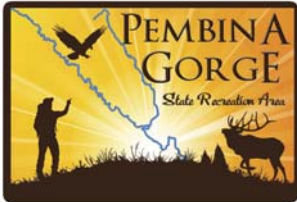


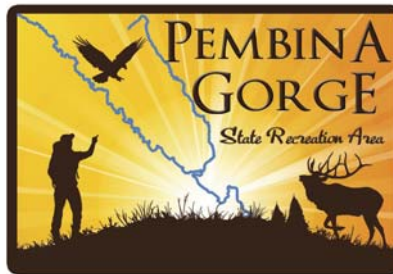


North Dakota Parks and Recreation Department

Pembina Gorge State Recreation Area Master Plan

December 2014





North Dakota Parks and Recreation Department

Pembina Gorge State Recreation Area Master Plan

December 2014

Great Outdoors
Consultants



Red Canoe LLC

FOREWORD

The North Dakota Parks and Recreation Department is celebrating its 50th Anniversary in 2015. As we look to our past and what has been accomplished over those 50 years, great things have happened and many families have created wonderful memories hiking trails, swimming in lakes and sitting by a campfire at the end of a long summer day. Recognizing the evolution of the 'State Park' throughout the past 50 years, it's important to look forward and prepare for what's to come in the next 50 years. North Dakota is growing. The ways by which people recreate is growing. Our mission as a department is to provide recreation opportunities for the people of the great state of North Dakota. As we look to meet the needs of our constituents, master planning efforts provide great insight into user trends and needs through public meetings, participation surveys and great conversations with stakeholders in the surrounding areas.

As the Pembina Gorge State Recreation Area came on line in 2012, the focus for development was to provide opportunity for Off Highway Vehicle (OHV) users to recreate with the implementation of a trail system to accommodate all classes of machines. It is clear, through this planning and input process, that OHV use remains important to the visitors of the Rendezvous Region but this is just one of many recreational opportunities in the Pembina Gorge. Hiking, biking, equestrian, canoeing, kayaking, along with many more, were identified as recreational activities sought after in the Pembina Gorge. Along with these activities, people are looking for associated amenities to meet their needs while they are here. It is very clear, as well, that people recognize the value of the Pembina Gorge in the sense of wilderness that it captures and is rarely found in North Dakota. To address this, we've developed some guiding statements to help define both the area and the overall theme of development. The main guiding statement reads: "The Pembina Gorge State Recreation Area was established to provide various types of recreation, while conserving the natural resources and preserving the intrinsic quality of the area." So, with that statement in mind, we've designated the forested areas of the Pembina Gorge for conservation and recreation, while keeping development of amenities to the outlying areas as we work to provide access and opportunities for recreationists all four seasons of the year.

The Pembina Gorge State Recreation Area Master Plan lays out a framework to create a recreation destination like no other in North Dakota. With breathtaking views and opportunity abound, the next phase of the development of this area promises to deliver great results as people become more familiar with the Rendezvous Region and northeastern North Dakota. We look forward to seeing the visitor's smiles and gasps as they explore the Pembina Gorge, maybe for the first time, and appreciate the beauty that exists right here in our state.

Mark Zimmerman

NDPRD Director



Pembina Gorge is an extraordinary river valley located near the Town of Walhalla in northeast North Dakota. The Gorge is rich in scenic views, biodiversity, wildlife, history and paleontological resources. This combination of landscape and resources has made it a popular outdoor recreation destination for generations. Traditional recreation activities in the Gorge include paddling on the river, hiking, hunting, scenic driving, downhill skiing, snowmobiling, off-highway vehicle (OHV) riding, among others. The Gorge is an important resource for recreation and the economy for nearby private land owners and the Town of Walhalla.

The State of North Dakota established the Pembina Gorge State Recreation Area (SRA) in 2005 and is managed by North Dakota Parks and Recreation Department (NDPRD). The SRA was established to provide various types of outdoor recreation, while conserving the natural resources and preserving the intrinsic quality of the area. The SRA is approximately 1,500 acres of state-owned lands and has visitors that come from communities in North Dakota, northwest Minnesota, Manitoba Province in Canada, among others. A trailhead and 16 mile multi-use trail were constructed in 2012 which in particular has become a popular destination for OHV and mountain bike recreation. There is currently 1 full-time and 1 long term seasonal year round employees; with a seasonal trail crew of 2 managing the SRA.

NDPRD developed a master plan for the SRA in 2014 to create a long-term vision for visitor experience, facility development, resource conservation, and management. The plan was developed with extensive input from the public and government agencies. Research was conducted to identify opportunities, constraints and public opinion about preferred recreation experiences. The recreation opinion survey showed a strong preference for camping, restrooms, picnic areas, more trails and a visitor center.

Guiding statements have been prepared for the SRA that document its purpose, significance, goals, objectives, primary visitor experiences and interpretive themes. The SRA and Pembina Gorge area have the potential to become a significant destination for outdoor recreation activities in North Dakota. The key to making it a destination is to create a recreation network of rural roads, trails, river access, overlooks, and visitor services both in and around the SRA; as well as the Town of Walhalla. Along with providing more recreation opportunities, it will be important to conserve the Gorge's resources and natural landscape while respecting private property.

The master plan document defines solutions and priorities to implement it over time. Successful implementation of the plan will require funding and cooperation with collaborating organizations. SRA visitors, residents of North Dakota, the Town of Walhalla and other collaborating organizations will benefit from implementation of the master plan. Master plan priorities include forming a collaboration organization, acquiring more land for recreation facilities; developing a campground, scenic driving routes, visitor center, picnic sites, and a variety of trails. If an investment is made to provide unique visitor experiences and quality information, the Pembina Gorge has the potential to become a very popular outdoor recreation destination.

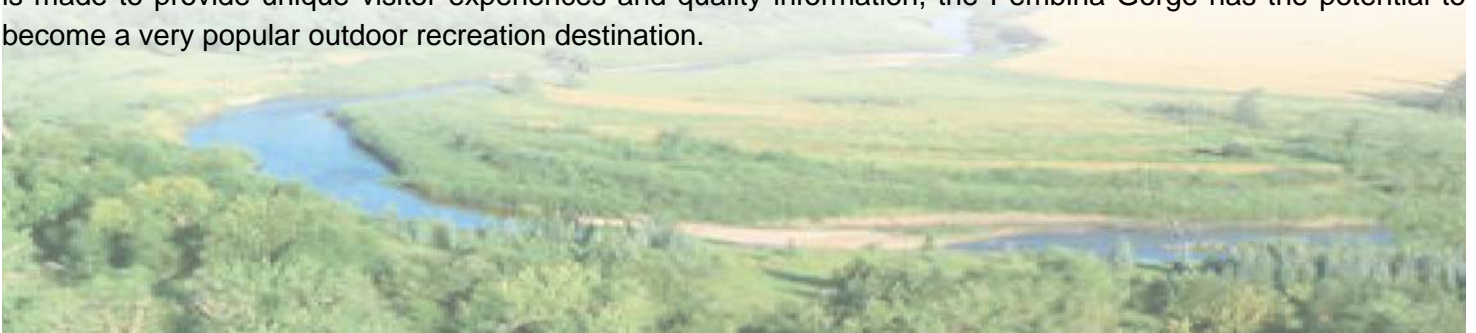
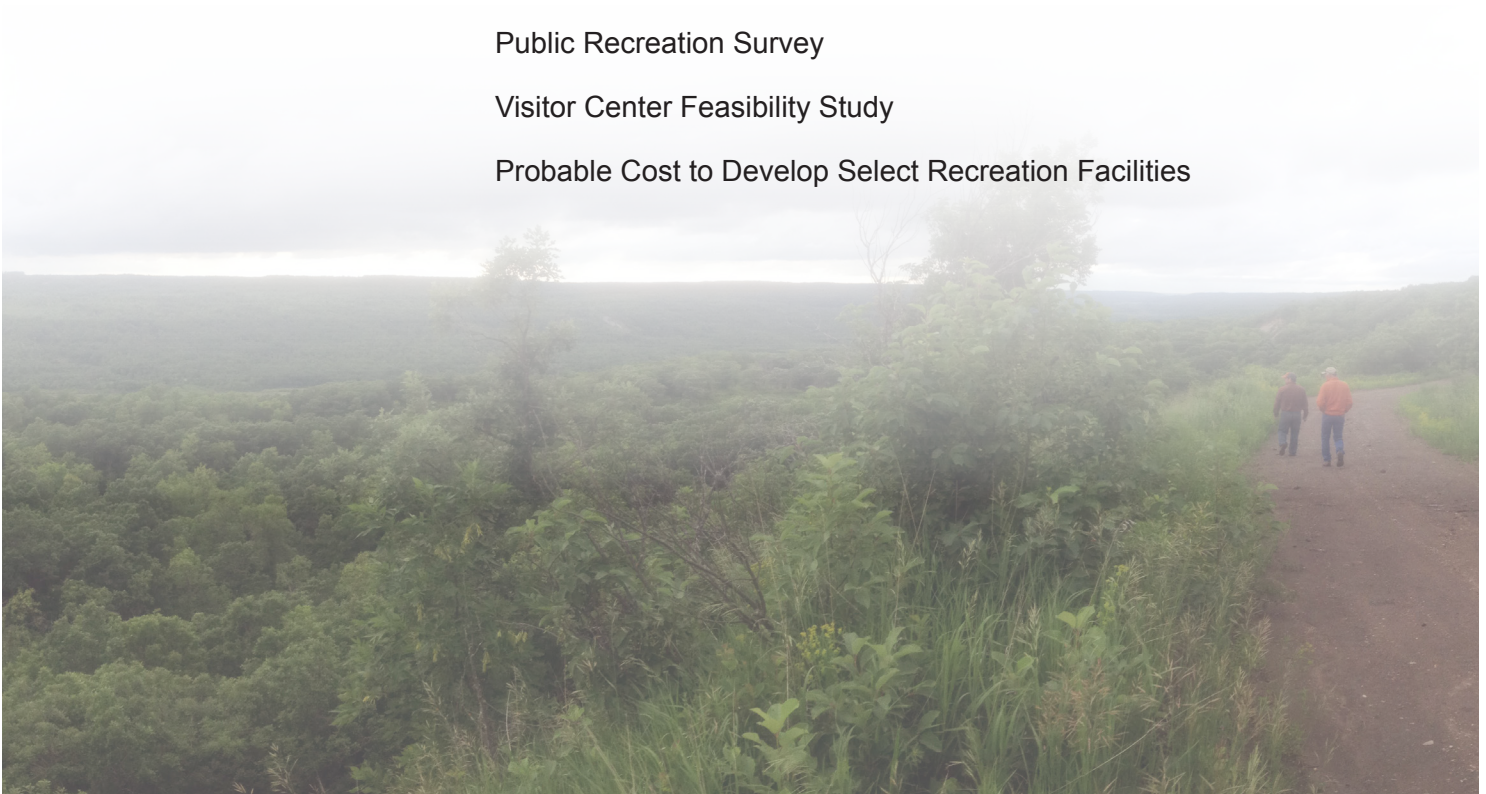


