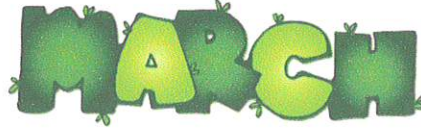


City of Thompson Falls City Council Meetings



Public Hearing regarding updated Fee Schedule  
City Hall, 108 Fulton Street, Thompson Falls, MT  
Monday, March 11, 2024 @ 5:45 P.M.

Regular City Council Meeting at the  
City Hall, 108 Fulton Street, Thompson Falls, MT  
Monday, March 11, 2024 @ 6:00 P.M.

AGENDA

OPEN MEETING

ROLL CALL OF THE COUNCIL

PLEDGE OF ALLEGIANCE

SET THE AGENDA

CONSENT AGENDA: Claims, Minutes, Financial Reports, Court Report, Water Shut-off  
List/Arrangements

STANDING COMMITTEE REPORTS

INFORMATIONAL: Solor Radar Speed Signs – Gussie O’Conner and Catherine Dewitt

ACTION ITEMS

OLD BUSINESS:

NEW BUSINESS:

Mayor Rusti Leivestad will present the Agenda Item unless otherwise listed.

1. Beautification Days - Public Comment
2. Farmers Market - Public Comment
3. Hwy. 200 move speed signs 25/35 per MDT speed study - Public Comment
4. Highlead Block Party
5. David Thompson Plaque - Public Comment
6. Terminate agreement with NorthWestern Energy regarding Wild Goose Landing Park - Public Comment
7. Letter of support for the USFS Watershed Forest Plan - Public Comment
8. Fee Schedule - Public Comment
9. Public Records Resolution & Policy & Forms -Public Comment
10. Wayfinding Master Plan final draw - Public Comment
11. Wastewater Project Request for Reimbursements Phases 1 & 2 - Public Comment
12. Wastewater Project Request for Reimbursements Phases 3 & 4 - Public Comment
13. Water Project Request for Reimbursement - Public Comment

Cody Mosher  
Katherine Maudrone

UNSCHEDULED PUBLIC COMMENT – 3 minutes

MAYOR’S REPORT

ADJOURN

\*\*There may be issues discussed during the meeting which may not be listed on the agenda. If a decision is required on items of significant interest, it will be scheduled for another date/time and posted within the required 48-hour notice. This schedule is subject to change without notice but will be posted within the required 48-hour notice. If you have any questions, please contact 406-827-3557.

**Thank you for participating in your local government. We are here to serve you.**

**Please sign in at the door, with your name and address. There are two columns for comment – one for agenda items, the other for unscheduled public comment. For an agenda item you wish to speak about, please put the number of agenda item in that column. A checkmark in unscheduled comment column if your topic is other than agenda items. Comments are to be addressed to the mayor and limited to 3 minutes.**

**The City Council acts only on agenda items. There are important public notification requirements that we must meet before taking action as a city. This gives the residents a chance to be informed about issues coming before the Council.**

**The following will not be tolerated at City Hall:**

**Loud, Angry, Rude or Aggressive behaviors, Cursing or Demeaning Language.**

**REQUEST FOR ITEM TO BE PLACED ON AGENDA  
THOMPSON FALLS CITY COUNCIL**

I, Gussie & Katherine Phone # \_\_\_\_\_

request the following item be placed on the agenda for  
the 3-11 2024, City Council Meeting:

Please give a brief description of the item to be discussed,  
approximate time you need and the results you would like to see.

Information: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Time: \_\_\_\_\_

- Informational -

Action: Gussie & Katherine

update Radar speed sign

project

**All agenda requests must be submitted by Noon on  
Wednesday before the Council Meeting.**

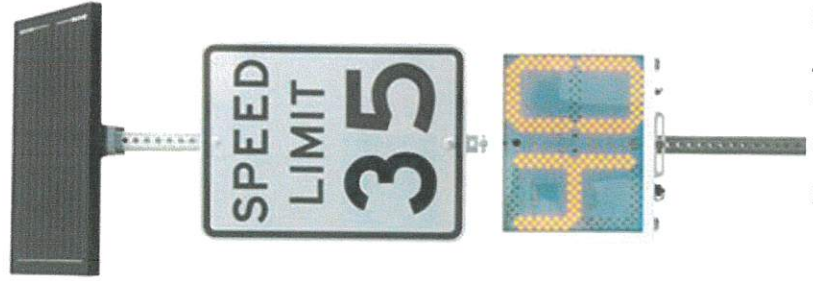
# TRAFFIC SAFETY WAREHOUSE

The Best in Safety for Less

(<https://www.trafficsafetywarehouse.com/>)

[Home \(default.asp\)](#) / [Radar Speed Signs \(Radar-Speed-Signs/products/69/\)](#)

Sa-So 18" Solar Radar Feedback Sign



(Images/Sa-So-Solar-RadarZ.jpeg)

Item Number: SR18

\$4,579.95

2 Week Lead Time

Quantity - 1 +

ADD TO CART



### Additional Images to View



### Detailed Description

#### **SA-SO Radar Speed Sign - 18"**

The Sa-So 18" Solar Radar Feedback Sign is for speeds over 45 MPH. The radar feedback sign helps calm traffic by displaying the driver's current speed and notifying them of the legal speed limit in a given area. The printed signs are MUTCD compliant. The signs include a "YOUR SPEED" sign. **Does not include speed limit sign.**

#### **Radar Speed Sign Details:**

- Solar Power.
- MUTCD compliant.
- Weather-resistant enclosure.
- Can be mounted to temporary sign stands.
- Field repairable, modular design
- 6 Year warranty on Solar Panel
- 1 Year warranty on Battery
- 1 Year warranty on Led sign

#### **Programmable Software Includes:**

- Data tracker and statistics.
- Bluetooth accessible.

#### **Radar Speed Sign Documents**

- [View Specs Here \(/pdfs/SA-SO-Radar-Sign.pdf\)](#)
- [Install Guide \(/pdfs/sa-so-sr12-sr18-radar-instructions.pdf\)](#)
- [Getting Started \(/pdfs/Sa-So-Getting-Started.pdf\)](#)
- [Trailer Radar Feedback Sign \(/pdfs/Trailer-Radar-Feedback-Sign.pdf\)](#)
- [Radar Sign Specs \(/pdfs/Radar-Sign-Specs-TDS.pdf\)](#)
- [FCC Compliance \(/pdfs/FCC-Compliance-info.pdf\)](#)

**REQUEST FOR ITEM TO BE PLACED ON AGENDA  
THOMPSON FALLS CITY COUNCIL**

I, Joni Mosher Phone # 208-569-1186

request the following item be placed on the agenda for  
the March 11, 2024, City Council Meeting:

Please give a brief description of the item to be discussed,  
approximate time you need and the results you would like to see.

Information: The TF Beautification Days  
Committee would like to request the  
help of the city during this special event.

Time: April 25, 26, 27

Action: Help as needed; crew for  
debris collection, tree trimming,  
+ ads in the Ledger paid.

**All agenda requests must be submitted by Noon on  
Wednesday before the Council Meeting.**

**REQUEST FOR ITEM TO BE PLACED ON AGENDA  
THOMPSON FALLS CITY COUNCIL**

I, Veronica Ingle Phone # (775) 412-2697

request the following item be placed on the agenda for  
the March 11 2024, City Council Meeting:

Please give a brief description of the item to be discussed,  
approximate time you need and the results you would like to see.

Information: Farmers Market - We request that a  
flat annual fee be charged to use the city park  
for farmers market. We would like to utilize Ainsworth Park.

Time: \_\_\_\_\_

Action: \$100 annual fee for use of Ainsworth park  
for community Farmers Market.

\_\_\_\_\_

**All agenda requests must be submitted by Noon on  
Wednesday before the Council Meeting.**

**REQUEST FOR ITEM TO BE PLACED ON AGENDA  
THOMPSON FALLS CITY COUNCIL**

I, Rusti Phone # \_\_\_\_\_

request the following item be placed on the agenda for  
the March 11 20 24, City Council Meeting:

Please give a brief description of the item to be discussed,  
approximate time you need and the results you would like to see.

Information: Recommendation per  
MT State Hwy. ~~11~~

Time: \_\_\_\_\_

Action: move 25 & 35 speed limit  
signs - West before Post Office  
East before Boat Ramp

⊕  
Speed radar Solar signs

**All agenda requests must be submitted by Noon on  
Wednesday before the Council Meeting.**

**REQUEST FOR ITEM TO BE PLACED ON AGENDA  
THOMPSON FALLS CITY COUNCIL**

I, Cody Masher Phone # 1-406-546-7203

request the following item be placed on the agenda for  
the march 4 2024, City Council Meeting:

Please give a brief description of the item to be discussed,  
approximate time you need and the results you would like to see.

Information: Highhead block Party  
June 22 Sunday

Time: \_\_\_\_\_

Action: Approval of Block Party and Location

**All agenda requests must be submitted by Noon on  
Wednesday before the Council Meeting.**



**REQUEST FOR ITEM TO BE PLACED ON AGENDA  
THOMPSON FALLS CITY COUNCIL**

I, Katherine Maudone Phone # 406.346.3102

request the following item be placed on the agenda for  
the March 2024, City Council Meeting:

Please give a brief description of the item to be discussed,  
approximate time you need and the results you would like to see.

Information: Approval to place plaque from American & Canadian  
Society of Civil Engineers commemorating David Thompson's  
Surveying & Mapping as an International Historic Civil  
Engineering Landmark in 2021. @ Answorth.

Time: 15 min.

Action: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**All agenda requests must be submitted by Noon on  
Wednesday before the Council Meeting.**

tfl3557@blackfoot.net

---

**From:** Stephanie Seymanski <sseymanski@m-m.net>  
**Sent:** Monday, February 12, 2024 7:31 AM  
**To:** tfl3557@blackfoot.net; 'Matthew Tummel'  
**Cc:** Steve Brown; 'Katherine Maudrone'  
**Subject:** RE: ASCE National Historic Civil Engineering Landmark - David Thompson  
**Attachments:** DavidThompsonMappingIHCELNomRev3.0 DRG 30 Oct 2021.pdf

Hi Chelsea,

See responses below in blue.

 **Stephanie Seymanski, PE**  
**Senior Civil Engineer, Morrison-Maierle**  
[+14062371243](tel:+14062371243) direct | [+14066713255](tel:+14066713255) mobile

*A 100% Employee-Owned Company*

**From:** tfl3557@blackfoot.net <tfl3557@blackfoot.net>  
**Sent:** Friday, February 9, 2024 11:17 AM  
**To:** 'Matthew Tummel' <matthew.tummel@kljeng.com>; Stephanie Seymanski <sseymanski@m-m.net>  
**Cc:** Steve Brown <smbrown@m-m.net>; 'Katherine Maudrone' <tfcouncilkatherine@blackfoot.net>  
**Subject:** RE: ASCE National Historic Civil Engineering Landmark - David Thompson

**\*\*\*This message originated from an External Source.\*\*\* Please use proper judgment and caution when opening attachments, clicking links, or responding to this message.**

Hello!

Happy Friday 😊

Thank you so much for thinking of us for placement of this beautiful plaque!

One of my Council members had a few questions.

1. History of the plaque. The American Society of Civil Engineers and Canadian Society for Civil Engineering started the process to nominate David Thompson's Surveying and Mapping of the Northwest of North America as an International Historic Civil Engineering Landmark in 2021 or even earlier. Attached is a draft of the nomination. I don't have a pdf of the final nomination. The plaque was a result of this nomination. The Montana Section was approached by ASCE about purchasing the plaque to erect and dedicate it at a location to be determined in Montana where David Thompson traveled and surveyed. The Section was also approached about co-sponsoring the nomination and I believe that the Section was a co-sponsor. Suggested locations for the plaque include Thompson Falls, at the Libby Heritage Museum, and at Flathead Lake.
2. Historical map to go along with the plaque. Dimension of the map. Thompson's Great Map measures 6'-9" by 10'-4" and is preserved at the Archives of Ontario in Toronto. A picture of a David Thompson Great Map reproduction is shown on page 16 of the attached pdf.



3. **Timeline.** We would like to install and dedicate the plaque this year. Either in the spring, summer, or early fall while the weather is good and prior to the Section's annual meeting at the beginning of November.
4. **Dimensions of the plaque** to see if it would fit in our Kiosk at Ainsworth Park. The plaque size is 19"x13". It weighs 25 lbs and comes with mounting hardware.

Thank you! Chelsea

Chelsea Peterson  
City Clerk/Treasurer  
PO Box 99  
Thompson Falls, MT 59873  
406-827-3557  
[tfl3557@blackfoot.net](mailto:tfl3557@blackfoot.net)

---

**From:** Matthew Tummel <[matthew.tummel@kljeng.com](mailto:matthew.tummel@kljeng.com)>  
**Sent:** Thursday, February 8, 2024 11:34 AM  
**To:** Stephanie Seymanski <[sseymanski@m-m.net](mailto:sseymanski@m-m.net)>; [tfl3557@blackfoot.net](mailto:tfl3557@blackfoot.net)  
**Cc:** Steve Brown <[smbrown@m-m.net](mailto:smbrown@m-m.net)>  
**Subject:** RE: ASCE National Historic Civil Engineering Landmark - David Thompson

Hello,

Attached is a picture of the plaque. When you are deciding on the direction you are taking with the mounting option keep in mind that the plaque is really heavy.

If you need any more pictures or anything let me know.

Thank you,  
Matthew Tummel



406 441 5787 Direct  
406 459 2506 Cell  
2969 Airport Rd Suite 1B  
Helena, MT 59601  
[kljeng.com](http://kljeng.com)

---

**From:** Stephanie Seymanski <[sseymanski@m-m.net](mailto:sseymanski@m-m.net)>  
**Sent:** Thursday, February 8, 2024 9:46 AM  
**To:** [tfl3557@blackfoot.net](mailto:tfl3557@blackfoot.net)  
**Cc:** Steve Brown <[smbrown@m-m.net](mailto:smbrown@m-m.net)>; Matthew Tummel <[matthew.tummel@kljeng.com](mailto:matthew.tummel@kljeng.com)>  
**Subject:** ASCE National Historic Civil Engineering Landmark - David Thompson

**CAUTION:** This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Chelsea,

Thank you for speaking with me this morning. Attached is the proof for the David Thompson plaque. The Montana Section of the American Society of Civil Engineers (ASCE) has purchased the plaque. I have also copied the Montana Section President Steve Brown and Past President Matthew Tummel on this email so that they are in the loop.

Our current tasks include finding a location for the plaque and determining what to mount the plaque to whether it is an existing structure or a new stand. Matthew has a quote from a fabricator in Helena for a stand but we are also open to suggestions and recommendations from the community where it will be placed.

ASCE has provided us with Guidelines for the Planning and Execution of Landmark Dedication Ceremonies including examples of invitations, press releases, and a dedication ceremony agenda. So, we would do the legwork and coordination for a dedication ceremony.

These are the items that we would anticipate needing help with from a city or town that would like to have the plaque placed in their community:

- Direction/input on where to place the plaque.
- Input on the type of stand or review what the MT Section proposes to make sure it is acceptable.
- Possible assistance from the community's Public Works Department setting the plaque and stand. I'm thinking perhaps a concrete pad that a fabricated stand could be bolted to.
- Input on the dedication ceremony – agenda, time, day.
- Someone to attend the dedication ceremony and perhaps say a few words.

I look forward to hearing from you on whether Thompson Falls would be interested in having this plaque placed in the Thompson Falls community. Thank you!

 **Stephanie Seymanski, PE**  
**Senior Civil Engineer, Morrison-Maierle**  
[+14062371243](tel:+14062371243) direct | [+14066713255](tel:+14066713255) mobile  
315 N 25th St, Suite 102, Billings, MT 59101

*A 100% Employee-Owned Company*



ASCE/CSCE INTERNATIONAL HISTORIC  
CIVIL ENGINEERING LANDMARK

---



DAVID THOMPSON'S SURVEYING AND MAPPING  
OF THE NORTHWEST OF NORTH AMERICA  
1790-1814

DAVID THOMPSON (1770-1857) – SURVEYOR, MAP-MAKER, EXPLORER, AND FUR TRADER FOR THE HUDSON'S BAY AND NORTH WEST COMPANIES – WAS, DESPITE HIS SERIOUS VISUAL IMPAIRMENT, "THE GREATEST LAND GEOGRAPHER THAT THE WORLD HAS PRODUCED," ACCORDING TO J.B. TYRRELL. OFTEN ACCOMPANIED BY HIS MÉTIS WIFE, CHARLOTTE SMALL, HE SURVEYED AND MAPPED A VAST REGION STRETCHING FROM THE 45TH PARALLEL TO THE 60TH PARALLEL AND FROM THE WESTERN SHORES OF HUDSON BAY AND LAKE SUPERIOR TO THE PACIFIC OCEAN BETWEEN 1790 AND 1812. HIS 1814 GREAT MAP, COMPILED FROM HIS SURVEYS AND THOSE OF ALEXANDER MACKENZIE, SIMON FRASER, GEORGE VANCOUVER, AND PHILIP TURNOR, LAID THE GROUNDWORK FOR DEVELOPMENT OF THE NORTHWEST OF NORTH AMERICA.

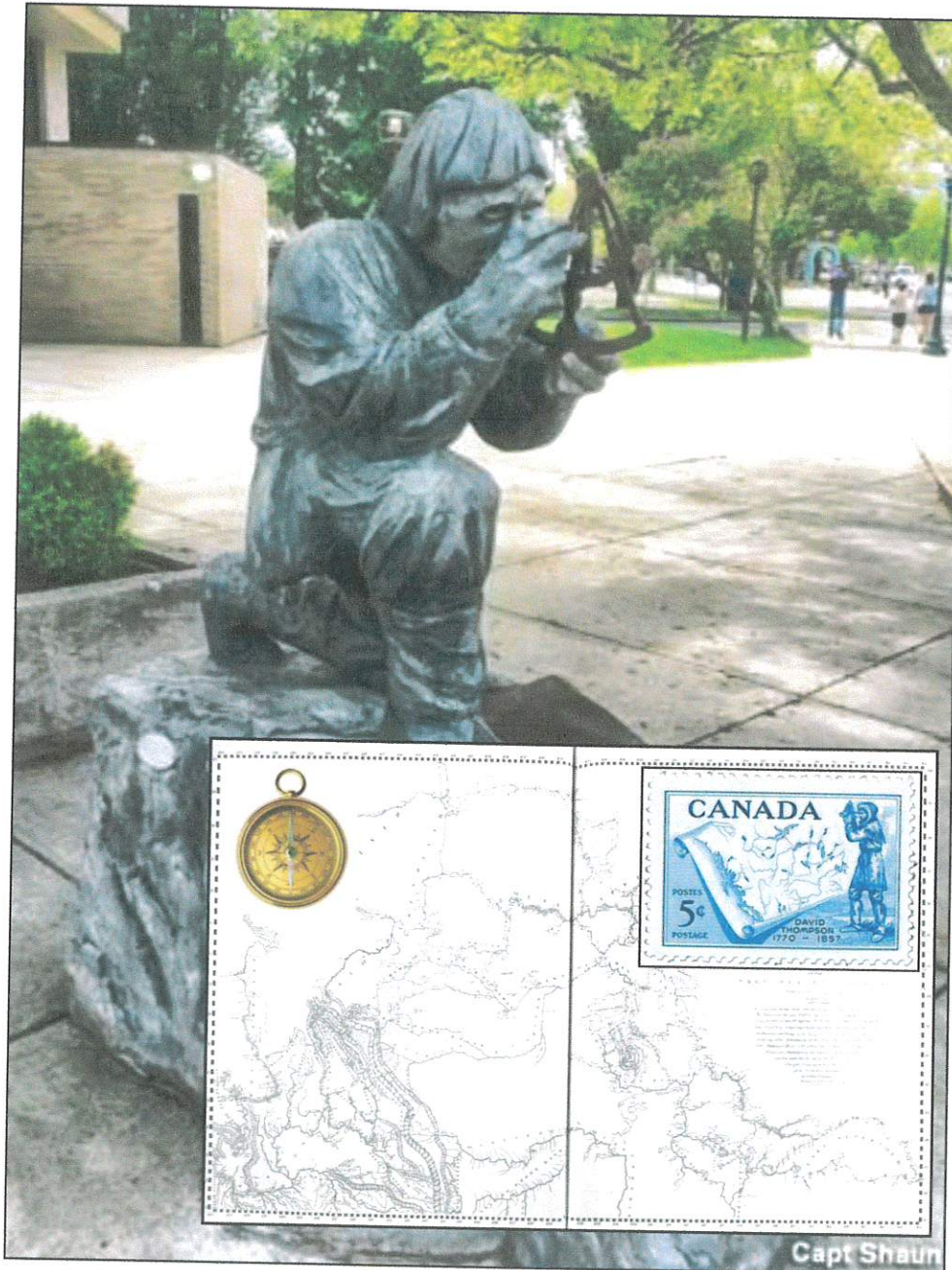
AMERICAN SOCIETY OF CIVIL ENGINEERS

2022



**DRAFT FOR REVIEW – Rev 3.0**

**International Historic Civil Engineering Landmark Nomination for:  
David Thompson's Surveying and Mapping of the Northwest of  
North America**



## Table of Contents

|  |      |
|--|------|
| I. International Historic Civil Engineering Landmark Nomination - Form   | 3    |
| II. International Historic Civil Engineering Landmark Nomination - Additional Detail   | 7    |
| 1. Dates of Mapping (and other significant dates)  | 7    |
| 2. Names of Key Civil Engineers and Other Professionals Associated with the Project  | 9    |
| 3. Historical Significance of this Landmark  | etc. |
| 4. Comparable or Similar Projects in this and other Countries  |      |
| 5. Unique features or characteristics which set this proposed landmark apart from other civil engineering projects, including those in #4 above. |      |
| 6. Contribution which this project made toward the development of the civil engineering profession, the nation or a large region thereof.        |      |
| 7. A list of published references concerning this nomination.  |      |
| 8. A list of additional documentation in support of this nomination.   |      |
| 9. The recommended citation for HHC consideration.   |      |
| 10. A statement of the owner's support for the nomination.   |      |
| 11. Figure and Exhibit references  |      |

**To: History & Heritage Committee  
ATTN: Jennifer Lawrence  
1801 Alexander Bell Drive  
Reston, VA 20191-4400**

**Date:** dd mmm 2021

**Sections**  
**American Society of Civil Engineers, Seattle (and possible additional)**  
**Canadian Society for Civil Engineering, National History Committee**

**This is to nominate the following for designation as an International Historic Civil Engineering Landmark:**

David Thompson's Surveying and Mapping of the Northwest of North America

**Map Located at:** The Ontario Archives in Toronto, Canada.

**Region Surveyed and Mapped:** 1.7 million square miles (4.9 million square kilometres) of central and western Canada and the northern tier of U.S. States.

**Approximate Latitude and Longitude:**

Latitude - N 45° to N 60°  
Longitude - W 87° to W 132°

**The proposed landmark's owner:** The surveying was a career-long project while Thompson was employed by either the Hudson's Bay Company or the North West Company so there is no "Owner" as such. The map produced from the surveying is 'owned' by the Canadian Province of Ontario and kept in the Ontario Archives in Toronto.

**In support of this nomination, the following information is provided:**

**1. Dates of Mapping (and other significant dates)**

The surveying was performed from 1784 through 1812. The map created from these surveys was completed between 1812 and 1814.

