# Draft
# Environmental Assessment

## Crystal Lake Fishing Access Site Development Project

**December 6, 2007**

Montana Fish, Wildlife & Parks

## Cover Sheet

# Crystal Lake Fishing Access Site Development Project

**Proposed Action:** Montana Fish, Wildlife & Parks (FWP) proposes to reestablish public motorboat access on Crystal Lake in Lincoln County, Montana. There are three potential locations on FWP property around Crystal Lake for consideration of developing a fishing access site (FAS). There are six different access routes to these potential locations. The FAS would include a boat launch, parking area (6-10 spaces), and a latrine. The proposed action would be implemented as early as spring 2008 and may not be completed until fall 2008. These dates are approximate.

**Type of Document:** Environmental Assessment

**Lead Agency:** Montana Fish, Wildlife & Parks

**Responsible Official:** Dave Landstrom
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**Comment Period:** There will be a 30-day comment period through January 7, 2008. Please direct questions or comments to R-1 Parks Manager Dave Landstrom at the above address or phone number, or e-mail to dlandstrom@mt.gov.

# How to read this EA
# (Environmental Assessment)

To read this EA more effectively, carefully study this page. This EA has been designed and written (1) to provide the Project Decision Maker with sufficient information to make an informed, reasoned decision concerning the proposed Crystal Lake Fishing Access Site Development Project and (2) to inform members of the affected and interested public of this project so that they may express their opinions to the Project Decision Maker.

This EA follows the organization and content established by the EQC Regulations (ARM 12.2.428-12.2.453). The EA consists of the following chapters and appendices:

1.0 Purpose and Need for Action
2.0 Alternatives, Including the Proposed Action
3.0 Affected Environment
4.0 Environmental Consequences
5.0 Public Participation
6.0 List of Individuals Associated with the Project
7.0 List of Agencies Consulted
8.0 References
Appendix 1 HB 495 Project Qualification Checklist
Appendix 2 Tourism Report
Appendix 3 Best Management Practices
Appendix 4 Public Comments Received During Public Scoping Process
Appendix 5 Alternative Cost Estimates

**Chapters 1 and 2** together serve as an Executive Summary. These two chapters were written so that nontechnical readers can understand the potential environmental, technical, economic, and social consequences of **taking** and of **not taking** action.

- Chapter 1 introduces the proposed Crystal Lake FAS. It provides a very brief description of the Crystal Lake FAS, potential site locations, and potential access routes. The chapter then explains three key things about the project: (1) the decisions that the Project Decision Maker must make concerning this project, (2) the relevant environmental issues, and (3) the relevant laws, regulations, and consultations with which FWP must comply.

- **Chapter 2** serves as the *heart* of this EA. It provides detailed descriptions of Alternative A: No Action and Alternatives B through G: Develop an FAS at one of three different locations on Crystal Lake, each with two different access routes. Most important, it includes a **summary comparison** of the predicted effects of these alternatives on the human environment, providing a clear base for choice among the alternatives for the Project Decision Maker and the Public.

- **Chapter 3** briefly describes the past and current conditions of the relevant resources (*issues*) in the project area that would be meaningfully affected, establishing a part of the baseline used for the comparison of the predicted effects of the alternatives.

- **Chapter 4** presents the detailed, analytic predictions of the consequences of implementing one of the Alternatives A through G. These predictions include the direct, indirect, and cumulative effects of implementing the alternatives.

# 1.0 Purpose of and Need for Action

## 1.1 Proposed Action: Develop a Fishing Access Site on Crystal Lake:

Montana Fish, Wildlife & Parks (FWP) proposes to reestablish public motorboat access on Crystal Lake in Lincoln County, Montana, by constructing a fishing access site (FAS). There are three potential locations on FWP property around Crystal Lake for consideration of developing an FAS. There are six different access routes to these three potential site locations. The development of the FAS would include a boat launch, parking area (6-10 spaces), and a latrine. The proposed action could be implemented as early as spring 2008 and may not be completed until fall 2008. These dates are only estimates.

### 1.1.1 Funding:

| Agency Name | Funding Amount |
|---|---|
| FWP Boat-in-Lieu of Tax Account Funds | $25,000 (25%) |
| U.S. Fish & Wildlife Service Wallop-Breaux Motorboat Funds | $75,000 (75%) |
| Total | $100,000 (100%) |

### 1.1.2 Estimated Timeline:

Estimated Construction/Commencement Date: Spring 2008
Estimated Completion Date: Fall 2008
Current Status of Project Design (percentage complete): 50%

## 1.2 Location:

Crystal Lake is part of a larger recreation area known as the Thompson Chain of Lakes Fishing Access Site complex off Highway 2 approximately 50 miles west of Kalispell in Lincoln County. FWP owns two parcels of land on Crystal Lake. On the east side of the lake, FWP owns 72.27 acres in Township 27 North, Range 27 West, Section 19 (FWP East Shore property). On the west side of the lake, FWP owns 162.89 acres in Township 27 North, Range 28 West, Section 25 (FWP West Shore property).

## 1.3 Project Authority and Need:

**1.3.1 Authority for the Proposed Action:** The 1977 Montana Legislature enacted Statute 87-1-605 MCA, which directs Montana Fish, Wildlife & Parks (FWP) to acquire, develop, and operate a system of fishing access sites. The legislature established a funding account to ensure that this function would be accomplished. Sections 23-1-105, 23-1-106, 15-1-122, 61-3-321, and 87-1-303, MCA, authorize the collection fees and charges for the use of state park system units and fishing access sites, and contain rule-making authority for their use, occupancy, and protection. Section 23-1-101 MCA allows FWP to plan and develop outdoor recreational resources in the state and receive and expend funds, including federal funds. The opportunity for public comment regarding the

proposed project is provided under MCA Section 23-1-110. See Appendix 1 for HB 495 qualification.

The Boat Fee in Lieu of Tax revenue includes 20% of all fees in lieu of tax collected by the county treasurer, and FWP uses the money collected to improve regional boating facilities under the control of FWP (Section 23-2-518, MCA).

The Dingell-Johnson bill was passed in the U.S. Legislature August 9, 1950, and was amended to the Wallop-Breaux bill in 1984. A percentage of funds spent on fishing equipment and motorboat-associated fuel are apportioned back to the states based on the land and water area and the number of fishing licenses sold. This bill requires that 15% of these funds be spent on motorboat access projects. Twenty-five percent of the total project cost must be from nonfederal funds. The U.S. Fish & Wildlife Service administers Wallop-Breaux funds, which will be requested for use in this project.

**1.3.2 Need for the Proposed Action:** Currently, there is no public motorboat access to Crystal Lake. Prior to 2007, public access to Crystal Lake was permitted at Happy's Inn, a private boat launch. This public access had been permitted for many years. In 2006, the private landowners of Happy's Inn sold their property, which included the boat launch. The new landowners closed the boat launch to public use. Happy's Inn boat launch on Crystal Lake had been a popular destination for anglers and other motorboat recreationists from the Libby and Kalispell areas. In addition, residents of the lake had annually used the Happy's Inn boat launch to put their boats into the water in the spring and remove them in the fall. With the loss of public access to this boat launch, many residents of the lake, visitors, and recreationists have asked FWP to reestablish public boat launching on the lake. Reestablishing public motorboat access to Crystal Lake is a priority for FWP.

## 1.4 Project Objectives:

In order to meet the goals of developing and managing FASs, FWP has set the following specific project objectives:

**1.4.1 Objective 1:** To establish a public motorboat access through a FWP FAS on Crystal Lake in Lincoln County, Montana.

**1.4.2 Objective 2:** To develop a public FAS within established budget limitations.

## 1.5 Relevant EAs, Plans, and Other Documents:

**1.5.1 Thompson Chain of Lakes (TCL) Management Plan Update (FWP 2006):** The TCL mission as stated in Thompson Chain of Lakes Management Plan Update (FWP 2006) *is to provide recreational and fishing opportunities, while protecting the resource. The area is developed to the minimal level necessary to make it usable to the public, while protecting the resource from degradation. In*

*addition, TCL has a commitment to management of wildlife habitat, based on the use of Wildlife Mitigation funding in the land trade with Plum Creek in 1998 (Environmental Assessment for the Thompson Chain of Lakes Land Exchange/Purchase between Plum Creek Timber Company, L.P. and Montana Fish Wildlife & Parks 1998). Therefore, care must be taken during planning, development, and routine operations to consider impacts to wildlife on an equal footing with recreational needs. This is particularly true around Upper Thompson Lake and the areas on the back of Crystal and Horseshoe Lakes.*

**1.5.2 Environmental Assessment Decision Notice & Finding of No Significant Impact, Thompson Chain of Lakes Inventory and Guidelines for Recreational Planning (FWP 1996):** Prior to 1996, dispersed camping was permitted on FWP West Shore property. In 1996, the Decision Notice for Thompson Chain of Lakes Site Specific Environmental Assessment closed camping on FWP West Shore property and established funding for development of a campground (3 sites) on FWP East Shore property of Crystal Lake (FWP 1996). The campsites on FWP West Shore property were closed due to wildlife and environmental concerns (FWP 1996). The campground on FWP East Shore property was never created.

**1.5.3 Thompson Chain of Lakes Fisheries Management Plan (FWP 1997):** Fisheries management on Crystal Lake has changed dramatically since the first stocking of Chinook salmon, bass, and sunfish into the lake in 1924 (FWP 1997). Several species were stocked from 1924 until 1960 including rainbow trout, cutthroat trout, brook trout, coho salmon, and arctic grayling. None of these stockings was successful due to the large population of largescale suckers. In 1960, the lake was treated with toxaphene to kill the unwanted suckers. In 1964, Crystal Lake was able to support fish and was stocked with rainbow trout and kokanee. In the early 1970s yellow perch and pumpkinseed were illegally planted into the lake. Since 1965 kokanee and rainbow trout have been stocked almost annually (no kokanee were stocked in 1969 through 1975, 1985, and 1988). Annual stocking rates of kokanee and rainbow trout are based on annual monitoring of the populations in Crystal Lake.

## 1.6 Decisions to Be Made:

The Decision Maker will determine the following from this EA:

- Determine if alternatives meet the project objectives.
- Determine which alternative should be selected.
- Determine if the selected alternative would cause significant effects to the human environment, requiring the preparation of an Environmental Impact Statement (EIS).

## 1.7 Scope of the Environmental Assessment:

**1.7.1 History of the Planning and Scoping Process Public Involvement – Agencies, Individuals, or Groups Contacted:** The scoping process began in 2006 when FWP Design and Construction Bureau visited Crystal Lake on September 20 to locate potential sites for a boat launch. The shoreline on both FWP West Shore property and FWP East Shore property were walked to determine potential boat launch sites based on engineering feasibility. Three potential sites were identified: the West Shore site, Turtle Cove site, and East Shore site.

On May 3, 2007, these three sites were revisited by FWP Parks and FWP Design and Construction personnel. This same day a public meeting was held at the Fisher River Fire Hall, Happy's Inn, Montana. Information regarding the potential sites was presented. Public comments were collected in written form regarding the potential for an FAS on Crystal Lake and specifically regarding these three sites. Comments were collected from May 3 through May 17. Please see Appendix 4 for a summary of these comments.

The following resource specialists were involved in the project design, assessment of potential impacts and development of mitigation measures: Bardell Mangum, Landscape Architect, FWP; Dave Landstrom, Region One Parks Manager, FWP; Darlene Edge, Land Conservation Specialist, FWP; Amy Grout, Region One Parks Personnel, FWP; Allan Kuser, FAS Coordinator, FWP; Mark McNearney, Civil Engineer Specialist, FWP; Gael Bissell, Region One Wildlife Biologist, FWP; Kent Laudon, Region One Wolf Management Specialist, FWP; Jim Vashro, Region One Fisheries Manager, FWP; and Mike Hensler, Region One Fisheries Biologist, FWP.

**1.7.2 Issues Studied in Detail:**

**1.7.2.1 Land Resources (Issue 1):** Constructing an access road, parking area, and boat launch can impact geologic substructure, soil stability, and productivity. In addition, construction of a boat launch or bridge can alter the siltation, deposition, and erosion patterns on the shore of a lake.

**1.7.2.2 Air Quality (Issue 2):** Establishing a new FAS can alter air quality, which at times can conflict with federal or state air quality regulations. Constructing an access road, a parking area, and a boat launch can alter air quality from creation of dust. Increasing traffic on residential roads can cause dust to increase. Installing a vault latrine can increase odors.

**1.7.2.3 Water Quality (Issue 3):** Establishing a new FAS can alter water quality, which at times can conflict with federal or state water quality regulations. Construction on the shore of a lake can increase discharge into the lake, alter surface water quality, alter drainage patterns, increase

the risk of contamination of surface water, and affect designated floodplains.

**1.7.2.4 Vegetation (Issue 4):** Constructing roads, parking areas, and boat launches in an area that has not received development can alter plant communities.

**1.7.2.5 Wetlands (Issue 5):** New construction can impact wetlands.

**1.7.2.6 Prime and Unique Farmland (Issue 6):** New construction can impact prime and unique farmland.

**1.7.2.7 Weeds (Issue 7):** Construction of a new access road, parking area, and boat launch in an area that has not been developed will often increase the spread of weeds. In addition, increasing traffic and access can increase the spread of weeds.

**1.7.2.8 Fisheries (Issue 8):** Developing a new FAS on a lake can impact the fisheries in the lake.

**1.7.2.9 Wildlife (Issue 9):** Developing a new FAS can impact wildlife (game and nongame) in the area.

**1.7.2.10 Threatened and Endangered Species (Issue 10):**

**1.7.2.10.1 Bald Eagle**
Developing a new FAS and associated activities can alter habitat or create disturbance that could be detrimental to bald eagles.

**1.7.2.10.2 Canada Lynx**
Developing a new FAS and associated activities can alter habitat or create disturbance that could be detrimental to Canada lynx.

**1.7.2.10.3 Gray Wolves**
Developing a new FAS and associated activities can alter habitat or create disturbance that could be detrimental to gray wolves.

**1.7.2.10.4 Bull Trout**
Developing a new FAS and associated activities can alter habitat or create disturbance that could be detrimental to bull trout.

**1.7.2.11 Sensitive Species (Issue 11):**

**1.7.2.11.1 Common Loon**

Developing a new FAS and associated activities can alter habitat or create disturbance that could be detrimental to common loons.

**1.7.2.11.2 Westslope Cutthroat Trout**
Developing a new FAS and associated activities can alter habitat or create disturbance that could be detrimental to cutthroat trout.

**1.7.2.11.3 Brush-tipped Emerald**
Developing a new FAS and associated activities can alter habitat or create disturbance that could be detrimental to brush-tipped emerald dragonfly.

**1.7.2.12 Noise Effects (Issue 12):** Developing a new FAS and establishing motorboat access to a water body can increase noise on the land and in the water.

**1.7.2.13 Land Use (Issue 13):** Developing an FAS can impact existing land use productivity and profitability. In addition, developing an FAS on undeveloped public land can impact neighboring residences or residences along the access route.

**1.7.2.14 Risk of Human Health Hazards (Issue 14):** Developing and managing a new FAS and establishing motorboat access to a water body can increase the risk of release of hazardous materials including herbicides and petroleum products. In addition, increasing access to undeveloped land can increase the risk of wildland fire. Finally, establishing motorboat access can increase the risk of water safety hazards.

**1.7.2.15 Community Impact (Issue 15):** Developing a new FAS and establishing motorboat access to a water body can alter the human population, social structure of a community, and traffic safety hazards.

**1.7.2.16 Public Services (Issue 16):** Developing a new FAS and establishing motorboat access to a water body can alter public services of an area including, emergency response plans, FAS enforcement routines, county road maintenance, and FAS maintenance,

**1.7.2.17 Aesthetics (Issue 17):** Developing a new FAS on undeveloped land could alter a scenic vista or create an aesthetically offensive site.

**1.7.2.18 Recreation (Issue 18):** Developing a new FAS will alter recreation and tourism in an area.

**1.7.2.19 Cultural and Historical Resources (Issue 19):** Developing a new FAS on undeveloped land can impact cultural and historical resources.

**1.7.2.20 Public Controversy (Issue 20):** Developing a new FAS and establishing motorboat access to a water body can generate public controversy.

### 1.7.3 Issues Eliminated from Further Study:

**1.7.3.1 Prime and Unique Farmland (Issue 6):** All areas that would be altered by Alternatives A through G (Chapter 2) were determined not to be prime and unique farmland based on soil type and irrigation.

- **Alternative B:** The access road and site location under this alternative would be on Tamarack-Crystalex complex, 4-15% slopes (691D, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). This soil is listed as a farmland of local importance in Lincoln County (http://soildatamart.nrcs.usda.gov/Report.aspx?Survey=MT083&UseState=MT).

- **Alternative C:** The access road under this alternative would be on Tamarack-Crystalex complex, 4-15% slopes (691D) and Tamarack-Crystalex complex, 15-30% slopes (691E, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). The site location under this alternative would be on Tamarack-Crystalex complex, 4-15% slopes (691D, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). The soil classification 691B is listed as a farmland of local importance in Lincoln County and 691E is not listed as a prime or other important farmland in Lincoln County (http://soildatamart.nrcs.usda.gov/Report.aspx?Survey=MT083&UseState=MT).

- **Alternative D:** The entrance road and access road under this alternative would be on the following soils: Tamarack-Crystalex complex, 0-4 % slopes (691B); Tamarack-Crystalex complex, 4-15% slopes (691D); Glacier Creek - gravelly, ashy, silty loam, cool, 2-8% slopes (67C); Glacier Creek - gravelly, ashy, silty loam, 8-30% slopes (867E); Black Lake, mucky peat, 0-1% slopes (72A); Loon Lake - gravelly, ashy, silty loam, 4-15% slopes (71D, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). The site location under this alternative would be on Upsata - gravelly, ashy, silty loam, 30-60% slopes (68F) and Glacier Creek - gravelly, ashy, silty loam, 4-15% slopes (867E, listed by SSURGO soil mapping web site

http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). Of these soils, the only one listed as a prime or other important farmland in Lincoln County is 71D, which is listed as prime farmland if irrigated. This area has never been irrigated and thus is not considered prime farmland.

- **Alternative E:** The entrance road and access road under this alternative would be on the following soils: Tamarack-Crystalex complex, 0-4% slopes (691B); Tamarack-Crystalex complex, 4-15% slopes (691D); Glacier Creek - gravelly, ashy, silty loam, cool, 2-8% slopes (67C); Glacier Creek - gravelly, ashy, silty loam, 8-30% slopes (867E); Black Lake - mucky peat, 0-1% slopes (72A); Loon Lake - gravelly, ashy, silty loam, 4-15% slopes (71D, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). The site location under this alternative would be on Upsata - gravelly, ashy, silty loam, 30-60% slopes (68F, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). Of these soils, the only one listed as a prime or other important farmland in Lincoln County is 71D, which is listed as prime farmland if irrigated. This area has never been irrigated and thus is not considered prime farmland.

- **Alternative F:** The entrance road and access road under this alternative would be on the following soils: Glacier Creek - gravelly, ashy, silty loam, 8-30% slopes (867E); Upsata - gravelly, ashy, silty loam, 30-60% slopes (68F); Loon Lake - gravelly, ashy, silty, loam, 4-15% slopes (71D); Black Lake - mucky peat, 0-1% slopes (72A); and Glacier Creek - gravelly, ashy, silty loam, 4-15% slopes (867E, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). The site location under this alternative would be on Upsata - gravelly, ashy, silty loam, 30-60% slopes (68F) and Glacier Creek - gravelly, ashy, silty loam, 4-15% slopes (867E, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). Of these soils, the only one listed as a prime or other important farmland in Lincoln County is 71D, which is listed as prime farmland if irrigated. This area has never been irrigated and thus is not considered prime farmland.

- **Alternative G:** The entrance road and access road under this alternative would be on the following soils: Glacier Creek - gravelly, ashy, silty loam, 8-30% slopes (867E); Upsata - gravelly, ashy, silty loam, 30-60% slopes (68F); Loon Lake - gravelly, ashy, silty, loam, 4-15% slopes (71D); Black Lake - mucky peat, 0-1% slopes (72A); and

Glacier Creek - gravelly, ashy, silty loam, 4-15% slopes (867E, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). The site location under this alternative would be on Upsata - gravelly, ashy, silty loam, 30-60% slopes (68F, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). Of these soils, the only one listed as a prime or other important farmland in Lincoln County is 71D, which is listed as prime farmland if irrigated. This area has never been irrigated and thus is not considered prime farmland.

### 1.7.3.2 Threatened and Endangered Species (Issue 10):

#### 1.7.3.2.1 Bald Eagle

The bald eagle was delisted as threatened by the US Fish and Wildlife Service (USFWS) on August 8, 2007, and falls under the Bald Eagle Protection Act. Bald eagles are frequently seen around the lake; the closest known nest is close by on Horseshoe Lake about a mile east of Crystal Lake (Gael Bissell, FWP Wildlife Biologist; personal communication, June 18, 2007). Bald eagles from this territory may use Crystal Lake for foraging. The lake also may be foraging area for other adult or juvenile bald eagles in the area. Ben Conard, Wildlife Biologist for the US Fish and Wildlife Service at the Creston Fish and Wildlife Center, indicated that the proposed project would have minimal effect on bald eagles, as habitat would not be significantly altered (personal communication, July 27, 2007; 406-758-6878).

#### 1.7.3.2.2 Canada Lynx

Canada lynx are listed as threatened by USFWS and USFS, Special status by BLM, and S3/G5 by Montana Natural Heritage Program (MNHP). This ranking by MNHP indicates the species is potentially at risk of extirpation in the state and globally common. Ben Conard, wildlife biologist for the US Fish and Wildlife Service at the Creston Fish and Wildlife Center, indicated that the proposed project would have no effect on the Canada lynx, as habitat would not be altered (personal Communication, July 27, 2007; 406-758-6878). Wayne Johnson at the Kootenai National Forest confirmed that lynx habitat would not be altered by the proposed project as the elevation of Crystal Lake is below 4,000 feet (personal communication, August 27, 2007; 406-283-7675).

