OTTER TAIL RIVER WATER TRAIL MASTER PLAN

Developed by:

Jay A. Leitch, Consultant
Robert Backman and Christine Laney, River Keepers

For:

Division of Parks and Trails
Minnesota Department of Natural Resources

DATE:

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Project Goal:

A safe, attractive water trail that provides recreational opportunities
and creates partnerships for local economic development.

Minnesota Department of Natural Resources Mission:

"Our mission is to work with the citizens to conserve and manage the state's natural resources,
to provide outdoor recreation opportunities, and to provide for commercial uses
of natural resources in a way that creates a sustainable quality of life."

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Goal: *A safe, attractive water trail that provides recreational opportunities and creates partnerships for local economic development.*

Executive Summary:
The 186.0-mile Otter Tail River in west central Minnesota was designated by the 2006 Minnesota Legislature as a canoe and boating route, becoming the 31st "Water Trail" in Minnesota. The River flows through three ecosystems representative of the state, which include both human and physical/natural elements contributing to its potential. The River has a rich human and natural history.

After designation as a water trail, the Minnesota DNR Trails and Waterways developed a draft map for the entire river. DNR also developed a *PowerPoint* slide show of several specific hazards or obstacles to paddlers and boaters on the OTR. Development of this Master Plan by River Keepers is a continuation of that recent work accomplished by DNR Trails and Waterways personnel.

This plan is for water-based recreation specifically on the Otter Tail River and is not for the watershed (plans and documents describing the watershed and county water plans are available elsewhere). This process is both strategic (i.e., the big picture) and operational (i.e., steps for implementation). The master plan serves as a guide for local initiatives and is intended to be encouragement as much as a specific road map for development. Detailed planning for four of the five Otter Tail River reaches should follow from local initiatives involving multiple partners within the strategic plan's overall goals and standards.

Because of the complexity of this river, DNR determined that a master plan was needed. The river travels through wildlife sanctuaries, several large lakes, urban areas, and it has 22 dams and 70 bridges along its 186.0 miles. The intent of the plan is to take into consideration all of these factors in the development of a recreational water trail. Where man-made obstructions (e.g., dams, bridges, culverts, utility pipe crossings) are present, it is important that recreational passage be considered as a high priority. Portages around dams and other hazardous obstructions are imperative in providing for public safety for recreationists.

Fourteen strategic goals were identified to support implementation of the Otter Tail River Water Trail. These goals include, organizing a 'friends of the river' group to sustain local involvement; developing and promoting construction and signage standards; acquiring rights-of-way where necessary for portages; and developing trail kiosks (Frazee, Rush Lake outlet, Otter Tail Lake outlet, Phelps Mill, Fergus Falls, Orwell Dam, and Headwaters Park). Otter Tail River Water Trail information kiosks would help promote, market, and brand the trail. Kiosk information targeted toward youth might encourage more participation from that demographic. The approximate cost of implementing the strategic goals over three phases in five years is about $200,000, plus some ongoing expenses.

A second set of ten goals, those common to each of five reaches, is estimated to cost about $160,000 over the five-year implementation period. Common goals include additional streamflow gauges (at Rochert; Frazee; Rush Lake outlet, Otter Tail Lake outlet, and/or Phelps Mill; and Breckenridge); adequate signage, access, parking, and amenities; and signs noting ox cart trail crossings and other historical features. A base map suitable for water trail users is included with the Master Plan, but separate, more detailed maps are recommended for the four reaches to be developed initially.

Due to somewhat frequent infrastructure--77 bridges and over 20 dams--restricted areas, and big lakes, development of the Otter Tail River Water Trail may best be accomplished by concentrating on five separate reaches. Nearly 50 separate goals/actions are identified for the five reaches.

Headwaters (29 miles). Almost half of the Headwaters Reach is currently off limits to water trail users at this time and is less suitable for water trail use due to low flows and lack of a definite channel in several places. Recognizing the wildlife sanctuary purposes for which Tamarac National Wildlife Refuge and Hubbel Pond Wildlife Management Area were established, development of this reach is not planned or recommended at this time. Potential future development of this stretch should be dependent upon an overarching goal of not interfering with the protection of this critical habitat for waterfowl breeding, brood rearing and staging.

Frazee (32 miles). The Frazee reach has abundant wildlife, a rich logging history, and potential for primitive camping. This entire reach could be family-water-trail-user friendly with just a few enhancements. Recommended operational actions for the Frazee reach include removing the private bridge just south of Highway 34; enhancing water trail facilities, such as at Lions Park; developing a detailed map insert for the River's route through Frazee; and assessing the feasibility of water trail user campsites. The estimated implementation cost for these enhancements along the Frazee reach is about $90,000.

Big Lakes (52 miles), The Big Lakes Reach, true to its name, includes over 22 miles of slackwater in lakes with the potential to be a hazard to water trail users when windy. This reach has the greatest tourism infrastructure in place, however. Five trail segments are suggested for priority development. Implementation cost for three phases over five years is about $78,000.

Fergus Falls (34 miles), The Fergus Falls Reach, with potentially the highest number of users nearby, includes several portages around dams and an inaccessible municipal stretch. This reach has the most complete plan (the FERC plan) in place as well as two existing paddler access points. Four trail segments are suggested for priority development. Use of a short in-town stretch will be highly discouraged until obstructions are removed or safe portage is developed. Recommended operational actions include updating and implementing the OTPC/FERC plan; developing Broken Down Dam Park as a water trail users' rest stop; developing a portage path along the City's River Walk; and assessing potential rest stops and camp sites for about $212,500 over five years.

Lake Agassiz (39 miles). The Lake Agassiz Reach has a gentle slope and terminates at the confluence with the Bois de Sioux, which is the start of the Red River of the North. Only modest enhancements, totaling about $73,000 over five years, are suggested to develop this portion of the Otter Tail River Water Trail.

Water trail users have indicated they want maps, access, and streamflow information. This plan includes the base map, has provisions for development of access points, and recommends additional detailed maps. The addition of several streamflow gauges would more than double the availability of streamflow data, making data available along nearly the entire River.

The cost to fully develop an enhanced Trail over the next five years could be about $899,500. However, the initial costs to make the first 18 segments of the Otter Tail River Water Trail within the four downstream reaches safer and friendlier to water trail users could be as little as $100,000, with modest operation and maintenance costs.

Water trail safety, respect for private property, and minimal impact on the environment are three themes that need to be kept in the forefront during all aspects of implementing and sustaining the Otter Tail River Water Trail.

Successful achievement of the goals of this Plan will require leadership, collaboration, and resources from among state, local, and private partners.

I. Introduction

The Otter Tail River in west central Minnesota is the state's sixth longest river. It is unique among Minnesota's rivers in that it spans three distinct ecosystems in its 186 mile journey to the confluence with the Bois de Sioux River at Breckenridge (Figure 1). There are scores of sources for learning about the physical and biotic characteristics, the human and natural history, and other aspects of the Otter Tail River (hereafter abbr. as OTRiver or OTR) and its watershed. We will only briefly mention a few here. **The purpose of this report is to document a planning process and recommend a plan of action for development of canoe, kayak, and boating opportunities on the Otter Tail River.** The intended audience for this report is the Minnesota Department of Natural Resources (DNR) Division of Parks and Trails and their public and private partners interested in developing the water trail.

A. Justification

Planning is a necessary step in the orderly development of our resources. It is, however, a dynamic process, subject to changes as a result of changing social, political, economic, and physical conditions. Planning for a water trail is not unlike any other planning which starts with some overall goals and remains flexible about how to accomplish those goals.

1. Planning

This plan is for water-based recreation specifically on the OTRiver and not for the watershed (plans and documents describing the watershed and county water plans are available elsewhere). This process is both strategic (i.e., the big picture) and operational (i.e., steps for implementation). The master plan serves as a guide for local initiatives and is intended to be encouragement as much as a specific road map for development. Detailed planning for each of the OTRiver reaches should follow from local initiatives involving multiple partners within the master plan's overall goals and standards.

2. Canoeing and Kayaking

Canoeing and kayaking are among the fastest growing outdoor sports in the country, from the Ozarks (Blaine 2008) to Maine (Winchester 2008) to Iowa (Iowa DNR und) and to Minnesota (OMBS 2005) canoeing is promoted for fun as well as economic development. One-in-five boats registered in Minnesota is a canoe or kayak (OMB-DNR 2005). The second highest priority topic for Minnesota's canoers and kayakers is water trail maps, following access to water trails in first place. Other high priority topics are shuttling, river-level reporting, camping, and conflicting uses. Each of those topics is discussed below.

The North American Water Trails, Inc., organization's mission is to help "foster the development, enjoyment, and stewardship of recreational water trails" (www.americaswatertrails.org). They believe water trails:

- foster self-discovery,
- build skills,
- teach nature,
- teach history,
- revitalize communities, and
- serve the public interest.

Water trails are becoming so popular that REI, a well-known recreational equipment company, awarded money to the Conservation Fund to establish a two-week program to teach college students how to establish water trails in their communities ("How-to: Water Trails." 2008). The program will be managed by the American Canoe Association.

3. Canoeing and Kayaking on the Otter Tail River

Interest in canoeing and boating on the Otter Tail River is not new. At least two prior OTR canoe route plans were drafted but not implemented. Over 20 years ago, Becker and Otter Tail county boards supported a feasibility study by WesMin RC&D (WesMin RC&D 1984). The report concluded that a canoe route should not begin until Highway 34 near Rochert, because it was deemed to conflict with the purposes for which Tamarac National Wildlife Refuge and Hubbel Pond Wildlife Management Area were established – the protection of critical habitat for waterfowl. The proposed trail would have ended at Riverview Waterfowl Park in Fergus Falls, for a distance of about 117 miles. A list of detailed and specific, proposed developments was included, some of which are still helpful today, many of which are outdated. Other recommendations included (1) canoe trail designation, (2) organization of an 'Otter Tail River Water Trail Association', and (3) consideration of:

> Operation and maintenance of a canoe trail are of primary importance. Attitudes of canoeing enthusiasts toward the rights of private property owners along the river, the legality of fences installed across a navigable stream, removal of downed trees from within the channel, maintenance of specific areas serving the canoeists, installation of mile markers, and an information and education program…. (WesMin RC&D 1984, p. 52).

Local opposition, partly a result of inadequate planning and poor public relations, kept this effort from becoming a reality (Korczak 1985).

A second OTRiver canoe trail plan was developed in 1992 by Otter Tail Power Company in response to FERC (Federal Energy Regulatory Commission) licensing requirements (Harza Engineering Company 1992). This was an extensive, well-

written plan for about 13 miles of the OTRiver, from Diversion Dam to Fergus Falls (Appendix A). Several components of the plan have been implemented, but the overall plan and promotion of the 13-mile trail were delayed by a hazardous bridge. That bridge was replaced in fall 2008, opening the way to implement the plan largely as proposed with modifications as noted in the current action plan for the Fergus Falls reach.

After Legislative designation as a "canoe and boating route" by the 2006 Minnesota Legislature, the Minnesota DNR Division of Trails and Waterways developed a draft water trail map for the entire river. DNR also developed a *PowerPoint* of several specific hazards or obstacles to canoeists and boaters on the OTR (Webb 2007). This current effort is a continuation of that recent work accomplished by DNR Parks and Trails personnel.

B. The Resource

There are both physical and human resources available to support and implement a water trail for the Otter Tail River. The primary physical resource is the river and its immediate living and nonliving environments. The primary human resources are less tangible, but include infrastructure, culture, people, leadership, and entrepreneurship. These existing physical and human environments are the starting point for planning for a viable and safe water trail.

1. Otter Tail River Physical Features

"The Otter Tail River watershed is as diverse as the State of Minnesota" (SWCD-BWSR 2003, p.97). The OTR flows through three biomes. The headwaters are in the Coniferous Forest Biome, which covers 40% of the state and 30% of the watershed. The Eastern Deciduous Forest Biome is in the central portion of the Otter Tail River Watershed, where it occupies approximately 50% of the basin. The western portion of the state and the last 40 miles of the Otter Tail River are in the Tall Grass Prairie Biome (also the former Glacial Lake Agassiz) (SWCD-BWSR 2003).

The Otter Tail River was one of the landscape features that evolved following the last glacial period in central North America. It is, in fact, "… the main extension of the Red River [of the North] and comprises the true source and headwaters area" (Krenz and Leitch 1998, p. 1). The Otter Tail River watershed makes up nearly 2,000 square miles of the 45,000-square-mile Red River watershed (Figure 1). The OTR is approximately 186.5 miles from its headwaters at the Elbow Lake outlet to its confluence with the Bois de Sioux River in Breckenridge.

Figure 1. River of the North Drainage Basin, with the Otter Tail River Highlighted

Based on USGS and Digital Chart of the World data.

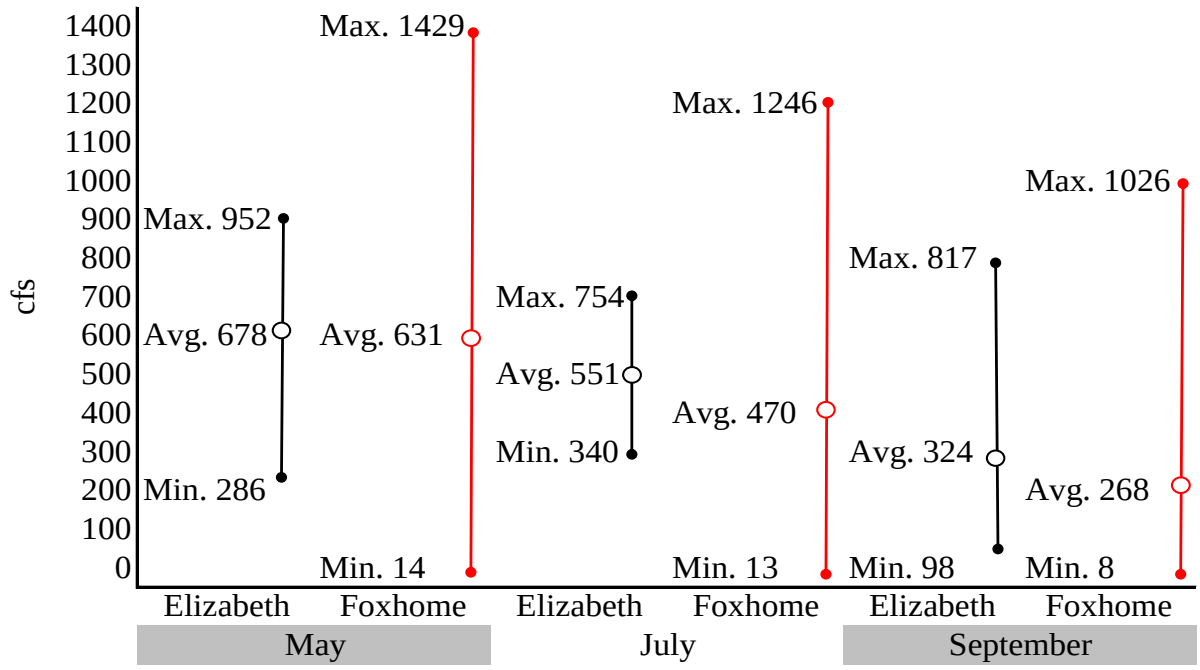
While the mouth of a river is usually easy to identify, its source can be more dubious. The OTR flows from the southernmost tip of 6-mile long Elbow Lake in northern Becker County. The point where the river leaves the lake is designated as River Mile 186[1]. Although numerous small streams flow into Elbow Lake, none is routinely navigable by canoe or kayak and most are seasonal. The only named stream flowing

[1] 'River mile' refers to the on-the-river distance from the river's mouth. River Mile is an approximate measure, since distance on the river can vary by specific route or due to changing river conditions. GeoCordinates provide more precise location information.

into Elbow Lake is Solid Bottom Creek that emanates from several small lakes a few miles north in southwestern Clearwater County. However, it is insufficiently prominent to be labeled the headwaters, especially when it is but one of several such streams.

Monthly mean stream flow below Orwell Dam southwest of Fergus Falls (RM 39.0) has ranged from around 300 to over 800 cfs (cubic feet per second) (Figure 2). Natural flow in the OTR above Fergus Falls is rather uniform due to the moderating effect of numerous lakes, wetlands, and permeable outwash deposits (SWCD-BWSR 2003). Downstream of Fergus Falls, stream flow is more variable largely due to operation of Orwell Dam (river mile 39.0) for flood control purposes. There are only two stream flow gauges on the OTR whose data are readily accessible to the public, near Elizabeth at RM 69.9 and south of Foxhome at RM 27.7.

Figure 2. Monthly Mean Stream Flow



Elizabeth: 46.22.10/96.01.02 Period of Record: 1993-2006
Foxhome: 46.12.35/96.11.05 Period of Record: 1930-2007

Source: www.nwis/watrdata.usgs.gov/mn/nwis

OTR water quality is overall very good for both fish and wildlife and human uses, with only isolated instances of water quality issues (see Becker, Otter Tail, and

Wilkin counties' water plans). The river becomes somewhat more turbid in its last 40 miles, or so, as it meanders through the prairie biome with siltier soils and modified runoff regimes.

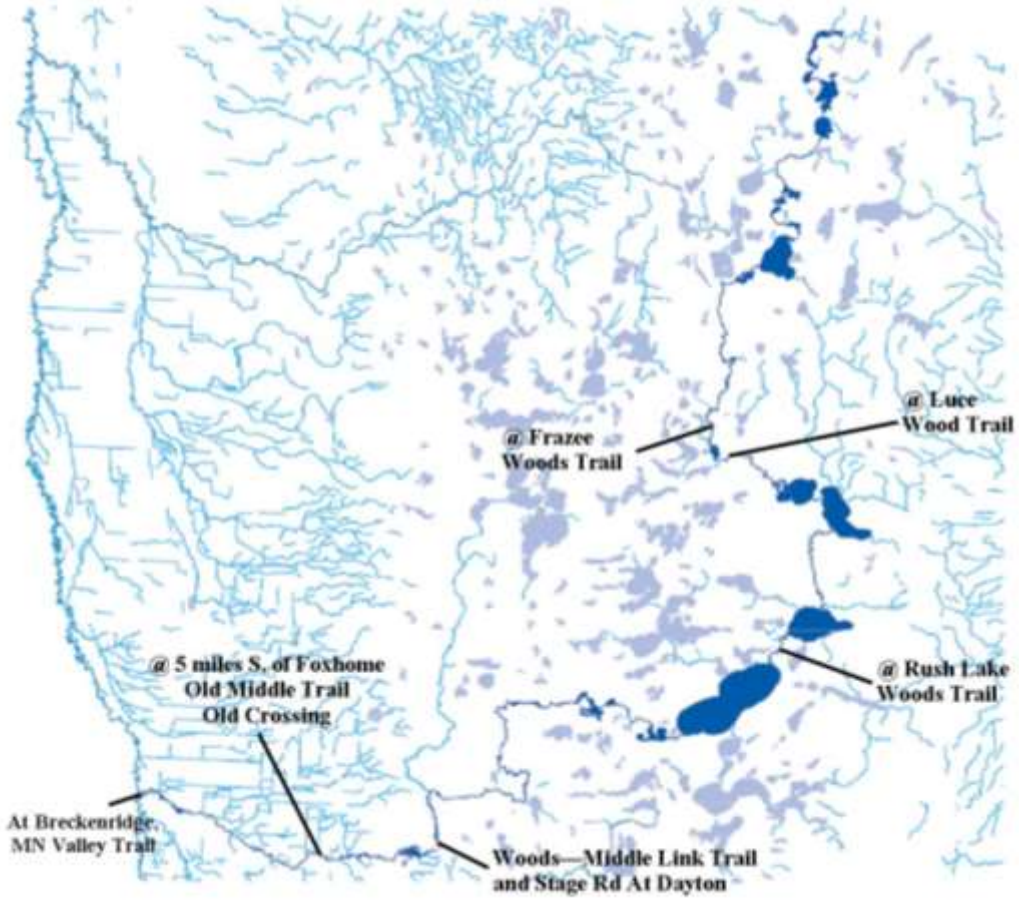
2. Human History

Generally, humans began to move toward the area as the most recent glaciers retreated, as recent as 15,000 years ago, with the best evidence that human habitation began to intensify about 2,000 years ago. Native Americans were well established throughout the area when Europeans first showed up during the fur trade era. Explorer Alexander Mackenzie said of the area "There is not, perhaps, a finer country in the world for the residence of uncivilized man, than that which occupies the space between the Red River of the North and Lake Superior. It abounds in everything necessary…." (West and Wilcox 1907, p. 211). There are numerous Indian burial mounds along the river, providing evidence of their extended presence.

"At the upper end of Height of Land Lake and the two lakes first above mentioned were the most extensive and valuable wild rice beds in the whole region of country; all of which made the vicinity of Height of Land Lake a kind of wigwam metropolis for the Otter Tail Indians on various occasions." (West and Wilcox 1907, p. 211).

At first, Europeans were here to trap, trade, or to merely travel through the area on the oxcart trails between Winnipeg and St. Paul. At least four Red River cart trails crossed the OTR in six places and some trails followed the river for short distances (Figure 3). The woods trail crossed the OTR near its outlet from Rush Lake where Highway 78 now crosses and again near Luce and Frazee where U.S. Highway 10 now crosses, where the trail went from prairie to woodland. The Stage Road, Middle Trail (crossed at Dayton Hollow), and Link Trail (Old Trail Crossing historic marker) all crossed between Fergus Falls and Breckenridge, connecting on to the North Dakota Trail or the Manitoba Trail. While the exact crossing points varied over the years, one was at Dayton (near Dayton Hollow Dam) and the other was at Old Crossing (about 5 miles SSE of Foxhome (Gilman et al. 1979).

Figure 3. Oxcart Trail Crossings of the OTR



Source: Cilman et al. 1979

Native Americans who used the OTR as a travel route gave it several names, including Ottertail, over time and by separate tribes. Some old maps and documents have it labeled as the Red River (Andreas 1974). Some suggest the name was changed to Otter Tail River to facilitate hydropower development, since development on the 'Red River', a navigable waterway, was subject to more federal controls. The OTR is not a navigable water (See text box). Unlike most rivers, writers have referred to the Red River as 'he' rather than the typical 'she' (Kelsey 1951). Kelsey (1951) tells of some Norsemen trying to return to Hudson's Bay passing over the Otter Tail River because it couldn't be the Red since it wasn't silt laden.

Section 329.4 – General Definition

Navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity.

Source: 33 CFR Part 329

European settlement of the OTR area began in earnest in the late 19th Century. The OTR provided a route for transporting logs during the early days of Minnesota forestry. "The Otter Tail River was extensively traveled by Indians in those days [1870s], so it took very little preparation for the spring drive" (Stearns undated, p. 20). The River was channeled and redirected above Many Point Lake to facilitate transporting logs downstream. Sunken logs can still be seen in the river and in many lakes, especially in the upper reaches between Elbow Lake and Round Lake.

The Nichols-Chisholm Lumber Company, Park Rapids Lumber Company, and several others had camps all along the Otter Tail River. A spot just north of Frazee was called the "finest stand of white pine in all of Minnesota" (Vandersluis 1974, p. 302h). There were from 25 to 40 miles of railroad track in operation at one time to haul logs to Elbow Lake and other nearby lakes to access the River (Vandersluis 1974). The City of Selkirk, Manitoba, was built in the winter of 1870-71 from pine lumber rough sawn in Frazee and floated down the Otter Tail River to Selkirk (Glasrud 1982). The logging era lasted from about 1870 until 1926 when the red and white pines had all been harvested and the mill at Frazee shut down, settlement soon followed. The last log drive on the Otter Tail River was in the spring of 1926 (Stearns undated).

> "The Winnipeg log drive made its appearance in the city on Sunday, but can not be credited with having given us any very good impression of its manners. In Aurdal a bridge is reported as having been completely wrecked; partly by the jam of the logs, and partly by the drivers themselves in their efforts to liberate the mass of logs piled above it. The wagon bridge below Austin's dam has been seriously injured, likewise the Pelican Rapids branch railroad bridge; and a foot bridge above the round house has been completely swept away, although it was somewhat out of repair before. … The drive consists of eight million feet, and will be some considerable length of time in passing, while the whole season may be taken up in reaching Winnipeg." (*Fergus Falls Weekly Journal*, June 19, 1882, p. 2) Source: Otter Tail County Historical Society *Newsletter* 34(3): 7 (July-August 2008)

Villages sprung up along the river as places for commerce. The river was dammed to provide power for grist mills, electricity, and as a source of drinking water. Some of those dams have been completely removed, while remnants of others remain. There are about 30 water control structures on the OTR today ranging from historical remnants to modern hydropower facilities (Appendix B).

Private ownership of land has been characteristic of European settlement. Approximately 90% of the river's bank is privately owned. Much of this private land has been used as cropland, pasture, or forest. Many of the farmsteads and other residences can been seen from the river, as well as material they've left behind! Most of the lakes the river passes through have been developed for recreational uses, with their shores filled with residences, seasonal and year-around (Travnicek 2008). More recently, similar rural and recreational home developments have begun to occur along the river.

A large portion of the upper reaches of the OTR are within the boundaries of the White Earth Indian Reservation, some held in common by the Tribe, some owned privately by both Tribal members and others. Other parts of the river's edge are owned by various units of government. The largest block of government-owned river bank land is the Tamarac National Wildlife Refuge (river miles 165-178).

With European settlement also came a growing transportation and utility infrastructure. All along the river are both modern engineering marvels as well as evidence of activity and structures from the past. There are over 75 roads and railroads crossing the OTR today, some with bridges, others with culverts (Appendix B). Power lines frequently cross the river today. Municipal sewer, water, and power utilities cross both under and over the river.

3. Political / Regulatory Setting

On its way from Elbow Lake (river mile 186.0) to its junction with the Bois de Sioux River in Breckenridge (river mile 0.0), the Otter Tail River flows through three counties (Becker, Otter Tail, and Wilkin), five cites (Elbow Lake, Rochert, Frazee, Fergus Falls, and Breckenridge), 28 townships, 10 school districts, and numerous other special districts. The 1,983-sq mile OTR watershed drains from six counties, contains 18 cities, is home to nearly 100,000 residents, and many other local units of government (LUGs). The river and its watershed are located entirely within the State of Minnesota.

The regulatory setting includes those political jurisdictions that have authority to influence river-related activity, other than through the power to collect property taxes. The complexity of government units and NGOs (i.e., non-government organizations) in the region is well beyond the scope of this report (see, for example, Krenz and Leitch 1998, Travnicek 2008).

The most comprehensive regulatory control over the OTR is Minnesota's *Shoreland Management Act* (1969) and subsequent revisions, which established statewide standards for lakes (within 1000 feet) and rivers (within 300 feet). As of 2005, voluntary alternative shoreland management standards have been available as tools for local governments. Counties develop specific shoreland management regulations—1000' from lakes and 300' from rivers. Permits from DNR or local government may be required for developments within these boundaries.

Floodplain management in the OTR watershed is concerned with development of structures in the floodplain. The Minnesota DNR Division of Waters, the state Board of Water and Soil Resources, and local government are largely responsible for floodplain management. The U.S. Army Corps of Engineers and FEMA (Federal Emergency Management Agency) also play a role in floodplain management.

All three OTR counties also have local water management plans as required by Minnesota Board of Soil and Water Resources:

Otter Tail County Local Water Management Plan, 2004-2009,

Becker County Local Water Management Plan, 2005-2014, and

Wilkin County Local Water Management Plan, 2008-2017.

All three plans identify water quality as a priority issue. They also mention recreation and economic development. The Wilkin County Plan identifies erosion as a priority issue, which is also mentioned below in the Lake Agassiz Reach action plan. Nothing in this plan appears to be inconsistent with those plans.

There is some tax forfeit land, now owned by the counties, along the OTRiver in Becker and Otter Tail counties. Tax forfeit land is property that the previous private owner neglected to pay property taxes and was forfeited to the county.

While the counties, townships, and cities are the principal local government authorities, the Minnesota Pollution Control Agency, Minnesota DNR, and Minnesota Board of Soil and Water Resources are the principal state agencies with regulatory authority. The White Earth Reservation maintains primary land use control within its boundaries (the first 15 miles of the OTR).

Water quantity issues are a concern of local governments as well as the Minnesota DNR Division of Waters. USGS (United States Geological Survey) also monitors water levels in the OTR. The Federal Energy Regulatory Commission (FERC) has an interest in water quantity issues as they relate to hydropower generation.

The Minnesota DNR has regulatory control over fish and wildlife resources. The United States Fish and Wildlife Service has regulatory control over migratory species and refuges, such as Tamarac National Wildlife Refuge.

Surface water uses, such as recreational boating are regulated by local law enforcement agencies (i.e., municipal police or county sheriffs) and the Minnesota DNR. While the U.S. Coast Guard has authority over the Red River of the North, it is not a player on the OTR, since the river is not 'navigable'.

This plan is for activities and actions that are entirely within the bounds of existing local, state, and federal rules and regulations. However, participants in the planning process and plan implementation need to be fully aware of any constraints imposed by existing law or regulation.

II. Otter Tail River Master Plan for a Water Trail

Planning is as much a process as a product. Initiating the process and developing momentum is critical to obtaining stakeholder buy-in and accomplishing the goals. The current situation needs to be described so the starting point can be identified and progress can be tracked. Broad, cross-cutting issues must be understood before plans can be effective and implementation completely successful.

A. Getting Started

Earlier attempts at both developing a plan and at designating the OTR as a water trail were not entirely successful. They raised awareness, identified areas of disagreement, and highlighted the importance of involving the public in a transparent process. In 2006, *MN Statute 85.32* designated the Otter Tail River as a state "Canoe and Boating Route" and granted the DNR Commissioner the authority to develop the water trail. This planning process and resulting plan are the first major steps in developing the trail.

River Keepers, a west central Minnesota non-profit, was retained by Minnesota Department of Natural Resources to develop a master plan for canoeing and kayaking on the OTRiver. Robert Backman and Christine Laney, River Keepers staff, and Jay Leitch, a consultant to River Keepers, comprise the project team outside of Minnesota DNR. Project team members within MN DNR include Erik Wrede, Bruce Winterfeldt, Melody Webb, and John Steward.

B. Stakeholder Buy-In

The public was included in the planning process in three ways: through a formal advisory group, through public meetings, and through opportunistic visits and encounters by project staff.

1. Project Advisory Group

A group of citizens, called the Project Advisory Group (PAG), was identified to help the planning team understand local concerns and issues (Appendix C). Members of the PAG were selected based on their interest and experience with the river, their proximity to the river, and their professional positions.

The PAG met formally two times during the course of planning. The first meeting was to introduce the project team and to brainstorm about OTR issues and concerns. The second meeting was to discuss the initial draft of the planning document. PAG members were encouraged to attend the public meetings and through telephone and e-mail, provided input into plan revisions based upon comments received at the public

meetings. PAG members were also consulted individually during the process and invited to the five stakeholder meetings.

SG-1: *Organize a "friends of the river" group to assist with plan implementation and to encourage local buy-in.*

> Three types of goals/actions are presented in this report. "SG" refers to Strategic Goals and "ROA" refers to Recommended Operational Action. SGs are generally intended for lead agency implementation, while ROAs are intended for local partners with lead agency participation. "CG" are Common Goals for all five river reaches.

2. Public Input Meetings

Five formal public input meetings were held throughout the planning area during summer 2008 (Appendix D). Evening meetings were organized in central locations to focus on each of the river reaches identified in the plan. These meetings were generally by invitation only, but were open to anyone. Individuals were invited who the project team and PAG members felt would provide objective, open-minded input and would help with factual issues (such as identifying local landmarks along the river). The principal purpose of these local stakeholder meetings was to present initial observations gained through a project-team canoe trip down the river. The gist of the

meetings was to present a narrative of a trip down the selected reach, accompanied by PowerPoint photographs, to stimulate discussion and input.

The stakeholder input meetings were successful in gathering additional local knowledge about the river, in identifying local issues and concerns, and in broadening awareness about the intent and impact of designation as a water trail.

C. Describing Current Situation – Open-Water 2008!

"The Otter Tail River and its corridor provide for many recreational activities with excellent opportunities for fishing and hunting. Fishing is concentrated below the dams and on the many lakes the river flows through" (Hanson et al. 1984, p. 7). That statement is as true today as it was 25 years ago. Individuals can be found canoeing, boating, fishing, kayaking, and participating in other water-based recreational activities almost anywhere along the OTR. Water-based recreation on the river's several lakes is active, from anglers, to PWC (Personal Water Craft) operators, to water skiers, to pleasure boaters, and even one tour boat on Otter Tail Lake (www.ottertailcruises.com).

