be approved as corrected.
   Carried. [2014-08-379]

4. Approval of Cheque Register
   Moved by Ron Davis THAT cheques #1472to #1532 be approved as presented.
   Carried. [2014-08-380]

5. Renewal of insurance policy
   Moved by Tammy Rubbelke THAT AlbertaSW continue the current policy for Directors and Officers that is held by AAMDC Jubilee Insurance Agencies.
   Carried. [2014-08-381]

6. Broadband Committee Recommendation
   Moved by Garry Marchuk THAT the Board accept the Broadband Steering Committee recommendation to support Bob Dyrda to attend a "Fiber to the Home" Conference in Minneapolis on September 2-4, 2014.
   Carried. [2014-08-382]

7. Executive Committee Recommendation
   Moved by Beryl West THAT the Board accept the Executive Committee recommendation to pay the Crown Roundtable registration fee of $150 for any Board representatives and member community councillors who attend.
   Carried. [2014-08-383]

   Moved by Tammy Rubbelke THAT AlbertaSW be a sponsor of the conference for the amount of $500USD.
   Carried. [2014-08-384]

8.	"Invest in Alberta" Publication	EDA is publishing a provincial investment attraction magazine for the first time. Bev will advise if there is an opportunity to partner on the cost of an ad placement.
9.	"Bringing Investment Home " Project Update	James Tessier reported on the continued success of this partnership initiative between AlbertaSW, both Community Futures offices and contracted services of Innovisions and Assoc.
10.	"Broadband for Economic Development" Project Update	Paul Nelson provided an overview of the mapping and research completed to date and responded to Board input and discussion.
11.	Communications Coordinator Report	Accepted as information.
12.	Executive Director Report	Accepted as information.
13.	Roundtable updates	
14.	Board Meetings: September 3- Claresholm October 1 – Lethbridge College November 5 – Location? December 3 – Location?	
15.	Adjournment	Moved by Garry Marchuk THAT the meeting be adjourned. **Carried.** [2014-05-385]

Chair Date

Approved September 3, 2014

Secretary/Treasurer Date