Please refer to Section 1 of the attachment for additional information.

**2. Names of Key Civil Engineers and Other Professionals Associated With Project.**

This information category aligns poorly with the nomination because "Other Professionals" didn't exist in Thompson's day. It is perhaps better to identify "Key Civil Engineers and Other Contributors", where the "Other Contributors" include David Thompson (1770-1857), Phillip Turnor (1751-1800), Jacques "Jaco" Findlay (1768-1828), Charlotte Small Thompson (1785-1857), Sir Alexander Mackenzie (1764-1820) and Simon Fraser (1770-1852).

Please refer to Section 2 of the attachment for additional information.

### **3. Historic significance of this landmark.**

David Thompson—explorer, surveyor, and fur trader for both the Hudson's Bay Company and North West Company—has been called “the greatest land geographer that the world has produced” (Tyrrell 1916). Among his many achievements, perhaps his greatest was the surveying and drafting of his great map of North America covering 1.7 million square miles (4.9 million square kilometres) stretching from N 45° to N 60° latitude and from the western shores of Hudson Bay to the Pacific Ocean. In his later years, Thompson also composed a 702-page, handwritten manuscript describing his travels that included original data on the geological, botanical, zoological, anthropological, and meteorological facets of the regions he had visited. A century later, this was transcribed and edited by J. B. Tyrrell, an eminent Canadian cartographer and mining geologist in 1916 as *David Thompson's Narrative of his Travels in Western America, 1784-1812*. Tyrrell described Thompson as a “Storyteller, Interpreter, Scientist and Philosopher.”

Please refer to Section 3 of the attachment for further information.

### **4. Comparable or similar projects in this and other countries.**

Relevant similar projects include the following terrestrial surveys:

- Philip Turnor's mapping from Hudson Bay to the West, 1778-1794
- Peter Fidler's Mapping of Hudson's Bay Company areas, 1789-1811
- Sir Alexander Mackenzie's first crossing of North America, 1793
- Sir Alexander Mackenzie's travels down the Mackenzie River to the Arctic Ocean, 1796
- Simon Fraser's discovery of the Fraser River course, 1808
- Lewis and Clark Expedition 1804-1806

The following marine surveys are also relevant:

- Spanish explorations of the west coast of North America from 1768 to 1791
- Captain Cook's three voyages of discovery, 1768-1779
- Vancouver's mapping of the west coast of North America, 1792 to 1795
- William Broughton's mapping of the east coast of Asia, 1795 to 1798

The marine surveys are in many ways dissimilar from the terrestrial surveys, with shorter durations, but are still of tremendous magnitude and historical significance

Please refer to Section 4 of the attachment for additional detail.

### **5. Unique features or characteristics that set this proposed landmark apart from other civil engineering projects, including those in #4 above.**

It is unprecedented that a single person made such detailed surveys for such a large area and then committed them, likely with data obtained by Turnor, Mackenzie, Fraser and Vancouver, to a map of such large size and scale.

Please refer again to Section 4 and Section 5 of the attachment for additional detail.

**6. Contribution which this structure or project made toward the development of: (1) the civil engineering profession; (2) the nation or a large region thereof (part 2 is necessary for an IHCEL).**

Of David Thompson's many accomplishments, his field surveys during his fur trapping days and the compilation of his great map are of prime interest from a civil engineering perspective. Surveying is a cornerstone of civil engineering, and mapping out routes remains a fundamental part of civil engineering today.

Thompson's surveying and mapping is a particularly noteworthy early example of this work. The vast number of his celestial observations, the field journals and sketches providing the infill between them and his use of data from fellow explorers resulted in a cartographic work of huge magnitude. It opened the first useful overland trade route between the North American interior and the Pacific Ocean. This project established an ambitious standard for the mapping of large land areas demonstrating how a single, dedicated individual can accomplish tasks which many would deem impossible. Thompson's map served to add extensive knowledge to the geography and natural sciences of the vast interior of Canada, paving the way for westward settlement and development. His work west of the Rocky Mountains opened the first viable route from the Canadian and Northern United States interior to the Pacific Ocean, which would bolster the fur trade for the many years following. In the northern tier of American States, he discovered the source of the Mississippi river in Minnesota, and mapped the Missouri River and Mandan villages of North Dakota, before the Lewis and Clark Expedition. He discovered and mapped the Flathead Lake area of Montana, followed and mapped the course of the Kootenai River from Alberta through Montana, northern Idaho and back into Alberta. He also surveyed and mapped the Pend Oreille, Spokane and Colville Rivers in NE Washington and the great Columbia River Plateau making up almost 2/3 of what is Washington State. He finally unraveled the complex geography of the Columbia River drainage, a source of mystery and cartographic misrepresentations in prior years.

**7. A list of published references concerning this nomination.**

Please refer to Section 7 of the attachment.

**8. A list of additional documentation in support of this nomination**

The additional documentation includes:

- commemorative plaques, signs, interpretive monuments, erected by other organizations
- maps by Thompson and others
- other groups that have honoured Thompson
- a listing of Thompson's surveying instruments and references.

Please refer to Section 8 of the attached document.



**9. The recommended citation for HHC consideration.**

**David Thompson's Surveying and Mapping of the Northwest of North America  
1784 - 1814**

Despite a serious visual impairment, David Thompson (1770-1857) – explorer, surveyor, and fur trader for both the Hudson's Bay and North West Companies – is considered "the greatest land geographer that the world has produced". Often accompanied by his Metis wife, Charlotte Small, he surveyed and mapped a vast region stretching from N 45° to N 60° latitude and from the western shores of Hudson Bay to the Pacific Ocean between 1874 and 1812. His 1814 great map, compiled from his surveys and those of Mackenzie, Fraser, Vancouver and his teacher Philip Turnor, laid the groundwork for development of the Northwest of North America. *(102 words!)*.

**10. A statement of the owner's support of the nomination.**

As noted above, Thompson was employed by the Hudson's Bay Company or North West Company when he conducted his surveys – no one "owns" them. Statements of support from the owners of the properties where the plaques will be located are included in Section 10 of the attached document.

If this nomination is approved for designation as an International Historic Civil Engineering Landmark by the Board of Direction of ASCE, we understand that the nominating organization will have the major responsibility for the public presentation ceremony of the plaque and for plaque maintenance.

**Authors of this Nomination:**

David R. Gilbert, ASCE History and Heritage Committee  
F. Michael Bartlett, CSCE National History Committee  
Cole G. Bedford, ASCE History and Heritage Committee

Reviewers: Kevin Baskin, Ken Johnson, Alistair Mackenzie Calvin Sexsmith, Peter Wright, all CSCE National History Committee

Cover Page Graphics: Courtesy Rebecca Collins, Member Seattle Section ASCE HHC

**Presidents of Engineering Organizations:**

\_\_\_\_\_  
President (could be several) ASCE Section(s) [Inland Empire, Montana, North Dakota and Minnesota].

\_\_\_\_\_  
Dr. Brenda McCabe, F.CSCE  
President CSCE

**Chair, Heritage Committees:**

---

(Could be several) Section ASCE

---

Dr. F. Michael Bartlett, F,CSCE  
Chair CSCE National History Committee

**Note: Designation by ASCE as an International Historic Civil Engineering Landmark carries no legal commitment on the part of ASCE, the owner or the governmental jurisdiction in which it is located.**

## International Historic Civil Engineering Landmark Nomination - Additional Detail

### David Thompson's Surveying and Mapping of the Northwest of North America

#### 1. Dates of Mapping (and other significant dates)

Table 1 and Figure 1.1 summarize David Thompson's travels as an employee of the Hudson's Bay Company (1784 to 1797) and the North West Company (1797 to 1812). In these 28 years he travelled over 50,000 miles (80,000 km) by canoe from Lake Superior and Hudson Bay to the Pacific Ocean, between the latitudes of N 45° and N 60°.

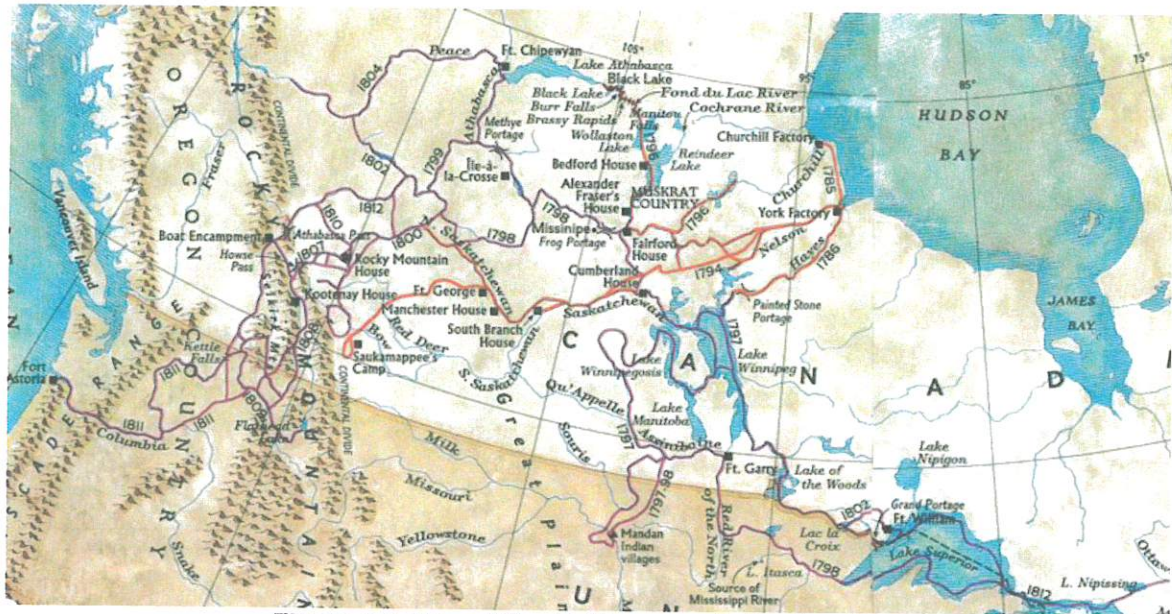


Figure 1.1 Map of David Thompson's Explorations  
Source: Wikipedia (Public Domain)

Table 1. Summary of David Thompson's Travels and Activities (after Johnson, 2006)

| Year    | Occupation, Travel Activity  |
|---------|--|
| 1784-86 | Clerk, Hudson's Bay Company (HBC), Fort Churchill and York Factory   |
| 1786-89 | Clerk, HBC, Cumberland House, South Branch House, learns Cree, Manchester House, and Hudson House, learns Piegan                             |
| 1789-90 | Trained in surveying by Philip Turnor while healing broken leg, loses sight in right eye   |
| 1790-92 | Clerk, HBC, York Factory.  |
| 1792-95 | Surveyor, HBC, York Factory, Sipiwesk House, Chatham House, Reindeer Lake, Buckingham House, Reed Lake House, Cumberland House, Three Points |
| 1795-97 | Surveyor, HBC, Duck Portage, Lake Athabasca, Reindeer Lake, Fairford House, and Bedford House  |
| 1797    | Leaves Hudson's Bay Company, joins North West Company (NWC)  |

|           |  |
|-----------|--|
| 1797-1800 | Surveyor, NWC, Red River, Assiniboine River, Souris River, Missouri River, Mississippi River, Churchill River, Red Deer River, Athabasca River, Clearwater River, Brazeau River, and Lake Superior |
| 1800-03   | Trader and Surveyor, NWC, Rocky Mountain House, Fort Augustus, and Fort William; North Saskatchewan River  |
| 1803-07   | Surveyor, NWC, Rocky Mountain House, Peace River Forks, Horse Shoe House, Kaministiquia (Fort William), Bear's Backbone Post, Cumberland House, Reindeer Lake, and Reed Lake                       |
| 1807      | Surveyor, NWC, crosses Rocky Mountains via Howse Pass and builds Kootenai House on Columbia River  |
| 1807-10   | Surveyor, NWC, Kootenai House, Rainy Lake House, Fort Augustus, Kullyspel House, Flathead House; Kootenai River, and North Saskatchewan River  |
| 1810-12   | Surveyor, NWC, crosses Rocky Mountains via Athabasca Pass, travels along Kootenai and Columbia Rivers, Saleesh House, Spokane House, Kettle Falls, reaching Pacific Ocean at Astoria               |
| 1812-15   | Surveyor, NWC, created his Great Map of the North-West Territory for the area 45 to 60 degrees latitude and 84 to 124 degrees longitude  |
| 1815-45   | "Retired" to Williamstown ON   |
| 1817-22   | Conducts surveys for International Boundary Commission   |
| 1823-33   | Loses life savings through several unsuccessful financial ventures   |
| 1833-36   | Surveyor, British America Land Company   |
| 1837-45   | Increasingly sporadic work, experiencing severe financial difficulty   |
| 1845-50   | Lives with daughter and son-in-law in Montreal   |
| 1850-57   | Lives with daughter and son-in-law in Longueuil  |
| 1850-51   | Writes manuscript describing his travels. Stops when sight in left eye is lost.  |

## 2. Names of Key Civil Engineer and Other Professionals Associated with the Project

### 2.1 David Thompson (1770-1857)

David Thompson was born on April 30, 1770 in Westminster, England. His parents were Welsh migrants, David and Ann Thompson, from whom passed a Welsh accent that Thompson spoke with throughout his life. The senior David Thompson died when his son was an infant, leaving the family without a reliable source of income. Due to the financial hardship that resulted, Ann placed David in the Grey Coat Hospital, a home for disadvantaged children, in 1777. The Hospital operated a school where Thompson studied practical navigation, surveying, trigonometry, and geometry. He also learned skills that would serve him well in later life like "using nautical instruments, finding latitudes and longitudes and making navigational calculations from observing the sun, moon, and tides and drawing of maps and charts." After seven years of study at the school, when Thompson was fourteen, the Grey Coat Hospital paid five pounds to the Hudson's Bay Company whereby he became an indentured servant to Company. On May 28, 1784 Thompson set sail for North America.

Slightly more than three months later, on September 2, Thompson arrived at Fort Churchill in what is now Manitoba, where he worked as a clerk to the Governor. During the next years, he was transferred to several different forts and trading posts—York Factory, Cumberland House, South Branch House, Manchester House, Buckingham House—as he





Figure 2.1: David Thompson  
Source: Wikipedia (Public Domain)

continued to do secretarial work. He learned to "keep accounts and other records, calculate values of furs, [...] track supplies, and other duties."

The trajectory of Thompson's life was forever changed when, in late 1788, he severely fractured his right tibia in a sled accident at Manchester House. The break did not mend cleanly, so the following spring he was carried to Buckingham House for treatment. As a result, he was confined for many months of recovery. While in this recovery period, he met Hudson Bay Company employee and Astronomer (as surveyors were termed at the time) Philip Turnor. Turnor trained Thompson in skills of astronomical observations more advanced than what he had learned at Grey Coat Hospital as a boy. Turnor also hoped that Thompson would join him on a survey of the Athabasca Country, but Thompson's ongoing recovery prevented him joining the expedition. Instead, he spent months practicing diligently and, in the process,

became an expert. This time of study kindled in Thompson a passionate interest in exploration and surveying. He was to write later that his fall and subsequent recovery had "-- by the mercy of God turned out to be the best thing that ever happened to me" (The Writings of D. T., pg 72-3). It was also during this time that he lost much of the sight in his right eye, leaving one of history's greatest surveyors and explorers with a life-long visual impairment.

In 1790, Thompson completed the term of service required by the Grey Coat Hospital payment years earlier and was also recovered enough to strike out on his own. He acquired a set of surveying tools and entered the employ of the Hudson's Bay Company as a fur trader. He distinguished himself early as a competent surveyor completing his first significant survey near the present Alberta/Saskatchewan border in 1792. He succeeded his mentor, Turnor, as the Company surveyor two years later. Thompson's superiors made it known to him, though, in 1797 that western exploration and mapping was no longer one of their priorities, which disappointed him greatly. He was so disappointed, in fact, that he immediately resigned and sought employment with Hudson Bay Company competitor, the North West Company. Unlike the Hudson's Bay Company, the North West Company was anxious to expand its western operations and, eventually, to find a route the Pacific. This suited Thompson's interests perfectly and he would remain with the North West Company for the rest of his fur trading career.

During Thompson's first year with the North West Company, he was assigned to explore and map the territory of the Assiniboine River, the Mandan villages of North Dakota, and Upper Mississippi Country. Alexander McKenzie, a contemporary fur trader and surveyor, remarked that in this work "Thompson had performed more in ten months than he expected could be done in two years" (The Writings of D.T., pg xxxiv). Similar efforts



occupied Thompson during the next years all across modern Alberta, Saskatchewan, Manitoba, Wisconsin, Minnesota, and North Dakota. In 1804, Thompson became a full partner in the Company and, in response to the American-backed Lewis and Clark Expedition, he was tasked with identifying a northern route to the Pacific and establishing a British presence in the fur-rich Columbia River basin.

All during these expeditions, Thompson was supported both at home and in the field by his wife, Charlotte Small Thompson. Charlotte was the daughter of fellow North West Company trader Patrick Small and his wife, a Metis Woman. Small "capably assisted her husband" and "travelled thousands of kilometers across North America by foot, canoe, and horseback, helping to map its extensive lands and waterways." The couple had thirteen children during their lives and the marriage, unlike many such marriages between white trappers and native women, lasted a long fifty-seven years – the longest known in Canada pre-Confederation. Charlotte was designated a Canadian National Historic Person in 2008 because she "exemplifies the many Aboriginal women who shared their lives with fur traders, bringing their knowledge of language, culture, and survival skills to 18<sup>th</sup>- and 19<sup>th</sup>-century trade and exploration."

After twenty-eight years dedicated to the twin causes of exploration and surveying, Thompson retired in 1812. He, Charlotte, and their children settled in Terrebonne, north of Montreal. Establishing a quiet routine, Thompson set out to complete the map which he had never had time to complete before. Between 1812 and 1814 he designed two editions of his map, the second measuring 6 ½ feet high by 10 feet wide and showed all of the areas he had personally traversed between N 45° to N 60° latitude from the Hudson Bay to the Pacific Ocean. Not only the scope of the map, but its detail – it showed every North West Company trading post – was unprecedented. (See Section 3: Historical Significance of This Landmark for more on Thompson's famous map.) Today, a copy of Thompson's map is preserved at the Archives of Ontario in Toronto.

Thompson's map and a more detailed atlas that accompanied it were not appreciated in their time. He had hoped to sell them, but was unable to find a publisher. This inability combined with a paltry retirement pension from the North West Company drove Thompson to seek further employment. In 1817, he began working for the International Boundary Commission which was tasked with locating the border between the United States and Canada from Quebec to the Lake of the Woods. It is interesting to consider that, when the Oregon Boundary Dispute occurred between Canada and the United States a half century later, the English negotiators might have argued more forcefully. Citing the great extent of Thompson's Columbia surveys and his strong opinion

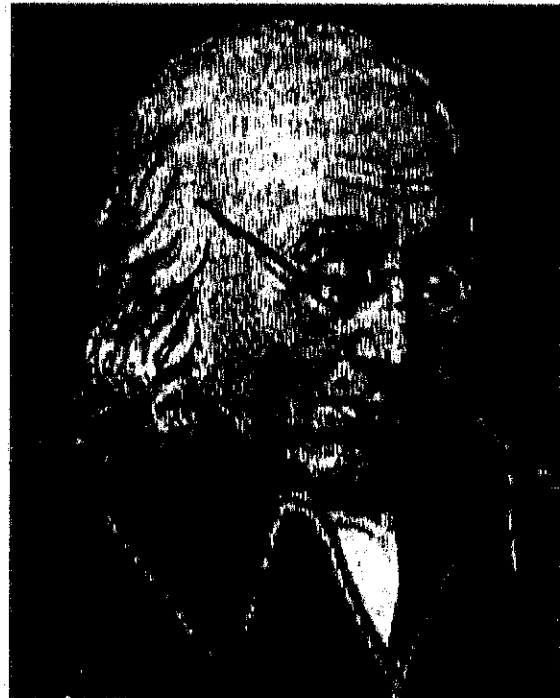


Figure 2.2: Thompson in his later years. Thompson was never drawn or painted, so the available representations are based on images of his children.

Source: Wikipedia (Public Domain)

that the Columbia River should have been the U.S. and Canadian boundary, most of Washington State may well have been part of Canada today.

Thompson continued to work off and on throughout the 1820s and in 1833, at the age of sixty-three, he found employment with the British American Land Company for whom he conducted hydrographic surveys for proposed canal projects and exploratory land surveys. In 1846, Thompson's visual impairment, which had first developed back in 1789, became so severe that he could no longer conduct survey work. Active man that he was, though, rather than discontinue work altogether, he began writing his memoirs which were published posthumously in 1916 as *David Thompson's Narrative of his Explorations in Western America*.

Thompson spent his last years in Montreal living with a daughter. He died on February 10, 1857 at the age of 86. Charlotte, his life-long companion, died three months later.

## **2.2 Philip Turnor (1751-1800)**

Philip Turnor was the first Hudson's Bay Company astronomer/surveyor and was a key figure in David Thompson's training and career path. Born in England in 1751 or 1752, he came from a family with surveying, hunting and building skills and was believed to be primarily self-educated. Turnor came to the attention of the Hudson's Bay Company in 1778 and was sent to Hudson Bay in May of that year on his first of four 3-year contracts. During his first nine years in Canada, he conducted several surveys of rivers draining into the west and southern shores of Hudson Bay and to the northern shore of Lake Superior, creating several maps of these areas. (See 4.1.1)

In September 1781, Turnor married a woman of the Cree tribe. Together they had a son named Joseph who would go on to become an employee of the Hudson's Bay Company rising to Master of several inland trading houses. He and his Cree, or Cree-Orkney wife, Emma, would raise 13 children, creating a line of thousands of Turnor descendants in Canada. In 1782 Turnor was appointed Master of Brunswick House and later went on to manage Frederick House, but his performance as a trader proved to be much less successful than his surveying ventures.

In September 1787 at the end of his third 3-year contract, Turnor departed for England. Much unlike David Thompson, he left his wife and son for good at Moose Fort to reunite with their Cree tribal members, apparently an entirely common and accepted practice at the time.

In England, Turnor began courting Elizabeth Hallett. They married in Battersea in June 1788. He also became acquainted with Nevil Maskelyne, a contact that would become very useful a few years later. He worked on and completed his fourth regional map of the Churchill River area north of York on the Hudson Bay. About this time, the London principals of the Hudson's Bay Company recognized a need for detailed surveys and maps of the Athabasca Region north to Great Slave Lake, and enticed Turnor to sign his fourth and last 3-year contract to return to Canada.

Leaving his wife of less than one year in London, he arrived back at York Fort August 1789. Here he began to recognize that some of the local Hudson's Bay Company leaders, William Tomison, Master of the inland trade, in particular, were not at all supportive of

expanding operations into the Athabasca region. They delayed Turnor's start and then worked to make sure he was ill-provisioned for what would be a very arduous journey.

On his way to the Athabasca region, Turnor wintered at Cumberland House in what is now eastern Saskatchewan. It was here that he met the young David Thompson, confined to quarters received from a very serious leg injury, but eager to learn the practical application of navigation and cartography. Turnor recognized immediately that Thompson would be a much more valuable assistant for his Athabasca surveys than Thomas Stayner who, although assigned to him, was disinterested in travelling. He trained Thompson intensively, but it soon became apparent that Thompson might not recover in time for this journey. As a backup, Turnor began training Peter Fidler, another young Hudson Bay Company employee to be his possible assistant. Turnor set out on his Athabasca expedition September 1790, both he and Thompson much disappointed that Thompson was not accompanying him, but Fidler turned out to be a most able assistant. In his annual report, Turnor highly recommended Thompson as the future Hudson's Bay Company surveyor.