Water-based recreation is far less prominent on the OTR away from the lakes and is largely confined to that associated with residences along the river. Several commercial tubing businesses operate near Rochert. Several short stretches are also frequently used by locals such as the area immediately up and downstream of Phelps Mill.

The River Keepers project team believes there are three primary factors why water-based recreation on the OTR is not at the same levels as on lakes or other rivers in other parts of the region or country. First is simply a maturity factor: this area is among the last in the U.S. to be settled. Use levels will mature over time, stimulated by increasing demands and aided by well-thought-out plans for development. Such plans will identify and work through the other two factors, cultural and physical impediments.

A second reason for low river activity is cultural impediments including values and expectations of the area's residents, as well as the government and legal environment that have grown up around the river. Lakes have been the primary water-based recreational resource and have been promoted and developed heavily. Only recently has similar second home activity begun to occur along rivers in the region. Additionally, concerns about private property rights of adjacent land owners have stunted river use activity.

A third reason is physical factors that include river safety issues, adequate ingress (i.e., put-in) and egress (i.e., take-out) sites, sufficient infrastructure to support enhanced water-based recreation, such as campgrounds, equipment outfitters/vendors, and the 'paper' (e.g., maps, brochures) to market and support a water trail system. Outside of the isolated tubing operations and one or two small, canoe rental concessions, there are no vendors or businesses that operate or relate specifically to the river. The infrastructure to support active and varied river uses does not exist, but will likely follow once this plan is implemented.

1. Field Data Collection

Planners (River Keepers project team) traveled the 186.0 miles of the Otter Tail River during the summer of 2008 to collect data for compilation of the water trail master plan. They traveled by canoe, noting and photographing (Photo Log at Appendix E) such things as presence, and location, of dams, bridges, hazards, river or riverbank features, and other natural and cultural aspects as seen from the OTR. Their notes are found below in the 'river log' sections of the separate operational/action plans for each reach.

2. Current Uses and User Groups

There are no organized user groups directly associated with the river. There are many associated with tourism, outdoor recreation, and natural resources issues. Some of the many NGOs in the OTR watershed include

NGOs with an OTR-related mission/presence in the region

- Red River Basin Commission,
- Audubon Society,
- Minnesota Center for Environmental Advocacy,
- Sierra Club,
- Minnesota Waters,
- Detroit Lakes Izaak Walton League,
- Clean Water Action Alliance of Minnesota,
- Minnesota Environmental Initiative,
- Minnesota Environmental Partnership,
- Minnesotans for Healthy Lakes,
- Minnesota Seasonal Recreational Property Owners,
- 1000 Friends of Minnesota, and
- Freshwater Society.

Some of the local water- or natural resource-based NGOs include:

- Becker County Coalition of Lakes Association,
- Big Pine Lake Association,
- Pine Lakes Improvement District,
- Otter Tail County Coalition of Lake Association,
- FM Walleyes, and
- Lake Country Sportsman's Club.

3. Vendors

There are hundreds of service providers along the OTR that cater to tourists, most are water- and natural resource-based. Communities in the region publish annual visitors' guides that include many service providers as advertisers (DL Chamber 2008, *The Daily Journal* 2008). There are far too many general service providers to identify and their names and offerings may change over time. The few, specific OTR vendors are identified by reach in the operational/action plan sections.

D. Crosscutting Issues

Several issues, not necessarily related just to rivers or just to the OTR, warrant brief discussion to keep them in view of planning and plan participants as this plan moves forward. Water safety is clearly paramount in any effort to promote water-based recreation. Some water uses may be incompatible with others, but all may be important to economic development. There are other types of plans and trails that need to be in sync to avoid duplication, wasted efforts, or resources spent at cross purposes.

1. Water Safety

Water trail developers need to consider two aspects of the safety of water trail users in designing the trail. First, the water trail and its components need to be designed

with safety in mind. This plan will address those issues. Second, trail users need to understand, before getting on the water and while participating, that there are inherent but manageable dangers in water-based recreation that can be managed by advance planning, skills training, and common sense. This plan addresses those issues only briefly (Appendix F), as they are thoroughly covered elsewhere in books, magazines, and classes.

SG-2: *Water safety alerts and guidelines will be a component of all printed, electronic, and other media and materials prepared during and following implementation of this plan.*

OTR water trail users need to know how to understand river hydraulics to read currents to anticipate downriver hazards (Kuhne 1998). If something looks hazardous, either pull to the side of the river to check it out, get on the bank and walk ahead to scout out the potential hazard, or portage around. If there are other river users around, you might watch someone else go downstream before trying something that looks uncertain.

Standing waves, wave trains, tail waves, and haystacks are all terms used to describe what happens when fast currents meet slower currents. River users need to know how to read these so that standing waves caused by currents are not confused with back curlers caused by rocks just below the surface.

Sweepers are fallen trees, overhanging branches, or logs wedged between rocks that can be a hazard. These are especially prevalent in smaller streams or during or following flooding. Strainers are submerged sweepers that can overturn watercraft or trap swimmers.

Most reaches of the OTR are not 'technical' canoeing waters, or waters that take a lot of skillful maneuvering. However, the OTR is Class II in places that could be challenging to beginners.

River Classifications

"Class I. Very easy. Waves are small and regular. Passages clear.

Class II. Easy. There may be rapids of medium difficulty with sufficient passages clear and wide…

Class III. Medium difficulty. Waves may be numerous and high. River is lined with irregular rocks, eddies and rapids. For this type of water, you'll need some expertise in maneuvering your canoe.

Class IV. Difficult. You'll find long rapids, powerful waves, irregular and sometimes dangerous rocks and often boiling eddies. For this class, you'll need precise, powerful, and determined maneuvering skills

Class V. Dangerous. Usually considered uncanoeable except by seasoned, daring experts… Unless you are an expert, …, avoid Class IV and any more dangerous waters."

(Swenson 2000 pp.125-26.)

There are also several 'rock gardens' (i.e., navigable rock-strewn rapids." [Swenson 2000 p. 122]), the number depending on stream flow conditions, that might intimidate casual canoeists. However, these are not identified as 'hazards' to water trail users, since they are a natural component of the river. Man-made *obstacles and* hazards, such as dams and utility lines are identified in the plan.

2. Multiple Use & Incompatible Uses

Water-based and water-related recreation on the OTR varies from enjoying amenities by homeowners whose yards abut the river, to relaxing on the riverbank, to children swimming, to tubing, to barefoot waterskiing and PWCs, to waterfowl hunting. Levels of most activities are not to the point where they interfere with each other, due to relatively sparse population, abundance of recreational alternatives, somewhat remote location in the upper reaches, and under-developed river-use infrastructure. However, the potential for interference needs to be anticipated, with appropriate accommodations for increased, and possibly incompatible, multiple uses. Clearly, PWC operation and canoeing/kayaking on narrow, winding reaches of the river are not compatible. Tubers from bank to bank for hundreds of yards down the river are not compatible with fishing or boating. Historically, only two issues have surfaced: tubing and trespass.

The first issue, tubing on the OTR, has raised some concerns due to the high volumes of tubers on weekends, especially July 4th (July 4, 2008 saw nearly 7000 tubers in the Rochert stretch of the OTR). The tubing issue has received some attention, but has largely been resolved through local ordinance, such as in Becker Co. (Nordell 2001). Issues include littering, monopolizing reaches of the river, disturbing the peace and quiet, and trespassing. Also, many tubing access points do not have sufficient parking to accommodate both tubers and other water users. At some point, responsible agencies may need to discuss carrying capacity issues relative to tubing and other crowding concerns.

Becker County has dealt with some of these issues by regulating commercial tubing. The *Becker County River Ordinance* (Appendix G) was enacted in part "to regulate and ensure orderly commercial use of the rivers throughout the County." (Becker County 2001). Commercial tubing vendors are granted an annual 'Tubing Business' License which reminds them they must operate safely and within the constraints established by the County. The Ordinance defines "tube" as "any flotation device that can be used to transport any person or property on a river, including but not limited to: inner tubes, rafts, kayaks, canoes, boats, or other such devices.

Otter Tail County also has an ordinance regulating tubing (Appendix G).

The second issue has been the concerns of some landowners adjacent to the river. This includes both simple trespass concerns and concerns with river recreationists disturbing the tranquility of their property. The trespass concerns may be dealt with through education and provision of adequate access and rest stops.

Some individual property owners are less than enthusiastic about additional water trail users. While their stated concerns are usually littering, trespassing, and safety; changes in the tranquil character of the underused river may be the underlying reason for expressing concerns. A well-designed, comprehensive education program for both landowners and river users should go a long way to defuse issues among a majority of private river shore owners. Adjacent landowners also need to appreciate the fact that rivers are public water bodies.

In the future, conflicting uses should be identified and voluntary measures to resolve conflicts should be attempted. If voluntary measures are inadequate, enforceable rules to resolve conflicts should be developed. Finally, if rules are insufficient, designate separate reaches (or times) for incompatible activities.

SG-3: *Require tubing businesses to comply with their local permits and state regulations regarding littering. All commercial tubes must be identified with the business name. Encourage Becker and Otter Tail counties to require vendors to lead several Adopt-a-River cleanups events on an annual basis, and to provide incentives to tubers that collect garbage in addition to their own.*

3. Economic Development

In a discussion of the economic impact of water trails, Johnson argued "A shared vision for the water trail and existing tourism and support facilities is an important community consideration" (Johnson 2002, ch. 4). When developed in an orderly, thoughtful manner, water-based recreation can be an economic boost to local communities. For example, expenditures by canoeists range from $26/day to $35/day, with non-locals outspending locals by two-to-one (Johnson 2002, table 4.a). "The economic impact of canoeists in a water trail community depends more on water trail trip expenses than on annual canoeing expenses" (Johnson 2002, ch. 4), since canoeists spend money in local communities for items other than just canoeing.

Having convenient places to spend money is important to capturing these non-local canoeists' spending.

Economic development usually doesn't occur on its own. "Water trails require work! Dedicated local support and partnerships are necessary. … A 'friends of the trail' group can serve as a good mediator between the managing agency and the local community" (Johnson 2002, ch. 4).

SG-4: *Organize river recreation support and promotion groups at the local level.*

Service vendors to support a water trail are usually two types of businesses. First, service may be an 'add-on' to an existing business, such as a hardware, bait, or boat retail business. Second, recreational service vendors may be small, start-up businesses. In either case, a typical hindrance to getting started is navigating government rules and regulations. Putting all the steps to establishing and operating a tourism-related business together in one booklet might encourage more to enter the business and encourage local economic development.

SG-5: *Develop a 'guide to starting and operating a tourism-based business' in Becker, Otter Tail, and Wilkin counties*.

There are local/regional sources of assistance for business and economic development. For example, Explore Minnesota Tourism offers organizational partnership grants up to $12,000 to use in marketing programs to attract nonresident travelers to the state. Partnership grant funding can be used for advertising, trade and sports shows, familiarization tours, direct mail, international sales missions, and research. This program also allows up to 25% of the grant awarded to be used for in-state advertising.

Qualifications: organizations must represent a single facet of the travel industry, or be a local organization representing all facets of the travel industry and designated as the primary tourism promotion organization for a city or community.

http://industry.exploreminnesota.com

4. Coordinating with Other Trails, Plans, and Government Entities

Water trail plan managers and implementers need to be cognizant of the roles, missions, and plans of other government agencies, NGOs, and private interests. This plan is largely nonintrusive and compatible with other water plans and development plans for the region. At a minimum, this water trail plan should be consistent with the three county water management plans, any municipal development plans, and any resource management plans by government agencies.

5. Cooperating with Other Trails and Facilities

One specific type of plan that could be synergistic with this plan is other recreational trails, of which there are several in the region. Some trails are specific purpose (e.g., biking, snowmobile), while others exist as a tourism marketing tool (e.g., Lake Country Scenic Byway). Trails range from organized, formal, and well promoted to neighborhood biking and walking trails. The former have the most potential for synergies with a water trail on the Otter Tail River.

Pine to Prairie Birding Trail (www.mnbirdtrail.com) extends over 200 miles from Warroad to Fergus Falls. Several of the 43 specific sites for bird watching are on or near the Otter Tail River, including Tamarac National Wildlife Refuge (TNWR), Prairie Wetlands Learning Center (Fergus Falls), and Orwell Wildlife Management Area. The trail is promoted through a web site, publications, and by local tourism groups.

"Minnesota has more miles of paved rail-to-trail bikeways than any other state" (*Minnesota Biking 2007-2008*). The 55-mile ***Central Lakes State Trail***, part of the State Trail System, www.dnr.state.mn.us/state_trails), originates in Fergus Falls. An extension to the ***Heartland State Trail*** (Park Rapids to Cass Lake) is planned (authorized in 2002) that would cross the Otter Tail River near Rochert. To take advantage of joint-promotion efforts, MN DNR should partner with MN DOT (Department of Transportation), which publishes a bicycle facility map (MN DOT 2001), and include the water trail on the bicycle map and vice versa.

The ***North Country National Scenic Trail (NCT)*** (www.nps.gov/noco, www.northcountrytrail.org) from eastern New York State to the Missouri River, a National Park Service project, includes 775 miles in Minnesota. While not completely developed, the NCT is planned to pass through Tamarac National Wildlife Refuge and over the OTR.

The 88-mile ***Lake Country Scenic Byway*** (www.lakecountryscenicbyway.com) runs from Detroit Lakes to Walker and from Park Rapids to Itasca State Park with many connections to other trails. Byway highlights include the Otter Tail River and Tamarac National Wildlife Refuge. The Byway brochure includes hiking and biking trails, but could also include water trails.

The ***Otter Tail Scenic Byway*** (www.exploreminnesota.com, www.byways.org) is a 150-mile circle route in central Otter Tail County that crosses the Otter Tail River at the Rush Lake outlet, at County Highway #1 north of Fergus Falls, and again in Fergus Falls. The Otter Tail River and Phelps Mill are noted as highlights of the Byway.

US Highway 75, which runs north-south along Minnesota's western border, was established as the "King of Trails" in 1919 (www.highway75.com/about). The

Highway was renamed "The Historic King of Trails" in 2001. The Otter Tail River flows under this historic highway in the city of Breckenridge.

Portions of the ***Winter Wonderland Snowmobile and Ski Trail*** in Becker County are on or near the Otter Tail River. One ungroomed portion runs from the Elbow Lake public access, through Little Bemidji, Many Point, and Round lakes. Another ungroomed portion runs across Height of Land Lake.

Minnesota's ***Prairie Passage Route*** follows the prairie from south central Minnesota, to the west, where it parallels the border north to the Canadian border (MN DOT und). The Route follows Highway 9 through the city of Breckenridge and lists Headwaters of the Red River of the North as one of its cultural history sites. The headwaters of the Red River is the confluence of the Otter Tail River and the Bois de Sioux rivers.

There are several outdoors- and nature-related facilities that could also be connected to an OTR Water Trail. For example, there are two state parks not far from the river—Maplewood State Park and Glendalough State Park. The US Fish & Wildlife Service Prairie Wetlands Learning Center in southeast Fergus Falls is only two miles from the river.

SG-6: *Where appropriate, establish 'connections' with other trails crossing or near the OTR to encourage joint, mutually beneficially promotion.*

6. Stream Gauges, Flows, and Recreation

The water level/volume condition of a stream or river is stated as either volume (cfs), water depth, or feet above msl (i.e. mean sea level). Cfs refers to how many cubic feet per second flow past a certain point. Two measures of depth are (1) actual river depth at a certain point, usually measured in feet and tenths of feet, and (2) depth referenced to feet above sea level at the water's surface. Any of these three measures can be converted to the others with stream cross section profile information available about the gauge.

There are 90 stream gauges in the OTR watershed and many of these are on the OTR mainstem. Unfortunately, data from only two of those gauges on the mainstem are readily accessible to the public[2]. Those two are maintained by the USGS at river miles 27.7 and 69.9 and provide near real-time readings (Figure 2). The balance of OTR stream flow and water level gauges are operated by MN DNR at lake outlet control structures, by Otter Tail Power Company at their hydropower dams, and by other entities with mission-specific interests (such as Tamarac National Wildlife Refuge). Data from these other gauges are not readily accessible, nor is it necessarily collected on a regular, periodic basis.

[2] http://waterdata.usgs.gov/mn/nwis/current/?type=flow

Fortunately, "Flow fluctuations in the Otter Tail are not as extreme as other rivers in the state. It is naturally regulated by the many lakes it flows through and artificially maintained by over 20 dams . . ." (Hanson et al. 1984, p. 2). The OTR's flow is more uniform than most rivers since it passes through many lakes, has numerous control structures, and the watershed consists of many swamps and permeable outwash deposits (Hanson et al. 1984, p. 32). However, there are locations on the OTR where both adequate flows and potentially dangerous flows need to be considered by water trail users.

For example, flows may not always be adequate for padding the OTR in its upper reaches, in the original channel after the diversion at Diversion Dam, or below dams when flows are restricted for maintenance or other purposes. In the original channel after the diversion, Otter Tail Power is required to maintain flows of at least 110 cfs from April 1 to May 31; at least 60 cfs from June 1 through Labor Day; and at least 30 cfs from the day after Labor day to the end of March.

River stage is important for recreational users since it indicates the overall water condition for recreational uses and is an indicator of safety. Whitewater rafting enthusiasts use the familiar Class I (fairly calm, good for novices) through Class V (serious rapids, dangerous even to experienced users) as a uniform guide to a river's condition. Most of the OTR is Class I for most of the open water recreation season. However, flow rates and local conditions can elevate the OTR to Class II in some isolated, short stretches. However, there are too many factors at work making it nearly impossible to reliably predict when those conditions might occur that it would not be appropriate to include them on a general water trail users trail map of the OTR.

7. Identifying Location On The River—"You Are Here"

There are several measures available to help determine locations on the river, including:

- river miles (aka, mile markers),
- geographic coordinates (Lat-Long or UTM),
- local landmarks (e.g., bridges, towers, power lines, buildings), and
- maps (e.g., USGS topographic maps, county plat books).

We use River Miles (RM) as a general guide to distances and locations on the river. RMs are not meant to be precise, as the river winds and turns, widens and narrows, and is braided in several locations. The 'distance traveled' on a river user's GPS will not likely be synchronized with the river miles used on recreation maps.

Geographic coordinates are a universal metric for fixing location on the Earth and will also be referred to when and as appropriate[3]. GeoCords are more precise than river miles and should be referenced when more locational precision is necessary.

[3] GeoCords will be stated as dd.mm.ssD, where dd is Degrees, mm is Minutes, and ss is Seconds to two digits, and D is compass direction.

Three sources were consulted to verify river mile distances. (1) An earlier document (Hanson et al. 1984) showed river miles starting from the river's mouth at Breckenridge and ending with RM 190 at Elbow Lake. (2) A draft river map[4] prepared by MN DNR showed river miles starting with RM zero at the OTR outlet on the south shore of Elbow Lake and ending with 186.5 at the confluence. However, the convention is to start river miles at the mouth rather than the headwaters. (3) A 1984 feasibility study (WesMin RC&D 1984) used river 'mile markers' to designate locations along the river, starting at the northeast end of Elbow Lake (again, contrary to convention) and ending with RM 164.1 at Orwell Reservoir.

Starting at the upper end of Elbow Lake, instead of at the OTR outlet, introduces a discrepancy of about 5 or 6 miles when compared to others. Another possibility for discrepancies among river miles is the considerable channel straightening between RM 160 and RM 170, which shortens the river's run by cutting across oxbows. A third explanation for differences in river miles is that the precise route across lakes and wide spots in the river may vary.

The river miles from the draft map prepared by MN DNR were checked against Google Earth and the 1984 Hanson et al. report and found to be adequately close, with two minor adjustments, for recreational uses. The resulting total river length was 186.0 miles.

E. The Master Plan

1. Background

a. Purpose – Overall Strategy

A basic planning process ("STP") of identifying the **Situation** (starting point), describing the **Target** (the desired outcome), and detailing the **Path** (the actions necessary to accomplish the plan) is presented. The situation has been described above. The target is "a safe, attractive water trail that contributes to recreational opportunities and local economic development". The path includes a host of individual, yet coordinated, actions implementable as interests and resources allow.

Because of the physical and institutional differences along the OTR's length, the strategies for development of the overall OTR Water Trail are presented first, followed by operational/action plans for each of the somewhat distinct, reaches of the OTR.

SG-7: *Make master plan available to the public in its complete form and in briefer versions, both in print and on the Internet/WWW.*

[4] At River Keepers request, MN DNR revised the map by starting with zero at the OTRivers mouth.

b. Maps

One Water Trail map was produced as part of this current planning process (Appendix X). However, due to the presence of several dams, 75 road crossings, 27 lakes or reservoirs, and three urban areas, additional more detailed maps are encouraged for each of the five reaches. Additionally, detailed map inserts for areas such as the cities of Frazee and Fergus Falls should be included on the reach maps.

SG-8: *Print and distribute a base map(s) for the OTR.*

SG-9: *In partnership with local groups, develop similar, but more detailed, maps for the five river reaches.*

Leadership, buy-in, and momentum are all important in keeping a plan moving toward accomplishment. An identified, accepted leadership individual or group, coupled with stakeholder buy-in at the local level, supported with adequate resources will develop and sustain the necessary momentum.

c. Master Plan

This Master Plan lays out overall strategies for development of the Otter Tail River Water Trail. Overall strategic responsibility rests with Minnesota DNR Parks and Trails. The strategy sets overarching and long-term goals, within which local units of government and NGOs, in partnership with others including MN DNR, can adopt and carry out the operational/action plans.

Development priorities will be grouped into three phases only for general guidance, since nearly any single element in the plan(s) could be accomplished at any time resources are made available. Individual actions/ developments by reach will be prioritized to make the most river available to the most people in the shortest time.

SG-10: *Identify an agency Point of Contact (POC) to be responsible for implementing the strategic portions of this plan, and to serve as a liaison/POC to local groups and ensure consistency across reaches where appropriate.*

<u>Route 'branding' and consistency</u>

In order to not 'reinvent-the-wheel' in each of the river's reaches, certain implementation actions need to be standardized. While each of the OTRiver reaches' water trails could be developed separately/independently and/or on different schedules, they should be developed with consistency so they are seamless when fully implemented. For example, signage should be developed that is uniform throughout the OTR water trail. Similarly, standards (and,

possibly, cost sharing) for portages, rest stops, parking, and other route amenities should be provided to guide local partners. Several sources exist for design guidance of Water Trail facilities (DNR River Ops Manual; National Park Service 2004, www.americanwhitewater.org), including other water trail plans (LSWTA 2002).

For example, the Openlands Project (www.openlands.org), offers the following checklist:

- Accessibility,
- Boat racks and equipment storage,
- Camping area,
- Landscaping,
- Lighting,
- Launch,
- Parking,
- Picnic area,
- Playground,
- Signage,
- Security,
- On-site access (stairs, walkways),
- Toilets,
- Unloading area, and
- Waste disposal.

SG-11: *Develop/promote standards for construction (e.g., landings, parking, portages, campgrounds) with single agency serving as technical advisor. Revise MN DNR River Ops manual as necessary*

Some stakeholders were concerned that increased use of the OTR as a water trail could lead to increased stream bank erosion. This concern could be lessened by ensuring that all physical developments are designed to minimize the potential for erosion.

SG-12: *Take all necessary steps/precautions to prevent bank erosion at canoe landings and portages.*

The issue of private property is ubiquitous in implementing a water trail. Most of the Otter Tail River's shore land is private property. River users will need to be reminded to respect the rights of private property holders. In addition, easements across private land or outright purchase of private land may be necessary to implement all the actions in the plan.

SG-13: *Acquire long-term rights-of-way across private property (easement or fee title), where necessary, for both portages and sign placement.*

SG-14: *Develop OTR water trail kiosks at strategic locations (e.g., Frazee, Rush Lake outlet, Otter Tail Lake outlet, Phelps Mill, Fergus Falls, Orwell Dam, Breckenridge) with a consistent look to promote the OTRiver Water Trail brand.*

Kiosks along the Red River of the North.

Fourteen strategic goals were identified for agency and/or local action (Table 1). The cost to implement/accomplish actions can vary depending on who does the work and when the work is done. Estimates are presented only as a relative indication of what an action might cost. Ongoing operation and maintenance costs could vary from as low as 1 percent of initial costs/year to 5 percent/year, again depending on who does it and how it gets done.

A general indication of timing is included (Table 1), but there are few actions that could not be accomplished at any time.

Table 1. Strategic Goals to Support Implementation of OTR Water Trail

Goal #	Action	Implementation Level	Estimated Cost [b]	Phase I, II, III [a]
SG-1	Organize a "friends of the river group.	Local/DNR	$5,000/yr (x3)	I-III
SG-2	Include water safety guidelines and respect for private property alerts in all materials.	DNR	$1,000	Ongoing
SG-3	Require tubing businesses to comply with littering regulations.	DNR/County	$0	II
SG-4	Organize local river recreation support and promotion groups.	Local/DNR	$5,000	I
SG-5	Develop a 'guide to starting and operating a tourism-based business in Becker, Otter Tail, and Wilkin counties'.	Local/SBA/ RC&D/ State Tourism	$20,000	II
SG-6	Establish 'connections' with other trails or nature-based attractions.	DNR	$1000/trail (x5)	Ongoing
SG-7	Make Master Plan available to the public on-line.	DNR	$1,000	I
SG-8	Print and distribute a base map(s) for the OTR.	Local/DNR	$5,000	I
SG-9	In partnership with local groups, develop similar, but more detailed paper, or on-line, maps for the five river reaches.	Local/DNR	$3000 (x5)	II
SG-10	Identify an agency POC to be responsible for implementing the strategic portions of this plan, and to serve as a liaison/POC.	Local/DNR	$10,000/yr (x3)	I, II
SG-11	Develop/promote standards for construction.	DNR	$10,000	I
SG-12	Take all necessary steps to prevent erosion at landings and portages.	Local/DNR	$20,000	ongoing
SG-13	Acquire long-term rights-of-way for both portages and sign placement.	DNR/local	$10,000 (x3)	Ongoing
SG-14	Develop OTR water trail kiosks at strategic locations.	DNR	$5,000 (x5)	I, II
Totals			$214,000	

[a] Phase I: roughly now for 12 to 18 months, Phase II: from 1 to 3 years into the future, Phase III: from 2 to 5 years into the future.

[b] Costs are 'middle-of-the-road' estimates in 2009 dollars that could vary by as much as 100% or more. Annual and ongoing costs are included in the total for three years. Beyond that, ongoing costs could range from 1 to 5 percent of initial costs depen

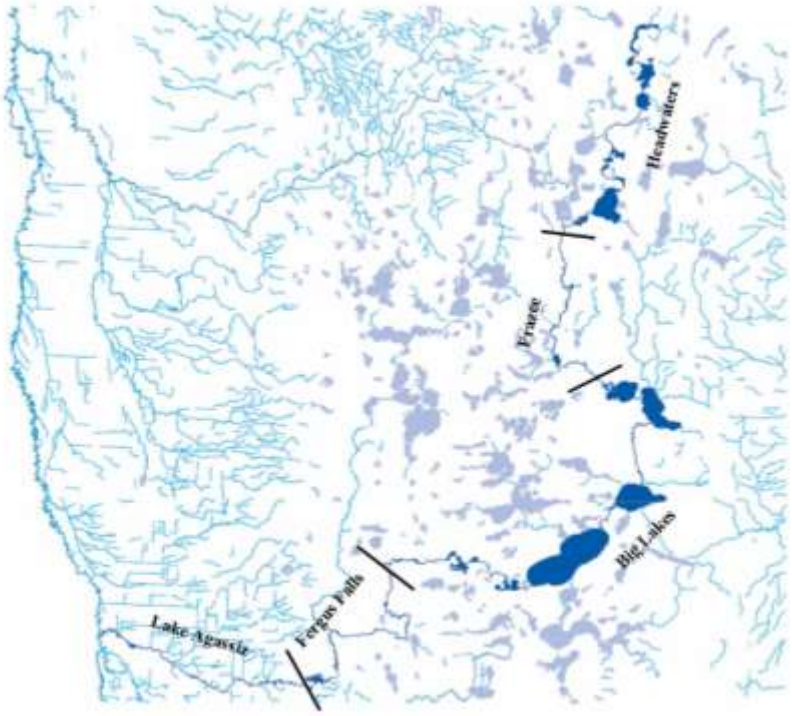
2. Operational Plans for River Reaches

The OTRiver can be divided into five unique reaches for water trail users based on local geographic, development, and infrastructure conditions (Figure 4). Water trail components for each reach can be developed separately and simultaneously or on different schedules depending on local support and availability of resources. For overall consistency and continuity, however, the separate reach actions need to be consistent with the general map and the master plan's goals and actions.

Figure 4. Five Reaches of the OTR

	Elbow Lake, RM 186.0					
1. Headwaters	28.8	Rochert, RM 157.2				
2. Frazee	61.1	32.3	Little Pine Lake, RM 124.9			
3. Big Lakes	113.0	84.2	51.9	Taplin Gorge, RM 73.0		
4. Fergus Falls	147.0	118.2	85.9	34.0	Orwell Dam, RM 39.0	
5. Lake Agassiz	186.0	157.2	124.9	73.0	39.0	Confluence, RM 0.0

* Numbers are the river mile distances between points shown.



The Headwaters Reach runs from the River's outlet on the south side of Elbow Lake, 29 miles to the town of Rochert at the Highway 29 Bridge. The Headwaters Reach is characterized by "no use" or sanctuary areas, braided streams, and low seasonal flows. Recognizing the wildlife sanctuary purposes for which Tamarac National Wildlife Refuge and Hubbel Pond Wildlife Management Area were established, development of this reach is not planned or recommended at this time. Potential future development of this stretch should be dependent upon an overarching goal of not interfering with the protection of this critical habitat for waterfowl breeding, brood rearing and staging.

The 32-mile Frazee Reach runs from Rochert to Little Pine Lake and is characterized by wilderness areas, a rich history of settlement-era forestry, and a high, community-centered potential for development.

The Big Lakes Reach runs 52 miles from the Pine Lakes through numerous lakes to Taplin Gorge (aka Friberg) Dam. The Big Lakes Reach is characterized by its more developed landscape, lack of in-stream hazards, and 20 plus miles of lake crossing.

The fourth reach, the Fergus Falls Reach, runs from Taplin Gorge Dam, through the city of Fergus Falls to Orwell Dam for a distance of 34 miles. The Fergus Falls Reach is characterized by hydropower dams and reservoirs, numerous portages, an urban portion blocked to river travel, and proximity to potential users. This reach includes the Otter Tail Power/FERC stretch with two canoe accesses already in place.

Finally, the Lake Agassiz Reach flows 39 miles across the glacial lakebed from Orwell Dam to its confluence with the Bois de Sioux River. The Lake Agassiz Reach is characterized by its usually gentle stream flow, minimal number of portages, turbidity, agriculture presence, and confluence with the Bois de Sioux River.

In addition to the umbrella goals/actions of the strategic portion of the OTR Water Trail plan, there are goals/actions that are common[5] across the five reaches (Table 2). For example, development of more detailed maps for local reaches, availability of stream flow data to river users, standards for signage and portages, and periodic in-stream hazard identification and/or removal.

[5] Three types of goals/actions are presented in this report. "SG" refers to Strategic Goals and "ROA" refers to Recommended Operational Action. SGs are generally intended for lead agency implementation, while ROAs are intended for local partners with lead agency participation. "CG" are Common Goals for all five river reaches.

Otter Tail River
Water Trail Master Plan

Table 2. List of Common Goals

Goal #	Action	Implementation Level	Estimated Cost [b]	Phase I, II, III [a]
CG-1	Annotate rapids, rock gardens, and other channel characteristics on individual reach maps.	Local/DNR	$5,000	II
CG-2	At the local level, identify canoeability characteristics related to streamflow and make that information available to the public.	Local/DNR	$10,000	II
CG-3	Provide real-time streamflow data for several additional sites along the OTR, specifically Rochert, Frazee, and Phelps Mill.	DNR/USGS/ local	$30,000	I/II
CG-4	Establish adequate parking at trail-heads & public accesses	Local/DNR	$40,000	I - III
CG-5	Put location information and emergency phone # at all access points.	Local/DNR	$5,000	I - III
CG-6	Waypoint river exits from lakes on maps so canoeists can find them.	DNR	$0	I,II
CG-7	Install signs noting ox cart trail crossings & other interpretive signs	County Historical Society	$5,000	III
CG-8	Provide printable zoom-in 'trip maps' via internet for the most likely popular canoe and boating route segments.	DNR/local	$10,000	II
CG-9	Survey route annually, on the water, at the start of the season to note changes, hazards, and remove or report snags.	Local/DNR	$10,000/yr (x3)	ongoing
CG-10	Install put-in, take-out, bridge, warning, other signs and buoys as necessary (and suggested in the river logs)	Local/DNR	$25,000	I-III
Total			$160,000	

[a] Phase I: roughly now for 12 to 18 months, Phase II: from 1 to 3 years into the future, Phase III: from 2 to 5 years into the future.