#### 1.7.3.2.3 Gray Wolves

Gray wolves are listed as endangered in the Northwest Montana recovery area by USFWS, endangered by USFS, special status by

BLM, and S3/G4 by MNHP. The ranking by MNHP indicates the species is potentially at risk of extirpation in the state and uncommon globally. In 2002, wolves met the recovery criteria set by the USFWS and are therefore biologically recovered. Delisting now is an administrative process and the proposal to delist was announced in 2007. Gray wolves have been located at Crystal Lake. The far northeast corner of the Fish Trap pack's home range is adjacent to Crystal Lake. In addition, wolves from the Meadow Peak pack have been located around the lake. It is suspected that Highway 2 is the likely border between these two packs. Denning and rendezvous sites for the Fish Trap pack are approximately 10 straight-line miles from Crystal Lake, while the Meadow Peak pack is unknown. The home range for the Fish Trap pack is 205 square miles. The home range for the Meadow Peak pack is unknown. These packs seem to use Crystal Lake more frequently in the winter (Kent Laudon, FWP wolf management specialist, personal communication, July 27, 2007).

An increase in ice fishing on Crystal Lake may decrease the frequency in which packs use Crystal Lake. The impact of an increase in ice fishing on Crystal Lake is unknown, but likely minimal to these packs (Kent Laudon, FWP wolf management specialist; personal communication, July 27, 2007). Ben Conard, wildlife biologist, USFWS, at the Creston Fish and Wildlife Center, indicated that the proposed project would have no effect on the gray wolves (personal communication, July 27, 2007; 406-758-6878). In addition, Ed Bangs (USFWS, Northern Rocky Mountain Gray Wolf Recovery coordinator; personal communication, July 27, 2007; 406-449-5225 ext 204) indicated there would be no effect on gray wolves from the proposed project as there would be no direct take.

##### 1.7.3.2.4 Bull Trout

Bull trout are listed as threatened by USFWS and USFS, special status by BLM, and S2/G3 by MNHP. The ranking by MNHP indicates the species is at risk of extirpation in the state and potentially at risk globally. Bull trout are located in both the Thompson and Pleasant Valley Fisher Rivers. They are not found in the TCL complex or Crystal Lake. There would be no impact on this species from the proposed project.

#### 1.7.3.3 Sensitive Species (Issue 11):

##### 1.7.3.3.1 Westslope Cutthroat Trout

Westslope cutthroat trout are listed as sensitive by USFS and BLM and as S2/G4T3 by MNHP. This ranking by MNHP indicates the

species is at risk of extirpation in the state and uncommon globally. Westslope cutthroat trout are found throughout the area in both planted and wild, self-reproducing populations. They are common in both abundance and distribution in the TCL complex and in northwest Montana. Westslope cutthroat trout are not found in Crystal Lake. The lake is managed by FWP for kokanee and rainbow trout.

**1.7.3.3.2 Brush- tipped Emerald**

Brush-tipped emerald is a dragonfly that is listed by MNHP as S1S2/G5. This ranking indicates the species is at high risk or at risk of extirpation in the state and globally common. The dragonfly specimen has not been located at Crystal Lake.

## 1.8 Applicable Permits, Licenses, and Other Coordination Requirements:

### 1.8.1 Permits:

| Agency Name | Permit | Date Filed/ |
|---|---|---|
| Montana Fish, Wildlife & Parks | 124 | |
| Montana Department of Environmental Quality | 318 | |
| US Corps of Engineers | 404 | |
| Lincoln County | Floodplain Permit (if needed) | |

**1.8.2 Licenses/Entitlements:** None

**1.8.3 Coordination Requirements:** Under Alternative D or Alternative E (Chapter 2) FWP would enter into an easement agreement and maintenance agreement with the Department of Natural Resources and Conservation (DNRC). The easement agreement would allow public access across DNRC land. The maintenance agreement would apportion the annual cost of maintaining the access road to the FAS across DNRC land.

Under Alternative D or Alternative E (Chapter 2) FWP would enter into an easement agreement and maintenance agreement with Plum Creek Timberlands, L.P. The easement agreement would allow public access across Plum Creek Timberlands, L.P., land. The maintenance agreement would apportion the annual cost of maintaining the access road to the FAS across Plum Creek Timberlands, L.P., land.

FWP would implement weed control measures and/or contract with Lincoln County Weed Department.

Enforcement of public use regulations at the site would be assumed by the FWP Enforcement Division.

**1.9 Why Narrative EA is appropriate level of review:** Based on an evaluation of impacts to the physical and human environment under MEPA, this environmental review revealed only one significant negative impact (public controversy) that could not be mitigated from the proposed action. This action is not a new or unusual Department action, it will not set a precedent, and it will not conflict with local, state, or federal laws or formal plans. Due to these factors, an EIS is not necessary and an environmental assessment is the appropriate level of analysis. A narrative EA was performed because this action will generate public controversy, has potentially significant impacts that can be mitigated, and FWP wanted to walk the public through the entire decision-making process.

# 2.0 Alternatives

**2.1 Introduction:** The purpose of Chapter 2 is to describe the alternatives and compare the alternatives by summarizing the environmental consequences. Alternatives were planned through scoping and guidance from resource management specialist. This chapter describes the activities of the no-action alternative and all action alternatives. However, information that is more detailed can be found in Chapters 3 and 4. This chapter presents the predicted attainment of project objectives and the predicted effects of all alternatives on the quality of the human environment in comparative form, providing a basis for choice among the options for the Decision Maker and the public.

## 2.2 Description of Alternatives:

### 2.2.1 Alternative A - Continue Present Access, Maintenance, and Use (No Action):

**2.2.1.1 Principal Actions of Alternative A:** Under this alternative FWP would not develop a fishing access site (FAS), with the ultimate goal of providing a public boat-launching site on Crystal Lake. FWP would neither improve nor restrict access to undeveloped FWP land (FWP East Shore property and West Shore property) on Crystal Lake.

**2.2.1.2 Mitigation and Monitoring:** None

**2.2.1.3 Past Relevant Actions:** None

- **Public boat launch:** Recently, public access was denied at the only boat launch on Crystal Lake; therefore, there is currently no public boat launch on Crystal Lake.

- **Access to FWP land:** Current access is by unimproved road into both FWP parcels of land on Crystal Lake. Access is currently restricted to daytime use only; no camping or fires are permitted. Vehicle access is limited to existing undeveloped roads. There is no motorboat access from these two parcels of land, and carry-in boat access is difficult at best.

**2.2.1.4 Present Relevant Actions Not Part of the Proposed Action:** Same as Past Relevant Actions.

**2.2.1.5 Reasonably Foreseeable Relevant Actions Not Part of the Proposed Action:** None

### 2.2.2 Alternative B - East Shore Site Development, Short Access Road:

**2.2.2.1 Principal Actions of Alternative B:** Under this alternative, FWP would develop an FAS on undeveloped FWP East Shore property on Crystal Lake (East Shore site). The travel route to this site would be via Lake Shore Drive. The development would include constructing approximately 600 feet of new road, constructing a parking area (6-10 parking spots), constructing a boat launch, and installing a latrine. This access road would be within 50 feet of an ecologically important pond. Under this alternative, public boat access to Crystal Lake would be restored for motorboats. The estimated cost of this alternative is $73,900 and is outlined in Appendix 5.

**2.2.2.2 Site-specific Design, Mitigation, or Other Control Measures:**

- The noise and visual impacts from the parking area and boat launch could be mitigated by constructing a visual barrier (i.e., fence or other structure) between the FAS and the adjacent landowner.

- FWP engineering staff would oversee the completion of the project; thus, the contractor would be held to the terms of the project, such as limiting soil and vegetation disturbance to the immediate project area and seeding disturbed areas to aid in reclamation.

- To minimize dust during construction, Best Management Practices (BMPs, Appendix 3) will be utilized during construction and dust abatement could be used on entrance and access roads (if necessary).

- The U.S. Army Corps of Engineers would evaluate the impacts to wetlands if needed and a permit would be acquired prior to any work. BMPs would be used to minimize or prevent drainage to wetlands.

- The Lincoln County sanitarian would approve the location and installation of the sealed vault latrine.

- A short-term turbidity permit would be received from the Department of Environmental Quality prior to construction. FWP engineering staff will design this project using Best Management Practices, which would limit changes in surface water runoff or drainage patterns once project is completed. The boat launch would be concrete to minimize turbidity during launching activities.

- Noxious weeds will be monitored by FWP after completion and controlled in accordance with methods outlined in the Region One Weed Management Plan. The use of herbicides would comply with Montana Department of Agriculture application guidelines and be conducted by people trained in safe handling techniques. Weeds would also be controlled using mechanical or biological means in certain areas to reduce the risk of chemical spills or water contamination.

- FWP designed the project to maintain vegetation for wildlife habitat (including old growth trees) and yet provide a stable ramp and efficient site use. Surrounding areas disturbed by construction would be reclaimed.

- FWP enforcement would monitor and enforce recreation, hunting, and fishing regulations to protect public resources and minimize social conflict.

- To mitigate the potential of an increase in the risk of petroleum products entering the water, the FAS would be designed with BMPs (Appendix 3) to direct flow off the boat ramp and parking area to be filtered before entering the water.

- To mitigate the threat of wildland fire, no fires would be permitted at the FAS. In addition, posting regulation signs and enforcement activities would mitigate this potential.

- The new FAS would be integrated into existing FWP Emergency Response plans, maintenance schedule, and enforcement routines.

- Design and construction of the access road would follow BMPs (Appendix 3) to allow safe access for trucks pulling trailers. FWP would incorporate this road into its maintenance program.

- Standard FAS regulation signing would be installed to provide site regulations and restrictions, as well as pertinent boating regulations. Standard traffic control signing would be installed to mitigate congestion and decrease safety hazards associated with boating and launching activities.

- A public FAS would provide similar angling pressure as the previous boat launch on Crystal Lake. The number of day-use motorboats would be limited by the number of parking spots at the FAS. Restoring angler access to Crystal Lake is a goal of FWP and is not considered a detriment to the stocked fisheries in Crystal Lake.

- Vehicle and boat traffic patterns would be altered. The FAS would be built following Best Management Practices to ensure safety and minimize problems. Boater safety-education opportunities would increase with the ability of FWP to contact boaters at a designated launching site and post signs.

- Montana's fishing access site program is designed to increase public access to public waters. Increased public access sometimes results in increased pollution, noise, vandalism, fire threat, safety hazards, dust, weeds, trespass, and theft. The proposed project is designed to mitigate these impacts through site design, regulation signs, enforcement activities, and site size. FWP would follow the guidelines of the good neighbor

policy for public recreation lands (MCA 23-1-126) to have "no impact upon adjoining private and public lands by preventing impact on those adjoining lands from noxious weeds, trespass, litter, noise and light pollution, streambank erosion, and loss of privacy." The FAS would limit visitors to day-use only.

#### 2.2.2.3 Past Relevant Actions:

- **Public Boat Launch:** Recently, public access was denied at the only boat launch on Crystal Lake; therefore, there is currently no public boat launch on Crystal Lake.

- **Prior Planned Development:** In 1996, the decision notice for Thompson Chain of Lakes Site Specific Environmental Assessment established funding for development of a campground (3 sites) on FWP East Shore property of Crystal Lake (FWP 1996). The campground on FWP East Shore property was never created.

#### 2.2.2.4 Present Relevant Actions Not Part of the Proposed Action:

- **Access to FWP Land:** Current access is by unimproved road into this FWP parcel of land on Crystal Lake. Access is currently restricted to daytime use only; no camping or fires are permitted. Vehicle access is limited to existing undeveloped roads. There is currently no motorboat access from this parcel of land and carry-in boat access is difficult at best.

**2.2.2.5 Reasonably Foreseeable Relevant Actions Not Part of the Proposed Action:** None

### 2.2.3 Alternative C - East Shore Site Development, Long Access Road:

**2.2.3.1 Principal Actions of Alternative:** Under this alternative FWP would develop an FAS on FWP East Shore property on Crystal Lake (East Shore site). The boat launch and parking area would be located in the same place as in Alternative B; however, the access road would be in a different location. Under Alternative C, the access road would be much longer, but it would not be in direct view of the private residence. The development would include rehabilitating 2,000 feet of roadbed, constructing approximately 500 feet of new road, constructing a parking area, constructing a boat launch, and installing a latrine. This access road would be in the watershed of the ecologically important pond, but would be at least 100 feet from the pond. Under this alternative, public boat access to Crystal Lake would be restored for motorboats. The estimated cost of this alternative is $147,000 and is outlined in Appendix 5.

**2.2.3.2 Site-specific Design, Mitigation, or Other Control Measures:** See 2.2.2.2

**2.2.3.3 Past Relevant Actions:** See 2.2.2.3

**2.2.3.4 Present Relevant Actions Not Part of the Proposed Action:** See 2.2.2.4

**2.2.3.5 Reasonably Foreseeable Relevant Actions Not Part of the Proposed Action:** None

### 2.2.4 Alternative D - West Shore Site Development, Rainbow Lake Road:

**2.2.4.1 Principal Actions of Alternative:** Under this alternative FWP would develop an FAS on FWP West Shore property on Crystal Lake (West Shore site). The development would include improving 2.8 miles of road, constructing 0.1 miles of new road, installing a new bridge, constructing a parking area (6-10 parking spots), constructing a boat launch, and installing a latrine. The travel route to the FAS would be across Upper Thompson Lake, south of Crystal Lake, on Rainbow Lake Road. This road is an unimproved road that crosses FWP, Department of Natural Resources and Conservation (DNRC), and Plum Creek Timberlands, L.P., property. FWP would enter into an easement and maintenance agreement with DNRC and Plum Creek Timberlands, L.P., to ensure perpetual public access to the site. There is a temporary bridge across Upper Thompson Lake that would need replacement to continue public access to the potential FAS. The slope of the bank at the West Shore site is steep from the parking area location to the boat launch. The depth of the lake at the boat launch site is shallow and may require a longer boat ramp. There would be unavoidable removal of large trees to construct the parking area. The route would be constructed within 50 feet of an ecologically important fen that is utilized by amphibians and reptiles. Under this alternative, public boat access to Crystal Lake would be restored for motorboats, which would benefit residents of the lake, anglers, and other motorboat recreationists. The estimated cost of this alternative is $421,800 and is outlined in Appendix 5.

**2.2.4.2 Site-specific Design, Mitigation, or Other Control Measures:**

- FWP engineering staff would oversee the completion of the project; thus, the contractor would be held to the terms of the project, such as limiting soil and vegetation disturbance to the immediate project area and seeding disturbed areas to aid in reclamation.

- To minimize dust during construction, Best Management Practices (BMPs, Appendix 3) will be utilized during construction, and dust abatement could be used on entrance and access roads (if necessary).

- The U.S. Army Corps of Engineers would evaluate the impacts to wetlands if needed and a permit would be acquired prior to any work. BMPs would be used to minimize or prevent drainage to wetlands.

- The Lincoln County sanitarian would approve the location and installation of the sealed vault latrine.

- A short-term turbidity permit would be received from the Department of Environmental Quality prior to construction. FWP engineering staff will design this project using Best Management Practices, which would limit changes in surface water runoff or drainage patterns once project is completed. The boat launch would be concrete to minimize turbidity during launching activities.

- Noxious weeds will be monitored by FWP after completion and controlled in accordance with methods outlined in the Region One Weed Management Plan. The use of herbicides would comply with Montana Department of Agriculture application guidelines and be conducted by people trained in safe handling techniques. Weeds would also be controlled using mechanical or biological means in certain areas to reduce the risk of chemical spills or water contamination.

- FWP designed the project to maintain vegetation for wildlife habitat (including old-growth trees) and yet provide a stable ramp and efficient site use. Surrounding areas disturbed by construction would be reclaimed.

- FWP enforcement would monitor and enforce recreation, hunting, and fishing regulations to protect public resources and minimize social conflict.

- To mitigate the potential of an increase in the risk of petroleum products entering the water, the FAS would be designed with BMPs (Appendix 3) to direct flow off the boat ramp and parking area to be filtered before entering the water.

- To mitigate the threat of wildland fire, no fires would be permitted at the FAS. In addition, posting regulation signs and enforcement activities would mitigate this potential.

- The new FAS would be integrated into existing FWP Emergency Response plans, maintenance schedule, and enforcement routines.

- Design and construction of the access road would follow BMPs (Appendix 3) to allow safe access for trucks pulling trailers. FWP would incorporate this road into its maintenance program.

- Standard FAS regulation signing would be installed to provide site regulations and restrictions, as well as pertinent boating regulations. Standard traffic control signing would be installed to mitigate congestion and decrease safety hazards associated with boating and launching activities.

- A public FAS would provide similar angling pressure as the previous boat launch on Crystal Lake. The number of day-use motorboats would be limited by the number of parking spots at the FAS. Restoring angler access to Crystal Lake is a goal of FWP and is not considered a detriment to the stocked fisheries in Crystal Lake.

- Vehicle and boat traffic patterns would be altered. The FAS would be built following Best Management Practices to ensure safety and minimize problems. Boater safety-education opportunities would increase with the ability of FWP to contact boaters at a designated launching site and post signs.

- Montana's Fishing Access Site Program is designed to increase public access to public waters. Increased public access sometimes results in increased pollution, noise, vandalism, fire threat, safety hazards, dust, weeds, trespass, and theft. The proposed project is designed to mitigate these impacts through site design, regulation signs, enforcement activities, and site size. FWP would follow the guidelines of the good neighbor policy for public recreation lands (MCA 23-1-126) to have "no impact upon adjoining private and public lands by preventing impact on those adjoining lands from noxious weeds, trespass, litter, noise and light pollution, streambank erosion, and loss of privacy." The FAS would limit visitors to day-use only.

#### 2.2.4.3 Past Relevant Actions:

- **Public boat launch:** Recently, public access was denied at the only boat launch on Crystal Lake; therefore, there is currently no public boat launch on Crystal Lake.

- **Closure of campground:** Prior to 1996 dispersed camping was permitted on FWP West Shore property. In 1996, the Decision Notice for Thompson Chain of Lakes Site Specific Environmental Assessment closed camping on FWP West Shore property. The campsites on FWP West Shore property were closed due to wildlife and environmental concerns (FWP 1996).

#### 2.2.4.4 Present Relevant Actions Not Part of the Proposed Action:

- **Access to FWP land:** Current access is by unimproved road into this FWP parcel of land on Crystal Lake. Access is currently restricted to daytime use only, no camping or fires are permitted. There is currently no motorboat access from this parcel of land and carry-in boat access is difficult at best.

#### 2.2.4.5 Reasonably Foreseeable Relevant Actions Not Part of the Proposed Action: None

### 2.2.5 Alternative E - Turtle Cove Site Development, Rainbow Lake Road:

**2.2.5.1 Principal Actions of Alternative:** Under this alternative FWP would develop an FAS on FWP West Shore property on Crystal Lake near Turtle Cove (Turtle Cove site). The development would include improving 2.4 miles of road, constructing 0.4 miles of new road, installing a bridge, constructing a parking area (6-10 parking spots), constructing a boat launch, and installing a latrine. The travel route to the FAS would be across Upper Thompson Lake, south of Crystal Lake, on Rainbow Lake Road. This road is an unimproved road that crosses FWP, Department of Natural Resources and Conservation (DNRC), and Plum Creek Timberlands, L.P., property. FWP would enter into an easement and maintenance agreement with DNRC and Plum Creek Timberlands, L.P., to ensure perpetual public access to the site. There is a temporary bridge across Upper Thompson Lake that would need replacement to continue public access to the potential FAS. The slope of the bank and the depth of the lake are adequate for constructing a parking area and boat launch. The FAS would be located on a point of land that is visible from various locations around Crystal Lake. Turtle Cove is a favorite undeveloped spot for many residents of the lake to watch waterfowl. Developing an FAS near Turtle Cove would impact the waterfowl and alter its undeveloped state. Under this alternative, public boat access to Crystal Lake would be restored for motorboats, which would benefit residents of the lake, anglers, and other motorboat recreationists. The estimated cost of this alternative is $454,400 and is outlined in Appendix 5.

**2.2.5.2 Site-specific Design, Mitigation, or Other Control Measures:** See 2.2.4.2

**2.2.5.3 Past Relevant Actions:** See 2.2.4.3

**2.2.5.4 Present Relevant Actions Not Part of the Proposed Action:** See 2.2.4.4

**2.2.5.5 Reasonably Foreseeable Relevant Actions Not Part of the Proposed Action:** None

### 2.2.6 Alternative F - West Shore Site Development, East Crystal Lake Road:

**2.2.6.1 Principal Actions of Alternative:** Under this alternative the parking area and boat launch locations and concerns would be the same as under Alternative D; however, the travel route and access road would be in a different location. The travel route to FWP West Shore property would be on the south side of Crystal Lake through Lakeshore Drive and East Crystal Lake Road (0.95 miles of residential road). The access road would be located at the end of East Crystal Lake Road. East Crystal Lake Road is a county road (Mart McCully, Lincoln County Roads Department, 406-293-7781, ext 248, personal communication, June 27, 2007) and public access to FWP property has been

confirmed via Montana cadastral mapping (www.cadastral.mt.gov). Under this alternative FWP would improve 0.9 miles of road and construct 0.1 miles of new road. The route would be constructed within 50 feet of an ecologically important fen that is utilized by amphibians and reptiles. This alternative would increase vehicle traffic and noise on Lake Shore Drive and East Crystal Lake Road. Lakeshore Drive and East Crystal Lake Road are paved; therefore, dust would not increase. Public boat access to Crystal Lake would be restored for motorboats, which would benefit residents of the lake, anglers, and other motorboat recreationists. The estimated cost of this alternative is $222,800 and is outlined in Appendix 5.

**2.2.6.2 Site-specific Design, Mitigation, or Other Control Measures:** See 2.2.4.2

**2.2.6.3 Past Relevant Actions:** See 2.2.4.3

**2.2.6.4 Present Relevant Actions Not Part of the Proposed Action:** See 2.2.4.4

**2.2.6.5 Reasonably Foreseeable Relevant Actions Not Part of the Proposed Action:** None

### 2.2.7 Alternative G - Turtle Cove Site Development, East Crystal Lake Road:

**2.2.7.1 Principal Actions of Alternative:** Under this alternative the parking area and boat launch, locations, and concerns would be the same as under Alternative E (2.2.5), and the travel route and access location and concerns would be the same as under Alternative F (2.2.6). Under this alternative FWP would improve 0.9 miles of road and construct 0.4 miles of new road. Public boat access to Crystal Lake would be restored for motorboats, which would benefit residents of the lake, anglers, and other motorboat recreationists. The estimated cost of this alternative is $246,500 and is outlined in Appendix 5.