The Athabasca surveys reaching as far north as Great Slave Lake and circumnavigating Lake Athabasca were demanding, dangerous and constantly plagued by a shortage of provisions. Turnor completed the intended surveys and was the first to see and survey many areas. He returned to York Fort in August 1792.

Turnor held discussions with David Thompson, who by now had recovered sufficiently to travel and perform surveys. At this time, Turnor also sent very high recommendations to the Hudson's Bay principals in London for both Thompson and Fidler to carry on with company survey work. Thompson departed on 5 September to expand on Turnor's surveys in the Athabasca region and Fidler had already been posted to the upper Saskatchewan River region. Turnor packed up all his information from his and Fidler's recent surveys and set sail for England 27 September 1792.

Arriving home in October, Turnor briefly reunited with his wife and then reported to Hudson's Bay headquarters in Fenchurch where he began work on his map of the Athabasca country. He completed two maps of the Athabasca region that were the basis for his much larger and final map of North America completed in the Autumn of 1794. (See 4.1.1)

He barely subsisted on what he was paid by Hudson's Bay Company for his cartographic work. Turnor sought other work and was fortunate in August 1794 to be retained by Nevil Maskelyne as a computer for Maskelyne's *The Nautical Almanac*. This job and his navigational school brought in a meager income and by 1798 he was becoming unwell due his months on poor diets in the Canadian wilds. He died 1 March 1800.

Geographers today refer to Turnor's last great map "as a masterpiece and one of Canada's greatest cartographic treasures". (Mitchell, p. 243). J.B. Tyrell wrote "[Turnor] has blazed the way into the interior of Canada, and his pupils, Thompson and Fidler, were to take up the work where he left it, and carried on gloriously." (Mitchell, p. 252)

### **2.3 Jacques "Jaco" Finlay (1768-1828)**

Jaco Finlay was a partner of Thompson's who served as a scout on several of his expeditions. In particular, Finlay forged the trail across the Continental Divide in 1806 that

Thompson would follow a year later. Finally also played a key role in Thompson's discovery of the Columbia River, "scouting, storing provisions, and building canoes."

## 2.4 Charlotte Small Thompson (1785-1857)

Charlotte Small Thompson was a Metis woman whose parents were North West Company partner Patrick Small and an unnamed Cree woman. They were married on 10 June 1799 at Île-à-la-Crosse (Saskatchewan) when she was 13. She was David Thompson's wife of 58 years. Notably, she joined him on many of his expeditions into western Canada. Over the course of these expeditions she traveled 3½ times farther than did the members of the Lewis and Clark Expedition.



Figure 2.3: Statue of Charlotte Small Thompson and her husband

Source: Wikipedia (Public Domain)

## 2.5 Sir Alexander Mackenzie (1764-1820)



Figure 2.4: Sir Alexander Mackenzie  
Source: Wikipedia (Public Domain)

Sir Alexander Mackenzie was a senior partner of the Hudson's Bay Company who was a contemporary of David Thompson. He is most famous for being the first non-native to cross North America in 1793. His route took him up the Peace River, across the continental divide, down the Fraser River as far as navigation would permit then crossing the Coastal Range to the Indian village of Bella Coola on the Pacific shore. Following this arduous journey, he then travelled down the Mackenzie River – named for him – to the Arctic Ocean in a quest to discover a fur trading route to the Pacific from the interior of Canada.



## 2.6 Simon Fraser (1770-1852)



Figure 2.5: Simon Fraser  
Source: Wikipedia (Public Domain)

Another contemporary of Thompson, Simon Fraser was a partner of the North West Company. He was placed in charge of operations west of the Rockies in 1805 and is noted most for his 1808 exploration down the very rugged lower Fraser River, bearing his name, in search of a navigable route to the Pacific. It proved impractical, but did result in the discovery that the Fraser was not, in fact the Columbia as had been believed by explorers and cartographers in previous years. Thompson became aware of this discovery in 1809 and it was a great aid in his continuing quest to discover the true course of the Columbia River.

## 3. Historical Significance of this Landmark

The following six significant historical contributions of David Thomson are highlighted in this section:

1. Scale of Work
2. Date of Work
3. Contributions to Remote Surveying Techniques
4. Travel Diary
5. Interaction with Indigenous People
6. Legacy Communities.

### 3.1 Scale of Work

David Thompson's field surveying and the resulting map of a 1.7 million square-mile (4.9 million square-kilometre) block of the North American continent are of truly great magnitude. Over 28 years he travelled 50,000 miles (80,000 km) by canoe, horseback and on foot (See Figure 1) making hundreds of astronomical observations to determine the true geographic positions of the fur trading posts of his employers and major natural landmarks. Between these he conducted "tracking surveys", essentially compass and estimated distance traverses, to define the detail of river courses, lakes and mountains, all recorded in daily journals most of which are preserved to this day. All of this was done while he was attending to the day-to-day business of fur trading.

After retiring from field activities and moving his family to Montreal, David Thompson spent two years compiling his survey data, and that of his NWC associates and others, such as Captain George Vancouver and Lewis and Clark, into a 'great map' measuring 6'-9" by



10'-4" (Archives of Ontario, 2015). It was composed of 25 individual sheets on Imperial paper glued together by mucilage all ordered from London. It depicted in great detail a block of the North American continent from Hudson Bay to the Pacific Ocean, Longitude W. 87° to W. 132°, and from parts of the U.S. states of Washington, Idaho, Montana, North Dakota, Minnesota and Wisconsin, to areas north of Lake Athabasca, N. 45° to N. 60°. Two original copies remain, one hanging in the Ontario National Archives in Toronto, Figure 3.1, the other in the National Archives in London, England (Moreau, p. 320).

Thompson was originally given three years to produce this map, but William McGillivray, then principal of the NWC, wanted it done in two years. Thompson delivered it 10 June 1814 and referred to it as "a hasty rough map" (Jenish, p. 212). But, the creation was of great importance to the North West Company. In his book *Epic Wanderer*, Canadian historian and writer D'Arcy Jenish describes what McGillivray might have thought when he first saw the map, "a whole chunk of the continent lay on the table before him". The NWC kept this vital picture of their widespread enterprise secret for several years, but on being absorbed by the HBC in 1821, the maps were shared with London cartographer Aaron Arrowsmith who copied and published them giving no credit to Thompson (Jenish p. 8), a great snub to "the greatest land geographer the world has produced".

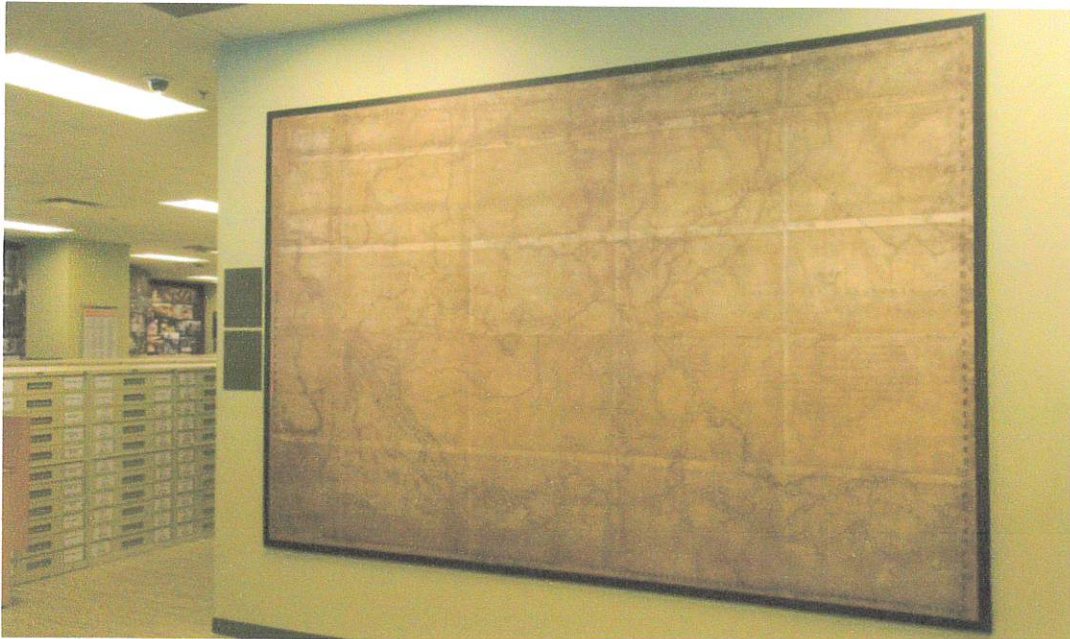


Fig. 3.1: Reproduction of Thompson's Great Map in the Reading Room at the Archives of Ontario. The original is protected in vault storage there. (Source: Archives of Ontario).

### 3.2 Date of Work

David Thompson's explorations and surveys of the Northwest of North America took place between 1792, when he completed his first survey near the present Alberta/Saskatchewan border until he retired in 1812. When he started, almost no systematic reporting on the region described by his later map was available. Over the course of the next years, though, Thompson and his several contemporaries revolutionized the geographic understanding of the region. These contemporaries included George Vancouver who mapped the coastline in 1792-1795 and the American Corps of Discovery lead by the Americans Lewis and Clark in 1804-1806. Thompson also specifically cited

Alexander Mackenzie, John Stewart, and his mentor Philip Turnor as significant contributors to understanding the region.

While compiling his great map of the Northwest of North America in 1812-1814, Thompson noted that it was the culmination of "the surveys and discoveries of 20 years." He had personally contributed to many of those surveys and discoveries and, combined with those of the other principal surveyors and explorers of the time, Thompson was able to produce a map which predated any comparable map of the continent.

### **3.3 Contribution to Remote Surveying Techniques**

Thompson did not develop new surveying techniques but successfully adopted celestial-based methods, originally developed for nautical navigation, to create remarkably accurate surveys. He took and averaged repeated observations, for example taking 10 latitude and 19 longitude readings at Rocky Mountain House, which are impressively accurate, to within 1.6 km (1 mile) in latitude and 8 km (5 miles) in longitude (Smyth, 1981). He plotted the locations of key features including trading post sites, river mouths, and mountain passes, on a blank map using their latitude and longitude. Then he travelled between these points, creating rough track surveys to fill in the details, using scaling as necessary to correct distances that were often over-estimated.

His technique to determine latitude was to start measuring the altitude of the sun before local noon, repeating the process until sun loses altitude, and then taking the greatest value in the series as the meridian altitude. He also obtained accurate measurements of the meridian altitude of the pole star at night (Smyth, 1981).

He determined longitude by first computing the local time from observed astronomical phenomena, such as the eclipses of Jupiter's satellites or the relative location of the moon with respect to background stars. He could then compute the longitude as the difference between the local time and the published Greenwich time of these phenomena, recognizing that one hour equaled 15 degrees of longitude. The mathematical calculations required for a single observation required 3-4 hours (Smyth, 1981).

### **3.4 *David Thompson's Narrative of his Explorations in Western America.***

Thompson's 702-page, handwritten manuscript describing his travels included original data on the geological, botanical, zoological, anthropological, and meteorological facets of the regions he had visited. Writing for *The Dictionary of Canadian Biography*, Nicks (1985) notes:

"In the small whitewashed rooms he shared with his wife in Longueuil, Thompson wrote an account of his travels in North America. This work of his final years is in many ways his greatest achievement, but he never had the satisfaction of seeing it completed and published. Already in 1848 the sight in his remaining good eye had begun to fail; by 1851 he was completely blind and the manuscript remained unfinished."



### 3.5 Interaction with Indigenous Communities

In addition to Thompson's connection to the Cree people through his wife, he enjoyed excellent relations with many other First Nations peoples. He spoke at least four indigenous languages – Blackfoot, Kootenay, Chipewyan, and Mandan – and compiled a number of dictionaries. The Salish bestowed on Thompson the name Koo-Koo-Sint: "Man Who Looks at Stars."

### 3.6 Legacy Communities

– Spokane (Ken J). Trading posts that Thompson created. Interpretative signs along Highway 2 – Montana, Idaho. Thompson is more visible in American than in Canada. Kettle Falls. (MB – Ken J)

## 4. Comparable or Similar Projects in This and Other Countries.

Terrestrial surveys done by Philip Turnor, Peter Fidler, Alexander MacKenzie, Simon Fraser and Lewis and Clark's were all major undertakings, and contributed in some way to David Thompson's 'Great Map'. The marine surveys conducted previously by the Spanish, James Cook, George Vancouver and William Broughton were dissimilar from the terrestrial surveys, but were still large and significant. Thompson did rely heavily on Vancouver's very extensive detailed mapping of the west coast of North America to demarcate the westernmost fringes of his map.

### 4.1 Terrestrial Surveys

The following six terrestrial surveys were all conducted in Thompson's time and most had some impact on his work.

#### 4.1.1 Philip Turnor's Mapping from Hudson Bay to the West, 1778-1794

As the Hudson Bay Company's chief surveyor, Phillip Turnor surveyed many river drainages and lakes to the west of Hudson Bay, between James Bay and Lake Superior and the very large Athabasca region as far north as Great Slave Lake. From these surveys he produced 10 maps of which the following six were very important:

- "A Chart of Rivers and Lakes Falling into Hudsons Bay," 1778-79
- "A Chart of Rivers andLakes between Albany Fort and Gloucester House," 1780
- "Chart of part of Hudsons Bay and Rivers," 1782-1783
- "A Chart of Rivers and Lakes above York Fort....And of Rivers and Lakes above Churchill Fort," 1787-88
- "Chart of Lakes and Rivers in North America," 1792
- "Of Hudsons Bay and the Rivers and Lakes Between the Atlantic and Pacific Oceans", 1794

The first five of these maps were of various regions and groups of rivers or lakes and ranged in size from about 19" x 28" (48 x 71 cm) and 26" x 40" (66 x 102 cm). The sixth, his



great masterpiece, was a composite of his previous work and that of others that he had access to at the time. Unlike Thompson in 1812, he still did not know the details of the work by Lewis and Clark, McKenzie's expedition to the west coast and the very detailed coastal survey by Royal Navy Captain George Vancouver. The map featured various colored inks to represent surveys by other surveyors. It was made up of 9 sheets glued together by flower paste. When mounted on canvas, it measured 6' x 8' (1.8 x 2.4 m).

Turnor's last map was not quite as large as Thompson's 1814 creation and did have large, unmapped gaps, but overall it covered a region from latitude N 46° to N 70° and longitude W 72° to W 138°. Still, it was significant, referred to by present day geographers "as a masterpiece and one of Canada's greatest cartographic treasures". (Mitchell, p. 243).

#### **4.1.2 Peter Fidler's Mapping of Hudson Bay Company Areas, 1789-1811**

Peter Fidler was a protégé of Turnor's who participated on Turnor's Athabasca expedition of 1790-92 that was tasked with finding a navigable route between Hudson Bay and either Athabasca Lake or Great Slave Lake. From 1789 to 1811 Fidler produced some 357 quickly-drawn sketches of lakes and stretches of rivers and a further 88 maps, one of 12 sheets showing the east end of Lake Athabasca and the Churchill River region. "Most were limited in scope and covered small geographic areas." (Jenish, p. 202).

#### **4.1.3 Sir Alexander Mackenzie's First Crossing of North America, 1793**

Mackenzie's first crossing of the North American continent in 1793 is credited as a first and very important event. Americans too often wrongly credit Lewis and Clark with this feat, but, in fact, it likely led to Merriweather Lewis's plunge into depression after his crossing of the continental divide at Lemhi Pass in 1805(?) and suicide in 1809. On crossing the divide, Lewis recognized he could not bask in the glory of being the first. (*River of Promise, David Nicandry, pg [find]*)

Mackenzie's route up the Peace River then part way down the Frazer River and over the Coast range to the Pacific greatly added to the geographic knowledge of those parts of Alberta and British Columbia, and which Thompson would incorporate in his great map (*assumed this is true, needs verification*).

#### **4.1.4 Sir Alexander Mackenzie's Travels Down the Mackenzie River to the Arctic Ocean 1796**

This long expedition proved the course of the Mackenzie River and added to the geographic knowledge of what is now the western Northwest Territories. This area is far beyond northern limits of Thompson's map, N. 60°.

#### **4.1.5 Simon Fraser's Discovery of the Fraser River Course, 1808**

Fraser is credited as being the first non-native to follow the Fraser River to its mouth near present day Vancouver, British Columbia. McKenzie found the lower reaches too rough to navigate by canoe or on foot on his 1793 journey so Fraser's accomplishment is significant. Most important, it dispelled the mistaken notion by some cartographers that the Fraser was in fact the Columbia. Thompson learned of Fraser's discovery while at Fort Augustus in 1809 (*Sources of the river, Jack Nisbet, p, 141*), and that is likely to have helped him visualize in 1811 at the confluence of the Canoe and Columbia Rivers, that the

river he has first discovered west of Howse Pass in 1807 was actually the Columbia and not the Fraser (this could stand a bit more research, Thompson's journals?).

#### **4.1.6 Lewis and Clark Expedition 1804 – 1806**

A significant U. S. expedition conducted in Thompson's time explored a long, but more restricted, linear path than Thompson's work. It too was confounded by the very broken and complex river pattern encountered west of Lemhi Pass on what is now the Idaho/Montana border. The expedition eventually found its way to the Columbia down the Snake River. They were the first non-native explorers of the Columbia from its confluence with the Snake River to a point near what is now Vancouver, Washington, where Vancouver's party had reached in 1793, about 18% of its total course. By comparison, Thompson explored 80% of its length

### **4.2 Marine Surveys**

Four significant marine surveys of the west coast of North America were conducted in the last half of the eighteenth century.

#### **4.2.1 Spanish Explorations of the West Coast of North America from 1768 to 1791:**

From 1769 to 1792 Spain had conducted numerous surveys that essentially described the shape of the Pacific Coast north of Mexico. Bodega y Quadra was on the west coast during this period and even conducted some of the surveys himself. His map of 1791/2 is a fine compilation of Spanish surveys to that time and the best available until the completion of Vancouver's survey in 1794. See Map 8.4. The Spanish mapping to date, however, was largely of a reconnaissance nature, omitting most of the many intricate inlets along the west coast of Canada and Alaska. Because of Spanish secrecy this important work remained hidden to the rest of the world. It then became completely overshadowed by Vancouver's much more detailed map of the same region published in 1798. See below.

#### **4.2.2 Captain James Cook's Three Voyages of Discovery, 1768 to 1780.**

Cook was primarily interested in making large discoveries rather than carefully mapping smaller regions. He made broad sweeps through the Pacific Ocean discovering new lands, but the Spanish, above, and Vancouver, below, conducted a much more thorough investigation of a single area. (Lamb, p 232)

#### **4.2.3 Vancouver's Mapping of the West Coast of North America, 1793 to 1795**

George Vancouver's voyage of 1791 through 1795 conducted detail surveys of the SW coast of Australia, parts of New Zealand and Hawaii, but is most known for the highly detailed survey of the west coast of north America from San Blas Mexico to Cook's Inlet in Alaska. It was to serve as the best map for west coast mariners for the next 100 years and defined the western boundary of Thompson's great map. Mapping of what is now the British Columbia west coast was concurrent with Sir Alexander Mackenzie's first crossing of the North American continent in 1793. Mackenzie and one of Vancouver's survey parties nearly met by chance where Vancouver's party had visited the Indian village of Bella Coola just ~~two~~ (?-needs-verifying) just six and one half weeks prior (First Crossing, p. 209).

#### **4.2.4 William Broughton's Mapping of the East Coast of Asia, 1795 to 1798.**



In 1796 and 1797 William Broughton, former captain of the *Chatham* on Vancouver's voyage, mapped the west shore of the Pacific Ocean from Latitude 52 N to 30 N, a "blank" area for which a survey had never been published. Although of a similar range of latitude to Vancouver's survey it did not have the terribly broken shoreline that Vancouver encountered on the northeastern shore of the Pacific Ocean. Also, it was not necessary to explore every small inlet as Vancouver was required to do. See Map 8.5.

**5. Unique features or characteristics which set this proposed landmark apart from other civil engineering projects, including those in #4 above.**

Please refer to Section 5 of Nomination Form, Part 1.

**6. Contribution which this structure or project made toward the development of the civil engineering profession, the nation or a large region thereof.**

David Thompson surveying and mapmaking contributed to both the development of the civil engineering profession and to large regions of Western Canada and the United States. The Hudson's Bay Company History Foundation (2016) notes:

"Thompson's significance as a geographer and mapmaker cannot be underestimated. Not only was he the first to chart vast regions of the continent, but his work was so accurate that it remained the basis of all maps of the west for almost a century.

His work with the North West Company's 'Columbia Brigade,' west of the Rocky Mountain Divide, from 1806 through 1811, opened many new trading posts and unraveled the mystery of the very complex geography of the upper Columbia River and its tributaries. He was the first European to travel 80% its entire winding course through the large interior of Washington State and much of SE Alberta. He discovered Howse Pass and later, Athabasca Pass, opening a route from the interior of Canada to the Pacific via the Columbia River to Astoria, Oregon, and used for many years by the fur trading industry. For the enormous area covered by his work, he has been called by some "the greatest land geographer the world has produced". (*The Writings of David Thompson, moreau, pg x*)

**7. Publications**

**Referenced in this Nomination.**

Archives of Ontario and Carter-Edwards, Dennis; *David Thompson Map Maker Explorer and Visionary*; 2013. <http://www.archives.gov.on.ca/en/explore/online/thompson/index.aspx>, accessed 28 July 2021, 28 September 2021.

Belyea, Barbara (Editor); *David Thompson Columbia Journals*; University of Washington Press; Seattle; 2007.

Hayes, Derek; *First Crossing: Alexander MacKenzie, His Expedition Across North America, and the Opening of the Continent*; Sasquatch Books; Seattle; 2001.

Hudson's Bay Company History Foundation: *David Thompson*; 2016. <https://www.hbcheritage.ca/people/explorers/david-thompson>, accessed 25 October 2021

Johnson, Kenneth R.: "David Thompson and George Back: Mappers of the Northwest", *Proceedings, CSCE Annual Conference*, Calgary, 2006.

Lamb, W. Kaye (Editor); *The Voyage of George Vancouver 1791 – 1795, Vols I – IV*; The Hakluyt Society, London; 1984.

Library and Archives Canada; *Mapping the Northwest*; <https://www.bac-lac.gc.ca/eng/discover/exploration-settlement/pathfinders-passageways/Pages/mapping-northwest.aspx>, accessed 01 August 2021.

Mitchell, Barbara; *Map Maker:- Philip Turnor in Rupert's Land in the Age of Enlightenment*. University of Regina Press, Regina, SK; 2017.

Moreau, William E. (Editor); *The Writings of David Thompson, Volume 1: The Travels, 1850 Version*; McGill-Queens University Press, Montreal and Kingston; University of Washington Press, Seattle; Champlain Society, Toronto; 2009.

Nicandri, David L.; *River of Promise: Lewis and Clark on the Columbia*; The Dakota Institute, Washburn, N.D.; 2009.

