Version 8/08rev

ENVIRONMENTAL ASSESSMENT WORKSHEET

Note to preparers: This form and EAW Guidelines are available at the Environmental Quality Board's website at: http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm. The Environmental Assessment Worksheet provides information about a project that may have the potential for significant environmental effects. The EAW is prepared by the Responsible Governmental Unit or its agents to determine whether an Environmental Impact Statement should be prepared. The project proposer must supply any reasonably accessible data for — but should not complete — the final worksheet. If a complete answer does not fit in the space allotted, attached additional sheets as necessary. The complete question as well as the answer must be included if the EAW is prepared electronically.

Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation, and the need for an EIS.

1. Project title: Lake Vermilion and Soudan Underground Mine State Park Development

2. Proposer: Minnesota Department of Natural Resources, Division of Parks and Trails

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3. RGU: Minnesota Department of Natural Resources

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4. Reason for EAW preparation (check one)

☐ EIS Scoping ☒ Mandatory EAW ☐ Citizen petition ☐ RGU discretion ☐ Proposer volunteered

Minnesota Rules, part 4410.4300, subpart 20 (Campgrounds and RV Parks)

5. Project location

COUNTY:	ST. LOUIS	CITY/TOWNSHIP:	TOWER / BREITUNG

TOWNSHIP NAME	TOWNSHIP	RANGE	SECTION
BREITUNG	62 N	14 W	19
BREITUNG	62 N	15 W	13, 14, 21 - 29

GPS COORDINATES	CORNER	EASTING	NORTHING
NAD 83 UTM 15	Northwest Southwest Northeast Southeast	554163 554163 561980 561980	5297825 5295860 5295860 5301000
TAX PARCEL NUMBERS			
Multiple parcels			

Attach each of the following to the EAW:

- **County map showing the general location of the project;**

  Figure 1 – Lake Vermilion and Soudan Underground Mine State Parks Proposed Development Project – St. Louis County.
  Figure 2 – Lake Vermilion and Soudan Underground Mine State Parks Proposed Development Project – Lake Vermilion Area.

- **U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable);**

  Figure 3 – Lake Vermilion and Soudan Underground Mine State Parks Statutory Boundaries, USGS Map, 1:24,000.

- **Site plan showing all significant project and natural features of project**

  Figure 4 – Lake Vermilion and Soudan Underground Mine State Parks - NRCS Soil Survey.
  Lake Vermilion and Soudan Underground Mine State Parks - NRCS Soil Survey with List of Soil Mapping Units by Park and Scoping Area.
  Figure 5 – Lake Vermilion and Soudan Underground Mine State Parks - System Level Land Cover (includes wetlands).
  Figure 6 – Lake Vermilion and Soudan Underground Mine State Parks - Existing, Proposed and Future Development with Scoping Areas.
  Figure 7 – Lake Vermilion and Soudan Underground Mine State Parks - Concept Designs for Main Campground Area.

  Table 1 – Lake Vermilion and Soudan Underground Mine State Parks - USDA, NRCS Soil Survey List.
  Table 2 – Lake Vermilion and Soudan Underground Mine State Parks - Acreage of USDA Soil Type by Scoping Area.

- Attachments to the EAW:

  Attach. A. Minnesota Department of Natural Resources, Natural Heritage Review (November 2012, Project No. 20130081).
  Attach. B. Minnesota Historical Society State Historic Preservation Office Correspondence (January 2013).

6. Description

a. Provide a project summary of 50 words or less to be published in the EQB Monitor.

The Minnesota Department of Natural Resources proposes development of Lake Vermilion and Soudan Underground Mine State Parks, consisting of 70 to 75 campsites, including 12 camper cabins, three group camps, four sanitation buildings, and a new public water access in Cable Bay. Future developments may include a visitor center, additional camping areas, recreational trails, nature play areas, and supporting infrastructure for both parks.

b. Give a complete description of the proposed project and related new construction. Attach additional sheets as necessary. Emphasize construction, operation methods, and features that will cause physical manipulation of the environment or will produce wastes. Include modifications to existing equipment or industrial processes and significant demolition, removal, or remodeling of existing structures. Indicate the timing and duration of construction activities.

In 2010, the State of Minnesota purchased property from U.S. Steel Corporation for the purpose of creating Lake Vermilion State Park (LVSP). The LVSP is located near the city of Soudan, in St. Louis County, on the south-east shoreline of Lake Vermilion, and is adjacent to Soudan Underground Mine State Park (SUMSP) (Figures 1, 2, and 3). Although the two parks will remain as separate park units, they will be cooperatively managed.

The Minnesota Department of Natural Resources (MDNR) developed a master plan that explicitly integrates all aspects of management, interpretation, and operations between the two parks. The Cooperative Master Plan (CMP) for Lake Vermilion State Park and Soudan Underground Mine State Park (LV-SUMSP), 2011 – 2020, completed December 2010, is available for reference on the MDNR website. The CMP identified a number of park facility developments that are being pursued to meet MDNR's mission to "work with citizens to conserve and manage the state's natural resources, to provide outdoor recreation opportunities and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life." The CMP adheres to the MDNR's mission: (to conserve, manage, sustain) and to consider key trends (changes in public participation, energy and climate issues, and stresses on Minnesota's natural landscapes).

This environmental assessment worksheet (EAW) provides information about the proposed developments that may have the potential for significant effects. Natural resource features of the project, including soil and land cover information, are provided in Figures 4 and 5. To prepare for the EAW, scoping areas were delineated to serve as search areas for locating the proposed facility developments and analysis areas for determining environmental effects (Figure 6).

Park Developments: Recent, Designed, and Future. *(Recent)* Plans and designs for developing park facilities began soon after lands were purchased for LVSP in June 2010. To enable limited early use by park visitors, several park facilities that did not require formal environmental review, including road improvements and the construction of the Armstrong Bay Day Use Area (DUA), were given a high priority for early completion. These components were implemented when other portions of the park were still in the concept phase and the development details were unavailable for determining whether environmental review was mandatory under Mississippi Environmental Policy Act (MEPA) rules pursuant to *Minnesota Rules*, Chapter 4410. Construction of the day use area on Armstrong Bay is essentially complete. Additional hiking trails and picnic areas are proposed for the ridgeline area west of the day use area (Day Use Area North). All proposed park developments are exhibited on Figure 6.

(Designed) In 2013, construction is proposed to begin on the LVSP main campground facility and the SUMSP camper cabin site, referred to as "McKinley Camper Cabins." A 2014 completion date for these facilities is projected. The North and South Campgrounds of the Main Campground include approximately 60 campsites, eight camper cabins, three group camp areas, accompanying roadways and trails, and buried distribution systems for potable water and electricity (Figure 7). These campsites will be designed to accommodate both recreational vehicle (RV) and tent campers. Each of the individual campsites include approximately 900 square feet of aggregate for parking/vehicle spur and

approximately 900 square feet of landscaped/lawn area for the tent pads. Although sizes vary, the group camps are usually designed to accommodate eight tent sites in each group. Proposed sewage treatment facilities include four dispersed sanitation buildings, each having its own wastewater treatment infiltration area. Several vault toilets and an RV dump station will provide additional sanitation capacity. A water access site is proposed just west of the Main Campground on Cable Bay. The water access site will include a boat ramp with a dock, tie-down lane, and parking for 30-35 vehicles. Other infrastructure at the LVSP Main Campground site includes an adventure/nature play area, trail overlooks, picnic shelters, and gathering places to offer interpretive programs.

The SUMSP McKinley Camper Cabins site will include the development of four camper cabins, a vault toilet, and trail connections to the park's trail network. The site is located on the west side of the SUMSP, adjacent to Breitung Township's McKinley Park and the McKinley Park Road (Figure 6). Electric service will be extended to the site from the existing power lines along the road.

The campgrounds will be operated during the spring, fall, and summer, and the camper cabins are proposed to be available for year-round use. One of the sanitation buildings at LVSP is designated for year-round use to serve winter guests. The campgrounds are anticipated to experience lower usage during the spring and fall and maximum usage during the summer months.

(Future) Other potential future park facility development needs were identified and acknowledged during the public planning process, as referenced in the CMP. The environmental effects of these proposed future developments, which are further described under Item No. 6d, will be reviewed in this EAW. Included are the following proposed future park facilities: a welcome plaza/contact station, a common entrance for LVSP and SUMSP, an improved public water access on Stuntz Bay, three separate boat-in campsite clusters, four to five walk-in campsites, a group camp separate from the Main Campground, a campground for accessing the nearby regional and associated park and trail systems, two separate adventure areas, a network of pedestrian trails, the Lakeside Lodge (including parking lot), and the Soudan Heritage and Science Center to be located near the underground mine tour entrance (Figure 6). This project contains no proposed developments on the islands included within the LV-SUMSP. Although the proper names of most facilities have not been finalized, they have been capitalized in this EAW to help identify specific reference to each facility.

Assessment of Project Area and Design of Project. The area within the combined statutory boundary of LV-SUMSP contains 4,085 acres, including 15 small islands. The topography of the parklands is characterized by rock ridges, steep bluffs, and wetland depressions. The bedrock is iron-bearing metamorphic and metamorphosed sedimentary rock. Upland soils consist of very shallow loam over bedrock, bedrock outcrops, and deeper loam along lower slopes and outwash areas. The uplands are forested with northern mesic mixed forest, including younger growth stages dominated by birch and aspen and older stands dominated by conifers. Most of the forest in SUMSP is old-growth pine forest, while those of LVSP uplands are regenerating forests, approximately 30- to35-years old. Over one-fourth of the parkland area consists of wetland, mostly swamp forest and smaller areas of open shrub or herbaceous marsh. The swamp forests range in age from 60- to100-years old. The MDNR Division of Forestry has provided an overview of forest inventory and management recommendations for LVSP in the CMP. Nearly 10 miles of Lake Vermilion shoreline forms the north perimeter of the two parks.

The 2002 Soudan Underground Mine State Park Master Plan was incorporated into the 2010 CMP that combined the management of both parks. Beginning in September 2007, the planning for the purchase and operation of LVSP involved the establishment of the Commissioner's Task Force; the solicitation of public input through various venues; and the development of recommendations to the Minnesota State Legislature. This work provided a basis for writing the CMP. During the development of the CMP, nearly one-hundred citizen advisory committee and subcommittee members, volunteers, agency staffs, and others were involved in the planning process. Opportunities for the public to contribute were

provided through open houses, public reviews of proposed plans, and an MDNR questionnaire. A 30-day public comment period was available to review the draft master plan. The CMP provides a basic framework for management of the parks, including recreational and natural resource management framework principals.

The CMP defined the "new vision" for park management and "next generation values" of sustainable development, making connections with the broader landscape, recreational, and social-economic matrices, and inspiring public participation. The next generation park builds in activities to strengthen our interest in the natural world and experiences to inspire participation in outdoor recreation. Development, design, and operation will be dependent on additional market research focused on new and emerging park-and-trail users, while still providing experiences routinely expected.

Natural resource assessment work has been conducted at SUMSP during the several decades of state ownership, especially during the preparation of the 2002 master plan. During 2010, the MDNR made significant progress in characterizing natural resource features of LV-SUMSP including additional assessment of plant communities, rare plants and animals, fish spawning areas, and aquatic vegetation beds in nearshore areas of Lake Vermilion.

Construction Activity. Initial steps to prepare the LVSP Main Campground and SUMSP McKinley Camper Cabin sites for construction will consist of clearing vegetation, grading, leveling, and applying suitable base aggregate to roads, parking areas, and building sites. Improvements of main roads may include replacement of culverts at wetland or stream crossings and resurfacing with aggregate and/or bituminous pavement. Campground access loops would likely be paved but trails would be natural surfaced, with some paved or graveled segments, especially along the heavily used corridors. Supporting infrastructure would include water wells, distribution lines, storage units, electrical utilities, sanitation buildings, septic lift stations, wastewater treatment systems, vault toilets, and wireless networking technology ("wi-fi"). Electrical utilities include main power supply to electric transformer(s), branch power lines to buildings, campground site hook-ups, safety lights, and other structures.

Backhoes, bull dozers, motor graders, logging equipment, off road trucks, hauling trucks, well-drilling rigs, and possibly blasting equipment will be used during construction. Blasting may be necessary for selected sites to build road segments, water and sewer lines, or campground sites that intersect areas of bedrock obstruction. Vegetation clearing and implementing erosion control measures would be sequenced as construction proceeds. Gravel resources identified in the park will help reduce haul distances to the construction site. Hand tools will be used for many of the natural surfaced trails, and in some cases, a small walk-behind dozer or a small ride-on mechanical dozer (such as a Sweco dozer) may be used for the heavy work. Work will occur during daytime hours.

c. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

In 2008, the Minnesota State Legislature authorized Lake Vermilion State Park and in 2010, the State of Minnesota purchased property from U.S. Steel Corporation for the purpose of creating Lake Vermilion State Park. The land purchase for the state park was deemed appropriate for meeting the objectives of the state park system.

The establishment of this state park protects the cultural heritage of American Indians and Iron Range mining and protects a representative piece of the natural resources that are found in the Border Lakes Ecological Classification System subsection and the Vermilion River Watershed. The park and its development will provide an array of "up-north", lake-oriented recreational opportunities, as well as educational components about the cultural and natural resources of the area.

The project purpose is to provide new and enhanced public access and recreational experiences for visitors to Lake Vermilion and surrounding communities. The MDNR management of state parks is prescribed under *Minnesota Statutes*, section 86A.05 subd. 2(a), that, "A state park shall be established to protect and perpetuate extensive areas of the state possessing those resources which illustrate and exemplify Minnesota's natural phenomena and to provide for the use, enjoyment, and understanding of such resources without impairment for the enjoyment and recreation of future generations."

Developing the facilities envisioned in the master plan is essential to fulfilling the purpose for establishing and enhancing the two parks. Management goals are to provide additional opportunities for visitors to appreciate the natural and cultural resources of the parklands, learn about the history of the area, and participate in recreational activities. The LV-SUMSP will serve as a hub for people to explore other amenities and opportunities in the surrounding area, benefiting the local economies in Soudan, Tower, and other neighboring communities.

The main potential beneficiaries of the proposed development are the residents of Minnesota as well as visitors traveling to the state. In 2010, over 9.5 million people visited Minnesota State Parks, with over 1 million staying overnight in state park campgrounds or other lodging. Approximately thirty percent of Minnesotans visit a state park each year.

d. Are future stages of this development including development on any other property planned or likely to happen? _X_ Yes ____ No If yes, briefly describe future stages, relationship to present project, timeline, and plans for environmental review.