**2.2.7.2 Site-specific Design, Mitigation, or Other Control Measures:** See 2.2.4.2

**2.2.7.3 Past Relevant Actions:** See 2.2.4.3

**2.2.7.4 Present Relevant Actions Not Part of the Proposed Action:** See 2.2.4.4

**2.2.7.5 Reasonably Foreseeable Relevant Actions Not Part of the Proposed Action:** None

## 2.3 Process Used to Develop the Alternatives:

**2.3.1 History and Development Process of Alternatives:** The development of alternatives began with the scoping of potential site locations for an FAS on Crystal Lake. FWP Design and Construction Bureau visited Crystal Lake on September 20, 2006, to locate potential sites for a boat launch. The shoreline on both FWP West Shore property and FWP East Shore property were walked to determine potential boat launch sites based on engineering feasibility. Three potential sites were located: the West Shore site, Turtle Cove site, and East Shore site.

On May 3, 2007, these three sites were revisited by FWP Parks and FWP Design and Construction personnel. This same day a public meeting was held at the Fisher River Fire Hall. Information regarding the potential sites was presented. Public comments were collected in written form regarding the potential for an FAS on Crystal Lake and specifically regarding these three sites. Comments were collected from May 3 through May 17. Please see Appendix 4 for a summary of these comments.

Alternatives, including the no-action alternative, were developed from these site visits, oral and written comments at the public meeting, and written comments received after the public meeting. Four potential sites with different access roads were determined to need further investigation during the EA draft process. Ten alternatives were originally developed. However, through further investigation it was determined that only six of these were viable.

### 2.3.2 Alternatives Eliminated from Detailed Study:

**2.3.2.1 West Shore Site, Crystal Lake Road:** Under this alternative FWP would develop an FAS on FWP West Shore property on Crystal Lake (West Shore site). The development would include improving 0.1 miles of road, constructing 0.1 miles of new road, constructing a parking area (6-10 parking spots), constructing a boat launch, and installing a latrine. The travel route to the FWP West Shore property includes 0.8 miles of residential road (Crystal Lake Road). Access to the property is over private land, and a public easement would be required. The current property owner has indicated to FWP that an easement is not available.

This alternative was considered and dismissed because FWP does not have a legal easement to the land via Crystal Lake Road and is unable to obtain an easement.

**2.3.2.2 Turtle Cove Site, Crystal Lake Road:** Under this alternative FWP would develop an FAS on FWP West Shore property on Crystal Lake near Turtle Cove (Turtle Cove site). The development would include improving 0.5 miles of road, constructing 0.4 miles of new road, constructing a parking area (4 - 6 parking spots), constructing a boat launch, and installing a latrine. The travel route to the FWP West Shore property includes 0.8 miles of residential road (Crystal Lake Road). Access to the property is over private land, and a public easement would be required. The current property owner has indicated to FWP that an easement is not available.

This alternative was considered and dismissed because FWP does not have a legal easement to the land via Crystal Lake Road and is unable to obtain an easement.

**2.3.2.3 Happy's Inn - Lease land and develop an FAS at Happy's Inn:** Under this alternative FWP proposes to lease land from the owners of Happy's Inn to develop an FAS. Happy's Inn is the location of the boat launch where public access was recently restricted.

This alternative was investigated and a lease or an easement is not possible with the current landowners. This alternative was considered and dismissed, and it is eliminated from the detailed study.

## 2.4 Summary of Comparison of the Activities, the Predicted Achievement of the Project Objectives, and the Predicted Environmental Effects of All Alternatives:

### 2.4.1 Summary Comparison of Project Activities and Predicted Achievement of Project Objective and Comparison of Predicted Environmental Effects:

**Table 1: Summary Comparison of Project Activities and Predicted Achievement of Project Objective**

| Project Activities | Alternative A: No Action | Alternative B: ESS[1]; SAR[2] | Alternative C: ESS; LAR[3] | Alternative D: WSS[4]; RLR[5] | Alternative E: TCS[6]; RLR | Alternative F: WSS; ECLR[7] | Alternative G: TCR; ECLR |
|---|---|---|---|---|---|---|---|
| Construct FAS | No | Yes | Yes | Yes | Yes | Yes | Yes |
| FWP property impacted | None | East Shore Property | East Shore Property | West Shore Property | West Shore Property | West Shore Property | West Shore Property |
| Site Location | None | East Shore Site | East Shore Site | West Shore Site | Turtle Cove Site | West Shore Site | Turtle Cove Site |
| New road construction | 0 | 600 feet | 500 feet | 0.1 miles | 0.4 miles | 0.1 miles | 0.4 miles |
| Road improvement | 0 | 0 | 2,000 feet | 2.8 miles | 2.4 miles | 0.9 miles | 0.45 miles |
| Installing new bridge | no | No | No | Yes | Yes | No | No |
| Residential roads impacted (paved) | None | Lakeshore Drive | Lakeshore Drive | None | None | Lakeshore Drive and East Crystal Lake Road | Lakeshore Drive and East Crystal Lake Road |
| Other roads impacted (gravel) | None | None | None | Rainbow Lake Road | Rainbow Lake Road | None | None |
| Miles traveled on residential roads | None | 0.2 | 0.2 | 0 | 0 | 0.95 | 0.95 |
| Road Maintenance Agreements | None | None | None | DNRC Plum Creek Timber, L.P. | DNRC Plum Creek Timber, L.P. | None | None |
| Easement Agreements | None | None | None | DNRC Plum Creek Timber, L.P. | DNRC Plum Creek Timber, L.P. | None | None |
| Achievement of project Objective 1 | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Achievement of project Objective 2 | No | Yes | No | No | No | No | No |

[1] East Shore Site
[2] Short Access Road
[3] Long Access Road
[4] West Shore Site
[5] Rainbow Lake Road
[6] Turtle Cove Site
[7] East Crystal Lake Road

**Table 2: Summary Comparison of Predicted Environmental Effects**

| Predicted Environmental Effects | Alternative A No Action | Alternative B ESS[8]; SAR[9] | Alternative C ESS; LAR[10] | Alternative D WSS[11]; RLR[12] | Alternative E TCS[13]; RLR | Alternative F WSS; ECLR[14] | Alternative G TCR; ECLR |
|---|---|---|---|---|---|---|---|
| **Land Resources** | | | | | | | |
| Erosion | No change | Short-term potential increase during construction; long-term minimal increase due to recreational activities | Short-term potential increase during construction; long-term minimal increase due to recreational activities | Short-term potential increase during construction; long-term minimal increase due to recreational activities | Short-term potential increase during construction; long-term minimal increase due to recreational activities | Short-term potential increase during construction; long-term minimal increase due to recreational activities | Short-term potential increase during construction; long-term minimal increase due to recreational activities |
| Soil | | Short Term: Initial development would cause minor disruption, displacement, erosion, compaction, moisture loss, and overcovering of the soil. Long-term soil | Short Term: Initial development would cause minor disruption, displacement, erosion, compaction, moisture loss, and overcovering of the soil. Long-term soil | Short Term: Initial development would cause minor disruption, displacement, erosion, compaction, moisture loss, and overcovering of the soil. Long-term soil | Short Term: Initial development would cause minor disruption, displacement, erosion, compaction, moisture loss, and overcovering of the soil. Long-term soil | Short Term: Initial development would cause minor disruption, displacement, erosion, compaction, moisture loss, and overcovering of the soil. Long-term soil | Short Term: Initial development would cause minor disruption, displacement, erosion, compaction, moisture loss, and overcovering of the soil. Long-term soil |

[8] East Shore Site
[9] Short Access Road
[10] Long Access Road
[11] West Shore Site
[12] Rainbow Lake Road
[13] Turtle Cove Site
[14] East Crystal Lake Road

| Predicted Environmental Effects | Alternative A No Action | Alternative B ESS[8]; SAR[9] | Alternative C ESS; LAR[10] | Alternative D WSS[11]; RLR[12] | Alternative E TCS[13]; RLR | Alternative F WSS; ECLR[14] | Alternative G TCR; ECLR |
|---|---|---|---|---|---|---|---|
| | | properties would be stable with proposed development. | properties would be stable with proposed development | properties would be stable with proposed development | properties would be stable with proposed development | properties would be stable with proposed development | properties would be stable with proposed development |
| Deposition | | Short term and long term: Installing a boat ramp would cause minor change in siltation, deposition, and erosion patterns to CL[15] shore | Short term and long term: Installing a boat ramp would cause minor change in siltation, deposition, and erosion patterns to CL shore | Short term and long term: Installing a boat ramp would cause minor change in siltation, deposition, and erosion patterns to CL shore.<br><br>Short term and long term: Installing a bridge would cause minor changes in siltation, deposition, and erosion patterns to UTL[16] shore | Short term and long term: Installing a boat ramp would cause minor change in siltation, deposition, and erosion patterns to CL shore<br><br>Short term and long term: Installing a bridge would cause minor changes in siltation, deposition, and erosion patterns to UTL shore | Short term and long term: Installing a boat ramp would cause minor change in siltation, deposition, and erosion patterns to CL shore | Short term and long term: Installing a boat ramp would cause minor change in siltation, deposition, and erosion patterns to CL shore |
| **Air** | | | | | | | |
| Dust | No change | Short Term: Minor amounts of | Short Term: Minor amounts of | Short Term: Minor amounts of | Minor amount of dust created during | Minor amount of dust created during | Minor amount of dust created during |

[15] Crystal Lake
[16] Upper Thompson Lake

| Predicted Environmental Effects | Alternative A No Action | Alternative B ESS[8]; SAR[9] | Alternative C ESS; LAR[10] | Alternative D WSS[11]; RLR[12] | Alternative E TCS[13]; RLR | Alternative F WSS; ECLR[14] | Alternative G TCR; ECLR |
|---|---|---|---|---|---|---|---|
| | | dust created during construction<br><br>Long Term: Minor amounts of dust would increase on site (near residence) and on access road (near residence). | dust created during construction<br><br>Long Term: Minor amounts of dust would increase on site (near residence) and on access road. | dust created during construction<br><br>Long Term: Minor amounts of dust would increase on site, on access road, and on RLR due to increased traffic. | construction<br><br>Long Term: Minor amounts of dust would increase on site, on access road, and on RLR due to increased traffic. | construction<br><br>Long Term: Minor amounts of dust would increase on site, on access road, and on LSD[17] and ECLR due to increased traffic. | construction<br><br>Long Term: Minor amounts of dust would increase on site, on access road, and on LSD and ECLR due to increased traffic. |
| Odors | | Short-term and long-term: Vault latrine would increase odors | Short-term and long-term: Vault latrine would increase odors | Short-term and long-term: Vault latrine would increase odors | Short-term and long-term: Vault latrine would increase odors | Short-term and long-term: Vault latrine would increase odors | Short-term and long-term: Vault latrine would increase odors |
| Federal or State Air Quality Regulations | Project will not conflict | Project will not conflict | Project will not conflict | Project will not conflict | Project will not conflict | Project will not conflict | Project will not conflict |
| Water | | | | | | | |
| Turbidity | No change | Short term: Minor increase in turbidity to CL<br><br>Long Term: minor increase in turbidity from boat launching | Short term: Minor increase in turbidity to CL<br><br>Long Term: minor increase in turbidity from boat launching | Short term: Minor increase in turbidity to CL and UTL<br><br>Long Term: minor increase in turbidity from boat launching | Short term: Minor increase in turbidity to CL and UTL<br><br>Long Term: minor increase in turbidity from boat launching | Short term: Minor increase in turbidity to CL<br><br>Long Term: minor increase in turbidity from boat launching | Short term: Minor increase in turbidity to CL<br><br>Long Term: minor increase in turbidity from boat launching |

[17] Lake Shore Drive

| Predicted Environmental Effects | Alternative A No Action | Alternative B ESS[8]; SAR[9] | Alternative C ESS; LAR[10] | Alternative D WSS[11]; RLR[12] | Alternative E TCS[13]; RLR | Alternative F WSS; ECLR[14] | Alternative G TCR; ECLR |
|---|---|---|---|---|---|---|---|
| Surface Runoff | | Short Term: Proposed Project may cause changes in drainage patterns and surface runoff into CL.<br><br>Short Term and Long Term: Construction of access road may impact drainage of nearby pond | Short Term: Proposed Project may cause changes in drainage patterns and surface runoff into CL.<br><br>Short Term and Long Term: Construction of access road may impact surface runoff into nearby pond | Short Term: Proposed Project may cause changes in drainage patterns and surface runoff into CL and UTL.<br><br>Short Term and Long Term: Construction of access road may impact drainage of nearby fen | Short Term: Proposed Project may cause changes in drainage patterns and surface runoff into CL and UTL.<br><br>Short Term and Long Term: Construction of access road may impact drainage of nearby fen | Short Term: Proposed Project may cause changes in drainage patterns and surface runoff into CL.<br><br>Short Term and Long Term: Construction of access road may impact drainage of nearby fen | Short Term: Proposed Project may cause changes in drainage patterns and surface runoff into CL.<br><br>Short Term and Long Term: Construction of access road may impact drainage of nearby fen |
| Contamination Risk | | Increased risk of petroleum products entering CL due to boat launch | Increased risk of petroleum products entering CL due to boat launch | Increased risk of petroleum products entering CL due to boat launch | Increased risk of petroleum products entering CL due to boat launch | Increased risk of petroleum products entering CL due to boat launch | Increased risk of petroleum products entering CL due to boat launch |
| Designated Floodplain | | The access roads and FAS would be located in an area of minimal flooding (Zone C) | The access roads and FAS would be located in an area of minimal flooding (Zone C) | The access roads and FAS would be located in an area of minimal flooding (Zone C)<br><br>Upper Thompson | The access roads and FAS would be located in an area of minimal flooding (Zone C)<br><br>Upper Thompson | The access roads and FAS would be located in an area of minimal flooding (Zone C) | The access roads and FAS would be located in an area of minimal flooding (Zone C) |

| Predicted Environmental Effects | Alternative A No Action | Alternative B ESS[8]; SAR[9] | Alternative C ESS; LAR[10] | Alternative D WSS[11]; RLR[12] | Alternative E TCS[13]; RLR | Alternative F WSS; ECLR[14] | Alternative G TCR; ECLR |
|---|---|---|---|---|---|---|---|
| | | | | Bridge is located in an area of 100-year flood | Bridge is located in an area of 100-year flood | | |
| Vegetation | | | | | | | |
| Plant Species | No change | Short Term: Minor changes in plant species in areas of construction | Short Term: Minor changes in plant species in areas of construction | Short Term: Minor changes in plant species in areas of construction | Short Term: Minor changes in plant species in areas of construction | Short Term: Minor changes in plant species in areas of construction | Short Term: Minor changes in plant species in areas of construction |
| Wetlands | No change | Construction is occurring within 50 feet of a pond of ecological importance<br><br>Establishing an FAS could create impacts to wetlands. | Construction is occurring in the watershed of a pond of ecological importance<br><br>Establishing an FAS could create impacts to wetlands. | Construction is occurring within 50 feet of a fen of ecological importance<br><br>Establishing an FAS could create impacts to wetlands. | Construction is occurring within 50 feet of a fen of ecological importance<br><br>Establishing an FAS could create impacts to wetlands. | Construction is occurring within 50 feet of a fen of ecological importance<br><br>Establishing an FAS could create impacts to wetlands. | Construction is occurring within 50 feet of a fen of ecological importance<br><br>Establishing an FAS could create impacts to wetlands. |
| Weeds | No change | With increased access, weeds will increase | With increased access, weeds will increase | With increased access, weeds will increase | With increased access, weeds will increase | With increased access, weeds will increase | With increased access, weeds will increase |
| Fish and Wildlife | | | | | | | |
| Fisheries | No change | Restoring motor boat access will not impact stocked fisheries | Restoring motor boat access will not impact stocked fisheries | Restoring motor boat access will not impact stocked fisheries | Restoring motor boat access will not impact stocked fisheries | Restoring motor boat access will not impact stocked fisheries | Restoring motor boat access will not impact stocked fisheries |
| Wildlife (game and | No change | Increased access by | Increased access by | Increased access by | Increased access by | Increased access by | Increased access by |

| Predicted Environmental Effects | Alternative A No Action | Alternative B ESS[8]; SAR[9] | Alternative C ESS; LAR[10] | Alternative D WSS[11]; RLR[12] | Alternative E TCS[13]; RLR | Alternative F WSS; ECLR[14] | Alternative G TCR; ECLR |
|---|---|---|---|---|---|---|---|
| nongame) | | recreationists may impact wildlife on this undeveloped land<br><br>Development may increase access by hunters<br><br>Proposed access road may impact amphibians and reptiles that use pond | recreationists may impact wildlife<br><br>Development may increase access by hunters<br><br>Proposed access road may impact amphibians and reptiles that used pond | recreationists may impact wildlife on this undeveloped land<br><br>Development may increase access by hunters | recreationists may impact wildlife on this undeveloped land<br><br>Development may increase access by hunters | recreationists may impact wildlife on this undeveloped land<br><br>Development may increase access by hunters | recreationists may impact wildlife on this undeveloped land<br><br>Development may increase access by hunters |
| Common Loon | No change | No Change | No change | No Change | Development on Turtle Cove may prevent future nest sites of common loon | Development on Turtle Cove may prevent future nest sites of common loon | No Change |
| Noise and Electrical Effects | | | | | | | |
| Noise Effects | No change | Short Term: Construction of FAS would increase noise at the site.<br><br>Long Term: Establishing an FAS would increase noise on the access | Short Term: Construction of FAS would increase noise at the site.<br><br>Long Term: Establishing an FAS would increase noise on the access | Short Term: Construction of FAS would increase noise at the site.<br><br>Long Term: Establishing an FAS would increase noise on the access | Construction of FAS would increase noise at the site.<br><br>Long Term: Establishing an FAS would increase noise on the access road, at the | Construction of FAS would increase noise at the site.<br><br>Long Term: Establishing an FAS would increase noise on the access road, at the | Construction of FAS would increase noise at the site.<br><br>Long Term: Establishing an FAS would increase noise on the access road, at the |

| Predicted Environmental Effects | Alternative A No Action | Alternative B ESS[8]; SAR[9] | Alternative C ESS; LAR[10] | Alternative D WSS[11]; RLR[12] | Alternative E TCS[13]; RLR | Alternative F WSS; ECLR[14] | Alternative G TCR; ECLR |
|---|---|---|---|---|---|---|---|
| | | road and at the site. | road and at the site. | road, at the site and on RLR. | site and on RLR. | site, on LSD and on ECLR. | site, on LSD and on ECLR. |
| Land Use | | | | | | | |
| Productivity and profitability | No change | Long term: increased public access may decrease profitability of neighboring land | Long term: increased public access may decrease profitability of neighboring land | No change | No Change | No Change | No change |
| Residences | No change | Long-term: Increased public access may have negative adverse effect on neighboring residence | Long-term: Increased public access may have negative adverse effect on neighboring residence | No change | No change | No change | No change |
| Risk of Human Health Hazard | | | | | | | |
| Hazardous substances | No change | Weed management would include the use of herbicides.<br><br>Installing a boat launch increases risk of petroleum products being released | Weed management would include the use of herbicides.<br><br>Installing a boat launch increases risk of petroleum products being released | Weed management would include the use of herbicides.<br><br>Installing a boat launch increases risk of petroleum products being released | Weed management would include the use of herbicides.<br><br>Installing a boat launch increases risk of petroleum products being released | Weed management would include the use of herbicides.<br><br>Installing a boat launch increases risk of petroleum products being released | Weed management would include the use of herbicides.<br><br>Installing a boat launch increases risk of petroleum products being released |

| Predicted Environmental Effects | Alternative A No Action | Alternative B ESS[8]; SAR[9] | Alternative C ESS; LAR[10] | Alternative D WSS[11]; RLR[12] | Alternative E TCS[13]; RLR | Alternative F WSS; ECLR[14] | Alternative G TCR; ECLR |
|---|---|---|---|---|---|---|---|
| Emergency Response Plans | None | Increasing access would increase the threat of wildland fire. | Increasing access would increase the threat of wildland fire. | Increasing access would increase the threat of wildland fire. | Increasing access would increase the threat of wildland fire. | Increasing access would increase the threat of wildland fire. | Increasing access would increase the threat of wildland fire. |
| Human health hazard | None | Reestablishing public motorboat access would increase the threat of water safety hazards. In addition, the boat launch would be 200 feet from a private dock, which would increase safety hazards | Reestablishing public motorboat access would increase the threat of water safety hazards. In addition, the boat launch would be 200 feet from a private dock, which would increase safety hazards | Reestablishing public motorboat access would increase the threat of water safety hazards. | Reestablishing public motorboat access would increase the threat of water safety hazards. | Reestablishing public motorboat access would increase the threat of water safety hazards. | Reestablishing public motorboat access would increase the threat of water safety hazards. |
| Community Impact | | | | | | | |
| Human Population | No public motorboat access on Crystal Lake | Long-term recreational use would increase at the site. Motorboat use on CL would be reestablished and non-resident boats would be limited by 6-10 parking | Long-term recreational use would increase at the site. Motorboat use on CL would be reestablished and non-resident boats would be limited by 6-10 parking | Long-term recreational use would increase at the site. Motorboat use on CL would be reestablished and non-resident boats would be limited by 6-10 parking | Long-term recreational use would increase at the site. Motorboat use on CL would be reestablished and non-resident boats would be limited by 6-10 parking | Long-term recreational use would increase at the site. Motorboat use on CL would be reestablished and non-resident boats would be limited by 6-10 parking | Long-term recreational use would increase at the site. Motorboat use on CL would be reestablished and non-resident boats would be limited by 6-10 parking |

| Predicted Environmental Effects | Alternative A No Action | Alternative B ESS[8]; SAR[9] | Alternative C ESS; LAR[10] | Alternative D WSS[11]; RLR[12] | Alternative E TCS[13]; RLR | Alternative F WSS; ECLR[14] | Alternative G TCR; ECLR |
|---|---|---|---|---|---|---|---|
| | | spaces. | spaces. | spaces. | spaces. | spaces. | spaces. |
| Social Structure | No change. | Residents in the area of the entrance road, new access road, and/or FAS may dislike changes in use pattern. | Residents in the area of the entrance road and new access road and/or FAS may dislike changes in use pattern. | Residents in the area of the entrance road and new access road may dislike changes in use pattern. | Residents in the area of the entrance road and new access road may dislike changes in use pattern. | Residents in the area of the entrance road and new access road may dislike changes in use pattern. | Residents in the area of the entrance road and new access road may dislike changes in use pattern. |
| Traffic and transportation | No change | Increasing traffic on LSD and constructing a new access road would alter traffic patterns and increase safety hazards<br><br>The boat launch would be 200 feet from private dock, which would increase safety hazard potential. | Increasing traffic on LSD and constructing a new access road would alter traffic patterns and increase safety hazards<br><br>The boat launch would be 200 feet from private dock, which would increase safety hazard potential. | Increasing traffic on RLR and constructing a new access road would alter traffic patterns and increase safety hazards | Increasing traffic on RLR and constructing a new access road would alter traffic patterns and increase safety hazards | Increasing traffic on LSD and ECR and constructing a new access road would alter traffic patterns and increase safety hazards | Increasing traffic on LSD And ECL and constructing a new access road would alter traffic patterns and increase safety hazards |
| Public Services | No change | | | | | | |
| Aesthetics and Recreation | | | | | | | |
| Aesthetics | No change | The FAS would be | The FAS would be | The boat launch would | The boat launch and | The boat launch and | |

| Predicted Environmental Effects | Alternative A No Action | Alternative B ESS[8]; SAR[9] | Alternative C ESS; LAR[10] | Alternative D WSS[11]; RLR[12] | Alternative E TCS[13]; RLR | Alternative F WSS; ECLR[14] | Alternative G TCR; ECLR |
|---|---|---|---|---|---|---|---|
| | | within 200 feet of an adjacent residence.<br><br>The boat launch would be visible to many residences around the lake. | within 200 feet of an adjacent residence.<br><br>The boat launch would be visible to many residences around the lake. | be visible by numerous residents around the lake. | parking area would be visible by numerous residents around the lake. | parking area would be visible by numerous residents around the lake. | |
| Recreation | No public motorboat access on Crystal Lake | Improve quality and quantity of tourism and recreational opportunities (Appendix 2) | Improve quality and quantity of tourism and recreational opportunities (Appendix 2) | Improve quality and quantity of tourism and recreational opportunities (Appendix 2) | Improve quality and quantity of tourism and recreational opportunities (Appendix 2) | Improve quality and quantity of tourism and recreational opportunities (Appendix 2) | Improve quality and quantity of tourism and recreational opportunities (Appendix 2) |
| Cultural and Historical Resources | | | | | | | |
| Cultural and Historical Resources | No change | Unknown. Prior to construction SHPO[18] would be contacted to identify | Unknown. Prior to construction SHPO would be contacted to identify | Unknown. Prior to construction SHPO would be contacted to identify | Unknown. Prior to construction SHPO would be contacted to identify | Unknown. Prior to construction SHPO would be contacted to identify | Unknown. Prior to construction SHPO would be contacted to identify |
| Summary Evaluation | | | | | | | |
| Public Controversy | Prior to the release of the EA this project has generated public | Prior to the release of the EA this project has generated public debate and | Prior to the release of the EA this project has generated public debate and | Prior to the release of the EA this project has generated public debate and | Prior to the release of the EA this project has generated public debate and | Prior to the release of the EA this project has generated public debate and | Prior to the release of the EA this project has generated public debate and |