Nicks, John; "David Thompson". *The Dictionary of Canadian Biography Volume VIII (1851-1860)*, 1985. [http://www.biographi.ca/en/bio/thompson\\_david\\_1770\\_1857\\_8E.html](http://www.biographi.ca/en/bio/thompson_david_1770_1857_8E.html), accessed 28 July 2021, 25 October 2021.

Nisbet, Jack; *Sources of the River: Tracking David Thompson Across Western North America*; Sasquatch Books; Seattle; 1994.

Smyth, David; "David Thompson's Surveying Instruments and Methods in the Northwest 1790-1812". *Cartographia* 18 (4): 1-17, 1981.

Tyrrel, J. B. (Editor); *David Thompson's Narrative of his Explorations in Western America*; The Champlain Society; Toronto, 1916. Online at <https://archive.org/details/davidthompsonsna12thom>, accessed 01 August 2021.

(Will likely be more)

## Other Publications

Shoalts, Adam; *A History of Canada in Ten Maps*; Penguin Random House Canada Limited, Toronto, 2017.

Video "Shadows of David Thompson". George Sibley, Gale Force Films, 2008.

Epic Wanderer, 2009. D'arcy Jenish. Dave has it.

## 8. A list of additional documentation in support of this nomination

### 8.1 Interpretive Signs and Commemorative Plaques by Others.

An online search has yielded photographs of 16 plaques and signs commemorating David Thompson and his achievements including: 8 Historic Sites and Monuments Board of



Canada plaques, 2 Archeological and Historic Sites Board of Ontario plaques, 3 British Columbia Department of Recreation and Conservation interpretive signs and three plaques created by other concerns. As most of the online photographs are copyrighted, details of the plaques are summarized in Table 8.1.

Table 8.1: Plaques and Signs Commemorating David Thompson

| Plaque Source                                | Location                             | Text  |
|--|--------------------------------------|---|
| Historic Sites and Monuments Board of Canada | Highway 93, Jasper National Park, AB | DAVID THOMPSON 1770-1857. Born in London, Thompson served both the Hudson's Bay Company (1784-1797) and the North West Company (1797-1815) as a trader, explorer and surveyor. One of the world's greatest geographers, he accurately mapped the main travel routes through some 1,700,000 square miles of the Canadian and American West, in the process journeying some 50,000 miles by canoe, by horse and on foot. His great map of the West and his Narrative, edited by J. B. Tyrrell for the Champlain Society (1916), are lasting monuments to his genius. He died at Longueuil.  |
| Historic Sites and Monuments Board of Canada | Jasper, AB                           | JASPER HOUSE. In 1813 the North West Company built Rocky Mountain House on Brulé Lake as a provision depot for brigades crossing the Athabasca Pass to the Pacific. When Jasper Hawes took command of the post in 1817 it became known as "Jasper's House" to avoid confusion with Rocky Mountain House on the Saskatchewan. The Hudson's Bay Company moved Jasper House up river to this site in 1829, but by mid-century decreasing traffic over the pass sent the post into decline. When Paul Kane was here in 1846 this was a remote outpost commanded by Colin Fraser, George Simpson's former piper. A half-century later Jasper House was finally closed. |
| Historic Sites and Monuments Board of Canada | Rocky Mountain House, AB             | ROCKY MOUNTAIN HOUSE. The Hudson's Bay and North West Companies each built fortified fur trade posts here in 1799. The anticipated trade with the Kootenay Indians, who lived west of the mountains, did not develop, but these posts and their successors after the 1821 company merger drew in the trade of the Blackfoot, Peigan and Blood Indians, as well as that of the Stoney, Sarcee, Gros Ventre and Cree. The North West Company post was also used as a base for   |

|  |                 |   |
|--|-----------------|---|
|  |                 | exploration and from it, in 1807, David Thompson crossed the Rockies to the Columbia River. The last fort at Rocky Mountain House was finally abandoned in 1875.  |
| Historic Sites and Monuments Board of Canada | Jasper, AB      | THE DISCOVERER OF ATHABASKA PASS. In midwinter 1810-11, David Thompson, of the North West Company, with ten companions discovered and travelled through this pass to the Columbia River. It immediately became the regular route across the mountains and so continued until the advent of railway communication.<br>To David Thompson, Canada owes the first accurately prepared map of the Great West, embodying the results of his surveys and explorations from 1789 to 1812.   |
| Historic Sites and Monuments Board of Canada | Castlegar, BC   | DAVID THOMPSON ON THE COLUMBIA. Competition for furs had forced the North West Company to expand to the Pacific Slope by 1800. To avoid a costly transcontinental transport from Montreal the company needed a coastal depot on a navigable river. To this end David Thompson surveyed the Columbia River between 1807 and 1812, building a string of inland posts along its course. By 1813, when the Nor'Westers bought Astoria, the Pacific Fur Company's post at the river mouth, Thompson had proved the Columbia to be a navigable supply route to the interior.  |
| Historic Sites and Monuments Board of Canada | Howse Pass, BC  | HOWSE PASS. This pass, which links the North Saskatchewan and Columbia river systems, was known to the Aboriginal peoples of the area long before the arrival of the Europeans. It was probably used from the 18 <sup>th</sup> century onwards by Ktunaxa to gain access to the buffalo herds on the plains east of the mountains. In 1807, David Thompson and a North West Company party traversed the pass, which was used by the Canadian fur traders until 1810 to explore and establish posts west of the Rockies. Joseph Howse, the Hudson's Bay Company employee after whom the pass is named, first crossed it in 1809. |
| Historic Sites and                           | Kootenae House, | KOOTENAE HOUSE. In 1806 the North   |

|  |                    |   |
|--|--------------------|---|
| Monuments Board of Canada                    | BC                 | West Company clerk, Jaco Findlay, blazed a trail over Howse Pass from the Saskatchewan to the Columbia River. The next year, David Thompson followed this route to the Columbia, then turned upriver and built Kootenae House below Windermere Lake. Using this fort as a base, he explored the upper Columbia and Kootenay rivers, and established a chain of posts on the Columbia watershed. Kootenae House was used periodically until 1912, when the hostility of the Peigans east of the pass forced its abandonment.   |
| Historic Sites and Monuments Board of Canada | Sprague Bay BC     | BOAT ENCAMPMENT. Located on the Big Bend of the Columbia River, and now lying under the Mica reservoir, Boat Encampment was an important transshipment point where fur traders and travelers from Jasper House, having crossed the Athabasca Pass, boarded boats for Fort Vancouver. First visited by David Thompson who wintered there in 1811, Boat Encampment was for nearly 50 years an important point on the express route from the Pacific Coast to Montreal and York Factory. It lost importance with the growth of Fort Victoria, advances in ocean transportation, and changes in the trading activities of the Hudson's Bay Company. |
| ?  | Thompson Falls, MT | DAVID THOMPSON. 1770-1857 Pioneer Geographer "Koo-Koo-Sint" The man who looked at the stars. Built Salish House near the Mouth of Thompson River 1809.  |
| The Barbour's, a pioneer family              | Invermere BC       | DAVID THOMPSON. The man who measured Canada. Born – 1770 London England. Died – 1857 Longueuil Quebec. In June 1807 Thompson crossed the Rocky Mountains and descended along the Blaeberry (?) reaching the upper part of the Columbia River. On July 18, 1807 he arrived on Lake Windermere. Thompson established the first post on the Columbia near Wilmer, Cootenai House, and discovered the source of the Columbia. IN 1811 he reached the mouth of the Columbia on the shores of the Pacific Ocean – the first white man to travel the Columbia's entire length. Surveyor, astronomer, geographer, fur                                   |

|  |                                 |  |
|--|---------------------------------|--|
|  |                                 | <p>trader, Thompson travelled more than 55,000 miles over Canada and the US by foot, canoe and horse, mapping more than one and a half million miles of uncharted country.</p> <p>CHARLOTTE SMALL. Born – 1785 Isle à la Crosse, Saskatchewan. Died – 1857 Longueuil, Quebec. Charlotte and their three children accompanied Thompson on his historic crossing of the Rockies and arrived in the Columbia Valley in 1807. She wintered with him at Kootenai Hose before continuing to Rocky Mountain House. Her Scottish and Cree ancestry provided her with an education far beyond the times and gave her the skills to be a companion, helper and interpreter for Thompson during much of his travel. David and Charlotte were married 58 years and had thirteen children. They died within three months of each other and are buried in Montreal Quebec.</p> |
| ??   | Roosville, BC                   | David Thompson. Explorer, Geographer, Surveyor. Explorateur, géographe, arpenteur. 1817-1826. Canada – United States – International Boundary. Canada – États-Unis – Frontière internationale.   |
| British Columbia Department of Recreation and Conservation | Moyie Lake (near Cranbrook), BC | THE MAP-MAKER. It was May, 1808, when David Thompson, “the greatest land geographer”, sought a fur-trade route along the opposite shore. Thompson’s route became the busy Walla Walla Trail when gold was discovered in the Kootenays in 1864-64. Over it moved long pack trains from southern Washington to the goldfields. The course Thompson mapped serves us today.   |
| Province of British Columbia                               | Thompson Canyon, BC             | THOMPSON CANYON. Water, cutting deeply into the pre-glacial floor of this valley over countless centuries, has gradually eroded the almost vertical dykes of the mountain of solid rock. The awesome display of crags and cliffs is vivid evidence of the might of the river and the ceaseless power of water at work. In places like this, man sees his true size.  |
| Province of British Columbia                               | Revelstoke Dam, BC              | RIVER OF THE WEST. For 1200 miles, in two countries, the Columbia carves its way to the Pacific Ocean. Named after Robert  |



|  |                         |  |
|--|-------------------------|--|
|  |                         | <p>Gray's ship the "Columbia" &lt; it was first mapped in 1811 by David Thompson. This "highway" for traders, missionaries and gold miners later became a route for sternwheelers. Dammed for flood control and hydro-electric power the river continues to serve the Pacific Northwest.</p>   |
| <p>Archaeological and Historic Sites Board of Ontario (now Ontario Heritage Trust)</p> | <p>Mattawa, ON</p>      | <p>CANOE ROUTE TO THE WEST. Here, when the canoe was the principal means of travel, explorers, voyageurs, missionaries and others bound for the West, left the Ottawa River and followed the Mattawa River to Lake Nipissing, the French River and the upper Great Lakes. For over 200 years the Mattawa River formed part of the route linking the St. Lawrence River settlements with the vast interior of the continent. Among the historic figures who passed here were: Samuel de Champlain, 1615, Jean Nicolet, 1620, fathers Brébeuf, 1626, and Lalement, 1648, Radisson and Groseilliers, 1685, La Vérendrye, 1731, Sir Alexander Mackenzie, 1794, and David Thompson 1812.</p>  |
| <p>Ontario Heritage Trust</p>  | <p>Williamstown, ON</p> | <p>BETHUNE-THOMPSON HOUSE. Built by Loyalist settler Peter Ferguson in 1784, the original log cabin on this site is one of the oldest surviving buildings in Ontario. The cabin walls were constructed using a French Canadian technique called <i>poteaux sur sole</i> where vertically placed, squared logs were held together by horizontal plates located along the top and bottom. The larger home adjoining it was built in 1804 by Reverend John Bethune (1751-1815), the first Presbyterian minister in Upper Canada. This home also incorporated a French Canadian construction technique, <i>colombage pierroté</i>, which used a timber frame filled with masonry rubble. The fireplace overmantle installed by Bethune is one of the few remaining in the province. In 1815 David Thompson (1770-1857) acquired the house and lived here until about 1836. Thompson was an explorer and cartographer who surveyed much of now western Canada and mapped out the Canada-United States border. The house presents a unique architectural and</p> |

|   |                                  |   |
|---|----------------------------------|---|
|   |                                  | historical record of early Ontario.   |
| City of Westminster<br>Grey Coat Hospital<br>Foundation | Westminster<br>(London), England | DAVID THOMPSON 1770-1957. Explored and mapped Canada. Studied at this school 1777-1784. |

## 8.2 Commemorative Monuments

Figure 8.1 shows the Thompson Monument, a 5 foot (1.5 metre) diameter granite ball scribed with lines of latitude and longitude, in Verendrye North Dakota. Thompson “passed near here in 1797 and 1798” while making the first map of North Dakota.

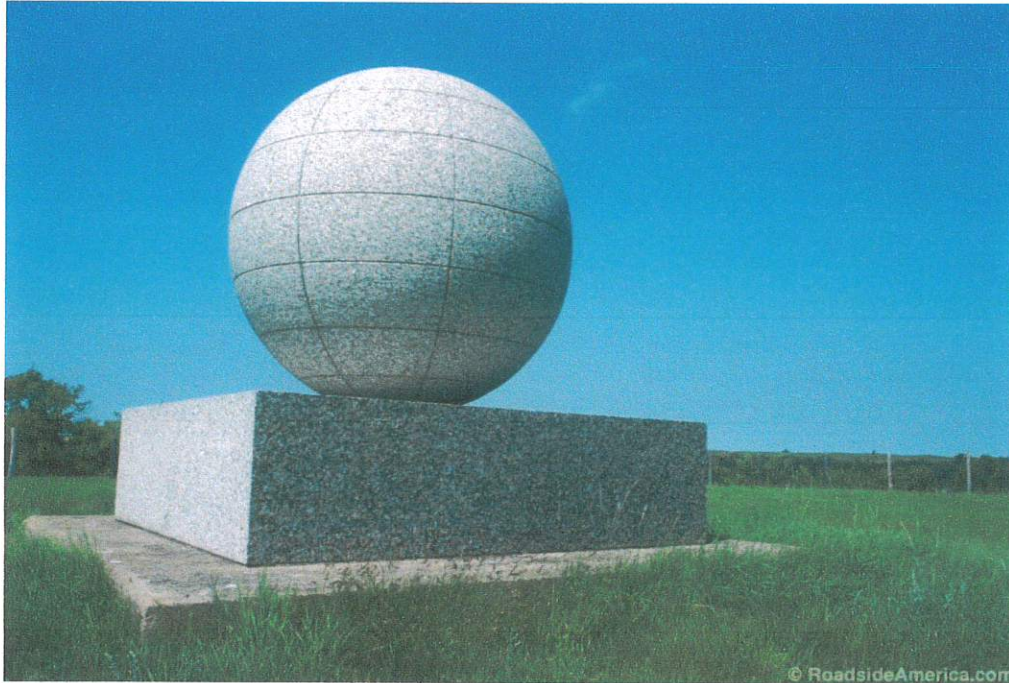


Fig. 8.1: Thompson Monument in Verendrye, North Dakota,  
Source <https://www.roadsideamerica.com/story/11797>, accessed 24 October 2021.

Other monuments are listed in Table 3.

| Location         | Description  | URL   |
|------------------|--|---|
| Lac La Biche, AB | Thompson, standing, in front of two sitting figures in the bow of a canoe “landing on the shores of Lac La Biche at 1:00 p.m., October 4, 1798”. | <a href="http://www.bigthings.ca/alberta/lac-la-biche-statue.html">http://www.bigthings.ca/alberta/lac-la-biche-statue.html</a>                               |
| Sandpoint, ID    | Thompson, kneeling, sighting through his sextant, using his left eye.  | <a href="https://www.roadsideamerica.com/tip/69201">https://www.roadsideamerica.com/tip/69201</a>   |
| Invermere, BC    | Thompson, holding his sextant, and Small stand and gaze skyward.   | <a href="http://wikimapia.org/10612457/David-Thompson-Charlotte-Small-Statue">http://wikimapia.org/10612457/David-Thompson-Charlotte-Small-Statue</a>         |
| Montreal, QC     | Sextant mounted on gravestone in Mount Royal Cemetary. (It has recently been removed)  | <a href="http://www.archives.gov.on.ca/en/explore/online/thompson/map_maker.aspx">http://www.archives.gov.on.ca/en/explore/online/thompson/map_maker.aspx</a> |

### 8.3 Maps by Thompson and Others

#### 8.3.1 Bodega y Quadra's Map of the West Coast of North America, 1791

(valuable because the scale of the area mapped is similar in magnitude to that mapped by Thompson – but coastal)

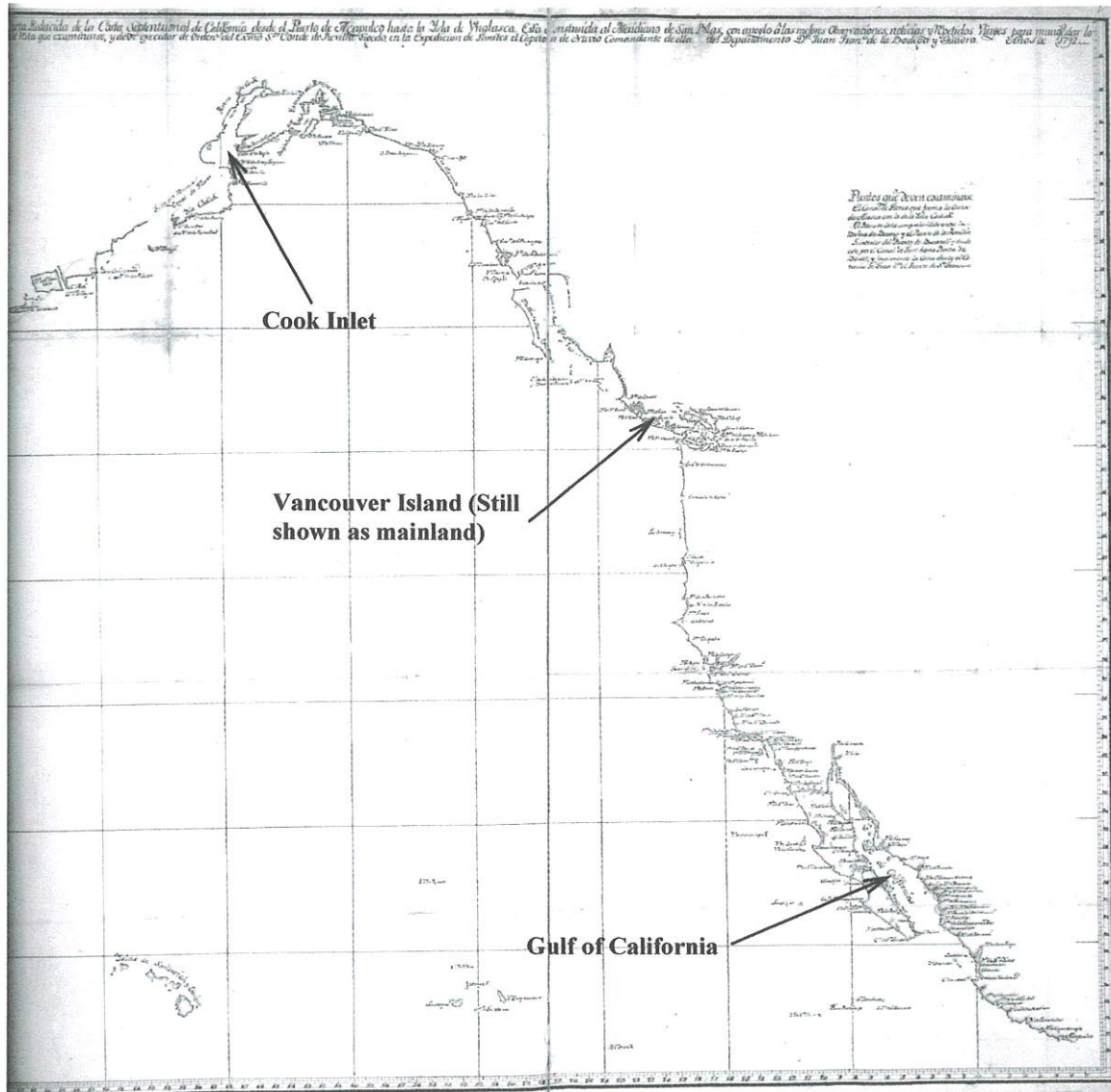


Fig. 8.2:

Turnor used Cook's marine-based map for part of his coastline on his composite map. He would not have had Vancouver's survey results...

### 8.3.2 Vancouver's Summary Map of the West Coast of North America, 1798

(valuable because the scale of the area mapped is similar in magnitude to that mapped by Thompson – but coastal. Thompson used Vancouver's map for the Western shore.)