As identified in the CMP, the MDNR has made plans and preparations for managing public usage of the two parks and proposes development of additional facilities and amenities, beyond the immediate projects described in EAW Item 6b. The proposed location for each facility is exhibited in Figure 6 and relevant cross-reference codes used in the CMP (p 54 – 58) are provided with the description of each facility below. Future development outlined in the plan, but not specifically described in Item No. 6b, include:

- **Boat-in Campsites** – three clusters of boat-in campsites in remote areas along the shoreline of the LV-SUMSP. The sites in each cluster would share a dock/tie-up location and vault toilet. [VS3.6 – 7; VS4.5]
- **Walk-in Campsites** – four to five primitive walk-in campsites located in remote areas along the trail network within the parks (symbol on Figure 6 refers to Remote Campsite or Yurt). [VS4.5]
- **Group Camp** – primitive or semi-modern group camp (located off of Lake Vermilion Park Drive) in addition to the group camp associated with the Main Campground described in 6b. [VS4.3]
- **Trailside Campground** – a semi-modern campground developed south of Highway 169 to serve visitors who want access to the Mesabi Trail and other trail related activities outside of the state parks (possibly up to 40 campsites). [VS4.2]
- **Soudan Heritage and Science Center** – a new facility to support the underground mine tour operations and interpretive programming related to the mine. [VS5.1]
- **Stuntz Bay Day Use Area** – improvements to the water access in Stuntz Bay including improved ramps, expanded parking, picnicking and other day use facilities. [VS3.4]
- **Lakeside Lodge** – the main visitor center to be located near the boundary of the two parks. Amenities at the lodge may include docks, a swimming area, vehicle parking, an amphitheater for interpretive programs, and accommodations for food service and other retail sales. [VS3.2-3]
- **Adventure Areas** – areas designed to provide for active outdoor learning opportunities and outdoor skills-building; one is proposed near Stuntz Bay south of the Lakeside Lodge and a second area near the Trailside Campground proposed primarily for mountain bike use. The Mountain Bike Adventure Area exhibits a variety of landscape features to accommodate varying skill levels. The scoping area is estimated to have room for up to eight miles of single-track trails. Actual trail miles and routes of the adventure areas and the park-wide trail network have not been determined. [RU3.1-4; VS5.2]

- **Welcome Plaza/Contact Station** – a facility for visitor contact/orientation and administrative functions to serve both parks. [VS2.2]
- **Trail network** – a network that connects park facilities and provides opportunities for summer and winter trail activities, including primarily non-motorized uses--hiking, biking, mountain biking, and cross-country skiing. An existing snowmobile trail will continue to serve snowmobilers during the winter months. A portion of the snowmobile trail and an existing road corridor may serve as a core trail connecting the LVSP Main Campground and the Lakeside Lodge area. It would likely be a multiple use trail, from 10- to 12-feet wide and paved with asphalt. Trails will primarily be natural surfaced but some multipurpose or trunk trails would be paved with asphalt or crushed aggregate. Trails will be designed at various widths (from less than 18-inches up to 72-inches or more) to match their proposed usage designation and expected usage level. The trail network will utilize numerous existing impacted corridors, located throughout the park, as well as new routes. New construction will be necessary to link existing corridors and some of the proposed facilities to form a functional trail network. The total disturbance area of the trail network may reach up to 15 acres, depending on the combined width and length dimensions prescribed for all trail segments in the trail network. [RU1.1-6; RU2.1-4; VS2.6; VS4.1-2]

Although none of the facilities listed under Item 6d have reached the design stage, most of them are typical small- to medium-sized park developments for which the MDNR has considerable experience in design and construction. No construction schedule or timeline is available for completion of the potential future park facilities. Access to funding and the level of funding support will ultimately determine the viability and timing of construction. Designs for building these facilities will be completed when funding becomes available.

The MDNR has determined that these future developments are phase actions and to avoid a piece-meal approach of reviewing each facility separately, the environmental effects of the proposed future developments will be evaluated collectively in this EAW. Scoping areas have been delineated to represent the general location of the facilities and serve as search areas for their specific siting. Natural resource and park development specialists have participated in establishing the scoping areas for the facilities, as described in the CMP and shown in Figure 6. Existing natural resource information on the scoping areas has been evaluated to identify potential environmental effects of the proposed developments. Significant progress has been made in characterizing the natural resource features within the scoping areas, including: the identification of features most in need of protection and management, i.e., rare plants and animals, special geological features; the characterization and mapping of forest stands, old growth forests, and natural communities; and the location and description of significant fish spawning and emergent aquatic vegetation in Lake Vermilion. Recognition of these natural features of the scoping areas will contribute to where the building sites for the future facilities will be located. The dispersed nature of the some of the facilities, especially the campsites, and the flexibility built into the planning and location of facilities will enable MDNR to avoid or largely minimize environmental effects on these features.

Environmental assessment of these developments is based on consideration of each facility's location, type, and size. Site-specific design and engineering for proposed developments will include considerations of site conditions, development requirements and safety elements. Specifically, the suitability and limitations of the landscape proposed for the developments was analyzed using the Natural Resource Conservation Service soil survey and analysis tools, public water and wetland characteristics and locations, vegetation and rare features identification and avoidance measures, archaeological surveys and reports, and construction stormwater management, among other measures to mitigate environmental effects.

According to *Minnesota Rules*, part 4410.1000, subdivision 4, multiple projects and multiple stages of a single project that are connected actions or phased actions must be considered in total when preparing an

EAW and determining the need for an EIS. To meet this requirement, the environmental effects of future development are included as part of this EAW. To address any uncertainty related to details and timing of future developments, the MDNR will conduct a review of this EAW or EIS, if one is ordered, prior to site selection, structure design, and implementation of each of these future developments. This review will determine if the environmental effects of the proposed future developments is adequately covered within the EAW and the Record of Decision. If it is determined that the situation and/or plans have substantially changed during the design stage and these changes may have the potential for significant environmental effects, other than those which were previously evaluated in this EAW, additional environmental review will be conducted.

e. Is this project a subsequent stage of an earlier project? X Yes ____ No
If yes, briefly describe the past development, timeline, and any past environmental review.

Three projects within the statutory boundary of Lake Vermilion State Park and Soudan Underground Mine State Park have already begun or will begin shortly. The Armstrong Bay Day Use Area, discussed above in response to Item No. 6b, is near completion (Figure 6); two local Breitung Township roadway improvement projects not administered by MDNR have also been planned and are at various stages of implementation, as administered by St. Louis County. The Stuntz Bay Access Road is underway and is expected to be completed this spring. The Lake Vermilion Park Drive improvement project is planned and engineering design and specifications have been completed, with construction likely to begin during the spring of 2013.

- **Armstrong Bay Day Use Area [VS3.5]** Amenities at the site include vehicle parking, picnic shelters, walking trails, fishing pier, and two boat docks. Two floating docks will be used for temporary docking for visitors using watercraft. The site was previously the location of a 0.3 acre (ac) cabin site prior to its purchase by the State of Minnesota. The cabin has since been removed to make room for the day use area. The day use area includes two walking trails from the parking lot towards the picnic area; one is a 400-foot long trail built to the American Disabilities Act (ADA) standards; and the second trail occupies an old driveway extending from the parking lot towards the shoreline. The Armstrong Bay Day Use Area will be open to the public in 2013.

- **"Lake Vermilion Park Drive"** St. Louis County and Breitung Township will begin constructing a portion of the state park access road, dubbed "Lake Vermilion Park Drive." This road will primarily use existing or former road right of way consisting of 2.5 miles of the U.S. Highway 1 and approximately one mile of gravel township road. The purpose of the road is to provide ingress/egress for local residents and will also serve state park visitors accessing the Armstrong Bay Day Use Area and the main park campground. Pursuant to *Minnesota Rules*, part 4410.4600, subp. 14C and subp. 2E, the road improvement project has been exempted from state environmental review.

- **Stuntz Bay Access Road Improvements** The Breitung Township access road to Stuntz Bay is less than one mile long extending from Soudan to the shores of Lake Vermilion. The road has a moderate to steep slope and experiences an elevation drop of about 200 feet. The resurfacing project was initiated in the fall of 2012 and will continue during the spring of 2013 with application of the final bituminous layer.

These developments were formalized prior to the late summer 2012, when it was determined that completion of an EAW for the Main Campground would be mandatory. The MDNR began construction of the Armstrong Bay Day Use Area when other portions of the park were still in the concept phase so the details were unavailable for determining whether MEPA environmental review was mandatory. The two road improvement projects are not considered phased or connected actions due to their stand-alone justification and non-sequential aspects as related to proposed developments. Although the park will

benefit from the road improvements, these projects are justified without the construction of the proposed park developments. The two road improvement projects will result in environmental effects in the relevant area that might reasonably be expected to affect the same environmental resources as those affected by the proposed developments. The road improvement projects are sufficiently designed and funded to regard them as essentially certain to occur. With sufficient detail available for the Armstrong Bay Day Use Area and two road improvement projects, their environmental effects will be incorporated into Item No. 29 of this EAW to contribute to the understanding of the cumulative potential effects.

7. Project magnitude data

Total project acreage: 4,085 acres (SUMSP and LVSP within combined statutory boundary). Potential development area (maximum extent of land development from recent, designed, and future projects identified in this EAW) equals 125 acres. Overall development of each Minnesota state park is less than four percent of the land area within the park or state recreation area boundaries.

Number of residential units: _____ unattached _____ attached _____ maximum units per building
Commercial, industrial, or institutional building area (gross floor spa_____ total square feet (sf): _____

Indicate areas of specific uses (in square feet):

Office	none	**Manufacturing**	none
Retail	none	**Other Industrial**	none
Warehouse	none	**Institutional**	none
Light industrial	none	**Agricultural**	none
Other commercial (specify)	(see below)		
Building height	varies*	**If over 2 stories, compare to heights of nearby buildings**	

* Most structures will be limited to single story construction. Architectural design and functionality of some structures may warrant taller building heights. Structures within the shoreland area will be limited and will not reach the 35-foot limit defined in the St. Louis County shoreland ordinances.

Facilities (Recent Construction, Designed, and Future Developments).

Recent Construction:

Armstrong Bay Day Use Area
Approximately 5.4 acres of development
3 picnic shelters (22' x 32' each); 2,112 square feet combined
2 vault toilets; 1 well
Parking lot: 10 vehicle stalls, 10 vehicle-trailer stalls
2 floating boat docks
Fishing pier

Designed Developments:

Main Campground Area (North and South Campground):
Estimated –60 campsites – electricity hookups and able to accommodate RVs
8 camper cabins (split among two locations) – typically, 350 square feet each
4 sanitation buildings (showers, toilets) – range from 700 square feet to 2900 square feet
Up to 4 wells (one for each sanitation building)
Vault toilets (typical sizes: single = 51 square feet; double = 102 square feet)
3-4 Picnic shelters – 704 square feet each
Public water access, parking, and fish cleaning house
Equipment rental/storage structure (canoe/kayak rental)

McKinley Park Camper Cabins: approximately 5.5 acres
4 camper cabins – typically, 350 square feet each

Parking: 5 vehicle-trailer stalls, 3 vehicle stalls
1 vault toilet
1 well

Future Developments: Estimated sizes (footprints) of future developments are based upon current state park developments serving similarly sized parks or similarly sized facilities.

A Welcome Plaza/Contact Station: proposed to be located just inside the main entrance to welcome and orientate visitors to the parks. This area will include an open-air, covered kiosk area with pertinent park information and orientation maps, a self-registration and pay center, and a toilet. Similarly designed welcome plazas have been developed at Glendalough and Great River Bluffs state parks. The kiosk area and parking facility area is estimated to be about 1.5 acres.

Lakeside Lodge and Adventure Play Area: will be located adjacent one another, served by one parking area. The footprint of the lodge and parking facilities (impervious surfaces) of this area is estimated to be around 2 acres, with additional areas developed or landscaped, leading to the adventure play area, which could be 2 to 4 acres in size. Specific facilities or features to be developed as part of the Adventure Play Area are unknown at this time.

Soudan Heritage and Science Center: proposed to be located within the developed portion of the Historic District within SUMSP. Design and actual placement will be constrained to minimize impacts to the district and will be finalized in consultation with State Historic Preservation Office (SHPO).

New Entrance Road to Soudan Underground Mine State Park and Access Road to Lakeside Lodge and Adventure Play Area: One public entrance road, Lake Vermilion Park Drive, is proposed to serve access to both parks from Trunk Highway 169 (TH 169). Lake Vermilion Park Drive will lead to the Welcome Plaza located just inside the park boundary, where the road will then split into three main branches: 1) a new entrance into SUMSP mine facility (former entrance roads will be closed off to public); 2) continuation of Lake Vermilion Park Drive to the Main Campground and the Armstrong Bay Day Use Area; and 3) access to the Lakeside Lodge and the nearby Adventure Play Area. Existing corridors are available for most of the proposed access road alignments. No touring routes or loops will be created for highway licensed vehicles.

Group Camp off of Lake Vermilion Park Drive: The Group Camp is envisioned to include several placements (pods) for group camps that could be reserved separately, but with additional spacing and perhaps larger capacity than typically provided in the current state park system. An estimate of approximately 10 acres of the scoping area would be developed and maintained for several pods of group camps. Typically developed group camps include mowed areas, tent pads, parking area, and toilet facilities.

Walk-in Campsites: Four to five primitive walk-in campsites will be located in remote areas along the trail network within the parks.

Boat-in Campsites: Three locations or clusters have been identified as suitable sites for boat-in campsites. Campsites in cluster areas will be spaced apart so that sites are not visible to one another to the extent possible. These sites may vary from only being accessible by canoe/kayak or by both motor boat and canoe/kayak. Sites will be primitive, providing a tent pad, fire ring, one to several pit toilets, and a small dock, when sufficient mooring for landing and securing watercraft is required.

Trailside Campground: The 20- to 25-acre campground would be located south of TH 169. The campground would accommodate around 40 campsites, sanitation facilities, and other visitor amenities. Larger spurs or parking space will be provided for guests with trailers.

Stuntz Bay Day Use Area and water access improvements: development of existing facilities to provide public water access, additional parking, picnic areas, vault toilets, shore fishing, fish cleaning station, and possibly one well for park and boat house users.

8. Permits and approvals required. List all known local, state, and federal permits, and approvals and financial assistance for the project. Include modifications of any existing permits, governmental review of plans, and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing, and infrastructure. All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.

Unit of Government	Type of Application	Status
State of Minnesota		
MPCA	NPDES / Construction Stormwater Permit for Armstrong Bay Day Use Area	Obtained and active
	NPDES / Construction Stormwater Permit for Main Campground, McKinley Camper Cabins and other developments	To be obtained
	Section 401 Water Quality Certification	To be obtained
	State Disposal System (SDS) Permit	To be obtained as needed
MNDOT	Access Driveway Permit	To be obtained
	Temporary ROW Construction	To be obtained
MDNR	Public Waters Work Permit	To be obtained
	Wetland Conservation Act Permit	To be obtained
	MN Sustainable Building Guidelines B3	To be implemented for sanitation building and camper cabins
MDLI (Labor & Industry)	Building Permits	To be obtained as needed
MN Legislature	State bonding/funding appropriations	On-going
SHPO	Section 106	On-going
U.S. Government		
U.S. Army Corps of Engineers (USACE)	Section 404 Permit, Clean Water Act Section 10, Rivers and Harbors Act	To be obtained for work in wetlands and/or Lake Vermilion

9. Land use. Describe current and recent past land use and development on the site and on adjacent lands. Discuss project compatibility with adjacent and nearby land uses. Indicate whether any potential conflicts involve environmental matters. Identify any potential environmental hazards due to past site uses, such as soil contamination or abandoned storage tanks, or proximity to nearby hazardous liquid or gas pipelines.