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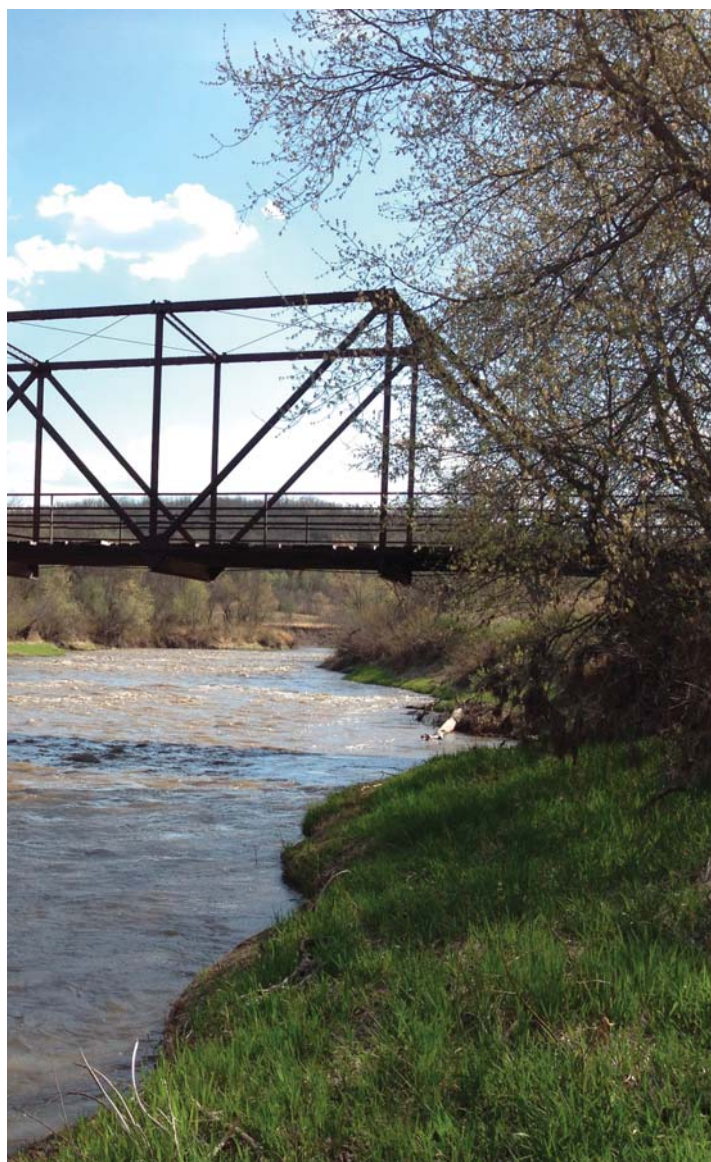
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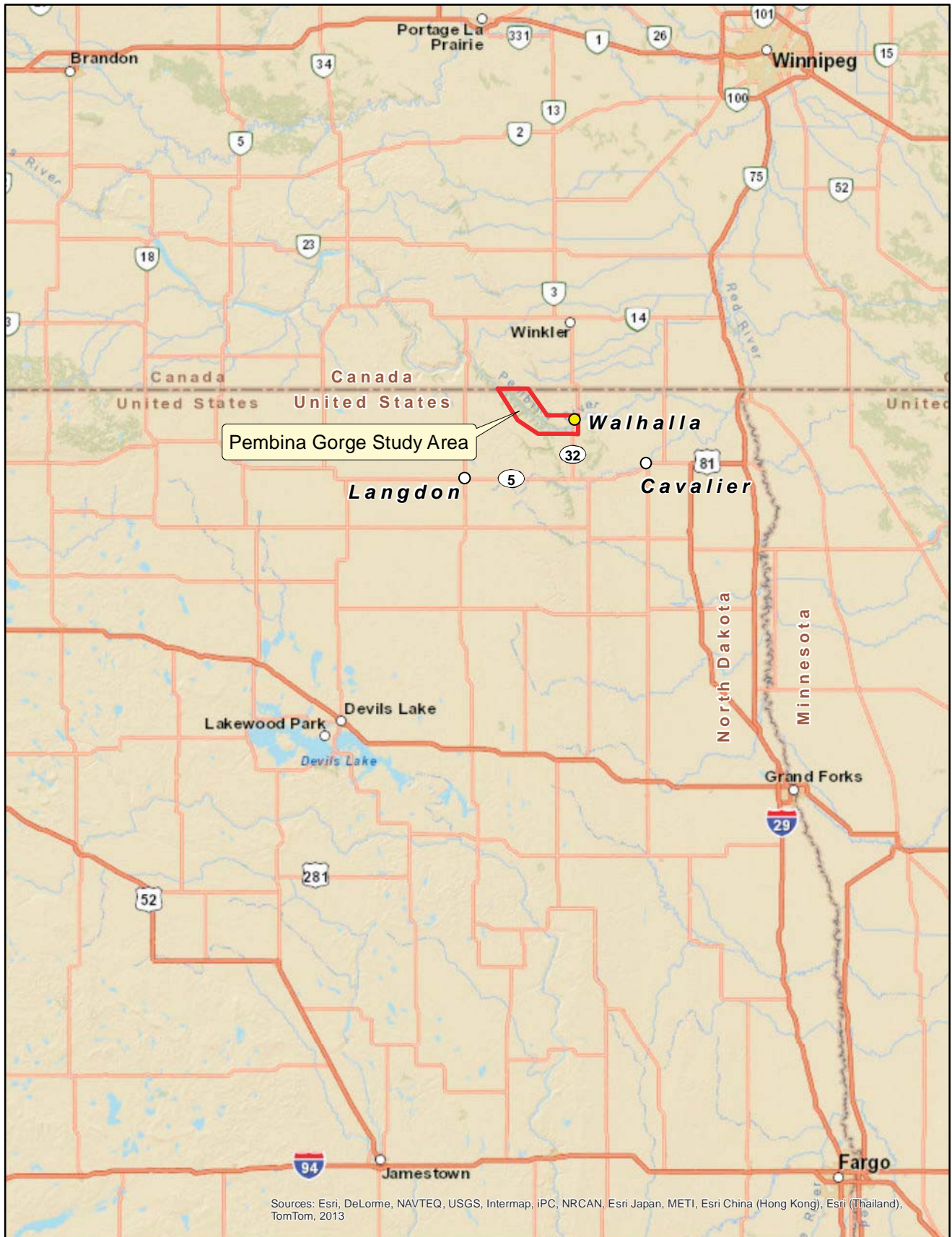


Introduction

The Pembina Gorge State Recreation Area (SRA) is located in a beautiful valley carved by the Pembina River in northeast North Dakota. The SRA is 1,497 acres of state-owned lands located about 6 miles west of the Town of Walhalla. The State of North Dakota established the SRA in 2005 and North Dakota Parks and Recreation Department (NDPRD) has managed it for public recreation and resource conservation. SRA visitors come from communities in North Dakota, northwest Minnesota, Manitoba Province in Canada, among others.

NDPRD developed this master plan for the SRA to create a long-term vision for visitor experience, facility development, resource conservation, and management. The plan was developed with extensive input from the public and government agencies. Research was conducted to identify opportunities, constraints and public opinion about preferred recreation experiences. This master plan document defines solutions and priorities to implement over time. Successful implementation of the plan will require funding and cooperation with collaborating organizations. SRA visitors, residents of North Dakota, the Town of Walhalla and other collaborating organizations will benefit from implementation of the master plan.



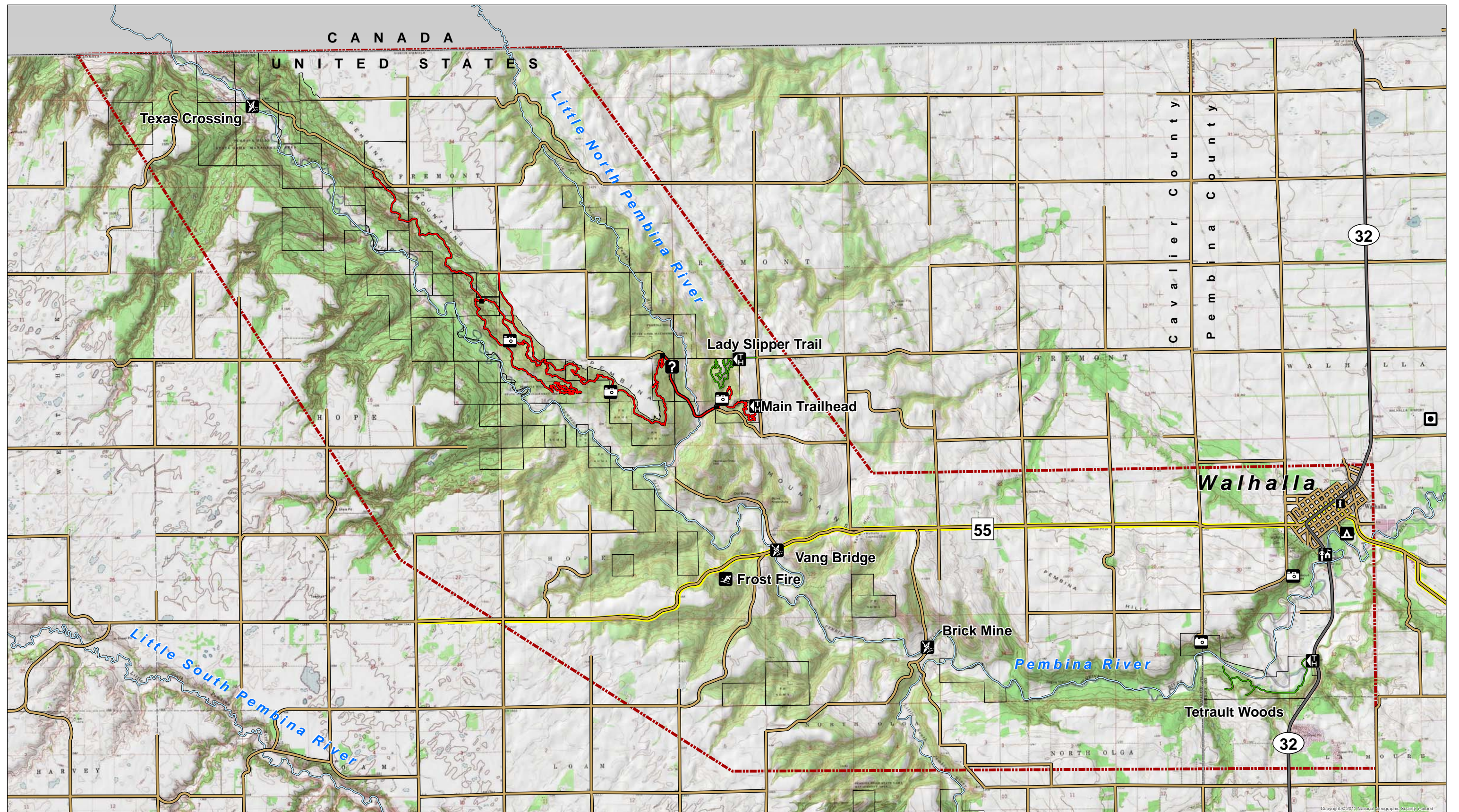


Regional Context

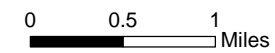
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Pembina Gorge State Recreation Area
Map # 1



- Rivers
- Existing Multi-Use Trail (16 miles)
- Non-Motorized Trails (4.2 miles)
- Scenic Backway
- Township/County Roads
- Study Area

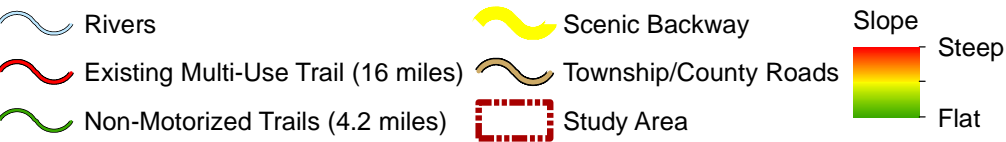


USGS Topo Map

Pembina Gorge SRA

Master Plan

MAP #2



Topography

Pembina Gorge SRA

Master Plan

MAP #3

Background

Geography

The Pembina River runs southeasterly out of the Canadian Drift Prairie, entering North Dakota 40 miles west of the Minnesota-North Dakota border. At the Pembina Escarpment (aka Second Pembina Mountain) the river passes out of the Drift Prairie physiographic district and veers to the east, cutting a deep gorge through the sandy delta deposited during the Pleistocene Age when the Pembina River waters flowed into glacial Lake Agassiz. Five miles to the east, the river flows out past the steep Pembina Delta Escarpment (aka First Pembina Mountain) onto the ancient, nearly level lakebed which is now the Red River Valley. The Pembina River then runs easterly, roughly paralleling the United States-Canada border for approximately 30 miles, to its confluence with the Red River of the North (see region map #1).