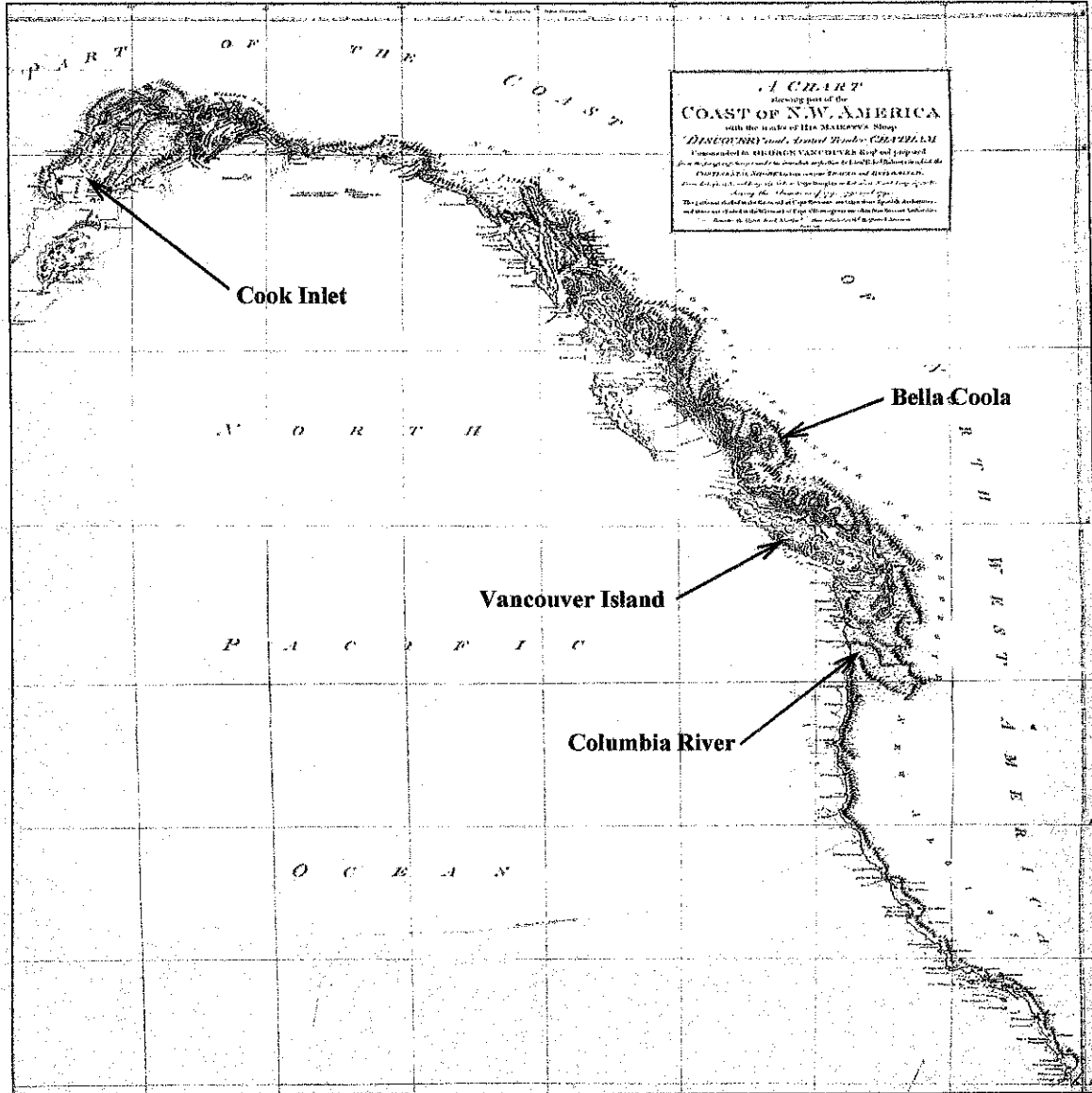


Fig. 8.3:



8.3.3 Mackenzie's A Map of America between the Latitudes 40 and 70 and Longitudes 45 and 130 West, 1801

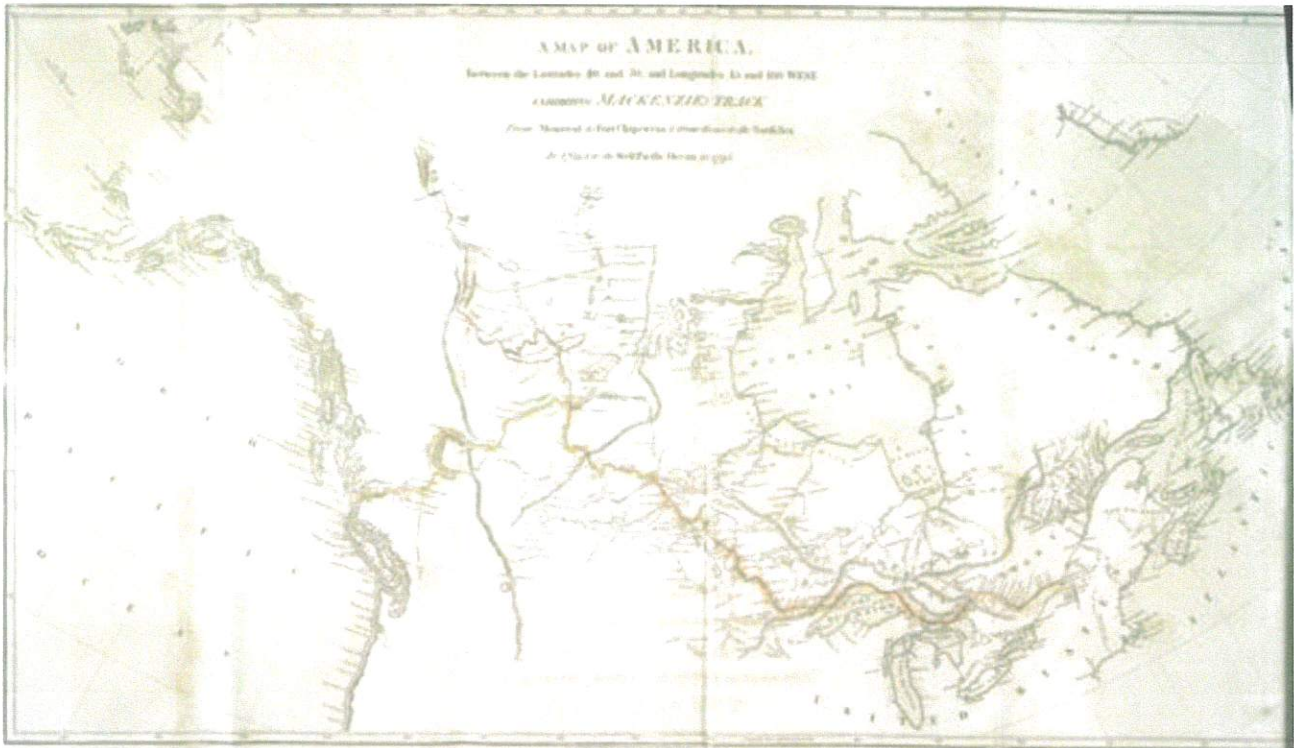


Fig. 8.4 Source: Library and Archives Canada (<https://www.bac-lac.gc.ca/eng/discover/exploration-settlement/pathfinders-passageways/Pages/mapping-northwest.aspx>) accessed 01 August 2021

8.3.4 Section of Thompson's Discovery and Survey of the Oregon Territory to the Pacific Ocean, 1813-14

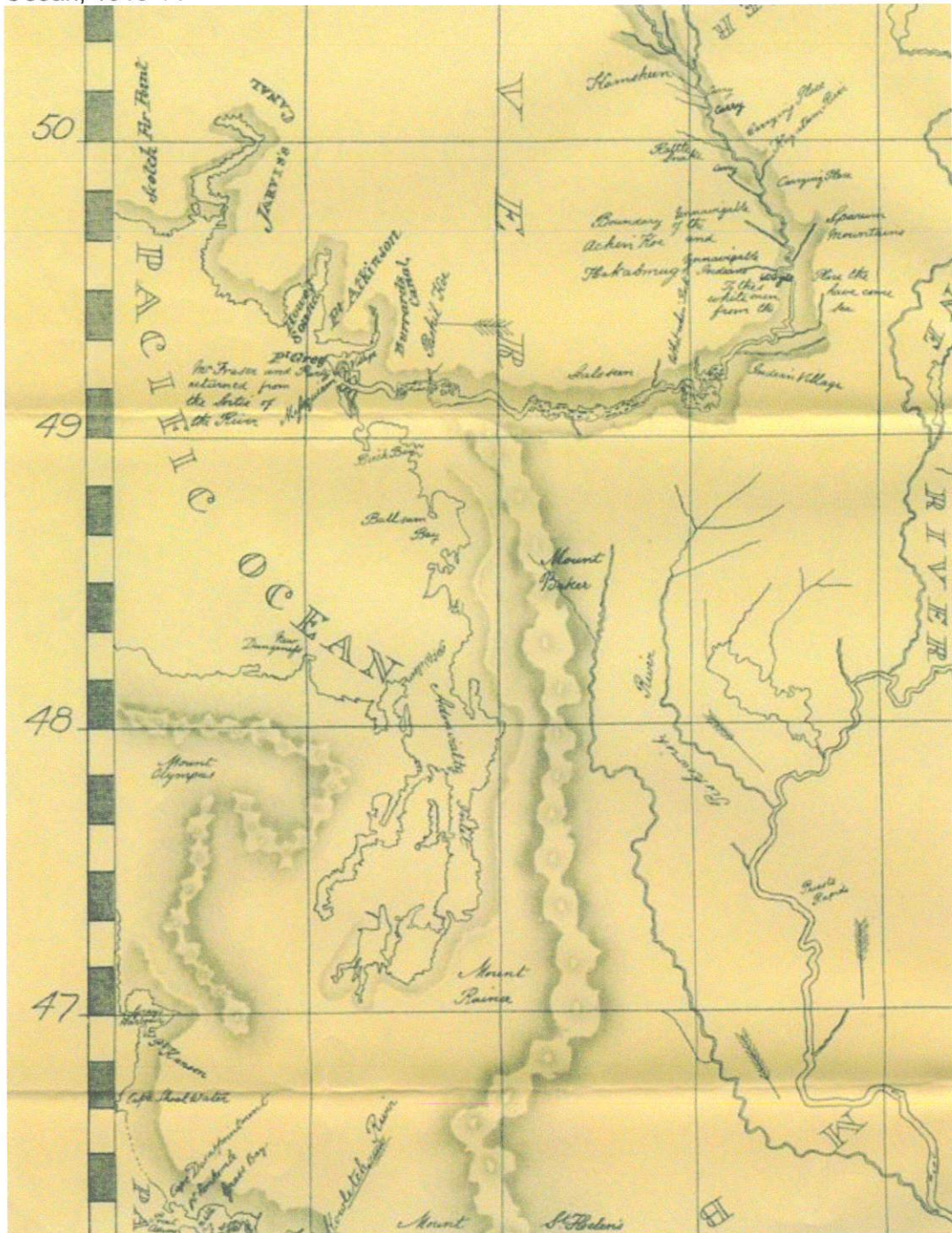


Fig. 8.5:

Add Thompson's Great Map to list.

8.3.4 Turnor's 1874 Composite Map



(The image below is scanned from Barbara Mitchell's *Mapmaker* and should not be used without permission. Perhaps one of the Canadian members of the nominating committee can obtain a digital copy of Turnor's map and permission to use from the Hudson Bay company archives. It would be good to include this as it certainly does approach Thompson's accomplishments.)



Plate 8. Author viewing Turnor's 1794 map for the first time.

XXXIV

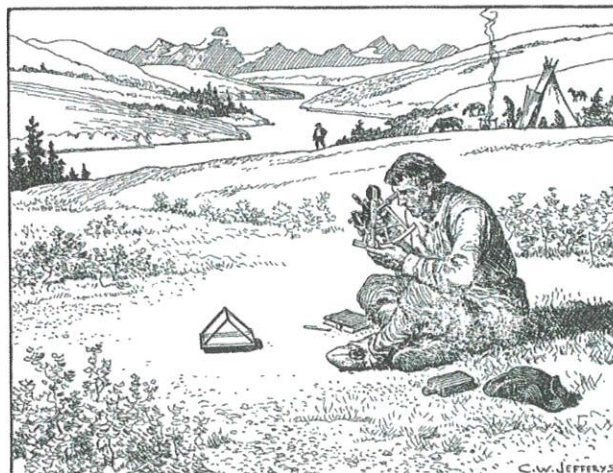
Fig. 8.6.

## 8.4 David Thompson's Surveying Instruments and References

Smyth (1981) lists and describes David Thompson's instruments, as determined from specifications and correspondence held at the Hudson's Bay Company Archives in Winnipeg. Thompson ordered most from Peter Dolland (1730-1820) who established his first optician's shop in the Strand in 1750 and moved it in 1753 to St. Paul's Churchyard. The instruments included:

- Sextant: in August 1790, ordered "a Brass Sextant of not less than 10 Inches Radius, the Index Glass, part blacked, part Quicksilvered with two pair of Red, and one pair of Green shades, the shades be fixed to the instrument. Capable to reading to the 15". Delivered 1791.
- Magnifying Glass: at the same time, he ordered "a good Magnifying Glass to read of the Divisions [on the sextant]."
- Artificial Horizon and Parallel Glasses: "Parallel glasses and quicksilver [mercury] horizon for double Altitudes... Parallel glasses shield mercury pool from wind, allow artificial horizon to be substituted for mariner's natural horizon. Received "pair of Parallel Glasses of 3½ Inches by 3 ½ Inches the foldings to have Brass Hinges, in a neat Shagren Case."

*The famous C. W. Jefferys illustration, Figure 8.5, shows Thompson taking an observation using his sextant and the artificial horizon. He is measuring the angle between a celestial body and its reflection on a plane, level surface and dividing this value by two to determine the declination. The flask near Thompson's right foot contained mercury, which was pooled in the base of the device and shielded from the wind by the inclined glasses to create the reflection plane. Jefferys intentionally shows the measurement being taken some distance from the adjacent camp, to minimize any vibration by people or animals. He also erroneously shows Thompson sighting using his right eye – which was almost blind.*



DAVID THOMPSON TAKING AN OBSERVATION

Figure 8.5: C. W. Jefferys' Illustration of David Thompson Taking an Observation (<https://www.cwjefferys.ca/david-thompson-taking-an-observation>, accessed 18 Sept 2021. Also Library and Archives Canada, Acc. No. 1972-26-1406)



- Telescope: "a four-foot achromatic telescope of high power for observing the Satellites of Jupiter.
- Compass: ordered September 1791 "a Brass Compass as p<sup>r</sup> Boats, cut shoal for taking Azimuths for variation"
- Thermometer: ordered September 1791 "a Farenheit's Thermometer for correcting the refraction on the celestial bodies, which is very erroneous in the winter occasioned by the great density of the air." His first thermometer was " an 8 Inch Farenheits thermometer to 42 degrees below zero" but "in the extreme cold, as the Spirits approached the bulb, it required two or three degrees of cold to make the Thermometer descend one degree: I therefore wrote to Mr. Dollond to make me a large Thermometer divided to upwards of 100 degrees below zero. He sent me a Thermometer of red coloured spirits of wine, divided to 110 degrees below zero." According to Smyth (1981), it was common for English thermometers to malfunction in cold winters of the Northwest.
- Watch: Although James Harrison had invented the first practical chronometer in 1735, these were virtually limited to ship use during Thompson's surveying career (Smyth, 1981). To determine longitude, he instead relied on locally set watches, carrying at least two at all times. Each watch could be accurately set from celestial observation and, if it remained stationary, was reasonably accurate for up to 24 hours. In 1794, he acquired 3<sup>rd</sup> watch made by Joseph Jolly, clockmaker at 11 Dean Street, Fetter Lane, London.
- Quadrant: Thompson brought a quadrant from England he first arrived in Rupert's Land in 1784, but it was never used for surveying.
- Other Instruments: He carried rulers, protractors, drawing compasses, pens, nibs to facilitate his drawing and mapping.

Thompson kept his survey instruments in cork-lined box, which saved them when his canoe was swamped on the Black River in July 1796 (Smyth, 1981).

Thompson also made use of the following references:

- Nautical Almanacs and Requisite Tables: The Almanacs, published annually, accurately quantified the location of the sun, moon, larger planets, satellites of Jupiter, and a number of fixed stars for the days of the coming year. The Requisite Tables provided worked examples to compute latitude and longitude using accurate astronomic observations.
- Robertson's *Elements of Navigation*: Thompson used this text, first published in 1754, "to help him through the complicated tables and mathematics which each astronomic observation for longitude necessitated." (Smyth, 1981)

**9. The recommended citation for HHC consideration.**

Please refer to Section 9 of Nomination Form

**10. A statement of the owner's support of the nomination.**

Need to append owner's support letters here.

**REQUEST FOR ITEM TO BE PLACED ON AGENDA  
THOMPSON FALLS CITY COUNCIL**

I, Rusti Phone # \_\_\_\_\_

request the following item be placed on the agenda for  
the 3-11 2024, City Council Meeting:

Please give a brief description of the item to be discussed,  
approximate time you need and the results you would like to see.

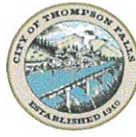
Information: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Time: \_\_\_\_\_

Action: Approve letter to  
NWE to terminate MOW  
a) Wild Goose Landing -

**All agenda requests must be submitted by Noon on  
Wednesday before the Council Meeting.**

# City of Thompson Falls



Mayor

Rusti Leivestad

City Attorney

Timothy Goen

Ward I

Larry Lack

Raoul Ribeiro, Pres.

Ward II

Katherine Maudrone

Earlene Powell

Ward III

Hayley Allen-Blakney, VP

Shawni Vaught

February 20, 2024

Andy Welch  
Hydropower Compliance  
1315 N Last Chance Gulch  
Helena, MT 59601

Dear Mr. Welch,

With this letter, we are giving Northwest Energy notice of our intent to discontinue our contract for O&M activities at Wild Goose Landing Park. While our agreement states 30 days' notice to terminate, our intention is to give you notice effective May 1, 2024.

If you have any questions, please contact me at (406) 827-3557.

Sincerely,

Rusti Leivestad, Mayor  
Thompson Falls

cc:

Kim Bergstrom  
Pinnacle Research



460430

4330

A.23

2017110 ✓

Mark Sheets, Mayor  
City of Thompson Falls  
PO Box 99  
Thompson Falls, MT 59873

October 16, 2017

Dear Mr. Sheets,

I am writing to confirm NorthWestern Energy's continuing relationship with the City of Thompson Falls for operation and maintenance (O&M) of Wild Goose Landing Park.

Since 2003, the City of Thompson Falls has entered into five-year letter agreements with the licensee of the Thompson Falls Project that established payment of annual O&M funding from the Licensee to the City for ongoing operation and maintenance of the Park. Implementation of those agreements successfully achieved O&M objectives, and NorthWestern Energy proposes the letter agreement be renewed for continued O&M of the Park once the current agreement expires on 12/31/2017.

NorthWestern Energy commits to providing annual contributions to the City of Thompson Falls in the amount of \$10,000 in 2018, with annual increases of 2.5% thereafter until the agreement expires. NorthWestern Energy also proposes to extend the period of this agreement from five years to eight years, which will carry the agreement through the end of the current License for the Thompson Falls Project.

Based on these parameters, the following payment schedule is anticipated.

| Effective Date<br>(Jan 1 – Dec 31) | Annual O&M<br>Payment |
|------------------------------------|-----------------------|
| 2018                               | \$ 10,000             |
| 2019                               | \$ 10,250             |
| 2020                               | \$ 10,506             |
| 2021                               | \$ 10,769             |
| 2022                               | \$ 11,038             |
| 2023                               | \$ 11,314             |
| 2024                               | \$ 11,597             |
| 2025                               | \$ 11,887             |

Under this agreement, the City of Thompson Falls will provide necessary supplemental funding to maintain mutually acceptable operation and upkeep of the Park.

NorthWestern Energy funds contributed to the City of Thompson Falls under this agreement will be used exclusively for O&M activities at Wild Goose Landing Park, including appropriate efforts to maintain and repair capital investments. Unspent funds in one year may be carried over within the City of Thompson Falls budget and used for Wild Goose Landing Park O&M in a subsequent year. The City of Thompson Falls will leverage these funds with other funding sources whenever possible, including but not limited to work performed by volunteers and cooperating on projects with local groups.

Annual funds will be available in February of each year. The City of Thompson Falls will invoice NorthWestern Energy for annual funds, and will provide an accounting of expenditures of funds and summary of O&M activities at the park. NorthWestern Energy budgeting does not allow year-to-year carry-over of funds. Therefore, invoicing for the annual contribution from the City of Thompson Falls to NorthWestern Energy must occur within the year that payment is due. City of Thompson Falls invoices and accounting/activity reports should be sent to:

Andy Welch, Leader  
Hydropower License Compliance  
1315 N Last Chance Gulch  
Helena, MT 59601  
andrew.welch@northwestern.com

with copy to: Kim Bergstrom  
Pinnacle Research  
13 High Meadow Rd  
Plains, MT 59859  
pinnacle@blackfoot.net

This letter agreement is revocable at any time by NorthWestern Energy or the City of Thompson Falls with 30 days notice in writing to the other party. NorthWestern Energy will work with the City of Thompson Falls to ensure that all O&M obligations are implemented in a manner consistent with NorthWestern Energy's FERC license for the Thompson Falls Project.

If you agree with the terms in this letter, please sign both copies for the City of Thompson Falls and return both to me for my signature. I will sign and return one of the two original copies to you.


If you have any questions or wish to discuss this agreement further, please contact me at (406) 565-7549.


Sincerely,

Andy Welch  
Leader, Hydropower License Compliance

For NorthWestern Energy

For City of Thompson Falls

  
Andy Welch, Leader  
Hydro Licensing and Compliance

  
Mark Sheets, Mayor  
City of Thompson Falls

10906  
4.16

100-100  
75.30  
A.9  
2023/12

**After Recording Return to:**  
NorthWestern Energy  
Attn: Lands & Permitting  
11 East Park Street  
Butte, MT 59701

**EASEMENT AGREEMENT  
(Recreation Site)**

This Easement Agreement ("Easement") is entered into this 11 day of December 2023 by and between the City of Thompson Falls of 108 Fulton Street, Thompson Falls, Montana, 59873 (the "City") and NorthWestern Corporation, a Delaware Corporation, d/b/a NorthWestern Energy, of 11 East Park Street, Butte, Montana 59701 ("NorthWestern") and provides as follows:

**recitals**

1. The City is the owner of certain real property located in Sanders County, Montana, which is more particularly described as follows:

All that portion of Block 14, and Gov't Lot 1, between the railroad r/w and the high water line of the Thompson Falls Reservoir described as follows:

Beginning at the northwest corner of Block 14 of the Thompson Falls Townsite, thence S18°33'W, along said boundary of said townsite 122.84' to the high water line of the Thompson Falls Reservoir; thence along said high water line the following courses: S79°07'16"E, 167.41; N75°34'31"E, 74.88; N85°57'16"E, 319.55; N83°02'43"E, 176.62, to the southerly r/w line of Montana Rail Link Railroad; thence along said r/w, on a 5930.0' radius curve, curving to the right, a chord bearing of N82°57'28"W, 697.18' to the point of beginning and containing 1.141 acres.

As depicted on Certificate of Survey No. 1095, on file in the office of the Clerk and Recorder of Sanders County (the "Real Property").

2. NorthWestern owns and operates the Thompson Falls Hydroelectric Project P-1869 (the "Thompson Falls Project") pursuant to a license issued by the Federal Energy Regulatory Commission ("FERC").
3. NorthWestern desires to acquire an easement over the Real Property, as depicted in Exhibit "A" (the "Easement Area") for the purpose of developing and operating a

recreation site as an enhancement to the Thompson Falls Project as is further described and on the terms as set out in this Easement.

4. The City is willing to grant as easement over the Easement Area for the purposes and on the terms as set out in this Easement.

#### Agreement

Now therefore, for \$1.00 and other good and valuable consideration, the receipt and sufficiency of which consideration is hereby acknowledged, the City and NorthWestern agree as follows:

1. **Easement Grant.** The City hereby grants unto NorthWestern, for its benefit, and that of its successors and assigns, a perpetual easement, over, under, along and across the Easement Area for the purpose of developing and operating a recreation site for the enhancement to the Thompson Falls Project.
2. **Use of Easement.** The Easement is granted in order to permit NorthWestern to develop, operate, maintain, repair and replace a recreation site, commonly known as Wild Goose Landing Park, under its license for the Thompson Falls Project. The Easement Area may consist of access roads, parking areas, trails, picnic tables, docks, boat launch facilities, restroom facilities, signage, utilities and other related amenities or services, as NorthWestern may deem appropriate. The Parties further agree the recreation site shall be open to the public, at such times and on such conditions as NorthWestern may determine.
3. **Nature of Easement.** The Parties mutually agree the Easement granted is continuing in nature and shall run with the title to the Real Property.
4. **Improvements.** NorthWestern agrees that it will provide for the improvement, maintenance and repair of the recreation site to be developed upon the Easement Area at its own cost and expense.
5. **Indemnification.** NorthWestern shall indemnify, defend and hold harmless the City, its officers, and employees, from and against any actions, claims, damages, losses, liabilities, costs or expenses, including reasonable attorney's fees, which Landowner may incur, or which may be asserted against it, arising by reason of, (i) NorthWestern's or its agents', employees', or contractors' negligent or intentional acts or omissions in developing and operating the recreation site on the Easement Area, and (ii) NorthWestern's breach of, or failure to perform, any of its obligations under this Easement. Provided, NorthWestern shall not be liable under this Easement, whether for indemnification or otherwise, to the City, or any third parties, for the existing environmental condition of the Real Property or for the negligent or intentional acts or omissions of the City. In that regard, the City shall indemnify, defend and hold harmless NorthWestern, its shareholders, directors, officers, employees and contractors, from and against any actions, claims, damages, losses,



liabilities, costs or expenses, including reasonable attorney's fees, which NorthWestern may incur, or which may be asserted against it, arising by reason of the environmental condition of the Real Property, the presence of any hazardous substances thereon, and the negligent or intentional acts or omissions of the City.