[b] Costs are 'middle-of-the-road' estimates in 2009 dollars that could vary by as much as 100% or more. Annual and ongoing costs are included in the total for three years. Beyond that, ongoing costs could range from 1 to 5 percent of initial costs depending on who and how O&M is accomplished.

a. Headwaters Reach

The Headwaters Reach runs from river mile 186.0 at the outlet on the south side of Elbow Lake[6] to Highway #29 in the village of Rochert, at about river mile 157.2. The Headwaters Reach is distinguished by its settlement-era logging history, wildlife habitat, and extensive wild rice beds. This reach is not suitable for 'family' oriented paddling, except on some of the smaller lakes with public access. The principal constraints to general paddling are:

- low stream flows in the headwaters;
- lakes comprising a large part of the river miles;
- over half of the distance is restricted access, including Tamarac National Wildlife Refuge (about 13 river miles) and Hubbel Pond WMA (about 3 river miles); and
- numerous obstructions, including beaver dams, frequent tree blockages, expanses of cattail/phragmities where the river channel is braided and/or indistinguishable.

Title 50 Code of Federal Regulations, Part 27, Section 32(a) – Prohibited Acts – The use of boats in national wildlife refuges is prohibited except as may be authorized.

For these reasons, the Headwaters Reach will not be included on the general maps as an active portion of the Otter Tail River Water Trail.

[6] Appendix H is a listing of lakes and tributaries.

Water-based activities suitable for this reach are:

- paddling or boating (for pleasure, fishing, etc.) on the several lakes, and short river reaches connecting them, with public accesses;
- wildlife and nature observation within the riparian habitats of the reach; and
- as permitted by law and landowners, waterfowl, upland game, and big game hunting.

Recognizing the wildlife sanctuary purposes for which Tamarac National Wildlife Refuge and Hubbel Pond Wildlife Management Area were established, development of this reach is not planned or recommended at this time. Potential future development of this stretch should be dependent upon an overarching goal of not interfering with the protection of this critical habitat for waterfowl breeding, brood rearing and staging. If, in the future, canoeing and kayaking are determined to be compatible with critical habitat protection in the Headwaters Reach, this plan includes several recommendations[7] for enhancements to facilitate recreational use. They include, for example, agreements with private landowners to allow access for portaging, non-obtrusive signage, legal and physical identification of public lands adjoining the river and open to the public, and removal of obvious hazards to water-based recreation.

Limited water trail user access through the Headwaters Reach could be facilitated by these enhancements and dialogue with federal and state agencies responsible for the 16 river miles that are currently off limits. For example, selective, conditioned permits might be issued during a narrow time frame to allow a limited number of individuals/groups with special objectives to traverse the entire 29 river miles of the Reach.

At the upper end of Height of Land Lake and the two lakes up river; namely Rice Lake and Blackbird Lake, there were the most extensive and valuable rice beds in the whole region (Stearns undated, p. 3).

Service Providers in the Headwaters Reach

There are no private sector providers of recreational services in the Headwaters Reach that cater specifically to OTRiver users.

Connections to Other Trails

- Snowmobile trails
- Blackbird Auto Trail in TNWR passes by Blackbird Lake, which the OTRiver flows through.
- Potential: North Country National Scenic Trail

[7] Such recommendations are the 'actions' that constitute the 'path' that leads to the overall 'target' of the plan.

Stream Flow in the Headwaters Reach

OTR stream flow is seasonally uniform (i.e., fairly stable throughout the season) in the Headwaters Reach. There are no stream flow gauges in the Headwaters Reach with data readily and consistently available to the water trail users. The level of Many Point, Round, or Height of Land lakes could be used as an indicator/reference of stream flow in the OTR at this point.

1-RM157[8]: *Install a stream flow gauge in the Rochert vicinity (e.g., at the Highway 29 Bridge or the Hubbel pond control structure) and make real-time data available to the public.*

Headwaters River Log

There are two ways to start an Otter Tail River trip:

(1) Put in at the Elbow Lake[9] (1499' msl) public access, paddle 6 miles down the lake to the southern end to River Mile 186.0; or

(2) Put it at the Little Bemidji Lake public access, paddle upstream less than a mile to the OTR outlet from Elbow Lake. This route is less than half the distance of the Elbow Lake route.

2-RM186: *Install a sign noting the start of the OTR with appropriate information included at the Elbow Lake outlet (would require landowner's permission to place sign).*

There is a short, easily identified channel from Elbow Lake to Little Bemidji Lake. The channel is fairly wide and plenty adequate for water trail users. The old logs that can be seen submerged are remnants of the logging era, when logs were floated from nearby to saw mills downstream at Frazee and other places.

County and state-owned land on the east shore of Little Bemidji Lake (all of the east shore from the OTR inlet to the OTR outlet) has potential for primitive camping/rest stop.

River enters Little Bemidji Lake in the NE corner. Follow the east shoreline to the outlet in the SE corner. [Some type of indicator (e.g., brightly painted, 1" pole; GPS coordinates) may be needed in many of these lakes to identify the outlet precisely, since they are sometimes difficult to find for first-timers.] There is a public access on Little Bemidji Lake on the west side off of County road # 35

The channel from Little Bemidji Lake is wide. The original river channel exits the SE corner of the wide spot. However, the river now flows through a man-made channel to the northeast. The original river channel terminates on the north

[8] Operational Action #1 at River Mile 157.
[9] Appendix H is a listing of the lakes in the Otter Tail River chain.

side of Whaley's Road at River Mile 183.6; portage through private property is necessary. The man-made channel has the river's first control structure (a complete listing of control structures, dams, and bridges is at Appendix B) and a culvert under Whaley's Road that must be portaged. The portage is easy, but you must have permission from the landowner.

3-RM183.6: *Develop an agreement with landowners to allow portage at Whaley's Road and install signs marking portage pathway (i.e., take-out point, put-in point, and any in-between where the route may not be obvious). No physical improvements are necessary to facilitate portage.*

The bottom of the channel where the OTR enters Many Point Lake (1496' msl) at the put-in point is lined with logs, a remnant from the logging days.

Follow the West shore of Many Point Lake to a control structure on the south side at River Mile 181.2. Area around this structure is owned by the Boy Scouts (Viking Council, Minneapolis), as is most of the eastern 2/3 of the lake's shoreline. A short distance past the control structure is a culvert under the Boy Scout Camp road, which must be portaged.

4-RM181: *Develop an agreement with the Boy Scouts to allow portage and install signs marking the portage pathway.*

From the Boy Scout Camp road, it is just a short distance into Round Lake (1494' msl). Be aware of strong winds and waves.

Follow either the east or west shore of Round Lake to the OTR outlet in the SW part of the lake at River Mile 179.0. There is a DNR Public Access to the left[10] of the outlet, with parking. There is a control structure associated with the bridge that must be portaged a short distance over Highway #35.

5-RM179*: Install take-out & put-in signs and clear portage path at the Round Lake outlet bridge. The put-in sign must indicate the start of restricted river access at TNWR in about one river mile.*

6-RM178: *Identify the public/county land adjacent to the OTR from the Highway 35 Bridge to the TNWR boundary and assess its longer-term feasibility for camp sites or rest stops*.

Shortly beyond Highway 35 to the bridge at Rochert the OTR is currently off limits. Recognizing the wildlife sanctuary purposes for which Tamarac National Wildlife Refuge and Hubbel Pond Wildlife Management Area were established, development of this reach is not planned or recommended at this time. Potential future development of this stretch should be dependent upon an overarching goal of not interfering with the protection of this critical habitat for waterfowl

[10] References to the 'left' and 'right' are when facing downstream.

breeding, brood rearing and staging. If, in the future, paddling determined to be compatible with critical habitat protection in the Headwaters Reach, the following recommendations may be considered.

From the Highway #35 Bridge the OTR has a sand bottom, good depth, lots of waterfowl, bald eagles, and submerged timber from historic logging. There are no serious permanent obstructions, but some dead trees that can be an obstacle or cause inexperienced paddlers to capsize. There are some sharp turns in dense cattails. There are a few places where the river widens out, leaving it shallow, where water trail users might bottom out.

The Franklin Bridge could be tricky to pass under in low water conditions due to rocks. The river bottom downstream is full of boulders and the flow is a bit faster.

After Tea Cracker Lake Bridge at River Mile 174.0, the river levels out again with friendlier bottom. An historical burial ground of the Nakota Yanktonai people's is just west of the bridge.

The next permanent obstacle is a Refuge service road with 3 culverts (plus a fourth culvert a couple feet higher in elevation). Just downstream of this road there is a broad cattail marsh with no clear river channel which is a hazard to all but the most experienced.

The north end of Chippewa Lake is the east-west boundary of the White Earth Indian Reservation, which lies to the north and includes all the OTRiver upstream to its origin. The boundary follows the east-west line between Twp140N and Twp141N.

The Bruce Boulevard Bridge on Highway #26 at River Mile 170.3 near an historical CCC camp is the next distinguishable landmark. Fishing in the OTR is allowed near the road and there is a picnic area, however, due to poor passage downstream this is not an appropriate put-in site.

South Chippewa Lake (1461' msl) can be a hazard in the wind or later in the season when emergent vegetation makes following a channel difficult.

A potential access site is at the control structure on south side of South Chippewa Lake at River Mile 170.2, downstream of concrete control structure. Minimal landscaping would enhance put-in down the steep incline. However, this is on a limited access Refuge service road, not open to the public at this time.

From the South Chippewa Lake control structure it is a short distance to Blackbird Lake (1454' msl) with nice flow and sand bottom.

Potential put-in site is the USFWS Access on the west side of Blackbird Lake. This could be the starting point for a half-day trip.

There is a little over 1 mile of wide, deep river channel between Blackbird and Rice Lakes. Follow the west shore of Rice Lake to the outlet control structure (a.k.a., Mitchell Dam) and Highway # 126 Bridge at River Mile 165.2. Fishing is allowed only for 50 feet on either side of the bridge only on the Otter Tail River (not on Rice Lake). The structure should be portaged, which is a fairly easy portage across county road 126.

----------End TNWR off limits section.----------

7-RM165.2: *Install take-out signs at Highway 126.*

Height of Land (HOL) Lake (1453' msl) (Appendix H) is a short distance downstream from the Highway 126 Bridge. It is about three miles across to the OTR outlet at River Mile 160.8. There is a DNR public access on the north shore, just west of the inlet.

The River leaves Height of Land Lake in SW corner of lake where water trail users must portage around a water control structure. It is a fairly easy portage across West HOL Drive.

8—RM160.8: *Install take-out signs with a notice that Hubbel Pond restricts access about one mile downstream. Conduct minimal landscaping to improve portage path.*

There is good flow in a rather narrow channel for the first mile or so before the River flattens out under the influence of the Hubbel Pond control structure at River Mile 158.0

The Hubbel Pond (1449' msl) control structure on the west end of impoundment is a fairly easy portage. Hubbel Pond Road (gravel) is about 100 yards to the south (left side of the OTR) for emergency access, follow the walking path. This is the site of former WMA HQ and, prior to that, a logging camp. A large, cleared, grassy area has potential as a staging/camping area for OTR excursions, and could be the beginning of the public water trail in the future. Hubbel Pond is a 3,342-acre Wildlife Management Area with about the western 1/5 designated as 'wildlife sanctuary'.

9-RM158: *Explore developing a primitive campground at the old Hubbel Pond WMA HQ site.*

There is a short stretch of Class II whitewater, downstream of the Hubbel Pond structure, which has good flow but some rocks, a narrow channel, and tree snags. As the whitewater ends the Highway 29 Bridge at RM 157.2 in Rochert becomes visible. The culvert under the bridge may be impassable with extremely high water. There is some parking, but the area is very busy due to tubing concessions

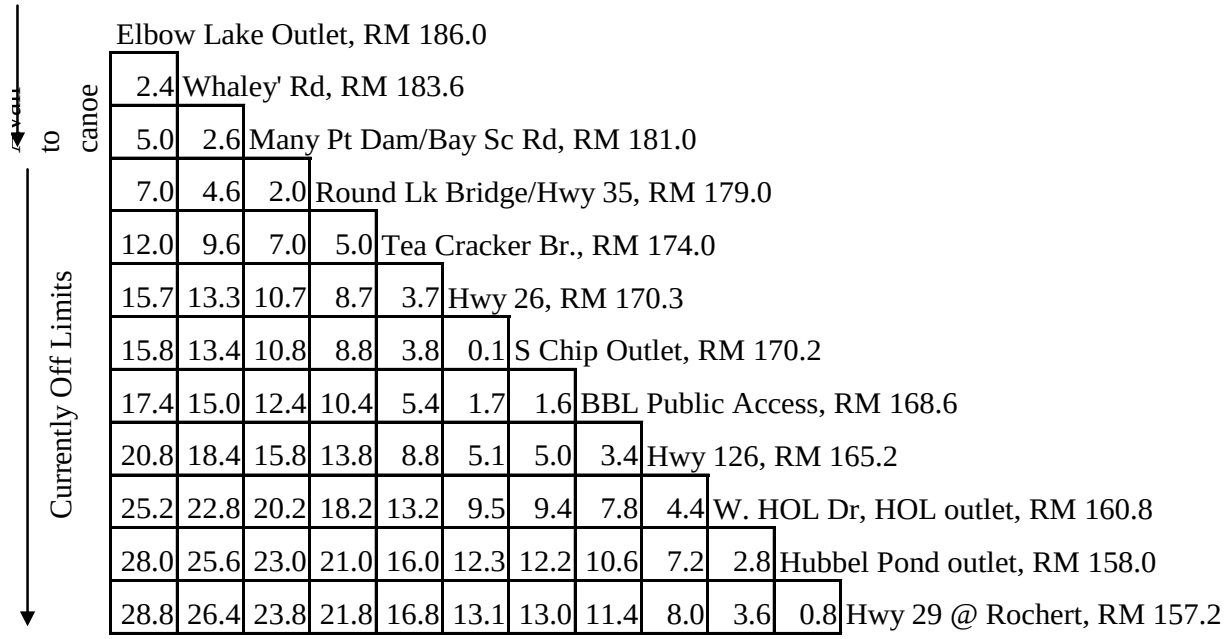
operating here. This is one of the putting-in places for the tubing run to Highway #34. This ends the 29-river miles of the OTR Headwaters Reach.

Headwaters Reach Trail Segments

Although most of the Headwaters Reach is currently not suitable or not available for water-based recreation, at least two short trips are feasible at this time (Figure 5). Day trip one would start at one of the two 'starts' of the OTR, either on Elbow Lake or Little Bemidji Lake. The trip would conclude at the Round Lake Public Access.

A second potential day trip would be from the Blackbird Lake USFWS Access to the Highway 126 Bridge (3.4 river miles), or to the Height of Land Lake outlet (7.8 river miles) (for the adventurous!). This is a FWS boat launch for White Earth tribal ricing activities as established by the *Collier Agreement* between White Earth Indian Reservation and U.S. Department of Interior. Any potential development of the water trail in the Headwaters Reach would need to take into consideration input from the Reservation.

Figure 5. Headwaters Reach



* Numbers are the river mile distances between points shown.

Water Trail Development Priorities

There are only two Phase I recommended actions for this reach: a sign at the headwaters outlet and a clear notice to water users that this reach is largely off limits at this time (Table 3). Most actions for this reach are suggested for a time in the future when, and if, applicable given the missions of TNWR and Hubbel Pond WMA.

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Table 3: Recommended Headwaters Reach Operational Actions

Goal #	Action	Implementation Level	Estimated Cost [a]
	PHASE I [b]		
1-RM157 [c]	Install a stream flow gauge in the Rochert vicinity.	Local/DNR/ USGS	$10,000
2-RM186	Install a sign noting the start of the OTR at the Elbow Lake outlet. * Notice to water trail users that most of this reach is off limits.	Local/DNR	$5,000
	BEYOND CURRENT PLAN TIMEFRAME		
3-RM183.6	Agreement with landowners to allow portage at Whaley's Road.	DNR	$1,000
4-RM181	Agreement with the Boy Scouts to allow portage.	DNR	$1,000
5-RM179	Install take-out & put-in signs and clear portage path at the Round Lake outlet bridge.	Local/DNR	$2,000
6-RM178	Assess longer-term feasibility of public/county land for camp sites or rest stops.	DNR	$25,000
7-RM165.2	Install put-in signs at Highway 126.	Local/DNR/ TNWR	$1,000
8-RM160.8	Install take-out signs/portage path at Height of Land Lake outlet.	Local/DNR	$2,000
9-RM158	Remove 'sanctuary status' at Hubbel Pond WMA to allow canoeists to pass through.	DNR	no cost
10-RM158	Explore developing a primitive campground at the old Hubbel Pond HQ site.	DNR	$25,000
Total			$72,000

[a] Implementation costs will vary considerably depending on who does it and when it is done. If accomplished largely by volunteers, cost, may be minimalized. If accomplished by public sector employees (state or local), costs may, or may not, be absorbed in agency budgets. If accomplished by contractors, cost may be higher. Costs are 'middle-of-the-road' estimates in 2009 dollars that could vary by as much as 100% or more. Annual and ongoing costs are included in the total for three years. Beyond that, ongoing costs could range from 1 to 5 percent of initial costs depending on who and how O&M is accomplished.

[b] Phase I: roughly now for 12 to 18 months, Phase II: from 1 to 3 years into the future, Phase III: from 2 to 5 years into the future.

[c] Operational action 31 at River Mile 170.

b. Frazee Reach

The Frazee Reach runs from river mile 157.2 in the village of Rochert to river mile 124.9 at the OTR inlet to Little Pine Lake. The OTR drops about 113 feet in this reach. This 32-mile reach has high potential for development of numerous options from short to overnight trips, with four marked put-in/take-out sites, Frazee city, and road crossings no more than 6 miles apart.

The City of Frazee's *Comprehensive Plan* (Community Growth Institute 2006) calls for an "…environment that connects the downtown businesses, surrounding residential properties and the Otter Tail River." The city plans to "Work to develop and maintain the Otter Trail River system as a primary recreation area and destination for residents." They plan to promote Frazee as the "Gateway to the Otter Tail River."

The 'river log' for the Frazee Reach includes several recommendations for enhancements to facilitate recreational use. They include, for example, non-obtrusive signage, legal and physical identification of public lands adjoining the river and open to the public, and removal of obvious hazards to water-based recreation. "There were eleven logging dams on the Otter Tail above Frazee in 1919" (Stearns undated, p. 27).

This is one of the best reaches for water trail users because of:

- frequent put-in/take-out sites,
- camping access,
- modest stream flow,
- potential for service providers, and
- rich logging history associated with the OTRiver.

Service Providers in the Frazee Reach

As of the fall of 2008 there were only two part time, private sector providers (canoe rental) of recreational services in the Frazee Reach that cater to river users. However, other individuals have expressed interest in developing river-based, recreational businesses. Several existing resorts on lakes the river passes through could become service providers in the future.

A concern of potential service providers is understanding the regulatory environment. This could be ameliorated by development of a county-specific guide to development of tourism-based businesses. (See SG-5, Table 1).

Connections to Other Trails

The City of Frazee is lobbying to have the North Country Tail and the Heartland State Trail pass through or near town.

The Park Rapids to Moorhead extension of the Heartland Trail, authorized in 2002, is proposed to cross the OTRiver between Detroit Lakes and Park Rapids, putting it in the vicinity of Rochert.

The 1st, 2nd, and 3rd Red River Cart trail crossings were in this reach. Frazee was the "Third Crossing" of the Otter Tail River by the Cart Trail. A consistent signing method should be developed for use in marking all OTR Cart Trail Crossing (see CG-7, Table 2, and Figure 3).

Stream Flow in the Frazee Reach

OTR stream flow is seasonally consistent in the Frazee Reach. However, there are no stream flow gauges in the Frazee Reach with data readily and consistently available to the water trail users. There are several bridges within the city that could be the site of a stream flow gauge.

11-RM141[11]: *Provide OTRiver daily stream flow data on the City of Frazee community website—maybe even a live video-cam of the river—during the canoeing season.*

Frazee River Log

The Highway 29 Bridge in Rochert is about River Mile 157.2 and the start of the 31-mile Frazee Reach of the OTR. Much of the river bottom in this reach is rocky, there are numerous non-permanent obstructions, including beaver dams and fallen trees. Obstacles become more of a problem later in the season as water levels drop. There are some braided stream areas where inexperienced water trail users could become lost, especially the few miles just upstream of Frazee.

P-I⇔►T-O: "#1-Trailhead", RM 157.2. The upstream side of the Highway 29 Bridge is county-owned land. Watch for tubers for the next 3+ miles.

Road Crossing: "335th Ave. Bridge", RM 155.0. 335th Ave. Bridge (old USGS stream flow gauge).

P-I⇔►T-O: "#2-Hwy 34", RM 154.4. Highway 34 Bridge is okay to pass under.

[11] Operational action number 11 at River mile 141.

A short way downstream of Highway 34 is a PORTAGE around a small, private bridge just inches over the water, easy portage around left side. However, the portage is on private land, so an arrangement/agreement is necessary.

12-RM153.5: *Remove bridge on property known as "Needlewoods Game Farm" or develop agreement to portage bridge*

P-I⇔►T-O: "#3-Hwy 29", RM 152.0. PORTAGE – Highway #29 Culvert, somewhat steep road bank on both sides, experienced water trail users could shoot right through; watch for traffic when portaging.

Some state & county-owned land at about RM 150 and again at about RM 145 needs ID signage and has potential for rest stop/primitive camping development

13-RM150: *Install ID sign and develop rest stop on public land adjacent to OTR; assess feasibility of primitive overnight camping on state/county owned land.*

Road Crossing: "Wannagan Bridge", RM 148.0. PORTAGE, or not! - Wannagan Bridge can't easily be portaged due to all bridge corners used as fence posts, barbed-wire fence.

Small tributary from Jones Lake enters from the right about 1 mile past the Wannagan Bridge.

Some county tax forfeit land located on both sides of river in this reach.

14-RM146: *Install ID sign and develop rest stop on public land; assess feasibility of primitive overnight camping on state/county owned land.*

Nice bottom, with occasional rocks, until just before big power line which is where the big cattail slough north of Frazee starts. OTR wanders back and forth through the big cattail expanse, just watch to see which way water is moving the rice; note osprey nests on power poles, eagle nest just to the left after power line.

Privately-owned covered bridge – easy to pass under;

Gets a little rocky as you enter Frazee;

15-RM142: *Develop/promote detailed water trail map through town (either as a stand-alone document or as an insert in the Frazee Reach map).*

Old bridge ('sand dam'), watch for concrete.

Wildflower Park.

Road Crossing: "Hwy 87, Frazee", RM 142.0. Highway #87 Bridge.

RL Frazee Park.

Five artificial rock weirs which constrict and speed up the flow, watch for rocks. These were put in when the control structure at Lions Park was removed.

Riverside Park, just before E. Main.

P-I⇔►T-O: "#4-East Main, Frazee", RM 141.4. East Main Ave, pass under with caution (metal debris hazard on far right), Riverside Park on left side before bridge;

16-RM141: *Remove metal debris if possible.*

Shortly past the bridge there is a 2' diameter utility line across the river about 3 to 4' off the water. This may have to be portaged, depending on water level and type of water-craft.

River Drive follows the river for several blocks, until the 3-bridge crossing; Albertson Lake is to the left/east.

There is a connection to several small lakes to the east which could be added to the Frazee City recreational water trails system.

17-RM140.8: *Develop and map side trip through small lakes east of Frazee.*

Road Crossing: "Albertson Lake, Frazee", RM 141.0. PORTAGE – 3-bridge crossing at River Dr., BNSF RR Bridge, and Highway 10/Juniper Ave E Bridge; easy portage on right side of the first bridge;

The picnic shelter at Lions Park is visible to the WSW, head across the mostly slack water of 'mud' lake;

P-I⇔►T-O: "#5-Lion's Park, Frazee", RM 140.0. PORTAGE – Frazee's Lions Park, absolutely must portage the artificial rock dams where the river leaves the

slackwater in the SW corner, it is about a 12' drop with 4 rows of boulders across the river; get out to the right of the concrete structure on the right side; you are able to portage under the stairway; bathrooms, parking, picnic shelters and a big turkey; possible primitive camping site. Experienced kayakers may enjoy the whitewater provided by the rock dams.

Lion's Park has also been identified as having several archaeological sites (Community Growth Institute 2006).

18-RM140: *Install warning buoys take-out/put-in signs, and improve portage path; assess overnight parking*

Road Crossing: "1st Hwy 10 Crossing", RM 139.9. 1st Highway #10 crossing is a large concrete box culvert; a bit of a drop on the opposite side with rocks; this culvert can be floated when the water is high enough, but there is a bit of a drop on the downstream end; Do not portage across Highway #10.

19-RM139.9: *Clean up downstream side of concrete box culvert*

Leave Becker County. Enter Otter Tail County.

20-RM139: *Install sign noting county boundary*

Solid bottom for several miles, some rocks, very 'remote';

U.S. Waterfowl Production Area is on the right side at about RM 130.

P-I⇔►T-O: "#6-Rice Lake", RM 136.2. River widens and slows as it enters Rice Lake; DNR public access in SE corner of lake just a short distance from the outlet; outlet is in the southernmost end of the lake; it takes a sharp left/east turn; can be plugged with floating bogs; look for moving water to find a way through

Wide & deep river to Black Diamond Road culverts.

Road Crossing: "#6-Black Diamond Road", RM 133.2. PORTAGE – double round culverts under Black Diamond Road [may be clogged with floating bogs] , steep road banks;

Road Crossing: "2nd Hwy 10 Crossing", RM 133.0. – 2nd Highway #10 crossing is a pair of large concrete box culverts followed by a RR bridge; tricky for non-experienced water trail users; Do not portage across Highway #10.

P-I⇔►T-O: "#7-403rd Avenue", RM 132.2. Bridge – small 403rd Avenue Bridge.

Wide, but sometimes shallow w/sandy bottom stream.

P-I⇔►T-O: "#8-Hwy 60", RM 130.8. Highway 60 Bridge.

Road Crossing: "1st Little Pine", RM 127.6. OTR runs adjacent to Highway 51 with small diameter culvert.

Continue through Mud Lake to the south. Good river running into cattails as it approaches Little Pine Lake. Enter Little Pine Lake under Highway 51 Bridge.

P-I⇔►T-O: #9-2nd Little Pine", RM 124.9. the restaurant, Zorbaz, is just a block away. city park nearby. This is actually in the Perham city limits, but city center is about 1.5 miles south on Highway #51.

21-RM124.9: *Develop end-of-trail/reach facilities (parking, toilets, etc.)*

Frazee Reach Trail Segments

Water trail users have many options for put-in/take-out in the 32-mile-long Frazee reach (Figure 6). Paddling the entire stretch is a two-day trip for all but the most experienced paddlers, with an overnight stay in the vicinity of Frazee. Experienced paddlers could do the reach in one long, arduous day! Windy days can add time to these trips, especially when crossing lakes with a head wind or cross wind.

The shortest stretch in the Frazee Reach is about 3 miles between Rochert and Highway 34. The longest individual stretch is between the Wannagan Bridge and Frazee, a distance of about 6 river miles which is a two- to three-hour paddle. There are no atypical hazards to paddlers in the Frazee reach. Paddlers with a little experience should not have any trouble as long as they understand the basics of paddling and use common sense.

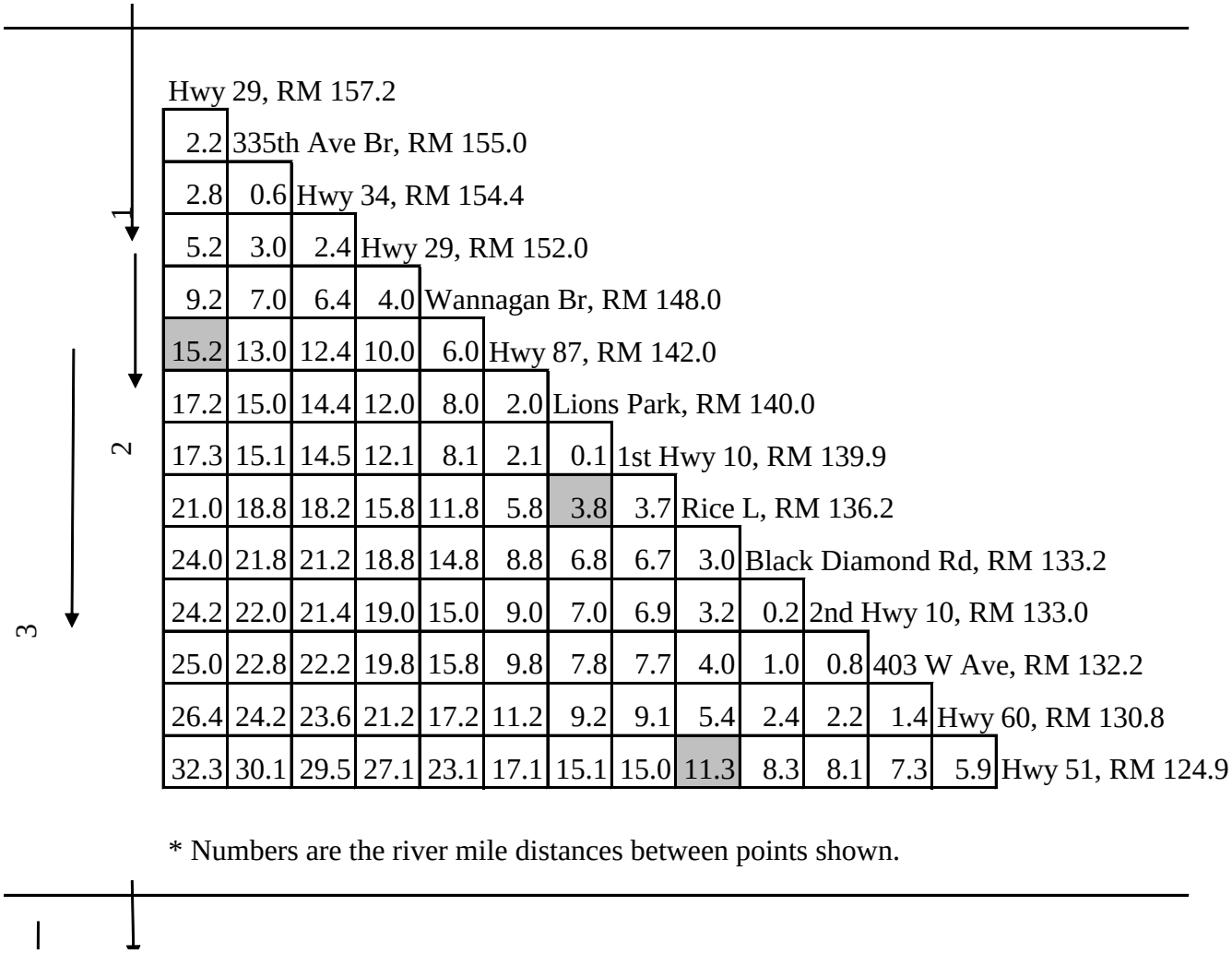
Recommended Segments

Three segments are recommended for initial development:
Segment 1 from Highway 29 at Rochert to Highway 87 in Frazee is 15.2 river miles with 3 road crossings. This is an easy day trip for experienced water trail users.

Segment 2 from Lions Park to the Rice Lake public access is 3.8 river miles, with one road crossing at Highway 10.

Segment 3 from Rice Lake public access to the inlet at Little Pine Lake (Highway 51) is 11.3 river miles, with five road crossings.

Figure 6. Frazee Reach



* Numbers are the river mile distances between points shown.

Frazee Reach Water Trail Development Priorities

With a few modest actions, the Frazee Reach would be a viable water trail (Table 4). Further enhancements during phases II and III would make the reach more user friendly, safer, and more inviting.

Otter Tail River
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Table 4. Recommended Frazee Reach Operational Actions

* Check the common goals list (Table 2) for items appropriate to this reach.