The Pembina River Gorge (Gorge) is an area of great relief in comparison to the broader and flatter valley in Canada to the north and the nearly level lake plain in Pembina County to the east. According to maps published by the United States Geological Survey (USGS), elevations range from 1,580 feet above sea level in the western part of the study area to 850 feet near the Pembina River channel at its eastern boundary. Map #2,3 shows the rim of the wooded valleys and elevations at various points in the study area.



The following synopsis of the geology of the study area is derived from information contained in Bulletin 62-Part 1, Geology of Cavalier and Pembina Counties, published in 1975 by the North Dakota Geological Survey (NDGS) and from field study by the author. The study area lies atop granite and amphibolite (rock containing crystal structures formed under high heat and/or pressure) bedrock which is overlain by cretaceous shales 65 to 135 million years old. The bulk of the study area is made up of three distinct rock (shale) formations, the Carlile, the Niobrara, and the Pierre. The shale lies in distinct layers (strata) with the Carlile being deepest (oldest), overlain by the Niobrara and the Pierre (youngest) in that order. The shale layers are covered by and interspersed with glacial till. The Carlile Formation and the lower units into which the Pierre formation is divided tend to slump easily when exposed. The Niobrara and the upper units of the Pierre are harder and form distinctive cliffs along the valley walls in the study area. The instability and high erodability of exposed shale is a limiting factor for development in the area.



Climate

The continental climate of the northern Great Plains, including the study area, is characterized by extremes in temperature and large variations in precipitation. According to the Final Environmental Impact Statement (EIS) on the Pembina Lake and Dam, released by the U.S. Corps of Engineers, St. Paul District, in 1977, temperatures in the Pembina River Valley historically range from over 100°F to colder than -50°F. Mean monthly temperatures range from 68°F in July to 20°F in January. Most of the precipitation which falls in the study area has its origin in the Gulf of Mexico. It falls in the form of snow in the months of November through March and as rain the rest of the year. Average annual precipitation in the study area is about 18 inches, with the bulk falling as rain during the spring and summer months. Some winter-time recreation activities are dependent upon the accumulation of snowfall in the study area, while rainfall is an impediment to most recreational activities during the remainder of the year.

The growing season averages about 110 frost free days per year in the general area. Pronounced variation in these mean values is to be expected with slope, aspect, and elevation in the Gorge. For example, the floodplain at the bottom of the Gorge is frequently subject to chilly nighttime temperature inversions. Its saturated soils remain frozen much longer in spring than aerated soils of surrounding slopes. The actual growing season in this microhabitat is shorter, mean temperatures are lower, and available water capacity is higher. In



contrast, the northeast wall directly faces the sun at the hottest time of day, and receives direct sunlight for 16 hours during the longest days. Some of its soils have high runoff. Its growing season is longer than the norm, its mean temperatures are higher, and the available water is lower. These microclimate differences greatly accentuate the natural habitat differences directly associated with stratigraphy.

Hydrology

The surface waters which flow through the study area comprise one of its outstanding natural features. The study area contains the confluence of two tributaries, the Little North Pembina River and the Little South Pembina River, with the Pembina mainstem. The Little South Pembina River cuts through the Drift Prairie roughly parallel to the mainstem and about five miles to the southwest. At the Pembina Escarpment, it turns northerly and runs along the boundary between the Drift Prairie and the Pembina Delta before joining the main channel. The Little North Pembina River originates in Canada and has its confluence with the mainstem about three miles upstream. The Pembina River has a total length of 310 miles and 3,950 square miles of drainage basin. The study area includes a 7.8 mile segment of the Pembina Gorge in Cavalier County, from the International Boundary to the mouth of the Little North Pembina River, plus the 5.2 mile valley segment of the Little North Pembina River.

Extremes in rate of flow are characteristic of the Pembina River and its tributaries. As indicated in USGS records supplied by the National Weather Service in Bismarck, North Dakota, and in interviews with local residents, the channels are frequently filled or overflowing during spring runoff or following heavy rains. By mid to late summer they are often at very low flow or contain only intermittent ponds of water. Since 1939, when the USGS began keeping water stage data in the study area, nine floods of record have occurred there. According to residents of the study area, little flood damage occurs west of the Pembina Delta escarpment. In the lower portion of the Pembina River Basin, lying in the Lake Agassiz plain outside of the study area, farmlands and homes have been repeatedly inundated. It is this flooding in the lower reaches of the Pembina River, and

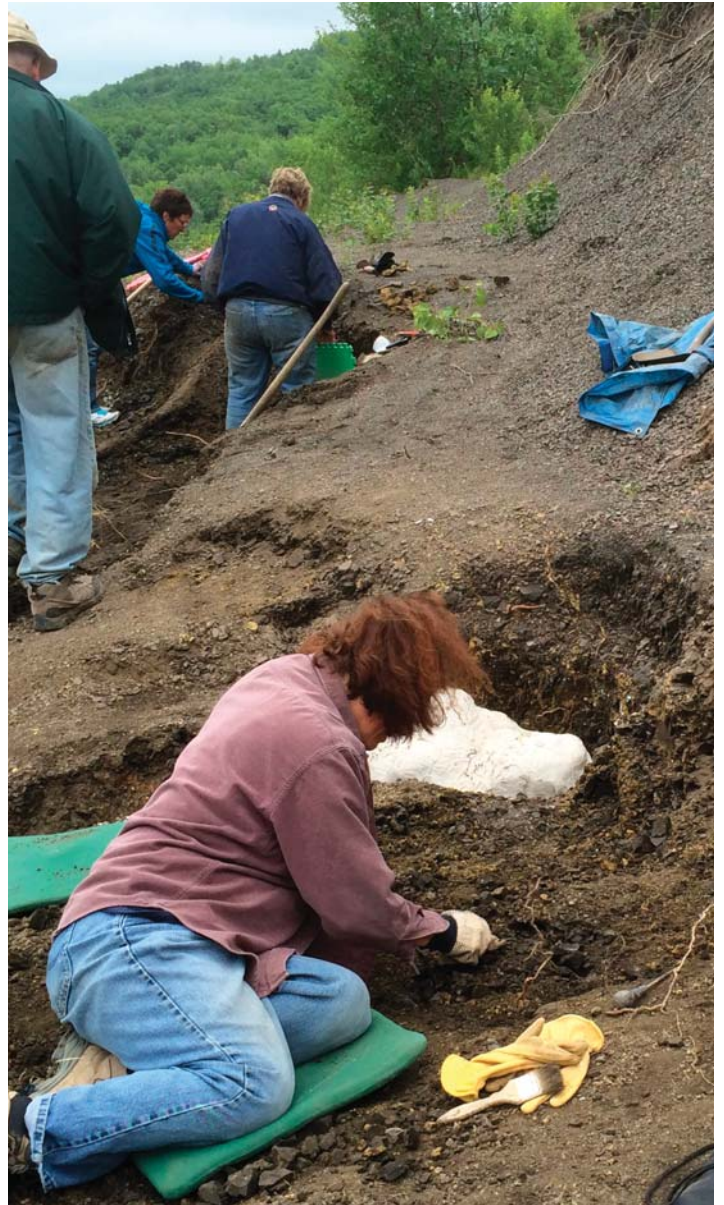
on the Red River to which the Pembina contributes its flow, that has prompted various proposals for flood control in the Pembina River Valley.

The waters of the Pembina River are high in nitrogen and phosphorus, and the river usually carries a high sediment load. Corps of Engineers studies of USGS data concluded that the total dissolved solids level exceeds the desirable recommended limit for drinking water a majority of the time. The principal aquifers in the study area are the Pembina River Aquifer and the Pembina Delta Aquifer, both located near the Town of Walhalla. Water quality studies by the USGS indicate that these aquifers yield water which is moderately saline and fairly high in iron content but generally suitable for domestic and industrial use.

Paleontology

Rocks of the Carlile, Niobrara, and Pierre Formations are exposed in road cuts and along rivers in the Rendezvous Region. These rocks were deposited in subtropical to warm temperate seas, called the Western Interior Seaway, which covered North Dakota during Late Cretaceous time from about 90 million to 80 million years ago. Fossils of animals and plants that inhabited those seas are entombed in these rocks. Remains of marine reptiles (mosasaurs, plesiosaurs, and turtles), fish (including sharks), birds, and invertebrates (including clams, cephalopods, snails, corals, and crab) have been recovered from the rocks.

The Mosasaur *Plioplatecarpus* was one of the reptiles that inhabited the Pierre Sea. Mosasaurs were huge animals, some up to 30 feet long, with lizard-like bodies. Unlike their terrestrial lizard relatives, the limbs of mosasaurs were modified to form flippers. Mosasaurs swam by lateral undulations of the posterior part of their bodies and laterally compressed tails. Their flippers were used primarily for steering rather than for propulsion as the animal glided through the water. Mosasaurs were active predators and among the main carnivores in the Pierre Sea. They probably preyed on other mosasaurs, fish, turtles, and invertebrates. Although mosasaurs were not dinosaurs, they became extinct at the same time as the dinosaurs, about 65 million years ago.



History

The first written accounts of the Pembina Gorge were recorded by Capt. Alexander Henry of the Northwest Fur Company in the early 1800s (Lee 1898). Henry mentioned that a trading post and several homes had been constructed in 1802 at the base of the Hair Hills, near present-day Walhalla. The early trappers and the first settlers of the area mentioned high wildlife diversity. Included in the early accounts were reports of deer, elk, bison, and bears (The Record 1898). During early travels in the Pembina Gorge, buffalo trails were often the only paths available for crossing the forested hills (Maisel 1979). One trapper's post recorded the following as taken from the Pembina Gorge in the winter of 1801-02: 200 beaver skins, 24 black bears, 5 brown bears, 160 wolves, 39 foxes, 14 raccoons, 57 fishers, 5 otters, and 15 mink (Lounsberry 1919).

There are no specific studies that indicate what groups of Indians occupied the Pembina Gorge prior to white settlement. Studies of surrounding areas, however, indicate that Dakota, Assiniboine, Cree, and Ojibwa Indians might have frequented the Pembina Gorge (U.S. Army Corps of Engineers 1983). Many of the subsequent inhabitants of the Pembina Valley were Metis, an ethnic group comprised of descendants from Indian-European marriages (Young 1982). Information about the Metis is vague, but there is some reason to assume that a few may have occupied the study area as early as 1850. Notes from the General Land Survey (1883) mentioned that "The poor downtrodden halfbreed should have been left to their sole (Pembina Hills) occupancy." Lee (1898) surmised that by 1872,

most of the Metis lived on the prairie, "few of them brave enough to risk ambush of self or their simple log cabins in the brush".