The Soudan mine, now part of SUMSP, was Minnesota's first mine, beginning operation in 1883 and closing after 80 years of operation as an active mine. The U.S. Steel Corporation or its precursor initially operated a surface mine and later, an underground iron mine, until the mine's closure and purchase by the State. Prior to the State of Minnesota's purchase of Lake Vermilion State Park lands in 2010, the lands were also under the ownership of U.S. Steel. Past mineral exploration is evident by the hundreds of gold and iron ore exploratory pits that dot the parklands today. The area of land clearance, facility

construction, and operation of the open pit and underground mines occupy approximately 40 acres of land in the SUMSP. Many of the mine's buildings and structures remain on the property and are utilized for the interpretive and operational activities in the state park. During its operation, land in Stuntz Bay was leased to employed miners to build boathouses along the lakeshore. The majority of these boathouses remain and the underlying leases are managed by the MDNR. About five miles of hiking trails have been established in the SUMSP.

Excluding the mine site development area, the SUMSP is covered in old growth forest, generally 80 years old or more. Uplands in the LVSP portion experienced widespread timber harvesting during the 1980s. Forests in the harvested areas are now approximately 30- to 35-years, while about one-third of LVSP is covered in swamp forests, from 60- to 100-years old, and shrub or herbaceous wetlands. Forest inventory conducted in 2007 identified numerous temporary access routes and an improved trail that were used for conducting resource management activities, such as fire suppression or timber harvesting. Remaining as hunter travel routes when the park was purchased, the routes can be converted to pedestrian trail corridors for the new state park if they complement a functional trail network. Within the LVSP, three parcels that contained several cabins and associated structures were previously leased by U.S. Steel for use as seasonal residences. Since the LVSP purchase, the MDNR has removed the structures from all three sites. One of the cabin sites has been redeveloped into the Armstrong Bay Day Use Area.

Known sand and gravel resources occupy approximately 12.5 acres, located just south and west of the Armstrong Bay Day Use Area. The gravel resources are expected to provide necessary fill material for campgrounds, trails, and roads to the extent known at this time. The local sources of aggregate should be sufficient for gravelling building foundations, campsites, and road bases, but mixtures for bituminous pavement may need to be brought in if the local materials do not meet required engineering specifications. None of the gravel resources will be exported from the park or used for commercial operations, in accordance with *Minnesota Rules*, part 6100.0900, subpart 2.

Minnesota Pollution Control Agency's "What's In My Neighborhood" website was reviewed to identify any potential environmental hazards from past land uses. No hazards were identified within the LVSP boundary. There is an active National Pollutant Discharge Elimination System (NPDES) water quality discharge permit for dewatering discharges from the SUMSP underground mine. The MDNR is constructing a water treatment system to remove the copper and cobalt ions present in the groundwater that seeps into the mine. The dewatering and treatment facility site is isolated and much of the system is underground. No impacts or interaction with proposed developments would occur.

Hazardous sites that are classified as inactive within the adjacent town of Soudan include two closed landfills, an old unpermitted dump site that has been closed, and two tank leak sites. Two active sites are registered by MPCA to contain small to minimal quantities of hazardous waste. Since the early 1990s, MPCA has also monitored several groundwater wells for contaminates within and near an area landfill. A wastewater treatment plant that discharges into a public water tributary of the East Two River is located just west of Soudan. Several additional tanks and/or tank leak sites have been identified southwest of the SUMSP, along Hoodoo Point Road, within a mile of the proposed McKinley Camper Cabins site. Proposed park developments will not affect these sites.

10. Cover types. Estimate the acreage of the site with each of the following cover types before and after development:

	Before	After	Net change
Types 1-8 Wetlands	1152	1151	-2
Wooded / Forest	2672	2640	-32
Brush / Grassland	11	11	0
Cropland	0	0	0
Lawn / Landscaping	1	15	+14
Impervious Surfaces	53	65	+12
Other (describe)			
Stormwater Pond	0	8	+8
Non-natural community (utility corridor, mined areas, disturbed areas, natural surface roads/access routes)	149	145	-4
Developed Areas (facilities, buildings, natural surface roads)	47	50	+3
Total	4085	4085	

Scoping Areas and Best Estimate of Potential Development by Area.			
Status	**Scoping Area Name**	**Scoping Area (Ac.)**	**(New) Development (Ac.) Approximate**
Developed	Armstrong Bay Day Use Area	10	6
Proposed	Entrance Plaza	10	2
Proposed	McKinley Camper Cabins	6	6
Proposed	North and South Campgrounds (Main Campground)	128	51
Future	Day Use Area North (Hiking area near Armstrong Bay DUA)	54	2 - 6
Future	Group Camp	57	10
Future	Lakeside Adventure Play Area	33	2 - 4
Future	Lakeside Lodge	19	2
Future	Mountain Bike Adventure Area	124	6
Future	Boat-in Campsites (3s)	27	0 - 2
Future	Remote Campsites	10	1 - 2
Future	Trailside Campground	103	25
ALL	Grand Total	581	117 - 122
	Round Total		120 - 125

Collectively, the maximum extent of disturbance due to the recent construction, designed developments, and future park development within LV-SUMSP is estimated at 125 acres. Not visible in the disturbance estimate are the numerous trails that will be closed off and revegetated. A substantial portion of the development areas identified above would not be converted to impervious surface but would be revegetated with ground cover and allowed to revert to grass, brush, or woodland. The numerous small interspersed forested habitats of the main campground have not been subtracted from the development area.

Stuntz Bay water access is an existing, developed facility and is presently in use, and was privately operated prior to state ownership. Improvements are being proposed within an already disturbed access area. The proposed Soudan Heritage and Science Center will be located amongst existing buildings

within the mine site. It is estimated that most of the road and trail segments leading to proposed facilities would be developed within disturbed corridors.

If Before and After totals are not equal, explain why:

11. Fish, wildlife, and ecologically sensitive resources

a. Identify fish and wildlife resources and habitats on or near the site and describe how they would be affected by the project. Describe any measures to be taken to minimize or avoid impacts.

General Landscape Characteristics and Plant Communities. The LV-SUMSP is within the Laurentian Mixed Forest Province, a broad area of forests, bogs, and swamps found in northeastern Minnesota. The Province's Northern Superior Uplands section generally refers to Minnesota's Arrowhead Region and coincides with the Canadian Shield in Minnesota. The section is characterized by glacially scoured bedrock terrain with thin and discontinuous deposits of coarse loamy till and numerous lakes. The majority of LV-SUMSP is located in the Border Lakes Subsection of this province, with the southeast corner located within the Nashwauk Uplands Subsection. The Border Lakes Subsection is characterized by lakes and rocky ridges, poor soils, and glacially eroded bedrock, exposed along the Vermilion Iron Range that transects the parklands. Long east-west oriented lakes, such as Lake Vermilion, occupy about 13 percent of the surface area within the subsection. Historic forest types on uplands were mostly aspen-birch or aspen-birch-conifer, and on dry sites, jack pine barrens. The Nashwauk Uplands subsection includes rolling till plains and moraines and flat outwash plains formed by the Rainy Lobe glacier, with locally exposed bedrock in the end moraines and a narrow bedrock ridge known as the Giants Range. Giants Range forms a more or less continuous ridge of narrow highland that is nearly 100 miles long extending from a few miles north of Grand Rapids in Itasca County to beyond Birch Lake in Lake County. Small bogs and potholes are also common.

The LV-SUMSP is underlain by two bedrock formations, an iron bearing metamorphic formation and a metamorphosed sedimentary rock formation, with origins dating back to over 2.7 billion years. The ore bodies in the parks are mostly hard and dense bluish hematite. An exposure of the Soudan Iron Formation, found east of Stuntz Bay access road, illustrates alternating bands of hematite, white to pink chert, and red jasper, and three distinct geological processes--folding, mineralization and glacial erosion; forces that shaped and formed the bedrock layers.

The majority of the upland habitat in the park is classified as Northern mesic mixed forest (Class code FDn43). These forest stands have relatively deep soils and contain a mix of tree species. Younger growth stages tend to be dominated by birch and aspen, while older growth stages are dominated by conifers and may be nearly solid red or white pine. The LVSP wetland habitats are mostly of Northern Wet Cedar Forest and Wet Ash Swamp. Other wetland systems represented in the parks include forested peatlands, acid peatlands, open peatlands, and wet meadows.

As reported in the CMP, similar management goals are provided in the Subsection Forest Resource Management Plan for both subsections in which the LV-SUMSP is located. The goals are to increase the upland conifer forest component, reduce the aspen and birch component, increase average stand patch size, increase stand-width species diversity, protect old-growth forest stands, protect Environmentally Important Lowland Conifers, and apply practices using Native Plant Community (NPC) field guides and NPC interpretations.

State parks are managed to protect and preserve natural communities, while also providing outdoor recreational opportunities, primarily in a natural setting. A resource assessment (RA) is conducted for all proposed development projects within state park units during the planning process. An RA is conducted by resource specialists and archaeologists to assess the potential effects on natural and cultural resources. The RA includes the determination of whether there is a presence of rare species, high quality native plant communities, wetlands, archaeological/historic sites and whether the development will cause

habitat loss or fragmentation, for example. Specific recommendations to avoid, protect/minimize or mitigate anticipated impacts are included in the RA, for example:

- Avoidance of high quality native plant communities, old growth, rare species and wetlands.
- Avoidance of archaeological or historic sites.
- Implementation of MDNR Operational Order 113 and division guidelines to prevent/minimize the risk of invasive species being introduced/spread by development projects.
- Implementation of appropriate erosion control measures.
- Revegetation of areas with native species in areas within the development footprint but outside of the use area.
- Purchase/use of banking credits or replacement of wetlands impacted.

Wildlife. The project area supports large carnivore/herbivore species including moose (*Alces alces*) and white tailed deer (*Odocoileus virginianus*), mainly as seasonal residents during the winter, when the large cedar swamp habitats are desirable for their improved thermal cover. Wolves (*Canis lupus*) seem to follow this general rule as well. Bears (*Ursidae*) are transient in nature and sporadic occurrences in the park are likely. Bald eagles (*Haliaeetus leucocephalus*) are known to utilize large white pine (*Pinus strobus*) trees for nesting sites along the water's edge.

Some of the most interesting and scenic features at LVSP are wetland complexes created by beavers. These are dynamic habitats – over the long term, they are beaver-modified and beaver-maintained, but they can change dramatically from year-to-year, depending on beaver activity. The pond can be a flooded pond one year and muddy flats colonized by annual plants the next year. The variety of wetlands and their transitional character provides important habitats for a wide variety of plant and animal species.

The temporary impacts from operating construction equipment, such as increased levels of noise and air pollution, would affect behavior and movements of local wildlife. The construction of the roads, trails, campsites, and other infrastructure would locally increase forest fragmentation within the parks. A loss of 32 acres of forested upland and approximately two acres of wetland habitats is anticipated. Additional wildlife disturbance could result from the general campground operations, the increased vehicular traffic, and the anticipated higher numbers of park visitors during the spring and summer seasons and moderate numbers during the fall season. Disturbances to resting or nesting wildlife could increase, potentially causing some animals to leave the project area. Traffic is potentially hazardous to wildlife during their movements. Wildlife that can adapt to human presence will likely continue to use the area while other animals may move to surrounding wooded areas. The overall condition of the parklands for supporting wildlife should remain relatively intact, or be improved.

Under full development of proposed projects, only four percent of the landscape would be developed. The restriction in the amount of the parklands dedicated to facilities and access will insure large areas of the parkland will remain available to wildlife. The parks operate under legislative directives to manage for native species and habitats and preserve and perpetuate other significant natural, scenic, scientific, and historic features. Additional guidance will be sought from Subsection Forest Resource Management Plans for the Border Lakes and Nashwauk Uplands subsections and the State Wildlife Action Plan. Specific recommendations for forest management are listed in the CMP. The commitment of the MDNR to manage the natural communities of the parkland will help to maintain healthy animal communities in the future.

Fisheries. Lake Vermilion is one of the largest lakes in Minnesota and has a surface area of 39,271 acres, 368 islands, and 340 miles of shoreland. The MDNR conducts annual fish population assessments on the lake to monitor long-term population trends. Lake Vermilion is part an intensive fisheries management program on the ten largest lakes in Minnesota. Several sampling stations are located near the parks. Annual population assessments, annual water quality monitoring, and regularly scheduled creel surveys are taken. The lake contains 15 fish species popular to recreational anglers.

The LVSP includes 5.1 miles of Lake Vermilion shoreline and the SUMSP adds 4.8 miles of shoreline, a total of nearly 10 miles of relatively unmodified shoreline, containing high-quality habitat for a number of fish species. The CMP indentified four significant aquatic features: 1) bulrush (*Scirpus* spp.), 2) bur-reed (*Sparganium* spp.), 3) lilies (*Nymphaea* and *Nuphar* spp.), and 4) walleye habitat. Bulrush, bur-reed and walleye habitat have been mapped. Lily areas and submergent vegetation were not mapped. Along its shoreline, much of the exposed nearshore habitat outside of the bays and some of the shoreland within the bays contain walleye habitat. Cable Bay and Mattson Bay contain bulrush and bur-reed bed. The nearshore habitats along the parklands contain several long stretches of windswept rubble, which provide critical spawning habitat for walleye (*Sander vitreus*). The stands of aquatic vegetation in this area of the lake are considered important for sustaining the lake's fisheries. Lilies and bulrush create important black crappie and bass habitat. The mostly undeveloped nature of the shoreline helps protect the lake's water quality by filtering runoff.

Several facilities are proposed along the shores of Lake Vermilion, as listed by scoping area: 1) docking at Armstrong Bay Day Use Area and occasional pedestrian water access points and/or fishing docks along a nearby trail system; 2) docking and swim area near the Lakeside Lodge; 3) potential docking at boat-in campsites; 4) parking lot and public water access to launch boats, kayaks and canoes at west end of the Main Campground on Cable Bay; and 5) improvements to the parking space, sanitation buildings, day use facilities, and existing public water access at Stuntz Bay. The swim area at the Lakeside Lodge shoreline may involve shoreland and nearshore alterations to prepare the area for swimming. The park will provide access for visitors seeking lake-based recreation, including fishing, swimming, paddle sports (canoe/kayak), boating, and shoreline picnicking on Lake Vermilion. A portion of the estimated 300,000 annual visits per year can be expected to recreate on the lake or along the shoreline.

The MDNR will protect shorelines and aquatic vegetation needed for fisheries by continuing to inventory and monitor high value areas and the vulnerability of these habitats and vegetation. Areas of the lake containing high quality habitats could be designated to reduce their exposure to surface water activities. The shoreline will be monitored and appropriate measures, such as fencing, bioengineering, hardening, etc., will be implemented when erosion or loss of vegetation is excessive.