[18] The State Historic and Preservation Office

| Predicted Environmental Effects | Alternative A No Action | Alternative B ESS[8]; SAR[9] | Alternative C ESS; LAR[10] | Alternative D WSS[11]; RLR[12] | Alternative E TCS[13]; RLR | Alternative F WSS; ECLR[14] | Alternative G TCR; ECLR |
|---|---|---|---|---|---|---|---|
| | debate and controversy and it is anticipated that the EA will as well (Appendix 4) | controversy and it is anticipated that the EA will as well (Appendix 4) | controversy and it is anticipated that the EA will as well (Appendix 4) | controversy and it is anticipated that the EA will as well (Appendix 4) | controversy and it is anticipated that the EA will as well (Appendix 4) | controversy and it is anticipated that the EA will as well (Appendix 4) | controversy and it is anticipated that the EA will as well (Appendix 4) |

# 3.0 Affected Environment

**3.1 Introduction:** Chapter 3.0, Affected Environment, identifies and describes those resources that are affected by the proposed action, and is organized by general resource categories and their associated issues. It does not describe any effects of the alternatives, as these will be covered in Chapter 4. The descriptions of the existing environment found in this chapter can be used as a baseline for comparison in Chapter 4.

### 3.1.1 General Description and location of the Thompson Chain of Lake Fishing Access Site Complex and Crystal Lake:

**3.1.1.1 Thompson Chain of Lakes FAS:** The Thompson Chain of Lakes Fishing Access Site (TCL) is located halfway between Kalispell and Libby (Figure 1). TCL stretches for 20 miles along US Highway 2 west and includes numerous small lakes and wetlands (Figure 2). The fishing access site encompasses 2,981.48 acres and includes shoreline access to 18 lakes, 13 of which are surrounded by public land. Of these lakes, seven are larger than 35 acres, with depths reaching 160 feet. Camping, fishing, and boating are historical uses around these lakes. Currently, TCL has 83 individual campsites and 8 group camping sites.

The TCL mission as stated in Thompson Chain of Lakes Management Plan Update (FWP 2006) *is to provide recreational and fishing opportunities, while protecting the resource. The area is developed to the minimal level necessary to make it usable to the public, while protecting the resource from degradation. In addition, TCL has a commitment to management of wildlife habitat, based on the use of Wildlife Mitigation funding in the land trade with Plum Creek in 1998 (Environmental Assessment for the Thompson Chain of Lakes Land Exchange/Purchase between Plum Creek Timber Company, L.P. and Montana Fish Wildlife & Parks 1998). Therefore, care must be taken during planning, development, and routine operations to consider impacts to wildlife on an equal footing with recreational needs. This is particularly true around Upper Thompson Lake and the areas on the back of Crystal and Horseshoe Lakes.*

Figure 1. Blue fish delineates the location of the Thompson Chain of Lakes Fishing Access Site complex.

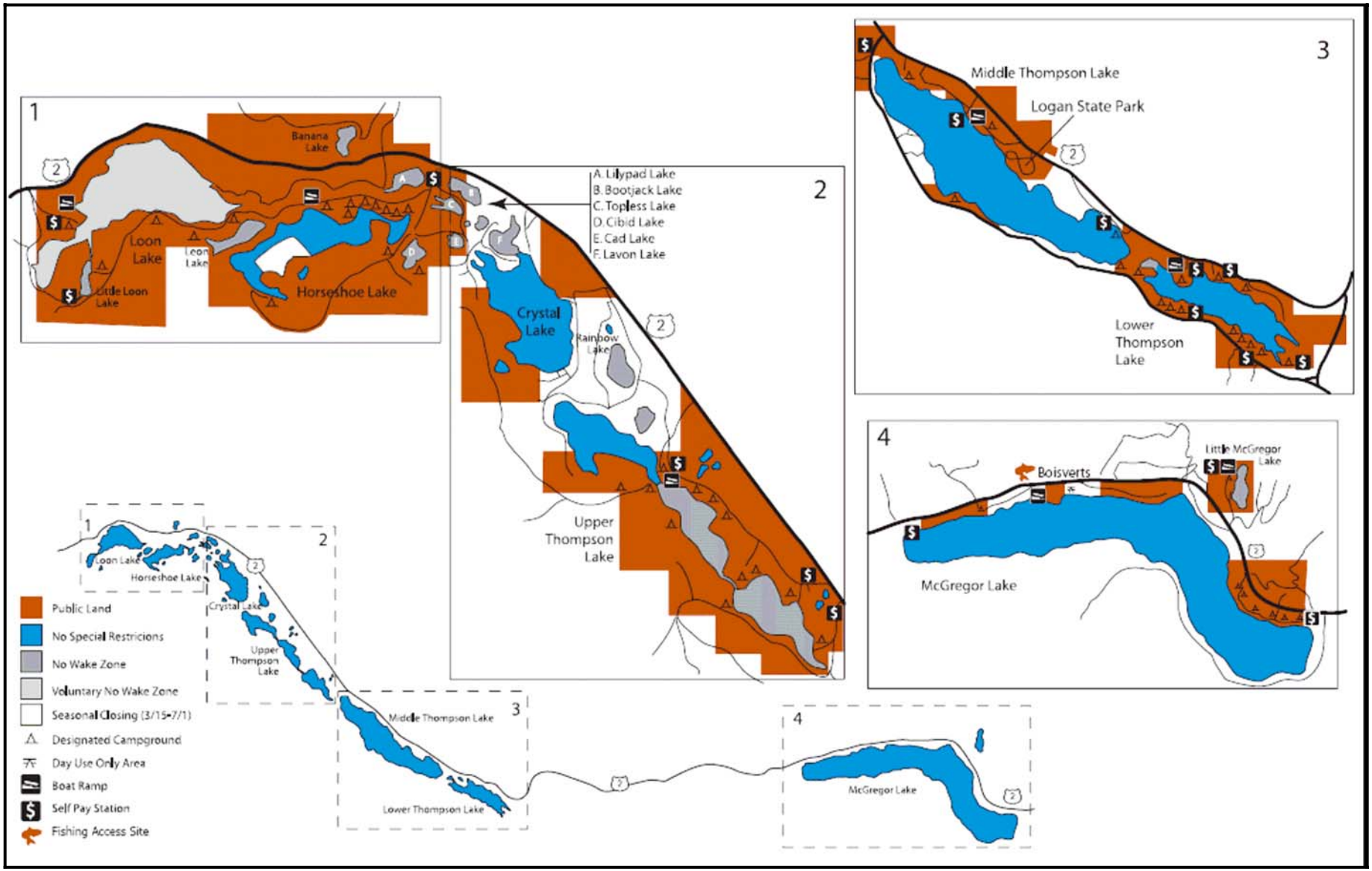


Figure 2. Map of the Thompson Chain of Lakes Fishing Access Site Complex.

**3.1.1.2 Crystal Lake Description:** Crystal Lake is located in the Thompson Chain of Lakes Fishing Access Site complex off Highway 2 approximately 50 miles west of Kalispell in Lincoln County. FWP owns two parcels of land on Crystal Lake. On the east side of the lake, FWP owns 72.27 acres in Township 27 North, Range 27 West, Section 19 (FWP East Shore property). On the west side of the lake, FWP owns 162.89 acres in Township 27 North, Range 28 West, Section 25 (FWP West Shore property; Figure 3). Crystal Lake is a 178-acre lake with a maximum depth of 154 feet. It is connected to Lavon Lake (17 acres, maximum depth 91 feet) by a narrow channel (20 feet wide by 4 feet deep). These lakes are a closed basin and are considered one management unit. Crystal Lake shoreline length is 3.5 miles. The FWP East Shore property has approximately 0.2 miles of shoreline and FWP West Shore property has approximately 0.9 miles of shoreline. Crystal Lake has approximately 48 residences on the north side of the lake and approximately 28 residences on the southeast side of the lake. The remainder of the shoreline is owned by FWP and is undeveloped. Lavon Lake has approximately 31 residences along its shoreline.

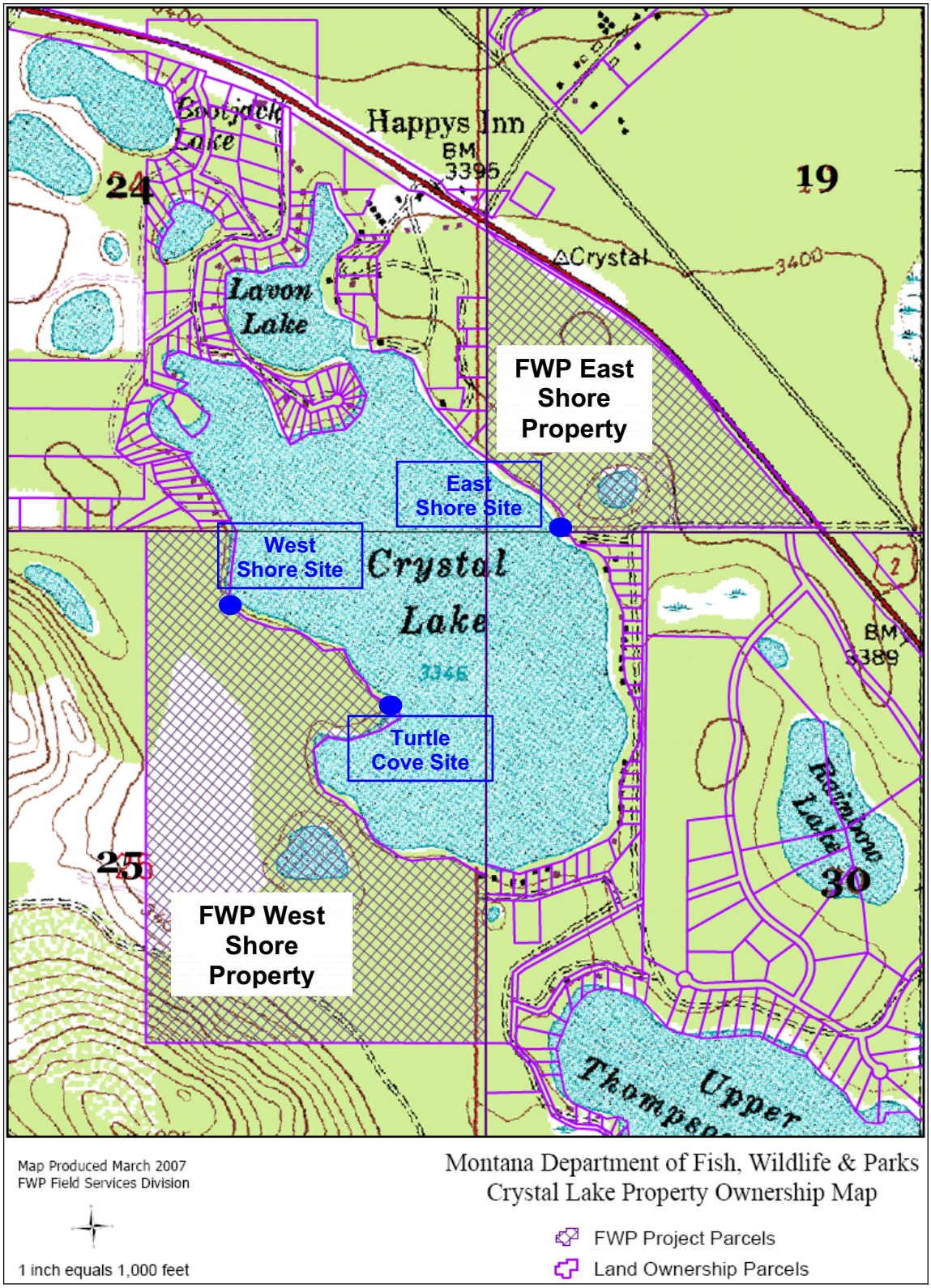


Figure 3. Map of Crystal Lake showing FWP parcels (East Shore property and West Shore property), private land ownership parcels, and proposed FAS locations (East Shore site, West Shore site, Turtle Cove site).

## 3.2 Description of Relevant Affected Resources:

### 3.2.1 Land Resources (Issue 1):

**3.2.1.1 Alternative B:** The East Shore site is located on the east shore of Crystal Lake (FWP East Shore property; Figures 3 and 4). The access road and site location under this alternative would be on Tamarack-Crystalex complex, 4-15% slopes (691D; listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). There is only one potential location with enough flat area to construct a parking area and a boat launch. Depth of the water and slope into the water are adequate for a boat launch. The access road would be constructed on flat ground within 50 feet of a pond of ecological importance.

Figure 4. Aerial photograph of access road to East Shore site via Lakeshore Drive. Blue line delineates residential road (Lakeshore Drive), red line delineates short access road for Alternative B (600 feet), and white circle delineates pond of ecological importance.

**3.2.1.2 Alternative C:** The East Shore site was described under 3.2.1.1. The access road under this alternative (Figure 5) would be on Tamarack-Crystalex complex, 4-15% slopes (691D) and Tamarack-Crystalex complex, 15-30% slopes (691E, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). The site location under this alternative would be on Tamarack-Crystalex complex, 4-15% slopes (691D, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). The access road would be constructed on a moderate slope within the watershed of a pond of ecological importance.

Figure 5. Aerial photograph of access road to East Shore site via Lakeshore Drive. Blue line delineates residential road (Lakeshore Drive), yellow line delineates long access road for Alternative C (2,500 feet), and white circle delineates pond of ecological importance.

**3.2.1.3 Alternative D:** The West Shore site is located on the west shore of Crystal Lake (FWP West Shore property; Figures 3 and 6). The slope of the land from the parking area to the boat launch is steep (10-12 % grade). The entrance road, access road, and new bridge location under this alternative would be on the following soils: Tamarack-Crystalex complex, 0-4 % slopes (691B); Tamarack-Crystalex complex, 4-15% slopes (691D); Glacier Creek - gravelly, ashy, silty loam, cool, 2-8% slopes (67C); Glacier Creek - gravelly, ashy, silty loam, 8-30% slopes (867E); Black Lake - mucky peat, 0-1% slopes (72A); Loon Lake - gravelly, ashy, silty loam, 4-15% slopes (71D, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). The site location under this alternative would be on Upsata - gravelly, ashy, silty loam, 30-60% slopes (68F) and Glacier Creek - gravelly, ashy, silty loam, 4-15% slopes (867E, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). Depth of the water and slope into the water are adequate for a boat launch. There is currently no road into the site, and there is only a primitive road on the west shore of Crystal Lake. Road construction would occur within 50 feet of a fen of ecological importance. Upper Thompson Bridge is a temporary bridge that would need replacement to allow safe access to the FAS.

Figure 6. Aerial photograph of access road to West Shore site via Rainbow Lake Road and unimproved roads (Alternative G). Yellow line delineates access road that would need improvement (1.8 miles) and red line delineates new access road (0.1 miles). White circle delineates fen of ecological importance. Upper Thompson Bridge would need to be replaced to allow public access to an FAS.

**3.2.1.4 Alternative E:** The Turtle Cove site is located on the west shore of Crystal Lake (FWP West Shore property; Figures 3 and 7). The entrance road and access road under this alternative would be on the following soils: Tamarack-Crystalex complex, 0-4% slopes (691B); Tamarack-Crystalex complex, 4-15% slopes (691D); Glacier Creek - gravelly, ashy, silty loam, cool, 2-8% slopes (67C); Glacier Creek - gravelly, ashy, silty loam, 8-30% slopes (867E); Black Lake - mucky peat, 0-1% slopes (72A); Loon Lake - gravelly, ashy, silty loam, 4-15% slopes (71D, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). The site location under this alternative would be on Upsata - gravelly, ashy, silty loam, 30-60% slopes (68F, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). Depth of the

water and slope into the water are adequate for a boat launch. A description of roads on the West Shore property and the bridge across Upper Thompson Lake were described under 3.2.1.3.

Figure 7. Aerial photograph depicting access road to Turtle Cove site via Rainbow Lake Road and unimproved roads (Alternative E). Yellow line delineates access road that would need improvement (1.4 miles) and red line delineates new access road (0.4 miles). White circle delineates fen of ecological importance. Upper Thompson Bridge would need to be replaced to allow public access to an FAS.

**3.2.1.5 Alternative F:** The West Shore site and roads on the West Shore property were described under 3.2.1.3. The entrance road and access road under this alternative (Figure 8) would be on the following soils: Glacier Creek - gravelly, ashy, silty loam, 8-30% slopes (867E); Upsata - gravelly, ashy, silty loam, 30-60% slopes (68F); Loon Lake - gravelly, ashy, silty loam, 4-15% slopes (71D); Black Lake - mucky peat, 0-1% slopes (72A); and Glacier Creek - gravelly, ashy, silty loam, 4-15% slopes (867E, listed by SSURGO soil mapping web site

http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). The site location under this alternative would be on Upsata - gravelly, ashy, silty loam, 30-60% slopes (68F) and Glacier Creek - gravelly, ashy, silty loam, 4-15% slopes (867E, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp).

Figure 8. Aerial photograph of access road to West Shore site via Lake Shore Drive (0.8 miles) and East Crystal Lake Road (0.15 miles, Alternative F). Blue line delineates county road (0.95 miles), yellow line delineates access road that would need improvement (0.9), and red line delineates new access road (0.1 miles). White circle delineates fen of ecological importance.

**3.2.1.6 Alternative G:** The Turtle Cove site was described under 3.2.1.4 and the roads on the West Shore property were described under 3.2.1.3. The entrance road and access road under this alternative (Figure 9) would be on the following soils: Glacier Creek - gravelly, ashy, silty loam, 8-30% slopes (867E); Upsata - gravelly, ashy, silty loam, 30-60% slopes (68F); Loon Lake - gravelly, ashy, silty loam, 4-15% slopes (71D); Black Lake - mucky peat, 0-1% slopes (72A); and Glacier Creek - gravelly, ashy, silty loam, 4-15% slopes (867E, listed by SSURGO soil mapping web site

http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp). The site location under this alternative would be on Upsata - gravelly, ashy, silty loam, 30-60% slopes (68F, listed by SSURGO soil mapping web site http://maps2.nris.state.mt.us/mapper/PLSSSearch.asp).

Figure 9. Aerial photograph of access road to Turtle Cove site via Lake Shore Drive (0.8 miles) and East Crystal Lake Road (0.15 miles, Alternative G). Blue line delineates county road (0.95 miles), yellow line delineates access road that would need improvement (0.45), and red line delineates new access road (0.4 miles). White circle delineates fen of ecological importance.

### 3.2.2 Air Quality (Issue 2):

**3.2.2.1 Alternative B:** There is little-to-no dust problem at the East Shore property as there is no formal development. There are a few primitive roads on the property. There is unmarked, primitive public access available to the East Shore property from Lake Shore Drive. Most traffic on Lake Shore Drive is for residential use. An adjacent residence is in view of the

proposed short access road, parking area, and boat launch (Figures 3 and 4).

**3.2.2.2 Alternative C:** There is little-to-no dust problem at the East Shore property as there is no formal development. There are a few primitive roads on the property. There is primitive public access available to the East Shore property from Lake Shore Drive. Most traffic on Lake Shore Drive is for residential use. An adjacent residence is in view of the proposed parking area and boat launch (Figures 3 and 5).