Goal #	Action	Implementation Level	Estimated Cost [a]
	PHASE I [b]		
12-RM153.5 [c]	Remove bridge on property known as "Needlewoods Game Farm" or develop agreement to portage bridge.	DNR/County	$5,000
16-RM141	Remove metal debris at East Main Bridge	City	$500
18-RM140	Lion's Park, install take-out/put-in signs, warning buoys, and improve portage path; assess overnight parking	Local/DNR	$3,000
19-RM139.9	1st state Hwy 10 crossing, clean up downstream side of concrete box culvert;	DNR/MN DOT	$2,000
	PHASE II		
FR-MAP	Develop Frazee reach map.	Local/City	$3,000
11-RM141	Provide OTRiver daily streamflow/live video-cam on the City of Frazee community website	City	$5,000 (x3)
13-RM150	After Hwy 29, Install ID sign and develop rest stop on public land adjacent to OTR; assess feasibility of primitive overnight camping on state/county owned land.	Local/DNR	$10,000
15-RM142	Develop/promote detailed water trail map through Frazee.	City	$1,000
17-RM140.8	Develop and map side trip through small lakes east of Frazee	City	$5,000
20-RM139	Install sign noting county boundary	County	$500
21-RM124.9	L. Pine inlet, develop end-of-reach facilities	DNR	$20,000
	PHASE III		
14-RM146	Develop primitive campsite between Wannagan Br. & Hwy 87	Local/DNR	$25,000
Total			$90,000

[a] Implementation costs will vary considerably depending on who does it and when it is done. If accomplished largely by volunteers, cost, may be minimalized. If accomplished by public sector employees (state or local), costs may, or may not, be absorbed in agency budgets. If accomplished by contractors, cost may be higher. Costs are 'middle-of-the-road' estimates in 2009 dollars that could vary by as much as 100% or more. Annual and ongoing costs are included in the total for three years. Beyond that, ongoing costs could range from 1 to 5 percent of initial costs depending on who and how O&M is accopmlished.

[b] Phase I: roughly now for 12 to 18 months, Phase II: from 1 to 3 years into the future, Phase III: from 2 to 5 years into the future.

[c] Operational Action #12 at River Mile 153.5.

c. Big Lakes Reach

The Big Lakes Reach runs from river mile 124.9 at the Little Pine Lake inlet to river mile 73.0 at Friberg Dam. The OTR drops only about 32 feet in this reach, or less than 1 foot per mile. This 52-mile reach has great potential for development of numerous options from short to overnight trips. Phelps Mill County Park, at RM100, is an ideal rest stop with potential for development of a water trail users campground in the vicinity. Over 22 miles of this 52-mile reach is across lakes, some of which could be hazardous under windy conditions.

The 'river log' for the Big Lakes Reach includes several recommendations for enhancements to facilitate recreational use. They include, for example, non-obtrusive signage, portage enhancements, and kiosks.

This is one of the best reaches for family-oriented water trail users:

- frequent put-in/take-out sites,
- very modest stream flow,
- potential for service providers, and
- abundance of campgrounds and resorts.

Service Providers in the Big Lakes Reach

As of the fall of 2008 there was only one private sector provider (canoe rental) of recreational services in the Big Lakes Reach that caters to river users. However, other individuals have shown interest in developing river-based, recreational businesses. Several resorts on lakes the river passes through rent watercraft or offer camping and could become service providers in the future.

Connections to Other Trails

- Red River Ox Cart trail crossing in this reach at Rush Lake, Frazee, and near Luce.
- Otter Country Trail Association
- Otter Tail Riders Snowmobile Trail

Stream Flow in the Big Lakes Reach

Due to the influence of the Pine Lakes, Rush Lake, Otter Tail Lake, Deer Lake, and Red River Lake, stream flow is both seasonally stable and low velocity. There are no streamflow gauges in the Big Lakes Reach with data readily and consistently available to the water trail users.

22-RM105[12]: *Install/develop, or convert existing, stream flow gauge (daily reading is adequate) at Rush Lake outlet, Otter Tail Lake outlet, or Phelps Mill and make this data available at OTR Water Trail web site.*

Big Lakes Reach River Log

There are at least three options to start the Big Lakes Reach, the L. Pine Lake inlet, the L. Pine Lake outlet, or the B. Pine Lake outlet. Other options include the public accesses on Big Pine Lake and Little Pine Lake.

23-RM(reach)[13]: *Install signs at all put-ins/take-outs, bridge id signs, etc.*

START Option A: **Little Pine Lake Inlet, RM 12.9**. Cross L. Pine to the SE where OTR exits,

START Option B: **P-I⇔►T-O: #1-Hwy 8", RM 123.0**. PORTAGE - control structure where OTR leaves Little Pine Lake and across County Highway #8 (a.k.a. 455th Avenue). Public access with portable toilet just to the south of OTR outlet on Little Pine Lake.

Several parks in the area not far from the OTRiver on the south side of the lakes.

Short stretch of OTR (<2 miles) to Big Pine Lake; no public areas at inlet; go left/north about 1.4 miles to DNR public access for parking and portable toilet; OR go right/south along west shore of Big Pine to OTR outlet, area is private property of Big Pine Lodge; ; land access to the outlet/dam is through Big Pine Lodge ($1/person in 2008); Service provider IDEA: Big Pine Lodge could pick people up at Zorbaz, and ferry them to the outlet.

START Option C: **P-I,: "#1-Big Pine Lodge", RM 119.5.** PORTAGE: must portage control structure at OTR outlet (msl 1331').

24-RM119.5: *Develop an access agreement with landowner at Big Pine Lake outlet.*

Road Crossing: "Hwy 80" and "3rd Hwy 10 crossing", RM 116.1. Three bridges in close proximity: RR bridge, County Highway 80 Bridge, and 3rd Highway #10 crossing; all are passable.

Nice, wide sand bottom.

Notice unusual oaks on right bank with exposed roots.

[12] Operational action #22 at River Mile 105.
[13] Operational action #23, "(reach)' indicates the action is recommended for various locations throughout the reach.

River enters Mud Lake, follow along left/east side to narrow channel on SE corner.

Shortly after leaving Mud Lake, river runs along 460th Avenue.

Road Crossing: "390th St", RM 112.0. Three round culverts under 390th St.; good passage; good egress/ingress on right side through culverts.

Road Crossing: "Hwy 14", RM 109.2. Three box culverts under County Highway #14; good passage; good egress/ingress on right side through culvert.

Willow Creek enters on the left, midway between Highway #14 and Rush Lake.

River enters Rush Lake on its north shore. About 3 miles across Lake to public access (w/portable toilet) adjacent to OTR outlet on SW shore. The Rush Lake Public Access is a potential location for an OTR water trail kiosk. The kiosk or other sign should indicate that this was one of 6 places where the Red River Ox Carts crossed the OTR. Also a public access on the NW shore—if you follow the shore to the right, you will pass that access about half way to the OTR outlet in the SW corner of the lake

P-I⇔T-O: "#2" and "Hwy 78 Bridge", RM 105.0. PORTAGE: Control structure

Wide, slack water channel to inlet to Otter Tail Lake; all private property.

Railroad bridge.

Road Crossing: "#5-Hwy 1 Bridge", RM 101.7. Bridge on County Highway #1

About 9 miles SW across Otter Tail Lake to OTR outlet. From the inlet via the northwestern (right) shoreline it is about 9.5 miles to the outlet, and via the southeastern (left) shoreline it is over 16 miles to the outlet. Almost all of the shoreline is private property. On the north shore is Amor Park.

P-I⇔T-O: "#3-Hwy 72", RM 93.0. PORTAGE: Public access on the left before County Highway #72 Bridge and control structure. Portage across Highway #72 to public access on the west side; parking and portable toilet; Restaurants about ¼ mile north on Highway #72. The DNR has a shore fishing structure at the west side public access. This is a good potential location for an OTR water trail kiosk.

Good ride to Deer Lake which is just beyond County Highway #83 Bridge

Road Crossing: "Hwy 83", RM 91.0. Public access just to the left after bridge on Highway #83. Some of these places may be potential put-in sites as well;

however, parking is an issue, especially at sites that are heavily used by anglers and others launching watercraft.

Go straight west across Deer Lake to where river enters East Lost Lake, turn to the NW following east shore through another narrow spot to where river leaves East Lost Lake at its NE shore.

Road Crossing: " 2nd Hwy 1crossing", RM 88.5. Cross under County Highway 1 Bridge.

Nice ride to Phelps Mill County Park; one stretch of rocks.

Road Crossing: "Hwy 45", RM 86.6. Cross under County Highway #45 Bridge; Harry's Bridge; water gets slack from here to the Phelps Mill dam.

Phelps Mill – square culvert on the right goes to Leon Lake

P-I⇔T-O: "#4-Phelps Mill", RM 85.5. PORTAGE: must portage on right side of bridge/dam; bridge is old iron superstructure with Phelps Mill in the right background; pull into grassy riverbank facing Phelps Mill Store; about 300' portage to Park lawn past Mill; large parking lot for the Park; bathrooms; ice cream at Store. This is a potential location for an OTR water trail information kiosk.

25-RM85.5: *Assess possibility of overnight camping at Phelps Mill County Park.*

Nice ride to West Lost Lake; a few rocks possible during low water about ½ mile past the Park and again shortly before West Lost Lake.

Road Crossing: "Hwy 35", RM 82.2. Cross under Highway #35 Bridge into West Lost Lake [Maple Leaf Resort on the right].

Take left channel of OTR and follow east lakeshore about ¼ mile to public access; OR take right channel and bear NW to OTR outlet in extreme NW corner of W Lost Lake.

Road Crossing: "Water Street Bridge", RM 80.3. Outlet goes under Water Street Bridge [on Water St. Road].

Through unnamed lake, short stretch of river and then slack water of Red River Lake.

Appears to be a private campground just before bridge on right side of river- possible site for coop venture.

26-RM78: *Assess potential for rest stop/primitive camping through coop agreement with private landowner.*

Road Crossing: "Hwy 43", RM 77.0. A little over a mile of river to County Highway #43 Bridge.

Short stretch of river, then Red River Lake again [Friberg (Taplin Gorge) Dam Reservoir]

P-I⇔T-O: "#5-Hwy 3", RM 74.0. Cross under County Highway #3 Bridge, which is about the mid-point of Red River Lake and separates East Red River Lake from West Red River Lake. Watch for teens jumping into the river from the downstream side of the bridge, they may not see you coming! Public access is on the right after bridge. This could be the end of the Big Lakes Reach, or it could end at Taplin Gorge Dam.

Two more miles of Red River Lake to Friberg Dam [owned by Otter Tail Power Company]

P-I⇔T-O: "#6 Taplin Gorge - Friberg Dam", RM 73.0. 290th street accesses Friberg Dam, 1299' msl, PORTAGE: Friberg Dam around the right side; avoid concrete-lined channel to hydro-power plant; area is owned by Otter Tail Power Company (OTPC.; closed to public between 10 p.m. and 8 a.m.)

This dam was designed as a replica of the tomb of Italian Emperor Theodoric and went online in 1925.

27-RM73: *Develop agreement with OTP Company to use this site as a trail head. Develop appropriate trail end facilities (e.g., parking, toilets, primitive camping, etc.)*

Big Lakes Reach Trail Segments

River users have at least 5 options for put-in/take-out, 11 road crossings and at least five portages in the 52-mile-long Big Lakes reach (Figure 7). paddling the entire stretch is a two-day trip if the big lakes are portaged, and a three-day trip if not. Wind can be a factor on Rush, Otter Tail, and Deer Lakes.

There are several short paddling stretches in the Otter Tail River Reach: 1+ mile stretch between two county roads just before Rush Lake, Rush Lake outlet to Highway 1, Otter Tail Lake outlet to Deer Lake, and Phelps Mill to West Lost Lake. There are no distances between put-in/take-outs longer than a few miles, except for Otter Tail Lake (9 miles). This reach has few portages (Rush Lake outlet, Otter Tail Lake outlet, Phelps), virtually no hazards, the mildest flow rates of the five OTR reaches, and the highest density of businesses catering to 'tourists'.

Recommended Segments

Five segments are recommended for initial development:

Segment 1 from the outlet of Big Pine Lake to Highway 14 is 10.3 river miles

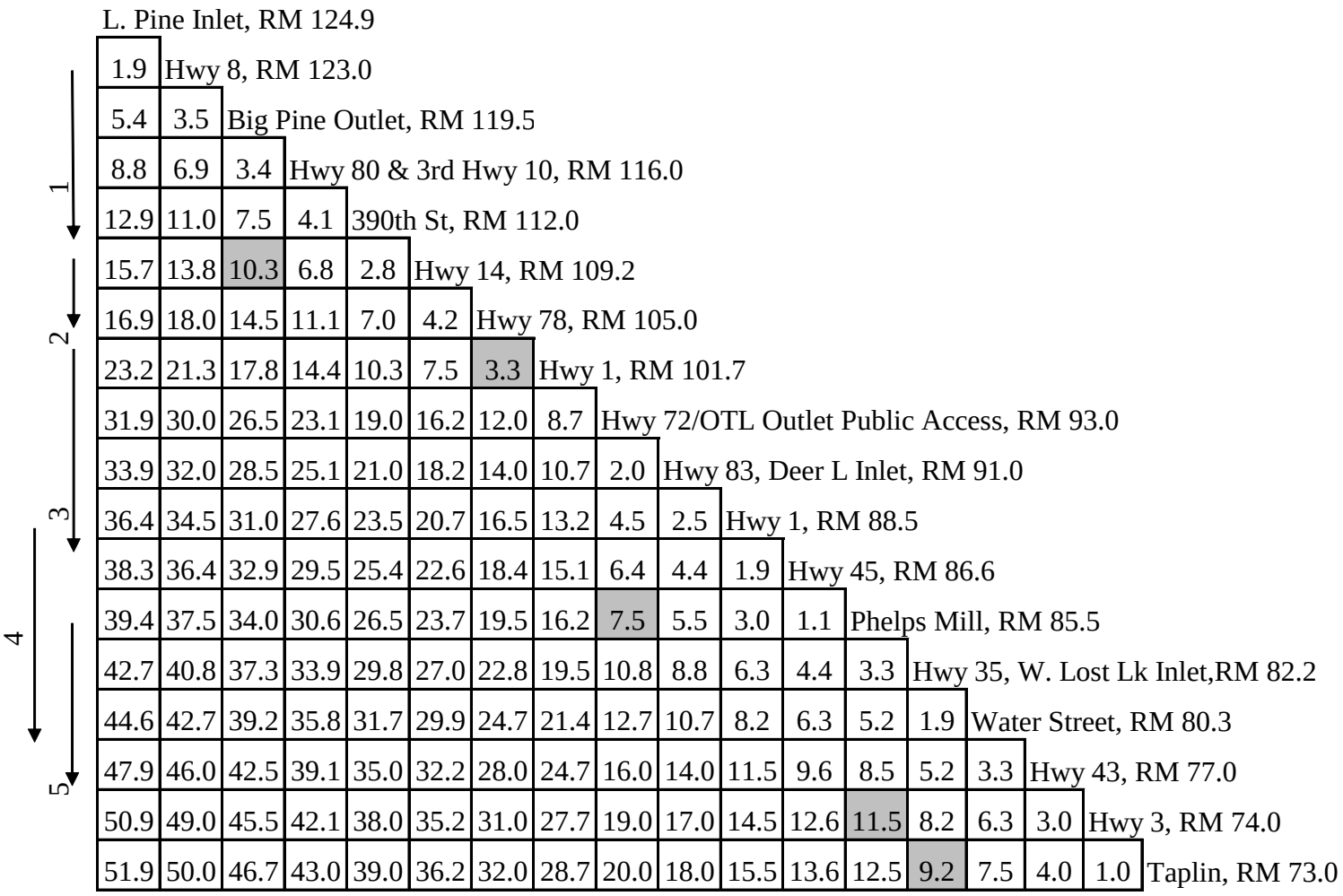
Segment 2 from Highway 78 at Rush Lake outlet to Highway 1 is 3.3 river miles.

Segment 3 from the outlet from Otter Tail Lake to Phelps Mill is 7.5 river miles.

Segment 4 from Phelps Mill to the public access on West Lost Lake to the public access on Red River Lake at Highway 3 is 11.5 river miles.

Segment 5 from the public access on the east side of West Lost Lake, 9.2 miles to the landing at Taplin Gorge Dam.

Figure 7. Big Lakes Reach



* Numbers are the river mile distances between points shown.

Water Trail Development Priorities

The Big Lakes Reach of the OTR Water Trail could be available to the public with few enhancements. Namely, an agreement with the landowner at the Big Pine Lake outlet so water trail users can put-in there or lawfully portage the dam. However, several actions are recommended during Phase II and III (Table 5).

Table 5. Recommended Big Lakes Reach Operational Actions

* Check the common goals list (Table 2) for items appropriate to this reach.

Goal #	Action	Implementation Level	Estimated Cost [a]
	PHASE I [b]		
24-RM119.5 [c]	Develop an access agreement with landowner at Big Pine Lake outlet	DNR	$5,000
	PHASE II		
BL-Map	Develp a map for Big Lakes Reach	Local	$3,000
22-RM105	Install/develop, or convert existing, streamflow gauge at Rush Lake outlet, Otter Tail Lake outlet, or Phelps Mill and make data available on OTR water trail web	Local/DNR	$5,000
23-RM(reach)	Install signs at all put-ins/take-outs, bridge id signs,	Local/DNR	$10,000
25-RM85.5	Assess possibility of overnight camping at Phelps Mill County Park.	DNR/County	$10,000
26-RM78	Just before Hwy 43, assess potential for rest stop/primitive camping through coop agreement with private landowner.	DNR	$15,000
	PHASE III		
27-RM73	Develop trail head and camping at Taplin Gorge	Local/OTPC	$30,000
Total			$78,000

[a] Implementation costs will vary considerably depending on who does it and when it is done. If accomplished largely by volunteers, cost, may be minimalized. If accomplished by public sector employees (state or local), costs may, or may not, be absorbed in agency budgets. If accomplished by contractors, cost may be higher. Costs are 'middle-of-the-road' estimates in 2009 dollars that could vary by as much as 100% or more. Annual and ongoing costs are included in the total for three years. Beyond that, ongoing costs could range from 1 to 5 percent of initial costs depending on who and how O&M is accomplished.

[b] Phase I: roughly now for 12 to 18 months, Phase II: from 1 to 3 years into the future, Phase III: from 2 to 5 years into the future.

[c] Big Lakes Recommended Operational Action (BL-ROA) number three.

d. Fergus Falls Reach

The Fergus Falls Reach runs from river mile 73.0 at Friberg Dam (aka Taplin Gorge) northeast of Fergus Falls to River mile 39.0 at Orwell Dam south west of Fergus Falls.

The 'river log' for the Fergus Falls Reach includes several recommendations for enhancements to facilitate recreational use. They include, for example, portage enhancement, agreements with Otter Tail Power Company to allow access for portaging, non-obtrusive signage, and removal of obvious hazards to water-based recreation.

The Fergus Falls Reach is distinguished by the 272' drop in the River about 34 river miles, its many hydropower facilities, birding opportunities, and the City of Fergus Falls.

Service Providers in the Fergus Falls Reach

There are a couple canoe and kayak rental/sales operations in this reach.

Connections to Other Trails

- Otter Country Trail Association Snowmobile trail,
- Pine to Prairie Birding Trail,
- Scenic Byway, and
- Central Lakes State Trail.

Stream Flow in the Fergus Falls Reach

Stream flow in this reach is moderated by the many control structures. There is a USGS gauging station at the Highway 10 Bridge (Figure 2) where River users can find near real-time flow data.

High flows in this reach may create more difficult conditions for novice paddlers, with some Class II rapids, such as at Broken Down Dam. Low flows could occur below Diversion Dam where a portion of the flow is diverted for municipal and hydropower purposes. Low flow would expose many of the rock gardens and could require additional portages, such as near the Power Plant at River Mile 54.0.

28-RM(reach)[14]: *Develop a 'river flow condition' page to be added to the City of Fergus Falls web site with advice/blog to River users regarding conditions.*

Fergus Falls Reach River Log

[14] Operational Action #28 suggested for somewhere in the Fergus Falls reach.

RM 73.0 to RM 39.0, 272' drop from the top of Taplin Gorge Dam to below Orwell Dam in just 34 miles!

Start the Fergus Falls Reach below Friberg Dam at RM 73.0.

P-I⇔►T-O: "#1-Friberg", RM 73.0. 290th street accesses Friberg Dam, 1299' msl above dam, dam drops 30'

29-RM73: *Develop trail head facilities at Taplin Gorge Dam site. This is also the trail terminus for the Big Lakes Reach.*

PORTAGE Friberg Dam around the right side; watch for concrete lined channel to hydro-power plant; area is owned by OTPC; closed to public between 10 pm and 8 am; some parking available, but long carry to the river. Steep ramp-path to river just below dam; watch for fast water and occasional snags. Portage to below dam outlet.

Road Crossing: "Hwy 10", RM 69.9. County Highway #10/230th Avenue crossing- double culverts; narrow shoulders.

Road Crossing: "245th St", RM 65.2. Pass under 245th Street Bridge.

NOTE: The next 11.6 miles, from Diversion Dam to Mt. Faith Avenue is the previously proposed and partially implemented Otter Tail Power canoe trail. The 1992 plan for this section of the River (Harza Engineering for Otter Tail Power Company 1992) is still largely applicable. Exceptions will be noted.

P-I⇔►T-O: "#2- Diversion Dam", RM 65.0. PORTAGE around far right side of Diversion Dam; portage along Diversion Drive to ramp-path downstream; This is the trail head of the FERC plan.

P-I⇔►T-O: "#3 - DNR 1st Canoe Access Point", RM 63.8. Just before the Highway #1 Bridge is a Canoe Trail access point (part of the 1992 plan) on the right side with parking for about eight vehicles.

County Highway #1 crossing; put in at Canoe Access on the west side of highway south of the bridge; parking.

Road Crossing: "Sophus Anderson Rd. RM 61.4. Sophus Anderson Road crossing. Aurdahl River Road parallels the river on the left side.

Road Crossing: "Ridgewood Dr.", RM 58.2. The previous bridge at this site was the principal reason the 1992 plan was not fully

implemented. That bridge was replaced in the fall of 2008 and is no longer a hazard.

30-RM58.2: *Sign on bridge with RM and "public access ½ mile".*

P-I⇔►T-O: "#4 - DNR 2nd Canoe Access Point", RM 58.0. Just past the new Ridgewood Drive Bridge is a water trail user access point (part of the 1992 plan) on the left side of the River.

31-RM58: *Install signs so those on the river can prepare to stop and know where the landing is; portable toilet, enhanced parking. There are very steep river banks for the next two miles.*

There are remnants of an apparent home-made bridge before Page Dam. This might have been a river crossing when Page Dam was functional. The remnants are in the left half of the river and do not pose a significant hazard to river users.

32-RM57: *Install a warning sign on the outward end of the bridge or remove the bridge.*

Page Dam is barely visible and is not a hazard to River users. Class II rapids.

Obstruction: "#5 - Broken Down Dam", RM 55.5. The remnants of Broken Down Dam are an obstacle to river users, however an opening to the left of river center allows safe passage during most water conditions. Class II rapids during high flow. Novice river users should check out flow conditions before attempting to pass through Broken Down Dam. There is limited parking at this undeveloped City of Fergus Falls park and the distance and change in elevation from parking to the river make it an unlikely access site.

33-RM55.5: *Develop Broken Down Dam Park as a water trail users' rest stop, install upstream warning signs, develop portage path.*

34-RM55.5: *Explore two-mile shuttle back to starting point of the FERC stretch.*

Township road bridge;

Hoot Lake Power Plant access road bridge;

Road Crossing - Portage: "Hoot Lake Power Plant", RM 54.3. OTPC power plant location - watch for industrial traffic. Otter Tail Valley RR Bridge & power plant vehicle bridge. At this location some of the water diverted at Diversion Dam re-joins the river. Immediately past the bridges the right side of the River is lined with steel pilings for several hundred feet. In this same area the river drops over two man-made boulder spillways which must often be portaged. There are warning signs in place; however, the location of the recommended portage needs to be reconsidered.

Just past the power plant and before the Mt. Faith Avenue Bridge is a popular swimming hole. Swimmers frequently place one or more ropes across the river at various heights above the water at this location.

Note: Paddling is not recommended from river mile 53.4 to river mile 39.0 because of numerous obstruction, high vehicle traffic areas, and lack of public access to this section.

Road Crossing: "Mt. Faith Ave", RM 53.4. The Mt. Faith Avenue Bridge is just beyond the power plant portage and the end of the 1992 trail plan. This is the location of the public water access site developed cooperatively with OTPC. There is easy passage under this bridge. The Otter Country Trail Association snowmobile trail crosses on the bridge. This could be developed further, since the city owns the adjacent land. However, there are more attractive sites downstream for development of a 'trail head/end' site.

NOTE: Any of the next three bridge locations (except the RR bridge) could be developed as the take-out site with facilities. There is city-owned parkland adjacent to the River in several locations. The river begins to slow down after the Mt. Faith Bridge, due to the influence of Wright Dam just past Cascade Street.

P-I⇔►T-O: "#5-Riverside Avenue", RM 52.7. Riverside Avenue Bridge. This area could be promoted for local watercraft use, putting-in and taking-out at the same location since the stream flow is slow.

Riverview waterfowl sanctuary on the right; w/City-owned fishing pier, Veterans Park on the left.

Flat water to RR bridge – had to duck to get under! This bridge is lower on the left side, so pass under it on the right side.

Road Crossing: "Lincoln Ave", RM 52.2. Flat water to Lincoln Avenue Bridge.

NOTE: Between Lincoln Avenue and Cascade Street should be developed as the 'trail end' for the OTPC canoe trail. This trail head would put river users near the heart of downtown

Fergus Falls. Veterans Memorial Park is on the left. A city bike trail parallels the river one block to the south (left).

<u>City Portage T-O: "#6-Cascade St.", RM 52.0</u>. Water trail users continuing on the Fergus Falls Reach must take-out at the Cascade Street Bridge in Fergus Falls – take-out on left in Veterans Memorial Park.

----------No paddling beyond Cascade St. Bridge.----------

The City's River Walk runs from Wright Dam to Union Avenue and could be developed as a three-block-long portage path, which would require enhancements at both ends to accommodate egress and ingress to the river. Alternatively, river users would need to PORTAGE about 10 blocks to Robert Hannah Park

35-RM52: *Develop a portage path along the City's River Walk.*

Between Cascade Street and Union Avenue; the City's River Walk follows the river on the left/south side. The stream flow is relatively fast in this stretch and there are three obstacles/hazards: Wright Dam, a private utility pipe just feet above the water surface, and a city utility pipe just inches above the water surface.

- Wright Dam, power dam for OTPC. This plant is named after Vernon A. Wright, one of Otter Tail Power Company's founders. It went online in 1922.
- Private utility pipe w/walking planks on top just feet above the water
- Mill Street Bridge
- Court Street Bridge
- Union Street Bridge; city bike path crosses here
- City pipe just inches above the water

36-RM51: *Consider relocating the two utility pipes, making this stretch available to River users. This would shorten the portage to just the distance around Wright Dam.*

City Portage P-I⇔►T-O: "#7-Robert Hannah Park", RM 51.3. PUT IN at 4.35-acre Robert Hannah Park on slack water created by Pisgah Dam. There is a City owned Public Access, portable toilet, and parking for several vehicles. This is the starting point for the continuation of the Fergus Falls Reach of Otter Tail Water Trail. Barefoot skiing competition is held here.

Dam: "Pisgah Dam", RM 50.4. Pull into right shore well before approaching Pisgah Dam, there may be a floating dock 150' to the right of the dam. PORTAGE Pisgah Dam [1918, 34' drop] around the right side, steep bank [needs portage trail cleared and improved, some safety issues with dam]. Pisgah Dam is accessed by S. Tower Road off of Otter Tail Drive (in the City of FF); Pisgah Dam keeps water level within 12" range.

Road Crossing: "I-94:, RM, 49.9. Interstate-94 culverts. Possible class II on the downstream side of the culverts.

The Pelican River enters on the right. The Pelican River crosses under a residential street just upstream of the confluence and under Highway 210 less than a mile upstream. These are both possible put-in sites for access to the Otter Tail Water Trail. This is another possible 'side-trip'.

Emergency T-O: "#10-Hwy 15", RM 47.0. Highway 15 Bridge is three large culverts which are okay to pass through.

Slack water starts about 1 mile past Highway 15, which is the upper end of 2.5 mile-long Dayton Lake Reservoir.

Road Crossing: "Dayton Hollow Dam", RM 43.2. PORTAGE around Dayton Hollow Dam (275 ac reservoir at 1107'msl, 35" drop) property on the left side belongs to OTPC. The right side is private property. Possible site for a rest area with picnic tables and port-a-potties.

37-RM43.2: *Develop rest stop on left side of River downstream of Dayton Hollow Dam.*

There is a brief rocky run below Dayton Hollow Dam until slack water, which is the start of 4-mile-long Orwell Reservoir (396 acres at 1070' msl).

Much of the land adjacent to Orwell Lake/Reservoir is owned by the US Army Corps of Engineers. Some is managed by the MN DNR. Most of this land is open to public access, including hunting, for at least part of the year. The public needs to be aware of the boundaries and respect private property.

MN DNR manages a wildlife sanctuary on 660 acres of reservoir and adjacent lands. The sanctuary runs roughly NNW to SSE from the boat access on the north side of the Reservoir,

to just west of the boat landing on the south side of the Reservoir, effectively cutting off water access to the Reservoir's west end.

38-RM40: *Discuss lifting Orwell Res. sanctuary status during all, or part of, paddling sseason to allow passage*.

P-I⇔►T-O: "#8-Orwell Dam", RM 39.0. It is a long portage from the north-side boat ramp to below Orwell Dam (43' drop) and the stilling basin bridge (no boats allowed) on the left side. The property is Corps of Engineers. There is parking for about six vehicles, picnic grounds, fishing, toilets. The Highway 15 Bridge is just downstream of the Orwell parking area and the start of the final reach of the Otter Tail Water Trail.

39-RM39: *Develop camping facility at Orwell Dam.*

Fergus Falls Reach Trail Segments

There are 8 put-in/take-out sites and 11 road or dam crossings. The shortest stretch is one city block in Fergus Falls or about two miles outside of town. The longest stretch is from Highway 10 to Diversion Dam, about five miles. Recreational users could also enter via the Pelican River at several upstream bridges, which would bring them to the Highway 15 Bridge and beyond.

Recommended Segments
There are two trail segments recommended for initial development. After safety and access issues have been addressed, Segment 3 & 4 can be developed:

Segment 1 from Taplin Gorge Dam 8.0 miles to Diversion Dam.

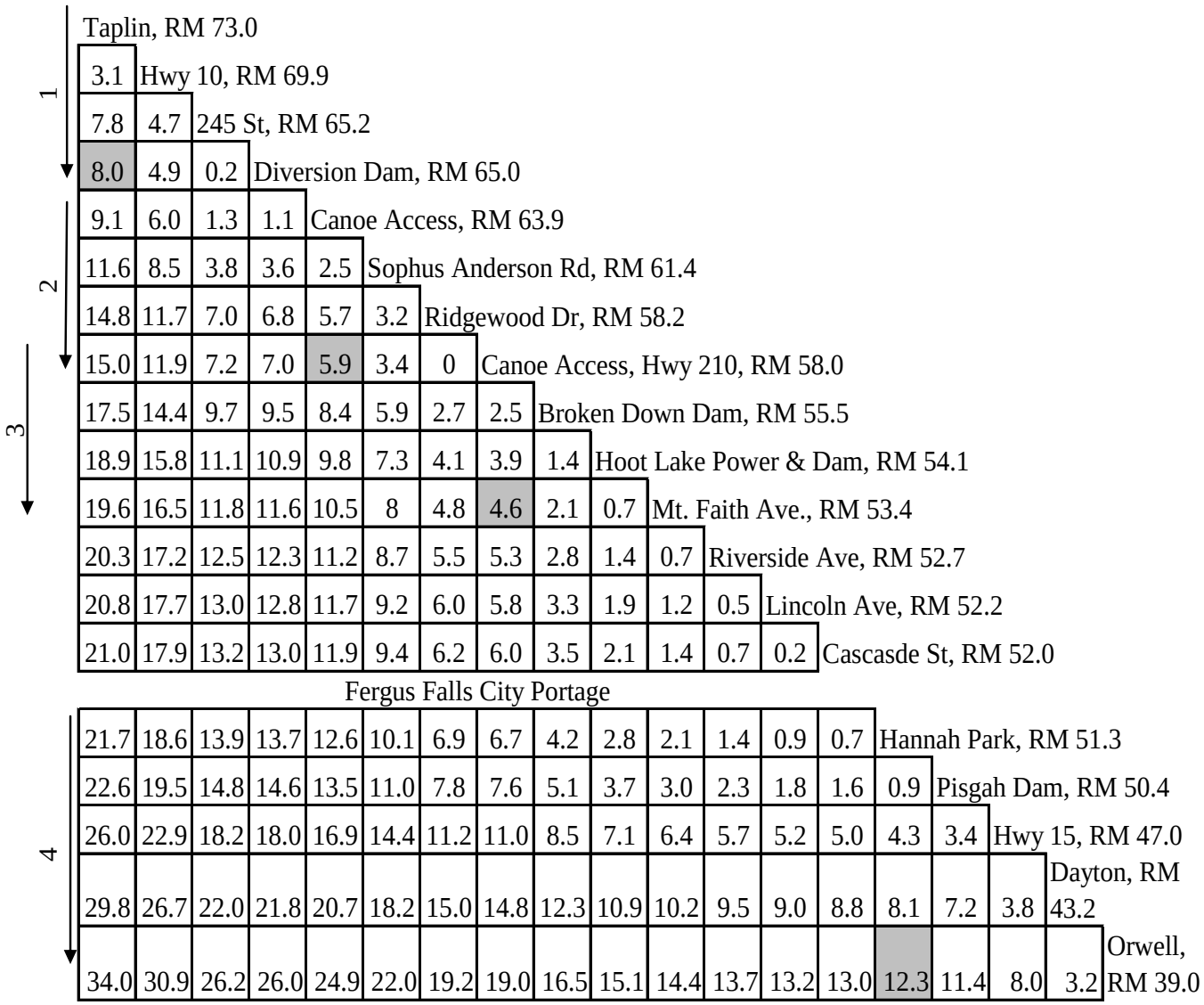
Segment 2 between the two existing canoe access points at RM 63.9 and RM 58.0 for run of 5.9 miles

Segment 3 starts at the second existing canoe access and goes to Mt. Faith Avenue, distance of 4.6 miles. This stretch is not ready for novices, since it includes the Broken Down Dam Class II water and a portage at the Hoot Lake Power Plant during most flow conditions.