Until the early 1880s, much of northeastern Cavalier County was sparsely populated, and only a few scattered homesteads occurred in the area (General Land Survey 1883). In 1888, a small Norwegian community, Numedahl, was founded on the northern rim of the Gorge. Most of these Norwegian settlers built their homesteads on the near-level uplands above the rim of the valley where they cleared brush to make farmland (Maisel 1979).

Much of the Pembina Gorge has remained relatively undisturbed despite the upland homesteading, and it has not changed much in overall aspect since the area was settled. The General Land Survey (1883) noted that most of this land along the Pembina River and in the adjacent uplands was "broken and covered with dense brush and timber". Notes from the survey described the main valley of the Gorge as being "covered with dense underbrush and scrubby scattered timber, worthless except for fuel". The survey recorded the principal tree species as poplar (aspen), elm, oak, alder, plum, box elder, and balm of gilead (balsam poplar). The survey records seem to document higher frequency of aspen than oak, opposite present conditions. A successional shift favoring oak has probably taken place.

Extent of woodland disturbance within the Pembina Gorge is unknown, but some areas have been used for firewood, homesteads, and grazing. Settlers of Numedahl and other local communities frequently



chopped cordwood during winter months and hauled it to Manitoba for sale (Maisel 1979). Some private landowners still cut wood, but the practice is not widespread. Early settlers also kept a few head of livestock, but feeding the stock proved difficult during the winter months because of the shortage of prairie and hay. Plots of woodland and native prairie in the Gorge were later fenced to provide pasture for cattle. Pastured woodland in the study area during 1984 was estimated to be less than 200 acres, and hayland less than 20 acres; but old, fallen barbed wire fences are frequently encountered in the woods.

The 1895 land plats for Cavalier County show that most of the land in the Pembina Gorge had not been claimed by that time, though much of the adjacent escarpment was settled. Field work during 1984 revealed at least five abandoned homesteads within the study area, four of these comprising less than 1 acre each of cleared forest openings. Many original log homesteads remain in the fringe of woodland on the rim of the Gorge.

Southeast of the study area, the Mayo Brick and Tile Plant operated from 1904-1909, producing bricks from Carlile Formation shale. In more recent years, shale from the upper members of the Pierre Formation has been quarried for local road surfacing material. There are at least three active open pits in the study area.

Forest fires were apparently a frequent occurrence in the Pembina Gorge during the settlement period. Settlers often complained that fires destroyed cordwood and other useful timber (Maisel 1979). In recent history, several fires have burned land in the study area. In

1975 and 1976, small fires burned less than 100 total acres of woodland (L. Kotchman, pers. comm.). In April of 1980, the Fremont Township Fire along the Little North Pembina River resulted in a burn of over 1,328 acres in oak and aspen woodland. The fire crowned through much of the forest, and the area vigorously resprouted to bur oak and aspen, with a dense understory of beaked and American hazel. Elsewhere, the dense hazel brush and suppressed growth of trees indicates that much of the woodland composition has been influenced by fire.

The spread of leafy spurge in the Pembina Gorge also warrants note. It has spread widely in the area since about the 1940s. It pioneers on some of the large slump faces along the northeast wall, spreads downriver along banks and bars, expands along other travel corridors such as roads and trails. It is notably profuse in the area of the Fremont Township Burn on the northeastern wall above the Little North Pembina River.

Natural Resources

The Pembina River cuts through shale bedrock of the Pembina Escarpment to form a wooded valley of spectacular proportions, the Pembina Gorge. Heavily forested slopes of the Pembina Gorge study area contain about 12,500 acres of timber, brush, and other habitats, and comprise one of the largest woodlands in the State. This rugged area encompasses all of the local NDPRD landholdings, as well as the least accessible and least altered of Pembina Gorge landscapes. The following information is from Pembina Gorge Natural





Diversity Inventory conducted by North Dakota Natural Heritage Inventory (NDNHI) in 1986.

Physical Characteristics

The study area spans Pembina Gorge valley slopes and valley bottom. The Pembina Gorge averages 1.1 miles in width, and the topographic relief varies from 400-475 feet. It is among the deepest and steepest valleys in the state. The incised, meandering river is usually filled with meltwaters during the spring of each year but rarely inundates its floodplain. The flow is often reduced to a trickle in the dry months of summer. On occasion the river may cease to flow. Present topography of the Gorge was formed about 12,000 years B.P., during the late Wisconsin Glacial Epoch when an outlet of Glacial Lake Souris formed as the glacier retreated, draining via the Pembina River into Glacial Lake Agassiz (Laird 1951; Arndt 1975). Large volumes of surging water from Glacial Lake Souris were carried by the Pembina River, carving out the valley from soft shale bedrock over a relatively short time. The alluvial wash was deposited as a large delta on the western edge of Lake Agassiz, known locally as the “First Mountain”. The First Mountain lies several miles east of the study area, immediately west of Walhalla. The edge of the Pembina Escarpment, or “Second Mountain”, lies immediately east of the study area. As the river was carving steep slopes through this escarpment, enormous blocks of earth slumped, forming hills and knobs and other irregularities in the young terrain.

Walls of the Pembina Gorge are composed of soft Cretaceous shales deposited about 100 million years ago. Three bedrock shale formations are exposed in the study area and include, from bottom to top,



the Carlile, Niobrara, and Pierre Formations (Arndt 1975). They differ in their stability and susceptibility to erosion, resulting in different angles of slope. The Carlile Formation is composed of soft, black marine shales that tend to slump easily. These shales are characteristically exposed as large slump blocks along the base of the valley walls. The Niobrara Formation conformably overlies the Carlile shales, and is exposed along the middle elevations of the Pembina Gorge. The lower member of the Niobrara is a loose, light gray, calcareous shale, and the upper member is tan to orangish color and calcareous, forming pronounced cliffs.

Biotic Characteristics

The Pembina Gorge is located near three major North American biomes: central grassland, eastern deciduous forest, and boreal forest (after Rudd 1951). These biomes are subsumed in the North American prairie, Appalachian, and Canadian floristic provinces of Cronquist (1982), respectively. The extensive and relatively sheltered setting supports a diverse flora and fauna with biogeographical affinities corresponding to the three biomes. This setting signifies a major North American biological crossroads. It has among the

highest faunistic and floristic diversity in the state. Local representation of the three biomes is detailed in the section on rare species and natural communities and highlighted in the following vegetation cross-section overview.

Figure: #1 Pembina Gorge Vegetation Cross-Section.
Source: NDNHI – 1986

From rim to rim, there is an intact cross-section of native plant and animal life in sharp contrast to the directly adjacent cleared, drained, gently rolling uplands. Starting on the top of the southwest wall and trending northeast, the typical Gorge vegetation transect (Figure #1) crosses a variety of habitats. The southwestern valley wall has exceptionally shaded, cool, and moist conditions with the greatest development of sheltered habitat. It harbors most of the existing boreal forest plant species in localized forest or aquatic communities. It is dissected by short tributary side valleys, accommodating the full local range of forest and aquatic community types, representing interesting cross-sections on a smaller scale. There are maximum concentrations of perched wetlands and beaver ponds. The highest local representation of eastern deciduous forest species is also found here.

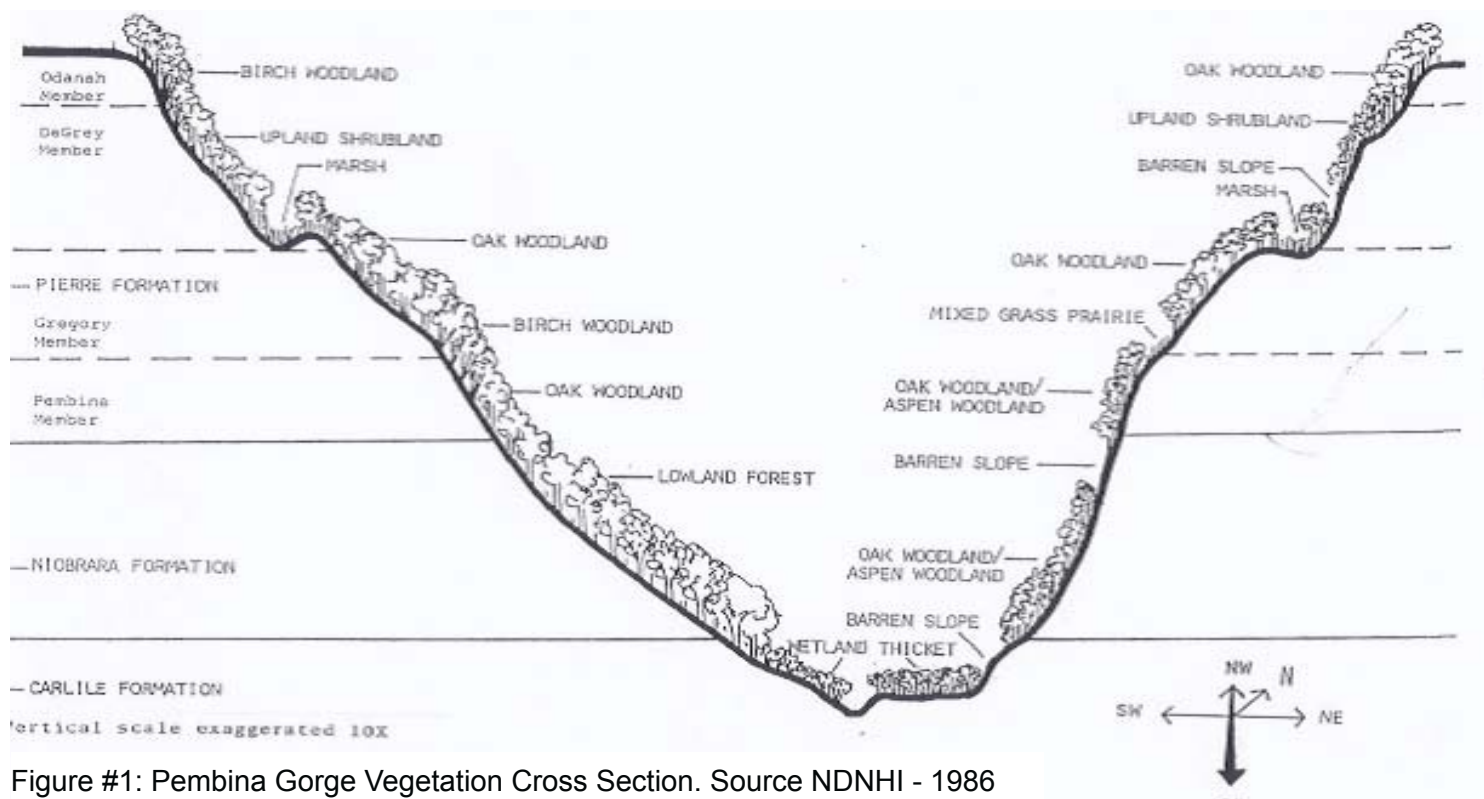


Figure #1: Pembina Gorge Vegetation Cross Section. Source NDNHI - 1986

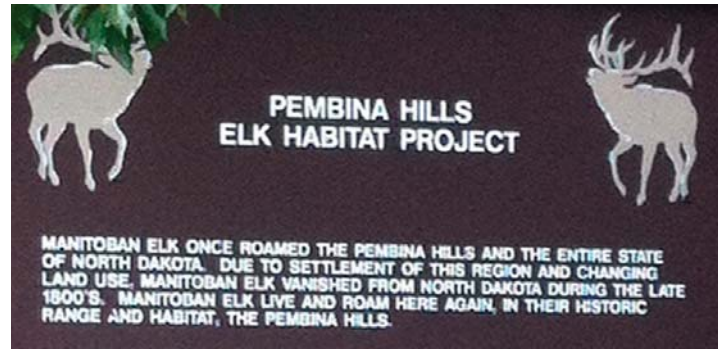


In the valley bottom, great swathes of thicket interlace with river bars, oxbows, and bands of trees. Oxbow ponds are also in the valley bottom. The breeding bird density in the wetland thickets is extremely high; over twice that of any other local habitat (Faanes and Andrew, 1983). This is also prime habitat for the many furbearers and large mammals that distinguish the local fauna. Plant and animal geographical affinities are a mixture of eastern deciduous forest and northern boreal forest.