**3.2.2.3 Alternative D:** There is little-to-no dust problem at the West Shore property as there is no formal development. There are a few primitive roads on the property. Rainbow Lake Road is used by residential traffic, Plum Creek Timberlands, L.P., traffic, or recreationists gaining access to undeveloped public land (DNRC property and FWP West Shore property). There is no developed public access site off Rainbow Lake Road. The proposed entrance road to the West Shore site (Rainbow Lake Road) would pass a few residences (Figure 6). The parking area and boat launch would not be near any private residences (Figure 3).

**3.2.2.4 Alternative E:** There is little-to-no dust problem at the West Shore property as there is no formal development. There are a few primitive roads on the property. Rainbow Lake Road is used by residential traffic, Plum Creek Timberlands, L.P., traffic, or recreationists gaining access to undeveloped public land (DNRC property and FWP West Shore property). There is no developed public access site off Rainbow Lake Road. The proposed entrance road to the Turtle Cove site (Rainbow Lake Road) would pass a few residences (Figure 7). The parking area and boat launch are not near any private residences (Figure 3).

**3.2.2.5 Alternative F:** There is little-to-no dust problem at the West Shore property as there is no formal development. There are a few primitive roads on the property. Lake Shore Drive and East Crystal Lake Road are used for residential access. There is unmarked, primitive public access available to the West Shore property from East Crystal Lake Road. The proposed entrance roads to the West Shore site (Lake Shore Drive and East Crystal Lake Road) would pass several residences (Figure 8). The parking area and boat launch would not be near any private residences (Figure 3).

**3.2.2.6 Alternative G:** There is little-to-no dust problem at the West Shore property as there is no formal development. There are a few primitive roads on the property. The proposed entrance roads to the Turtle Cove site (Lake Shore Drive and East Crystal Lake Road) would pass several residences

(Figure 9). The parking area and boat launch would not be near any private residences (Figure 3).

**3.2.3 Water Quality (Issue 3):** The proposed FAS would be constructed on the Shore of Crystal Lake in an area that has not been developed.

**3.2.3.1 Alternative B:** See 3.2.2.1 for information on primitive development at East Shore property. There is a pond of ecological importance located on the property within 50 feet of the proposed access road (Figure 4). This alternative would be located in an area of minimal flooding (Zone C) as mapped by the Federal Emergency Management Administration on the FIRM Index (Flood Insurance Rate Map, Map Number 157102B, effective date August 1, 1980).

**3.2.3.2 Alternative C:** See 3.2.2.2 for information on primitive development at East Shore property. There is a pond of ecological importance located on the property. The proposed access road would be in the watershed of this pond (Figure 5). This alternative would be located in an area of minimal flooding (Zone C) as mapped by the Federal Emergency Management Administration on the FIRM Index (Flood Insurance Rate Map, Map Number 157102B, effective date August 1, 1980).

**3.2.3.3 Alternative D:** See 3.2.2.3 for information on primitive development at West Shore property. The access road would cross Upper Thompson Lake (via a new bridge) and be within 50 feet of a fen of ecological importance (Figure 6). There is a temporary bridge across Upper Thompson Lake. With the exception of Upper Thompson Bridge, the access roads and site locations for the FAS in these proposed alternatives would be located in an area of minimal flooding (Zone C) as mapped by the Federal Emergency Management Administration on the FIRM Index (Flood Insurance Rate Map, Map Number 157102B, effective date August 1, 1980). Upper Thompson Bridge would be located in an area of 100-year flood (Zone A) as mapped by the Federal Emergency Management Administration on the FIRM Index (Flood Insurance Rate Map, Map Number 157102B, effective date August 1, 1980).

**3.2.3.4 Alternative E:** See 3.2.3.3 for information on primitive development at West Shore property. The access road would cross Upper Thompson Lake (via a new bridge) and be within 50 feet of a fen of ecological importance (Figure 7). There is a temporary bridge across Upper Thompson Lake. With the exception of Upper Thompson Bridge, the access roads and site locations for the FAS in these proposed alternatives would be located in an area of minimal flooding (Zone C) as mapped by the Federal Emergency Management Administration on the FIRM Index

(Flood Insurance Rate Map, Map Number 157102B, effective date August 1, 1980). Upper Thompson Bridge would be located in an area of 100-year flood (Zone A) as mapped by the Federal Emergency Management Administration on the FIRM Index (Flood Insurance Rate Map, Map Number 157102B, effective date August 1, 1980).

**3.2.3.5 Alternative F:** See 3.2.2.5 for information on primitive development at West Shore property. The access road would be within 50 feet of a fen of ecological importance (Figure 8). This alternative would be located in an area of minimal flooding (Zone C) as mapped by the Federal Emergency Management Administration on the FIRM Index (Flood Insurance Rate Map, Map Number 157102B, effective date August 1, 1980).

**3.2.3.6 Alternative G:** See 3.2.2.6 for information on primitive development at West Shore property. The access road would be within 50 feet of a fen of ecological importance (Figure 9). This alternative would be located in an area of minimal flooding (Zone C) as mapped by the Federal Emergency Management Administration on the FIRM Index (Flood Insurance Rate Map, Map Number 157102B, effective date August 1, 1980).

**3.2.4 Vegetation (Issue 4):** There has been no formal development on East Shore property or West Shore property. There is minimal recreational use occurring. Nearly all of the surrounding upland area around Crystal Lake has been logged, although Stream Management Zones were observed with some of the overstory components remaining (Greenlee and Jones 2000). A few old-growth trees remain on FWP East Shore property and FWP West Shore property.

**3.2.5 Wetlands (Issue 5):**

**3.2.5.1 Alternative B:** The pond on FWP East Shore property is located in steep-sided catchment and dominated by aquatic plants, including floating-leaved pondweed *(Potamogetan natans*), grass-leaved pondweed (*P. gramineus)*, yellow water lily (*Nuphar lutea*), common bladderwart (*Utricularis vulgaris*), and bur-reed (*Sparganium sp.*; Greenlee and Jones 2000). It is considered ecologically important according to the Montana Natural Heritage Program, and care should be taken not to impact it (Greenlee and Jones 2000; Hendricks 2000).

**3.2.5.2 Alternative C:** See 3.2.5.1

**3.2.5.3 Alternative D:** The fen located on FWP West Shore property contained some plant species of concern (Greenlee and Jones 2000). The species of concern rank will be listed after the scientific name. The fen is

dominated by a floating mat of mud sedge (*Carex limosa;* S3/G3) and has inland sedge (*C. diandra*), lesser-pinnacled sedge (*C. interior*) bog buckbean (*Menyanthes trifoliata*), and moss (Greenlee and Jones 2000). A ranking of S3/G3 by MNHP indicates the species is potentially at risk of extirpation in Montana and globally. An undescribed marsh cinquefoil community (*Comarum palustre*) surrounds the floating mat (Greenlee and Jones 2000). In addition, slender cottongrass (*Eriophorum gracile; S2/G4*) and pod grass (*Scheuchzeria palustris; S2/ G4*) were documented (Greenlee and Jones 2000). A ranking of S2/G4 by MNHP indicates the species is at risk of extirpation in Montana and uncommon globally. The fen is considered ecologically important according to the Montana Natural Heritage Program and care should be taken not to impact it (Greenlee and Jones 2000; Hendricks 2000).

**3.2.5.4 Alternative E:** See 3.2.5.3

**3.2.5.5 Alternative F:** See 3.2.5.3

**3.2.5.6 Alternative G:** See 3.2.5.3

### 3.2.6 Weeds (Issue 7):

**3.2.6.1 Alternative B:** Weeds are present at the East Shore site and along the access roads. The pond on FWP East Shore property contained a high constancy of exotics, including redtop (*Agrostis stolonifera*), bull thistle (*Cisiu vulgare*), Canada thistle (*C. arvense*), and Norway cinquefoil (*Potentilla norvegica*; Greenlee and Jones 2000).

**3.2.6.2 Alternative C:** See 3.2.6.1

**3.2.6.3 Alternative D:** Few weeds were noted at the proposed location of the boat launch and parking area at the West Shore site. Weeds were present on the access road. The fen on FWP West Shore property contained a high constancy of exotics, including redtop (*Agrostis stolonifera*), bull thistle (*Cisiu vulgare*), Canada thistle (*C. arvense*), and Norway cinquefoil (*Potentilla norvegica*; Greenlee and Jones 2000).

**3.2.6.4 Alternative E:** Weeds were present at the Turtle Cove site. Weeds were present on the access road. The fen on FWP West Shore property contained a high constancy of exotics, including redtop (*Agrostis stolonifera*), bull thistle (*Cisiu vulgare*), Canada thistle (*C. arvense*), and Norway cinquefoil (*Potentilla norvegica*; Greenlee and Jones 2000).

**3.2.6.5 Alternative F:** See 3.2.6.3

**3.2.6.6 Alternative G:** See 3.2.6.4

**3.2.7 Fisheries (Issue 8):** In 2005, an angler survey identified Crystal Lake as the 155th most fished body of water in Montana. The Regional rank was 31 and there were 2,710 days fished, approximately half (1,429 days) of these occurred in winter. Fish species in the lake include kokanee, pumpkinseed (rare), rainbow trout, largemouth bass (rare), and yellow perch. Yellow perch were an illegal introduction into the lake. Fishing on Crystal Lake is primarily for rainbow trout, kokanee, and yellow perch. Kokanee and rainbow are surveyed and stocked annually into the lake. The numbers stocked are based on the monitoring results. There is little natural reproduction of kokanee and rainbow trout, and any that occurs is on the NW shore of the lake. Angling for kokanee and rainbow trout in Crystal Lake is not a shoreline fishery; a boat is necessary. There is poor ice fishing access allowed from Lakeshore Drive on the south side of Crystal Lake.

**3.2.8 Wildlife (Issue 9):** Crystal Lake provides habitat for a variety of wildlife species. Common loons, red-necked grebes, bald eagles, and osprey are frequently observed. Bald eagles are frequently seen around the lake; the closest known nest is close by on Horseshoe Lake about a mile east of Crystal Lake. Bald eagles from this territory may use Crystal Lake for foraging. The lake also may be foraging area for other adult or juvenile bald eagles in the area. It is likely that red-necked grebes nest in Turtle Cove. Common larger species include white-tailed deer, elk, moose, coyotes, and black bears. A variety of waterfowl, songbirds, owls, amphibians, reptiles, and rodents inhabit the TCL complex and are present at Crystal Lake. Gray wolves have also been located at Crystal Lake. The far northeast corner of the Fish Trap pack's home range is adjacent to Crystal Lake. In addition, wolves from the Meadow Peak pack have been located around the lake. It is suspected that Highway 2 is the likely border between these two packs. Denning and rendezvous sites for the Fish Trap pack are approximately 10 straight-line miles from Crystal Lake, while the Meadow Peak pack is unknown. The home range for the Fish Trap pack is 205 square miles. The home range for the Meadow Peak pack is unknown. These packs seem to use Crystal Lake more frequently in the winter (Kent Laudon, FWP Wolf Management Specialist; personal communication, July 27, 2007).

**3.2.8.1 Alternative B:** There was an osprey nest located on FWP East Shore property at one time. The pond located on the East Shore property contains long-toed salamander, painted turtle, and common garter snake (Hendricks 2000).

**3.2.8.2 Alternative C:** See 3.2.8.1

**3.2.8.3 Alternative D:** The fen located on FWP West Shore property contained Pacific tree frog and painted turtle (Hendricks 2000). The FWP West Shore property on Crystal Lake is an amenity for wildlife due to its undeveloped state. It provides a refuge for wildlife from the development on the other parts of Crystal Lake. In 1996, campsites were closed on FWP West Shore property on Crystal Lake due to wildlife and environmental concerns (FWP 1996).

**3.2.8.4 Alternative E:** See 3.2.8.3. It is likely that red-necked grebes nest in Turtle Cove.

**3.2.8.5 Alternative F:** See 3.2.8.3

**3.2.8.6 Alternative G:** See 3.2.8.4

**3.2.9 Common Loon (Issue 11):** The common loon is listed as sensitive by the US Forest Service (USFS) and US Bureau of Land Management (BLM). The common loon is listed as S2B/G5 by MNHP. This listing indicates the species is at risk of extirpation in the state and globally common. There are currently no nesting sites for loons on Crystal Lake (Gael Bissell, FWP wildlife biologist; personal communication, June 18, 2007). Loons likely nested on Crystal Lake prior to 1980. Loons have historically nested on both nearby Loon and Horseshoe Lakes, but are also not currently nesting on either of these lakes. Recent successful nesting and active management for common loons is taking place on Upper and Lower Thompson Lakes as well as Island Lake. Adult common loons are commonly seen feeding on Crystal Lake during the spring, summer, and fall. However, these individuals could be breeding, migratory, and nonbreeding adults using the lake for foraging (Gael Bissell, FWP wildlife biologist; personal communication, June 18, 2007).

**3.2.9.1 Alternative E:** Turtle Cove would be a likely spot for potential loon nesting on Crystal Lake due to its undeveloped state.

**3.2.9.2 Alternative G:** See 3.2.9.2

**3.2.10 Noise Effects (Issue 12):** The proposed plan is to develop an FAS on undeveloped public land that currently receives minimal public use.

**3.2.10.1 Alternative B:** Currently there is little noise from recreational use. For a description of site and potential noise sources, see 3.2.2.1

**3.2.10.2 Alternative C:** Currently there is little noise from recreational use. For a description of site and potential noise sources, see 3.2.2.2

**3.2.10.3 Alternative D:** Currently there is little noise from recreational use. For a description of site and potential noise sources, see 3.2.2.3.

**3.2.10.4 Alternative E:** Currently there is little noise from recreational use. For a description of site and potential noise sources, see 3.2.2.4. The Turtle Cove site is located on a point of land that is visible by many residences on Crystal Lake.

**3.2.10.5 Alternative F:** Currently there is little noise from recreational use. For a description of site and potential noise sources, see 3.2.2.5.

**3.2.10.6 Alternative G:** Currently there is little noise from recreational use. For a description of site and potential noise sources, see 3.2.2.6. The Turtle Cove site is located on a point of land that is visible by many residences on Crystal Lake.

**3.2.11 Land Use (Issue 13):** The proposed plan is to develop an FAS on undeveloped public land that currently receives minimal public use.

**3.2.11.1 Alternative B:** The proposed FAS would be within 200 feet of the adjacent residence.

**3.2.11.2 Alternative C:** See 3.2.7.1

**3.2.12 Risk of Human Health Hazards (Issue 14):** The FAS would be developed in an area that has not been developed or managed for public use Currently there is no developed road, no formal boat launching site, and no weed management on East Shore property and West Shore property

**3.2.12.1 Alternative B:** There is a private boat dock located within 200 feet of the East Shore site.

**3.2.12.2 Alternative C:** See 3.2.12.1

**3.2.13 Community Impact (Issue 15):** Currently, there is no public motorboat access to Crystal Lake. Prior to 2007, there was a private boat launch at Happy's Inn that allowed public access. This public access had been permitted for many years. In 2006, the private landowners of Happy's Inn sold their property, which included the boat launch. The new landowners closed the boat launch to public use. Crystal Lake has been a popular destination for anglers and other motorboat recreationists from the Libby and Kalispell areas. In addition, residents of the lake had annually used the

Happy's Inn boat launch to put their boats into the water in the spring and remove them in the fall. With the loss of public access to this boat launch, many residents of the lake, visitors, and recreationists have asked FWP to reestablish public boat launching on the lake.

**3.2.13.1 Alternative B:** See 3.2.2.1 for baseline information on primitive development at the site.

**3.2.13.2 Alternative C:** See 3.2.2.2 for baseline information on primitive development at the site.

**3.2.13.3 Alternative D:** See 3.2.2.3 for baseline information on primitive development at the site. DNRC and Plum Creek Timberlands, L.P., currently maintain Rainbow Lake Road and the temporary Upper Thompson Bridge.

**3.2.13.4 Alternative E:** See 3.2.2.4 for baseline information on primitive development at the site. DNRC and Plum Creek Timberlands, L.P., currently maintain Rainbow Lake Road and the temporary Upper Thompson Bridge.

**3.2.13.5 Alternative F:** See 3.2.2.5 for baseline information on primitive development at the site.

**3.2.13.6 Alternative G:** See 3.2.2.6 for baseline information on primitive development at the site.

**3.2.14 Public Services (Issue 16):** The East Shore property and West Shore property are currently managed as primitive sites. They are unmarked and not maintained for formal public use.

**3.2.15 Aesthetics (Issue 17):**

**3.2.15.1 Alternative B:** The east shore of Crystal Lake is mostly developed with the exception of FWP East Shore property (approximately ¼ of the shoreline).

**3.2.15.2 Alternative C:** See 3.2.15.1

**3.2.15.3 Alternative D:** The west shore of Crystal Lake is mostly undeveloped (approximately ¾ of the shoreline) and this is an asset to the scenery at Crystal Lake.

**3.2.15.4 Alternative E:** See 3.2.15.3

**3.2.15.5 Alternative F:** See 3.2.15.3

**3.2.15.6 Alternative G:** See 3.2.15.3

**3.2.16 Recreation (Issue 18):** The East Shore property and West Shore property are currently managed as primitive sites. They are unmarked and not maintained for formal public use. There is no public motorboat access onto Crystal Lake since the closure of the private boat launch in 2006.

**3.2.17 Cultural and Historical Resources (Issue 19):** FWP contacted the State Historic and Preservation Office. They conducted a cultural resource file search around Crystal Lake. They identified a few previously recorded sites within the proposed project area. In addition to the sites, there have been a few previously conducted cultural resource inventories done in the areas.

**3.2.18 Public Controversy (Issue 20):** On May 3, 2007, a public meeting was held at the Fisher River Fire Hall. Information regarding the proposed FAS was presented. Public comments were collected in written form regarding this FAS from May 3 through May 17. A summary of these comments is located in Appendix 4. Prior to release of this EA, there was much debate and controversy surrounding this project. It is assumed the release of this EA for public comment would generate similar debate and controversy.

## 3.3 Description of Relevant Preexisting Factors: None

## 3.4 Description of Areas Related to Cumulative Effects: None

# 4.0 Environmental Consequences

**4.1 Introduction:** Chapter 4: Environmental Consequences describes the environmental effects of each alternative on the resources described in Chapter 3 and contains scientific and analytic basis for alternatives comparison summarized in Chapter 2. It is organized in the same manner as Chapter 3 by general resource categories and their associated issues.

## 4.2 Predicted Attainment of the Project Objectives of all Alternatives:

### 4.2.1 Predicted Attainment of the Project Objective 1:

**4.2.1.1 Alternative A - No Action:** The no-action alternative does not meet Objective 1. No public motorboat access would be created on Crystal Lake.

**4.2.1.2 Alternative B - East Shore Site, Short Access Road:** Alternative B does meet Objective 1. This alternative would create a public FAS with motorboat access on Crystal Lake.

**4.2.1.3 Alternative C - East Shore Site, Long Access Road:** Alternative C does meet Objective 1. This alternative would create a public FAS with motorboat access on Crystal Lake.

**4.2.1.4 Alternative D - West Shore Site, Rainbow Lake Road:** Alternative D does meet Objective 1. This alternative would create a public FAS with motorboat access on Crystal Lake.

**4.2.1.5 Alternative E - Turtle Cove Site, Rainbow Lake Road:** Alternative E does meet Objective 1. This alternative would create a public FAS with motorboat access on Crystal Lake.

**4.2.1.6 Alternative F - West Shore Site, East Crystal Lake Road:** Alternative F does meet Objective 1. This alternative would create a public FAS with motorboat access on Crystal Lake.

**4.2.1.7 Alternative G - Turtle Cove Site, East Crystal Lake Road:** Alternative G does meet Objective 1. This alternative would create a public FAS with motorboat access on Crystal Lake.

**4.2.2 Predicted Attainment of the Project Objective 2:** To develop a public FAS within reasonable budget constraints.

**4.2.2.1 Alternative A - No Action:** The no-action alternative does meet Objective 2. There is no cost to this alternative.

#### 4.2.2.2 Alternative B - East Shore Site, Short Access Road:
Alternative B does meet Objective 2. The cost of this alternative is within established budget constraints.

#### 4.2.2.3 Alternative C - East Shore Site, Long Access Road:
Alternative C does not meet Objective 2. The cost of this alternative is not within established budget constraints.

#### 4.2.2.4 Alternative D - West Shore Site, Rainbow Lake Road:
Alternative D does not meet Objective 2. The cost of this alternative is not within established budget constraints.

#### 4.2.2.5 Alternative E - Turtle Cove Site, Rainbow Lake Road:
Alternative E does not meet Objective 2. The cost of this alternative is not within established budget constraints.

#### 4.2.2.6 Alternative F - West Shore Site, East Crystal Lake Road:
Alternative F does not meet Objective 2. The cost of this alternative is not within established budget constraints.

#### 4.2.2.7 Alternative G - Turtle Cove Site, East Crystal Lake Road:
Alternative G does not meet Objective 2. The cost of this alternative is not within established budget constraints.

## 4.3 Predicted Effects on Relevant Affected Resources of all Alternatives:

### 4.3.1 Predicted Effects on <u>Land Resources</u> (Issue 1):

**4.3.1.1 Alternative A:** No direct, indirect, or cumulative effects.

**4.3.1.2 Alternative B:**

- **Direct effects:** No change in geologic substructure. Due to construction of access roads, parking areas, and boat launches, there would be minor changes in the soil stability. There would be minor disruption, displacement, erosion, compaction, moisture loss, and over-covering of the soil that would reduce productivity. The proposed project would cause minor changes in the siltation, deposition, and erosion patterns of the shore of Crystal Lake.
- **Indirect effects:** None
- **Cumulative effects:** None

**4.3.1.3 Alternative C:** See 4.3.1.2

**4.3.1.4 Alternative D:** See 4.3.1.2

- **Direct effects:** This alternative would cause minor changes in the siltation, deposition, and erosion patterns of the bed and shore of Upper Thompson Lake during replacement of the temporary Upper Thompson Bridge. The impacts should be minor and temporary during construction since this is replacement of an existing bridge and not constructing a bridge in a new area.
- **Indirect effects:** None
- **Cumulative effects:** None

**4.3.1.5 Alternative E:** See 4.3.1.4

**4.3.1.6 Alternative F:** See 4.3.1.2

**4.3.1.7 Alternative G:** See 4.3.1.2

### 4.3.2 Predicted Effects on <u>Air Quality</u> (Issue 2):

**4.3.2.1 Alternative A:** No direct, indirect, or cumulative effects.

**4.3.2.2 Alternative B:**

- **Direct effects:** Minor amounts of dust would be temporarily created during construction of access road, parking area, and boat launch. The access road under this alternative would increase dust near adjacent residence. Dust would increase on Lake Shore Drive due to an increase in traffic utilizing the FAS. Vault latrines can emit foul odors; but proper siting of the latrine as well as regular maintenance would diminish the problem. Current design of vault toilets minimizes odors by using black, passively heated vent pipe to increase airflow through the structure and remove objectionable odors. This alternative would not result in any discharge that would conflict with federal and state air quality regulations.
- **Indirect effects:** Not having a latrine would likely result in sanitation problems that could potentially lead to health and safety issues.
- **Cumulative effects:** None

**4.3.2.3 Alternative C:** See 4.3.2.2

**4.3.2.4 Alternative D:**

- **Direct effects:** Minor amounts of dust would be temporarily created during construction of access road, parking area, and boat launch. Dust would increase on Rainbow Lake Road due to an increase in traffic utilizing the FAS. Vault latrines can emit foul odors, but proper siting of the latrine as well as regular maintenance would diminish the problem. Current design of vault toilets minimizes odors by using black, passively heated vent pipe to increase airflow through the structure and remove objectionable odors. This alternative would not

result in any discharge that would conflict with federal and state air quality regulations.