Segment 4 starts at Robert Hannah Park in Fergus Falls and ends 12.3 miles later at the southeast side boat access on Orwell Reservoir.

Otter Tail River
Water Trail Master Plan

Figure 8. Fergus Falls Reach



* Numbers are the river mile distances between points shown.

Fergus Falls Water Trail Development Priorities

The Fergus Fall Reach is the most complicated, with several obstacles, hazards, and infrastructure (i.e., parking) issues. However, the 1992 FERC plan (Appendix A) should be implemented largely as written, with emphasis on segment 1, 2, and 3 mentioned above (Figure 8)

Table 6. Recommended Fergus Falls Reach Operational Actions

* Check the common goals list (Table 2) for items appropriate to this reach.

Goal #	Action	Implementation Level	Estimated Cost [a]
	PHASE I [b]		
SG-1	Update and implement the 1992 OTPC plan.	DNR/OTPC	$100,000
30-RM58.2 [c]	Sign on Ridgewood Ave. Bridge with RM and "canoe access ½ mile".	DNR	$500
31-RM57.8	Install signs at existing canoe access so river users know where the landing is; portable bathroom, enhanced parking.	Local/DNR	$5,000
32-RM57	Install a warning sign on old bridge or remove.	DNR	$3,000
	PHASE II		
FF-MAP	Develop a map for the Fergus Falls Reach.	City	$3,000
28-RM(reach)	Develop a 'river flow condition' page to be added to the City of Fergus Falls web site.	City	$1,000
29-RM72.8	Develop trail head facilities at Taplin Gorge Dam.	DNR/local	$10,000
33-RM55.5	Develop Broken Down Dam Park as a water trail users' rest stop, install upstream warning signs, develop portage path.	Local/DNR	$15,000
34-RM55.5	Explore two-mile shuttle back to starting point of the FERC stretch.	Local/DNR	$10,000
35-RM52	Develop a portage path along the City's River Walk.	City	$5,000
37-RM43.2	Develop rest stop downstream of Dayton Hollow Dam.	Local/DNR	$20,000
38-RM40	Discuss lifting Orwell Res. sanctuary status during all, or part of, canoeing season to allow passage.	DNR/USACE	$5,000
	PHASE III		
36-RM51	Relocate the two utility pipes, making FF city stretch available to river users.	DNR/city	$10,000 (study)
39-RM39	Develop Orwell Dam as overnight camping facility.	USACE/Local	$25,000
Total			$212,500

[a] Implementation costs will vary considerably depending on who does it and when it is done. If accomplished largely by volunteers, cost, may be minimalized. If accomplished by public sector employees (state or local), costs may, or may not, be absorbed in agency budgets. If accomplished by contractors, cost may be higher. Costs are 'middle-of-the-road' estimates in 2009 dollars that could vary by as much as 100% or more. Annual and ongoing costs are included in the total for three years. Beyond that, ongoing costs could range from 1 to 5 percent of initial costs depending on who and how O&M is accomplished.

[b] Phase I: roughly now for 12-18 months, Phase II: from 1-3 years into the future, Phase III: from 2-5 years into the future.

[c] Fergus Falls Recommended Operational Action (FF-ROA) number three.

e. Lake Agassiz Reach

The Lake Agassiz Reach runs from river mile 39.0 below Orwell Dam to river mile 0.0 at the confluence with the Bois de Sioux River in Breckenridge. The OTR drops only about 32 feet in this reach, or less than 1' per mile. It is the least drop/mile of the five OTR reaches. This 39-mile reach meanders through relatively flat agricultural land in the bottom of former Glacial Lake Agassiz. There are numerous judicial drainage ditches entering the river. There is evidence of considerable channel straightening in this reach which occurred in the 1950s.

The 'river log' for the Lake Agassiz Reach includes several recommendations for enhancements to facilitate recreational use. They include, for example, non-obtrusive signage, portage enhancements, and enhanced facilities at the Highway 169 Bridge.

This is a good reach for novice and family-oriented water trail users up to river mile 2.4 at Lions Park Public Water Access:

- adequate put-in/take-out sites,
- very modest stream flow, and
- one easy portage at Breckenridge Lake.

Service Providers in the Lake Agassiz Reach

As of the fall of 2008 there were no primary service providers.

Wahpeton Park District will rent canoes and kayaks.

Local 'boosters'. While not currently 'service providers' several entities were identified as supporters.

- Wilkin County Commission,
- Breckenridge City Council,
- Wilkin County Highway Department,
- Wahpeton Parks and Recreation Department,
- Breckenridge and Wahpeton Chamber,
- Project Breckenridge,
- Boy Scouts, and
- Red River Area Sportsman's Club.

Connections to Other Trails

There are Red River Cart trail crossings (aka "old trail crossing") in this reach south of Foxhome and again near the mouth.

40-RM(reach)[15]: *Install signs noting cart trail crossings.*

Other trail connections include:

- Highway 75 – King of Trails,
- North Country Trail,
- Wahpeton Bike trails,
- Breckenridge bike trail, and
- Breckenridge walking path adjacent to local Dairy Queen.

Stream Flow in the Lake Agassiz Reach

Due to the influence of Orwell Dam, stream flow is short-run stable. There is one USGS stream flow gauge in this reach at the Highway 19 Bridge, south of Foxhome (http://waterdata.usgs.gov/mn/nwis/current/?type=flow).

41-RM2: *Provide OTR flow data via City of Breckenridge link to USGS gauge at Highway 19, and develop stream flow data site in the City for seasonal use.*

Lake Agassiz Reach River Log

START at the U.S. Corps of Engineers recreation area below Orwell Dam.

P-I⇔T-O: "#1-Orwell Trailhead", RM 39.0. Good stream flow and some rocks in the first mile or so past the Highway 15 Bridge.

OTR has high sediment load as it enters the prairie ecosystem.

On the west edge of the OT county line is a strip of 'Agassiz Beach Ridge Landscape' (Chapman et al. 1998), and the Foxhome Prairie Preserve (240 ac. Nature Conservancy) on the highest relict beach ridge, is just to the north.

The Otter Tail – Wilkin County line is the north-south boundary between Range 45W and Range 44W.

Judicial Ditch J-2, on the county line was built in 1906.

Road Crossing: "Wilkin Co. #19 Bridge", RM 27.7. Okay to pass under, parking at historical marker for 'old crossing' ox cart trail crossing [3/4 mile upstream]; site of USGS gauge.

[15] Operational Action #41 at (reach), implying appropriate locations throughout this reach.

333Two sets of man-made, rock riffles at RM 25-26. Installed in 2005 to reduce erosion.

Channel straightening RM 20 to RM 30 by the USACE during the 1950s.

P-I/T-O: "#2-County Road 169/290th Ave Bridge", RM 21.8. This bridge is roughly ½ way from Orwell Dam to Breckenridge Lake and a good site for a rest stop.

42-RM21.8: *Develop a 'short trail terminus' here w/appropriate improvements.*

Appears to be two old low head dam remnants.

Road Crossing: "Hwy 17/270th Ave Bridge", RM 19.0. AKA the Everdale Bridge.

Section 17, Sunnyside Twp is Sunnyside Township Game Refuge.

Road Crossing: "#4-Hwy 14 Bridge", RM 10.2. Teens swimming/jumping from bridge.

Public Water Access Site on NW side of Breckenridge Lake (Coop between Wilkin Co. & DNR).

43-RM.8.1: *Develop portage path around dam.*

P-I/T-O: "#2-Breckenridge Lake", RM 8.1. The lake is mostly filled in with cattails, with a wide river channel. Reconfigured boulder dam is in the WNW corner. Novices MUST PORTAGE the boulder dam! Portage just before culvert on left side about 50 yards south of the dam, follow the trail to downstream of the dam. This could be a put-in site for the 8.1-mile distance to the confluence. A steel bridge for bike/walking path was installed over the outlet in fall 2008.

Road Crossing: "Highway 10 Bridge", RM 7.7. Remnant dam visible in low water. [Recommendation may need removal or 10' chute]

Enter City of Breckenridge.

Road Crossing: "Highway 16/11th Street Bridge", RM 3.6. River splits w/original channel bearing left, the right channel is a man-made diversion. DO NOT go right as there is a steep drop into the diversion channel.

P-I/T-O: "#3-Lions Park", RM 2.4. Park w/ public water access on the left just before Highway 9/210/75 Bridge.

Road Crossing: "Highway 75/#9 Bridge", RM 2.2. Portage: Dam at municipal water plant. Not for the inexperienced.

44-RM2.2: *Install signs and portage path around left side and/or retro-fit w/chute.*

P-I/T-O: "#4-Highway 5/Main Street Bridge", RM 1.0. Main Street Rotary Park is on the left.

River breaks through to Red River at RM 0.5, stay left for another mile to confluence with Bois de Sioux. Some hazards to water users, such as re-bar and steel channels protruding.

Road Crossing: "Welles Park/Nebraska Avenue Bridge", RM 0.3. Welles Memorial Park & Fairgrounds on the right is a 30-acre wooded park with five primitive camping sites and two with electricity. There are picnic tables and shelters, toilets, a playground, and fishing dock.

Final T-O: "#5-Confluence", RM 0.0. MSL 961' (depending on flow). Headwaters Park includes a walking bridge, a monument to the headwaters of the Red River of the North, and a public water access ramp. Just across the Minnesota Avenue (in Breckenridge) and Dakota Avenue (in Wahpeton, North Dakota) bridge is the downtown business district of Wahpeton. Potential site for an OTR water trail kiosk (possibly combine with existing Red River kiosk).

45-RM0.0: *Develop a kiosk at Headwaters Park.*

Lake Agassiz Reach Trail Segments

River users have several current options for put-in/take-out in the 39-mile-long Lake Agassiz Reach (Figure 9). Paddling the entire stretch is a casual two-day trip, or it can be done in one day if wind is not a factor. The shortest segment is between bridges in Breckenridge. The longest segment is about 11 miles between Orwell and Highway 19.

Recommended Segments

Four water trail segments are recommended for initial development:

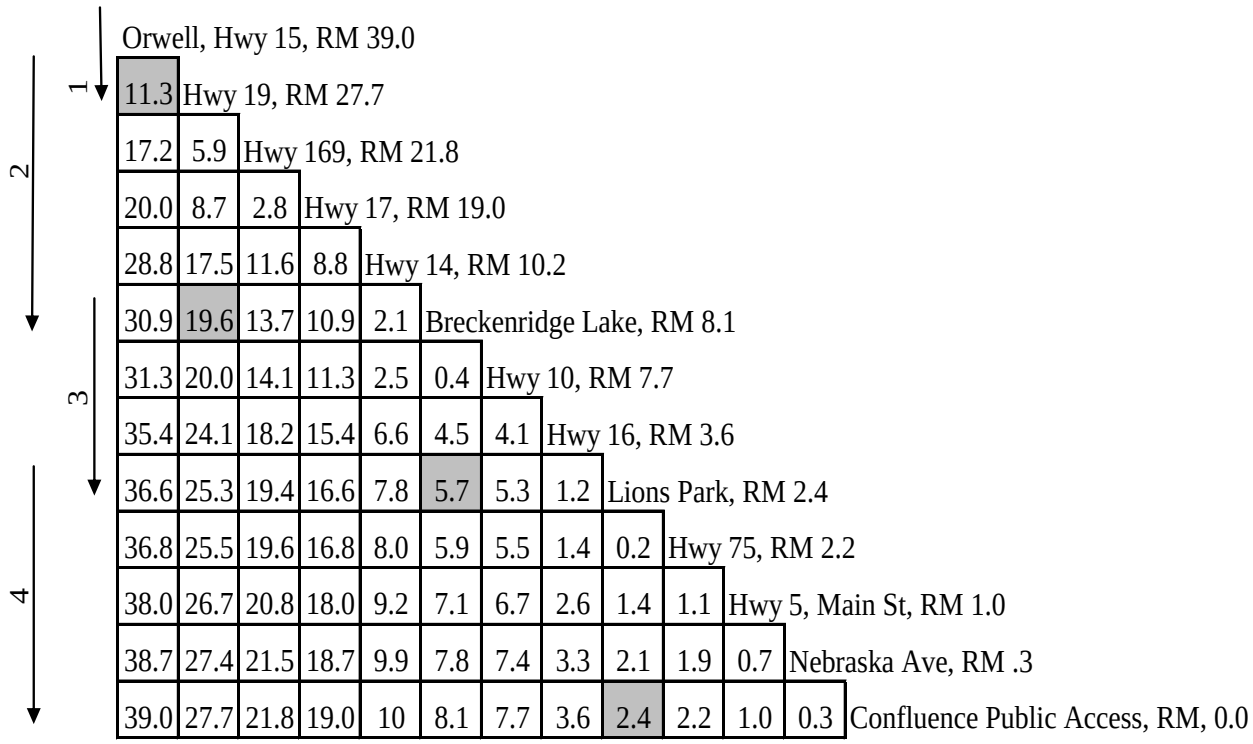
Segment 1 goes from Orwell Dam picnic area about 11 miles to Highway 19.

Segment 2 runs from Highway 19 to Breckenridge Lake, a distance of almost 20 miles. This would be a 10-hour trip for a casual paddler or a 5-hour trip for the hard-core.

Segment 3 is from Breckenridge Lake to Lions Park in Breckenridge. This is a rather easy 6-mile trip.

Segment 4 is through the city of Breckenridge from Lions Park to the confluence, a distance of just 2.4 miles. Depending on flows, the remnant, low-head dam at the water plant may need to be portaged.

Figure 9. Lake Agassiz Reach



* Numbers are the river mile distances between points shown.

Lake Agassiz Reach Water Trail Development Priorities

A few signs and portage paths to facilitate recreational users of the four recommended segments are all that is necessary in Phase I. Further enhancements would make the entire Lake Agassiz reach available to all levels of paddlers (Table 7).

Table 7. Recommended Lake Agassiz Reach Operational Actions

* Check the common goals list (Table 2) for items appropriate to this reach.

Goal #	Action	Implementation Level	Estimated Cost [a]
	PHASE I [b]		
42-RM21.8 [c]	Hwy 169 Br., Develop a 'trail segment terminis' here	Local/DNR	$30,000
44-RM2.2	Water plant dam, Install signs and portage path around left side and/or retro-fit w/chute	DNR/city	$15,000
	PHASE II		
LA - MAP	Develop Lake Agassiz Reach map.	Local	$3,000
40-RM(reach)	Install signs noting cart trail crossings	County Historical Society	$5,000
41-RM2	Provide OTR flow data via City of Breckenridge link to USGS gage at Highway 19, and develop streamflow data site in the City for seasonal use	Local/DNR	$10,000
43-RM.8.1	Develop portage path around Lake Breckenridge Dam.	DNR/city	$5,000
	PHASE III		
45-RM0.0	Kiosk at Headwaters Park	DNR/city	$5,000
Total			$73,000

[a] Implementation costs will vary considerably depending on who does it and when it is done. If accomplished largely by volunteers, cost, may be minimalized. If accomplished by public sector employees (state or local), costs may, or may not, be absorbed in agency budgets. If accomplished by contractors, cost may be higher. Costs are 'middle-of-the-road' estimates in 2009 dollars that could vary by as much as 100% or more. Annual and ongoing costs are included in the total for three years. Beyond that, ongoing costs could range from 1 to 5 percent of initial costs depending on who and how O&M is accomplished.

[b] Phase I: roughly now for 12 to 18 months, Phase II: from 1 to 3 years into the future, Phase III: from 2 to 5 years into the future.

[c] Lake Agassiz Recommended Operational Action (LA-ROA) number three.

3. Implementation

Far too many plans become 'shelf art' because of a failure to follow through with implementation steps. Even the best plan will not self implement! On the other hand, master plans are only guides for future actions and are not meant to be rigid, step-by-step cook books, and, as such, will change with time.

The overall goal (the target) of this plan is "A safe, attractive water trail project that provides recreational opportunities and creates partnerships for local economic development". While a number of specific goals and actions have been identified (the Path as shown in Tables 1 through 7), there may be other paths that could lead to the same, or very similar, destinations. A plan to complete all details of the entire Otter Tail River water trail as a whole would be overly detailed and could stretch over several years. In fact, all components of the plan shown above may never be accomplished.

The MN DNR can provide the leadership and resources to get the momentum started, especially for the strategic goals. The local river boosters group can provide the local leadership and encouragement to help get things started, especially for the actions within their reaches. Local partners will be crucial to picking up the momentum, contributing to leadership and resources, and sustaining the plan.

Timing and Reaches

Implementation should proceed with the suggested Phase I steps, focusing on steps necessary to ensure safe use of the route. Route enhancements and subsequent phases will follow as long as enthusiasm continues, leadership stays focused, and recreational user visits increase.

A proposed implementation schedule is presented in three relative phases across five reaches (Table 8). Approaching implementation of the OTR water trail as an overall strategy plus five separate, and distinct, reaches should encourage increased local buy-in and result in earlier completion of at least portions of the overall route.

Table 8. Implementation Phases

Reach		Phase 1	Phase 2	Phase 3	Future
Strategic [a]	Necessary	SG-2, SG-4, SG-7, SG-8, SG-10, SG-11, SC-12, SC-13			
	Enhanced	SG-1, SG-6, SG-9	SG-3, SG-5, SG-14		
Common [b]	Necessary	CG-10, CG-4, CG-5	CG-9		
	Enhanced	CG-3, CG-6, CG-7	CG-1, CG-2, CG-8		
Headwaters [c]	Necessary				
	Enhance	1, 2			3,4,5,6,7,8,9,10
Frazee [d]	Necessary	12, 16, 18, 19	15		
	Enhanced		11, 13, 17, 20,21, FR-MAP	14	
Big Lakes [e]	Necessary	24	23		
	Enhanced		22, 25, 26, BL-MAP	27	
Fergus Falls [f]	Necessary	FF-SG-1, 30, 31, 32,	29		
	Enhanced		FF-MAP,28, 33, 34, 35, 37, 38	36, 39	
Lake Agassiz [g]	Necessary	44			
	Enhanced	42	LA-MAP, 41, 42, 43	45	

[a] From Table 1. [c] From Table 3. [e] From Table 5. [g] From Table 7.
[b] From Table 2. [d] From Table 4. [f] From Table 6.

Phase I (start to 18 months) 'necessary'[16] actions are those that should be done as soon as possible either for safety reasons or to open selected segments to the public. Necessary actions are those that should be accomplished before promoting the route, or portions thereof, for public use. Phase I 'enhanced' actions may not be necessary to open the water trail to users, but will both enhance their experience and attract more users. Enhanced actions are those that make the route more comfortable for more users, but are not necessary out of concern for users' safety. Necessary actions during Phase I are estimated to cost about $311,000, while enhancements would add another $130,000 to Phase I (Table 9).

Phase II (years 1 to 3) actions are those where delayed accomplishment will not hinder earlier use of the water trail, and will allow resources to be allocated over time. Necessary actions during Phase II are estimated to cost about $51,000, while enhancements would add another $225,500 to Phase II.

Phase III (years 2 to 5) actions may require more coordination or more resources to accomplish and can be delayed without adversely affecting the water trail. All the necessary actions should have been accomplished prior to Phase III, however, an additional $95,000 in enhancements are suggested.

With so many actions, so many players, and so much opportunity for development, the overall cost of implementation falls within a wide range, $900,000, plus or minus at least 50% (Table 9). The bare essentials could be accomplished with more modest resource outlays, while a more attractive, inviting water trail will require considerable resources for both initial development and ongoing operation.

[16] The categories 'necessary' and 'enhanced' are for general planning and prioritizing purposes only.

Table 9. Estimated Implementation Costs

		Phase 1	Phase II	Phase III	Future	Totals
Strategic	Necessary	$102,000	$0	$0		$102,000
	Enhanced	$50,000	$62,000	$0		$112,000
		$152,000	$62,000	$0		$214,000
Common	Necessary	$70,000	$30,000	$0		$100,000
	Enhanced	$35,000	$25,000	$0		$60,000
		$105,000	$55,000	$0		$160,000
Headwaters [a]	Necessary	$0	$0	$0		$0
	Enhance	$15,000	$0	$0	$57,000	$72,000
		$15,000	$0	$0		$72,000
Frazee	Necessary	$10,500	$1,000	$0		$11,500
	Enhanced	$0	$53,500	$25,000		$78,500
		$10,500	$54,500	$25,000		$90,000
Big Lakes	Necessary	$5,000	$10,000	$0		$15,000
	Enhanced	$0	$33,000	$30,000		$63,000
		$5,000	$43,000	$30,000		$78,000
Fergus Falls	Necessary	$108,500 [b]	$10,000	$0		$118,500
	Enhanced	$0	$59,000	$35,000		$94,000
		$108,500	$69,000	$35,000		$212,500
Lake Agassiz	Necessary	$15,000	$0	$0		$15,000
	Enhanced	$30,000	$23,000	$5,000		$58,000
		$45,000	$23,000	$5,000		$73,000
TOTALS	Necessary	$311,000	$51,000	$0	$0	$362,000
	Enhanced	$130,000	$255,500	$95,000	$57,000	$537,500
		$441,000	$306,500	$95,000	$57,000	$899,500

[a] Due to reasons presented in the plan, the only action in the Headwaters is a sign at the origin

[b] Includes $100,000 for OTPC/FERC Trail.

Implementation Steps

The order in which each of the 14 strategic, 10 common, and about 50 reach-oriented goals/actions are accomplished will depend on the vagaries of government finances, leadership, politics, and local enthusiasm. A general set of steps for implementation might be:

- Let the plan incubate, while stakeholders mull it over.
- MN DNR prioritize the strategic goals.
- Identify and organize a river boosters group.
- Identify an individual POC to facilitate implementation and serve as a liaison between MN DNR, locals, potential partners, and others.
- Implement goals and actions as prioritized and as resources and local interests permit.
- Monitor implementation to ensure consistency, where necessary, and to take advantage of potential economies of scale and other synergies.
- Periodically review implementation and revise plan and priorities as necessary in light of changing conditions, and unforeseen opportunities and constraints.

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*Otter Tail River Watershed Basin Plan***,** A Collaborative Approach to Protecting and Enhancing Land and Water Resources in the Otter Tail River Watershed, 2003 [SWCD & BWSR, good background materials on the watershed, 163 pages, comprehensive, includes info on gauges].

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APPENDICES

Appendix A. Otter Tail Power Company 1992 Plan W/O Attachments

First 19 pages of Harza Engineering Company for Otter Tail Power Company. 1992. *Otter Tail River Canoe Trail Plan*. Otter Tail River Hydroelectric Projects, FERC License No. 10853, Chicago, Ill. and Fergus Falls, Minn.

Otter Tail River Canoe Trail Plan

Otter Tail Power Company

Otter Tail River Hydroelectric Project
FERC License No. 10853

Prepared for the

Otter Tail Power Company
Fergus Falls, Minnesota

Prepared by

Harza Engineering Company
Chicago, Illinois

December 1992

TABLE OF CONTENTS

OTTER TAIL RIVER CANOE TRAIL PLAN

INTRODUCTION

The Otter Tail River, near Fergus Falls, Minnesota, offers the Otter Tail Power Company (OTPC), The Minnesota Department of Natural Resources (MDNR), and the City of Fergus Falls the opportunity to jointly develop river recreation for the public. Implementation of the Otter Tail River Canoe Trail Plan will provide approximately thirteen miles of the river reach for recreational canoeing, with multiple access points and varying degrees of difficulty and challenge. The plan has been developed with consideration to accommodating individuals with varying degrees of physical ability.

Purpose

The Federal Energy Regulatory Commission (FERC) issued a license (FERC No. 10853) on December 5, 1991, to OTPC to operate the Otter Tail River Hydroelectric Project ("Project"), a 3,450-kW hydroelectric facility consisting of five dams located on the Otter Tail River, Otter Tail County, Minnesota. One of the conditions of license (Article 406) directed OTPC to prepare and implement a plan for the construction of recreational facilities to provide public access to the by-passed reach of the Otter Tail River below the Hoot Lake Diversion Dam. In accordance with license Article 406, OTPC has prepared the following plan for public access to the Otter Tail River in the vicinity of the Project.

Support and input of the MDNR and the city of Fergus Falls, Parks and Recreation Department (PRD) were instrumental to the development of the plan. In a cooperative effort, implementation of the plan and maintenance of the facilities will be shared by OTPC, MDNR, and the PRD. Over the course of the development of the Otter Tail River Canoe Trail, the following process will take place: 1) Conceptual plan development; 2) FERC approval; 3) Detailed planning and preparation of construction documents; and 4) Implementation of the plan.

Background

The following plan has been developed over the course of the FERC licensing effort for five dams owned by OTPC on the Otter Tail River. During the licensing process, the MDNR indicated that the Otter Tail River from the Diversion Dam to the city of Fergus Falls has good potential for providing enjoyable canoeing, particularly if minimum flows could be increased. As a condition of license approval, FERC directed that OTPC establish a new minimum flow release schedule to improve recreation opportunities (to include canoeing) in the river reach. In response to the FERC request, the new release schedule provides minimum flows of 30 cubic feet per second (cfs) from the day after Labor Day through March; 110 cfs during April and May; and 60 cfs from June through Labor Day. As an outcome of agency consultation during the licensing effort, FERC also stipulated the development of a public access plan (license Article 406). Furthermore, FERC directed that monitoring studies of public use be performed within two years of constructing the recreational facilities (license Article 407).

Following site reconnaissance on and along the Otter Tail River reach, representatives of OTPC, the MDNR, the PRD, and OTPC's consultants met on June 10, 1992, to discuss the public access plan. During the meeting, it was agreed that all potential access points had been identified. The meeting participants also concurred on the topics that would comprise the essential elements of the plan. A draft plan was developed on the basis of discussions at the June 10 meeting. In accordance with license Article 406, the draft plan was provided to the MDNR and the PRD for review and consultation. The final plan contained herein has addressed agency comments and recommendations of the draft plan. A few exceptions were taken to MDNR comments which were considered beyond the scope of this study. Documentation of agency consultation is provided in Appendix A.

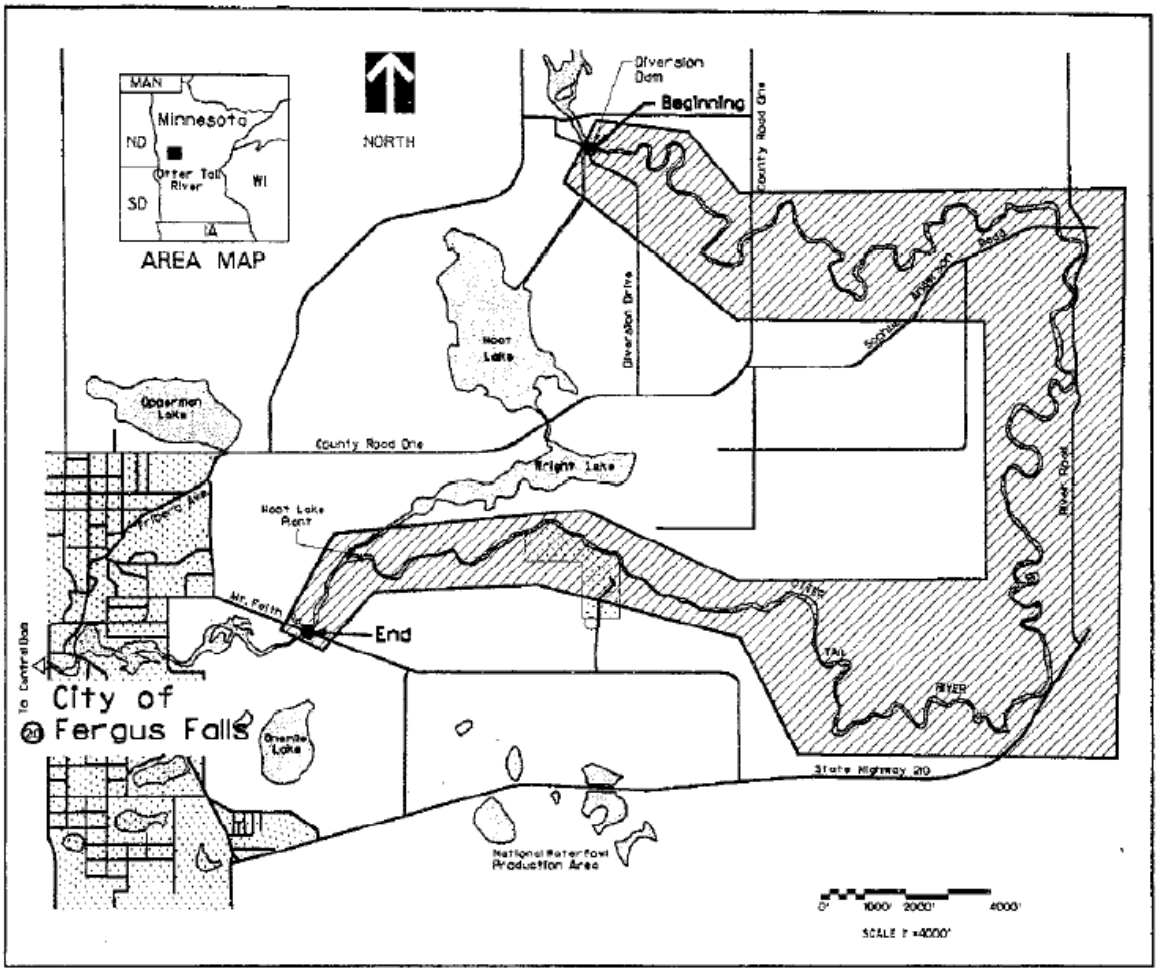
Study Boundary

The area encompassed by the plan is located entirely within Otter Tail County, northeast of Fergus Falls, Minnesota. The extent of the Otter Tail River study area for the development of this plan stretches from the Diversion Dam to the Mount Faith Road Bridge, approximately 13 miles downstream (See Figure 1 below). The river flows east from the Diversion Dam to the Sophus Anderson Bridge, where the river then makes an abrupt turn and begins to flow south. Near Wall Lake Bridge, the river again turns and begins to flow west, toward Fergus Falls. The course of the river makes a partial loop, thereby placing the final access location approximately two miles overland from the initial access location. The entire reach of the river makes a number of meanders through a variety of land uses, providing a scenic experience through an ecologically diverse landscape (See Appendix B for site photographs).

FIGURE 1.