On the northeastern wall are the driest habitats, including large slump faces, prairie openings, and shale barrens. They represent woodland openings, and they host an array of prairie plants. Even the woods here have prairie species intermixed, and the central grassland species representation is highest on this slope. Many of the prairie species are unusual for northeastern North Dakota, being strangely reminiscent of the Badlands flora. There are also stringers of perched wetlands, as well as intermittent drainages and beaver ponds.

Biological Significance

The Pembina Gorge study area harbors the highest numbers and concentrations of rare species known in North Dakota, including 21 animal species and 30 plant species. Of these, eight occur nowhere else in the state. The entire flora and fauna are notably rich and collectively compose fourteen state-significant natural communities as well as provide abundant hunting and other outdoor recreational resources. The Pembina Gorge is a singular landform; a deep river valley carved by glacial lake discharge. The study area also represents the largest block of woodlands without logged clearings in the state. The exceptional habitat diversity and rim-to-rim valley integrity distinguishes this valley segment.



Other significant natural diversity features of the Pembina Gorge, specifically its natural communities, and rare fauna and flora are listed in table #1. The table lists the individual features along with their natural heritage rank and, where applicable, their status according to the Endangered Species Committee of the North Dakota Chapter of the Wildlife Society. Also included in the tables are comments regarding the status and significance of each feature in North Dakota and the Pembina Hills.

Natural Communities

Natural communities of the Pembina Gorge are composed of native plants and animals that belong together and to their common environment. They represent fourteen different woody and herbaceous systems, both terrestrial and aquatic. Each of the natural communities is distinguished by their species associations, community structure, species composition, and range of physical parameters. This juxtaposition and interspersion of fourteen natural communities is among the highest documented habitat diversity in the state. Few other areas come close, outside of the Badlands. Biogeographical contrasts within and between these communities are also unique. This is epitomized by the contrasts between, e.g. birch woodland of boreal forest affinities, and salt sage barrens, a Great Basin component of central grasslands. Individual communities also have peculiar combinations, e.g. magpie birds nesting among cardinals in well-developed lowland forests, and the western buffaloberry side-by-side with the eastern smooth sumac in shale barren openings.

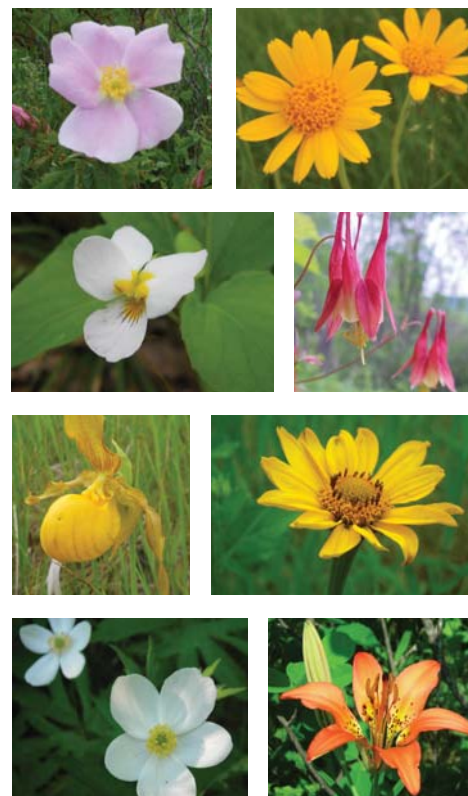
Among the various natural communities are many of state significance, e.g. the most extensive oak

woodlands, the most extensive wetland thickets, the greatest development of birch woodlands, the least locally disturbed river system, and others summarized in table #1.

Wildlife

The Pembina Gorge has the highest faunal diversity in the state (U.S. Fish and Wildlife Service 1983), and contains a very high concentration of animals rare to North Dakota. At least 79 species of breeding birds are found here, which comprise over a third of the total breeding avifauna of North Dakota (Faanes 1983). Eleven of 14 warblers that occur in the state are breeding birds of the Gorge, and the golden-winged warbler is found nowhere else in North Dakota. The Gorge provides habitat for other species of statewide significance: the alder flycatcher nests nowhere else, and contains one of the only naturally occurring elk herds in the state. Many of the rare species found in the Gorge are at the periphery of their range, resulting in a unique faunal assemblage. Populations of species with a northern or southern, eastern or western affinity intermix. For example, clay-colored sparrows and black-billed magpies, primarily western species, occurred on the same lowland forest site with the eastern species mourning warbler and rubythroated hummingbird. One of the main reasons for the large diversity and density of breeding birds is the large blocks of woodland with well-developed understory and numerous brushy edges. This allows a maximum interspersed of habitats, such as willow thickets adjacent to lowland woodlands, providing requirements for many species.

State Common Name (species or community)	State Rank	State Common Name (species or community)	State Rank
Bicknell's Sun Rose	S1	Cattail Deep Marsh	S3
Bog Birch-willow Rich Fen	S1	Chestnut-sided Warbler	S3
First order stream	S1	Crested Woodfern	S3
Leatherwood	S1	Delicate Sedge	S3
Leathery Grapefern	S1	Dotted Smartweed	S3
Moonwort	S1	Dwarf Honeysuckle	S3
Stiff Sandwort	S1	Eastern Hardwood Forest	S3
Eastern Mixed Floodplain Forest	S1S2	Golden-winged Warbler	S3
Green Ash-elm-boxelder Floodplain Forest	S1S2	Horizontal Juniper-little Bluestem Shrubland	S3
Alder Thicket	S2	Kalm's Brame	S3
Black Ash	S2	Mixed Emergent Marsh	S3
Central Mixed Grass Prairie	S2	Naked Mitrewort	S3
Drooping Locoweed	S2	Northern Lady-fern	S3
Eastern Bur Oak Savanna	S2	Paper Birch Forest	S3
Flat-leaved Bladderwort	S2	Paper Birch-juniper Woodland	S3
Lesser Bladderwort	S2	Philadelphia Vireo	S3
Loesel's Twayblade	S2	Pileated Woodpecker	S3
Northern Aspen-bur Oak Forest	S2	Slough Sedge Shallow Marsh	S3
Oakfern	S2	Spinulose Woodfern	S3
Peduncled Sedge	S2	Spurred Gentian	S3
Sessile-leaved Bellwort	S2	Western Aspen Forest	S3
Showy Lady's-slipper	S2	White-throated Sparrow	S3
Slender Mountain-ricegrass	S2	Badlands Shale Slopes	S4
Small Yellow Lady's-slipper Orchid	S2	Juneberry Thicket	S4
Southern Watermeal	S2	Mourning Warbler	S4
Sweet Coltsfoot	S2	Northern Waterthrush	S4
Wood Horsetail	S2	Orange-crowned Warbler	S4
Dogwood-willow Thicket	S2S3	Twinflower	S4
Silver Sage-western Wheatgrass Scrub	S2S3	Alder Flycatcher	SU
Bulrush- Cattail - Burreed Shallow Marsh	S3	Canada Warbler	SU
Bur Oak Forest	S3		



Note: Heritage rank: 1 = highest value, 5 = lowest value, SU = unrankable; due to a lack of information or no range can be assigned.

(Source: NDNHI)

Table #1: Rare Animal and Plant Species and Significant Ecological Communities Found in the Pembina Gorge Area & their State Heritage Ranking



Recent zoological field investigations in the Pembina Gorge have further documented the tremendous diversity of animal life occurring in the area. Faanes and Andrew (1983) conducted extensive breeding bird surveys in the Gorge during 1981. North Dakota Natural Heritage Inventory personnel also inventoried sections of the Gorge in 1981 and 1983 to further clarify precise locations of rare breeding bird species. Seabloom (1984) surveyed small mammal populations in selected habitats. A fisheries inventory of the upper Pembina River was conducted in 1985 in an effort to document the existing diversity and relative abundance of fish species. As a result of these field investigations, a number of special animal species have been identified as occurring in the Pembina Gorge.

While NDNHI fieldwork concentrated primarily on rare species, the Pembina Gorge also harbors extensive populations of more common game and nongame wildlife species. The ND Game and Fish Department regards this region as one of the premier wildlife areas in the state. These game and non-game species, while they are not rare, contribute significantly to the overall ecological diversity of the Pembina Gorge and are listed in the table below. As a result of this diversity of game and non -game animal species, the Pembina Gorge is very popular with wildlife enthusiasts and outdoor recreationalists.

Common Game Animals Found in the Gorge

- White-tailed deer
- Elk
- Snowshoe hare
- Ruffed grouse
- Wild turkey
- Coyote

Plant Natural Diversity Features

The Pembina Gorge contains a disproportionately high floristic diversity for an area of its size. Bypassed by development and unsurpassed in its range of habitats, the Gorge harbors over 480 species of vascular plants: a number roughly equivalent to one-third of the state's flora. Field investigations extending into 1985 resulted in the addition of 6 species to the state's flora and the extensive documentation of 24 additional rare taxa. The new taxa and distribution records underscore the Gorge's biological richness and suggest it has been among the more understudied areas in North Dakota.

While the Pembina Gorge contains many specialized habitats, three are of particular interest from a rare plant perspective: partially stabilized shale barrens, mesic birch woodlands, and sheltered spring seepages and spring fed streams. Shale barrens, a product of the Pembina Gorge's unique geology support such xeric species as stiff sandwort, short-horned ricegrass, and *Polygonum douglasii* (Douglas' knotweed). Birch woodlands and spring seeps in stark contrast with the dry shale barrens host a complement of mesophytic species.

The botanical field investigations also found certain rare species are more numerous and less threatened than originally thought. Such findings are important for they've allowed available resources to be redirected towards the species in greater need. The juxtaposition of boreal forest, eastern deciduous forest, and central grasslands in the Pembina Gorge perhaps makes it the most floristically diverse area in North Dakota. Elements of three floristic provinces, the Appalachian, Canadian and North American Prairies (Cronquist 1982), are firmly represented in the Gorge. A few species suggest the influences of additional, outlying provinces. Further fieldwork will undoubtedly reveal more rare species,



new distributions, and new records of vascular plants from North Dakota.

History of Pembina Gorge State Recreation Area

The North Dakota Parks and Recreation Department (NDPRD) currently owns approximately 1,497 acres in the Pembina Gorge and along the Little North Pembina. Prior to the creation of the PGSRA and subsequent land purchases, this land was referred to as the Walhalla scattered tracts. A majority of this land was purchased in 1971 from a single landowner. This purchase constitutes the largest aggregation of undeveloped lands and the largest landholding in general owned by NDPRD. These tracts totaled 1,497 acres and were close to evenly divided between the Pembina Gorge and the valley of the Little North Pembina. NDPRD tracts vary in size between 40 and 360 acres.