6. General Terms.

- a. **Severability.** Invalidation of any one or more of the terms of this Easement by judgment or court order shall in no way affect any other provisions, which shall remain in full force and effect.
- b. **Amendment.** This Easement may only be amended, changed, modified or terminated by the signed written consent of all the Parties hereto, their heirs, successors or assigns.
- c. **Attorney's Fees.** In the event either Party finds it necessary to employ counsel in order to enforce any term or provision of this Easement, the prevailing Party shall be entitled to recover from the other Party in addition to costs and disbursements allowed by law, the prevailing Party's reasonable attorney's fees. Attorney's fees shall include any attorneys services rendered prior to the institution of litigation and include all matters pertaining to litigation as may be necessarily incurred in such proceedings and shall include an estimate of the attorneys' fees to be incurred by the prevailing Party following any initial decision or judgment entered in connection with that matter.
- d. **Controlling Law.** This Easement shall be governed and construed in accordance with the laws of the State of Montana.
- e. **Recording.** The Parties understand and agree that this Easement shall be recorded in Sanders County, Montana. The cost of recording this Easement and/or any changes or amendments thereto shall be paid by NorthWestern.

City of Thompson Falls

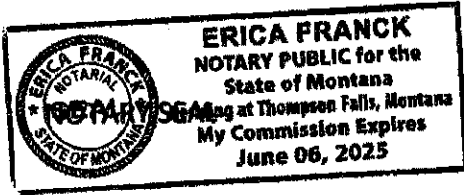
By: *Paul A. Lewis*  
Its: *Mayor*

NorthWestern Corporation  
A Delaware Corporation  
d/b/a NorthWestern Energy

By: \_\_\_\_\_  
Its: \_\_\_\_\_

STATE OF Montana )  
 )ss  
COUNTY OF Sanders )

On this 17<sup>th</sup> day of Dec, 2023, before me, a Notary Public for the State of Montana personally appeared Rust Leivestad known to me to be the Mayor of City of Thompson Falls.



Eric Franck  
Printed Name: Eric Franck  
Notary Public for the State of Montana  
Residing at: Thompson Falls  
My Commission Expires: 06/06/25

STATE OF MONTANA )  
 )ss  
COUNTY OF \_\_\_\_\_ )

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, before me, a Notary Public for the State of Montana, personally appeared \_\_\_\_\_, known to me to be the \_\_\_\_\_ of NorthWestern Corporation, A Delaware Corporation, d/b/a NorthWestern Energy.

NOTARY SEAL

\_\_\_\_\_  
Printed Name: \_\_\_\_\_  
Notary Public for the State of Montana  
Residing at: \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_



**REQUEST FOR ITEM TO BE PLACED ON AGENDA  
THOMPSON FALLS CITY COUNCIL**

I, Rusti Phone # \_\_\_\_\_

request the following item be placed on the agenda for  
the 3-11 2024, City Council Meeting:

Please give a brief description of the item to be discussed,  
approximate time you need and the results you would like to see.

Information: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Time: \_\_\_\_\_

Action: Letter of support - water  
shed plan

\_\_\_\_\_

**All agenda requests must be submitted by Noon on  
Wednesday before the Council Meeting.**



# City of Thompson Falls



Mayor

Rusti Leivestad

City Attorney

Timothy Goen

Ward I

Larry Lack  
Raoul Ribeiro, Pres.

Ward II

Katherine Maudrone  
Earlene Powell

Ward III

Hayley Allen-Blakney, VP  
Shawni Vaught

March 11, 2024

USFS Lolo National Forest or Thompson Falls/Plains Ranger District

The City of Thompson Falls Public Water System continues to rely on the Ashley Creek Springs to supply the majority of their public drinking water supply. In the past, the Ashley Creek Municipal Watershed Planning efforts within the 1984 US Lolo Forest Plan has maintained a high-quality water level of Ashley Creek Springs used by the City of Thompson Falls Public Water System. Source water used for drinking water supplies with high-water quality levels have reduced operational treatment requirements under the EPA Safe Drinking Water Act Rules. The City's current water infrastructure is designed for the high-quality water in Ashley Creek Springs. Any changes in the level of water quality in the springs may require the City to add further treatment.

The City of Thompson Falls supports the continuation of the watershed management planning for water quality within the Draft 2024 USFS Forest Plan **Appendix 4 (page A4-1): Priority Watersheds and Conservation Network; Chapter 5 (page A4-14) – Municipal Watersheds and Source Water Protection Areas**

Sincerely,

Rusti Leivestad, Mayor  
Thompson Falls

## City of Thompson Falls current Public Water Supply:

**Ashley Springs (SP007)** supplies a majority of the city's water year-round

**Additional sources:** Augment spring source supply year-round

**PWS Well #3 (WL005)** has been in operation since 2000 and is drilled at a depth of 201'.

**PWS Well #4 (WL006)** was completed in 2000 and is drilled to a depth of 195'.

PWS Well #1 and #2 were taken off-line and physically removed from the PWS infrastructure in 2002.

In 1984, MT Surface Water Quality Standards classification of waters within the Ashley Creek Watershed rated as A-Closed and B-1. Water with these classifications is suitable for drinking, culinary and food processing after disinfection (A-Closed) and conventional treatment (B-1). Each of these standards require certain criteria to be met or in place in order to maintain the high-water quality standard classifications. The 1984 Lolo Forest Plan, identified Ashley Creek as a municipal drinking water supply for the City of Thompson Falls and developed the Ashley Creek Watershed Plan with protective management measures to maintain the water quality standards. The Watershed Plan outlines protective management strategies of the watershed to maintain water quality to meet the State standards. High quality sources of water used for drinking water supplies require less treatment and result in lower operational treatment costs for municipalities.

With the 2024 update of the USFS Plan, the USFS has included continuing protective management of the Ashley Creek Watershed within **Appendix 4 (page A4-1): Priority Watersheds and Conservation Network; Chapter 5 (page A4-14) – Municipal Watersheds and Source Water Protection Areas** – the management planning details within these watersheds are described in this section. In **Table A4-8 (page A4-16) Municipal and source water protection designated areas on the Lolo National Forest** - Ashley Creek is identified as the municipal source for the City of Thompson Falls. The MT Water Quality Standards for waters within Ashley Creek Watershed remain classified as Class A-1 and B-1. **The USFS management of the Ashley Creek Watershed for water quality has maintained the A-1 and B-1 classification standards which continues to keep the Ashley Creek Springs a high-quality source of water with low treatment requirements for drinking water purposes used by the City of Thompson Falls.**

# Appendix 4: Priority Watersheds and Conservation Watershed Network

## Contents

|   |    |
|---|----|
| 1. Introduction.....  | 1  |
| 2. Watershed Condition Framework and Priority Watersheds.....   | 2  |
| 3. Conservation Watershed Network .....                         | 5  |
| 4. Restoration of Impaired Waterbodies .....                    | 13 |
| 5. Municipal Watersheds and Source Water Protection Areas ..... | 14 |
| 6. Literature Cited .....                                       | 17 |

## 1. Introduction

One of the original purposes for establishing the National Forest System (NFS) was to protect our Nation's water resources. The 2012 Planning Rule includes a set of requirements associated with maintaining and restoring watersheds and aquatic ecosystems, water resources, and riparian areas in the planning area. The increased focus on watersheds and water resources in the 2012 Planning Rule reflects the importance of this natural resource, and the commitment to stewardship of our waters. As such, the Lolo National Forest (NF) developed an aquatic conservation strategy to address watersheds and water resources on the Forest.

The 2012 Planning Rule requires that land management plans identify watersheds that are a priority for restoration and maintenance. The 2012 Planning Rule requires these plans to include components to maintain or restore the structure, function, composition, and connectivity of aquatic ecosystems and watersheds in the planning area, considering potential stressors, including climate change, and how they might affect ecosystem and watershed health and resilience. Plans are required to include components to maintain or restore water quality and water resources, including public water supplies, groundwater, lakes, streams, wetlands, and other bodies of water. In addition, the 2012 Planning Rule requires that the Forest Service (FS) establish best management practices for water quality and that land management plans ensure implementation of those practices.

Land management plans are also required to include direction to maintain and restore the ecological integrity of riparian areas. The Lolo NF revised plan would maintain riparian areas through riparian management zones, and related components. This direction would also help protect native fish and further strengthen plan components for the conservation watershed network.

This appendix includes 4 sections. The first section describes the watershed condition framework (WCF). The watershed condition framework is a national protocol used to identify priority watersheds, develop watershed restoration action plans, and implement projects to maintain or restore conditions in those priority watersheds. The second section describes the conservation watershed network (CWN), which is designed to provide long-term protection, connectivity, and survival of native fish. Additional sections

describe the restoration of impaired waterbodies on the state 303(d) list that have completed total maximum daily loads (also referred to as TMDLs), municipal watersheds, and Source Water Protection Act areas. Maps of priority watersheds and the conservation watershed network are provided in appendix 1.

## 2. Watershed Condition Framework and Priority Watersheds

The restoration of watersheds and forest health is a core management objective for national forests and grasslands. The FS is directed to restore degraded watersheds by strategically focusing investments on watershed improvement projects and conservation practices at landscape and watershed scales. The watershed condition framework is a comprehensive approach for classifying watershed condition, proactively implementing integrated restoration in priority watersheds on national forests and grasslands and tracking and monitoring outcome-based program accomplishments for performance accountability.

The 2012 Planning Rule requires revised plans identify watershed(s) that are a priority for maintenance or restoration as “other required content” in the land management plan (36 CFR 212.7(f)(1)(ii)) to focus effort on the integrated restoration of watershed conditions in these areas. The Lolo NF used the National Watershed Condition Framework to identify priority watersheds. As priority areas for restoration activities could change quickly due to natural disturbances (e.g., wildfire), the identification of priority watersheds is included as other required content rather than as a required plan component. This allows for an administrative change to the plan to be used when necessary to quickly respond to changes in priorities.

In 2011, sixth-level watersheds (typically 10,000 to 40,000 acres) across all NFS lands were classified using the National Watershed Condition Framework. This framework was designed to be a consistent, comparable, and credible process for improving the health of watersheds across all NFS lands. The first step was to rate the watershed condition of each watershed, utilizing existing data, knowledge of the land, and professional judgment. Watersheds were rated using a set of indicators of geomorphic, hydrologic, and biotic integrity relative to potential natural condition. The ratings are entered into a computer database, which generates an overall rating for each watershed. The results are also used to create a watershed condition class map.

Geomorphic functionality or integrity is defined in terms of attributes such as slope stability, soil erosion, channel morphology, and other upslope, riparian, and aquatic habitat characteristics. Hydrologic functionality or integrity relates primarily to flow, sediment, and water-quality attributes. Biological functionality or integrity is defined by the characteristics that influence the diversity and abundance of aquatic species, terrestrial vegetation, and soil productivity.

In each case, integrity is evaluated in the context of the natural disturbance regime, geoclimatic setting, and other important factors within the context of a watershed. The definition encompasses both aquatic and terrestrial components because water quality and aquatic habitat are inseparably related to the integrity and functionality of upland and riparian areas within a watershed. The three watershed condition classes are directly related to the degree or level of watershed functionality or integrity:

- Class 1—functioning properly: watersheds exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.



- Class 2—functioning-at-risk: watersheds exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.
- Class 3—impaired function: watersheds exhibit low geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

In this framework, a watershed is considered in good condition if it is functioning in a manner similar to one found in natural wildland conditions (Karr and Chu 1999), (Lackey 2001). This characterization should not be interpreted to mean that managed watersheds cannot be in good condition. A watershed is “functioning properly” if the physical attributes are appropriate to maintain or improve biological integrity. This consideration implies that a Class 1 watershed in properly functioning condition has minimal undesirable human impact on natural, physical, or biological processes and is resilient and able to recover to the desired condition when or if disturbed by large natural disturbances or land management activities (Yount and Niemi 1990). By contrast, a class 3 watershed has impaired function because some physical, hydrological, or biological threshold has been exceeded. Substantial changes to the factors that caused the degraded state are commonly needed to set them on a trend or trajectory of improving conditions that sustain physical, hydrological, and biological integrity. Defining specific classes for watershed condition is obviously subjective and, therefore, problematic for several reasons. First, watershed condition is not directly observable (Suter II 1993). In nature, no distinct lines separate a watershed that is functioning properly from impaired condition, and every classification scheme is arbitrary to some extent. Second, watershed condition is a mental construct that has numerous definitions and interpretations in the scientific literature (Lackey 2001). Third, the attributes that reflect the state of a watershed are continually changing because of natural disturbances (e.g., wildfire, landslides, floods, insects, and disease), natural variability of ecological processes (e.g., flows and cycles of energy, nutrients, and water), climate variability and change, and human modifications.

The Lolo NF manages at least 5% of the land area within 170 subwatersheds (HUC12) in the Pend Orielle subbasin. The Lolo NF most recently completed the watershed condition framework analysis in 2023 and identified the following watershed condition classes:

- 51 subwatersheds were rated as functioning properly.
- 99 subwatersheds were rated as functioning at risk.
- 18 subwatersheds were rated as impaired.

The above totals include two subwatersheds (East Fork North Fork Blackfoot River and Rock Creek (a tributary to the North Fork Blackfoot River)) that were evaluated by the Helena Lewis Clark National Forest (as they manage a larger portion of the subwatershed area).

Additionally, two subwatersheds (Belmont Creek, and Lower Gold Creek), were not evaluated by the Lolo NF (the BLM is the predominant federal land manager).

Overall, the biggest sources of impairment were aquatic biota, road and trails, and aquatic habitat condition.

Table A4.1 is a summary of watershed condition classes by geographic area (GA).

**Table A4.1—Number of HUC12 subwatersheds rated in each condition class using the watershed condition framework**

| Geographic area            | Class 1   | Class 2   | Class 3   | Total      | Percent rated as Class 3 |
|----------------------------|-----------|-----------|-----------|------------|--------------------------|
| Clearwater Upper Blackfoot | 16        | 9         | 1         | 26         | 4                        |
| Greater Missoula           | 5         | 9         | 2         | 16         | 13                       |
| Lolo Creek                 | 1         | 2         | 6         | 9          | 67                       |
| Lower Clark Fork           | 16        | 27        | 3         | 46         | 7                        |
| Middle Clark Fork          | 5         | 18        | 1         | 24         | 4                        |
| Ninemile/Petty Creek       | 2         | 12        | 2         | 16         | 13                       |
| Rock Creek                 | 6         | 11        | 1         | 18         | 6                        |
| St Regis                   | 0         | 11        | 2         | 13         | 15                       |
| <b>Total</b>               | <b>51</b> | <b>99</b> | <b>18</b> | <b>168</b> | <b>11</b>                |

The next step of the watershed condition framework uses the watershed condition class data to prioritize watersheds for restoration, develop watershed restoration action plans and implement projects to maintain or restore conditions in priority watersheds. Currently, six priority watersheds in the planning area have planned or ongoing restoration work occurring. Restoration work is currently underway in priority watersheds East Fork Lolo Creek, West Fork Lolo Creek, Granite Creek (a Lolo Creek tributary), Upper Petty Creek, Lower Petty Creek, and Cottonwood Creek (Town of Woodworth) watersheds. Watershed restoration action plans are attached to the priority watersheds within the interactive map at: <https://usfs.maps.arcgis.com/apps/MapSeries/index.html?appid=f4332e5b80c44874952b57e1db0b4407>.



Current priority watersheds on the Lolo NF are displayed in Table A4.2. Maps are provided in Appendix 1 of the proposed action. Future priority watersheds will be determined throughout the life of the plan, usually on a 10-year rotation.

**Table A4.2—Current (2023) watershed condition framework priority watersheds on the Lolo NF<sup>1</sup>**

| Subwatershed Name (HUC12)            | Geographic Area            | Attributes rated at risk in WCF assessment    | Overlapping priorities and partnerships   |
|--------------------------------------|----------------------------|---|---|
| West Fork Lolo Creek                 | Lolo Creek                 | Water quality, roads/trails. Forest cover     | Montana Department of Fish, Wildlife, and Parks, Montana Department of Environmental Quality, Clark Fork Coalition, Missoula County Resource Advisory Committee |
| East Fork Lolo Creek                 | Lolo Creek                 | Riparian, roads/trails                        | None currently identified   |
| Granite Creek                        | Lolo Creek                 | Water quality, roads/trails                   | None currently identified   |
| Upper Petty Creek                    | Ninemile/Petty Creek       | Aquatic biota                                 | Montana Fish, Wildlife, and Parks, Trout Unlimited, Montana Department of Environmental Quality   |
| Lower Petty Creek                    | Ninemile/Petty Creek       | Aquatic biota, water quality, aquatic habitat | None currently identified   |
| Cottonwood Creek "Town of Woodworth" | Clearwater Upper Blackfoot | Aquatic habitat                               | None currently identified   |

<sup>1</sup>Potential future priority watershed condition framework watersheds will be determined throughout the life of the Plan.

The identification of future priority watersheds will be determined based on the restoration need for the watershed, focusing on improving SCS habitat (primarily bull trout habitat), and for water quality limited and 303d listed waterbodies. Also taken into consideration will be other interested parties (other federal, state, and local entities as well as interest groups) and potential partner funding priorities like Montana Fish, Wildlife, and Parks, or the Environmental Protection Agency’s Comprehensive Environmental Response, Compensation, and Liability Act fund. Future priority watershed identification will also consider opportunities for alignment with vegetation management needs to align with other funding sources for implementing the restoration work.

Benefits from implementing the watershed condition framework are as follows:

- Strengthens the effectiveness of FS watershed restoration.
- Establishes a consistent, comparable, credible process for determining watershed condition class.
- Enables a priority-based approach for the allocation of resources for restoration.
- Improves FS reporting and tracking of watershed condition.
- Enhances coordination with external agencies and partners.

### 3. Conservation Watershed Network

A conservation watershed network is a designated collection of watersheds where management emphasizes habitat conservation and restoration to support native fish and other aquatic species. The conservation watershed network is a specific subset of HUC12 subwatersheds where Forest management is prioritized to conserve and restore water quality and improving habitat conditions for native bull trout and the healthiest populations of westslope cutthroat trout. The primary goal of the network is to sustain

the integrity of key aquatic habitats to maintain long-term persistence of native aquatic species. The conservation watershed network will replace the existing INFISH priority watershed network.

Designation of a conservation watershed network, which should include watersheds that are already in good condition or could be restored to good condition, are expected to protect native fish and help maintain healthy watersheds and river systems. Aquatic restoration and conservation actions will be focused within the CWN, with a focus on improvements, relocation, decommissioning and storage of roads and trails, aquatic passage barrier removals, and instream, riparian habitat and soil improvements. Quantified objectives for these activities will be established as plan components.

Selection criteria for inclusion should help identify those watersheds that have the capability to be more resilient to ecological change and disturbance induced by climate change. For example, watersheds containing unaltered riparian vegetation will tend to protect streambank integrity and moderate the effects of high stream flows. Rivers with high connectivity and access to their floodplains will experience moderated floods when compared to channelized and disconnected stream systems. Wetlands with intact natural processes slowly release stored cooler water during summer warm and dry periods, whereas impaired wetlands are likely less effective retaining and releasing water over the season. For all these reasons, conservation watershed networks represent the best long-term conservation strategy for native fish and their habitats.

Many watersheds on the Forest that support the healthiest populations of native trout already have their headwaters protected through NFS lands managed as inventoried roadless areas, Congressionally designated wilderness, or as wild and scenic rivers. These special places are the building blocks of a conservation network as naturally functioning headwaters have a large influence on the function of downstream stream reaches.

At the broadest of scale considerations, information in USFWS's bull trout recovery plan was reviewed to help place habitat and core populations located within the Lolo NF in context with recovery needs of the species across its range in the western United States.

For recovery units like the Columbia Headwaters, the recovery plan strategy states, "A viable recovery unit should demonstrate that the three primary principles of biodiversity have been met: representation (conserving the breadth of the genetic makeup of the species to conserve its adaptive capabilities); resilience (ensuring that each population is sufficiently large to withstand stochastic events); and redundancy (ensuring a sufficient number of populations to provide a margin of safety for the species to withstand catastrophic events)."

Specific criteria used to select the conservation watershed network include subwatersheds that contain one of these ecological features, assessed at multiple scales across the Pend Orielle River Basin:

- Bull trout spawning/rearing habitat (using MFWP fish distribution GIS spatial database, combined with USFWS GIS data for critical habitat).
- Genetically intact and robust populations of native westslope cutthroat trout (using MFWP fish distribution GIS spatial database).
- Predicted to remain cold enough to support bull trout or westslope cutthroat trout into the future (2040). These habitat patches were identified using Isaak et al. (2018) updated.
- Provide habitat for SCC aquatic species (Idaho giant salamander, and western pearlshell mussel).



- Provide connectivity between the above groups, and the large river network which is designated as bull trout foraging/migration/overwintering critical habitat.

The conservation watershed network will guide management when working, or proposing work, in an area that would include any of the conservation watershed networks, listed below (Table A4.3). The conservation watershed network alone does not directly authorize any management action but instead guides prioritization of restoration actions within a project area boundary.

To focus on the conservation of aquatic species, as well as the individual species with federal status, conservation watershed networks have been separated into three priorities. Watersheds with federally listed threatened and endangered species habitat are the first priority. The second priority are watersheds with Montana native fish habitat that is degrading through hybridization and availability, and the third priority are watersheds with areas of impacted water quality and quantity potentially influencing degraded habitat conditions.

Table A4.3 displays the 93 subwatersheds that will be part of the conservation watershed network in the proposed action for the Lolo National Forest's revised plan. These subwatersheds represent 55% of the 168 HUC12 subwatersheds that have areas managed by the Lolo NF. Table A4.4 defines the rating criteria codes for the bull trout, westslope cutthroat trout, and cold water refugia rating conservation watershed network factors.