The CMP identifies efforts to avoid locating developments and water recreation use near identified fish spawning and other sensitive aquatic habitats. Designated boat tie ups and docks are planned as an effort to steer boaters to less sensitive zones rather than pulling up to shore wherever they like. The MDNR will designate sites to protect other portions of the park shoreline and park-owned islands.

The East Two Rivers that drains the southern part of LV-SUMSP is a designated trout stream. As described in Appendix A of the General Construction Stormwater permit, under certain conditions additional Best Management Practices (BMPs) together with enhanced runoff controls are required for discharges to these special waters. The rules describe requirements for limiting soil erosion, permanent stormwater management systems and temperature controls.

Species in Greatest Conservation Need (SGCN)**.** SGCN are species that have been identified as rare, declining, or vulnerable in Minnesota and their available habitats are declining in quality or extent. A total of 77 unique SGCN are listed for the two subsections that transect the parks. The Border Lakes subsection contains 69 SGCN, including 15 state or federally listed species, and the Nashwauk Uplands subsection contains 60 SGCN, including 11 state or federally listed species. The MDNR's Comprehensive Wildlife Conservation Strategy, *Tomorrow's Habitat for the Wild and Rare: an Action Plan for Minnesota Wildlife*, identifies six key habitats in these subsections, two of which are found in the scoping areas. Potentially 35 species of the statewide SGCN list may have been observed within LV-SUMSP. Some of the SGCN that have been observed and verified at Lake Vermilion State Park, as listed in the following tables:

Key Habitats of the Border Lakes & Nashwauk Uplands Subsections	
Forest – Upland Deciduous (Mixed hardwood-pine)	Forest-Lowland Coniferous
Forest-Upland Coniferous	Lake – Deep
Shrub/Woodland-Upland (Jack pine woodland)	River – Headwater to Large

SGCN Observed and Verified at Lake Vermilion State Park		
Birds		Mammals
American Black Duck	Olive –sided Flycatcher	Eastern Pipistrelle
American Woodcock	Rose-breasted Grosbeak	Gray Wolf
Bald Eagle	Swamp Sparrow	Northern Myotis
Black-billed Cuckoo	Trumpeter Swan	Smokey Shrew
Cape May Warbler	Veery	
Common Loon	White-throated Sparrow	Amphibians & Reptiles
Eastern Wood-pewee	Yellow-bellied Sapsucker	Common Snapping Turtle
Least Flycatcher		Eastern Red-backed Salamander

Combined with habitat management programs necessary for meeting the mission of the LV-SUMSP it is anticipated that the relatively small area of development within the approximately 4,000 acre park will result in very little disturbance or adverse effect on SGCN use of habitats within the park.

Invasive Species. Lake Vermilion contains several aquatic invasive species (AIS), including the following prohibited invasive species—curley-leaf pondweed (*Potamogeton crispus*) and purple loosestrife (*Lythrum salicaria*)—and regulated invasive species—the Chinese mystery snail (*Bellamya chinensis*) and the rusty crayfish (*Orconectes rusticus*). Curly-leaf pondweed is now present in Everett's Bay and Stuntz Bay in East Vermilion. Purple loosestrife is found at several sites near the lake, usually in adjacent wetland areas. The Chinese mystery snail was discovered in 2011 in Spring Bay at the far west end of the lake.

Rusty crayfish are very abundant in East Vermilion and have recently become established in West Vermilion. Emergent vegetation quantity and diversity has been decreasing on Lake Vermilion due primarily to rusty crayfish, a non-native species. Considering these threats, all weed-beds and emergent vegetation that still exist become increasingly valuable to spawning fish and other aquatic species. Aquatic beds that exist along the Park's shoreline include those dominated by lilies and emergent vegetation—bulrush, and bur-reed, which represent significant aquatic features identified in the CMP.

Despite the presence of the above species, Lake Vermilion is not designated as infested waters under Minnesota Statutes, Chapter 84D.03, subd. 1 (Commissioner's Order INF-12-002, July 2012). The lake does not contain the selected prohibited invasive species that cause a lake to be designated.

With one new public access and park visitors coming from across the region, the LVSP has potential to be the inadvertent recipient or a potential vector of AIS. There are many private and public water accesses on Lake Vermilion that have similar potential in addition to the one proposed at LVSP on Cable Bay. The proposed water access is not likely to be the busiest point of entry to the lake for boaters, considering the limited trailer space in the parking lot. The MDNR will manage access and boater usage under BMPs that promote AIS prevention. Typical signage and inspection sites/tie-down areas are included in the design of the water access, using AIS BMPs for Water Access. If this access becomes a priority in the future, increasing the awareness of the potential for AIS transfer would be warranted. The docks are considered permanent facilities for each location. In the event that they are transferred to

another location, specific rules and requirements must be met to avoid the inadvertent transfer of aquatic invasive species from one water body to another. The MDNR is constantly updating its programs dealing with AIS and additional information/guidance is available to park managers. In addition to the agencies' responsibility for controlling AIS, regulations for boat owners have been strengthened. In regards to the rusty crayfish for example, the transportation of live native and invasive crayfish from one waterbody to another within the state is prohibited, except by permit issued by the MDNR.

Construction, campground use and maintenance, other resource management activities, and visitor movements within the park can contribute to the spread of terrestrial invasive species. Several terrestrial invasive plant species have been identified to occur within the park boundary, including three aggressive species on the Minnesota's noxious weed list--spotted knapweed (*Centaurea maculosa*), Canada thistle (*Cirsium arvense*), and tansy (*Tanacetum vulgare*). These weeds and the aquatic purple loosestrife are established throughout Minnesota or regions of the state and must be controlled by landowners, meaning efforts must be made to prevent the spread, maturation and dispersal of any propagating parts, thereby reducing established populations and preventing reproduction and spread as required by *Minnesota Statutes*, Section 18.78. Additionally, transportation, propagation, or sale of these plants is prohibited. Other invasive species found in the parks that are more controllable include Siberian peashrub (*Caragana arborescens*) and cypress spurge (*Euphorbia cyparissias*). The terrestrial invasive species identified within LVSP are primarily located along existing roadways or former building/residential sites.

With the increased emphasis on controlling of invasive species, as indicated by the updated operational orders, the MDNR Division of Parks and Trails is continuing to inventory and map terrestrial invasive species throughout the park and appropriate treatment and control methods will be applied. Invasive species management priorities within LVSP specifically include implementing BMPs for prevention and control; identifying, treating and monitoring existing and new invasive infestations; and following MDNR policy on invasive species.

The MDNR Operational Order 113 provides guidance and directives on agency procedures for implementing site-level management to prevent or limit the introduction, establishment, and spread of terrestrial and aquatic invasive species. As a subpart of the order, the MDNR Division of Parks and Trails has guidelines specific to the lands and programs they administer, including public water accesses. The guidance and governance for applying herbicides is defined under the MDNR Operational Order 59. All herbicide applications would need to comply with labeling, safety protocols, and precautions as prescribed. Pesticide application must be preceded by a Natural Heritage Information System review to insure endangered or threatened species or significant native plant communities are not inadvertently harmed. Depending on the site and situation, MDNR staff will use mechanical, chemical, and biological controls to limit the size and number of infestation sites. Targeted chemical treatments for spotted knapweed, Canada thistle, and tansy have occurred in the park since it was acquired in 2010.

AIS prevention measures during construction would include such activities as: assessing the project area for the presence of invasive species prior to initiating work; treatment of invasive species before work begins; locating sources of weed-free materials; cleaning equipment before it arrives and departs; and re-vegetating disturbed areas as soon as possible. The stormwater management protocol requires that re-vegetation of road shoulders be completed quickly after construction. Invasive species that are found within the project area or along access routes will be managed to minimize their spread and potential for introduction to other areas. Integrated pest management will be used in treating known infestations of the most aggressive weeds.

b. Are any state-listed (endangered, threatened, or special concern) species, rare plant communities, or other sensitive ecological resources on or near the site? X Yes No

If yes, describe the resource and how it would be affected by the project. Describe any measures that

will be taken to minimize or avoid adverse impacts. Provide the license agreement number (LA-____) and/or Minnesota Department of Natural Resources, Division of Ecological Resources contact number (ERDB #20130081) **from which the data were obtained and attach the response from the DNR, Division of Ecological Resources. Indicate if any additional survey work has been conducted within the site and describe the results.**

The Minnesota Natural Heritage Information System (NHIS) database was reviewed to determine whether any rare, threatened, or endangered plant or animal species or other significant natural features were known to occur within or near the project area. This query identified an active Bald Eagle nest along the shoreline of Lake Vermilion; two state-listed mammals of special concern, Northern Myotis (*Myotis septentrionalis)* and Smoky Shrew (*Sorex fumeus)*; several rare plants within the park boundaries; and over 300 acres of old growth forest within the SUMSP. Based on the work proposed and the locations of the known occurrences, the proposed project may adversely affect several of these rare features (Attachment A). In addition to features identified in the NHIS report, several others were identified during recent surveys, such as during the Bio-Blitz in the LVSP in 2010. The Bio-Blitz was a 24-hour survey in which the public helps scientists record all the plants and animals at a specific location. Part contest, part festival, part educational event and part scientific endeavor, Minnesota Bio-Blitz brings together scientists from across the state in a race to identify the biodiversity of the parklands. Specific information relates to the presence and potential effect of several features in the proposed project area.

The St. Lawrence Grapefern (*Botrichium rugulosum*), a state threatened vascular plant species, was found in the area of the proposed Main Campground development area. Maintaining a 20-foot buffer around the grapefern locations will prevent the plants from being disturbed. The areas will be identified and flagged to insure that no construction activities or developments will disturb the existing populations. In addition to the grapefern, a population of dragonmouth orchid (*Arethusa bulbosa*) was also documented in wetlands that should not be disturbed.

U.S. Fish and Wildlife Service, National Bald Eagle Management Guidelines (NBEMG) recommend that non-motorized recreational activity and human entry (including hiking, biking, camping, fishing, hunting, canoeing) are avoided around active nests from January to July. A 330 feet (100 meters) buffer zone limiting human activities around active nests is recommended during the nesting season.

The Lakeside Adventure Play Area scoping area and the houseboat tie-up location are close to or within the buffer zone of an active Bald Eagle nest. The design of the Adventure Play Area would include measures to avoid disturbance of active eagle nests in the vicinity during construction and use. Use of the houseboat tie-ups should not affect nesting eagles as active boating presently occurs in the area. The NBEMG will be apprised and followed during general park operations and when locating and scheduling construction in the vicinity of active nests. The proposed project should not have an adverse effect on nesting eagles in the park.

In addition to the species tracked in NHIS, the Canada lynx (*Lynx canadensis*), a federally-listed threatened species, is known to occupy habitats similar to those found on the project area and is known to use the arrowhead region of Minnesota, where an 8,000 square mile area is designated as Critical Habitat by the U.S. Fish and Wildlife Service. It is possible that the Canada lynx uses suitable habitat in the parks and animals may occasionally pass through the project area. Due to the limited area of development within the 4,000 acre parkland, the proposed project should have minimal adverse affects on the Canada lynx.

According to the CMP, the old growth forests in the SUMSP are considered significant land features. No old growth has been designated in LVSP, where nearly all of the park developments are proposed. The MDNR park management guidelines encourage the conservation and maintenance of older forests. The old growth forest management guidelines have been followed when scoping out locations for the

developments. Overall goals are to manage natural processes to promote regeneration and maintain or restore the integrity of the old-growth communities. This is accomplished by avoiding placement of developments in areas that would encroach upon designated old growth stands and clustering of facilities to reduce the fragmentation of the existing forest cover. General guidance recommends avoiding most timber harvesting, wildlife habitat manipulations, any road construction, and the use of pesticides under most circumstances. Management tools and activities that can be used in old growth stands include: prescribe fire; exotic plant, disease, and herbivore controls; and research projects and trail development, on a case-by-case basis. The Heritage and Science Center and the McKinley Park Camper Cabins proposed development sites within SUMSP are situated near the designated old growth forests stands. The proposed developments will not adversely affect the designated old growth forest.

Legislative directives for MDNR management in the state park includes: manage for native species and habitats that were present at the time of European settlement; and preserve and perpetuate other significant natural, scenic, scientific, and historic features; maintain a balance of plant and animal life; and re-introduce desirable species (*Minnesota Statutes*, section 86A.05). The CMP provides guidance statements and recommendations intended to direct resource management activities to conserve significant features, including plant communities, and inform development decisions over the life of the plan. Several Significant Plant Communities have been mapped within the two parks. Based on standard conservation ranking system, some of them are considered imperiled or vulnerable and are given a higher conservation status that may lead to more focused resource management activities and additional protections.

Significant Plant Communities identified for LVSP during development of the CMP include: cliff/talus areas (CTn system, 1 ac), bedrock shrubland or crystalline outcrops (ROn system, 3 ac), bedrock pine or oak woodlands (FDn system, 31 ac), northern mesic hardwood forest (MHn35, 40 ac), and wet ash swamps (WFn55, 3 ac). Cliff faces and talus slopes are extreme habitats were very hardy, and sometimes less common, species occur. Open woodland stands composed of pines (*Pinus spp*.), birch (*Betula spp*.) and aspen (*Populus spp*.) grow on dry ridges and hillsides, where soils are shallow and poor (FDn32). Jack pine (*Pinus banksiana*), red pine (*Pinus resinosa*), and northern pin oak (*Quercus ellipsoidalis*) forest cover is also found on very shallow, droughty soils (FDn22). Fruiting shrubs, such as blueberries (*Vaccinium* spp.*)* and juneberries (*Amelanchier* spp.*)* are abundant in these habitats. These habitats sometimes grade into open, rocky outcrops with abundant lichens and mosses. Some of these plant communities have higher conservation ranks.

Several stands of northern mesic hardwood forests, classified as the aspen-birch-basswood forest type and the wet ash swamps have conservation status regarded as apparently or demonstrably secure. Although common and widespread across the state, this forest type is relatively uncommon this far north. Its presence in the park might be attributable to the local climate-moderating influence of Lake Vermilion. The Lakeside Lodge would potentially affect approximately four acres of this community. The wet ash swamp community is also found within the Lakeside Lodge scoping area. Considering its wetland character, it has severe limitation for development and would be avoided. The conservation status of the crystalline bedrock outcrop and dry mafic cliff is also considered apparently secure. The proposed development of the south campground of the Main Campground avoids most of the vulnerable plant communities, with minimal impacts expected from road construction. One of the Boat-in Campsite scoping areas contains an imperiled plant community. The Walk-in Campsites will cause minor disturbances because of the minimal area necessary for outfitting the camp; when locating the site in the field, the plant community will be avoided to the greatest extent possible. Other scoping areas have only minor occurrences of imperiled or vulnerable communities. Trail development may have minor affects on these areas.