- **Indirect effects:** Not having a latrine would likely result in sanitation problems that could potentially lead to health and safety issues.
- **Cumulative effects:** None

**4.3.2.5 Alternative E:** See 4.3.2.4

**4.3.2.6 Alternative F:**

- **Direct effects:** Minor amounts of dust would be temporarily created during construction of access road, parking area, and boat launch. Dust would increase on Lake Shore Drive and East Crystal Lake Road due to an increase in traffic utilizing the FAS. Vault latrines can emit foul odors; but proper siting of the latrine as well as regular maintenance would diminish the problem. Current design of vault toilets minimizes odors by using black, passively heated vent pipe to increase airflow through the structure and remove objectionable odors. This Alternative would not result in any discharge that would conflict with federal and state air quality regulations.
- **Indirect effects:** Not having a latrine would likely result in sanitation problems that could potentially lead to health and safety issues.
- **Cumulative effects:** None

**4.3.2.7 Alternative G:** See 4.3.2.6

### 4.3.3 Predicted Effects on Water Quality (Issue 3):

**4.3.3.1 Alternative A:** No direct, indirect, or cumulative effects.

**4.3.3.2 Alternative B:**

- **Direct effects:** This alternative would cause a minor increase in discharge into Crystal Lake during construction and due to the construction of a boat ramp. Construction and boat launching activities would cause a minor increase in turbidity in the area of the boat launch. This alternative would cause changes in drainage patterns and the amount of surface runoff into Crystal Lake. These changes are due to road improvements, new road construction, new parking area construction, and new boat launch construction. The short access road would be located within 50 feet of a pond of ecological importance according to Montana Natural Heritage Program (MNHP). Developing an FAS with a boat launch in an area that is undeveloped would increase the risk of petroleum products entering the surface water. This alternative would not result in any discharge that would affect federal or state water quality regulations.
- **Indirect effects:** None
- **Cumulative effects:** None

#### 4.3.3.3 Alternative C:

- **Direct effects:** This alternative would cause a minor increase in discharge into Crystal Lake during construction and due to the construction of a boat ramp. Construction and boat launching activities would cause a minor increase in turbidity in the area of the boat launch. This alternative would cause changes in drainage patterns and the amount of surface runoff into Crystal Lake. These changes are due to road improvements, new road construction, new parking area construction, and new boat launch construction. The long access road would be located within the watershed of a pond of ecological importance according to MNHP. Improving the road and increased traffic on this road would increase surface runoff into this pond. Developing an FAS with a boat launch in an area that is undeveloped would increase the risk of petroleum products entering the surface water. This alternative would not result in any discharge that would affect federal or state water quality regulations.
- **Indirect effects:** None
- **Cumulative effects:** None

#### 4.3.3.4 Alternative D:

- **Direct effects:** This alternative would cause a minor increase in discharge into Crystal Lake during construction and due to the construction of a boat ramp. Construction and boat launching activities would cause a minor increase in turbidity in the area of the boat launch. This alternative would cause a minor increase in turbidity in Upper Thompson Lake due to replacing Upper Thompson Bridge. This turbidity should be minor and temporary since the proposed plan would replace an existing bridge. This alternative would cause changes in drainage patterns and the amount of surface runoff into Crystal Lake and/or Upper Thompson Lake. These changes are due to road improvements, new road construction, new parking area construction, and new boat launch construction. The amount of proposed improved roads is longest via accessing FWP West Shore property by Rainbow Lake Road. Therefore, surface runoff due to road improvement would be highest for this alternative and Alternative E. The steep gradient (10 to 12 %) at the West Shore site between the parking area and boat launch would likely result in a higher surface runoff compared to the East Shore site and Turtle Cove site; therefore, surface runoff would likely be higher in this alternative and Alternative F. The access roads would be within 50 feet of a fen of ecological importance according to MNHP. Improving the access roads and increased traffic on these roads would increase surface runoff into this fen. Developing an FAS with a boat launch in an area that is undeveloped would increase

the risk of petroleum products entering the surface water. This alternative would not result in any discharge that would affect federal or state water quality regulations.

- **Indirect effects:** None
- **Cumulative effects:** None

#### 4.3.3.5 Alternative E:

- **Direct effects:** This alternative would cause a minor increase in discharge into Crystal Lake during construction and due to the construction of a boat ramp. Construction and boat launching activities would cause a minor increase in turbidity in the area of the boat launch. This alternative would cause a minor increase in turbidity in Upper Thompson Lake due to replacing Upper Thompson Bridge. This turbidity should be minor and temporary since the proposed plan would replace an existing bridge. This alternative would cause changes in drainage patterns and the amount of surface runoff into Crystal Lake and/or Upper Thompson Lake. These changes are due to road improvements, new road construction, new parking area construction, and new boat launch construction. The amount of proposed improved roads is longest via accessing FWP West Shore property by Rainbow Lake Road. Therefore, surface runoff due to road improvement would be highest for this alternative and Alternative D. The amount of new road construction into Turtle Cove is the longest compared to the West Shore site and East Shore site. Therefore, surface runoff due to new road construction would be the highest for this Alternative and Alternative G. The access roads would be within 50 feet of a fen of ecological importance according to MNHP. Improving the access roads and increased traffic on these roads would increase surface runoff into this fen. Developing an FAS with a boat launch in an area that is undeveloped would increase the risk of petroleum products entering the surface water. This alternative would not result in any discharge that would affect federal or state water quality regulations.
- **Indirect effects:** None
- **Cumulative effects:** None

#### 4.3.3.6 Alternative F:

- **Direct effects:** This alternative would cause a minor increase in discharge into Crystal Lake during construction and due to the construction of a boat ramp. Construction and boat launching activities would cause a minor increase in turbidity in the area of the boat launch. This alternative would cause changes in drainage patterns and the amount of surface runoff into Crystal Lake. These changes are due to road improvements, new road

construction, new parking area construction, and new boat launch construction. The steep gradient (10 to 12 %) at the West Shore site between the parking area and boat launch would likely result in a higher surface runoff compared to the East Shore site and Turtle Cove site; therefore, surface runoff would likely be higher in this alternative and Alternative D. The access roads would be within 50 feet of a fen of ecological importance according to MNHP. Improving the access roads and increased traffic on these roads would increase surface runoff into this fen. Developing an FAS with a boat launch in an area that is undeveloped would increase the risk of petroleum products entering the surface water. This alternative would not result in any discharge that would affect federal or state water quality regulations.

- **Indirect effects:** None
- **Cumulative effects:** None

#### 4.3.3.7 Alternative G:

- **Direct effects:** This alternative would cause a minor increase in discharge into Crystal Lake during construction and due to the construction of a boat ramp. Construction and boat launching activities would cause a minor increase in turbidity in the area of the boat launch. This alternative would cause changes in drainage patterns and the amount of surface runoff into Crystal Lake. These changes are due to road improvements, new road construction, new parking area construction, and new boat launch construction. The amount of new road construction into Turtle Cove is the longest compared to the West Shore site and East Shore site. Therefore, surface runoff due to new road construction would be the highest for this alternative and Alternative E. The access roads would be within 50 feet of a fen of ecological importance according to MNHP. Improving the access roads and increased traffic on these roads would increase surface runoff into this fen. Developing an FAS with a boat launch in an area that is undeveloped would increase the risk of petroleum products entering the surface water. This alternative would not result in any discharge that would affect federal or state water quality regulations.
- **Indirect effects:** None
- **Cumulative effects:** None

### 4.3.4 Predicted Effects on <u>Vegetation</u> (Issue 4):

#### 4.3.4.1 Alternative A: No direct, indirect, or cumulative effects.

#### 4.3.4.2 Alternative B:

- **Direct effects:** Construction of roads, parking area, and boat launch would occur in areas that have not been developed. There may be a minor change in plant species in the area of construction. The construction of the access road would be within 50 feet of the pond of ecological importance, which could cause alteration of the plant community.
- **Indirect effects:** None
- **Cumulative effects:** Current and increased recreational use could create impacts to upland habitats around the lake (Greenlee and Jones 2000).

**4.3.4.3 Alternative C:**

- **Direct effects:** Construction of roads, parking area, and boat launch would occur in areas that have not been developed. There may be a minor change in plant species in the area of construction. The improvement of the access road would be in the watershed of the pond described on FWP East Shore property, which could cause alteration of the plant community.
- **Indirect effects:** None
- **Cumulative effects:** Current and increased recreational use could create impacts to upland habitats around the lake (Greenlee and Jones 2000).

**4.3.4.4 Alternative D:**

- **Direct effects:** Construction of roads, parking area, and boat launch would occur in areas that have not been developed. There may be a minor change in plant species in the area of construction. The improvement of the access road would be within 50 feet of the fen of ecological importance, which could cause alteration of the plant community.
- **Indirect effects:** None
- **Cumulative effects:** Current and increased recreational use could create impacts to upland habitats around the lake (Greenlee and Jones 2000).

**4.3.4.5 Alternative E:** See 4.3.4.4

**4.3.4.6 Alternative F:** See 4.3.4.4

**4.3.4.7 Alternative G:** See 4.3.4.4

### 4.3.5 Predicted Effects on <u>Wetlands</u> (Issue 5):

**4.3.5.1 Alternative A:** No direct, indirect, or cumulative effects.

**4.3.5.2 Alternative B:**

- **Direct effects:** The construction of the access road would be within 50 feet of the pond of ecological importance and may impact it.
- **Indirect effects:** Current and increased recreational use could create impacts to wetlands on the East Shore property (Greenlee and Jones 2000).
- **Cumulative effects:** None

**4.3.5.3 Alternative C:**

- **Direct effects:** Improvement of the access road in the watershed of the pond may impact the pond.
- **Indirect effects:** Current and increased recreational use could create impacts to wetlands on the East Shore property (Greenlee and Jones 2000).
- **Cumulative effects:** None

**4.3.5.4 Alternative D:**

- **Direct effects:** The improvement of the access road would be within 50 feet of the fen of ecological importance and may impact it.
- **Indirect effects:** Current and increased recreational use could create impacts to wetlands on the West Shore property (Greenlee and Jones 2000).
- **Cumulative effects:** None

**4.3.5.5 Alternative E:** See 4.3.5.4

**4.3.5.6 Alternative F**: See 4.3.5.4

**4.3.5.7 Alternative G:** See 4.3.5.4

### 4.3.6 Predicted Effects on <u>Weeds</u> (Issue 7):

**4.3.6.1 Alternative A:** No direct, indirect, or cumulative effects.

**4.3.6.2 Alternative B:**

- **Direct effects:** None
- **Indirect effects:** Construction at the site may increase weed abundance and distribution. Weed abundance and distribution would increase with an increase in traffic and access to the site.
- **Cumulative effects:** None

**4.3.6.3 Alternative C:** See 4.3.6.2

**4.3.6.4 Alternative D:** See 4.3.6.2

**4.3.6.5 Alternative E:** See 4.3.6.2

#### 4.3.6.6 Alternative F: See 4.3.6.2

#### 4.3.6.7 Alternative G: See 4.3.6.2

### 4.3.7 Predicted Effects on Fisheries (Issue 8):

#### 4.3.7.1 Alternative A: No direct, indirect, or cumulative effects.

#### 4.3.7.2 Alternative B:

- **Direct effects:** Reestablishing motorboat access should not impact the stocked fisheries in Crystal Lake.
- **Indirect effects:** Development would improve access for ice fishing.
- **Cumulative effects:** None

#### 4.3.7.3 Alternative C: See 4.3.7.2

#### 4.3.7.4 Alternative D: See 4.3.7.2

#### 4.3.7.5 Alternative E: See 4.3.7.2

#### 4.3.7.6 Alternative F: See 4.3.7.2

#### 4.3.7.7 Alternative G: See 4.3.7.2

### 4.3.8 Predicted Effects on Wildlife (Issue 9):

#### 4.3.8.1 Alternative A: No direct, indirect, or cumulative effects.

#### 4.3.8.2 Alternative B:

- **Direct effects:** Establishing an FAS on Crystal Lake would impact the wildlife in and around the lake. Constructing an FAS on FWP East Shore property would impact wildlife in the area, as development has not occurred on this property. The proposed access road would be in close proximity to the pond on FWP East Shore property and may impact amphibians, reptiles and other wildlife that use the pond.
- **Indirect effects:** Development would increase access by hunters.
- **Cumulative effects:** None

#### 4.3.8.3 Alternative C: See 4.3.6.2

#### 4.3.8.4 Alternative D:

- **Direct effects:** Establishing an FAS on Crystal Lake would impact the wildlife in and around the lake. The proposed project under these alternatives would impact wildlife on FWP West Shore property that uses this undeveloped land as a refuge. The proposed access road would be in close proximity to the fen and may impact wildlife that uses

the fen. The proposed project under these alternatives would impact wildlife on FWP West Shore property that uses this undeveloped land as a refuge.

- **Indirect effects:** Development would increase access by hunters.
- **Cumulative effects:** None

**4.3.8.5 Alternative E:**

- **Direct effects:** Establishing an FAS on Crystal Lake would impact the wildlife in and around the lake. If the FAS were located near Turtle Cove, it would prevent possible nesting by bald eagles or osprey and could impact nesting of grebes (Gael Bissell, Wildlife Biologist, personal communication, June 18, 2007). The proposed access road would be in close proximity to the fen and may impact wildlife that uses the fen (including amphibians). The proposed project under these alternatives would impact wildlife on FWP West Shore property that use this undeveloped land as a refuge.
- **Indirect effects:** Development would increase access by hunters.
- **Cumulative effects:** None

**4.3.8.6 Alternative F:** See 4.3.8.4

**4.3.8.7 Alternative G:** See 4.3.8.5

### 4.3.9 Predicted Effects <u>Common Loon</u> (Issue 11):

**4.3.9.1 Alternative A:** No direct, indirect, or cumulative effects.

**4.3.9.2 Alternative B:** No direct, indirect, or cumulative effects.

**4.3.9.3 Alternative C:** No direct, indirect, or cumulative effects.

**4.3.9.4 Alternative D:** No direct, indirect, or cumulative effects.

**4.3.9.5 Alternative E:**

- **Direct effects:** If the FAS were located near Turtle Cove, it would prevent future or potential nesting of common loons (Gael Bissell, Wildlife Biologist, personal communication, June 18, 2007).
- **Indirect effects:** None
- **Cumulative effects:** None

**4.3.9.6 Alternative F:** No direct, indirect, or cumulative effects.

**4.3.9.7 Alternative G:** See 4.3.9.5

### 4.3.10 Predicted Effects on <u>Noise Effects</u> (Issue 12):

#### 4.3.10.1 Alternative A: No direct, indirect, or cumulative effects.

#### 4.3.10.2 Alternative B:

- **Direct effects:** This alternative would increase noise on Lakeshore Drive due to an increase in traffic. Under this alternative the access road, the parking area, and boat launch would be in direct view of the adjacent landowner. This would cause a potentially significant increase in noise for the adjacent landowner. The FAS is intended to replace a private boat launch that allowed public access; therefore, the boat traffic on Crystal Lake and resulting noise should not increase.
- **Indirect effects:** None
- **Cumulative effects:** None

#### 4.3.10.3 Alternative C:

- **Direct effects:** This alternative would increase noise on Lakeshore Drive due to an increase in traffic. This alternative was developed to mitigate some of the noise impact on the adjacent landowner. Under this alternative, the access road would not be visible to the adjacent landowner. The parking area and boat launch would be in view of the adjacent landowner and would cause an increase in noise for the adjacent landowner. The FAS is intended to replace a private boat launch that allowed public access; therefore, the boat traffic on Crystal Lake and resulting noise should not increase.
- **Indirect effects:** None
- **Cumulative effects:** None

#### 4.3.10.4 Alternative D:

- **Direct effects:** This alternative would increase noise on Rainbow Lake Road due to an increase in traffic. Noise would also increase on the access road through Plum Creek Timberlands, L.P., property, DNRC property, and FWP West Shore property. There are a few residences on these roads and the increase in noise from traffic would impact them. The increase in noise may minimally affect wildlife. The West Shore site is not located near any residences and thus the noise impact from the parking area and boat launch should not impact any residences. The FAS is intended to replace a private boat launch that allowed public access; therefore, the boat traffic on Crystal Lake and resulting noise should not increase.
- **Indirect effects:** None
- **Cumulative effects:** None

#### 4.3.10.5 Alternative E:

- **Direct effects:** This alternative would increase noise on Rainbow Lake Road due to an increase in traffic. Noise would also increase on the access road through Plum Creek Timberlands, L.P., property, DNRC property, and FWP West Shore property. There are a few residences

on these roads and the increase in noise from traffic would impact them. The increase in noise may minimally affect wildlife. The Turtle Cove site is not located near any residences and thus the noise impact from the parking area and boat launch should not impact any one residence. However, the FAS would be located on a point of land that is visible by many residences on Crystal Lake. It would be likely that noise from the parking area and boat launch could be heard around the lake and thus affect many residences. The FAS is intended to replace a private boat launch that allowed public access; therefore, the boat traffic on Crystal Lake and resulting noise should not increase.

- **Indirect effects:** None
- **Cumulative effects:** None

**4.3.10.6 Alternative F:**

- **Direct effects:** This alternative would increase noise on Lakeshore Drive and East Crystal Lake Road due to an increase in traffic. Noise would also increase on the access road on FWP West Shore property. There are no residences on this road, but the increase in noise may minimally affect wildlife. The West Shore site is not located near any residences and thus the noise impact from the parking area and boat launch should not impact any residences. The FAS is intended to replace a private boat launch that allowed public access; therefore, the boat traffic on Crystal Lake and resulting noise should not increase.
- **Indirect effects:** None
- **Cumulative effects:** None

**4.3.10.7 Alternative G:**

- **Direct effects:** This alternative would increase noise on Lakeshore Drive and East Crystal Lake Road due to an increase in traffic. Noise would also increase on the access road on FWP West Shore property. There are no residences on this road, but the increase in noise may minimally affect wildlife. The Turtle Cove site is not located near any residences and thus the noise impact from the parking area and boat launch should not impact any one residence. However, the FAS would be located on a point of land that is visible by many residences on Crystal Lake. It would be likely that noise from the parking area and boat launch could be heard around the lake and thus affect many residences. The FAS is intended to replace a private boat launch that allowed public access; therefore, the boat traffic on Crystal Lake and resulting noise should not increase.
- **Indirect effects:** None
- **Cumulative effects:** None

### 4.3.11 Predicted Effects on <u>Land Use</u> (Issue 13):

**4.3.11.1 Alternative A:** No direct, indirect, or cumulative effects.

#### 4.3.11.2 Alternative B:

- **Direct effects**: There would be an increase in public use on this land, which may alter profitability of the existing land use in the area and may have adverse effects on the adjacent residence to the FAS. Increased public access sometimes results in increased pollution, noise, vandalism, fire threat, safety hazards, dust, weeds, trespass, and theft. The proposed FAS would be within 200 feet of the adjacent residence. This would impact the adjacent residence by potentially increasing pollution, noise, vandalism, fire threat, safety hazards, dust, weeds, trespass, and theft. FWP does not think these impacts would rise to the level of significant (according to ARM 12.2.431) as the probability that the impacts would occur is low; the impacts would not be severe, long in duration, or geographically extensive; and the impacts would not occur frequently. In FWP's experience, these impacts have occurred on FASs and have not occurred on adjacent private property. Through experience, FWP has identified how to mitigate these potential impacts as discussed in Section 2.2.2.2.
- **Indirect effects:** None
- **Cumulative effects:** None

#### 4.3.11.3 Alternative C: See 4.3.11.2

#### 4.3.11.4 Alternative D:

- **Direct effects:** There would be an increase in public use on this land, which may alter profitability of the existing land use in the area. Increased public access sometimes results in increased pollution, noise, vandalism, fire threat, safety hazards, dust, weeds, trespass, and theft.
- **Indirect effects:** None
- **Cumulative effects:** None

#### 4.3.11.5 Alternative E: See 4.3.11.4

#### 4.3.11.6 Alternative F: See 4.3.11.4

#### 4.3.11.7 Alternative G: See 4.3.11.4

### 4.3.12 Predicted Effects on <u>Risk of Human Health Hazard</u> (Issue 14):

#### 4.3.12.1 Alternative A: No direct, indirect, or cumulative effects.

#### 4.3.12.2 Alternative B:

- **Direct effects:** This alternative would construct a boat launch within 200 feet of adjacent landowner's dock. This action would increase the threat of water safety hazards.