**Table A4.3—Conservation watershed network subwatersheds on the Lolo NF**

| HUC8 Name        | HUC 12 Name    | HUC12        | CWN abundance and genetic integrity summary rating | CWN cold water refugia rating | Secondary factors considered |
|------------------|----------------|--------------|--|-------------------------------|------------------------------|
| Rock/Flint Creek | Tyler          | 170102020611 | BT0 WCT1   | BT0 WCT1                      | None                         |
| Rock/Flint Creek | Williams Gulch | 170102021205 | BT3 WCT2   | None                          | Connectivity                 |
| Rock/Flint Creek | Wyman Gulch    | 170102021206 | BT1 WCT1   | BT0 WCT1                      | None                         |
| Rock/Flint Creek | Hogback        | 170102021207 | BT2 WCT2   | None                          | None                         |
| Rock/Flint Creek | Hutsinplar     | 170102021208 | BT3 WCT2   | None                          | Connectivity                 |
| Rock/Flint Creek | Alder          | 170102021209 | BT1 WCT1   | None                          | None                         |
| Rock/Flint Creek | Wahlquist      | 170102021210 | BT3 WCT3   | BT0 WCT1                      | Connectivity                 |
| Rock/Flint Creek | Ranch          | 170102021301 | BT1 WCT1   | BT2 WCT1                      | None                         |
| Rock/Flint Creek | Welcome        | 170102021302 | BT1 WCT1   | BT0 WCT1                      | None                         |
| Rock/Flint Creek | Cinnamon Bear  | 170102021303 | BT1 WCT1   | None                          | None                         |
| Rock/Flint Creek | Kitchen Gulch  | 170102021306 | BT3 WCT3   | BT0 WCT1                      | Connectivity                 |
| Rock/Flint Creek | Ryan           | 170102021402 | BT3 WCT1   | None                          | None                         |

| HUC8 Name        | HUC 12 Name              | HUC12        | CWN abundance and genetic integrity summary rating | CWN cold water refugia rating | Secondary factors considered                            |
|------------------|--------------------------|--------------|--|-------------------------------|---|
| Rock/Flint Creek | Wallace                  | 170102021404 | BT3 WCT1   | BT0 WCT1                      | None  |
| Rock/Flint Creek | Donovan                  | 170102021405 | BT3 WCT1   | None                          | None  |
| Blackfoot River  | Canyon                   | 170102030501 | BT0 WCT1   | BT1 WCT0                      | None  |
| Blackfoot River  | Cabin                    | 170102030502 | BT3 WCT1   | BT0 WCT1                      | None  |
| Blackfoot River  | Dry Fork NF Blackfoot R. | 170102030503 | BT3 WCT1   | BT1 WCT0                      | None  |
| Blackfoot River  | EF NF Blackfoot R.       | 170102030603 | BT0 WCT3   | BT2 WCT1                      | Co-managed with HLC NF (5% Lolo), HLC designated as CWN |
| Blackfoot River  | Up. NF Blackfoot R.      | 170102030604 | BT1 WCT3   | BT1 WCT1                      | None  |
| Blackfoot River  | Lake                     | 170102030701 | BT0 WCT3   | BT2 WCT1                      | Cold water to downstream populations                    |
| Blackfoot River  | Mid. NF Blackfoot R.     | 170102030702 | BT1 WCT3   | None                          | None  |
| Blackfoot River  | Low. NF Blackfoot R.     | 170102030706 | BT1 WCT3   | None                          | None  |
| Blackfoot River  | Up. Monture              | 170102030801 | BT1 WCT1   | BT1 WCT0                      | None  |
| Blackfoot River  | Dunham                   | 170102030802 | BT1 WCT1   | BT1 WCT0                      | None  |
| Blackfoot River  | Dick                     | 170102030803 | BT0 WCT1   | BT1 WCT1                      | None  |
| Blackfoot River  | Low. Monture             | 170102030804 | BT1 WCT3   | None                          | None  |
| Blackfoot River  | Shanley                  | 170102030908 | BT0 WCT3   | BT2 WCT1                      | Cold water to downstream populations                    |
| Blackfoot River  | Town of Woodworth        | 170102030909 | BT2 WCT1   | BT2 WCT1                      | None  |
| Blackfoot River  | Boles                    | 170102031003 | BT1 WCT3   | BT0 WCT1                      | None  |
| Blackfoot River  | Clearwater Lake          | 170102031101 | BT1 WCT3   | BT0 WCT1                      | Western pearlshell                                      |
| Blackfoot River  | WF Clearwater            | 170102031102 | BT1 WCT1   | BT0 WCT1                      | Western pearlshell                                      |
| Blackfoot River  | Deer                     | 170102031103 | BT2 WCT1   | None                          | None  |
| Blackfoot River  | Lake Inez                | 170102031104 | BT3 WCT2   | BT0 WCT1                      | Western pearlshell                                      |
| Blackfoot River  | Morrell                  | 170102031105 | BT1 WCT2   | BT1 WCT1                      | None  |

| HUC8 Name         | HUC 12 Name      | HUC12        | CWN abundance and genetic integrity summary rating | CWN cold water refugia rating | Secondary factors considered         |
|-------------------|------------------|--------------|--|-------------------------------|--------------------------------------|
| Blackfoot River   | Trail            | 170102031106 | BT3 WCT2   | BT2 WCT1                      | None                                 |
| Blackfoot River   | Seeley Lake      | 170102031107 | BT1 WCT2   | BT0 WCT1                      | None                                 |
| Blackfoot River   | Belmont          | 170102031206 | BT1 WCT2   | None                          | None                                 |
| Blackfoot River   | Up. Gold         | 170102031301 | BT2 WCT3   | BT0 WCT1                      | None                                 |
| Blackfoot River   | WF Gold          | 170102031302 | BT2 WCT3   | BT0 WCT1                      | None                                 |
| Blackfoot River   | Low. Gold        | 170102031303 | BT2 WCT3   | None                          | None                                 |
| Blackfoot River   | West Twin        | 170102031307 | BT2 WCT3   | BT0 WCT1                      | Cold water to downstream populations |
| Blackfoot River   | Johnson Gulch    | 170102031308 | BT2 WCT2   | None                          | Cold water to downstream populations |
| Middle Clark Fork | Up. Rattlesnake  | 170102040101 | BT1 WCT3   | BT0 WCT1                      | None                                 |
| Middle Clark Fork | Low. Rattlesnake | 170102040102 | BT3 WCT3   | None                          | Connectivity                         |
| Middle Clark Fork | Grant            | 170102040103 | BT1 WCT1   | None                          | None                                 |
| Middle Clark Fork | Albert           | 170102040207 | BT1 WCT2   | None                          | None                                 |
| Middle Clark Fork | Up. Petty        | 170102040401 | BT3 WCT0   | BT0 WCT1                      | None                                 |
| Middle Clark Fork | Mid. Petty       | 170102040403 | BT2 WCT2   | None                          | None                                 |
| Middle Clark Fork | Low. Petty       | 170102040405 | BT2 WCT3   | None                          | None                                 |
| Middle Clark Fork | Cache            | 170102040503 | BT1 WCT2   | None                          | None                                 |
| Middle Clark Fork | WF Fish          | 170102040504 | BT1 WCT1   | BT2 WCT1                      | None                                 |
| Middle Clark Fork | NF Fish          | 170102040505 | BT1 WCT1   | BT2 WCT1                      | None                                 |
| Middle Clark Fork | Up. Fish         | 170102040506 | BT1 WCT2   | None                          | None                                 |
| Middle Clark Fork | Low. SF Fish     | 170102040507 | BT1 WCT1   | None                          | None                                 |
| Middle Clark Fork | Low. Fish        | 170102040508 | BT3 WCT2   | None                          | Connectivity                         |
| Middle Clark Fork | Rock             | 170102040603 | BT3 WCT1   | None                          | None                                 |

| HUC8 Name         | HUC 12 Name         | HUC12        | CWN abundance and genetic integrity summary rating | CWN cold water refugia rating | Secondary factors considered         |
|-------------------|---------------------|--------------|--|-------------------------------|--------------------------------------|
| Middle Clark Fork | Up. Trout           | 170102040607 | BT1 WCT2   | BT2 WCT1                      | None                                 |
| Middle Clark Fork | Low. Trout          | 170102040608 | BT1 WCT2   | None                          | None                                 |
| Middle Clark Fork | Oregon Gulch        | 170102040610 | BT1 WCT1   | BT0 WCT1                      | None                                 |
| Middle Clark Fork | Cedar               | 170102040611 | BT1 WCT2   | BT2 WCT1                      | None                                 |
| Middle Clark Fork | Hdw. Saint Regis R. | 170102040701 | BT0 WCT1   | BT0 WCT1                      | Cold water to downstream populations |
| Middle Clark Fork | Big                 | 170102040704 | BT0 WCT2   | BT0 WCT1                      | Idaho giant salamander               |
| Middle Clark Fork | Deer                | 170102040706 | BT0 WCT2   | BT0 WCT1                      | Idaho giant salamander               |
| Middle Clark Fork | Twelvemile          | 170102040708 | BT3 WCT2   | BT0 WCT1                      | None                                 |
| Middle Clark Fork | Ward                | 170102040709 | BT2 WCT1   | BT0 WCT1                      | None                                 |
| Middle Clark Fork | Little Joe          | 170102040711 | BT1 WCT1   | BT1 WCT1                      | None                                 |
| Middle Clark Fork | Low. Saint Regis R. | 170102040712 | BT3 WCT0   | None                          | Connectivity                         |
| Middle Clark Fork | Thompson            | 170102040801 | BT3 WCT1   | None                          | None                                 |
| Middle Clark Fork | Slowey Gulch        | 170102040803 | BT3 WCT1   | BT0 WCT1                      | None                                 |
| Middle Clark Fork | Tamarack            | 170102040804 | BT0 WCT1   | None                          | None                                 |
| Middle Clark Fork | Sevenmile           | 170102040806 | BT3 WCT1   | None                          | None                                 |
| Bitterroot River  | WF Lolo             | 170102051401 | BT0 WCT3   | BT0 WCT1                      | Cold water to downstream populations |
| Bitterroot River  | EF Lolo             | 170102051402 | BT0 WCT2   | BT0 WCT1                      | None                                 |
| Bitterroot River  | Granite             | 170102051403 | BT1 WCT2   | BT0 WCT1                      | None                                 |
| Bitterroot River  | Up. Lolo            | 170102051405 | BT3 WCT2   | BT0 WCT1                      | Connectivity                         |
| Bitterroot River  | WF Butte            | 170102051406 | BT0 WCT2   | BT0 WCT1                      | None                                 |
| Bitterroot River  | SF Lolo             | 170102051407 | BT1 WCT2   | BT0 WCT1                      | None                                 |
| Bitterroot River  | Mid. Lolo           | 170102051408 | BT3 WCT2   | None                          | Connectivity                         |



| HUC8 Name        | HUC 12 Name             | HUC12        | CWN abundance and genetic integrity summary rating | CWN cold water refugia rating | Secondary factors considered         |
|------------------|-------------------------|--------------|--|-------------------------------|--------------------------------------|
| Bitterroot River | Low. Lolo               | 170102051409 | BT1 WCT2   | None                          | Western pearlshell                   |
| Lower Clark Fork | Big Rock                | 170102130201 | BT2 WCT3   | None                          | None                                 |
| Lower Clark Fork | Low. Little Thompson R. | 170102130305 | BT3 WCT1   | None                          | None                                 |
| Lower Clark Fork | Radio                   | 170102130401 | BT2 WCT2   | BT0 WCT1                      | None                                 |
| Lower Clark Fork | Up. Fishtrap            | 170102130402 | BT2 WCT1   | None                          | None                                 |
| Lower Clark Fork | WF Fishtrap             | 170102130403 | BT1 WCT3   | BT1 WCT0                      | None                                 |
| Lower Clark Fork | Low. Fishtrap           | 170102130404 | BT1 WCT2   | BT1 WCT0                      | None                                 |
| Lower Clark Fork | WF Thompson R.          | 170102130405 | BT1 WCT2   | BT2 WCT0                      | None                                 |
| Lower Clark Fork | Cooper Gulch            | 170102130601 | BT1 WCT2   | BT0 WCT1                      | None                                 |
| Lower Clark Fork | Up. Prospect            | 170102130602 | BT1 WCT2   | None                          | None                                 |
| Lower Clark Fork | Crow                    | 170102130603 | BT1 WCT2   | None                          | None                                 |
| Lower Clark Fork | Dry                     | 170102130606 | BT3 WCT2   | BT1 WCT1                      | Cold water to downstream populations |
| Lower Clark Fork | Low. Prospect           | 170102130607 | BT2 WCT3   | None                          | Connectivity                         |
| Lower Clark Fork | Graves                  | 170102130901 | BT1 WCT2   | BT2 WCT1                      | None                                 |
| Lower Clark Fork | Deep                    | 170102130903 | BT2 WCT1   | None                          | None                                 |

Table A4.4—Native fish and cold water refugia subwatershed quality rating matrix 1: Bull Trout

| Bull trout critical habitat type | Abundance | Genetics                        | Bull trout quality rating |
|----------------------------------|-----------|---------------------------------|---------------------------|
| Spawning/rearing                 | Abundant  | Likely Unaltered                | BT 1                      |
| Spawning/rearing                 | Common    | Likely Unaltered                | BT 1                      |
| Spawning/rearing                 | Common    | Potentially Unaltered           | BT 1                      |
| Spawning/rearing                 | Abundant  | Unknown                         | BT 1                      |
| Spawning/rearing                 | Common    | Unknown                         | BT 1                      |
| Spawning/rearing                 | Unknown   | Likely Unaltered                | BT 1                      |
| Spawning/rearing                 | Rare      | Likely Unaltered                | BT 1                      |
| Spawning/rearing                 | Abundant  | Both Unaltered and Introgressed | BT 1                      |
| Spawning/rearing                 | Common    | Both Unaltered and Introgressed | BT 1                      |
| Spawning/rearing                 | Rare      | Both Unaltered and Introgressed | BT 2                      |

| Bull trout critical habitat type | Abundance | Genetics              | Bull trout quality rating |
|----------------------------------|-----------|-----------------------|---------------------------|
| Spawning/rearing                 | Abundant  | Introgressed          | BT 2                      |
| Spawning/rearing                 | Common    | Introgressed          | BT 2                      |
| Spawning/rearing                 | Rare      | Unknown               | BT 2                      |
| Spawning/rearing                 | Rare      | Both                  | BT 2                      |
| Spawning/rearing                 | Unknown   | Introgressed          | BT 2                      |
| Spawning/rearing                 | Rare      | Introgressed          | BT 2                      |
| N/A, but current use             | Common    | Likely Unaltered      | BT 2                      |
| N/A, but current use             | Rare      | Likely Unaltered      | BT 2                      |
| N/A, but current use             | Unknown   | Likely Unaltered      | BT 2                      |
| N/A, but current use             | Rare      | Potentially Unaltered | BT 2                      |
| N/A, but current use             | Common    | Unknown               | BT 2                      |
| N/A, but current use             | Rare      | Unknown               | BT 3                      |
| N/A, but current use             | Unknown   | Unknown               | BT 3                      |
| N/A, but current use             | Common    | Both                  | BT 2                      |
| N/A, but current use             | Common    | Introgressed          | BT 3                      |
| N/A, but current use             | Rare      | Both                  | BT 3                      |
| N/A, but current use             | Rare      | Introgressed          | BT 3                      |
| FMO                              | Abundant  | Likely Unaltered      | BT 3                      |
| FMO                              | Common    | Likely Unaltered      | BT 3                      |
| FMO                              | Rare      | Likely Unaltered      | BT 3                      |
| FMO                              | Unknown   | Likely Unaltered      | BT 3                      |
| FMO                              | Rare      | Potentially Unaltered | BT 3                      |
| FMO                              | Abundant  | Both                  | BT 3                      |
| FMO                              | Common    | Unknown               | BT 3                      |
| FMO                              | Common    | Both                  | BT 3                      |
| FMO                              | Rare      | Unknown               | BT 3                      |

FMO—foraging, migration, and overwintering

**Table A4.5—Native fish and cold water refugia subwatershed quality rating matrix 2: westslope cutthroat trout**

| Relative abundance         | Genetic integrity                  | Westslope cutthroat quality rating |
|----------------------------|------------------------------------|------------------------------------|
| Abundant                   | Likely unaltered                   | WCT 1                              |
| Common                     | Likely unaltered                   | WCT 2                              |
| All other abundance values | All other genetic integrity values | WCT 3                              |
| Not present                | Not applicable                     | WTC 0                              |

**Table A4.6—Native fish and cold water refugia subwatershed quality rating matrix 3: cold water refugia**

| Cold water refugia rating criteria | Probability of occupancy in 2040 | Cold water refugia rating |
|------------------------------------|----------------------------------|---------------------------|
| Bull trout                         | $\geq 0.75$                      | 1                         |
| Bull trout                         | 0.5-0.75                         | 2                         |
| Bull trout                         | Less than 0.5                    | 0                         |
| Westslope cutthroat trout          | $\geq 0.9$                       | 1                         |
| Westslope cutthroat trout          | $< 0.9$                          | 0                         |

Note: Brook trout co-occupancy was assumed to be 0 for the cold water refugia probability values, to return the most extensive set of possible occupancy patches, actual probabilities of occupancy are likely to be lower

## 4. Restoration of Impaired Waterbodies

In 1972 Congress passed the Water Pollution Control Act, more commonly known as the Clean Water Act. Its goal is to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” The Clean Water Act requires each state to set water quality standards to protect designated beneficial water uses and to monitor the attainment of those uses. Fish and aquatic life, wildlife, recreation, agriculture, industrial, and drinking water are all types of beneficial uses. Streams and lakes (also referred to as waterbodies) that do not meet the established standards are called “impaired waters.” These waters are identified on the 303(d) list, named after Section 303(d) of the Clean Water Act, which mandates the monitoring, assessment, and listing of water quality limited waterbodies.

Both Montana state law (75 MCA § 5-703) and section 303(d) of the federal Clean Water Act require the development of total maximum daily loads for impaired waters where a measurable pollutant (for example: metals, nutrients, e. coli, sediment) is the cause of the impairment. A total maximum daily load is a loading capacity and refers to the maximum amount of a pollutant a stream or lake can receive and still meet water quality standards.

The Montana Water Quality Act requires the Montana Department of Environmental Quality (MTDEQ) to develop total maximum daily loads for streams and lakes that do not meet, or are not expected to meet, Montana water quality standards. The MTDEQ submits the total maximum daily loads to the United States Environmental Protection Agency for approval. Total maximum daily loads provide an approach to improve water quality so that streams can support and maintain their state-designated beneficial uses.

There are approximately 2,375 miles of perennial streams on the Lolo and 4,588 intermittent stream miles. The MTDEQ reports out biannually on their impaired waters across the state. According to the State 303(d) list, 90 stream segments, almost 700 miles, are not meeting water quality standards <https://discover-mtdeq.hub.arcgis.com/maps/montana-impaired-waters-2020/about> (updated 2023) (Table A4.7). This equates to approximately 10% of streams on the Lolo and 29% of perennial streams with MTDEQ designated impairments. Sources of impairments are typically related to mining, grazing, highways, road infrastructure and related habitat fragmentation, and silvicultural treatments. TMDLs have been prepared for many streams and are being implemented for several sub-basins in the plan area. Management on the Lolo emphasizes resource protection measures and restoration activities to address water quality and watershed health.

Table A4.7—303(d) listed stream segments

| Hydrologic unit code (HUC4) total with TMDL planning areas | Number of listed stream segments | Stream length (miles on NFS lands) |
|--|----------------------------------|------------------------------------|
| 17010202 Total   | 4                                | 46.6                               |
| <i>Clark Fork River</i>                                    | 1                                | 0.9                                |
| <i>Rock</i>  | 3                                | 45.7                               |
| 17010203 Total   | 10                               | 68.7                               |
| <i>Lower Blackfoot</i>                                     | 2                                | 7.4                                |
| <i>Middle Blackfoot</i>                                    | 8                                | 61.3                               |
| 17010204 Total   | 46                               | 381.0                              |
| <i>Clark Fork River</i>                                    | 3                                | 33.8                               |
| <i>Middle Clark Fork Tributaries</i>                       | 25                               | 217.4                              |
| <i>Ninemile</i>  | 9                                | 41.0                               |
| <i>St. Regis</i>   | 9                                | 88.9                               |
| 17010205 Total   | 11                               | 64.4                               |
| <i>Bitterroot</i>  | 5                                | 25.2                               |
| <i>Upper Lolo</i>  | 6                                | 39.2                               |
| 17010213 Total   | 19                               | 120.2                              |
| <i>Clark Fork River</i>                                    | 1                                | 2.1                                |
| <i>Lower Clark Fork Tributaries</i>                        | 1                                | 9.0                                |
| <i>Middle Clark Fork Tributaries</i>                       | 5                                | 11.6                               |
| <i>Prospect Creek</i>                                      | 5                                | 35.6                               |
| <i>Thompson</i>  | 7                                | 61.9                               |
| <b>Total</b>   | <b>90</b>                        | <b>680.9</b>                       |

Across the planning area, water quality monitoring, in conjunction with forest project activities, has been occurring since the 1986 Forest Plan was developed. The Lolo NF has an extensive watershed monitoring program. When water quality impairment is not related to a pollutant (e.g. habitat alteration), strategies are in the form of a Water Quality Restoration Plan. Frequently, impairments are related to both pollutants and non-pollutants and TMDLs and Water Quality Restoration Plan are developed in concert. TMDLs and Water Quality Restoration Plans alone or in combination are plans to improve water quality in a listed water body until water quality standards are met (i.e., until designated uses are fully supported). Currently there are Water Quality Restoration Plans developed for Blackfoot Headwaters, Ninemile Creek watershed, Lolo Creek Watershed, Middle Clark Fork, and Thompson River Tributaries.

## 5. Municipal Watersheds and Source Water Protection Areas

Source water protection areas protect public water systems from contamination in accordance with the 1996 amendments to the Safe Drinking Water Act. Public water systems are defined under the Safe Drinking Water Act as entities that provide "water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serves an average of at least 25 people for at least 60 days a year." MTDEQ's Source Water Protection Program provides guidance and approval of source water protection areas within the State of Montana. Source water protection areas in Montana are



divided into distinct regions according to the time water takes to reach a public water system intake. The purpose of subdividing source water protection areas in this way is to prioritize source water protection efforts. MTDEQ has identified management goals within each of these regions, and these management goals are discussed in context of the water systems located within, adjacent, or downstream of the Lolo NF. Public water supplies and source water assessments can be found on the MTDEQ website: <http://svc.mt.gov/deq/wmadst/default.aspx?requestor=DST&type=SWP>.

MTDEQ has delineated source water protection areas for ground water and surface water sources, taking into consideration how characteristics of the aquifer or watershed may affect public water system intakes. These areas that contribute recharge to the hydrologic or hydrogeologic system above or upgradient from the public water system well or intake structure are part of the State's Source Water Protection Program.

Per 36 CFR part 251.9, the FS may enter into agreements with municipalities to restrict the use of NFS lands from which water is derived to protect the municipal water supplies (Forest Service Manual 2542). When a municipality desires protective actions or restrictions of use not specified in the forest plan, within agreements, and/or special use authorizations, the municipality must apply to the FS for consideration of these needs. When deemed appropriate by the Regional Forester, requested restrictions and/or requirements shall be incorporated in the forest plan without written agreements. Written agreements with municipalities to assure protection of water supplies are appropriate when requested by the municipality and deemed necessary by the Regional Forester. A special use authorization may be needed to affect these agreements. Conversely, active forest vegetation management may be desired to abate adverse water resource effects stemming from wildfire. This activity may be conducted collaboratively between municipalities, the FS, and other partners.

The Bipartisan Infrastructure Law and Inflation Reduction Act have enacted multiple programs that explicitly focus management resources on maintaining source water integrity, be it through protective or proactive management actions. Through these programs and broader agency direction, it is anticipated that source water protection will remain a focus for the foreseeable future.

A variety of source water protection designations are currently used by the Lolo National Forest. These existing designations can generally be classified as follows and are listed in Table A4.8.

- Forest Plan-designated municipal watersheds,
- Watersheds with public water supplies without municipal agreements, and
- Watersheds with A-1 beneficial uses designation

In addition, several state-designated source water protection areas fall in the Lolo NF's administrative boundary. As of 2022, 59 source water protection areas fall within or intersected the forest administrative boundary. Geospatial representation of where source water protection areas intersect Lolo watersheds can be found in the Forest Service's Northern Region Geospatial Library.

from the town's well two miles downstream of the mine tested at 31 micrograms per liter, above the Environmental Protection Agency's maximum contaminant level for antimony of 6.0 micrograms per liter. The abandoned Iron Mountain Mine operated from 1909 to 1930 and again from 1947 to 1953 producing silver, gold, lead, copper, and zinc ores and was deemed the primary source of contamination. While the mine was in operation, tailings were disposed along Flat Creek using gravity drainage, which resulted in tailings distributed along Flat Creek as far as the confluence with the Clark Fork River.

Tailings were also imported into Superior for fill material in yards, roadways, and other locations. Regulatory and government activities became aware of the situation in the 1990s. In 2000 the State requested Environmental Protection Agency involvement following significant dispersal of contaminated tailings during a large post-wildfire runoff. Currently Flat Creek is actively under Superfund Cleanup.