OTTER TAIL RIVER CANOE TRAIL

SITE LOCATION AND STUDY BOUNDARY



STUDY BOUNDARY

RIVER CHARACTERISTICS AND POTENTIAL

River Characteristics

The reach of the Otter Tail River from the Diversion Dam to the diversion return is approximately thirteen miles. The entire river reach traverses open farmland, wetland areas, forest edges, and rural subdivisions. The river banks vary from very flat to steep slopes, over 100 feet high. For the purposes of this plan, the reach is comprised of five sub-reaches, which correspond to potential access and portage locations (See Figure 2 at the end of the report). Table 1 below provides the distance and approximate travel time of each sub-reach:

Table 1.
Sub-Reach Distances and Approximate Travel Times

Sub-Reach	Sites	Distance (miles)	Approximate Travel Time
Diversion Dam to County Road One	1-2	1.7	30 min.
County Road One to Wall Lake Bridge	2-3	6.0	1.75 hours
Wall Lake Bridge to Broken-Down Dam	3-4	3.4	1.25 hours
Broken-Down Dam to Hoot Lake Plant Weir	4-5	1.3	23 min.
Hoot Lake Plant Weir to Mount Faith Road	5-6	0.4	7 min.
Total River Miles from 1 to 6		12.8	4 hours[1/]

[1/] Total travel time will vary depending upon river flow velocity, number of stops made, abilities of the canoeist, etc.

The combined distance of sub-reaches 1-2 and 2-3 is approximately 7.7 miles. This stretch of the river is characterized by gentle meanders and calm water that offers pleasant, easy canoeing through a variety of vegetation zones and land uses. The river banks vary from

open flat farmed land, to wetland areas, to wooded slopes 15 to 30 feet high. The novice canoeist would feel very comfortable through this area and experience a pleasing degree of challenge with some maneuvers around fallen trees and other river debris. The relatively flat gradient (3.9 feet/mile) and calm water in this stretch provides good canoeing opportunities for beginners.

The river characterized by sub-reaches 3-4, 4-5, and 5-6 have a combined distance of 5.1 miles. This stretch of river is somewhat more rugged and challenging. The river flows through a predominantly wooded landscape, with several areas of scenic bluffs up to 100 feet high. The river's steeper gradient in this stretch (9.8 feet/mile) provides a greater challenge to the canoeist, primarily at the Broken-Down Dam ruins. In the area of the ruins, Brief Class II rapids are encountered under the typical summer flow regime. During high spring flows or after unusually high summer rains these same rapids may be considered Class III. Also, the canoeist may snag momentarily in a few areas within riffle segments of the reach, requiring brief walk-throughs of no more than a few feet. The number of areas requiring walk-throughs will vary depending upon the flow. While more scenic, this stretch of the Otter Tail River also is more rugged and remote, with fewer opportunities for an easy exit from the river. (See Appendix B for representative photographs of river sub-reaches).

Site Opportunities and Constraints

In consultation with the MDNR and the PRD, several areas along the river were examined to determine the most feasible locations for site access. Considerations used to determine the access locations included existing roadways and sufficient area for parking, clearing and grading requirements, land ownership, condition of the embankment leading to the river, visibility, spacing of access points, potential for vandalism, and cost. A full discussion of access locations considered is provided in Appendix A, in the June 10, 1992, Meeting Summary. A summary of the selected access site locations is provided below.

Diversion Dam

The area immediately downstream of the Diversion Dam initially presented problems in regard to the development of the parking area, land ownership, and potential vandalism to the dam. Also, the first several hundred feet of the river downstream from the dam requires walk-throughs in all but the highest flows. However, it was agreed upon by OTPC, MDNR, and PRD that an access site in the vicinity of the Diversion Dam would be desirable since it marked the beginning of the diverted river stretch. Due to the slope on one side of the access trail and private landownership on the other side, locating the parking lot adjacent to the trail would not be feasible. The potential exists to construct parking adjacent to OTPC's existing maintenance road.

County Road One

The area where County Road One crosses the Otter Tail River was identified as a major access point that should be pursued (Site 2, see Figure 2). The location is highly visible and

offers good access to the river from the road. South banks of the river on both sides of County Road One Bridge were considered to be suitable. The west bank was considered to be the preferred location, however, due to greater space for parking and flatter slopes. Private land ownership is a constraint to the west side while the east side is owned by the County. However, less space is available on the east side.

Wall Lake Bridge

An area in the vicinity of Wall Lake Bridge and State Highway 210 (Site 3, Figure 2) was identified as a good access location, primarily because it is the "midway point" between the Diversion Dam and Mount Faith Road Bridge; it marks the transition point of the river from an easier to a more challenging canoeing effort; and it is readily visible and accessible from State Highway 210.

An area located immediately to the north of Wall Lake Bridge and on the east side of the river was considered the first choice for access in this area. However, the landowner of the property was not willing to negotiate for its use, so a second area located south of Wall Lake Bridge was investigated. Two sites were evaluated in a wooded location along the east side of the river and just off State Highway 210. One site was considered to present too many physical constraints due to low-lying topography and was eliminated from further consideration. The selected site, located on higher ground within the wooded area, has sufficient space to provide parking. However, since State Highway 210 is a controlled-access highway, a lengthy road may be required to gain access to the site. The MDNR is presently discussing this as yet to be resolved issue with the Minnesota Department of Transportation to determine if a shorter access road can be constructed.

Mount Faith Road Bridge

The vicinity of Mount Faith Road Bridge (Site 6, Figure 2) was identified as the logical location for the final access site under this plan. It is the first convenient and feasible access site location after the portage at the Hoot Lake Plant Weir. The site is highly visible from Mt Faith Road, and the existing gravel surface and gentle slopes allow for easy access to the river. The site presently receives occasional use by canoeists who enter the river at this location to canoe into the impoundment created by Central Dam. Most of the land at the site is currently owned by the City of Fergus Falls. Design of the site will require coordination with the City and may require relocation of OTPC's fence and gate on the maintenance road to the Hoot Lake Plant. During the meetings to review and discuss the potential contents of the plan, the City of Fergus Falls indicated that the City would take responsibility for this site (See Appendix A).

Although the Mount Faith Bridge location would mark the end of the Otter Tail River Canoe Trail, canoeists may continue downstream to what is known locally as the "Levee Area", where boat docks and parking exists.

Broken-Down Dam

Broken-Down Dam, (Site 4, Figure 2) as it is referred to, is the remains of a dam that was originally built in 1908 to supply Fergus Falls with electricity. The dam collapsed in 1909, and all that remains are parts of the concrete abutments. The abutments constrict the river, creating a possible hazard in high water. Approximately 300 feet upstream of Broken-Down Dam is another series of rapids near the remains of Page Dam, another dam that collapsed many years ago. At this location, the river makes a relatively sharp bend. The rapids and bend causes canoeists to approach the outer bank of the river and the debris of Page Dam. The Page Dam rapids also are considered Class II. These rapids may be considered Class III rapids during high spring flows or after unusually high summer rains. Because of the area's higher class rapids and the potential concern for safety of less experienced canoeists, it was determined that an optional portage should be developed to bypass both Page Dam and Broken-Down Dam. The portage would have a spur that allows reentry just below Page Dam. Passing through Broken-Down Dam is relatively easy in normal flows. The portage would allow canoeists to stop and observe the rapids and would give less experienced canoeists a way around the rapids. The site would also make a good rest stop since it is located adjacent to the City-owned Broken-Down Dam Park, and it is an interesting area due to its physical and historical attributes. Also, it is the first good stopping point since leaving the Wall Lake Bridge access site.

The potential for an access point at the Broken-Down Dam location was discussed. This area is owned by the City of Fergus Falls and there is an existing undeveloped park at the site. Thus, land ownership would not be a problem. However, the cost of developing the access site to the river, the cost of maintenance, and site security would make this location for access less feasible. The site will be developed as a rest area and portage site as noted above, and the proposed site improvements will be conducive with the City's long-range plan to improve the park.

Hoot Lake Plant Weir

Hoot Lake Plant (Site 5, Figure 2) is the site of the confluence of the diverted water from the Diversion Dam with the Otter Tail River. The River flows through the grounds of the Hoot Lake Plant, crossing under railroad and road bridges before it encounters an approximately ten-foot high weir. Consideration was given to designing a chute through the weir, but due to public safety, plant operation, and liability concerns, this option was eliminated. Consequently, a mandatory portage will be constructed. Potential portage sites were reviewed in the field. Initially, a site just upstream of the railroad bridge was considered. However, this location was eliminated from consideration because the portage distance would be too long. The selected portage site is located on the inside bend of the river, just after passing under both bridges. This was considered the most feasible location for the portage since anything closer to the weir would compromise public safety. Two constraints of the selected site that will have to be overcome in final design are the relatively steep bank and the build-up of silt along the shore.

Alternative Access Sites Considered

Several other locations along the canoe route were discussed as potential access sites. As an alternative to the selected access site on the west side of County Road One, a site designated as the 'Gravel Pit' site was examined. This site is located approximately a quarter-mile north of the County Road One Bridge, west of the road and adjacent to the river. This site is still a potential access point if the preferred location cannot be developed. The drawbacks of the "Gravel Pit" site include the low visibility of the site, the potential for vandalism, residential property adjoins the site and the property owners may object to the development, and the cost of developing this site is considered high.

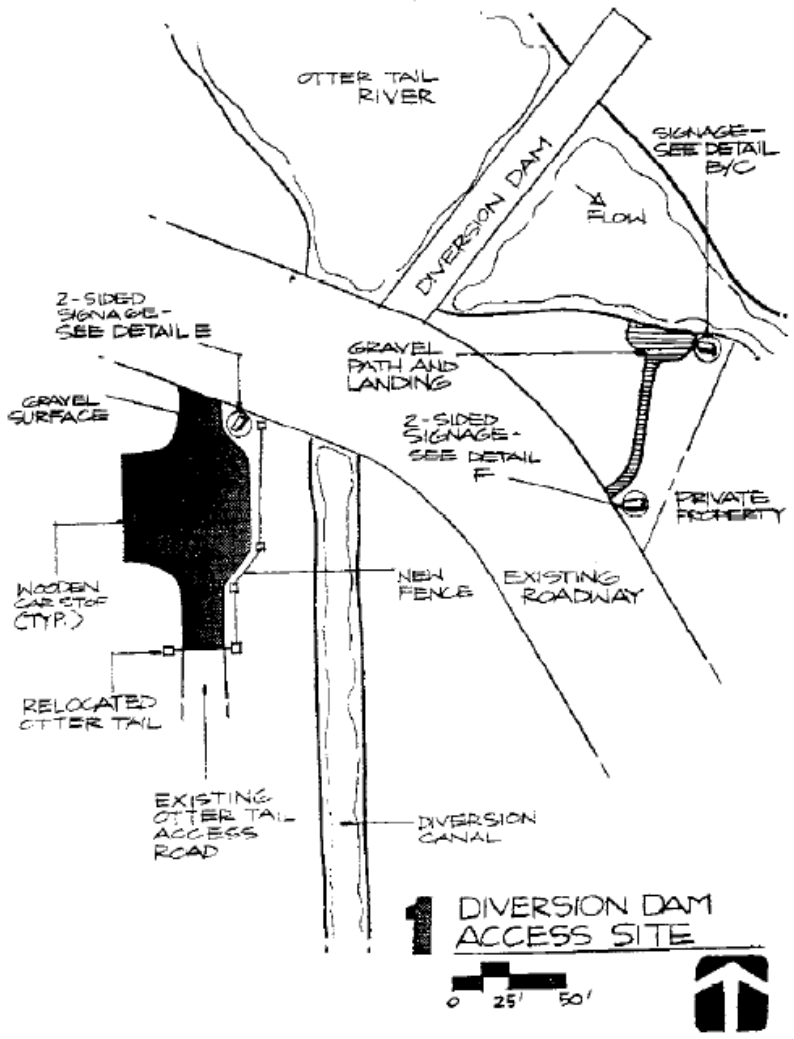
The other locations considered for access development include the Sophus Anderson Bridge, "River Road", and Birchwood River Estates. These locations all had the advantage of providing good road or river access. However, they were not identified as ideal access locations and presented some potentially contentious landownership issues.

PROPOSED PLAN

Four sites for canoe access will be developed as part of the plan. As shown on Figure 2, the access sites are located at Diversion Dam Access Site (Site 1); County Road One Access Site (Site 2); Wall Lake Bridge Access Site (Site 3); and Mount Faith Road Bridge Access Site (Site 6). The Diversion Dam Access Site will provide parking for four vehicles. The other access sites will provide parking for seven vehicles, and, where possible, will accommodate vehicles pulling trailers. A firm and stable surface will be provided to facilitate pedestrian access to the water's edge. Sites 2, 3, and 6 will be made reasonably accessible to persons with disabilities through proper design. Two portage sites (Sites 4 and 5) will be developed between the Wall Lake Bridge Access Site and the Mount Faith Road Bridge Access Site. The portage at Broken-Down Dam Rest Area/Portage (Site 4) is optional and can be used by those canoeists who do not wish to pass through the constriction in the river. The Hoot Lake Plant Weir/Portage (Site 5) must be used to bypass the impounding weir impeding travel down the river.

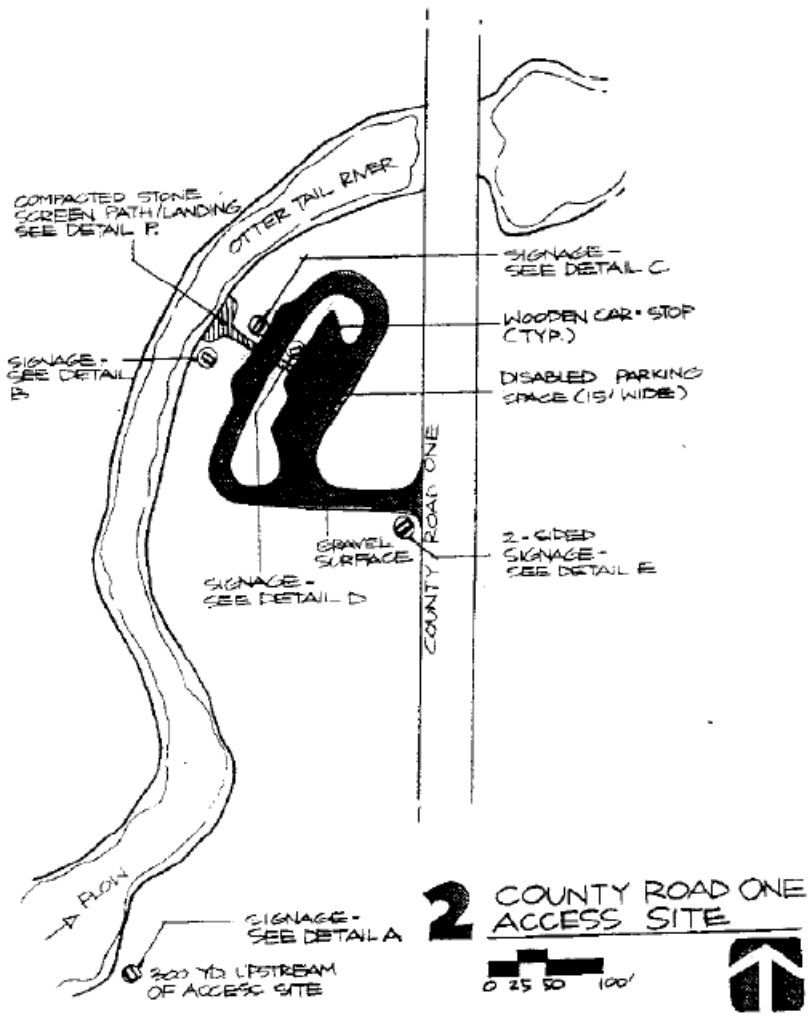
Access Sites and Portage Locations

The following presents detailed discussions and conceptual layouts of the planned access sites and portages. After the plan is approved by FERC, detailed designs of the layouts will be developed based on additional site investigations. Final detailed designs will reflect the State of Minnesota's design guidelines for canoe access sites and will be prepared in coordination with the MDNR and the PRD.



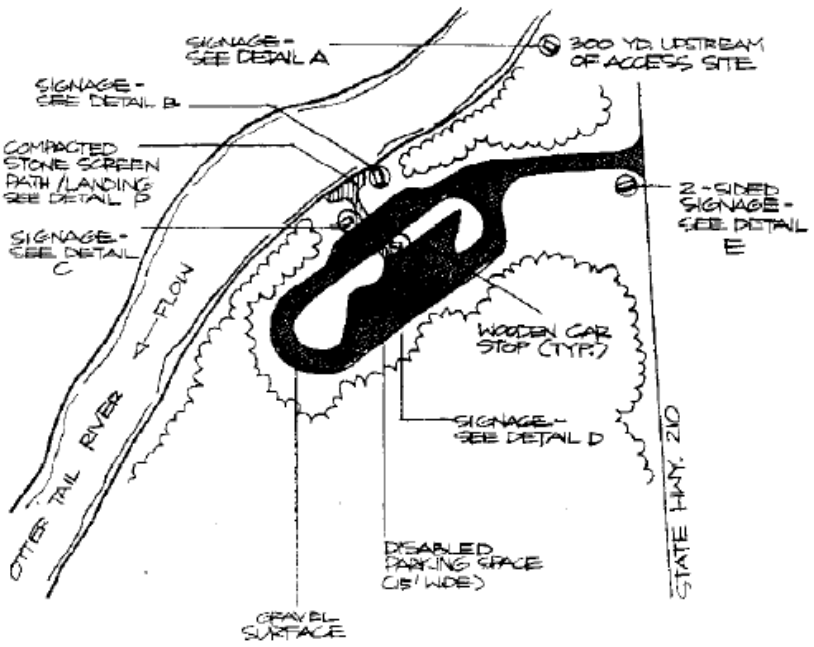
Site 1 - Diversion Dam Access Site

This site will provide river access immediately downstream of the Diversion Dam. A gravel-surfaced lot will be constructed inside the entrance of the existing Project maintenance road and will provide vehicular parking for canoeists. A gated fence will prevent further access to OTPC maintenance road beyond the parking area. The parking lot will provide four parking spaces. Signage will lead canoeists to the access landing located downstream of the Diversion Dam (See Figure 3 for signage details). Signage will also explain the relative difficulty of canoeing the river. An existing path leading to the river's edge at this site will be improved. The path and canoe landing will be gravel-covered to provide a stable surface. OTPC will be responsible for constructing, operating, and maintaining the site.



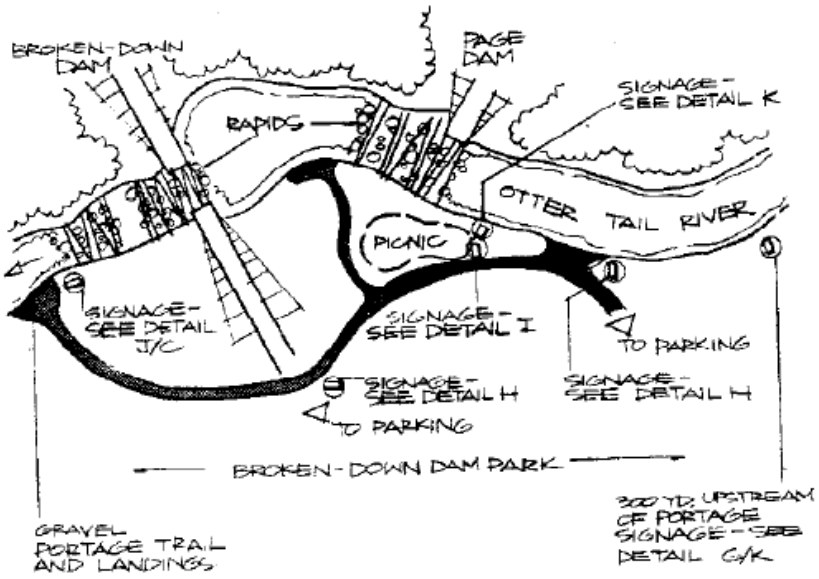
Site 2 - County Road One Access Site

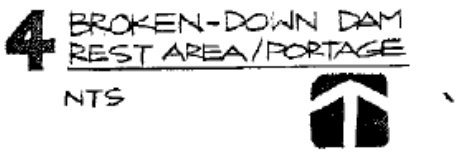
This site, located immediately west of County Road One. The entrance to the parking lot will be from County Road One. The parking lot, constructed from gravel, will contain seven parking spaces, with one reserved for persons with disabilities. A compacted stone screen path will lead from the parking area to the landing. The landing at water's edge will also be constructed of compacted stone screen, and will be edged. Signage will be placed at several locations to direct and inform canoeists. The preferred location of this access site is on the west side of County Road One, although, if necessary, the site could be located on the east side of the road. Land necessary for this site is currently being purchased by OTPC from private landowners. The MDNR will be responsible for constructing, operating, and maintaining the site.



Site 3 - Wall Lake Bridge Access Site

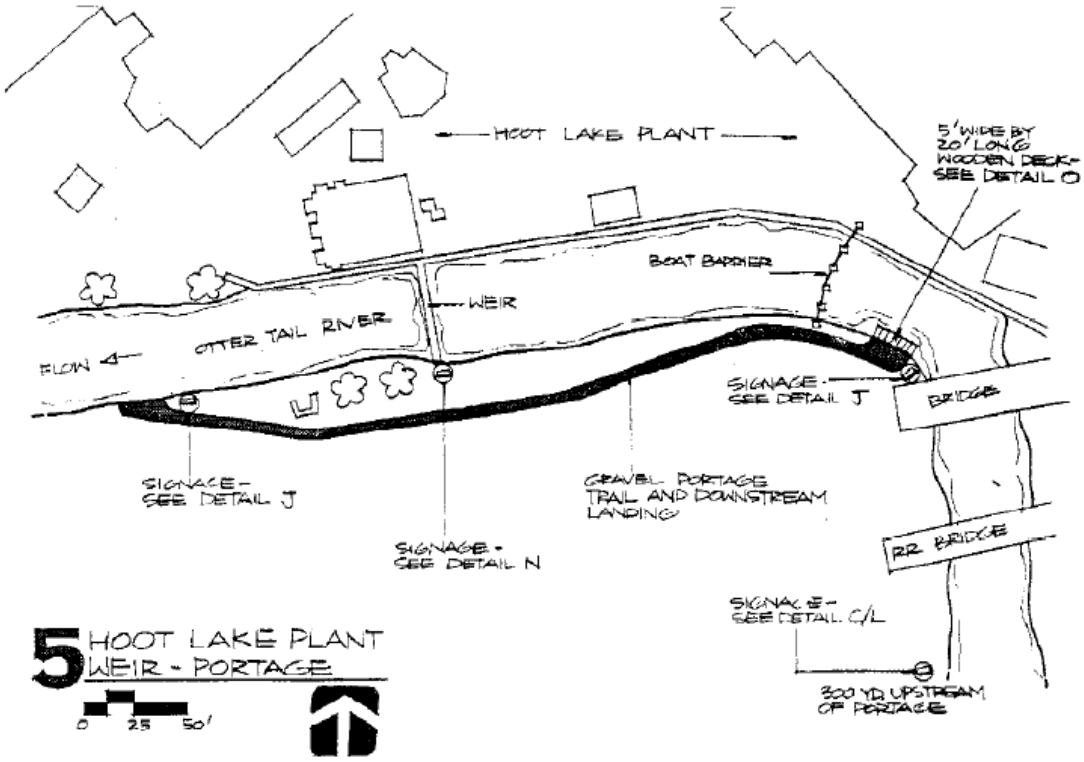
This site will be located approximately 1/4 mile downstream of the Wall Lake Bridge, between the Otter Tail River and State Highway 210. The entrance to the access site parking area will be from State Highway 210. The parking lot will be constructed with gravel, and will contain seven parking spaces, with one space reserved for persons with disabilities. A compacted stone screen path, originating at the parking space for persons with disabilities, will lead to the canoe landing. The landing will also be constructed of compacted stone screen and will be edged. Signage will be placed at several locations to direct and inform canoeists. Signage will also indicate that, beyond this point, the river presents a greater challenge to the canoeist, exits are limited, and those wishing not to proceed may exit the river at the landing provided. Presently, OTPC is negotiating for purchase of the necessary property from private landowners. The MDNR will be responsible for constructing, operating, and maintaining the site.





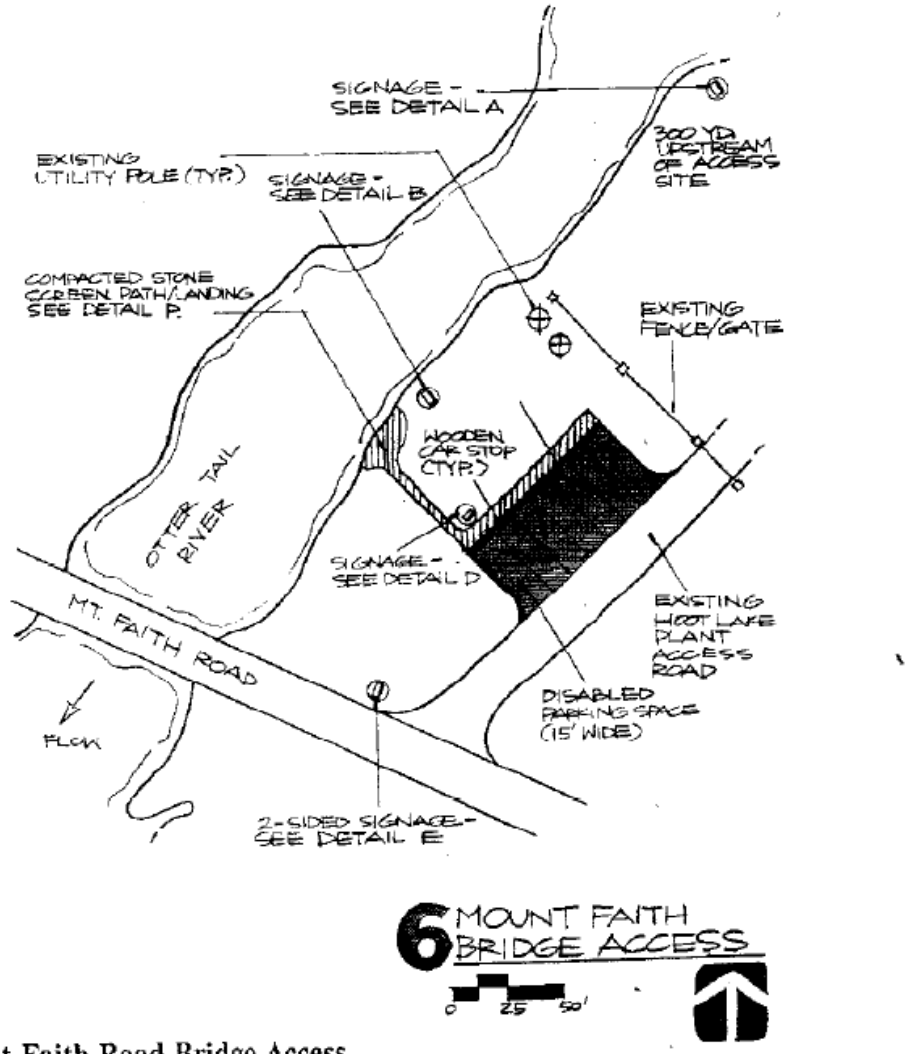
Site 4 - Broken-Down Dam Rest Area/Portage

In the area of Site 4, the ruins of two abandoned dams provide some challenging rapids for the canoeist. The first area of rapids is encountered at the Page Dam ruins, where concrete and other debris alter the river flow. Downstream of the Page Dam ruins, the ruins of the Broken-Down Dam constrict the river, and concrete and other debris create another area of rapids. As canoeists approach the area of Page Dam and Broken-Down Dam, they will have the option of continuing downstream through the series of rapids, or pulling up to the shore and bypassing the rapids by way of the portage provided. The portage trail will have an optional portage below Page Dam, to allow passage through Broken-Down Dam. Signage will give ample notice to the canoeist of the opportunity to bypass the rapids (See Figure 4 for signage details). The portage trail will be well marked and covered with gravel to provide a stable surface. This site will be developed in association with Broken-Down Dam Park, an undeveloped park owned by the city of Fergus Falls. A picnic area will be provided to allow canoeists the opportunity to have lunch and rest before continuing with the route. Also, toilet facilities will be provided. The City of Fergus Falls will be responsible for constructing, operating, and maintaining the site.



Site 5 - Hoot Lake Plant Weir/Portage

As canoeists approach the Hoot Lake Plant at Site 5, additional caution will need to be exercised. All canoeists must use the portage provided in this location to bypass the Hoot Lake Plant Weir. Signage upstream of the portage will provide the canoeists with ample notice that the portage is present and must be used (See Figure 4 for signage details). A boat barrier will restrict passage downstream and provide additional warning to canoeists if they happened to pass the initial portaging point. A wooden deck will be provided at the portage access point to facilitate exit from the water (See Figure 4, Detail O). The portage will bypass the weir to a safe location downstream. The portage path will be covered with gravel to provide a stable surface. OTPC will be responsible for constructing, operating, and maintaining the site.



Site 6 - Mount Faith Road Bridge Access

This site will be located immediately north of Mount Faith Road and adjacent to the east bank of the river. The parking lot will be constructed adjacent to the existing Hoot Lake Plant maintenance road. A gated fence which restricts further access to the maintenance road beyond the parking lot area may need to be relocated by OTPC. The parking lot will be constructed from gravel and will provide seven parking areas, with one reserved for persons with disabilities. An edged, stone screen path and landing will lead from the parking area to the water's edge. Signage along the river bank and in the vicinity of the access site will direct and inform canoeists. Also, signage will indicated that this is the end of the Otter Tail River Canoe Trail (Canoeists will be able to continue downstream if desired. Also, canoeists not using the Otter Tail River Canoe Trail may enter the river at this site). The City of Fergus Falls will be responsible for constructing, operating, and maintaining the site.

Accommodation of Persons with Disabilities

Access Sites 2, 3, and 6 will be designed to be reasonably accessible to persons with disabilities. These are logical locations for easily-accessed facilities due to the ability to establish the parking facilities, access path, and landing in close proximity to the river. Sites 2 and 3 were selected for accessibility because they are well spaced and will provide the disabled with an ample trip length. Portage sites between Wall Lake Bridge and Mount Faith Road Bridge are not as accessible due to the relative remoteness, steep banks, low-flow hang-ups, and potential for difficulty at the portage locations. Use of the river by persons with disabilities between Wall Lake Bridge and Mount Faith Road Bridge will not be recommended. Accessibility is being provided at Mount Faith Bridge for those persons with disabilities who wish to enter the river at that location.

Sites 2, 3, and 6 will have appropriate signage indicating that the site is accessible to persons with disabilities, with one reserved parking space at each site for their use. The crushed stone screen surfaces for the paths and landings will be constructed and maintained to specifications for easy accessibility.

Signage

Several examples of the types of signs that will be developed and used are shown on Figures 3 and 4. All signs will conform to the State of Minnesota's sign design guidelines. It is anticipated that the MDNR's sign-making facilities will be utilized to develop all of the signs for this plan.

Informational Brochure

An informational brochure has been prepared by OTPC to highlight the recreational canoeing opportunities in the Otter Tail River Diversion Bypass Reach. A copy of the draft brochure is included in Appendix C.

The brochure will provide canoeists with a map of the available access facilities, descriptions of the facilities, and highlights of the natural features along the canoeing route. The brochure will be distributed to public agencies, tourist information centers, and area canoe rental locations.

Cost Estimate and Scheduling

The cost to implement the plan as proposed herein is estimated at approximately $169,000. This estimate includes land acquisition costs on the part of OTPC and a 25% contingency. The estimated costs also assume contractor in-place prices. Actual costs may be lower depending on the final designs and implementation by the involved entities. Table 2 below summarizes the costs by site and the entity responsible for implementation and costs. Costs for printing and distribution of the brochure are not included.

When the plan is approved by FERC, a schedule for preparing the final designs and implementing the plan will be developed in consultation with all parties involved in the plan. Depending on the time of approval by FERC, efforts will be made to develop all the facilities within one year of approval, however, due to the relatively short length of the construction season and MDNR budget constraints, two to three years may be required.

Table 2.
Site Development Cost Summary

Activity	Cost ($)*	Responsible Party
Land Acquisition **	$20,000.00	OTPC
Site Development		
1. Diversion Dam Access Site	$10,625.00	OTPC
2. County Road One Access Site	$37,500.00	MDNR
3. Wall Lake Bridge Access Site	$37,500.00	MDNR
4. Broken-Down Dam Rest Area/Portage	$26,875.00	PRD
5. Hoot Lake Plant Weir/Portage	$10,625.00	OTPC
6. Mount Faith Road Bridge Access Site	$26,250.00	PRD***
TOTAL	$169,375.00	

* A 25% contingency has been added to the base costs of site development. Costs reflect Contractor installation.
** OTPC will purchase land for the County Road One Access Site and the Wall Lake Bridge Access Site.
*** OTPC will be responsible for relocating the fence and gate at the Mt. Faith Road Bridge Access Site.

Operation and Maintenance

The operation and maintenance of the six sites along the Otter Tail River will involve the cooperation and participation of OTPC, MDNR, and PRD.