Interspersed with NDPRD's land there are tracts owned by other public agencies. Of the approximately 12,500 acres in the Pembina Gorge above the confluence of the Little North Pembina, and along Little North Pembina 5,916 acres (47%) are in public ownership. In several instances tracts owned by NDPRD directly adjoin tracts owned by other public agencies. Thus large, irregular blocks of public lands are formed.

The greatest concentration of public lands is along the Pembina River and the tributary creek bottoms immediately adjoining the river. Approximately eleven river miles of the Pembina River are within the Gorge study area, and more than 6 miles are bordered on both sides by public land. The Little North Pembina contains a slightly higher concentration, though lesser acreage, of public lands. The North Dakota Game and Fish Department is the largest single landowner in the study area. In addition to owning 4,419 acres, they hold



the management rights to the 320 acres of land owned by NDPRD along the Little North Pembina.

The presence of Frost Fire Mountain Ski Resort in the Gorge and Walhalla Country Club adjoining the Gorge have boosted visitation to the area. Recreation is the prevailing local land use in the Gorge. The Gorge is among the best hunting and trapping areas in the state for ruffed grouse and other game. All-terrain vehicle (ATV) and snowmobile traffic have grown in recent years. It is also used for canoeing, rafting, cross-country skiing, fishing, sight-seeing, and other outdoor activities.

Community

The Town of Walhalla, the center of the Pembina Hills, is located in northwestern Pembina County in the extreme northeastern part of North Dakota. It is approximately 66 miles south and 34 miles west of Winnipeg, Manitoba, Canada and approximately 66 miles north and 34 miles west of Grand Forks, ND. The Town is 5 miles south of the Canadian border and 30 miles west of Minnesota; is served by ND State Highway No. 32, County Highway No. 55 and by Burlington Northern Railroad. Walhalla serves as a trade center of western Pembina and northeastern Cavalier Counties. It is a residential center and serves as an outlet for the agricultural and manufacturing products produced in the area.

The City of Walhalla is one of the earliest settlements in North Dakota and the Upper Midwest. LaVerendrye, an early French explorer, traveled in the Pembina Hills area a full century before other North Dakota areas were settled and explored. As the pressure to move toward western frontiers gained momentum, development of new areas occurred first along the best transportation



routes; the rivers in this area. The Red and Pembina Rivers provided the needed transportation for the fur traders and explorers in the early 19th century. It was not until 1845 that Walhalla was established. French and English fur traders, Catholic Missionaries, and settlers came in increasing numbers in the 1850s and 1860s to gather the furs, farm land, and to convert the Indians to the Catholic religion.

Father Belcourt is credited with establishing the Town of Walhalla in 1845, which is about 40 years earlier than the settlement period of most other North Dakota communities. Father Belcourt moved his church school from Pembina to Walhalla due to severe flooding in Pembina. He named the site St. Joseph, which was later changed (in 1871) to Walhalla “Valley of the Gods”. St. Joseph served as a temporary county seat of Kittson County, Walsh, Pembina and parts of Cavalier County, when the first divisions of counties were made by the first Dakota Territory legislative session in Yankton, South Dakota, in 1862. Also, in 1862 the Walhalla post office was established.

Norman Kittson, an American Fur Company agent, built a trading post in Walhalla in 1843 to gather the abundant furs from the Indians who trapped in the Pembina Hills. This trading post, the oldest building in North Dakota, is preserved by the State Historical Society in Walhalla. Another trading post, located northeast of Walhalla, was established by Antoine Gingras as early as 1844. Gingras worked with Kittson in establishing Walhalla as a major trading area at that early period of North Dakota’s history. Another early settler was Charles Cavalier. Cavalier, the first permanent settler in the Dakota Territory, took charge of the trading post in Walhalla in 1854.

In the 1850’s and the 1860’s the different Indian tribes (Sioux, Chippewa, Cree and Assiniboin) fought amongst themselves and later attacked several groups of early settlers and missionaries. Alsonzo Barnard and D.B. Spenser, who brought the first printing press to Walhalla, along with some other settlers, were killed by Indians in 1852. The mixing of the early French traders and the Indians created a new ethnic group called the Metis. The Metis have a colorful history in their struggles for homeland in Canada and in their lifestyles.

Development of Walhalla continued with the arrival of farmers and the railroad in the 1880’s. As Walhalla is one of the earliest communities in the area, it developed the services and trade necessary to support the agricultural activities in the surrounding trade area. Today the city still functions as a trade center and is one of the most viable communities in northeastern North Dakota.

Rendezvous Region

The Rendezvous Region of Northeast North Dakota is a special place steeped in history, natural resources and friendly people. The cities of Pembina, Walhalla, Cavalier and Langdon comprise the boundaries of the Rendezvous Region. Working together, the four cities have joined forces to bring a new focus on their corner of the state.

The 120 mile corridor offers an amazing array of historical sites which date back 200 years to the days when fur trappers, Indians and traders met in the region to buy goods and to barter. The annual meetings were called “rendezvous”. Each city in the region has a legion of local historic characters, buildings and fables to capture the imagination of people of all ages. A drive

through the Rendezvous Region is a drive through history.

Throughout the year, the combined cities of the Rendezvous Region offer 10 separate celebrations. In addition, summer offers travelers the opportunity to swim in numerous lakes and rivers, stay in campgrounds, fish, hunt and canoe. Pembina, Walhalla, Langdon and Cavalier each have a public golf course.

A drive through the Rendezvous Region during the farming season reveals fields of brilliant sunflowers. Canola, barley, beans, corn, oats, potatoes, rye, wheat and sugar beets are grown in the area. The Rendezvous Region Scenic Backway winds along the bends of the Pembina River providing panoramic views of the Pembina Gorge. The Backway begins on Highway 55 in Vang proceeding east to Walhalla, turning southeast for 22 miles traveling past Icelandic State Park to Highway 5 ending in Cavalier.

Socio-Economic Setting

The area and the surrounding region from which recreation enthusiasts are likely to be drawn is generally stable in terms of demographic and economic characteristics. Much of the study area itself is in a semi-wilderness state, being impassable to travel much of the year even on the few roads that do exist. The rugged terrain, soil, and geologic conditions make the river valleys economically productive in localized areas only. These factors combine to make much of the study area, particularly the northern portion, rather undesirable for year-round residence. That part of the study area which is relatively level is used for agriculture; grain and cash crops are by far the dominant agricultural uses.

The most significant population cluster in the area is at its east edge, in the Town of Walhalla, whose total 1980 population was 1,429. The rest of the study area contains scattered farms and rural residences. A handful of homes in the valleys are located along improved roads.

It is significant to note that the population has gradually declined throughout the local user area over the past couple of decades. The general consensus among





professionals in the social science fields is that this reflects demographic trends typical of rural midwestern areas, including out migration of the young, stable overall population, and a large incidence of elderly.

Recreational Opportunities in the Region

The 912-acre Icelandic State Park is located on the shores of Lake Renwick, five miles west of Cavalier on County Highway 5. Icelandic State Park has 3.9 miles of trails, which can be used for non-motorized uses, such as cross-country ski trails. These trails include the Basswood and Old Settler trails along with other hiking trails. A paved multi-use trail along County Highway 5 connects the park to the community of Cavalier.

In 1963 Gunlogson donated 200 acres of the family's land to the state. This area later became North Dakota's first dedicated state nature preserve located near the Town of Cavalier. Gunlogson State Nature Preserve has a tangle of alder shrubs sprout in the spring-fed wetlands. More than a dozen rare species can be spotted in the preserve, ranging from watermeal, one of the world's smallest flowering plants, to bishop's cap, a boreal species limited to a handful of locales in the state. The preserve also contains seldom seen birds such as the pileated woodpecker, an imposing species that excavates its signature rectangular holes in the trees of these forests. The Preserve is open to the public for passive recreation, such as bird watching, hiking, and wildflower viewing. The Preserve has about three miles of developed hiking and cross country ski trails.



Tetrault Woods State Forest consists of 432 acres of land just to the south of the Town of Walhalla along the Pembina River. Hiking trails in the State Forest are primarily located on the south side of the Pembina River Gorge (access is from State Highway 32). Small segments of trail and overlooks are on the north side of the gorge (access is from County Highway 55). Comments from local residents indicate that the condition of the trails within the State Forest is poor, with some segments where the trail has been washed out. Recreational use of Tetrault Woods is managed by NDPRD as part of the SRA.

Numerous Wildlife Management Areas (WMAs) exist throughout the Pembina Gorge region, including the Wilber Allen WMA near the Canadian border and the Jay Wessels WMA near Cavalier. These WMAs are managed by the North Dakota Game and Fish (NDGF). While informal hiking trails exist throughout the WMAs, access is limited to non-motorized uses. One of the significant features of the WMAs is the presence of a large herd of elk.

Gingras Trading Post State Historic Site preserves the 1840s home and trading post of Métis legislator and businessman Antoine Blanc Gingras. Interpretive panels and exhibits about Gingras, Métis heritage, and the fur trade are located in the restored house.

Frost Fire Theatre and Frost Fire Ski Area are open during the summer months with an amphitheater for visitors to enjoy musical theatre classics. While in the winter, ski and snowboard enthusiasts enjoy

descending the mountain and relaxing in the lodge.

The Masonic Scenic Overlook offers a beautiful view of the Pembina River and Pembina Hills, at an elevation of 1,155 feet above sea level. Trails are available for year round recreation, including hiking, biking, horseback riding, cross country skiing, and snowmobiling.

The Pembina River is North Dakota's only "white water river". The meandering Pembina River is considered tame, but offers excellent kayaking with access docks located at Vang Bridge, Brick Mine Bridge, and Hwy 32 White Bridge.

The Rendezvous Scenic Backway is a rural route steeped in history, nature, recreation, scenic beauty, and culture. It begins on Highway 55 in Vang proceeding east to Walhalla, turning southeast for 22 miles traveling past Icelandic State Park to Highway 5 ending in Cavalier. The Backway winds along the Pembina River providing panoramic views of the Pembina Gorge.

Recreational Use of the SRA

The landscape of the Pembina Gorge makes it an ideal location for outdoor recreation activities throughout the year. The following are the most popular current types of outdoor recreation that take place in and around the SRA.

Hunting & Fishing

Hunting and fishing are one of the most traditional forms of outdoor recreation in the area and are still popular today. Most hunting occurs in the fall time with deer



and elk as the primary animals being hunted. Many private land owners in the Gorge manage their lands as traditional family hunting grounds with rustic cabins on them. Hunting is allowed on all public lands in the Gorge. The dense vegetation and steep slopes found in much of the Gorge add challenge to the hunting experience. Fishing can be done on the Pembina River for its entire length and is most popular close to Walhalla. The most common sport fish include catfish, walleye, northern pike and rock bass.

Off-Highway Vehicle Riding

Riding off-highway vehicles (OHV) including dirt bikes, all-terrain vehicles (ATV), and recreational off-highway vehicles (ROV or side-by-side) has been popular on both private and public lands in the area for a long time. Some private lands do give special permission to some organized OHV groups to hold riding events on their lands. Some riding has occurred on public and private lands closed to OHVs. To help limit riding in closed areas and to provide a high quality OHV experience, the NDPRD developed a trailhead and 16 mile long multi-use 60 inch wide OHV trail. This trail connects to Township roads that bring riders back to the trailhead which combine create a 22 mile route. The trailhead is located on 121st Street on the east edge of the Pembina Gorge, accommodates approximately 20 vehicles with trailers, has a split rail fence and gates delineating it, and has a double-vault style toilet. The multi-use trail was designed to provide a high quality riding experience and meet sustainability objectives. The trail stays on the east side of the Pembina River and extends to 108th Avenue on the north end. Portions of the trail pass through some private lands where the land owners have provided a trail easement to the State. Some portions of the trail are also located on Game and Fish lands through an agreement with them. Trail sections on private and Game and Fish lands are



closed to public use during the fall deer hunting periods to avoid impacts on hunting activities. Public OHV trails are very rare in the region so the Pembina Gorge trail draws riders from all parts of the State, from Minnesota and Manitoba Province in Canada.