- **Indirect effects:** Weed management would increase the risk of spilling herbicides. Developing an FAS with a boat launch in an area that is undeveloped would increase the risk of petroleum products entering the water. Construction of a new road and FAS in an undeveloped area would increase the threat of wildland fire. Constructing a new road would increase the potential for traffic accidents.
- **Cumulative effects:** None

**4.3.12.3 Alternative C:** See 4.3.12.2

**4.3.12.4 Alternative D:**
- **Direct effects:** None
- **Indirect effects:** Weed management would increase the risk of spilling herbicides. Developing an FAS with a boat launch in an area that is undeveloped would increase the risk of petroleum products entering the water. Construction of a new road and FAS in an undeveloped area would increase the threat of wildland fire. Constructing a new road would increase the potential for traffic accidents.
- **Cumulative effects:** None

**4.3.12.5 Alternative E:** See 4.3.12.4

**4.3.12.6 Alternative F:** See 4.3.12.4

**4.3.12.7 Alternative G:** See 4.3.12.4

### 4.3.13 Predicted Effects on <u>Community Impact</u> (Issue 15):

**4.3.13.1 Alternative A:** No direct, indirect, or cumulative effects.

**4.3.13.2 Alternative B:**
- **Direct effects:** Developing an FAS on Crystal Lake would increase the human density at that site. Developing an FAS on Crystal Lake would reestablish public access to the lake that was previously available at a private boat launch. Developing an FAS on Crystal Lake would shift boat access from the private boat launch to the new site. Residents in the area of the new entrance road, access road, and/or FAS may dislike the changes in use patterns caused by developing the site. Traffic would increase on Lakeshore Drive. There would be an increase in traffic turning off Highway 2 onto Lakeshore Drive.
- **Indirect effects:** None
- **Cumulative effects:** None

**4.3.13.3 Alternative C:** See 4.3.13.2

**4.3.13.4 Alternative D:**

- **Direct effects:** Developing an FAS on Crystal Lake would increase the human density at that site. Developing an FAS on Crystal Lake would reestablish public access to the lake that was previously available at a private boat launch. Developing an FAS on Crystal Lake would shift boat access from the private boat launch to the new site. Residents in the area of the new entrance road, access road, and/or FAS may dislike the changes in use patterns caused by developing the site. Traffic would increase on Rainbow Lake Road. There would be an increase in traffic turning off Highway 2 onto Rainbow Lake Road.
- **Indirect effects:** None
- **Cumulative effects:** None

**4.3.13.5 Alternative E:** See 4.3.13.4

**4.3.13.6 Alternative F:**

- **Direct effects:** Developing an FAS on Crystal Lake would increase the human density at that site. Developing an FAS on Crystal Lake would reestablish public access to the lake that was previously available at a private boat launch. Developing an FAS on Crystal Lake would shift boat access from the private boat launch to the new site. Residents in the area of the new entrance road, access road, and/or FAS may dislike the changes in use patterns caused by developing the site. Traffic would increase on Lakeshore Drive and East Crystal Lake Road. There would be an increase in traffic turning off Highway 2 onto Lakeshore Drive.
- **Indirect effects:** None
- **Cumulative effects:** None

**4.3.13.7 Alternative G:** See 4.3.13.6

### 4.3.14 Predicted Effects on <u>Public Services</u> (Issue 16):

**4.3.14.1 Alternative A:** No direct, indirect, or cumulative effects.

**4.3.14.2 Alternative B:**

- **Direct effects:** It would cost approximately $4,000 per year to maintain an FAS on Crystal Lake. This value would change depending on the alternative selected. For example, a longer access road would increase the maintenance costs. Montana Fish, Wildlife & Parks would assume responsibility for routine maintenance of the site, including restroom cleaning and stocking, vault toilet pumping, boat launch maintenance, sign installation and maintenance, road maintenance, trail maintenance, litter and refuse pick up, mowing and brushing, fence maintenance, and general site upkeep. The proposed FAS would be open only during daylight hours. FWP would implement weed control measures and/or contract with Lincoln County Weed Department.

Enforcement of public use regulations at the site would be assumed by the FWP Enforcement Division.

- **Indirect effects:** Traffic would increase on county roads, which may lead to increased maintenance of these roads by Lincoln County. The proposed project will not generate any income.
- **Cumulative effects:** None

**4.3.14.3 Alternative C:** See 4.3.14.2

**4.3.14.4 Alternative D:** See 4.3.14.2

**4.3.14.5 Alternative E:** See 4.3.14.2

**4.3.14.6 Alternative F:** See 4.3.14.2

**4.3.14.7 Alternative G:** See 4.3.14.2

### 4.3.15 Predicted Effects on <u>Aesthetics</u> (Issue 17):

**4.3.15.1 Alternative A:** No direct, indirect, or cumulative effects.

**4.3.15.2 Alternative B:**

- **Direct effects:** The East Shore site would be located on an undeveloped portion of the east shore of Crystal Lake. The boat launch would be visible to many residences around the lake. The parking area would be located up higher on the bank in a grove of trees and would be partially hidden from view around the lake. The parking area and boat launch would be located 200 feet from an adjacent residence.
- **Indirect effects:** None
- **Cumulative effects:** None

**4.3.15.3 Alternative C:** See 4.3.15.2

**4.3.15.4 Alternative D:**

- **Direct effects:** The West Shore site would be located along an undeveloped shoreline. The boat launch at the West Shore site would be located in a slight cove, making it partially hidden from view around the lake. The parking area at the West Shore site would be located up higher on the bank in a grove of trees, again making it partially hidden from view around the lake.
- **Indirect effects:** None
- **Cumulative effects:** None

**4.3.15.5 Alternative E:**

- **Direct effects:** The Turtle Cove site would be located along an undeveloped shoreline. The boat launch at the Turtle Cove site would

be located on a point of land that is highly visible from numerous residences around Crystal Lake. The parking area would be located up the bank from the boat launch, and would be visible from numerous residences around the lake.

- **Indirect effects:** None
- **Cumulative effects:** None

**4.3.15.6 Alternative F:** See 4.3.15.4

**4.3.15.7 Alternative G:** See 4.3.15.5

### 4.3.16 Predicted Effects on Recreation (Issue 18):

**4.3.16.1 Alternative A:**

- **Direct effects:** Not reestablishing access would decrease recreation on the lake by landowners and other recreationists.
- **Indirect effects:** None
- **Cumulative effects:** None

**4.3.16.2 Alternative B:**

- **Direct effects:** The proposed project would positively impact the tourism & recreation industry economy and improve the quality and quantity of tourism and recreational opportunities (Appendix 2, Tourism Report).
- **Indirect effects:** None
- **Cumulative effects:** None

**4.3.16.3 Alternative C:** See 4.3.16.2

**4.3.16.4 Alternative D:** See 4.3.16.2

**4.3.16.5 Alternative E:** See 4.3.16.2

**4.3.16.6 Alternative F:** See 4.3.16.2

**4.3.16.7 Alternative G:** See 4.3.16.2

### 4.3.17 Predicted Effects on Cultural and Historical Resources (Issue 19):

**4.3.17.1 Alternative A:** No direct, indirect, or cumulative effects.

**4.3.17.2 Alternative B:** FWP received recommendations from the State Historic and Preservation office (SHPO; letter dated September 14, 2007) on the impacts to cultural and historical resources. SHPO stated, “Based on the lack of previous inventory and the ground disturbance required by this undertaking, we feel that this project has the potential to impact cultural properties. We, therefore, recommend that a cultural resource inventory be

conducted in order to determine whether or not sites exist if they will be impacted." Original letter is on file at the FWP Bureau of Design and Construction.

**4.3.17.3 Alternative C:** See 4.3.17.2

**4.3.17.4 Alternative D:** See 4.3.17.2

**4.3.17.5 Alternative E:** See 4.3.17.2

**4.3.17.6 Alternative F:** See 4.3.17.2

**4.3.17.7 Alternative G:** See 4.3.17.2

**4.3.18 Predicted Effects on Public Controversy (Issue 20):** During public scoping, 83 public comments were collected in written form. Of these, 37 were in favor of developing the site on the East Shore property, 30 were in favor of developing the FAS on the West Shore property, and seven were in favor of not developing an FAS on Crystal Lake. In addition, there were many comments opposing locating the site on the East Shore property and/or the West Shore property. A summary of these comments is located in Appendix 4. Prior to release of this EA there was much debate and controversy surrounding this project. It is assumed the release of this EA for public comment would generate debate and controversy. There is a potential for legal action by private citizens toward this action.

# 5.0 Public Participation

**1. The public would be notified in the following ways to comment on the EA for the Crystal Lake Proposed Fishing Access Site Development Project:**

- Legal notices would be published in the Kalispell Daily Inter Lake, Libby Western News, and Helena Independent Record.
- Legal notice and the draft EA would be posted on the FWP web site: http://fwp.mt.gov/publicnotices.
- Direct notice would be given to adjacent landowners.
- Draft EAs would be available at the Region 1 headquarters in Kalispell and the FWP State Headquarters in Helena.

This level of public involvement is appropriate for a project of this scale.

**2. Duration of comment period, if any:**

The public comment period would be 30 days. Comments may be emailed to dlandstrom@mt.gov, or written comments may be sent to the following address:

Dave Landstrom
Regional Parks Manager
FWP, Region 1
490 North Meridian Road
Kalispell, MT 59901
406-751-4574

# 6.0 List of Individuals Associated With the Project

**Preparers:**

| | |
|---|---|
| Sally Schrank | Independent Contractor |
| Dave Landstrom | Parks Manager, FWP, Region 1 |
| Allan Kuser | FAS Coordinator, FWP Headquarters |
| Rebecca Cooper | MEPA Coordinator, FWP Headquarters |

**Internal Reviewers:**

| | |
|---|---|
| Gael Bissell | Wildlife Biologist, FWP, Region 1 |
| Darlene Edge | Land Conservation Specialist, FWP Headquarters |
| Amy Grout | Park Management Specialist, FWP, Region 1 |
| Mike Hensler | Fisheries Biologist, FWP, Region 1 |
| Bardel Mangum | Landscape Architect, FWP Design and Construction Bureau |
| Mark Mcnearney | Civil Engineer Specialist, FWP Design and Construction Bureau |
| Kent Laudon | Wolf Management Specialist, FWP, Region 1 |
| Martha Williams | Legal Counsel, FWP Headquarters |
| Jim Vashro | Regional Fisheries Manager, FWP, Region 1 |

# 7.0 List of Agencies Consulted

Department of Natural Resources and Conservation
Northwest Lands Office
2250 Highway 93 North
Kalispell, MT 59901
Norm Kinnen

Kootenai National Forest
1101 Highway 2 West
Libby, MT 59923

Lincoln County Roads Department
Libby, MT
406-293-7781, ext 248

Montana Fish, Wildlife & Parks
Parks Division, Region 1
Wildlife Division, Region 1
Fisheries Division, Region 1
Lands Section
Design and Construction Bureau

Montana Department of Commerce - Tourism
PO Box 200533
1424 9th Avenue
Helena, MT 59620-0533

Montana Natural Heritage Program - Natural Resources Information System
PO Box 201800
1515 East Sixth Avenue
Helena, MT 59620-1800

Plum Creek Timberlands, L.P.
Flathead Unit
2050 Highway 2 West
Kalispell, MT 59901
Randy Avery

State Historic Preservation Office
Montana Historical Society
1410 8th Avenue
Helena, MT 59620

US Fish and Wildlife Service
Montana Ecological Services Field Office, Kalispell Suboffice
780 Creston Hatchery Road
Kalispell, MT 59901

US Fish and Wildlife Service
Montana Ecological Services Field Office
Northern Rocky Mountain Gray Wolf Recovery Program
585 Shephard Way
Helena, MT 59601

# 8.0 References

Greenlee, J. and M. Jones. 2000. Ecological inventory of wetland sites in the Thompson Chain of Lakes and vicinity. Unpublished report to the Montana Department of Fish, Wildlife & Parks. Montana Natural Heritage Program. Helena, MT. 21pp.

Hendricks, P. 2000. Amphibian and reptile survey of the Thompson Chain of Lakes. A report to the Montana Department of Fish, Wildlife & Parks. Montana Natural Heritage Program. Helena, MT. 12pp.

Montana Fish, Wildlife & Parks, 1995. Thompson Chain of Lakes Site Specific Environmental Assessment. Montana Fish, Wildlife & Parks, Region 1. Kalispell, MT. 13pp.

Montana Fish, Wildlife & Parks, May 1996. Environmental Assessment Decision Notice and Finding of No Significant Impact, Thompson Chain of Lakes Inventory and Guidelines for Recreational Planning. Montana Fish, Wildlife & Parks, Region 1. Kalispell, MT. 9pp.

Montana Fish, Wildlife & Parks, May 1997. Thompson Chain of Lakes Fisheries Management Plan. Montana Fish, Wildlife & Parks, Region 1. Kalispell, MT. 66pp.

Montana Fish, Wildlife & Parks, May 2006. Thompson Chain of Lakes Management Plan Update. Montana Fish, Wildlife & Parks, Region 1. Kalispell, MT. 89pp.

# APPENDIX 1
## HB495
## PROJECT QUALIFICATION CHECKLIST

**Date:** August 1, 2007 **Person Reviewing:** Sally Schrank
**Project Location:** Crystal Lake is located in the Thompson Chain of Lakes Fishing Access Site complex off Highway 2 approximately 50 miles west of Kalispell in Lincoln County. FWP owns two parcels of land on Crystal Lake. On the east side of the lake, FWP owns 72.27 acres in Township 27 North, Range 27 West, Section 19. On the west side of the lake, FWP owns 162.89 acres in Township 27 North, Range 28 West, Section 25. FWP proposes to develop an FAS at one of four locations around Crystal Lake that will be referred to as Happy's Inn site, East Shore site, West Shore site, and Turtle Cove site.

**Description of Proposed Work:** FWP proposes to develop an FAS on existing property at Crystal Lake. Development would include an access road, parking area (6-10 parking spots), concrete boat launch, and latrine. Three sites on Crystal Lake have been identified as suitable locations for an FAS from an engineering standpoint (i.e., East Shore site, West Shore site, and Turtle Cove site). The differences among the sites are the cost and the impact to the physical and human environment. For the East Shore site, West Shore site, and Turtle Cove site, different access roads have been investigated to minimize cost or impacts to the human environment.

The following checklist is intended to be a guide for determining whether a proposed development or improvement is of enough significance to fall under HB495 rules. (Please check all that apply and comment as necessary.)

[Y] A. New roadway or trail built over undisturbed land?
Comments: All of the six action alternatives considered would include constructing a new access road over undisturbed land.

| | |
|---|---|
| East Shore site, short access road: | 0.1 miles of new road |
| East Shore site, long access road: | 0.1 miles of new road |
| West Shore site, Rainbow Lake Road: | 0.1 miles of new road |
| Turtle Cove site, Rainbow Lake Road: | 0.4 miles of new road |
| West Shore site, East Crystal Lake Road: | 0.1 miles of new road |
| Turtle Cove site, East Crystal Lake Road: | 0.4 miles of new road |

[ ] B. New building construction (buildings <100 sf and vault latrines exempt)?
Comments:

[Y] C. Any excavation of 20 c.y. or greater?
Comments: All six action alternatives would include an excavation of 20 c.y. or greater to construct the access road and parking area.

[Y] D. New parking lots built over undisturbed land or expansion of existing lot that increases parking capacity by 25% or more?

Comments: All six action alternatives would include constructing a new parking area on undisturbed land (6-10 parking spots).

[ ] E. Any new shoreline alteration that exceeds a doublewide boat ramp or handicapped fishing station?
Comments:

[Y ] F. Any new construction into lakes, reservoirs, or streams?
Comments: Proposed project would construct a boat ramp into Crystal Lake.

[ ] G. Any new construction in an area with National Registry quality cultural artifacts (as determined by State Historical Preservation Office)?
Comments:

[ ] H. Any new above ground utility lines?
Comments:

[ ] I. Any increase or decrease in campsites of 25% or more of an existing number of campsites?
Comments:

[Y ] J. Proposed project significantly changes the existing features or use pattern, including effects of a series of individual projects?
Comments: Proposed project would change use patterns at site from primitive/undeveloped to accessible and developed

**If any of the above are checked, HB 495 rules apply to this proposed work and should be documented on the MEPA/HB495 CHECKLIST. Refer to MEPA/HB495 Cross Reference Summary for further assistance.**

# APPENDIX 2
## TOURISM REPORT
## MONTANA ENVIRONMENTAL POLICY ACT (MEPA)/HB495

The Montana Department of Fish, Wildlife & Parks has initiated the review process as mandated by HB495 and the Montana Environmental Policy Act in its consideration of the project described below. As part of the review process, input and comments are being solicited. Please complete the project name, project description portions, and submit this form to:

Carol Crockett, Tourism Development Specialist
Travel Montana-Department of Commerce
PO Box 200533
301 South Park
Helena, MT 59620-0533

Project Name: Crystal Lake Proposed Fishing Access Site Development Project
**Project Description:** Crystal Lake is located in the Thompson Chain of Lakes Fishing Access Site complex off Highway 2 approximately 50 miles west of Kalispell in Lincoln County. FWP owns two parcels of land on Crystal Lake. On the east side of the lake, FWP owns 72.27 acres in Township 27 North, Range 27 West, Section 19. On the west side of the lake, FWP owns 162.89 acres in Township 27 North, Range 28 West, Section 25. FWP proposes to develop an FAS at one of three locations around Crystal Lake that will be referred to as East Shore Site, West Shore Site, and Turtle Cove Site. FWP proposes to develop an FAS on existing property at Crystal Lake. Development would include an access road, parking area (6-10 parking spots), concrete boat launch, and latrine. Three sites on Crystal Lake have been identified as suitable locations for an FAS, from an engineering standpoint (i.e. East Shore Site, West Shore Site, and Turtle Cove Site). The differences among the sites are the cost and the impact to the physical and human environment. For the East Shore Site, West Shore Site, and Turtle Cove Site, different access roads have been investigated to minimize cost or impacts to the human environment.

1. Would this site development project have an impact on the tourism economy?
   NO **YES** If YES, briefly describe:

As described, the project has the potential to positively impact the tourism & recreation industry economy.

2. Does this impending improvement alter the quality or quantity of recreation/tourism opportunities and settings?
   NO YES If **YES**, briefly describe:

As described, the project would improve the quality and quantity of tourism & recreational opportunities,

Signature: Carol Crockett Date: August 23, 2007

# Appendix 3

**MONTANA FISH, WILDLIFE & PARKS**
**BEST MANAGEMENT PRACTICES FOR FISHING ACCESS SITES**
**10-02-02**

## I. ROADS

A. Road Planning and location

1. Minimize the number of roads constructed at the FAS through comprehensive road planning and recognizing foreseeable future uses.
2. Use existing roads, unless use of such roads would cause or aggravate an erosion problem.
3. Fit the road to the topography by locating roads on natural benches and following natural contours. Avoid long, steep road grades and narrow canyons.
4. Locate roads on stable geology, including well-drained soils and rock formations that tend to dip into the slope. Avoid slumps and slide-prone areas characterized by steep slopes, highly weathered bedrock, clay beds, concave slopes, hummocky topography, and rock layers that dip parallel to the slope. Avoid wet areas, including seeps, wetlands, wet meadows, and natural drainage channels.
5. Minimize the number of stream crossings.
6. Choose stable stream crossing sites. "Stable" refers to streambanks with erosion-resistant materials and in hydrologically safe spots.

B. Road Design

1. Design roads to the minimum standard necessary to accommodate anticipated use and equipment. The need for higher engineering standards can be alleviated through proper road-use management. "Standard" refers to road width.
2. Design roads to minimize disruption of natural drainage patterns. Vary road grades to reduce concentrated flow in road drainage ditches, culverts, and on fill slopes and road surfaces.

C. Drainage from Road Surface

1. Provide adequate drainage from the surface of all permanent and temporary roads. Use outsloped, insloped or crowned roads, installing proper drainage features. Space road drainage features so peak flow on road surface or in ditches will not exceed their capacity.

   a. Outsloped roads provide means of dispersing water in a low-energy flow from the road surface. Outsloped roads are appropriate when fill slopes are stable, drainage will not flow directly into stream channels, and transportation safety can be met.
   b. For in-sloped roads, plan ditch gradients steep enough, generally greater than 2%, but less than 8%, to prevent sediment deposition and ditch erosion. The steeper gradients may be suitable for more stable soils; use the lower gradients for less stable soils.
   c. Design and install road surface drainage features at adequate spacing to control erosion; steeper gradients require more frequent drainage features. Properly constructed drain dips can be an economical method of road surface drainage. Construct drain dips deep enough into the subgrade so that traffic will not obliterate them.

2. For ditch relief/culverts, construct stable catch basins at stable angles. Protect the inflow end of crossdrain culverts from plugging and armor if in erodible soil. Skewing ditch relief culverts 20 to 30 degrees toward the inflow from the ditch will improve inlet efficiency.
3. Provide energy dissipators (rock piles, slash, log chunks, etc.) where necessary to reduce erosion at outlet of drainage features. Crossdrains, culverts, water bars, dips, and other drainage structures should not discharge onto erodible soils or fill slopes without outfall protection.
4. Route road drainage through adequate filtration zones, or other sediment-settling structures. Install road drainage features above stream crossings to route discharge into filtration zones before entering a stream.

D. Construction/Reconstruction

1. Stabilize erodible, exposed soils by seeding, compacting, riprapping, benching, mulching, or other suitable means.
2. At the toe of potentially erodible fill slopes, particularly near stream channels, pile slash in a row parallel to the road to trap sediment. When done concurrently with road construction, this is one method to

effectively control sediment movement and it provides an economical way of disposing of roadway slash. Limit the height, width, and length of these "slash filter windows" so not to impede wildlife movement. Sediment fabric fences or other methods may be used if effective.
3. Construct cut and fill slopes at stable angles to prevent sloughing and subsequent erosion.
4. Avoid incorporating potentially unstable woody debris in the fill portion of the road prism. Where possible, leave existing rooted trees or shrubs at the toe of the fill slope to stabilize the fill.
5. Place debris, overburden, and other waste materials associated with construction and maintenance activities in a location to avoid entry into streams. Include these waste areas in soil stabilization planning for the road.
6. When using existing roads, reconstruct only to the extent necessary to provide adequate drainage and safety; avoid disturbing stable road surfaces. Consider abandoning existing roads when their use would aggravate erosion.

E. Road Maintenance

1. Grade road surfaces only as often as necessary to maintain a stable running surface and to retain the original surface drainage.
2. Maintain erosion control features through periodic inspection and maintenance, including cleaning dips and crossdrains, repairing ditches, marking culvert inlets to aid in location, and clearing debris from culverts.
3. Avoid cutting the toe of cut slopes when grading roads, pulling ditches, or plowing snow.
4. Avoid using roads during wet periods if such use would likely damage the road drainage features. Consider gates, barricades, or signs to limit use of roads during wet periods.