Prior to implementing the plan, OTPC will pursue the acquisition of non-publicly owned land necessary to develop the sites. Pending the approval of this plan by FERC, OTPC will complete the acquisition of necessary properties for the County Road One and Wall Lake Bridge sites, and convey them to the MDNR for construction of the facilities, operation, and maintenance. OTPC will make its property at the Diversion Dam and the Hoot Lake Weir available for the planned development. OTPC will develop, operate, and maintain the access site at the Diversion Dam, and the Hoot Lake Plant Weir/Portage. The access site at Mount Faith Road Bridge and the portage site at Broken Down Dam will be the responsibility of the City of Fergus Falls, and will be maintained by the PRD.

The MDNR will take responsibility for periodically clearing the river of debris, as necessary, to ensure unimpeded access and use. Initially, the MDNR will clear fallen trees blocking the river upstream of Broken-Down Dam, and will remove several posts from an abandoned railroad bridge located north of the Wall Lake Bridge Access Site (See Figure 2).

Recreational Use Monitoring

Within two years of the completion of the construction of the Otter Tail Canoe Trail facilities, recreational monitoring will take place to determine if the facilities are being used by canoeists. The monitoring studies will be performed under consultation with the MDNR and PRD and will be designed to evaluate recreational experience. The recreational use monitoring will take place annually, and a report of monitoring results data will be filed with FERC every four years during the term of the license. Specific elements of the monitoring studies will be developed and refined during the implementation period of this plan. Anticipated components of monitoring studies include records of seasonal flows; periodic site reconnaissance to inspect facilities and the river reach; periodic surveys of individuals using the facilities; periodic counts of canoeists; periodic assessment of the adequacy of flows to meet recreation needs; and annual use estimates of facility usage.

SUMMARY

The Otter Tail River Canoe Trail Plan offers an opportunity for development of river canoeing facilities in the vicinity of Fergus Falls. The implemented plan will provide four access sites. Additionally, two areas of the river will have portage facilities, one optional and one mandatory. The nearly thirteen-mile stretch of river will provide a variety of scenic and recreational boating experiences for canoeists to enjoy during their trip. The plan will be implemented upon the approval of FERC and will involve the input and cooperation of OTPC, MDNR, and PRD. Each participant will take part in the development, operation, and maintenance of facilities under their charge.

Appendix B. List of Dams and Bridges

River Mile/ GeoCords	Description
186.0	Start of OTR as it leaves Elbow Lake
183.7 47.05.24N/95.32.59W	Joy dam [1938/DNR/lake level], 250' n of Many Point L.
183.6	Culvert under Whaley's road
181.2 47.03.11N/95.32.37W	Boy scout dam [1938/DNR/lake level], s end of Many Point L
181.0 47.03.00N/95.32.34W	Boy scout camp road culvert
179.0 47.01.38N/95.32.40W	Round L Bridge (Becker Co. #35) and control dam [1938/DNR/lake level],
176.0 47.00.21N/95.35.16W	Franklin Bridge on TNWR trail, could be tricky in low water conditions
174 46.59.54N/95.36.48W	Tea Cracker Lake Bridge on TWNR trail, old roller dam
46.58.34N/95.36.03W	3 culverts (+ one higher) under Refuge service road (cattail clogged channel downstream)
170.3 46.57.47N/95.36.12W	Bridge/culvert on Hwy #26 near CCC camp, Bruce Blvd (a CCC engineer)
170.2 46.57.06N95.36.36W	South Chippewa Lake control structure [1941/USFWS],

[a] Location information is for recreational uses only, not for navigation. Location is given as both River Mile and Geographic Coordinates. River miles are approximate due to changing conditions, travel routes across lakes, etc. Geographic Coordinates provide more precise location information.

165.2 46.55.01N/95.34.34W	Control structure [1941/USFWS] w/Hwy #126 Bridge S end of Rice Lake
160.8 46.52.49N/95.38.15W	West HOL Dr Bridge and Control structure (aka Mitchell Dam) [1938/DNR] at OTR outlet in SW corner of HOL L.
158.0 46.51.43N/95.40.51W	Hubbel Pond control structure [1958/DNR/6'] on west end of impoundment, replacement scheduled
157.2 46.51.38N/95.41.18W	Hwy #29 Bridge/Culvert

---------- **start Frazee Reach**----------

	Old rock dam [farm pond] /road crossing, narrow spot where the flow picks up; could be an issue with low water; K&K tubes enter here
155.0 46.50.12N/95.41.58W	335th Ave. Bridge, a drop of a foot or so under the bridge; could be an issue in low water
154.4 46.49.57N/95.42.06W	Hwy #34 Bridge; Could canoe under bridge
153.5	Small, private bridge just inches over the water, easy portage around left side
152.0 46.48.47N/95.41.25W	Hwy #29 Culvert, somewhat steep road bank on both sides, experienced canoers could shoot right through; watch for traffic when portaging
148.0 46.47.04N/95.41.47W	Wannagan Bridge
142.5 46.44.11N/95.41.42W	Private covered bridge – easy to pass under

---------- enter Frazee ----------

	Old bridge, watch for concrete

142.0 46.43.48N/95.41.39W	Hwy #87 Bridge
141.8 46.43.44/95.41.43	5 man-made rock weirs which constrict and speed up the flow, watch for rocks
141.4 46.43.30N/95.41.50W	East Main Ave Bridge, shoot with caution, park on left side before bridge
141.2	Shortly past the bridge there is a 2' diameter utility line across the river about 3 to 4' off the water
141.0 46.43.09N/95.41.51W	3-bridge crossing at, River Shore Dr., RR bridge, and Hwy 10 Bridge; easy portage on right side of the first bridge.
140.0 46.43.16N/95.42.28W	Control structure (1881/1979/DNR) at Frazee turkey park, absolutely must portage the man-made rock dams where the river leaves the slackwater in the SW corner, it is about a 15' drop with 4 rows of boulders across the river; get out to the right of the concrete structure on the right side; you are able to portage under the stairway; bathrooms, parking, picnic shelters and a big turkey. Oxcart Trail (Frazee).
139.9 46.43.00N/95.42.41W	1st Hwy #10 crossing is a large concrete box culvert, a bit of a drop on the opposite side with rocks; use caution when crossing hwy #10; enter Otter Tail County
134	Ox Cart Trail (Luce)
133.2 46.40.18/95.40.09	Double round culverts under Black Diamond Road, steep road banks
133.0 46.40.19/95.39.57	2nd Hwy #10 crossing is a pair of large concrete box culverts followed by a RR bridge; tricky for non-experienced canoers; watch for traffic.
132.2 46.40.17/95.39.13	403rd Avenue Bridge
130.8 46.39.47/95.38.20	Hwy 60 Bridge

127.6 46.38.34/95.36.16	425th Avenue Bridge
124.9 46.37.37/95.34.30	Hwy 51 Bridge as OTR enters L. Pine L.

----------start Big Lakes Reach----------

123.0 46.37.36/95.32.25	Control structure where OTR leaves L. Pine Lake and across County Hwy #8 (aka 455th Avenue) Bridge. Public access with parking and porta potti just to the south of OTR outlet on L. Pine Lake
119.6 46.35.30/95.30.14	Control structure at OTR outlet (1937/DNR); land access to the outlet/dam is through Big Pine Lodge ($1/person in 2008)
116.2 46.34.33/95.32.22	RR bridge,
116.1 46.34.33/95.32.22	County Hwy 80 Bridge,
116.0 46.34.31/95.32.37	3rd Hwy #10 crossing
112.0 46.31.39/95.31.44	Three round culverts under 390th St.; good passage.
109.2 46.30.47/95.31.04	Three box culverts under County Hwy #14; good passage
105.0 46.28.31/95.34.24	Control structure and state Hwy #78 Bridge at Rush L outlet. Ox cart trail (Wood Trail)
103.2 46.27.33/95.35.06	Railroad bridge
101.7 46.26.35/95.35.58	County Hwy #1 Bridge (1st crossing of #1)

93.0 46.21.33/95.44.01 — County Hwy #72 Bridge and control structure. Portage across Hwy #72 to public access on the west side.

91.0 46.21.16/95.45.32 — County Hwy #83 Bridge (at Deer Lake inlet)

88.5 46.22.08/95.47.12 — County Hwy #1 Bridge (2nd crossing of #1);

86.6 46.22.31/95.48.31 — County Hwy #45 Bridge; Harry's Bridge

85.5 46.22.48/95.49.16 — Phelps Mill Bridge/Dam; bridge is old iron superstructure with mill in the right background, dam is part of grist mill; pull into grassy riverbank facing Phelps Mill Store; about 300' portage to Park lawn past Mill; parking in parking lot; bathrooms; ice cream at Store

82.2 46.23.13/95.51.58 — Highway #35 Bridge into West Lost Lake

80.3 46.23.51/95.53.22 — Water Street Bridge [on Water St. Road] at W. Lost L. outlet

77.0 46.23.19/95.56.31 — County Hwy #43 Bridge

74.0 46.23.16/95.59.23 — County Hwy #3 Bridge; watch for teens jumping into the river, they may not see you coming!

----------start Fergus Falls Reach----------

73.0 46.22.58/96.01.04 — Friberg/Taplin Gorge dam [1925/OTPC/30']; watch for concrete lined channel to hydro-power plant; area is owned by OTP Co.; closed to public between 10 pm and 8 am;

69.9 46.22.09/96.00.59 — County Hwy #10/230th Avenue crossing- double culverts; narrow. USGS Gauge

65.2 46.19.07/96.01.31 — 245th St Bridge

65.0 46.19.01/96.01.26	Diversion Dam [1914/OTPC/8'], portage around far right side of dam; portage along Diversion Drive to ramp-path downstream;
63.9 46.18.38/96.00.33	Canoe access
63.8 46.18.40/96.00.32	Hwy #1 Bridge (3rd crossing of #1)
61.4 46.18.41/95.58.43	Sophus Anderson Road crossing
58.2 46.16.56/95.58.46	Ridgewood Circle Bridge
58.0	Public Water Access. State Hwy 210.
	Remnants of home-made bridge
56.0	Page Dam -- barely visible
55.5 46.17.23/96.01.1	Broken Down Dam
54.8 46.17.24/96.02.07	Hoot Lake Power Plant Br
54.3 46.17.22/96.02.24	Hoot Lake plant access road bridge
54.1	Power Plant RR Bridge
54.0 46.17.23/96.02.35	OTP power plant & rock dams – must portage
53.4 46.17.05/96.02.57	Mt Faith Ave/Main St Bridge – wooden bridge, easy passage
46.16.59/96.03.42	Concorde St. Bridge

52.3 46.17.00/96.04.11	RR bridge – had to duck to get under!
52.2 46.16.59/96.04.11	Lincoln Ave Bridge
52.0 46.16.58/96.04.20	Cascade St Bridge in FF – take-out on right side, park in Pamida parking lot
	Do Not canoe the 4 blocks downstream of Cascade St; the City's River Walk follows the river on the left/south side. Hannah Park
50.4 46.16.45/96.06.11	Pisgah Dam [1918/OTPC/34'], portage around the right side, steep bank
49.9 46.16.48/96.06.52	I-94 culverts
48.3 46.16.31/96.08.03	Pelican River enters on the right
47.0 46.16.31/96.08.03	Hwy #15 Bridge, 3 large culverts, OK to pass through
43.2 46.13.51/96.07.03	Dayton Hollow Dam [1870-1909-1963/OTPC/35'], portage on the left side, property belongs to OTP. Ox Cart Middle Lark Trail Stage Rd.
	Exit at Orwell access

----------start Lake Agassiz Reach----------

39.0 46.13.00/96.10.44	Orwell Dam [1953/USACE/43'] and the stilling basin bridge (no boats allowed) 300-yard portage on the left side, property is Corps of Engineers, parking, picnic grounds, fishing, potties
38.9 46.12.51/96.11.01	Hwy #15 Bridge (OK to pass through), Rocky run, especially in low water
27.7 46.12.47/96.18.24	Hwy #19 Bridge – aka "old crossing" bridge, ox cart old crossing, USGS stream gauge

23.3	Two sets of man-made, rock riffles
21.8 46.12.08/96.22.08	Hwy 169/290th Ave Bridge –
	Appears to be two old low head dam remnants
19.0 46.13.00/96.24.33	Hwy 17/270th Ave Bridge; aka Everdale Bridge
10.2 46.15.02/96.24.33	Hwy 14 Bridge - teens swimming/jumping from bridge
8.1 46.15.27/96.32.09	Breckenridge Lake Control structure and walking/bike bridge in WNW corner MUST PORTAGE! Portage just before culvert on left side about 50 yards south of the dam, follow the trail to downstream of the dam
7.7 46.15.37/96.32.21	Hwy 10 Bridge
4.0	Enter City of Breckenridge
3.6 46.16.28/96.34.49	Hwy 16/11th St Bridge –
3.2 46.16.30/96.34.54	River splits w/original channel bearing left, the right channel is a man-made diversion
2.2 46.16.21/96.35.13	Hwy 75/#9 Bridge/5th St
1.6 46.16.05/96.35.20	Small dam at municipal water plant – we ran it! Not for the inexperienced
1.0 46.16.01/96.35.22	Hwy 5 Bridge
0.5 46.16.03/96.35.47	River breaks through to Red River during high water, stay left to confluence with Bois de Sioux

0.3 46.15.52/96.35.36	Nebraska Ave Bridge in Welles Memorial park & fairgrounds
0.1 46.15.50/96.35.52	Walking bridge just before confluence, boat ramp, parking, picnic tables, & trash cans on the left; at Headwaters Park
0.0 46.15.51/96.35.55	Confluence w/Bois de Sioux River and start of the Red River of the North

Appendix C. Project Advisory Group Meetings

Otter Tail River Plan Project Advisory Group

Background: 2006 Minnesota Statutes, section 85.32 designated the Otter Tail River (OTR) as a state canoe and boating route "Water Trail." It is the responsibility of the Department of Natural Resources (DNR) to manage this river as a public recreation resource. River Keepers, a Minnesota nonprofit organization, has been retained to develop a master plan and map(s) for the river. They will also be responsible for inventorying existing resources, and gathering public input.

Advisory Group Role/purpose: A small number of OTR watershed residents will be asked to serve on the Project Advisory Group (PAG). The group will include informed individuals representing government (federal, state, counties, cities), recreational interests, business and economic development, and Native American interests. No attempt will be made to include representation from every agency, group, or organization connected to the River, but rather, to select members that are aware of River-related issues and opportunities and are familiar with social, recreational, and political issues.

The PAG will meet twice as a group, once early in the plan development process and again about mid-way, to help the Project Work Team (PWT) understand the complex social and physical environment of the OTR. They will be asked to brainstorm about issues, to identify individuals and groups that may assist with specific tasks or questions, to react to outlines or drafts of materials prepared for the Plan, and to help encourage stakeholder involvement in the overall planning process.

PAG members will be kept aware of progress in the planning process and invited to participate in other meetings throughout the course of the 16-month plan development process. Primary communication with the PAG will be through e mail (or snail mail if e mail not available). They may be asked either individually or as a group to respond to inquires re specific issues throughout the study

We expect them to be actively engaged in the process and keep the study team headed in the most productive direction.

The first meeting of the PAG will be in Fergus Falls at the DNR office in March.

The second meeting will be in Otter Tail in July or August to review Plan progress to date and to assist with any unresolved issues.

Otter Tail River
Project Advisory Group

Don Bajumpaa
District Manager
Wilkin SWCD
1150 Hwy 75 N
Breckenridge MN 56520-
H:
w: (218) 643-2933
F:(218) 643-8823
Donald.Bajumpaa@mn.nacdnet.net

Will Bement
White Earth Water Quality Manager
White Earth Natural Resources
2209 271 Ave Unit 2
Mahnomen MN 56557-
H:
w: (218) 935-2488
F:
willb@whiteearth.com

Wayne Hurley
Planning Director
West Central Initiative
1000 Western Ave.
Fergus Falls MN 56537-
H:
w: (218) 739-2239
F:(218) 739-5381
wayne@wcif.org

Bill Kalar
Administrator, Land & Resource Mgmt
Otter Tail County
540 W Fir
Fergus Falls Mn 56537-
H:
w: (218) 998-8095
F:
BKalar@co.otter-tail.mn.us

Lois Klinker
Co-Owner
Maple Leaf Resort
29271 Co Hwy 35
Underwood MN 56586-
H:
w: (218) 826-6535
F:
lbk@prtel.com

Hank Ludtke
Mayor
City of Frazee
PO Box 387 222 W Main Ave
Frazee MN 56544-
H:
w: (218) 334-4991
F:(218) 334-4992
mercedesnut6@hotmail.com

Karen Mular
Becker County Commissioner
Becker County
32506 Co. Hwy 34
Ogema MN 56569-
H:
w: (218) 983-3315
F:
klmular@co.becker.mn.us

Steve Odegaard
Resource Manager
U.S. Army Corps of Engineers
Western Flood Control Off 15 S. 21st St., # 10
Fargo ND 58103-1435
H: (701) 234-9657
w: (701) 232-1894
F:(701) 232-1789
Steven.D.Odegaard@usace.army.mil

Jeff Olson
Manager Hoot Lake Plant
Otter Tail Power Co.
PO Box 496
Fergus Falls MN 56537-
H:
w: (218) 739-8110
F:(218) 739-8105
jolson@otpco.com

Sylvia Soeth
President
Pine Lake Improvement District
812 20th St N
Moorhead MN 56560-
H: (218) 236-6118
w: (218) 346-6676
F:

Paul Sundby
Yak-Shak PaddleSports
42355 E. Lake Lida Rd
Vergas MN 56587-9326
H: (218) 342-2867
w: (218) 342-2867
F:

Rick Terway
Parks, Rec, & Forestry Mgr
City of Fergus Falls
305 S Peck
Fergus Falls MN 56537-
H:
w: (218) 332-5804
F:(218) 332-5819
rick.terway@ci.fergus-falls.mn.us

Cindie Van Tassel
Director - Jur. Wildlife Coordinato
Red River Area Sportsman'
812 S. 7th St.
Breckenridge MN 56520-
H:
w: (218) 643-4374
F:
bvt@wah.midco.net

Otter Tail Master Plan
Project Advisory Group (PAG) Meeting
Fergus Falls DNR
March 4, 2008 9-11AM

Introductions – what is your connection to the River?

- Sign in please
- Contact information

Meeting logistics-

- Mileage reimbursement for non agency/organization employees
- No breaks-step out when necessary
- Big issues only for this meeting - save specific issues for an e mail or a personal conversation

Agenda Overview

Overview of state water trail system

- DNR water trail system (see map)
- 2005 DNR Canoe and Kayak study
- Map examples-Red River and others

Overview of role of DNR, River Keepers, PAG

- River Keepers information
- Your opportunity for input
    - Interview
    - Public meetings
    - Contact project work team (DNR and River Keepers)

History of designation

- Thanks to all those that worked on the designation
- FERC designation 12.8 mile stretch from Diversion Dam to just south of Otter Tail Power's Hoot Lake power plant.

The uniqueness of the Otter Tail River-discussion

- Day tripping likely, camping less likely
- Great fishing
- Draft map up on a wall, distribute small-scale copies of draft map
- Safety concerns
- DNR PowerPoint
- Ridgewood Circle (Wall Lake) bridge update from County

Plan development input

- Mine fields-NIMBY may be an initial reaction, but our experience is that most residents eventually greatly appreciate land and water trails
- Boosters
- Identify Folks/organizations to contact
    - Users
    - Service providers
    - Others
- What is your vision for the Otter Tail 10-15 years in the future

Review work plan/timeline

- Deliverables
- Future maintenance plans, the reality of limitations of funds

Otter Tail River Master Plan
PAG Meeting
3/4/08

	Signature
1	Bob Bau[illegible]
2	Jay G. Lee
3	Christine Bowman
4	Lois Klinkel
5	Cindie VanDeusen
6	Wayne Hurley
7	Bill Keen
8	Hank Ludtke
9	Karen Mulari
10	Steve Odegaard
11	Jeff Olson
12	Ralph Tovatt
13	Don Bajumpaa
14	Melody Webb
15	Barry Christianson
16	Rick Wiese
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Otter Tail Master Plan
Project Advisory Group (PAG) Meeting
Fergus Falls DNR
December 10, 2008 9-11AM

Introductions

- Sign in please

Meeting logistics-

- Mileage reimbursement for non agency/organization employees
- No breaks-step out when necessary

Agenda Overview

Brief overview of project

Review of draft plan and feedback

Public meetings

Fergus Falls- date and location?
Frazee- date and location?

Methods to promote the meetings

Map update

Otter Tail River Master Plan
PAG Meeting
December 10, 2009

	Signature
1	Bob Backman
2	Christine Clancy
3	Wayne Hurley - WCI
4	Paul Sawatzky
5	Erik Wrede
6	Jeff Olson
7	Hans Zitter
8	[illegible]
9	John Steward
10	Barry Whitfield
11	Jay A Forst
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Appendix D. Public and Stakeholder Input Meetings

Five Stakeholder input sessions:

1. HEADWATERS – @ Ice Cracking Lodge
2. FRAZEE – @ Frazee
3. BIG LAKES - @ Amor
4. FERGUS FALLS - @DNR offices
5. LAKE AGASSIZ - @Breckenridge

Two Public Input Meetings. A copy of the Executive Summary and the Implementation section of the draft master plan were made available to attendees. The tables from the report were on display for attendees to look at and discuss.

1. @ Frazee
2. @ Fergus Falls

Stakeholder Meeting

Master Plan Development for the State of Minnesota Designated Otter Tail Water Trail

Frazee Reach

White Pine Room
Basement of Municipal Liquor Store
2nd and Ash
Frazee, MN
Wednesday August 6, 2008
6:30pm to 7:30pm

Invited Participants to include representatives from:

- Local Resorts
- Local Governments
- Community betterment groups
- Chamber of Commerce
- River based vendors
- Project Advisory Group
- Area residents

The purpose of the meeting is to report on progress to date and solicit input into the planning for the State of Minnesota designated Otter Tail River Water Trail

For more information contact:
Bob Backman, River Keepers, 701-235-2895

Stakeholder Meeting Summaries

Headwaters Reach:

Most of the attendees were enthusiastic about the project. Attendees were reminded that Hubble Pond and Tamarac are closed to river use within their boundaries. However, Earl Johnson, DNR, indicated that with proper safeguards there is a potential to open up Hubbell Pond for more public use. He suggested there may be an opportunity for some limited camping within Hubbell Pond. Most private landowners have not had issues with trespass and in general would like to see more people using the river outside of the restricted areas. Tubing was viewed as a nice amenity to the area and several attendees had participated in the activity using a local vendor. Tubing has caused some issues with trespass and littering adjacent to the section used for commercial tubing. Attendees provided several additional resources to use when developing the master plan and maps.

Frazee Reach:

Most participants were interested in the route as a way to develop more tourism opportunities for local economic development. Several of the participants wanted to see more connections between land trails such as the North Country and water trails. One participant was interested in getting more accesses developed so he could create a "family" tubing business. They wanted to see Frazee take a leadership role in developing the local reach of the Otter Tail. Participants provided some local names for bridges and roads.

Otter Tail Reach:

The majority of the attendees was landowners and saw the river as another great amenity to the region. They were however; very concerned about any developments that would impact water quality. One participant suggested that some of the current unofficial access sites such as bridge crossings were contributing to water quality issues since some trails were bare dirt and were allowing sediment to enter the river. They wanted assurances that future development would not impact water quality. The Phelps Mill Store owner indicated that the river was not being used enough and she wanted to see more canoeists on the river. It was suggested that perhaps the store could consider some outfitting services.

Fergus Falls Reach:

Trespassing, probably by duck and deer hunters, was a concern of landowners. Additional signage, education and enforcement were indicated as a possible partial solution. The limitations of enforcement were recognized. Everybody was enthusiastic about the designation and wanted to know when all of the recommendations might become reality. The economic potential as well as a good local source of recreation was viewed as a reason to develop the trail. It was suggested that recreational diving off of bridges and river swimming (and placing ropes across the river to facilitate it) were long time local uses of the river. Everybody recognized the serious nature of some of the safety issues related to dams and pipes across the river. The USACE representative indicated they would be willing to consider working with other groups in the development of amenities such as camping or increased access. They indicated recreation was a part of their mission. The quality small mouth bass fishing was indicated as one of the great features of this river.

Lake Agassiz Reach:

There was a lot of positive interest in the designation especially as to how it may relate to the existing Red River Water Trail. Again, there were questions related to time lines. How soon could all of this become reality? Interest was also shown in making sure that other trails under various stages of development, i.e. Hwy 75 King of Trails, North Country, birding trails etc, would be integrated into Otter Tail efforts. The rivers, as a source of community pride, were one reason attendees were interested in this effort. They would like to see another kiosk developed matching the current Red River Water Trail kiosk at the headwaters. Even though it's in Minnesota the Wahpeton Park Board uses the Otter Tail.

Stakeholder Meeting
Headwaters Reach
Ice Cracking Lodge
July 23, 2008
6:30pm

Name	Representing
Sheila Blanford	Tamarac Resort & Campgrounds
Karen Mulaci	Becker County
John Joy	Many Point
WILBUR JOY	Many Point Lake
EARL JOHNSON	DNR Wildlife, Detroit Lakes
Ron Gerstner	Tamarac National Wildlife Refuge
Barbara Boyle	MANY POINT SCOUT CAMP
SCOTT HOLLERMANN	ICE CRACKING RESORT
DICK LeSAGE	

Stakeholder Meeting
Frazee Reach
White Pine Room
2nd and Ash
Frazee, MN
August 6, 2008
6:30pm

Name	Representing
Tom Watson	FCC / Canoe rental vendor
Jon Smith	City of Frazee, F.C.L.
Rod Osvold	Merchants on main
Hank Ludtke	City of Frazee, County Park Board
Tyler Trieglaff	Tubing business
Dawn King	Frazee Sportsmen club
Gerry Schram	Becker County EDA
Ray Vlasak	Park & Rec Board Becker Co
Roger Boe	North Country Trail Assoc / Main Street Businessowner

Stakcholder Meeting
Otter Tail Reach
The Garden Room
Otter Supper Club
Intersection of Highway 78 and Highway 1
Otter Tail, MN
August 20 2008
6:30pm

Name	Representing
Lois Klinker	Maple Leaf Resort West Lost Lake
ROB EVANS	LID
John Askew	LID
Carol Bruns	LID
Sylvia Soeth	Big Pine/LID
[illegible]	Big Pine/LID
Joe Harlow	BIG PINE LODGE
PATSY WOOD	Phelps Mill Store
Jeff Olson	Otter Tail Power
Mark Huber	Pine Lakes L.D.
CARL ANNALORA	✓ ✓ ✓

Stakeholder Meeting

City of Fergus Falls Reach

Friberg Dam/Taplin Gorge Dam to Orwell Dam

Fergus Falls Area Fisheries Office
1509 1st Avenue North
Fergus Falls, MN 56537
September 3, 2008
6:30pm to 7:30pm

Name	Representing
GREGG PALMER	CANOE ADVOCATE
David Weiss	Otertail Co. Water Patrol
Don + Helen Pederson	Buse Twp.
BILL KALAR	OTC LAND + RESOURCE
Wayne Hurley	WC-1
Jean Bowman	Fergus Falls Convention + Visitors Bureau
Steve Odegaard	Corps of Engineers

Stakeholder Meeting

Master Plan Development for the State of Minnesota
Designated Otter Tail Canoe and Boating Route
Confluence Reach
Orwell Dam to Breckenridge
Breckenridge Library
205 7th St N
Breckenridge, MN 56520
September 17, 2008
6:30pm to 7:30pm

Name	Representing
Cindie Van Cassel	RRASC - Board
Norma A. Laker	Project Check
Rick Terway	City of Fergus Falls
Tom Richels	Wilkin Co. Engr.
[illegible]	Chamber
Jeffrey Yubitz	WILKIN S.O.
Don Bajumpaa	WILKIN SWCD
Cliff Davis	Wahpeton Park Board Commissioner
Wayne Beyer	Breck Mayor
	Wahpeton Park Board

August 28, 2008

Robert Backman
River Keepers

Thank you for inviting me to your recent meeting about your plans to map the Ottertail River within Ottertail County as a resource for those who might take advantage of an opportunity to canoe and boat on it. As you know I own the General Store within the Phelps Mill Park area.

What I have noticed in the 6 years that I have owned and operated the store is that there certainly is interest in this but that there is very little information available for people, including myself, about how to go about it. I do find in the course of the summer that on weekends there are a few hardy souls who come up from the river to my store but not many. I have had several people ask if there is camping available at the Phelps Mill Park for canoeists. I get quite a few calls asking where a person can rent a canoe or tubes.

From what I have observed the problems with further encouraging more people to canoe is that putting out of the river by the mill is difficult. And there is no immediate parking available on the high side of the dam. I think with proper planning and good signs these problems can be overcome. I would say that my personal opinion is that the Ottertail River is a beautiful resource that would be great to share with people who appreciate that sort of recreation. Information should be made widely available by the state and county for how to properly utilize this resource.

Patsy Wood
Owner
Phelps Mill Store
29024 County Road 45
Underwood, MN 56586

218-495-3686
wkpw@prtel.com

Otter Tail River Water Trail Master Plan

PUBLIC MEETINGS

The Otter Tail River was recently designated as an official "Canoe and Boating Route". To guide the development of the route, the Minnesota Department of Natural Resources (DNR), in conjunction with River Keepers, a Minnesota non-profit organization, is developing a master plan. The master plan makes recommendations for future facilities such as access sites, interpretive material, signage and campsites. Along with the master plan, a recreational map is in development with a projected completion date of this summer.

The public is invited to attend two community open houses to hear more about the plan. The first meeting will be in Frazee on January 14 at the Frazee Event Center, 114 Lake St. N, from 4:30 p.m. to 6:30 p.m. The second meeting will be in Fergus Falls on January 15 at the Otter Tail Power Customer Service Center, South Dakota Room, 215 South Cascade Street from 4:30 p.m. to 6:30 p.m. There will not be a formal presentation. Attendees may stop by anytime during the open house.

Summaries of the plan will be available at the open houses. In addition to the plan a draft of the map will be available for viewing.

FOR MORE INFORMATION CONTACT : Erik Wrede, MN DNR Water Trials Coordinator, 651-259-5624, OR Bob Backman, River Keepers, 701-235-2895

News Release

For immediate release: January 7, 2009
Contact: Erik Wrede, MN DNR Water Trials Coordinator, 651-259-5624

Otter Tail River Water Trail Master Plan Public Meetings

In 2006 the Otter Tail River was designated by the Minnesota State Legislature (Stature 85.32) as an official "Canoe and Boating Route". To guide the development of the route, the Minnesota Department of Natural Resources (DNR), in conjunction with River Keepers, a Minnesota non-profit organization, is developing a master plan. The master plan makes recommendations for future facilities such as access sites, interpretive material, safety recommendations and campsites. Along with the master plan, a recreational map is in development with a projected completion date of this summer.

A Project Advisory Group made up of local citizens and agency representatives has been guiding the plan development process. In addition, last fall a series of five stakeholder meetings were held at various sites along the Otter Tail River.

There will be two community open houses to present the draft plan to the public. The first will be in Frazee on January 14 at the Frazee Event Center, 114 Lake St. N, from 4:30 p.m. to 6:30 p.m. The second meeting will be in Fergus Falls on January 15 at the Otter Tail Power Customer Service Center, South Dakota Room, 215 South Cascade Street from 4:30 p.m. to 6:30 p.m. There will not be a formal presentation. Attendees may stop by anytime during the open house.

The draft plan can be viewed at http://riverkeepers.org/documents/Dec_29_draft.doc
Summaries of the plan will be available at the open houses. In addition to the plan a draft of the map will be available for viewing.