Packer and Silver Creek have been designated A-1 in Montana Administrative Rule 17.30.622-623 from their headwaters to the intake of the Saltese water supply upstream of St. Regis, Montana. Although the Saltese public water is supplied by groundwater wells, A-1 standards remain in effect for these watersheds. A-1 water quality classification has lower allowances than B-1 (majority of Lolo National Forest waters), for *Escherichia coli* bacteria (E-coli), turbidity/suspended sediment, and color changes. A-1 waters should only require treatment for "naturally present impurities" to support the drinking water beneficial use.

The Lolo National Forest manages other public water supplies that are not watershed-related sources, such as groundwater wells for campgrounds and spring developments for individual landowners executing water rights. The watershed areas upstream of spring developments poses additional considerations for water source protections.

Currently there is no single data source representing source water protection areas and/or municipal watersheds for the Lolo National Forest. As evidenced above, there are multiple source water designations currently in use, lending to some confusion as to the applicability of overlapping regulatory authorities. In light of the current and anticipated future agency focus on maintenance of source water values, additional efforts are needed to institute a consistent framework for identification and classification of source protection areas and municipal watersheds and augment existing management direction for these areas.

## 6. Literature Cited

- Isaak, D.J., Young, M.K., Tait, C., Duffield, D., Horan, D.L., Nagel, D.E., and Groce, M.C. 2018. Chapter 5: Effects of climate change on native fish and other aquatic species. In Halofsky, Jessica E., Peterson, David L., Ho, Joanne J., Little, Natalie, J. and Joyce, Linda A., eds., *Climate change vulnerability and adaptation in the Intermountain Region Part 1*. Gen. Tech. Rep. RMRS-GTR-375. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 89-111 pp.
- Karr, J.R., and Chu, E.W. 1999. *Restoring life in running waters: Better biological monitoring* (Revised ed.). Washington, D.C.: Island Press. [http://www.amazon.com/Restoring-Life-Running-Waters-Biological/dp/1559636742#reader\\_1559636742](http://www.amazon.com/Restoring-Life-Running-Waters-Biological/dp/1559636742#reader_1559636742)
- Lackey, R.T. 2001. Values, policy, and ecosystem health. *BioScience* 51 (6): 437-443 pp. 10.1641/0006-3568(2001)051[0437:Vpaeh]2.0.Co;2
- Suter II, G.W. 1993. A critique of ecosystem health concepts and indexes. *Environmental Toxicology and Chemistry* 12 (9): 1533-1539 pp. 10.1897/1552-8618(1993)12[1533:Acoehc]2.0.Co;2
- Yount, J.D., and Niemi, G.J. 1990. Recovery of lotic communities and ecosystems from disturbance a narrative review of case studies. *Environmental Management* 14 (5): 547-569 pp. 10.1007/Bf02394709

**Table A4.8—Municipal and source water protection designated areas on the Lolo National Forest**

| Watershed<br>(HUC12 Name) | Designation | Notes   |
|---------------------------|-------------|---|
| Upper Rattlesnake Creek   | Municipal   | Identified in Lolo NF Plan. Water supply for City of Missoula.  |
| Middle Rattlesnake Creek  | Municipal   | Identified in Lolo NF Plan. Water supply for City of Missoula.  |
| Butler Creek              | Active PWS  | State designated active public water supply and Lolo Plan designation. Active public water supply for MT Snowbowl Ski Area (surface water or spring).   |
| Ashley-Clark Fork         | Municipal   | Identified in Lolo NF Plan. Water supply for town of Thompson Falls.  |
| Seeley-Archibald          | Active PWS  | Designated by State subsequent to Lolo NF Plan. Active public water supply for town of Seeley Lake and the Lodges at Seeley (surface water or spring).  |
| Thompson-Flat             | Active PWS  | Designated by State subsequent to Lolo NF Plan. Flat Creek was the primary water supply for the town of Superior, but there are health concerns over elevated metals. Clean-up and investigation is currently under CERCLA. Alternate supply source may be designated in the future.  |
| Packer Creek              | A-1         | Designated in Montana Administrative Rule 17.30.622-623 from headwaters of the Packer and Silver Creek drainages to the intake of the Saltese water supply. Although the Saltese public water supply is not currently operating, A-1 standards remain in effect for these watersheds. A-1 water quality classification has lower allowances than B-1 (majority of Lolo NF waters), for Escherichia coli bacteria (E-coli), turbidity/suspended sediment, and color changes. The basic premise is that A-1 waters should only require treatment for "naturally present impurities" to support the drinking water beneficial use. |
| Silver Creek              | A-1         |   |

Pertinent to the Lolo Forest Plan designation of Ashley Creek as a municipal water supply, the Thompson Falls public water supply currently uses three sources of water. The historic, and future main source, of water is a group of springs within the Ashley Creek watershed (located north of town in the Cabinet Mountains). The second water source for Thompson Falls is two shallow production wells located near the Clark Fork River just east of town and south of the high school. These wells tap into the unconfined alluvial aquifer and are currently considered backup wells. The third source is two newer production wells located northeast of the high school.

The towns of Alberton, Superior, Seeley Lake, currently have municipal source water that is dependent on watershed management. Three municipalities, Missoula, Plains, and Superior, were formerly dependent on watershed-related source water or springs but have changed to well systems supplied by groundwater.

Boyer Spring in Plains was discontinued as a public water source for the city because of suspected surface water contamination. Rattlesnake Creek watershed (creek, lakes, and dams) was the city of Missoula's primary public water supply until 1983 when the supply was converted from open water sources served by dams to groundwater wells because of giardia concerns. In 2017, the City of Missoula acquired the private utility company providing the water supply and all the assets owned by that company. In 2020, the city, in partnership with Trout Unlimited and others, removed the lowermost dam, located only a few miles above Missoula. The remaining dams are under evaluation for decommissioning or rehabilitation.

Flat Creek was the water supply for the town of Superior, Montana until 1997 when the town government became concerned about the potential public health effects from the Iron Mountain Mine. A water sample





**REQUEST FOR ITEM TO BE PLACED ON AGENDA  
THOMPSON FALLS CITY COUNCIL**

I, Rusti Phone # \_\_\_\_\_

request the following item be placed on the agenda for  
the 3-11 2024, City Council Meeting:

Please give a brief description of the item to be discussed,  
approximate time you need and the results you would like to see.

Information: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Time: \_\_\_\_\_

Action: Fee Schedule

\_\_\_\_\_  
\_\_\_\_\_

**All agenda requests must be submitted by Noon on  
Wednesday before the Council Meeting.**

## CITY OF THOMPSON FALLS FEE SCHEDULE

| <u>TYPE</u>   | <u>COST</u>  | <u>REQUIREMENTS</u>  |
|---|--------------|--|
| Burn Permit   | \$10.00      | Burn Season Authorized by Mayor  |
| Excavation Permit   | \$50.00      | Description of Work & Site.  |
| Improvement & Placement Permit  | \$50.00      | Map of Work & Site.  |
| Mobile Home Placement Permit  | \$50.00      | Map of Work & Site.  |
| Variance – Setback  | \$50.00      | Go Before the Board of Adjustments   |
| Vendor Permit   | \$70.00      | Application Filled Out & DL Info   |
|   | \$50.00      | Approval by Chief of Police  |
|   | \$35.00      | Each Additional Person   |
| Dog License   | \$5.00       | Spayed or Neutered before 2/15 & Not Spayed or Neutered                              |
| Dog Boarding Fee:   | \$25.00      | Per day  |
| Dog Kennel Impound Fee:   | \$50.00      |  |
| Chickens, Rabbit, Duck, Quail License   | \$10.00      | Application  |
| Special Events  | \$75.00      | Deposit  |
| Ainsworth Park Fees   | \$75.00      | Deposit  |
|   | \$100.00     | Whole Park   |
|   | \$75.00      | Amphitheater or Pavilion only  |
| Sign Permit   | \$10.00      | Sign the permit.   |
| NSF Check Fee   | \$30.00      | Any check made payable to the City of Thompson Falls                                 |
| Water/Sewer Fees  | \$5.00       | One month late paying the bill. Added to bill on the 2 <sup>nd</sup> of every month  |
| Water/Sewer Fees  | \$15.00      | Two months late paying the bill. Added to bill on the 2 <sup>nd</sup> of every month |
| Water/Sewer Fees  | \$50.00      | Water Turn-on Fee  |
| Cemetery Fees   | \$350.00     | Price Full Grave Lot/City  |
| Cemetery Fees   | \$500.00     | Price of Full Grave Lot/Out of City Limits   |
| Cemetery Fees   | \$400.00     | Interment Full Grave/City  |
| Cemetery Fees   | \$500.00     | Interment Full Grave/Out of City Limits  |
| Cemetery Fees   | \$225.00     | Interment Cremation/City   |
| Cemetery Fees   | \$325.00     | Interment Cremation/Out of City Limits   |
| Cemetery Fees   | \$300.00     | Interment Cremation after hours/City   |
| Cemetery Fees   | \$375.00     | Interment Cremation after hours/Out of City Limits                                   |
| Cemetery Fees   | \$800.00     | Disinterment Full Grave/City   |
| Cemetery Fees   | \$900.00     | Disinterment Full Grave/Out of City Limits   |
| Cemetery Fees   | \$500.00     | Disinterment Cremation/City  |
| Cemetery Fees   | \$600.00     | Disinterment Cremation/Out of City Limits  |
| <b><u>Public Records Request</u></b>  |              |  |
| Copies – paper or scanned to email  | \$0.50       | Per page   |
| Postage   |              | Varies per USPS rates  |
| All items requested to be prepared will be subject to reimbursement for the amount of staff time required to fill the request as follows:   |              |  |
| Administrative/Clerical   | \$30.00/hour |  |
| Legal or Engineering Review   | \$225/hour   |  |
| <b><u>Police</u></b>  |              |  |
| VIN Inspection for non-municipal residents:   | \$20.00      |  |
| Police Report   | \$5.00       |  |
| Police Report with CD of Photographs  | \$20.00      |  |
| Burn additional DVD's or Memory Stick   | \$10.00      | Per CD   |
| Video media:  | Varies       |  |
| *Any case related to video that is requested under the Freedom of Information Act must be reviewed and redacted in order to comply with the Privacy Act of 1974. Cost varies dependent on the time to review the video(s) and the cost of a third party to redact sections of the video that contain Personally Identifiable Information or other protected information.  |              |  |
| Civil Court Appearances/Subpoena (Retainer): 4 hours of each officer's overtime rate of pay   |              |  |
| Civil Court Appearance: Each officer's overtime rate of pay with a minimum of 4 hours of compensation.  |              |  |
| *This fee only applies to officers that have been legally served with a subpoena and are <u>not</u> regularly assigned to work at the time of the court appearance.   |              |  |
| Traffic Offense Appearance Bonds: See the current <u>Montana Bond Schedule</u>  |              |  |
| Police Security for Private Event (Retainer): 2 hours of each officer's double-time rate of pay. *This fee only applies to officers that are not regularly assigned to work at the time of the private event and are voluntarily brought on-duty for the security detail. The private event must be of a non-controversial nature and approved by the Chief of Police. Examples are, but are not limited to sporting events, concerts, high profile personal security, etc. |              |  |

**Ball Fields Use Fees:** ORGANIZED YOUTH/ADULT SPORTS GROUPS: \$100.00 per group per season.  
 NON-PROFIT COMMUNITY GROUPS: \$20/event/field for one-time use. If regularly scheduled \$75.00 per group per season.  
 Outside area teams wishing to use our FIELDS for games/matches/tournaments who don't practice here and fall under the usual use stated above will be billed \$100/field/day to cover maintenance and upkeep. CONCESSION BUILDING: If approved for use of the concession building for the season, a key deposit of \$25.00 and cleaning deposit of \$50.00 will be required. \$35.00 Fee to City of Thompson Falls Police Dept. (Alcohol by licensed bar or restaurant with catering enforcement).

**Pool Fees:**

|                               |         |
|-------------------------------|---------|
| Child 2 and under:            | \$1.00  |
| Child 4 to 18:                | \$3.00  |
| Adult 18 & Over:              | \$4.00  |
| Season Pass:                  |         |
| Child 4 to 18                 | \$45.00 |
| Adult 18 & Over:              | \$45.00 |
| Family:                       | \$65.00 |
| Swimming Lessons per session: | \$30.00 |

**Zoning Permits:**

|  |  |
|--|--|
| Residential Dwelling                       | \$ 200.00  |
| Commercial                                 | \$ 200.00  |
| Garage/Addition to Residential Structure   | \$ 100.00  |
| Shed/Deck/Carport/Chicken Coop, etc.       | \$ 50.00   |
| Mobile Home Park                           | \$150.00 + \$1.00 per lot  |
| Travel Trailer Park                        | \$150.00 + \$1.00 per lot  |
| Zone Change/Amendment                      | \$ 500.00  |
| Conditional Use Permit                     | \$ 500.00  |
| Variance Request                           | \$ 500.00  |
| After-the-Fact Zoning Permit               | \$100.00 or 2x the fee, whichever is greater                                       |
| Associated Fees for Certain Zoning Permits | Reimbursements for reasonable expenses, professional services, or special meetings |

**Subdivision Fee Schedule**

Applicable to all new subdivisions and amended plats going through the subdivision process. Fees are based on Subdivision type and number of lots. One condominium unit or one Recreational Vehicle or Mobile Home space or one townhouse equates to one lot.

**Preliminary Plat Review**

To cover costs of reviewing plans, advertising, holding public hearings, and other activities associated with the review of a subdivision proposal, the subdivider shall pay a nonrefundable fee at the time of application for preliminary plat approval. The fees, payable to City of Thompson Falls, are as follows:

| <b><u>Number of Proposed Lots or Dwelling units</u></b> | <b><u>Fees</u></b>  |
|---|---|
| 1-2 (minor subdivision)                                 | \$200.00 plus \$10.00 per lot   |
| 3-5 (minor subdivision)                                 | \$250.00 plus \$10.00 per lot   |
| 6-10 (major subdivision)                                | \$550.00 plus \$10.00 per lot   |
| 11-15 (major subdivision)                               | \$850.00 plus \$10.00 per lot   |
| 16-20 (major subdivision)                               | \$1,150.00 plus \$10.00 per lot   |
| More than 20 (major subdivision)                        | \$1,150.00 & \$250.00 for each additional five (5) lots plus \$10.00 per lot. |

- Subsequent Minor above fee plus \$300.00  
Phased Development preliminary plat review same as major subdivision.
- If reapplication is necessary, new application fees apply.

**Final Plat Review and Inspection**

To cover the cost of on-site inspection of the subdivision and review of the final plat and supplementary materials, the subdivider shall pay a nonrefundable fee at the time of application for final approval to Sanders County at the following rate:

\$100.00 plus \$10.00 per lot created.

**Final plat review of each phase of a preliminary approved phased development**

\$100.00 plus \$ 10.00 per lot created.

**Vacation of Final Plat \$150.00**

**Amending Preliminarily Approved Plat (material change) \$100.00**

**Amending Final Approved Plat (material change) \$150.00**

**Preliminary Approval Extension Request \$100.00**

**SIA AGREEMENT \$100.00**

To cover the cost of filing compliance certification and release of monetary security.

**Building for Lease or Rent \$300.00**

**Variance**

\$50.00 fee applied for each variance requested per application. Variance request after preliminary approval \$100.00/request

**Exemption Review Fee-All except retracement**

The fee for exemption review will be \$200.00 per application.

**Examining Surveyor Fee**

The fee for the examining surveyor is \$100.00 unless the examining land surveyor fee exceeds the \$100.00. Then actual expenses will be remitted prior to recording.

**Postage & Handling Fee**

A \$10.00 fee will be charged to cover postage and handling.



**REQUEST FOR ITEM TO BE PLACED ON AGENDA  
THOMPSON FALLS CITY COUNCIL**

I, Rusti Phone # \_\_\_\_\_

request the following item be placed on the agenda for  
the 3-11 2024, City Council Meeting:

Please give a brief description of the item to be discussed,  
approximate time you need and the results you would like to see.

Information: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Time: \_\_\_\_\_

Action: Public Records Request  
Resolution, Request for Public  
Records Form & Staff Response  
to Public Records Request

**All agenda requests must be submitted by Noon on  
Wednesday before the Council Meeting.**

## RESOLUTION NO. 841

### A RESOLUTION SETTING A FEE SCHEDULE FOR COPIES AND RESEARCH OF PUBLIC RECORDS FROM THE CITY OF THOMPSON FALLS, MT.

**WHEREAS,** pursuant to §§ [2-6-1006](#), [7-1-4123](#) and [7-1-4144](#), Montana Code Annotated (MCA) all materials kept as records that are in the possession of the City and not otherwise restricted by law from dissemination shall be available for inspection and reproduction by any person during normal office hours subject to reasonable fees imposed by the governing body to recover the costs of complying with the records request; and

**WHEREAS,** The City will regularly review its fee schedule and make adjustments when necessary to ensure the fees are nondiscriminatory, equitable and reasonable.

**NOW, THEREFORE, BE IT RESOLVED** by the City Council of the City of Thompson Falls, Montana, that the fee schedule listed herein is hereby adopted and shall be applied:

1. Charges for paper copies of non-routine public records shall be charged at the rate of \*See the City of Thompson Falls Fee Schedule for material that can be found and copied in 15 minutes or less and any out-of-pocket expenses directly associated with the request.

Items that take over 15 minutes to locate and copy shall be charged the mid-level hourly market rate at the time of the request for a Thompson Falls City Clerk/Treasurer.

2. Requests that are subject to the “per hour rate” shall also be charged at the rate of \*See the City of Thompson Falls Fee Schedule for costs associated with copying materials and any other out-of-pocket expenses directly associated with the request.
3. Fees for published and/or documents prepared by commercial print shops will be based on the actual fee charged by the print shop.
4. A City department, board, committee, or agency may establish fees for specific records contained in their departments, such as maps, plats, audio and video recordings, etc. Such fee schedule shall be approved by the City Mayor and posted in each department. For records not specific to a department, the departmental fee schedules should not conflict with the specific charges listed in this section.
5. Copies of records provided in electronic format will be charged as follows:
  - (a) the City’s actual cost per unit of the electronic media used to provide the public record. For security purposes, the City will provide all blank media;

- (b) expenses incurred by the City as a result of computer processing charges;
- (c) expenses incurred by the City for providing on-line computer access;
- (d) out-of-pocket expenses directly associated with the request; and
- (e) the mid-level hourly rate at the time of the request for a Thompson Falls City Clerk/Treasurer for each hour, or fraction of an hour, after fifteen minutes of service has been provided.

6. *Fee for Obtaining a Copy of Body Worn Camera, and In-car Camera Recordings.*

(a) This section is the sole authority under which a copy of a body worn camera and In-car Camera recording may be obtained from the Thompson Falls Police Department. Privacy issues and the likelihood of criminal justice information being contained in these types of recordings require that each video be reviewed prior to release. Videos that contain confidential, private and/or criminal justice information may require redaction to comply with Montana privacy laws.

(b) The charge for obtaining a copy of a body worn camera, and in-car camera recording shall be:

(i) \*See the City of Thompson Falls Fee Schedule per recording responsive to the request for information; and

(ii) \*See the City of Thompson Falls Fee Schedule per full minute of video or audio footage responsive to the request for information, if identical information has not already been obtained by a member of the public in response to a request for information.

(iii) A law enforcement agency may provide a copy without charge, or at a reduced charge, if the agency determines waiver or reduction of the charge is in the public interest.

7. Records provided to other governmental agencies may be provided on a "reciprocal" basis at the discretion of the department director responsible for the record:

8. Payment for charges must be received before delivery of the records to the requester. A department director may make accommodations for payment by entities frequently requesting records.

9. The city will determine on a case-by-case basis whether an employee must be present to observe and supervise the examination of documents and whether documents can be removed from their official storage location. Where it is necessary to maintain the integrity and security of City records, a fee as determined by the mid-level hourly rate at the time of the request for a Thompson Falls City Clerk/Treasurer will be charged for the City's supervision of the search and examination and copying of public records.
10. The City Mayor may waive fees or reduce fees upon demonstration by the requestor that payment of the fees required under this Resolution will result in undue hardship.

PASSED AND APPROVED BY THE CITY COUNCIL AND SIGNED BY THE MAYOR OF THE CITY OF THOMPSON FALLS THIS 11<sup>TH</sup> DAY OF MARCH 2024.

---

Rusti Leivestad  
Mayor

ATTEST:

---

Chelsea Peterson, CPFA, CMC  
City Clerk/Treasurer

# City of Thompson Falls



## Request for Public Records Form

I, \_\_\_\_\_, (Applicant), do hereby make an application for inspection and/or copying of the following public records of the City of Thompson Falls, Montana. By signing, I am confirming that I have read and agree to Resolution No. 841.

Please Note: The City strives to be responsive to requests for records and complies with Montana Law that requires a timely response. However, there are numerous contributing factors in the length of time it takes to fulfill a request. Some requests may take up to 6 weeks to complete. Additionally, some information may be deemed "confidential information" that is prohibited from disclosure by Montana law. The City provides all responsive documents in PDF format only.

Description of Request: (Be as specific as possible, including legal description of property or address, type of documentation, dates, names, etc):

\_\_\_\_\_  
Applicant Signature

\_\_\_\_\_  
Date

**I prefer to receive my request via: (see pricing on the City of Thompson Falls Fee Schedule)**

\_\_\_\_\_  
**Email**  
\_\_\_\_\_  
**Mail**  
\_\_\_\_\_  
**Pick-up**

Email Address: \_\_\_\_\_

Daytime Phone: \_\_\_\_\_

Address: \_\_\_\_\_



# City of Thompson Falls



## Staff Response to Public Records Request

Name of Requestor/Applicant: \_\_\_\_\_

Your recent records request has been reviewed. Please review and sign below.  
If marked with a check, the following applies:

\_\_\_\_\_ The request is routine and will be provided to you electronically at not charge.

\_\_\_\_\_ The records are available for inspection upon payment of the staff time fee of \$ \_\_\_\_\_. If you would like copies of the records after inspecting them, you will be required to pay all applicable reproduction fees. If you wish to receive copies of the records without first inspecting them, please sign below under Applicant Agreement and the City will provide them after receiving payment for all applicable fees.

\_\_\_\_\_ The City estimates it will take \_\_\_\_\_ hours to fulfill the request at a rate of \$ \_\_\_\_\_ per hour. In addition, you will be required to pay the applicable fee for copies, which is estimated at \$ \_\_\_\_\_. This is just an estimate and it may cost more to fulfill your request. You will/will not (circle one) be required to pay the estimated cost prior to the City beginning the search process for the records. If you agree to pay the costs associated with this request, please sign below under the Applicant Agreement.

\_\_\_\_\_ The information is not subject to disclosure pursuant to the Montana Public Records Statutes (Ar. II, Sec. 9, Mont. Const.; §§ 2-6-1002, et seq., MCA)

\_\_\_\_\_ The request is too vague for the City to identify responsive records. Please provide further detail.

\_\_\_\_\_ The records requested are not in existence because they have not been created. If you would like to examine documents that may enable you to create the records yourself, please contact the department listed below.

Employee Fulfilling Request: \_\_\_\_\_

Department: \_\_\_\_\_ Phone: \_\_\_\_\_

Email: \_\_\_\_\_

By signing in the space below, you acknowledge and agree to pay any fees assessed and related to your request.

\_\_\_\_\_  
Applicant Signature

\_\_\_\_\_  
Date