12. **Physical impacts on water resources. Will the project involve the physical or hydrologic alteration – dredging, filling, stream diversion, outfall structure, diking, and impoundment – of any surface waters such**

as a lake, pond, wetland, stream, or drainage ditch? X **Yes** ____ **No**
If yes, identify water resource affected and give the DNR Public Waters Inventory number(s) if the water resources affected are on the PWI: 69037800 **Describe alternatives considered and proposed mitigation measures to minimize impacts.**

Lake Vermilion is a public water, with 16 public water accesses (five of which are owned by the MDNR). The LV-SUMSP parkland drains into Lake Vermilion via: surface flows and rivulets directly into the lake; a small unnamed public water stream that drains into Mattson Bay, or less directly, via the East Two Rivers, a public water watercourse and designated trout stream. Only the Trailside Campground and a portion of the Mountain Bike Adventure Play Area scoping areas lie within the East Two Rivers watershed. Runoff from the Lakeside Lodge, Lakeside Adventure Play Area, Boat-in Campsites, Armstrong Bay Day Use Area, and most of the Main Campground scoping area flows directly into the lake. Runoff from the group camp, walk-in campsites, about one-half of the Mountain Bike Trail Adventure Play Area and a small part of the main campground scoping area flows into the unnamed public water stream.

Shoreland development, including development and usage of public water accesses, dock installations and other shoreline structures, can contribute to the deterioration of Lake Vermilion's water quality and the lake's ecosystem. Activities that disturb shoreland vegetation by construction that exposes mineral soils or those that destabilize vegetation through continuous use or foot traffic can increase erosion and shoreline instability. Studies of lakes in the region show that docks may shade out important aquatic plants and eliminate habitat where fish spawn, feed, grow, and find shelter from predators. Shoreline views may also suffer when large dock systems are installed. Also, there is a growing concern about use of the water surface if docks and associated structures extend too far or cover too much surface area.

Facilities for accessing the shores and open waters of Lake Vermilion would be improved or established at several locations along the shoreline within the following scoping areas: 1) docking at Armstrong Bay Day Use Area and some nearby hiking trail segments may extend into the shore impact zone to access views at overlook areas or the shoreline for fishing; 2) docking and swim area on shoreline near the lakeside lodge; 3) potential docking at boat-in campsites; 4) parking lot and public water access to launch boats, kayaks, and canoes on Cable Bay; and 5) potential improvements to the parking space, sanitation buildings, day use facilities, and existing public water access on Stuntz Bay. The two public access sites will be the only locations where trailered boats can be launched from within the parks. Standard designs and specifications will be followed when developing these facilities. A designated swim area near the Lakeside Lodge may involve some alterations to prepare the shoreline for swimming. The specific location of the swim area and characteristics of the shoreline have not been determined. All proposed dock structures would be limited in size to meet basic water access needs and would not cause noticeable visual impacts. Annual fall removal of the docks and spring replacement and other maintenance requirements will be followed. The small-sized docking areas and water accesses would be widely dispersed along the ten mile shoreline of the parks.

Improvement of roadways and establishment of the hiking and biking trail system will require improvements along existing travel corridors and some construction of new road or trail segments. Some replacement or new installations of culverts and bridges, or in the case of wetland trail crossings, installation of boardwalks, may be required to improve safety and reduce environmental effects on wetlands and creeks. No new construction or replacement bridges have been identified but may be scoped into future project designs. It is likely that several small bridging structures will be required for the pedestrian trail system. Sufficient bridge structures are already in place along the proposed central trunk trail where it crosses the public water stream. The central trail is intended to connect the Main Campground to the Lakeside Lodge area access road. MDNR's 'Trail Planning, Design and Development Guidelines' manual (2007) is available for designing small wetland or stream crossings. These disturbances will require standard erosion control measures.

If a dock is designed and used for access to navigable water depth, a MDNR permit will rarely be needed. A dock does not need a permit if it is no more than eight feet wide, is simply designed to meet the need of reaching navigable depths, and follows standard MDNR guidelines. The proposed dock construction would fall within the Dock Platforms general permit (#2008-0401). Construction of the Main Campground water access site will require an individual Public Waters Work permit. The removal or destruction of aquatic plants is a regulated activity under the MDNR Aquatic Plant Management Program. Emergent vegetation (bulrush) and floating leaf vegetation (lilies) should be avoided. Dependent on the impacted area, removal would require a MDNR Aquatic Plant Management permit. The potential need for sand placement within a public water may require a Public Waters Work permit. The Stuntz Bay water access improvements may require a permit, depending on the excavation and fill requirements for construction and the size specified in the designs, which have not been initiated at this time. Work in Lake Vermilion and adjacent wetlands would likely require Department of the Army (DA) authorization under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, as administered by U.S. Army Corps of Engineers (USACE). Coordination with USACE to gain approval for Section 404 (CWA) and Section 10 (Rivers and Harbors Act) permits necessary prior to initiating any development that affect wetlands or navigable waters of Lake Vermilion is on-going.

Wetland delineation has been completed for the Main Campground and its public water access on Cable Bay. The most recent designs estimate that 0.6 acres of wetland will be impacted by camp service roads and the public water access site. Total wetland impacts for the project, including impacts expected during the development of future facilities, is not expected to exceed two acres. Collectively the scoping areas contain nearly 100 acres of hydric soils and additional partially hydric soils. With ample suitable upland areas available for development within the scoping areas, considerable play in the field selection of sites and placement of facilities is available.

Impacts to wetlands will be avoided and minimized to the greatest extent feasible through design adjustments to road and camp facility configurations. Floating boardwalks will be employed to avoid wetland disturbances along wet segments of trail corridors. If conditions merit, additional culverts will be installed to maintain continuity of hydrologic systems at road crossings, when road improvements are undertaken. Mitigation by wetland replacement within the park is limited due to the relatively intact upland and wetland communities that are present in the park. Alternatively, wetland bank credits will be pursued to compensate for losses incurred during project developments, in accordance with the Minnesota Wetland Conservation Act (*Minnesota Rules*, Chapter 8420). Federal Section 404 of the Clean Water Act and Section 10 of the RHA are applicable when mitigating for wetland impacts.

The Board of Water and Soil Resources (BWSR) wetland bank credits database will provide options for purchasing wetland credits in bank service areas (BSA) of the state closest to the wetland impacts. Because the Park and all associated development projects exist within BSA2, the purchase of available wetland bank credits within this BSA will be pursued first. However, this BSA often has limited availability of wetland bank credits. In circumstances of limited availability in BSA2, the surrounding BSAs may need to be investigated for wetland credit purchases, which hold at a higher wetland replacement ratio.

13. Water use. Will the project involve installation or abandonment of any water wells, connection to or changes in any public water supply or appropriation of any ground or surface water (including dewatering)?
_X_ Yes _____ No. If yes, as applicable, give location and purpose of any new wells; public supply affected, changes to be made, and water quantities to be used; the source, duration, quantity, and purpose of any appropriations; and unique well numbers and DNR appropriation permit numbers, if known. Identify any existing and new wells on the site map. If there are no wells known on site, explain methodology used to determine.

It is estimated that water usage levels may reach 75- to 100-gallons per day (GPD) per campsite during the periods of peak demand. Water use estimates from the Metropolitan Council assume 75 GPD per campsite for a facility with central sanitation facilities. However, a nearby state park campground with similar facilities uses approximately 100 GPD per campsite during the summer [peak] camping season. The Main Campground is considered to need the water equivalent to the typical usage of about 93 campsites when a conversion factor of 8 campsites is applied to each of the three group camps. Water use for Group and Trailside Campgrounds is estimated at 6500 GPD. Other water use associated with lodges, day use areas, will be minimal and limited to domestic uses within those facilities.

Water usage will be monitored to determine whether actual water use meets or exceeds the projected values. A MDNR Appropriation permit would be needed if a water system takes more than 10,000 gallons on one single day, or one million gallons per year. The permit threshold is not applied to total water usage for the proposed developments but is applied to each independent well with its own water system and to each group of wells that are manifolded together (connected to the same system). With the likelihood of drilling wells of limited capacities and the dispersed nature of the proposed developments, it is not anticipated that a permit would be required. Six or seven wells will likely be required for recent and designed developments and four or five wells are potentially needed for future developments. No wells are proposed for the adventure areas, boat-in campsites, or walk-in campsites. As future developments are planned and designed and wells are tested, the need for additional wells will become known. The regulatory process to provide notice of the intent to drill new wells will be followed.

14. Water-related land use management district. Does any part of the project involve a shoreland zoning district, a delineated 100-year flood plain, or a state or federally designated wild or scenic river land use district? _X_ Yes _____ No If yes, identify the district and discuss project compatibility with district land use restrictions.

Lake Vermilion is classified as a General Development Lake with a zoning district that describes a minimum shoreline setback for structures of 75 feet from the Ordinary High Water Level at the 1358.35 foot elevation. The shore impact zone is from 50 to 150 feet.

The following facilities are proposed at several locations for improvement or development within the 1,000 foot shoreland areas of Lake Vermilion (by scoping area): 1) docking at Armstrong Bay Day Use Area and occasional access points along nearby hiking trails; 2) docking and swim area on shoreline near the Lakeside Lodge; 3) potential docking at Boat-in Campsites; 4) parking lot and public water access to launch boats, kayaks and canoes at west end of the Main Campground on Cable Bay; 5) improvements to the parking space, sanitation buildings, day use facilities, and existing public water access at Stuntz Bay. There will be relatively little development along the entire ten miles of shoreline within the park. The limited development will allow maintenance of the natural character and features of the majority of the shoreland area.

The campground location was selected to provide visitors access to the lake while maintaining a shoreline setback to limit the visual impacts of the development. The campground proposal is designed to utilize the contours and natural features of the site to limit construction impacts and enhance the aesthetic experience for guests. The proposed campground developments and camper cabins will meet or exceed shoreline and St. Louis County bluff standards setbacks. A MDNR Public Waters Work permit is necessary for construction of the public water access in Cable Bay.

Development will embrace BMPs for shoreland management—avoiding, minimizing and mitigating impacts within the Vermilion River watershed. Development will meet or exceed setback standards; strive to minimize impervious surfaces; treat stormwater runoff on site; use natural vegetative buffers to infiltrate runoff and screen much of the parks' development from the lake; minimize disturbance and fragmenting of riparian and aquatic habitats; and use approaches best suited for on-site sewage treatment.

15. Water surface use. Will the project change the number or type of watercraft on any water body?
X Yes ____ No
If yes, indicate the current and projected watercraft usage and discuss any potential overcrowding or conflicts with other uses.

Lake Vermilion is heavily used for boating recreation. Relative to the existing boating activity on Lake Vermilion, it is anticipated that a limited additional usage will result from one proposed water access, one improved water access, three additional boat-in campsites, and several docking points. A large portion of the water recreation activities will likely be canoeing and kayaking.

The park will provide access for visitors seeking lake-based recreation, including fishing, swimming, paddle sports (canoe/kayak), boating and shoreline picnicking on Lake Vermilion. A portion of the estimated 300,000 annual visits per year can be expected to recreate in the shorelands or on the lake. A new public water access in Cable Bay is included as part of the campground development proposal. The access will include 30 to 35 parking spaces for vehicles with trailers, as well as 10 to12 parking spaces for vehicles without trailers (for carry-in access). Boat docks will also be provided at the eastern end of Cable Bay, at the Armstrong Bay Day Use Area, and near the potential swim area at the Lakeside Lodge. Additional docks, fishing piers, and viewing platforms may be placed at several other locations along the park's lakeshore, i.e., the Boat-in Campsites or shore fishing access areas near the Armstrong Bay Day Use Area. A houseboat tie up site is proposed along the eastern shore of Stuntz Bay, near the Lakeside Adventure Play Area. Other existing boat tie-up sites are located throughout Lake Vermilion.

The public water access will provide park visitors a local access to Lake Vermilion, enabling campers and day use visitors to access the lake at their primary destination point. Public water accesses located within a five to ten mile distance from the proposed water access include Everett Bay, Hoodoo Point, McKinley Park Campground, Stuntz Bay, and Mud Creek; additional private water access locations are also available in the area. Lake Vermilion is a large stable lake system, with significant existing watercraft use but a capacity to absorb additional surface water usage. The proposed development would bring moderate additional surface water use to East Lake Vermilion. The MDNR does not anticipate the addition of the new access, or watercraft activity associated with the state park development, will greatly affect the overall watercraft use on Lake Vermilion. Only a limited increase in conflicts with other watercraft users is anticipated.

16. Erosion and sedimentation. Give the acreage to be graded or excavated and the cubic yards of soil to be moved: (see below) **Acres;** (see below) **cubic yards. Describe any steep slopes or highly erodible soils and identify them on the site map. Describe any erosion and sedimentation control measures to be used during and after project construction.**

The number of cubic yards (cu. yds.) of soil to be moved for developing McKinley Park Camper Cabins, where 1.5 acres would be graded for buildings and roads, is estimated at 3,800 cu. yds. At Armstrong Bay Day Use Area, where 1.6 acres was graded, a total of 6,100 cu. yds. of soil was moved during its construction. Although no estimates are available at this time for the Main Campground or other future projects, grading and filling would be necessary within the proposed development areas.

Disturbing the plant life, drainage patterns, topography or soils of slopes often increases the amount and speed of runoff and can cause erosion, soil creep, or slumping. When sloping lands are cleared, the usual result is more and faster runoff, especially when grading has smoothed a slope's natural roughness. The smoother slope allows the runoff to travel faster, increasing erosion and decreasing groundwater recharge. With steeper slopes, the problems become progressively more pronounced. Steep sloped lands are also often times characterized by other environmentally sensitive conditions including increased erosion, soil instability, and shallow depths to bedrock. Specifically, the ability of the soils to infiltrate

precipitation is reduced as a result of soil compaction, the disturbance of thin soils, the removal of vegetation or the exposure of bedrock. The NRCS Soil Survey for St. Louis County has identified soil mapping units and soil features for LV-SUMSP (Table 1 and 2).

Soil limitations that may influence soil erosion rates have been identified to occur in the scoping areas. Limitations that increase erosion potential in the development areas are: slow water movement through soil profile, steep slopes, large stones content, and shallow depth to bedrock. All of the scoping areas may contain areas with slopes greater than 12 percent. Steeper slopes appear to be the most important factor that increases the potential erosion within the development sites, although areas may also exhibit lower infiltration capacities. Along with slope, the soil erodibility factor for whole soils (KfactWS) is important for characterizing erosion potential. Area soils considered the most limiting have k factors that range from 0.15 to 0.28. The soils in this range are medium textured, are moderately susceptible to detachment, and may produce moderate runoff. The main campground site contains soils that are often shallow and stony and the steeper lands have exposed bedrock. The Mckinley Camper Cabins site also contains soil features that have a higher erosion potential. Development at other sites (Lakeside Lodge, Group Camp, and Mountain Bike Area) where from 2 to 25 acres would be disturbed at each site, would encounter soils that have less pronounced limiting features and slight to moderate erosion potential rating.

Access to the McKinley Camper Cabins site, the Stuntz Bay water access, the Heritage and Science Center, and the Lakeside Lodge will use existing road corridors. Approximately 95 percent of the system of road serving the proposed facilities will use established roads. These segments would likely be improved by resurfacing with gravel or pavement to reach the desired standards for accessing the recreation facilities. The Stuntz Bay access road (a Breitung Township road) has already been upgraded and is slated to receive its final coat of pavement this spring. In addition, 1.3 mi. of an existing snowmobile trail will likely be upgraded to a paved or otherwise hardened trail to serve as a trunk for connecting hiking and biking areas, campgrounds and the lakeside lodge site. The MDNR placed a high priority to design and site facilities in areas accessible from existing roads. The use of existing corridors helped to limit the amount of new road construction and reduced the amount vegetation, soil, and wetland areas that would be disturbed.