Mountain Biking

Mountain bike riding has become more popular in the area since opening of the multi-use trail described above. Adventure races are held on the trail and include running activities. Some bicycling also occurs on rural roads in the area between Walhalla and the Pembina Gorge; including, on the Highway 55 Rendezvous Region Scenic Backway. A new type of bicycling activity in the area is the use of “snow bikes” that use wide, low pressure tires to ride on groomed snowmobile trails. It is important for these bicyclists to contribute both financially and through volunteer efforts to maintain snowmobile trails they use.

Horseback Riding

Riding horses has been a long-standing traditional activity on roads and trails in the Pembina Gorge. The dense vegetation of the Pembina Gorge limits horseback riding to rural roads and trails on both public and private lands. Most rides are day-time activities with some riding starting on private lands in the vicinity. Horseback riding is popular on the 2 mile non-motorized Lady Slipper trail located off 121st Street on the east edge of the Pembina Gorge. This trail will be extended in 2015 to create more length. Horseback riding is allowed on the multi-use trail but not recommended during heavy OHV use or wet periods.

Hiking

Hiking activities are a popular traditional activity in the Pembina Gorge. The Lady Slipper trail described above is a new trail that was opened in 2014. A 1.5



mile hiking trail located in Tetrault Woods State Forest is managed as a hiking trail by NDPRD. The trail has a floating boardwalk which provides access across wetlands and offers a unique hiking experience.

Wildlife & Bird Watching

The abundant wildlife found in the area makes it a popular destination for bird and wildlife watching. These activities are typically combined with other pursuits such as hunting, paddling, and trail-based activities. Wildlife watching is a popular activity in the SRA, Game and Fish lands, on private lands, and from roads and trails in the area. Popular wildlife to view includes deer, elk, waterfowl, and many other bird species, many of which are rarely found anywhere else in North Dakota.

Canoeing & Kayaking

The Pembina River has been an important route for exploration and transportation since the time before European settlement. Residents of Walhalla and the region have also enjoyed canoeing and kayaking on the river for a long time. The Pembina River water level and flow allows for paddling from about April through August each year. The River provides a wild setting to enjoy nature while paddling. There are three locations with road access to the River including Walhalla Riverside Park, Brick Mine Bridge, Vang Bridge, and near the USA-Canada border at the 108th Ave and Texas Crossing. The road to Texas Crossing has very muddy conditions which makes it difficult for vehicles other than OHVs to travel on it during summer months. People can carry kayaks on the last portion of the road to the River when conditions are muddy. It can take 4 hours to paddle just a portion of the River or about 12 hours to paddle from Texas Crossing to Riverside Park in Walhalla. Kayaks can be rented from a local business in Walhalla.



Fossil Digs

Fossil digs are conducted as part of programmed events during summer months. The fossil digs are supervised by the North Dakota Paleontologist and include educational information about paleontological resources. It is very important that people only conduct fossil digs at one of the supervised events.

Snowmobiling

There is an extensive network of approximately 450 miles of snowmobile trails in the Pembina Gorge and Rendezvous Region. Snowmobile trails follow rural roads and easements across private properties. Trails are maintained by the Northeast Snowmobile Club Association (NESCA) and uses contributions from their members and the North Dakota Snowmobile Registration Program.

Cross-country Skiing & Snow Snowshoeing

Some local resident enjoy snow shoeing and cross-country skiing in the SRA, State Forest and on the Walhalla Golf Course. No trails are currently groomed in the area for these activities.



Research

Previous Planning Efforts

The following information describes previous planning efforts that relate to Pembina Gorge and the State of North Dakota. While not all the plans were realized, the ideas that were generated shows priorities that were previously identified.

Pembilier Lake and Dam Environmental Impact Statement

A study was completed in 1977 by the US Corps of Engineers to evaluate the potential to build a dam and reservoir in the Pembina Gorge. The purpose of the dam was to control flooding down river. While it was never constructed, the reservoir would have had a controlled storage capacity of 147,000 acre-feet of which 15,000 acre-feet would have been in an 800 surface area conservation pool. Flood storage would have resulted in a 72-percent reduction in projected average annual equivalent damages through the control of floods with a frequency of once in 36 years or less, and the reduction of larger less frequent floods. The project would have resulted in the permanent inundation of about 800 acres of the valley, including 365 acres of woodland, 355 acres of agricultural lands, and 9.5 miles of free flowing river. At design flood-pool, an additional 2,400 acres of the valley and 11.5 miles of river would have been inundated for varying durations (flood periods). The plan recommended development of recreation facilities adjacent to the permanent lake (reservoir). These would have consisted of camp sites, picnic sites and shelter, a boat launch, parking, overlooks, access roads and support facilities.

Pembina Mountains: Concepts for a Recreation Enhancement and Coordination Plan

In 1982 the Pembina River Recreation Plan was created by North Dakota State University to plan visitor experiences and facilities for the area. This plan was created in reaction to recreation planning started as part of planning the proposed reservoir. The basic premise of the study was that participation in some sort of recreational activity in the Pembina River Valley would result in an increased appreciation of the area. The study area included some of the most scenic parts of the Pembina, Little North Pembina, and Little South Pembina river valleys. It was intended that recreational opportunities provided as a result of implementation of the plan be complementary to, but not contingent upon, US Corps of Engineers flood control plans for the Gorge.

The time frame covered by the plan was limited to the ten-year period from 1982-1992. Studies of existing trends and projections of recreational use, prepared by a variety of agencies, were utilized as data bases for parts of the plan. It was recommended that facility development proceed in three phases. Phase 1 included only the development of minimal facilities to accommodate passive recreation uses and to enhance those uses which currently exist. Phases 2 and 3 were conditional based upon the success and feedback from Phase 1.

An amphitheater, built to seat 75 to 150 people, was recommended at the private Frostfire Mountain property. This facility would utilize the existing parking areas and roads nearby. Interpretive programs as well as local events such as plays and outdoor weddings are some of the uses the amphitheater would accommodate. In addition to new facilities, the plan included the staging of organized events in the study area. These would include small rodeos, trail rides, group camp-outs and other activities. The 10 miles of hiking/recreation vehicle/horseback trail recommended for Phase 3 development would be located north of the Vang Bridge on County Highway 55. The trail

Item	Phase 1	Phase 2	Phase 3
Trails - hiking/skiing	8 miles	6 miles	1 miles
Trails - hiking/skiing/bicycle/vehicle	1.5 miles	6 miles	10 miles
Dry Weather Road			1 miles
Parking			15 spaces
Camping - primitive	5 sites	7 sites	8 sites
Camping - serviced	7 sites	7 sites	
Lodging			15 units
Amphitheater			1
Picnicking	7 sites	6 sites	
Swimming hole	1		
Springwater bath		1	
Sanitary facilities	1 pit toilet	3 pit toilet	
Indoor Swimming Pool			1

Table #2. Proposed Recreation Facilities from the 1982 Plan

would lead up the valley of the Pembina River nearly to the Canadian border. This area is the closest to a backcountry setting that existed in the study area. Seven of the eight primitive campsites would be added in Phase 3 and would be located along this trail.

The plan suggests development of a profile of visitors as well as their recreational concerns and interests should be obtained through surveys over time. It suggested public hearings be sponsored by the North Dakota Parks and Recreation Department to gather input after the completion of each phase of the plan.

Master Plan for Trail Development in the Turtle Mountain and Pembina Gorge Areas

In 2005, Governor Hoeven allocated money to study and create a master plan for trail development in the Pembina Gorge, Turtle Mountain and other areas. The study found that Off Highway Vehicle (OHV) riding opportunities in North Dakota were basically non-existent. The need to increase legal OHV opportunities is based on the rising sale of OHVs, the increased demand for riding opportunities, the limited number of legal riding opportunities, and the impacts of illegal use. The Pembina Gorge was identified as a starting point for trail development in the state in response to the volume of OHV activity already present, the land owners calling for a solution to mitigate the impact to their lands, and to protect state lands set aside for other purposes. The following issues and opportunities were identified in the master plan.

Issues and Opportunities from the 2005 Planning Process

Enforcement of Trail Regulations

The single biggest issue brought out at the community and property owner meetings was the need for better enforcement and the education of existing trail users. Whether snowmobiles or off-highway vehicle riders, landowners were concerned that trail users were leaving the designated trail route through the Gorge. There was concern that NDPRD officials charged with enforcement did not have the resources or the jurisdiction necessary to adequately enforce trail regulations. NDPRD made a commitment to base law enforcement personnel in the Pembina Gorge region.

Proposed Regional Corridors from the 2005 Planning Process

Icelandic State Park to Walhalla

A paved bicycle trail connects Icelandic State Park to the Town of Cavalier. A trail was suggested to connect Icelandic State Park with the City of Walhalla and the Pembina Gorge. It was suggested that this connection would be made via a paved multi-use trail along Highways 5 and 32. Alternative routes that follow the alignment of the former Ox Cart trail or the existing rail corridor may be considered. These corridors will provide a more direct connection between the two communities, but will require a more substantial commitment to acquire property or easements for trail development.

Walhalla to Vang Bridge

This trail could potentially be a multi-use trail with a variety of surface types. A paved multi-use trail could be constructed along County Highway 55 west of Walhalla to the turn-off for the Tetrault Woods State Forest overlook. From there the trail could follow the access road to the overlook and then turn east along the top of the ridge back towards the main section of the State Forest. Within Tetrault Woods State Forest, existing trails could be improved to complete a loop trail that would connect back to the City of Walhalla through the forest.

Existing Snowmobile Corridor in River Bottom

The existing snowmobile trail along the river gorge offers opportunities for use as a year-round trail that could serve a variety of user groups. A soft-surface trail could be used by snowmobiles in the winter and off-highway vehicles, hikers, and bikers during the remainder of the year. The design of the trail cross section and water runoff would be an important consideration in developing a trail that would provide an enjoyable riding surface for all user groups.

OHV Park

Ideally, an OHV park would be developed on a 300+ acre site with 10 to 15 miles of looping trails, a variety of topography, and parking or access from a spine trail along the river bottom. Location along one of the faces of the Gorge would provide a variety of trail experiences along with views of the Gorge area. The site could be located on existing property owned by a state agency or property acquired specifically for the OHV development. Trail design would follow the guidelines provided in the plan to ensure that the park would be sustainable. The abandoned gravel pit west of Vang Bridge along County Highway 55 is an example of a potential site.

Pembina River Canoe Route

The canoe route commonly used by local residents is the stretch of river from the Texas Crossing at the north end of the Gorge to the Vang or Brick Mine Bridges at the south end of the Gorge, with some traveling to Riverside Park in Walhalla. A canoe trail would require minimal effort to establish beyond developing access points, with the primary expense being acquiring the required property or easement to develop access points. The proposed access points would generally coincide with those that are currently used: Texas Crossing, Vang Bridge, Brick Mine Bridge, and Riverside Park.