Otter Tail River Master Plan
Public Meeting
4:3 0 - 6:30 p.m. on Wednesday, January 14, 2009
Frazee

Please Print

Name	Email Address	Mailing Address	I'm interested in a "Friends of the Otter Tail River" group
Guy Fischer	gkfischer@co.becker.mn.us	P.O. Box 1617 D.L., 56501	
Margaret + Tom Trieglaff	ttrig@loretel.net	33928 120 St. Frazee, MN 56544	?
Jim Ke		Box 344 Frazee	
Brad Wentz	bwentz@co.becker.mn.us	200 E State Pl MN 56537	
Keven Anderson	Keven.Anderson@dot.state.mn.us	1000 W Hwy 10 D.L. MN 56501	
Jo Smith	frazee@loretel.net		
Teri Niosek	terikev@arvig.net	604 E Main Ave. Frazee MN	✓
Dean Schmidt	Dean.Schmidt@mn.usda.gov	900 Robert St. Suite 104 Alexandria, MN	✓
Ken Brasel		47453 425th Ave Perham MN	
Mike Illg		16305 Co Hwy 29 Frazee 56544	—
Pat Puetz	Pat814528@hotmail.com	34053 Camp Cherith Rd. Frazee MN	
Don Solga	pradmin@loretel.net		
[illegible]	[illegible]@PACKilim.com	PO Box 746, Detroit Lakes, MN 56502	
Dave Topp	zzjopp@hotmail.com	402 S Lake St Frazee	
BRAD GREEN	bgreen@lakesnet.net	508 E. Front St. Detroit Lakes, 56501	
Dan Wenn	Danw@pmcep.com	PO Box 1108 Detroit Lakes MN 56502	
KRIS TOVSON	KRIS@VISITDETROITLAKES.COM	P.O. Box 348, DETROIT LAKES, 56502	
Heath Peterson	heathpeterson@aim.com	210½ W Cedar Ave Frazee MN 56544	
Lindsey peterson			
Chuck Johnson	cjohnson@cityofperham.com	PO Box 130 Perham MN 56573	
Kelly Blackledge	Kelly_blackledge@fws.gov	35704 CO HWY 26, Rochert, MN 56578	
DON TRIEGLAFF	dontrieglaff@hotmail	BOX 371 FRAZEE 56544	
Tom GRAHAM	SCOUTMASTER TROOP 690	34555 BORAH D.L. 56501	

Otter Tail River Master Plan
Public Meeting
4:3 0 - 6:30 p.m. on Wednesday, January 14, 2009
Frazee

Name	Email Address	Mailing Address	I'm interested in a "Friends of the Otter Tail River" group
ROLLIE KING		FRAZEE MN	
Del Bergseth		D. L.	
Tanya Mastin		Frazee MN	✓
Becca Nobbie		" "	✓
[illegible]		" "	✓
Lori Thorp	llthorp@loretel.net lthorp@frazee.k12.mn.us	Frazee MN	
Daryl A Negen	Negen711@arvig.net	P.O Box 332 Frazee MN 56544	
Matthew Davis	hartlandmd@hotmail.com	PO Box 1805 D.L. MN 56502	✓
Karlene Negen	negen711@arvig.net	PO Box 332 FRAZEE MN 56544	✓
REBECCA ANDERSON	rebianderson@AOL.com	P.O. BOX 1183 DETROIT LAKES 56544	✓
Bevo Dahnke	danke@lakesnet.net	16191 360th Ave Frazee MN 56544	
Bill Dahnke	"	"	
Josh Hobart			
Wayne Tenpin		34059 co. RD. 120 frazee	

Otter Tail River Master Plan
Public Meeting
4:3 0 - 6:30 p.m. on Wednesday, January 14, 2009
Frazee

Please Print

Name	Email Address	Mailing Address	I'm interested in a "Friends of the Otter Tail River" group
Jaio Klinkee	lbK@prtel.com	29271 co Rd 35 Underwood MN	Yes
John Aho		137 W. Johnson St. WOLF LAKE	
Hank Ludtke	mercedesman66@hotmail.com	223 W Juniper Dr, Frazee	Yes
Roger Palmer	repotter@eoti.com		
David G Green	dgdjgreen@Loretel.Net	30989 Valley View Rd Frazee	yes
Tom Watson	TOM1@LORETEL.NET	11473 343 AVE FRAZEE MN	yes
Wayne Hurley	Wayne@wcif.org	100 Western Ave Fergus Falls	yes
Erik Wrede	erik.wrede@dnr.org	500 Lafayette Rd St Paul, MN 55155	yes
Jim Sampson	JoSA1n@Loretel.net	Cty Rd 150 ~~Frazee~~	yes
Ike Fischer		34383 Co RD 118 Frazee	yes
Donald Thorp	DLThorp@LORETEL.NET	34350 Co. Rd. 118 FRAZEE	yes
MARK KELLY	MLKelly@Loretel.net	11447 CO HWY 29 FRAZEE	yes
John Dermody	j2w5dermody40@arvig.net	101 Riverview Dr #4 Frazee	Yes
Lawrence King		215 ~~Main~~ W. Willow Frazee	Yes
Tinny Tinholte	inholtedl@arvig.net	720 S Shore DL	yes
Bruce Tinholte	"	"	yes
Shirley Jesness		35651 154th St, Frazee MN	

Otter Tail River Master Plan
Public Meeting
4:3 0 - 6:30 p.m. on Thursday, January 15, 2009
Fergus Falls

Name	Business/Organization	E-mail Address	Mailing Address	I'm Interested in a "Friends of the Otter Tail River" Group
David Linding		dlinding@prtel.com	17495 city Hwy 15, Fergus Falls	
GREGG PALMER		FERGUS FALLS		
Skip Schreiber		sschreiber@aqwireless.net	16498 105th Ave Dorset MN 56522	
Ron + Cindy Henschel		ronandcindyhenschel@hughes.net	3900 320 Ave Foxhome 56543	
Melody Webb		melody.webb@dnr.state.mn.us		
BILL KALAR	OTC LAND + RESOURCE		FF	
Paul Aasness	Farmer		13985 165 St Fergus Falls, Mn	
Donald Bradow	Farmer		1302 Nicole CT FF.	
Rick Tomczy	City FF			
Jeff Olson	Otter Tail Power	jolson@otpco.com		
Rick Sytsma was not able to attend, but called in.		rsytsma@dtctel.MN.US	218-863-5247	yes

Appendix E. Photo Log

See Photo CD.

Appendix F. Canoeing and Boating Safety

Follow standard canoe safety.

OTR water trail users need to know how to understand river hydraulics to read currents to anticipate downriver hazards (Kuhne 1998). If something looks hazardous, either pull to the side of the river to check it out, get on the bank and walk ahead to scout out the potential hazard, or portage around. If there other water trail users around you might watch someone else go downstream before trying something that looks uncertain.

Standing waves, wave trains, tailwaves, and haystacks are all terms used to describe what happens when fast currents meet slower currents. Water trail users need to know how to read these so that standing waves caused by currents are not confused with backcurlers caused by rocks just below the surface.

Sweepers are fallen trees, overhanging branches, or logs wedged between rocks tha can be a hazard. These are especially prevalent in smaller streams or during or following flooding.

Most reaches of the OTR are not 'technical' canoeing waters, or waters that take a lot of skillful maneuvering. However, there are places that could be challenging to beginners.

Rapids
Rapids, or whitewater conditions, are rare on the OTR, usually occurring in the tail waters of dams. The few season-long rapids or potential rapids can be shown on the map(s).

Rock gardens
There are numerous 'rock gardens' (when the channel is filled with partially submerged rocks, or rocks just under the water surface) in the OTR. When these occur under low water velocity, they can be easily avoided. However, when they occur with higher velocities they can pose a hazard leading to capsized canoes. Many of the rock gardens are not a problem when the water is high, but become a problem under low flow conditions. The larger, more obvious rock gardens can be shown on the map.

Deep water
Water depth in the OTR can vary from just inches to more than 10 feet within just a few yards. Deep water normally flows much slower than shallow water and does not pose much threat to canoeists.

Shallow water
Shallow water normally flows much faster than deep water and can pose a threat when there are rock gardens or other obstacles. However, in most shallow water conditions on the OTR, canoeists can merely walk alongside their canoe through the shallow water reaches.

Snags
Snags are trees or branches that protrude into or over the river or have fallen into the river. The locations of snags are unpredictable, as they can show up quickly and just as quickly be moved

downstream with the flow. Submerged snags are more of a problem under low water conditions, while overhanging branches/trees are usually more of a problem under high water conditions. Higher flows tend to erode the banks more quickly, causing trees to topple into the river and form a barrier to downstream movement.

The best action for snags is to approach them slowly to find a way either through or around them. If you're with a group, watch how those in front navigate past snags. The most serious snags should be portaged around.

In short, the canoeability of the OTR in general cannot be easily assessed by checking available river stage information, since each reach has unique flow, bottom strata, and snag potential characteristics.

Swenson, Allan A. 2000. L.L. Bean Canoeing Handbook. The Lyons Press, New York.

Am. Canoe Association. 1996. *Introduction to Paddling: Canoeing basics for lakes and rivers*. Springfield, Virginia. www.aca-paddler.org.

Am. Canoe Association. 1987. *Canoeing and paddling: Instruction manual*. Menasha Ridge Press, Birmingham, Alabama. www.aca-paddler.org.

Appendix G. Becker County and Otter Tail County Tubing Regulations

BECKER COUNTY RIVER ORDINANCE

Section 1. General Provisions.

A. **Title.** This Ordinance shall be known as the Becker County River Ordinance.

B. **Purpose.** This ordinance is enacted for the following purposes:

1. To promote and protect the health, safety, and general welfare of persons using and enjoying the rivers throughout the County.

2. To preserve and enhance the quality of the rivers throughout the County.

3. To regulate and ensure orderly commercial use of the rivers throughout the County.

C. **Authorization.** This Ordinance is enacted pursuant to Chapters 375, 394, and 462 of Minnesota Statutes.

D. **Jurisdiction.** This Ordinance shall apply to all of the area of Becker County outside the limits of incorporated municipalities.

Section 2. Definitions. For the purpose of this Ordinance, certain items and words are defined as follows:

Board. "Board" means the Becker County Board of Commissioners.

License. "License" means a certificate issued by the Board which grants authority to carry on a certain activity or business, subject to the provisions of this Ordinance.

Licensee. "Licensee" means a person, firm, corporation or other entity to whom a license is issued.

Litter Reduction System. "Litter Reduction System" means a system used by a tubing business to reduce or eliminate the deposit of litter or refuse in a river by patrons of the business.

Tube. "Tube" means any flotation device that can be used to transport any person or property on a river, including but not limited to: inner tubes, rafts, kayaks, canoes, boats or other such devices.

1

Tubing business. "Tubing business" means any person, firm, corporation or other entity operating a business that furnishes or provides tubes or transportation services to persons for the purpose of floating on a river.

Section 3. Rules and Regulations.

A. **License required.** No person, firm, corporation or other entity shall maintain, operate or conduct any tubing business without first obtaining a license from the Board.

B. **Application and Fee.** An application for a license shall be made to the County Auditor on forms supplied by the County. The application shall state the applicant's name, address, and telephone number, the name of the business, if different, the legal description, address and telephone number of the premises on or from which the business is to be conducted, any other business operated on or from the same premises, the type of license applied for, a description of all services used in connection with the tubing business, including information as to toilet facilities and dressing rooms, a description of vehicles used to transport persons or property in connection with the business, a complete description of the litter reduction system to be used by the business, and any other information as required by this Ordinance or by the Board.

All applications shall be accompanied by payment in full of the license fee. The annual license fee is established at $50. The license fee may be modified from time to time by resolution of the Board. All licenses shall expire on the last day of December in each year unless revoked prior thereto. The Board shall review each application and shall not issue a license for any tubing business that does not comply with this Ordinance. No license shall be issued for any tubing business unless the business for which the license is sought has developed a litter reduction system that, in the judgment of the Board, would have a significant effect on the reduction of litter, and is in compliance with applicable zoning, building, and health ordinances, and other laws and regulations.

C. **Approval or Denial of Application.** The Board shall act to approve or deny an application for a license under this section within a reasonable period of time and in no event shall the Board approve or deny a license later than ninety days from the date that the application was accepted by the County Auditor.

D. **Operating Requirements.**

1. All tubing businesses shall provide law enforcement officers, firefighters, and ambulance and emergency rescue squads access to all property used in connection with the tubing business to ensure public safety and compliance with this Ordinance.

2. All tubing businesses shall have sufficient dressing /changing rooms and toilet facilities located on the premises to reasonably accommodate customers of the business.

3. No tubing business shall sell, give, dispense, provide, barter, exchange or cause to be sold, given, dispensed, provided, bartered or exchanged any alcoholic beverage.

4. No tubing business shall allow or permit the use or possession of glass or Styrofoam products of any kind on a river.

5. All tubing businesses shall have adequate trash containers located on the premises to reasonably accommodate customers of the business.

6. Each tubing business shall diligently enforce its litter reduction system.

7. A tubing business that provides transportation to its customers shall not allow its customers to gain access to a river except on property owned by the tubing business or used with the permission of the lawful owner or possessor. No such tubing business shall use a public road right-of-way or other public property to allow its customers to gain access to a river.

8. No tubing business shall permit or allow any of its customers to gain access to a river for the purpose of floating after 6:00 p.m.

9. All tubing businesses shall comply with all federal, state and local laws and ordinances including the Becker County Zoning Ordinance.

Section 4. Violation and Enforcement.

A. **Violation.** Any person, firm or corporation who violates or who fails to comply with any provision of this Ordinance or who makes false statements in any document required to be submitted under the provisions of this Ordinance shall be guilty of a misdemeanor and, upon conviction, shall be punished by a fine of not more than $1,000 and/or a jail sentence not to exceed ninety 90 days. Each day that a violation of this Ordinance continues shall constitute a separate and distinct offense and may be punishable as such.

B. **Enforcement.**

1. This Ordinance shall be administered and enforced by the Becker County Sheriff's Office.

2. In addition to any other remedies, this Ordinance may be enforced by injunction or action to compel performance or other appropriate action in District Court to prevent, restrain, correct or abate violations.

3. The Becker County Attorney shall be responsible to prosecute violations of this Ordinance.

Section 5. Effective Date.

A. This Ordinance shall be effective on MAY 9, 2001.

THE COUNTY BOARD OF BECKER COUNTY, MINNESOTA HEREBY ORDAINS that the attached "Becker County River Ordinance" is hereby enacted and approved this 8 day of MAY, 2001, by a majority vote of all of the members of the County Board.

VOTES: AYE 5

VOTES: NAY _____

Enacted this 9 day of MAY, 2001, in Detroit Lakes, Minnesota.

Caroline E. Engebretson

Caroline Engebretson, Chairperson

ATTEST:

Al Roder
County Administrator

TUBING BUSINESS LICENSE APPLICATION FOR YEAR _____

Name of applicant: _____

Address _____
Street

_____
City State Zip Code

Phone number of applicant _____

Name of Business _____

Address of business _____
Street

_____
City State Zip Code

Phone number of business _____

Type of business (check one) _____ sole proprietor _____ partnership
_____ corporation _____ other

Legal description of business property (attach legal description if necessary) _____

Name of river to be used _____

Describe starting point _____
Leased ____ Owned ____ Other ____

Describe ending point _____
Leased ____ Owned ____ Other ____

Attach copies of documents verifying ownership, lease, or other authority to use starting and ending points.

Type of floatation devices used . Check those that apply -
tube _____ kayak ____ canoe _____ boat _____ other _____

Will ground transportation be provided to customers? yes _____ no _____

If yes, describe each vehicle to be used:

	vehicle 1	vehicle 2	vehicle 3
make	_____	_____	_____
model year	_____	_____	_____
VIN #	_____	_____	_____
liability ins. co.	_____	_____	_____
ins. policy #	_____	_____	_____

Describe type of toilet facilities _____
_____
_____

Number of toilet facilities _____

Describe dressing room facilities _____
_____
_____

Attach diagram of toilet and dressing room facilities

In order for a license to be granted, the applicant must present a complete description of a litter reduction system to be used by the business. A litter reduction system means a system used by a tubing business to reduce or eliminate the deposit of litter or refuse in a river by patrons of the business. Attach a complete written description of the litter reduction system proposed by your business.

I hereby certify that all of the above information is true and correct. I understand that any misstatement will result in this application being denied. All applications shall be accompanied by payment in full of the license fee of $50. All applications are subject to the approval of the Becker County Board of Commissioners.

Date: _____ _____
Signature of applicant

Special Compensation Fund
443 Lafayette Road North
St. Paul, Minnesota 55155-4317
612-296-2117
Fax: 612-297-7098
(TTY) 612-297-4198
1-800-DIAL-DLI

May 23, 1997

World Wide Web address:
www.doli.state.mn.us
E-mail address:
DLI.Commissioner@state.mn.us

Dear City, County, or State Administrator:

This letter is written to emphasize the importance of your compliance with Minnesota Statutes § 176.182. This statute requires that every state, county, and city licensing agency shall withhold the issuance or renewal of a license or permit until evidence of compliance with the workers' compensation insurance requirement of Minnesota Statutes § 176 is furnished. A copy of Minnesota Statutes § 176.182 is attached.

Your compliance with this mandate will have a significant positive affect in combating the problem of employers not insuring their employees for workers' compensation.

Information you collect from license and/or permit applicants should include:

- **the insurance company** (not agent)
- **policy number**
- **dates of coverage**
- **signed statement** whereby the license certifies the information given is true and the policy will be kept in effect during the license period.

You may use the attached statement as a model or make copies to include in your license packet.

Please keep this information in your files. The form should be filled out by the applicant in their handwriting or typewritten by the applicant. The licensing authority should not fill in missing information for the applicant. All applicant signatures must be dated to assist with potential future action by the Department of Labor and Industry.

Questions regarding whether particular employers must insure under the Workers' Compensation Act may be directed to the Customer Assistance Unit of the Department of Labor and Industry at (612) 297-4377 or 1-800-DIAL-DLI.

Sincerely,

Brandon Miller

Brandon Miller
Director

Enclosure

CERTIFICATION OF COMPLIANCE
MINNESOTA WORKERS' COMPENSATION LAW

Minnesota Statute, Section 176.182 requires every state and local licensing agency to withhold the issuance or renewal of a license or permit to operate a business or engage in an activity in Minnesota until the applicant presents acceptable evidence of compliance with the workers' compensation insurance coverage requirement of Chapter 176. The information required is: the name of the insurance company, the policy number, and dates of coverage or the permit to self-insure. This information will be collected by the licensing agency and retained in their files.

This information is required by law, and licenses and permits to operate a business may not be issued or renewed if it is not provided and/or is falsely reported. Furthermore, if this information is not provided or falsely stated, it may result in a $2,000 penalty assessed against the applicant by the Commissioner of the Department of Labor and Industry.

Insurance Company Name: _____
(NOT the insurance agent)

Policy Number _____

Dates of Coverage: _____ to _____

(or)

I am not required to have workers' compensation liability coverage because:

( ) I have no employees

( ) I am self-insured (include permit to self-insure)

( ) I have no employees who are covered by the workers' compensation law (these include: Spouse, Parents, Children and certain farm employees)

I certify that the information provided above is accurate and complete and that a valid workers' compensation policy will be kept in effect at all times as required by law.

Name: _____
(last, first, middle)

Doing Business As: _____
(business name if different than your name)

Business Address: _____

City, State, Zip: _____ Phone: ( ) _____

Signature: _____ Date: _____

176.182 BUSINESS LICENSES OR PERMITS; COVERAGE REQUIRED.

Every state or local licensing agency shall withhold the issuance or renewal of a license or permit to operate a business in Minnesota until the applicant presents acceptable evidence of compliance with the workers' compensation insurance coverage requirement of section 176.181, subdivision 2, by providing the name of the insurance company, the policy number, and dates of coverage or the permit to self-insure. The commissioner shall assess a penalty to the employer of $2,000 payable to the assigned risk safety account, if the information is not reported or is falsely reported.

Neither the state nor any governmental subdivision of the state shall enter into any contract for the doing of any public work before receiving from all other contracting parties acceptable evidence of compliance with the workers' compensation insurance coverage requirement of section 176.181, subdivision 2.

This section shall not be construed to create any liability on the part of the state or any governmental subdivision to pay workers' compensation benefits or to indemnify the special compensation fund, an employer, or insurer who pays workers' compensation benefits.

HIST: 1981 c 346 s 94; 1983 c 290 s 114; 1987 c 332 c 332 s 47; 1992 c 510 art 3 s 19; 1995 c 231 art 2 s 72

"TUBING BUSINESS" LICENSE

$ 50.00 NO. 1

LICENSE is hereby granted to

ROGER J. KLEMM / K & K TUBING

TO SELL AT RETAIL

BECKER COUNTY TUBING LICENSE

for tubing on the premises located at

33551 HIGHWAY 34 EAST, DETROIT LAKES, MN 56501

PRCL.#10.0259.000, 170.31 AC., SEC.14,TWP.139,RNG.40, W1/2 SE1/4 NE1/4 & NE1/4 NE1/4 EX 8 AC., N1/2 N1/2 SE1/4 EX 1.69 AC. IN NE COR. & W1/2 NE1/4. PRCL.#10.0380.000, 4.82 AC., SEC.23,TWP.139,RNG.40, BEG. 33' E OF SW COR SW1/4 SE1/4, TH N 325.28' TO HWY E AL HWY 538.44' S 429.93' & W 583.19' TO BEG.

in the town of ERIE ; OTTER TAIL RIVER

County of BECKER, State of Minnesota,

For the period commencing

JANUARY 1, 2008, and terminating DECEMBER 31, 2008 at midnight.

This license is granted pursuant to application and payment of the fee therefore, and is subject to all the provisions and conditions of the Becker County River Ordinance, and the laws of the State of Minnesota pertaining to the safety of persons using the rivers and the protection of the quality of the rivers. Not transferable.

Issued by authority of the County Board of BECKER County, Minnesota.

DETROIT LAKES MINNESOTA, _____
DATE

_____
BECKER COUNTY AUDITOR-TREASURER

BY _____
DEPUTY AUDITOR-TREASURER

(SEAL) (12/21/01)

OTTER TAIL COUNTY RIVER ORDINANCE

The County Board of Otter Tail County ordains:

I. **General Provisions.**

A. **Title.** This Ordinance shall be known as the Otter Tail County River Ordinance.

B. **Purpose.** This ordinance is enacted for the following purposes:

1. To promote and protect the health, safety, and general welfare of persons using and enjoying the rivers throughout the County.

2. To preserve and enhance the quality of the rivers throughout the County.

3. To regulate and ensure orderly commercial use of the rivers throughout the County.

C. **Authorization.** This Ordinance is enacted pursuant to Chapters 375 and 394 of Minnesota Statutes.

D. **Severability and Savings Clause.** If any section or portion of this Ordinance shall be found unconstitutional or otherwise invalid or unenforceable by a court of competent jurisdiction, that finding shall not serve as an invalidation or affect the validity and enforceability of any other section or provision of this Ordinance.

E. **Responsibility.** All licensees under this Ordinance shall be responsible for the actions of their employees in regard to the operation of a tubing business and an act by an employee shall be considered an act by the license holder. Nothing in this section shall be construed as prohibiting the County from also subjecting the employee to whatever penalties are appropriate under this Ordinance, state or federal law or other applicable law or regulation.

F. **Jurisdiction.** This Ordinance shall apply to all of the area of Otter Tail County outside the limits of incorporated municipalities.

II. **Definitions.** For the purpose of this Ordinance, certain items and words are defined as follows:

Board. "Board" means the Otter Tail County Board of Commissioners.

License. "License" means a certificate issued by the Board which grants authority to carry on a certain activity or business, subject to the provisions of this Ordinance.

Licensee. "Licensee" means a person, firm, corporation or other entity to whom a license is issued.

Litter Reduction System. "Litter Reduction System" means a system used by a tubing business to reduce or eliminate the deposit of litter or refuse in a river by patrons of the business.

Tube. "Tube" means any flotation device, nine feet in length or less, that can be used to transport any person or property on a river, including but not limited to, inner tubes, rafts, kayaks, canoes, boats or other such devices.

Tubing Business. "Tubing business" means any person, firm, corporation or other entity operating a business that furnishes or provides tubes or transportation services to persons for the purpose of floating on a river.

III. **License.**

A. **License required.** No person, firm, corporation or other entity shall maintain, operate or conduct any tubing business without first obtaining a license from the Board. A license is not required for resorts, licensed by the Minnesota Department of Health, which provide tubes for their guests.

B. **Application.** An application for a license shall be made to the County Auditor on forms supplied by the County. The application shall state the applicant" name, address and telephone number, the name of the business, if different, the legal description, address and telephone number of the premises on or from which the business is to be conducted, any other business operated on or from the same premises, the type of license applied for, a description of all services used in connection with the tubing business, including information as to toilet facilities and dressing rooms, a description of vehicles used to transport persons or property in connection with the business, a complete description of the litter reduction system to be used by the business, and any other information as required by this Ordinance or by the Board.

C. **Fees**. The fee for an annual license under this Ordinance shall be set by the Otter Tail County Board, and no license shall be issued or renewed until the fee has been paid in full. The license fee may be modified from time to time by resolution of the Board.

D. **Term**. All licenses shall expire on the last day of December in each year unless revoked prior thereto.

E. **Standards**. The Board shall review each application and shall not issue a license for any tubing business that does not comply with this Ordinance. No license shall be issued for any tubing business unless the business for which the license is sought has developed a litter reduction system that, in the judgment of the Board, would have a significant effect on the reduction of litter, and is in compliance with applicable zoning, building, and health ordinances, and other laws and regulations.

F. **Transfers.** All licenses issued under this Ordinance shall be valid only on the premises for which the license was issued and only for the person to whom the license was issued. No transfer of any license to another location or person shall be valid without the approval of the Otter Tail County Board.

G. **Movable place of business**. No license shall be issued to a movable place of business. "Movable place of business" means any form of business operated out of a truck, van, automobile, trailer or other type of vehicle or transportable shelter rather than a fixed address storefront or other permanent type of structure authorized for sales transactions. Only fixed location businesses shall be eligible to be licensed under this Ordinance.

H. **Display**. All licenses shall be posted and displayed in plain view of the general public on the licensed premises.

I. **Approval or Denial of Application**. The Board shall act to approve or deny an application for a license under this section within a reasonable period of time and in no event shall the Board approve or deny a license later than 60 days from the date that the application was accepted by the County Auditor.

J. **Mistaken Issuance.** If a license is mistakenly issued or renewed to an applicant, it shall be revoked upon the discovery that the applicant was ineligible for the license under this section.

IV. **Operating Requirements**.

A. All tubing businesses shall provide Land and Resource Management officers, law enforcement officers, firefighters, and ambulance and emergency rescue squads free access to all property used in connection with the tubing business to ensure public safety and compliance with this Ordinance.

B. All tubing businesses shall have sufficient dressing or changing rooms and toilet facilities located on the premises to reasonably accommodate customers of the business.

C. No tubing business shall sell, give, dispense, provide, barter, exchange or cause to be sold, given, dispensed, provided, bartered or exchanged any alcoholic beverage.

D. No tubing business shall allow or permit the use or possession of glass or Styrofoam products of any kind on a river.

E. All tubing businesses shall have adequate trash containers located on all premises to reasonably accommodate customers of the business.

F. Each tubing business shall diligently enforce its litter reduction system.

G. A tubing business shall not allow its customers to access or exit a river except on property owned by the tubing business or used with the permission of the lawful owner or possessor. No tubing business shall use a public road right-of-way or other public property to allow its customers to access or exit a river.

H. No tubing business shall permit or allow any of its customers to gain access to a river for the purpose of floating after 6:00 p.m.

I. Each tubing business shall provide adequate off street parking.

J. All tubing businesses shall comply with all federal, state and local laws and ordinances, including the Otter Tail County Zoning Ordinance.

V. Violation and Enforcement.

A. **Violation.** Any person, firm or corporation who violates or who fails to comply with any provision of this Ordinance or who makes false statements in any document required to be submitted under the provisions of this Ordinance shall be guilty of a misdemeanor and, upon conviction, shall be punished by a fine and/or a jail sentence authorized by Minnesota law. Each day that a violation of this Ordinance continues shall constitute a separate and distinct offense and may be punishable as such.

B. **Enforcement.**

1. This Ordinance shall be administered and enforced by the Otter Tail County Sheriff's Office.

2. In addition to any other remedies, this Ordinance may be enforced by injunction or action to compel performance or other appropriate action in District Court to prevent, restrain, correct or abate violations.

3. The Otter Tail County Attorney shall be responsible to prosecute violations of this Ordinance.

Appendix H. List of Lakes and Tributaries

Lake Name	Elevation (msl')	Area (acres)	RM Inlet Geo Cords	RM Outlet Geo Cords	Public Access Geo cords
Elbow Lake	1450'	985	none	S shore RM185.5 47.06.11N/95.33.18W	NE shore/County
Little Bemidji Lake	1499'	275	N shore 186.0 47.06.03N/95.33.42W	SE shore 184.8 47.05.23N/95.33.53W	W shore/DNR
Many Point Lake	1498'	1737	N shore 183.4 47.05.23N/95.32.56W	S shore 181 47.03.19N/95.32.35W	SW shore/Tribe w/fishing pier
Round Lake	1494'	1087	N shore 180.6 47.02.59N/95.32.32W	S shore 179 47.01.39N/95.32.40W	S shore/DNR
Tributary from Ice Cracking Lake on the left			177.2 47.00.31N/95.33.41W		
Egg River tributary from Flat Lake on the right			173 46.59.21N/95.36.53W		
Chippewa Lake	1460'		N shore 171.0	S shore 170.3	none
S. Chippewa Lake	444m		N shore 170.1 46.57.29/95.36.15	S shore 169.4 46.57.97/95.36.36	none
Blackbird Lake	1454'	284	N shore 169.3 46.56.51/95.36.45	SE shore 168.0 46.56.14/95.37.12	W shore/FWS 46.56.52/95.37.00
Tributary from Johnson Lake			166.7 46.55.56/95.35.30		
Rice Lake	1454'	245	N shore 166.8 46.55.48/95.35.30	SE shore 165.2 46.55.02/95.34.34	Hunting season/FWS

Height of Land Lake	1453’	3520	N shore 164.0	46.54.39/95.35.05	WSW shore 160.8 46.52.48/95.38.15	S shore/DNR N shore/FWS	
Hubbel Pond Res.	1449’	561	E shore 160.2	46.52.28/95.39.02	W shore 158.0 46.51.43/95.40.50	none	
Tributary from Cotton Lake on the right							
Tributary from Rice Lake on the right ½ mile downstream of Hwy 29 bridge							
Tributary from Jones Lake on the right 1 mile downstream of Wannigan bridge					46.46.25/95.41.30		
Unnamed tributary on the left in county tax forfeit land in Section 13					46.46.11/95.40.41		
Tributary from Treigraff Lake on the right					145.4 46.45.14/95.41.06,		
Albertson Lake	1360’	73	141.8	46.43.19/95.41.47	141.5 46.43.14/95.41.51		

Tributary from Wimer Lake on the right			136.9			
----------Becker/Otter Tail County Line, Mnn ----------						
Rice Lake	1342’	350	136.2	46.42.17N/96.42.49W	135.0 46.41.29N/95.43.41W	E shore
Tributary from Long Lake on the right			133.3			
Mud Lake	1334’	437	126.0	46.40.45N/95.42.08W	124.9 46.39.56N/95.41.53W	none
Little Pine Lake	1333’	1969	124.9	46.37.33N/95.34.29W	123.0 46.37.45N/95.32.18W	SE shore 46.37.30/95.32.30
Big Pine Lake	1332’	4730	122.1	46.37.32N/95.31.27W	119.5 46.35.38N/95.30.28W	NW,N,SE shores
Willow Creek on the left (just past hwy 14)			109.1	46.30.29/95.31.09		
Rush Lake	1323’	5234	108.4	46.30.14/95.31.12	105.0 46.28.31/95.34.24	SW shore 46.28.31/95.3424
Mud Lake	1321’	138	103.3		102.3	none
Otter Tail Lake	1320’	13,725	101.5	46.24.04N/95.35.00W	93.0 46.21.33N/05.44.01W	E,W,N shores
Deer Lake	1319’	457	91.0 46.21.16/95.45.32		90.0 45.21.15/95.46.35	SE shore 45.21.16/95.45.32
E. Lost Lake	1319’	501	90.0	45.21.15/95.46.35	89.0 45.22.00/95.47.03	W shore 46.21.18/95.48.32

W. Lost Lake	1302’	723	82.0	46.23.10/95.52.00	80.3 46.23.47/95.53.18	E shore 46.22.53/9551.44
Red River Lake	1299’	305	76.0	46.22.50/95.57.26	73.0 46.22.58/96.01.04	SE shore 46.23.16/95.59.23
Diversion Res.	1256’		66.5	46.20.17/96.01.22	65.0 46.19.01/96.01.26	none
Tributary from Wall Lake on the left			59.5	46.16.43/95.59.01		
Dayton Hollow Res.	1107’	275	45.7	46.15.39/96.07.33	43.2 46.13.51/96.07.03	none
Orwell Res.	1064’	782	41.5	46.13.15/96.07.22	39 46.13.00/96.10.44	N,N,S shores
Several unnamed tributaries and judicial ditches between Orwell Dam and Breckenridge Lake						
---------- Otter Tail / Wilkin county line ----------						
Breckenridge Lake/Res.			9.5	NA	8.1 46.15.27/96.32.09	W shore 46.15.20/96.32.14

SOURCE: www.dnr.lakefinder, DNR draft map, Google Earth

Appendix X. The Map