Developing the building sites, roads, parking areas, and camping facilities will involve clearing forested uplands, grading, and leveling. As the design indicated in Figure 7, some new corridors will be cleared for access roads to the public water access and to serve the configuration of campsites and associated facilities. Although a few existing road segments will be incorporated into the Main Campground road system and improved by grading, several new corridors would be required for the Main Campground where alignment changes would be necessary to avoid wetlands or to fulfill campground specifications. Shorter segments of new road corridors would likely be necessary to provide local access to the Group Camp and the Trailside Campground that are proposed for future development. Internal access to reach the series of campsites and associated facilities would likely require an addition of approximately two to three miles of park road corridors. Two-way park roads are typically 18 to 22 feet wide; one-way campground loop roads are typically 12 to14 feet wide.

The Mountain Bike Adventure Play Area is proposed to contain up to eight miles of bike trail. Some trails would traverse slopes greater than six percent to provide a greater variation of terrain for developing more challenging routes, such as for mountain biking and hiking. Trails will be signed to indicate level of difficulty, such as easy/beginner (green circle); more difficult/intermediate (blue square); very difficult/expert (black diamond); or extremely difficult (double black diamond). The more difficult the trail, the more obstacles or unpredictable the terrain and greater slopes may be encountered. Treadways may range from 12-feet wide for the easiest and accessible trails, to 18-inches or less for the most difficult or expert level trails.

Erosion control measures will be applied to mitigate for the increased potential for erosion during land clearing, site preparation, and facility operations. Controlling and preventing sedimentation in wetlands and drainageways will be very important for protecting the drainageways and Lake Vermilion. The construction plans will be developed to protect downstream areas. Long term erosion potential during the operation of the Main Campground will be contained by applying a variety of runoff control measures. An important feature of the campground development that reduces the erosion potential is the dispersed nature of the development. Dispersing campsites will add aesthetic appeal and reduce the proportion of impervious surface in any given area. The inliers of forest and those surrounding campsites and road segments will help to provide buffering along cleared areas. The vegetated areas would absorb some of the additional runoff from the cleared areas. Engineering designs stipulated that eight acres of stormwater ponds will be strategically placed to fully contain sediment and runoff.

The BMPs and development guidelines provide a number of techniques and tools that will be used to ensure sustainable design and facility use over time. Slopes greater than six percent will be avoided for the most part. The extent of grading and filling will be minimized by designing access corridors and campsite and other facility locations to conform to existing grade as much as possible. Ample fill material will be used to reduce the need for blasting bedrock obstructions. On disturbed soils, where natural mineral soils are exposed, silt fence or bio-rolls will be installed along the project limits at all points downstream of construction. Erosion stabilization mats or mulch will be applied on disturbed soils and areas graded with 2:1 slopes or steeper. Bio-roll ditch checks, riprap, drainage structures with sumps, and bio-retention basins for filtration/infiltration of stormwater will serve as energy dissipation devices in places where construction runoff may be concentrated. Protection of existing inlets downstream of construction will be installed prior to commencement of any grading work that exposes mineral soils. Inlet protection will be installed on all proposed inlets immediately after construction. Permanent erosion prevention and sediment control BMPs on the site will also include turf establishment for erosion control. Temporary seeding of areas not actively being worked would be implemented in conformance with the requirements of the NPDES permit. For the permanent seeding and revegetation of landscaped areas, the MDNR will use approved native plant species mixes. The suite of erosion control measures will be applied at all designed and future development locations prone to erosion and areas where runoff would concentrate.

Natural surfaced trails are soft-surfaced, follow the contours of the land and are more susceptible to natural forces. Trail purposes and proposed users, compaction, displacement and erosion forces on proposed treadways, and native soil types are considered when designing the trail system. The process of designing trails follow the appropriate principles and design techniques described in the *Trail Planning, Design and Development Guidelines*, Section 6 (MDNR, 2007). In addition, guide manuals from the International Mountain Biking Association provide design and development techniques to consider for establishing the park's mountain bike trail system. Trail maintenance will be employed to repair treadways that become eroded or channel water.

As noted for the main access roads, numerous segments of the proposed trail system will be located on disturbed corridors, previously used for logging access and/or hunting. Disturbance from trail development is especially dispersed in nature. Guidelines are available to prevent erosion along trails by configuring alignments to prevent water from channeling along a trail as the treadway becomes compacted and sometimes incised into the ground.

Key principles setting the foundation for designing sustainable natural surfaced trails along new corridors include:

- Natural surfaced trails are shaped, not built – these trails reflect the landscape being traversed and respond to the many nuances of a site that make them interesting to the trail user;
- Carefully considered tread alignments, site slopes, and tread grades are favored over extensive

grading and other mechanical means to create a trails – this is especially the case with drainage, where the design of the trail is used to control erosion and prevent displacement of the trail tread;

- Potential changes to tread shape due to compaction, displacement, and erosion must be anticipated as part of the design process – this means the tread must be designed so it will still drain with limited potential for erosion, even if it changes the shape through years of use**.**

17. Water quality: surface water runoff

a. Compare the quantity and quality of site runoff before and after the project. Describe permanent controls to manage or treat runoff. Describe any stormwater pollution prevention plans.

Lake Vermilion is considered 'moderately clear' or Mesotrophic, with average transparency reaching to approximately 10 feet.

Approximately 125 acres of development would occur within the total combined scoping area acreage (581 acres). The scoping areas are strategically located within the LVSP (10 areas) and SUMSP (two areas) (Figure 6). The largest development area is the Main Campground. Developments are collectively estimated to result in an additional 12 acres of impervious surfaces from roads, parking, tent pads, buildings, public water access, and other facilities.

The quantity of site runoff will be maintained at pre-development conditions for all proposed developments. A combination of BMPs will be used to collect and treat stormwater runoff generated at each site. Runoff from proposed roadways will be routed through swales seeded with deep-rooted native vegetation. Ditch blocks may be used to provide additional treatment within the constructed swales. Infiltration BMPs will be utilized where soil conditions allow. In general, impervious areas will be disconnected from conveyance systems. Where larger impervious parking areas are proposed, treatment swales and bio-retention areas will be utilized to remove sediment from runoff prior to entering Lake Vermilion and associated drainage ways. Soil amendments and/or deep tillage may be incorporated into pervious areas to promote infiltration of stormwater. A Stormwater Pollution Prevention Plan (SWPPP) will be prepared prior to developing each facility.

A slight local increase in sedimentation from proposed developments of the park is possible. However, the overall water quality of runoff for the LV-SUMSP could potentially improve by implementing proposed conservation measures for LV-SUMSP vegetation and shoreline areas; erosion prevention measures when improving existing roads; and revegetation of some cleared/disturbed areas within and outside of the scoping areas.

b. Identify routes and receiving water bodies for runoff from the site; include major downstream water bodies as well as the immediate receiving waters. Estimate the impact of runoff on the quality of receiving waters.

Lake Vermilion State Park, situated within the greater Vermilion River watershed, is the major receiving water body of stormwater runoff from the park development sites. The Vermilion River flows northward through the Rainy River Basin (Namakan Lake Sub-basin) and ultimately drains into Canada and the Hudson Bay. The majority of the LV-SUMSP lands fall within the Lake Vermilion minor watershed, with the southeastern corner of the park edging into the East Two Rivers minor watershed. The two parks provide resource protection and preservation of nearly 10 miles of lakeshore.

Lake Vermilion (East and West) is included on the MPCA's 2012 Draft 303d List of Impaired Waters as impaired for aquatic consumption due to mercury and PCBs in fish tissue. The proposed project will not result in an additional release of mercury or PCBs into Lake Vermilion. The use of BMPs, both during construction and campground operations, will limit the amount of sediment reaching Lake Vermilion waters. Substantial naturally forested areas, upland-wetland transition zones, and wetlands, which for the most part surround the development areas, will generally provide ample buffers around localized

cleared, compacted, or impervious surface areas. The dispersed nature of these developments will limit the potential for large spikes in runoff generated. Developments would be limited in shoreland areas except at selected access sites.

18. Water quality: wastewaters

a. Describe sources, composition, and quantities of all sanitary, municipal, and industrial wastewater produced or treated at the site.

Designed Developments-- Based on water use levels identified in Item 13, the maximum amount of wastewater generated from the Main Campground area is estimated to range from 7,050 to 9,400 GPD. The flowage applies only to the summer season during peak times. Water use would decrease during winter months when use levels are low and only one sanitation building would be winterized and operational. The Main Campground area includes eight camper cabins and the McKinley camping area includes four camper cabins that may be available for year-round use. Tent and trailer campers may also use the campground during winter, but very low usage is anticipated. Additional wastewater from the vault toilets and the proposed RV dump station at the Main Campground would need treatment.

Future Developments-- The amount of wastewater generated from future developments has not been calculated. Based on the estimated number of campsites at the Trailside Campground, equivalent camps at the Group Camp, the Lakeside Lodge and Adventure Play Area, and Welcome Plaza, it is anticipated that an additional five to seven thousand gallons could be generated. Additional wastewater would be generated at the Heritage and Science Center, day use areas, outdoor adventure areas, and possibly other areas supplied with toilets. The Heritage and Science Center and the Trailside Campground sanitation facilities would be located within the East Two Rivers watershed. The other facilities would be located in the watershed of a small unnamed public water stream that drains into Mattson Bay or the watershed of the direct lake catchment. The facilities are sufficiently distant from one another, as demonstrated by the closest distance of each scoping area. The group camp scoping area is separated from the Main Campground by a large wetland and is at least 0.7 miles distant, but sanitation facilities could be separated by a distance of up to 0.9 miles. Other separation distances of scoping areas range from 0.7 to 1.0 mile.

b. Describe waste treatment methods or pollution prevention efforts and give estimates of composition after treatment. Identify receiving waters, including major downstream water bodies (identifying any impaired waters), and estimate the discharge impact on the quality of receiving waters. If the project involves on-site sewage systems, discuss the suitability of site conditions for such systems.

On-site Individual Sewage Treatment System (ISTS) units will be used to treat wastewater generated by sanitation buildings and other building facilities. The design of these systems will meet requirements defined in *Minnesota Rules*, Chapter 7080 through 7083. The infiltration treatment units will utilize a soil-based treatment system, such as a mound, trench, or at-grade drain field, depending on soil conditions identified at each development site. Sanitation needs of the Heritage and Science Center would likely be fulfilled by linking the Center to an existing wastewater treatment system at SUMSP. The SUMSP uses an on-site sewage treatment system for its current development and operations. Based on the St. Louis County Soil Survey (NRCS), soils of the Main Campground and the Lakeside Lodge scoping areas are largely classified as extremely limited for drain fields (infiltration areas). On-site soil investigations completed by the former landowner on the north part of the campground indicated that areas suitable for placement of drain fields can be located. Additional on-site investigations would be necessary to determine suitable drain field sites for the proposed ISTS units. The Group Camp and the Trailside Campground show areas of soils that are not limited to the installation of drain fields. The Welcome Center site shows soils with moderate limitations.

Provisions in the Subsurface Treatment System (SSTS) rules require a State Disposal System (SDS) Permit when multiple systems under common ownership are within one-half mile of each other and their combined flow is greater than 10,000 gallons per day (*Minnesota Rules*, part 7081.0040, subpart 1B). Wasterwater volumes would need to be determined for the each facility using methods described in *Minnesota Rules*, part 7081.0130. The MDNR, with the assistance of MPCA, will fully assess the Parks' ISTS system designs to confirm whether a SDS permit will be needed. The SDS permit requirements would need to be determined for the main campground area.

c. If wastes will be discharged into a publicly owned treatment facility, identify the facility, describe any pretreatment provisions, and discuss the facility's ability to handle the volume and composition of wastes, identifying any improvements necessary.

All of the wastewater generated at proposed and future development sanitation facilities will be conveyed to on-site septic system(s) for treatment. Wastes from vault toilets and the RV dump station will be removed by contractors unless an on-site disposal and treatment system is installed. First option would require the construction of a holding tank and hiring a contractor to remove and haul wastewater to a regulated facility. Second option would be to prepare an on-site SSTS facility with sufficient treatment capacity within the area where the wastewater is collected.

19. Geologic hazards and soil conditions

a. Approximate depth (in feet) to ground water: minimum: 0 **average:** 3.3

to bedrock (feet): minimum: 0 **average:** 3.3

Describe any of the following geologic site hazards to ground water and also identify them on the site map: sinkholes, shallow limestone formations, or karst conditions. Describe measures to avoid or minimize environmental problems due to any of these hazards.

The origins of the underlying bedrock formations in LV-SUMSP date back to over 2.7 billion years. The formations are an iron-bearing metamorphic formation and a metamorphosed sedimentary rock formation; they were created by volcanic activity at the bottom of an ancient ocean. Mixed in these formations are deposits of other minerals such as nickel, lead, gold, silver, copper, and zinc. At the top of Soudan Hill, east of Stuntz Bay, is an exposure of the Soudan Iron Formation.

The ore bodies in the parks are mostly hard and dense bluish hematite and are exceptionally high-quality material. The iron ore of the Vermilion Range district was first 'discovered' in 1850, however, serious exploration for iron did not start until 1875. Substantial deposits remain despite 80 years of mining. Deposits of other minerals such as nickel, lead, gold, silver and zinc are likely present as well. The State of Minnesota holds the mineral rights within state parks. Some rock formations in the vicinity of the Soudan Mine are known to contain levels of sulfides that create acidic, mineral-rich runoff when exposed to the elements. Activities of the proposed project would not disturb these rock formations except where no alternative exists for placement of a road corridor or facility, therefore some small exposures could occur. There are no known sink holes, shallow limestone formations, or karst conditions within the study area.

b. Describe the soils on the site, giving NRCS (SCS) classifications, if known. Discuss soil texture and potential for groundwater contamination from wastes or chemicals spread or spilled onto the soils. Discuss any mitigation measures to prevent such contamination.

The topography of the project area is characterized by rock ridges and steep bluffs, with lakes and wetlands in the intervening depressions. Elevation within the parks varies from 1,358 feet above sea level at Lake Vermilion to 1,630 feet above sea level (near the Number 8 Shaft Complex in Soudan Underground Mine State Park).

Most of the upland soils within the parks consist of very shallow loam over bedrock, including numerous areas of exposed rocks. Soil data was collected from NRCS website (Soil Data Mart) and a list of soils within Lake Vermilion State Park is provided with Figure 4 and Table 1 and by scoping area (Table 2).

Although much of the area would be sensitive to contamination from wastes or chemicals spills, the development and operation of the park would have limited potential for accidental spills or other contamination of soils and groundwater.