## II. RECREATIONAL FACILITIES (parking areas, campsites, trails, ramps, restrooms)

A. Site Design

1. Design a site that best fits the topography, soil type, and stream character, while minimizing soil disturbance and economically accomplishing recreational objectives. Keep roads and parking lots at least 50 feet from water; if closer, mitigate with vegetative buffers as necessary.
2. Locate foot trails to avoid concentrating runoff and provide breaks in grade as needed. Locate trails and parking areas away from natural drainage systems and divert runoff to stable areas. Limit the grade of trails on unstable, saturated, highly erosive, or easily compacted soils
3. Scale the number of boat ramps, campsites, parking areas, bathroom facilities, etc. to be commensurate with existing and anticipated needs. Facilities should not invite such use that natural features will be degraded.
4. Provide adequate barriers to minimize off-road vehicle use

B. Maintenance: Soil Disturbance and Drainage

1. Maintenance operations minimize soil disturbance around parking lots, swimming areas and campsites, through proper placement and dispersal of such facilities or by reseeding disturbed ground. Drainage from such facilities should be promoted through proper grading.
2. Maintain adequate drainage for ramps by keeping side drains functional or by maintaining drainage of road surface above ramps or by crowning (on natural surfaces).
3. Maintain adequate drainage for trails. Use mitigating measures, such as water bars, wood chips, and grass seeding, to reduce erosion on trails.
4. When roads are abandoned during reconstruction or to implement site-control, they must be reseeded and provided with adequate drainage so that periodic maintenance is not required.

## III. RAMPS AND STREAM CROSSINGS

A. Legal Requirements

1. Relevant permits must be obtained prior to building bridges across streams or boat ramps. Such permits include the SPA 124 permit, the COE 404 permit, and the DNRC Floodplain Development Permit.

B. Design Considerations

1. Placement of boat ramp should be such that boats can load and unload with out difficulty and the notch

in the bank where the ramp was placed does not encourage bank erosion. Extensions of boat ramps beyond the natural bank can also encourage erosion.

2. Adjust the road grade or provide drainage features (e.g. rubber flaps) to reduce the concentration of road drainage to stream crossings and boat ramps. Direct drainage flow through an adequate filtration zone and away from the ramp or crossing through the use of gravel side-drains, crowning (on natural surfaces) or 30-degree angled grooves on concrete ramps.
3. Avoid unimproved stream crossings on permanent streams. On ephemeral streams, when a culvert or bridge is not feasible, locate drive-throughs on a stable, rocky portion of the stream channel.
4. Unimproved (non-concrete) ramps should only be used when the native soils are sufficiently gravelly or rocky to withstand the use at the site and to resist erosion.

C. Installation of Stream Crossings and Ramps

1. Minimize stream channel disturbances and related sediment problems during construction of road and installation of stream crossing structures. Do not place erodible material into stream channels. Remove stockpiled material from high water zones. Locate temporary construction bypass roads in locations where the stream course will have a minimal disturbance. Time construction activities to protect fisheries and water quality.
2. Where ramps enter the stream channel, they should follow the natural streambed in order to avoid changing stream hydraulics and to optimize use of boat trailers.
3. Use culverts with a minimum diameter of 15 inches for permanent stream crossings and cross drains. Proper sizing of culverts may dictate a larger pipe and should be based on a 50-year flow recurrence interval. Install culverts to conform to the natural streambed and slope on all perennial streams and on intermittent streams that support fish or that provide seasonal fish passage. Place culverts slightly below normal stream grade to avoid culvert outfall barriers. Do not alter stream channels upstream from culverts, unless necessary to protect fill or to prevent culvert blockage. Armor the inlet and/or outlet with rock or other suitable material where needed.
4. Prevent erosion of boat ramps and the affected streambank through proper placement (so as to not catch the stream current) and hardening (rip-rap or erosion resistant woody vegetation).
5. Maintain a 1-foot minimum cover for culverts 18-36 inches in diameter, and a cover of one-third diameter for larger culverts to prevent crushing by traffic.

# Appendix 4
# Public Comments Received During Scoping Process for Draft Environmental Assessment Crystal Lake Proposed Fishing Access Site Development Project

| Comment in favor of… | Total |
|---|---|
| East Shore Site long or short access road | 20 |
| East Shore Site short access road | 9 |
| East Shore Site long access road | 8 |
| East Shore Site (total) | 37 |
| West shore sites (West Shore Site or Turtle Cove Site) | 26 |
| West Shore Site | 3 |
| Turtle Cove Site | 1 |
| West shore sites (Total) | 30 |
| No Action | 7 |
| Fishing Access Site with no opinion on location | 3 |
| Other comment | 6 |
| Total comments received | 83 |

**General comments regarding process of developing an FAS on Crystal Lake**

1 Comment period should be longer as some people could not make the meeting (one comment).
2 Comment period should be longer as there were no written documents mailed out to people until May 9 (1 comment).
3 How will an FAS impact the fish population in Crystal Lake (3 comments)?
4 Are current monitoring and fish management techniques adequate to assess impact on fish (3 comments)?
5 Time should be taken on this issue, do not speed up process to get launch in immediately (three comments).
6 Build launch as soon as possible (2 comments).
7 Least costly decision is not always the best (1 comment).
8 The west shore sites were permanently closed in 1999 when EA was written for campsites on the east shore (1 comment).
9 Concerned about impact of no action alternative on stocking fish in the lake (2 comments)
10 What is the lake carrying capacity for boats (1 comment)?
11 There is a concern that a decision has already been made (1 comment).
12 Has FWP studied how busy the lake is (2 comments)?
13 What are the water quality issues involved in this decision (2 comments)?
14 What is the current fishing pressure on the lake (2 comments)?

**General comments *for* creating an FAS on Crystal Lake**

1 A FAS is desired (13 comments).
2 Anglers would like access to the lake away from other residences (1 comment).

3 Loading and unloading boats should not disturbs neighbors or be in view of private homes (7 comments).
4 FAS will need to increase enforcement at whichever site is chosen (1 comment).
5 Need to limit jet skis if FAS is developed (1 comment).
6 Jet skiers would like access to lake (1 comment).
7 Crystal Lake needs FAS, it is public water, and fish are public goods (4 comments).
8 Happy's Inn rarely had more than three boat trailers at a time (2 comments).
9 FAS should have a small parking area for such a small lake (3 comments).
10 FAS should have a concrete boat ramp (2 comments).
11 FAS will need a latrine (2 comments).
12 Crystal Lake only gets a large amount of use for 3 to 4 weekends a year (1 comment).

**General Comments *against* creating an FAS on Crystal Lake**

1 FAS would increase public use and congestion that the lake cannot handle (8 comments).
2 FAS would increase jet skis, wave runners, wake boards, and water ski boats that are not desirable (3 comments).
3 FAS would increase pollution (3 comments).
4 FAS would increase noise (2 comments).
5 Ice fishing access is not needed from an FAS, as there is currently ice-fishing access (1 comment).
6 FAS would increase shoreline erosion (1 comment).
7 FAS would increase rowdiness (1 comment).
8 FAS would increase vandalism (1 comment).
9 FAS would negatively impact loons and eagles (1 comment).
10 FAS would increase fire threat (1 comment).
11 FAS would degrade water quality (3 comments).
12 FAS would increase auto and boat traffic (2 comments).
13 FAS would increase safety hazards (3 comments).
14 FAS would increase wake issues (1 comment).
15 FAS would increase dust (2 comments).
16 More public boat launches are not needed in Thompson Chain of Lakes (one comment).
17 Lake residents do not want boat ramp (1 comment).
18 Fishing is not good, so anglers do not need access (1 comment).
19 No action is the best (7 comments).

**Comments *for* creating an FAS at the East Shore Site on Crystal Lake**

1 A FAS at East Shore Site will minimally affect adjacent landowner as it is far enough away (three comments).
2 Adjacent landowner knew he was purchasing land next to public land (3 comments).
3 East Shore Site would have easy access for boat trailers (4 comments).
4 The lake depth at East Shore Site is good for boat launching (4 comments).
5 The East Shore Site has plenty of flat room for FAS parking area (1 comment).
6 The slope of the land to the lake at East Shore Site is gentle (1 comment).
7 Developing an access road into East Shore Site would be less costly as there would be little road construction (11 comments).

8 There is public access to FWP East Shore Property and no easement issues to resolve (4 comments).
9 The fewest number of people would be impacted by placing an FAS at East Shore Site (9 comments).
10 A FAS at East Shore Site is close to residences that could police or supervise use at the site (5 comments).
11 Emergency vehicles would have quick access to an FAS at East Shore Site due to its close proximity to Highway 2 (8 comments).
12 A FAS at East Shore Site would allow for better ice fishing access (4 comments).
13 Development of the FAS at East Shore Site could mitigate the adjacent landowner's impact by building the boat launch as far away as possible (1 comment).
14 Development of the FAS at East Shore Site could mitigate the adjacent landowner's impact by making it day use only (1 comment).
15 Development of the FAS at East Shore Site could mitigate the adjacent landowner's impact by not permitting fires (1 comment).
16 Development of the FAS at East Shore Site could mitigate the adjacent landowner's impact by restricting water skiing from the public dock (1 comment).
17 Development of the FAS at East Shore Site could mitigate the adjacent landowner's impact by building a privacy fence or other buffer (trees, shrubs, or some combination; 3 comments).
18 Development of the FAS at East Shore Site could mitigate the adjacent landowner's impact by constructing a small parking area (6 spaces) and a latrine (2 comments).
19 Development of the FAS at East Shore Site could mitigate the adjacent landowner's impact by not developing camping (5 comments).
20 Development of the FAS at East Shore Site could mitigate the adjacent landowner's impact by not installing picnic tables (1 comment).
21 Development of the FAS at East Shore Site could mitigate the adjacent landowner's impact by paving the road for the East Shore Site Short Access road alternative (1 comment).
22 A FAS at East Shore Site would provide easy access near a paved road and good visibility from US Highway 2 (9 comments).
23 A FAS at East Shore Site would isolate use to the east side where there is already traffic (1 comment).
24 The East Shore Site Long Access Road alternative would have the least impact on wetlands than the East Shore Site Short Access Road alternative (6 comments).
25 The East Shore Site Short Access road alternative is the best as the access road is the shortest (6 comments).
26 FWP East Shore Property is not conducive to picnicking, partying, water skiing, and camping like the Turtle Cove Site and West Shore site. The East Shore Site is only conducive to boat launching (1 comment).
27 A FAS at the East Shore Site would have the least impact on wildlife (1 comment).
28 One landowner should not control FWP decision (3 comments).

**Comments *against* creating an FAS at the East Shore Site on Crystal Lake**

1 A FAS at East Shore Site would negatively affect adjacent landowner with dust, noise, fire, litter, traffic noise, rowdy behavior, trespass, theft, and unleashed dogs (17 comments).

2 A FAS at East Shore Site would be too close to an adjacent landowner (21 comments).
3 The East Shore Site area is too congested and an FAS located there would cause safety hazards (5 comments).
4 A boat launch at East Shore Site would be too close to an adjacent landowner's dock, and this close proximity may cause safety issues for skiers, boaters, and swimmers in the area (6 comments).
5 A FAS at East Shore Site would decrease adjacent landowner's property value (6 comments)
6 A FAS at East Shore Site would prevent wildlife from reaching water (1 comment).
7 A FAS at East Shore Site would negatively affect lake turtles and their nesting in a pond on East Shore Property (6 comments).
8 A FAS at East Shore Site would negatively affect osprey that previously had a nest on FWP East Shore Property (2 comments).
9 There is currently too much development on the east side of Crystal Lake, and there should not be any more (1 comment).
10 Development at the East Shore Site would remove old growth trees (2 comments)
11 A FAS at East Shore Site would lead to conflicts of use with the adjacent landowner (3 comments).
12 A boat launch at East Shore Site would create a conflict with the 200 feet No Wake Rule on Crystal Lake (7 comments).
13 A FAS at East Shore Site would cause and unacceptable loss of privacy for the adjacent landowner (8 comments).
14 A FAS at East Shore Site would result in a costly lawsuit (4 comments).
15 A FAS at East Shore Site would increase need for enforcement of rules (1 comment).

**Comments *for* creating an FAS at one of the west shore sites (Turtle Cove Site and West Shore Site) on Crystal Lake**

1 The west shore options are far from residences and surrounded by state land and there is more area to work with compared to the east shore option (20 comments).
2 The west shore sites are safe for access (4 comments).
3 The West Shore Site is more cost effective than Turtle Cove (one comment).
4 Development at the west shore sites would not remove old growth trees (1 comment).
5 Most boat traffic is already on west shore (2 comments).
6 A west shore ramp would have impact that is equal on residences around the lake (4 comments).
7 Constructing an access road into the west shore sites from the south side of Crystal Lake will have the least impact on homeowners (5 comments).
8 FWP should work out easement issues to allow for west shore development of an FAS (4 comments)
9 Access to the west shore sites via Upper Thompson road has the least impact on homeowners (2 comments).
10 An FAS on the west shore would allow for minimal contact between recreationists and landowners (15 comments).
11 The west shore would be easy access for boaters due to depth (4 comments).

12 A west shore FAS would allow for the potential of camping in the future (1 comment).
13 The west shore sites will have no impact on private landowners (3 comments).
14 The West Shore Site is the safest for boat traffic and water sports as there is nothing else competing for the shoreline (1 comment).

**Comments *against* creating an FAS at one of the west shore sites (Turtle Cove Site and West Shore Site) on Crystal Lake**

1 The depth on the west shore is not suitable for boat launching (2 comments).
2 Access to the west shore sites via Upper Thompson road is long and circuitous and there are right of way issues to be resolved with Plum Creek Timber, L.P. and DNRC (3 comments).
3 Resolving the easement issues to access the west shore sites is too costly (9 comments).
4 No FAS on the west shore. FWP should preserve the natural shoreline (10 comments).
5 An FAS on the west shore would have an unacceptable impact on wildlife (turtles, otters, ducks, bear, deer, moose, loons, grebes; 10 comments)
6 An FAS on the west shore would cause law enforcement issues due to the remoteness (5 comments).
7 Crystal Lake Road cannot handle an increase in traffic that placement of an FAS on the west shore would cause (2 comments).
8 The proposed entry and access roads to an FAS on the west shore are too long and costly to maintain (8 comments).
9 The proposed length of entry roads to the west shore sites would be difficult for EMS and fire vehicles (5 comments).
10 Building a bridge over Upper Thompson Lake to access the west shore sites is too costly (1 comment).
11 Boat launching on the west shore will negatively affect good fishing in this area (1 comment).
12 The west shore option would require too much road building and be too costly (2 comments).
13 Due to the remoteness of the west shore sites, it would be difficult to manage fire and camping restrictions (6 comments).

**Comments *for* creating an FAS at Turtle Cove Site on Crystal Lake**

1 Turtle Cove Site has the potential for day use including picnicking, swimming, boat launching, and latrine.

**Comments *against* creating an FAS at Turtle Cove Site on Crystal Lake**

1 Turtle Cove is secluded, unique, and private and it should remain in this condition (13 comments).
2 The entry road (Crystal Lake Road) cannot handle an increase in traffic from developing an FAS at Turtle Cove Site (one comment).
2 Access to the Turtle Cove Site via Upper Thompson road is long and circuitous and there are right of way issues to be resolved with Plum Creek Timber, L.P. and DNRC and the cost of a new bridge to be considered (2 comments).
3 Turtle cove is too shallow for a boat launch (9 comments).

4 Turtle Cove is sandy and a boat launch located there would add constant sediment and turbidity to the lake (5 comments).
5 A FAS in Turtle Cove would cause erosion issues (2 comments).
6 Turtle cove is a popular swim area and would not be good for a boat launch due to safety issues (6 comments).
7 A FAS in Turtle Cove will increase enforcement need.
8 Constructing an FAS in Turtle Cove will affect wildlife at an unacceptable level (turtles, otters, waterfowl, frogs, bear, deer, moose, coyotes, wolves; 15 comments).
9 A FAS at Turtle Cove Site would affect loon, geese, duck, and grebe nesting areas and fall layover areas (9 comments).
10 There are already problems with day users leaving campfires burning and trash at Turtle Cove and developing an FAS would exacerbate the problem (1 comment).
11 Length of entry roads into Turtle Cove Site would be difficult for EMS and fire vehicles (6 comments)
12 Cost of road building and maintenance is too high for developing an FAS at Turtle Cove Site (6 comments).
13 Snow will cause road closure earlier in the season at Turtle Cove Site compared to the other sites (1 comment).
14 Due to the easement issues for access to the property, purchasing land is too costly (3 comments).
15 Do not construct an FAS at Turtle Cove Site. Preserve natural shoreline (5 comments).
16 A FAS at Turtle Cove Site would be visible to all cottages around the lake (1 comment).
17 Increase in traffic on access route to Turtle Cove Site FAS will create dust and air quality problems may lead to need for dust abatement (2 comments).
18 Maintenance and snow removal of Crystal Lake Road is currently done by private landowners (1 comment).
19 A FAS at Turtle Cove site will not have winter access (1 comment).
20 Illegal camping and problems associated with this in Turtle Cove would increase with development of FAS at Turtle Cove Site including fires, litter, cutting trees (3 comments).
21 Fire danger would increase with development of the Turtle Cove Site (3 comments).
22 The Turtle Cove Site is too remote and constructing an FAS there would cause law enforcement issues (1 comment).

Constructing an FAS at Turtle Cove is not a good idea as it is deep with silt (1 comment).

# Appendix 5
# Alternatives Cost Estimates

## Crystal Lake FAS
## Environmental Assessment - Alternative Cost Estimates

Prepared by FWP - Design & Construction
11/6/2007

### EAST SHORE SITE

| | | | | Alternative B Lakeshore Dr. Access Short Route | | Alternative C Lakeshore Dr. Access Long Route | |
|---|---|---|---|---|---|---|---|
| Bid Item No. | Bid Item Description | Unit | Unit Cost | Quantity | Cost | Quantity | Cost |
| 1 | Mobilization/Demobilization | | @ 10% | | $5,600.00 | | $9,900.00 |
| 2 | Existing Access Road Improvements | lnft | $20.00 | | $0.00 | 2000 | $42,500.00 |
| 3 | New Access Road | lnft | $40.00 | 600 | $24,000.00 | 500 | $22,500.00 |
| 4 | Parking Area | sf | $2.50 | 1400 | $3,500.00 | 1400 | $3,500.00 |
| 5 | Boat Ramp | sf | $16.00 | 1000 | $16,000.00 | 1000 | $16,000.00 |
| 6 | Revegetation | lpsm | $3,000.00 | 1 | $3,000.00 | 1 | $3,000.00 |
| 7 | Signing | lpsm | $2,000.00 | 1 | $2,000.00 | 2 | $4,000.00 |
| 8 | Latrine | lpsm | $7,500.00 | 1 | $7,500.00 | 1 | $7,500.00 |
| | Subtotal | | | | $61,600.00 | | $108,900.00 |
| | Contingency (20%) | | | | $12,300.00 | | $21,800.00 |
| | Design Consultant (15%) | | | | | | $16,300.00 |
| | **Total Project Cost** | | | | **$73,900.00** | | **$147,000.00** |

### WEST SHORE SITE

| | | | | Alternative D Rainbow Lake Road Access | | Alternative F East Crystal Lake Road Access | |
|---|---|---|---|---|---|---|---|
| Bid Item No. | Bid Item Description | Unit | Unit Cost | Quantity | Cost | Quantity | Cost |
| 1 | Mobilization/Demobilization | | @ 10% | | $28,400.00 | | $15,000.00 |
| 2 | Existing Access Road Improvements | lnft | $20.00 | 9500 | $190,000.00 | 4800 | $96,000.00 |
| 3 | New Access Road | lnft | $40.00 | 500 | $20,000.00 | 500 | $20,000.00 |
| 4 | Bridge Replacement | lpsm | $40,000.00 | 1 | $40,000.00 | | $0.00 |
| 5 | Parking Area | sf | $2.50 | 1400 | $3,500.00 | 1400 | $3,500.00 |
| 6 | Boat Ramp | sf | $16.00 | 1000 | $16,000.00 | 1000 | $16,000.00 |
| 7 | Revegetation | lpsm | $3,000.00 | 1 | $3,000.00 | 1 | $3,000.00 |
| 8 | Signing | lpsm | $2,000.00 | 2 | $4,000.00 | 2 | $4,000.00 |
| 9 | Latrine | lpsm | $7,500.00 | 1 | $7,500.00 | 1 | $7,500.00 |
| | Subtotal | | | | $312,400.00 | | $165,000.00 |
| | Contingency (20%) | | | | $62,500.00 | | $33,000.00 |
| | Design Consultant (15%) | | | | $46,900.00 | | $24,800.00 |
| | **Total Project Cost** | | | | **$421,800.00** | | **$222,800.00** |

### TURTLE COVE SITE

| | | | | Alternative E Rainbow Lake Road Access | | Alternative G East Crystal Lake Road Access | |
|---|---|---|---|---|---|---|---|
| Bid Item No. | Bid Item Description | Unit | Unit Cost | Quantity | Cost | Quantity | Cost |
| 1 | Mobilization/Demobilization | | @ 10% | | $30,600.00 | | $16,600.00 |
| 2 | Existing Access Road Improvements | lnft | $20.00 | 7400 | $148,000.00 | 2400 | $48,000.00 |
| 3 | New Access Road | lnft | $40.00 | 2100 | $84,000.00 | 2100 | $84,000.00 |
| 4 | Bridge Replacement | lpsm | $40,000.00 | 1 | $40,000.00 | | $0.00 |
| 5 | Parking Area | sf | $2.50 | 1400 | $3,500.00 | 1400 | $3,500.00 |
| 6 | Boat Ramp | sf | $16.00 | 1000 | $16,000.00 | 1000 | $16,000.00 |
| 7 | Revegetation | lpsm | $3,000.00 | 1 | $3,000.00 | 1 | $3,000.00 |
| 8 | Signing | lpsm | $2,000.00 | 2 | $4,000.00 | 2 | $4,000.00 |
| 9 | Latrine | lpsm | $7,500.00 | 1 | $7,500.00 | 1 | $7,500.00 |
| | Subtotal | | | | $336,600.00 | | $182,600.00 |
| | Contingency (20%) | | | | $67,300.00 | | $36,500.00 |
| | Design Consultant (15%) | | | | $50,500.00 | | $27,400.00 |
| | **Total Project Cost** | | | | **$454,400.00** | | **$246,500.00** |