20. Solid wastes, hazardous wastes, storage tanks

a. Describe types, amounts, and compositions of solid or hazardous wastes, including solid animal manure, sludge, and ash, produced during construction and operation. Identify method and location of disposal. For projects generating municipal solid waste, indicate if there is a source separation plan; describe how the project will be modified for recycling. If hazardous waste is generated, indicate if there is a hazardous waste minimization plan and routine hazardous waste reduction assessments.

Sludge, animal waste and ash material will not be generated during construction or operation of the proposed project. General municipal waste will be disposed of using a local garbage hauler. Recycling containers will be provided at the RV dump station/recycling center at the Main Campground and the materials will be collected by a local waste management company. Signage will be used to encourage recycling of acceptable types of food and beverage containers.

b. Identify any toxic or hazardous materials to be used or present at the site and identify measures to be used to prevent them from contaminating groundwater. If the use of toxic or hazardous materials will lead to a regulated waste, discharge, or emission, discuss any alternatives considered to minimize or eliminate the waste, discharge, or emission.

The construction and operation of the State Park has limited potential for releases of toxic or hazardous substances. Vehicular fluid from typical construction and operational machinery is the largest source of toxic or hazardous materials. The NPDES Construction Site permit requires a site specific SWPPP to be completed for construction. This SWPPP is required to include pollution prevention management measures for solid waste and hazardous material spills that occur during construction. Refueling spills and equipment breakdowns, such as a broken hydraulic line, could introduce contaminants into the soil during construction. Equipment operators are instructed to take precautions when refueling equipment. Refueling would be conducted away from surface waters and equipment would be regularly inspected and repaired to prevent inadvertent loss of fuels, oils, or other hazardous fluids. Spills will be reported to the Minnesota Pollution Control Agency and St. Louis County.

c. Indicate the number, location, size, and use of any above or below ground tanks to store petroleum products or other materials, except water. Describe any emergency response containment plans. N/A

21. Traffic. Parking spaces added:

Designed Facilities: Main Campground: 253 Total Spaces
Proposed design calls for 72 (one per campsite or cabin and host sites) + 36 (additional stall at 50% of campsites) + 36 (three group camping areas) + 35 (trailer stalls at boat launch) + 22 (vehicle/overnight parking at boat launch) + 28 (intermittent additional stalls within campground areas). The parking areas will be dispersed throughout the 50-acre campground according to the configuration of campsites. One moderate-sized parking lot will be installed at the public water access on Cable Bay.

McKinley Camper Cabins: 4 cabins, parking for 8-10 vehicles.

Future Developments: Additional development to be determined through future design, as type and size of facilities will dictate parking needs. No touring road loops are proposed for highway licensed

vehicles (HLVs) use within the parks. A network of recreational trails and foot paths will be developed to encourage other modes of transportation, including walking, hiking and biking to provide desired connections to facilities, amenities and other attractions, as well as to help keep visitors in designated areas. An estimate of future parking needs based on the proposed campsite and facility sizes, additional parking requirements could reach approximately 150 parking spaces.

Existing spaces (if project involves expansion) (Recently Developed): Armstrong Bay Day Use Area: The day use area has recently been completed. Its parking lot includes 10 vehicle-trailer parking stalls and 12 vehicle parking stalls (the day use area does not have a public water access).

Estimated total average daily traffic generated: N/A

Designed Facilities:
288 Daily Trips for the main campground areas
104 Daily trips for the public water access/boat ramp ("marina" Institute of Transportation Engineers category) The ITE is a research and planning institute that provides trip generation rates and equations for estimating daily trip rates for planned developments.
392 total daily trips estimated

Recently Developed Facilities: No estimate available.

Future Developments: No estimates available. Additional 200-300 daily trips may be projected for future facilities.

Estimated maximum peak hour traffic generated and time of occurrence: Not available
Indicate source of trip generation rates used in the estimates: For the campground category the ITE assumes a rate of approximately four trips per site per day; and the marina category assumes the ITE rate of 35 berths at three trips per berth. The peak hour use estimates are based on statistics provided in the ITE Trip Generation Manual (8th Addition).

Traffic volume will correlate with expected usage levels. Local traffic volumes on TH 169 and in the communities of Tower and Soudan will locally increase during the summer when park usage levels are highest. The proposed new entrance to both LVSP and SUMSP is located at the intersection of TH 169 and Lake Vermilion Park Drive. The proposed intersection will be reworked during the upgrade of the Lake Vermilion Park Drive project proposed by Breitung Township in 2013. The entrance will be reworked to improve sight lines and safety for visitors entering and exiting the parks. Improved efficiency in park management will result from the new combined LV-SUMSP entrance (Figure 6).

If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW. Using format and procedures described in the Mn/DOT Transportation's Traffic Impact Study Guidance (http://www.oim.dot.state.mn.us/access/pdfs/Chapter%205.pdf) or a similar local guidance, provide an estimate of the impact on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system.

22. Vehicle-related air emissions. Estimate the effect of the project's traffic generation on air quality, including carbon monoxide levels. Discuss the effect of traffic improvements or other mitigation measures on air quality impacts.

The machinery and vehicles used during the construction and operation of the proposed project will result in a local increase in air emissions in the project area. Diesel fuel exhaust emissions contain pollutants such as carbon monoxide, nitrogen oxides, reactive organic gasses, sulfur dioxide, and suspended particulate matter, all of which carry associated health risks.

Vehicle-related air emissions in this area are anticipated to increase slightly as a result of the use and operation of the park facilities. The MDNR promotes the use of pedestrian modes of travel in the park by offering a wide variety of hiking and biking trails that connect to nearby points of interest or to enjoy the park's natural features.

23. Stationary source air emissions. Describe the type, sources, quantities, and compositions of any emissions from stationary sources of air emissions such as boilers, exhaust stacks, or fugitive dust sources. Include any hazardous air pollutants (consult *EAW Guidelines* for a listing) and any greenhouse gases (such as carbon dioxide, methane, nitrous oxide) and ozone-depleting chemicals (chloro-fluorocarbons, hydrofluorocarbons, perfluorocarbons or sulfur hexafluoride). Also describe any proposed pollution prevention techniques and proposed air pollution control devices. Describe the impacts on air quality. N/A

24. Odors, noise and dust. Will the project generate odors, noise, or dust during construction or during operation? X Yes ____ No

If yes, describe sources, characteristics, duration, quantities or intensity, and any proposed measures to mitigate adverse impacts. Also identify locations of nearby sensitive receptors and estimate impacts on them. Discuss potential impacts on human health or quality of life. (Note: fugitive dust generated by operations may be discussed at Item 23 instead of here.)

Construction activities in the project area would create some temporary odors, dust, and noise during the project development. Additional visitor and park operations traffic would locally pose minor increases in odors, dust, and noise. The existing vegetation that provides a buffer to the nearest neighbors will help diffuse potential noise from vehicles using the park. Most ambient noise will not carry the distance to neighbors. Construction activities will be limited to normal daily work periods and could extend year-round.

It may be necessary to blast some corridors where the bedrock intersects with the desirable grade to prepare roads, campsites, and electric, water, and sewer utilities. Blasting of bedrock during construction will be avoided by increasing the amount of base fill on roads and building sites, thereby reducing the length of cut distances. Testing of sulfides will occur prior to blasting bedrock obstructions. If sulfide bearing bedrock is found where blasting is required, containment or disposal procedures that prevent leaching will be followed. Blasting activities would be temporary and performed in conformance with local and state requirements.

25. Nearby resources. Are any of the following resources on or in proximity to the site?

Archaeological, historical, or architectural resources?	**X**	**Yes**	____	**No**
Prime or unique farmlands or land within an agricultural preserve?	____	**Yes**	**X**	**No**
Designated parks, recreation areas, or trails?	**X**	**Yes**	____	**No**
Scenic views and vistas?	**X**	**Yes**	____	**No**
Other unique resources?	**X**	**Yes**	____	**No**

If yes, describe the resource and identify any project-related impacts on the resource. Describe any measures to minimize or avoid adverse impacts.

Archaeological, Historical, or Architectural Resources:

Soudan Underground Mine State Park

The SUMSP includes two listings on the National Register of Historic Places.

- **Soudan Mine** is a National Historic Landmark as the State's oldest and deepest underground iron mine, opened on the Vermilion Range in 1884. The historic landmark includes several buildings and structures associated with the mine, including the following:
  - Engine House (1901)

- Crusher House (1904)
- Drill Shop (1917)
- Machine Shop (1925)
- Dry House (1925)
- Other structures and buildings within the landmark boundary include the open mine pits, Mine Shaft #8 and Headframe, Alaska Shaft and Headframe, the Ore Trestle and Stockpile, and the Mine Rescue Station. A number of cultural resources associated with the mine are known to be located outside the National Historic Landmark boundary, including the Air Compressor Building and Smokestack (located on Stuntz Bay).

- **Stuntz Bay Boathouse Historic District** is also on the National Register of Historic Places, described as a line of 143 "Wet" boathouses projecting over the water into Lake Vermilion's Stuntz Bay, most built during the first half of the 20th century by Oliver Mining Company miners. The actual boathouse structures are privately owned and their condition ranges from very well maintained to those receiving little to no maintenance. This area also includes the compressor building mentioned above and the smokestack from the Soudan Mine.

- **Bois Forte Band of Chippewa [Ojibwe]** has a centuries-long presence on the lands surrounding Lake Vermilion. In addition to its reservation on Lake Vermilion, the Bois Forte Band's tribal lands include lands around Nett Lake in St. Louis and Koochiching counties and Deer Creek in Itasca County. The Bois Forte Band operates the Bois Forte Resort and Marina and the Heritage Center and Cultural Museum, which tells the story of the Bois Forte Band, including their history living on Lake Vermilion. The Heritage Center and Fortune Bay Resort Casino are located on tribal lands west of Tower. The MDNR staffs coordinate with the Band to monitor islands in Lake Vermilion that are owned by the Bureau of Land Management. The MDNR has been and will continue to consult and coordinate with the Bois Forte Band, particularly with archaeological investigations and interpretations in the parks.

<u>Lake Vermilion State Park</u>

- Archaeological fieldwork in 2010 through 2012 in these state parks has discovered 22 archaeological sites spanning 7,000 years of human activity. The oldest site, which dates to Archaic times, also was used during the Late Woodland period. The Late Woodland component at the site was radiocarbon dated to 600 years old and contained a fire hearth and hundreds of stone artifacts, many of which were made from obsidian, a black volcanic glass of superior tool making quality. Testing of the obsidian indicates it was transported to the site from Obsidian Cliff in Yellowstone National Park in Wyoming. It is the richest obsidian site found thus far in Minnesota. Other stone artifacts from the site are made from Knife River Flint, which comes from quarries in western North Dakota. Archaeologists believe Lake Vermilion is part of a well used travel corridor through time.

- Another site in the park represents an early American Indian stone quarry. Chert, a form of sedimentary rock that forms very sharp edges when fractured, was mined and collected from this site on Lake Vermilion and used in stone tool making. Artifacts made from this chert have been found on archaeological sites all around Lake Vermilion and in northeastern Minnesota.

- Several additional archaeological sites contained small pits that appear to have been used during historic times by the Ojibwe for processing wild rice and storing food.

- Features related to gold and iron ore mining are strongly represented in these state parks. Prospecting pits from the 1864 Lake Vermilion Gold Rush are present in Soudan Underground Mine State Park and probably in Lake Vermilion State Park. Four to five hundred iron ore prospecting pits are present in LVSP. They are also present in SUMSP. These mining features are important because they relate to the earliest systematic iron ore exploration in Minnesota and the development of the Soudan Mine and the Vermilion Iron Range in the 1880s. Clusters of iron ore prospecting pits have been recorded within nine archaeological sites thus far.

- Review of the proposed entrance road into Lake Vermilion State Park has revealed two historic resources. These are the Tower to Ely Road dating to the late 1800s and early 1900s and old State Highway 35 which also connected Tower to Ely.

As cultural resource inventory is completed for development of these parks, an attempt will be made to avoid impacting identified cultural resources, usually by shifting development away from resources. If impacts can't be avoided, cultural resources will be evaluated for eligibility to the National Register of Historic Places and again considered for avoidance. If the resource impacts still can't be avoided, then archaeological data recovery or some type of mitigation will be proposed and completed in consultation with interested parties including the Bois Forte Band, the SHPO, the Minnesota Indian Affairs Council, and the Office of the State Archaeologist. If particular development involves the U.S. Army Corps of Engineers or another federal agency, consultation will be conducted as per Section 106 of the National Historic Preservation Act.

All areas proposed for development would be reviewed in consultation with the State Historical Society for the need for conducting on-site archaeological resource surveys, which would be completed when merited.

Designated Parks, Recreation Areas or Trails.
In the Minnesota State Park System Land Study (MDNR, 2000), the Arrowhead Region of the state, which includes the Lake Vermilion environs, is projected to have a very high tourist destination demand for outdoor recreation. The findings were similar to earlier surveys for the Minnesota Statewide Comprehensive Outdoor Recreation Plan. The development of the facilities in the LV-SUMSP will increase tourism and provide new opportunities for outdoor recreation or cultural resource based activities to residents in the region, visitors from other regions of Minnesota and other states, and may be a drawing point for visitors already partaking in attractions at other sites in the region. The CMP identifies the need for MDNR to collaborate with the Bois Forte Band of Chippewa, community groups, conservation organizations, and businesses to connect park visitors with other cultural and recreational opportunities in the area. The park developments should enable these parks to become a sustainable economic development opportunity for local communities, particularly Soudan and Tower, but also Cook, Ely and Biwabik, helping to re-position the area as a quality northern Minnesota recreational destination. According to the CMP, LV-SUMSP could become a recreational hub to other outdoor recreational opportunities nearby, including Bear Head Lake State Park; Bear Island State Forest; grant-in-aid state and regional trails; state water trails; Boundary Waters Canoe Area Wilderness; Superior National Forest and Voyageurs National Park. A complete list and description of the outdoor recreation venues for the areas is included below:

- **Soudan Underground Mine State Park–** (immediately adjacent), 1,300 acres

- **Bear Head Lake State Park–** (8 miles from LVSP), 4,300 acres

- **Iron Range Off-Highway Vehicle State Recreation Area–** (30 miles from LVSP), 1,200 acres

- **Taconite State Trail–** (about 0.25 miles from park) approximately 146 miles spanning from Ely to Grand Rapids, a natural and gravel surfaced trail primarily supporting snowmobiling in the winter and hiking, biking, horseback riding and limited all-terrain vehicle (ATV) use during the summer.

- **Arrowhead State Trail–** (about 8 miles from park) approximately 125-mile natural surfaced trail connecting the Taconite State Trail southwest of Tower to International Falls. Trail primarily supports snowmobiling, and limited summer use such as hiking.

- **Vermilion River–** (Flows north from Lake Vermilion to Crane Lake) and Little Fork River (flows north from just east of Cook to Rainy Lake). State Water Trails support canoeing and kayaking.

- **Mesabi Regional Trail** – is a multi-use trail administered by the St. Louis and Lake Counties Regional Railroad Authority, which when completed will travel approximately 132 miles across the Iron Range and connect more than 25 communities. The longest continuous segment that is open for use is about 80 miles, extending from Grand Rapids to Biwabik. In the vicinity of this project, three miles are completed from Soudan to Tower, where the trail follows along a portion of the south boundary of SUMSP. Adjoining segments are proposed from both ends of this completed segment, including a portion proposed to travel through Lake Vermilion State Park.

- **Kabetogama State Forest –** state forest facilities provide access to Voyageurs National Park and Boundary Waters Canoe Area Wilderness (BWCAW), with summer opportunities include hiking on the numerous nature trails, boating, and camping in the various state campgrounds or on the islands in the forest (listed below). During winter months, the recreational activities in the state forest include ice fishing, cross-country skiing, and snowmobiling.

    - **Ash River Campground and Day Use Area,** located next to the Ash River public water access, offers eight campsites, swimming, water access including boat ramp, whitewater paddling on the Ash River, and access to Voyageurs National Park.

    - **Woodenfrog Campground and Day Use Area,** is located on Lake Kabetogama, where the campground accommodates large groups while also offering 61 drive-in primitive campsites; the day use area includes a swimming beach, picnic area, nature trail, boat ramp, and a Civilian Conservation Corps-era building.

    - **Hinsdale Island** consists of 11 boat-in only campsites located on Hinsdale Island on Lake Vermilion.

    - **Wakemup Bay Campground and Day Use Area,** located on Lake Vermilion, has 22 camp sites.

- **Bear Island State Forest –** (3 miles SE of LVSP) covers 157,814 acres, including Bear Island Lake (2,351 acres in size) which has three water accesses; numerous trails are located throughout the forest including opportunities for hiking, mountain biking, cross country skiing, snowmobiling and off-highway vehicle riding.

- **Burntside State Forest–**located near the southwestern border of the BWCAW with the majority of the forest within the boundaries of the Superior National Forest.

- **Superior National Forest** - 3,000,000 acres of land, water, rock and trees cover the forest in northeastern part of the state, with over 445,000 acres, or 625 square miles, is surface water.

- **Boundary Waters Canoe Area Wilderness (BWCAW)** – nearby. The BWCAW is over one million acres in size. It extends nearly 150 miles along the International Boundary adjacent to Canada's Quetico Provincial Park and is bordered on the west by Voyageurs National Park.

- **Snowmobile Trails –** approximately 10.5 miles are currently open within park boundaries, and over 600 miles of trail system is accessible from these parks.

- **Off Highway Vehicle Trails** – (includes ATV), off-highway motorcycles (OHM), and four-wheel drive/off-road vehicles (ORV)) multiple trails and opportunities in vicinity, especially within state forests and at the Iron Range Off Highway Vehicle State Recreation Area in Gilbert.

- **Hiking and Cross Country Ski Trails** – numerous opportunities in vicinity.

- **McKinley Park–** (managed by Breitung Township, open seasonally from May 1 to September 30) located adjacent, just to the west of Soudan Underground Mine State Park.

- **Hoodoo Point** campground and public water access (PWA) (managed by City of Tower)

- **Lake Vermilion Public Water Access and Use –** 16 locations on Lake Vermilion, only five of which are owned by MDNR (St. Louis County, City of Soudan and U.S. Forest Service own/operate the other sites); Lake Vermilion has over 39,000 acres of surface area.

Scenic Views.
Several scenic views and vistas are located within or adjacent to the parks. Hiking/walking trails will be developed to provide access to these scenic overlooks of Lake Vermilion and the park.

- **Jasper Peak** – located just south of LV-SUMSP, Jasper Peak is on state trust fund land administered by the MDNR Division of Forestry. A fire tower (not currently open to the public) is situated on the peak. Road access and trail improvements would be necessary to improve access for the public (less than 1,000 feet from park).

- **Lander Mattson Overlook** – this ridge is the highest point of elevation within LVSP and provides views north across Lake Vermilion as well as the interior of LV-SUMSP. The CMP identifies this viewshed as important for public access and for protection from park-related development (protected viewshed identified in Fig 6). The purpose of the protected viewshed is to minimize physical development that may change the view from this overlook toward the lake. While some development may be able to be seen from the overlook, much of the natural environment and view will be preserved.

- **Historic mine area within Soudan Underground Mine State Park** – several views of the historic buildings as well as views from the mine area over the surrounding landscape have been identified as important to preserve the cultural landscape of the national historic landmark.

Unique Resources.
- **Soudan Iron Formation** – exposed outcrop east of Stuntz Bay (top of Soudan Hill) and is one of two types of bedrock that underlay the park (region). This exposure illustrates significant characteristics of the formation's composition – alternating bands of steel-gray hematite, white to pink chert and red jasper. The exposure also displays three distinct geological processes: folding, mineralization, and glacial erosion. A combination of these three processes shaped and formed this outcrop. This site is listed as 'very significant in a nationwide or worldwide context' in the MDNR Natural Heritage Program Registry. Additional exposures of this type and quality are located within

LVSP. Development will avoid these features to the extent possible, while some outcrops have already proven to be educational, additional interpretive opportunities will be explored.

26. Visual impacts. Will the project create adverse visual impacts during construction or operation? Such as glare from intense lights, lights visible in wilderness areas, and large visible plumes from cooling towers or exhaust stacks? _____ Yes X No If yes, explain.

No environmental effects associated with visual glare or exhaust plumes would occur during construction and park operation. The proposed sanitation facilities and other campground facilities will likely be lit throughout the night to improve camper/visitor convenience and safety. The lights will use low intensity bulbs, stand below the canopy of surrounding trees/vegetation, and project downward to minimize light pollution. No lighting is proposed for vault toilets, and possibly other outdoor areas.

27. Compatibility with plans and land use regulations. Is the project subject to an adopted local comprehensive plan, land use plan or regulation, or other applicable land use, water, or resource management plan of a local, regional,
state, or federal agency? X Yes _____ No.
If yes, describe the plan, discuss its compatibility with the project and explain how any conflicts will be resolved. If no, explain.

In 2010, MDNR approved the "Cooperative Master Plan Lake Vermilion State Park and Soudan Underground Mine State Park, 2011-2020." This plan is written as both a master plan for the development of LVSP as well as an update to the SUMSP. The MDNR intends to manage both parks from one resource and operations management structure. The proposed development of LVSP and improvements to SUMSP is compatible with what is identified in the master plan.

Additionally, while the master planning process used for this plan was designed around a multi-pronged public input process, development concepts that will lead these two parks to become what is termed "Next Generation" parks in their design and operation will be dependent on additional market research focused on new and emerging parks and trails users – research that is only now developing. This plan is intended to be adaptive to better serve its users/visitors.

Lake Vermilion is classified as a General Development Lake by the MDNR, St. Louis County and City of Tower. All proposed park developments are compatible with this lake classification. Although MDNR projects on state land are not required to comply with local land use regulations, the park developments appear to be compatible with Breitung Township Comprehensive Land Use Plan and the Lake Vermilion Land Use Plan.

28. Impact on infrastructure and public services. Will new or expanded utilities, roads, other infrastructure, or public services be required to serve the project? X Yes _____ No
If yes, describe the new or additional infrastructure or services needed. (Note: any infrastructure that is a connected action with respect to the project must be assessed in the EAW; see *EAW Guidelines* for details.)

Approximately 2.5 miles of 'Old TH 169' and approximately one mile of a former U.S. Steel gravel access road will be reconstructed. This Breitung Township road that will provide ingress/egress for local residents and will also serve park users. Breitung Township secured funds to reconstruct this road. St. Louis County is administering the project according to MN State Aid requirement. Additional traffic information and effect on local roads is included under EAW Item No.21.

29. Cumulative potential effects. Minnesota Rule part 4410.1700, subpart 7, item B requires that the RGU consider the "cumulative potential effects of related or anticipated future projects" when determining the need for an environmental impact statement.
Identify any past, present, or reasonably foreseeable future projects that may interact with the project

described in this EAW in such a way as to cause cumulative potential effects. (Such future projects would be those that are actually planned or for which a basis of expectation has been laid.)
Describe the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects (*or discuss each cumulative potential effect under appropriate item(s) elsewhere on this form).*

The proposed project will entail the construction of campsites and companion parking spaces, electric and water utility lines, camper cabins, sanitary facilities and the construction of new or rehabilitation of existing access roads. Additional potential future developments of the Lakeside Lodge, Adventure Play Areas, Group Campsite, Trailside Campground, network of mountain bike and hiking trails, Boat-in Campsites, inland Walk-in Campsites and Soudan Heritage and Science Center have not been designed nor scheduled for development. The Cooperative Master Plan for Lake Vermilion State Park and Soudan Underground Mine State Park 2010-2020 (MDNR 2010) identifies and lays out potential future development elements as part of the planned park units. Implementation of design and development is contingent upon funding. No development deadline has been identified or assumed.

Based on the proposed park developments and comparable state park visitor amenities and attractions, it is estimated that about 300,000 annual visits per year can be expected with the proposed development scenario of LVSP. SUMSP had about 36,000 annual visits in 2010. Its visitor numbers will increase due to proposed developments at LVSP. The potential environmental effects related to designed features of this project could combine with environmental effects from other past, present, or reasonably foreseeable future projects for which a basis of expectation has been laid. Stormwater runoff and loss of wetland and forested habitat are environmental effects from the project that could locally contribute to cumulative potential environmental effects.

Several road improvement projects have begun or are nearing the construction phase: 1) The Stuntz Bay access road project involves the bituminous resurfacing of approximately 1 mile of roadway (St. Louis Co. #111484). 2) McKinley Park Road (CR 697) work, proposed for completion in 2012, is a bituminous resurfacing project (St. Louis Co. #97043). 3) A short segment of the existing Soudan Underground Mine State Park Entrance was reconstructed (St. Louis Co. #111480). 4) A small street section in Tower received bituminous resurfacing (St. Louis Co. #1200552). 5) The Lake Vermilion Park Drive project is a road rehabilitation and resurfacing project over approximately 4.0 miles of roadway (SAP #069-600-041). 6) Proposed reconstruction and passing lane addition on 4.8 miles of TH 169 from Six Mile Lake Road to Deer Haven Road, northeast of LVSP. Additional resurfacing needs have been identified for the TH 169 road segment adjacent to or passing through LVSP. The road surface is in fair condition and is slated for resurfacing. Along a part of TH 169 northeast of LVSP MnDOT identified roadwork that if completed would expose sulfate containing bedrock and cause acid leaching into surface waters. A segment in the Eagle Nest Area would be delayed because of additional design work necessary to prevent environmental effects from reconstruction of this segment; and 7) The Mesabi Regional Trail alignment placement through the LVSP. The construction phase of this project is apparently concurrent with the rehabilitation of Lake Vermilion Park Drive. Additional information is provided on several projects below.

Lake Vermilion Park Drive – Lake Vermilion Park Drive has been previously referred to as U.S. Highway 1, "Old TH 169," and "Old 35." St. Louis County and Breitung Township will begin construction of a portion of the state park access road, primarily using existing or former road right of way on 2.5 miles of the former U.S. Highway 1 and approximately one mile of existing gravel road that provides access to adjacent properties. This is a township road that provides ingress/egress for local residents and will also serve state park visitors accessing the Armstrong Bay Day Use Area and Main Campground. Roadwork would include 19 acres of clearing and grubbing, 66,000 cubic yards of soil or rock excavation, and 13,000 cubic yards of aggregate base material application. Permanent and temporary erosion control measures, such as silt fences, ditch check dams, seeding, mulching, and

erosion control blankets would be implemented. The road improvements will impact approximately three acres of wetlands. Wetland bank credits will be purchased to replace the impacted wetlands. Coordination and review by the USACE is in progress for processing the applicable permits.

Mesabi Regional Trail – A Regional Trail, administered by the St. Louis and Lake Counties Regional Rail Authority. About three miles of the Mesabi Regional Trail is proposed to be constructed through LVSP, along a grade-separated treadway that mostly parallels Lake Vermilion Park Drive from the intersection of Murray Road to Soudan Underground Mine State Park, where it will exit the parks and connect to the existing trail segment currently in city of Soudan. The existing trail segment spans from Soudan to Tower. The MDNR will work with the Rail Authority to ensure appropriate location of the trail through the park and to help minimize impacts to cultural and natural resources. The proposed alignment is estimated to have about one acre of wetland impact in the park. Wetland bank credits will need to be purchased for mitigation. The project is being reviewed under Section 106.

Other Projects - Construction Stormwater permits are active for the McKinley Park Road, situated on the boundary of Soudan Underground Mine State Park, developments recently completed, the SUMSP entrance work, and the Stuntz Bay access road improvements. The MDNR currently has an active Construction Stormwater permit for work at the Armstrong Bay Day Use Area

Stormwater management of the proposed campground, McKinley Camper Cabins and future developments will incorporate a variety of BMPs designed to limit the project's contribution to cumulative potential effects from surface water runoff. Combined wildlife habitat loss is relatively minor compared to the habitat available and types of habitat that will be affected by these projects. The cumulative effects on wetland would cause disturbance to approximately six acres, which would require wetland mitigation. The Park goals are to maintain or reestablish plant and animal life which represents pre-European settlement biotic communities; and to utilize resource management that will harmonize with the Park's natural systems. Actions that would meet these goals include controlling invasive species, protecting habitats from further development, applying BMPs for managing natural communities, controlling stormwater runoff, and encouraging compatible types of outdoor recreation.

The area within and surrounding the proposed development has historically been mining, residential, public commercial, and forestry management land uses. Present zoning districts are Forest, Agricultural Management, Multiple Use Non-Shoreland, or Residential. This project will include minimal land use change and is compatible with the surrounding land uses. The cumulative environmental effects of the proposed project on the watershed and other resources in the area are expected to be limited and manageable.

30. Other potential environmental impacts. If the project may cause any adverse environmental impacts not addressed by Items 1 to 28, identify and discuss them here, along with any proposed mitigation.

No other potential environmental impacts have been identified; all known or anticipated environmental impacts have been addressed under Items 1 – 28.

31. Summary of issues. ***Do not complete this section if the EAW is being done for EIS scoping; instead, address relevant issues in the draft Scoping Decision document, which must accompany the EAW.***
List any impacts and issues identified above that may require further investigation before the project is begun. Discuss any alternatives or mitigative measures that have been or may be considered for these impacts and issues, including those that have been or may be ordered as permit conditions.

No additional issues have been identified that require further investigation before this project can begin.

RGU CERTIFICATION. ***(The Environmental Quality Board will only accept SIGNED Environmental Assessment Worksheets for public notice in the EQB Monitor.)***

I hereby certify that:

- **The information contained in this document is accurate and complete to the best of my knowledge.**
- **The EAW describes the complete project; there are no other projects, stages, or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9b and 60, respectively.**
- **Copies of this EAW are being sent to the entire EQB distribution list.**

Signature _____ **Date** February 28, 2013

Title Environmental Planner

Environmental Assessment Worksheet was prepared by the staff of the Environmental Quality Board at the Minnesota Department of Administration, Office of Geographic and Demographic Analysis. For additional information, worksheets, or for *EAW Guidelines*, contact: Environmental Quality Board, 658 Cedar St., St. Paul, MN, *55155, 651-201-2492, or http://www.eqb.state.mn.us*.