Trailhead and Local Trail Opportunities from the 2005 Planning Process

Walhalla

Walhalla is the hub of activity in the Pembina Gorge region. It provides the closest available food, lodging, and other supplies. The Walhalla Chamber of Commerce is a strong promoter and supporter of activities in the region. The Pembina River flows through the south side of town and Riverside Park is adjacent to the river, which provides an opportunity for a take-out point for canoeists and kayakers. The City could also provide a trailhead location for a bicycle loop along County Highway 55 and the ridgeline through Tetrault Woods State Forest.

Vang Bridge

The Town of Walhalla has a lease on a portion of farm property adjacent to Vang Bridge on the east side of the river and south of County Highway 55 and is used as a put-in/ take-out site for paddle boats. An existing snowmobile trail traverses the property. This location is popular as a put-in and take-out location for canoeists and as a staging area for equestrian events. Its proximity to both the river and the existing snowmobile trail make it a good location for serving multiple user groups. Trailhead facilities do not currently exist on the private site.

Brick Mine Bridge

The area north of the river and east of Brick Mine Road is another area that is frequently used as a staging area for various user groups. This location is also a site that could serve several user groups, including canoeists, bikers, and off-highway vehicles. Trailhead facilities do not currently exist on the site, and the site is privately owned.

Texas Crossing

The northerly most of the trailhead opportunities is the Texas Crossing at the north end of the Gorge. This is a popular put-in location for canoeists and could also provide a trailhead for other trail users. Trailhead facilities do not currently exist on the site, which is located in the Township road right-of-way. Potential trailhead amenities would include parking and potentially vault toilets, which would need to be developed on Game and Fish land.

Tetrault Woods State Forest

A trailhead at Tetrault Woods State Forest could provide amenities for several of the trail corridors previously identified. No trailhead amenities exist at Tetrault Woods. At a minimum, trail development should consist of parking, river access, and potentially vault toilets. Additional features may include more developed restroom facilities and camping opportunities.

Establishment of the Pembina Gorge State Recreation Area

In light of the recreation study and master plan, the North Dakota State Parks and Recreation Department, in cooperation with the North Dakota Forest Service, North Dakota Game and Fish Department and local land owners, has been developing the Pembina Gorge State Recreation Area. In 2007 a project manager was hired to assess the situation, inventory the trails in the area, identify a sustainable trail corridor for a multiuse trail system, and manage the associated lands. An important objective of the SRA is to protect public and private lands by providing legal OHV opportunities in the Pembina Gorge through development of a managed multiuse trail corridor open to the public.

A Recreation Trail Program grant funded through the Federal Highway Administration of \$138,864.22 was received to design and construct new and exciting trails in the recreation area. The NDPRD acquired additional property with existing trails and also worked with NDGF on a land management exchange to consolidate scattered parcels of land into a continuous land base to facilitate trail development. Using the new trails and existing trails, the goal was to create a loop system that would provide an enjoyable, legal riding opportunity for visitors to the area, while relieving the burden of land owners having to deal with unwanted OHV traffic on their property.

In areas where crossing private land is necessary, NDPRD has developed a trail lease program to acquire easements of a corridor in exchange for payment based on miles of trail. As of fall 2010, a trail corridor was identified. The primary trail was constructed in 2011.

Non-motorized recreation, i.e. hiking, biking, equestrian, is also an important facet of the Pembina Gorge Recreation Area. In 2009, the NDPRD assumed recreation management of the Tetrault Woods State Forest. A grant was received for approximately \$48,000 to build a trailhead and reroute and rehabilitate the trails in the state forest. In accordance with ND Forest Service policy, these were designated as non-motorized trails with the exception of snowmobiles from December 1st to March 31st along the designated state snowmobile trail. More non-motorized opportunities will be developed as funding becomes available.

Primary Needs	Secondary Needs	Tertiary Needs
Non-Motorized Trails	Pools/Beaches/Water Access	Winter Sports Facilities
Campgrounds	Sports Courts/Fields	Motorized Trails
Playgrounds/Picnic Areas/Open Space Parks		

Table #3. North Dakota Statewide Facilities Priorities from SORP

Trends in Outdoor Recreation

North Dakota State Comprehensive Outdoor Recreation Plan (SCORP)

The 2013-2017 North Dakota State Comprehensive Outdoor Recreation Plan (SCORP), developed by the North Dakota Parks and Recreation Department (NDPRD), is a guide for managing and developing North Dakota's non-consumptive outdoor recreation base. Outdoor recreation plays a significant role in the quality of life of North Dakotans. Outdoor recreation improves the health and well-being of the state's citizens, promotes the conservation of the land, and contributes to the state's economy as one of the primary drivers of tourism, North Dakota's third largest industry. The following information can be used to inform suitable outdoor recreation solutions for Pembina Gorge SRA.

North Dakota households and outdoor recreation providers were surveyed in 2012 to determine the demand for and supply of non-consumptive outdoor recreation in the state. North Dakota households feel outdoor recreation is important (93 percent). Overall, 57 percent of outdoor recreation providers report demand for facilities and activities exceeds supply for their users.

With finite resources available for outdoor recreation, it is critical to prioritize needs throughout the state. However, funding alone is not the answer. Active partnerships are also essential to meeting the outdoor recreation needs of North Dakotans and visitors. At the core of the state's parks and recreation community are local, state, federal, and nonprofit providers offering facilities and programs that support healthy, active

lifestyles.

The specific types of activities which North Dakota households are most interested in include:

- Visiting a modern park or natural area (53 percent)
- Going to a park area or green space to play games, toss Frisbee, or relax (50 percent)
- Picnicking at a family site (49 percent) or group shelter (42 percent)
- Camping in a modern campground (48 percent)
- Using a paved walking, jogging, or bicycling trail (47 percent)

North Dakota Households are willing to Travel More than 50 Miles for the following Activities

- Camping (72 percent)
- Canoeing or kayaking (60 percent)
- Riding on snowmobile trails (50 percent)

The NDPRD, with input from the state's outdoor recreation stakeholders, has identified priorities to guide the management and development of North Dakota's outdoor recreation base over the next five years.

North Dakota OHV Strategic Plan

The 2012-2016 North Dakota Off-Highway Vehicle Strategic Plan, developed by NDPRD, highlights a number of key areas to be addressed in order to facilitate a thriving OHV riding program in North Dakota. In recent years, OHV purchases have risen dramatically, indicating a need for the OHV program to grow to meet the needs of riders across the state. The following is

a summary of information from the plan that is most relevant to Pembina Gorge and the master plan.

A research study was conducted in early 2012 to uncover riding trends and additional crucial information through written surveys distributed to relevant stakeholder groups. Survey questions for OHV owners followed a multiple choice and/or open-ended question format in order to gain opinions and beliefs related to OHV riding trends affecting four key areas:

- Development of Use Areas
- Training and Safety Education
- Laws and Enforcement Issues
- Communicating Information

These key areas were identified by NDPRD key staff as the most important to address in the survey in order to gain the insights that would allow NDPRD to continue to best serve the OHV riding public. In addition, these areas were considered the most crucial to be addressed in order to gauge whether previous and/or current efforts and programs are aligned with the goals of NDPRD and the needs of the riding public. This summary focuses on development of OHV use areas that are most relevant to development of a master plan for the SRA.

Lack of public trails was cited as being a real reason for lack of other services and cohesiveness of the program, since riding clubs would be more likely to form if public riding trails were available. Feedback in research review meetings indicated that there are several avenues to explore the feasibility of further trail development, including direct efforts by NDPRD or indirect through grants with clubs and local government. Trail demand spans at least six months of the year, with others even riding in the winter and spring. Increased ridership would exist if new trails existed. Campgrounds and restrooms would make trail destinations for day trips or overnight trips for campers. This could be a big improvement for the State since public trails would then potentially be attractive to out of state travelers as well and even increase tourism demand. Stakeholders agreed with survey respondents with the exception that they believed law enforcement or staff presence was

more important than campgrounds and restrooms.

North Dakota Snowmobile Strategic Plan

The 2013-2017 North Dakota Snowmobile Strategic Plan provides a framework for the further development of the program. The snowmobile program is statutorily established by the North Dakota Legislature and assigned to the North Dakota Parks & Recreation Department to administer. The Recreation Division is tasked with the snowmobile trail system which is funded by registrations of snowmobiles and a portion of the gas tax. Registration is required for both in state and out of state snowmobiles that use the state trail system and within road right of way. The management of this program entails a number of functions, including safety education, out of state trail pass sales and trail management.

The North Dakota Parks & Recreation Department contracts with Snowmobile North Dakota (SND), a nonprofit membership organization, to run the trail management portion. SND is governed by the 14 member board of directors and employs a program manager, trail inspector and various office staff.

In order to assess the needs of snowmobile registrants, an online and mail survey was implemented. A random sampling of the over 18,000 in state registrants and out of state trail pass holders were provided a post card asking them to participate in an online survey or were mailed a paper survey. 392 responses were collected to provide a margin of error rate of less than five percent. Stakeholders that participated in this study include trail administrators, club organizers and snowmobile dealers.

North Dakota has approximately 2,800 miles of trail that is managed by Snowmobile North Dakota through a contract with the North Dakota Parks & Recreation Department. This work is performed by Snowmobile North Dakota and 14 groomers owned by the North Dakota Parks & Recreation Department. The primary plan goal is the preservation of the current snowmobile trail system.

Recreation Opinion Survey

A new recreation opinion survey was implemented as part of the Pembina Gorge SRA Master Plan to understand current public opinions and preferences. Visitor and public surveys (or questionnaires) are a useful and efficient instrument to collect data and information from a visitor population regarding demand and generalized opinions and preferences for recreational opportunities (e.g., access, activities, facilities, programs, services such as a visitor center, etc.). Great Outdoors Consultants, in cooperation with Red Canoe, LLC and North Dakota Parks and Recreation Department (NDPRD), implemented a broad public recreation survey to collect resident and visitor input that will inform the development of the Master Plan for the Pembina Gorge SRA.

The Pembina Gorge SRA Master Plan public recreation survey was administered on-site (at the Pembina Gorge trailhead) and using a web-based survey tool. Both the on-site and online survey forms consisted of similar questions; the specific questions included in each version of the survey are provided in the complete recreation opinion survey report. On-site or field-based surveys are an efficient way to target existing visitors to an outdoor recreation area, while Internet surveys are an efficient and effective method to administer a general public input survey. Internet accessibility rates are particularly high in North Dakota (84 percent of individuals live in a household that have internet access), as well as neighboring Minnesota (87.7 percent) and Manitoba (79.9 percent) (US Census Bureau 2012; Statistics Canada 2013).

The Internet-based Pembina Gorge public recreation survey was available for participation between May 16 and July 4, 2014. The survey was completely open; that is, anyone with the survey link could participate in the survey (this type of broad, open methodology was used since an identifiable visitor population was not readily available for a closed, sample-driven survey). While this open methodology limits statistical representation (between the sample population and the entire visitor population), it does not reduce the value of the survey results. The opinions of participants, including special interest and stakeholder groups, provide key insight into

the needs and preferences of specific user populations. These specific needs and preferences are valuable in crafting a master plan that is responsive and inclusive of all visitors.

In addition to the Internet-based survey, the project team administered the survey to visitors of the SRA on five days, including May 17, 18, 24, 25, and 26 (Memorial Day). NDPRD also administered several on-site surveys in June. During these on-site survey implementation dates, all visitors to the Pembina Gorge SRA trailhead were informed about the Master Plan process and provided the opportunity to participate in the survey. In general, more than 80 percent of the visitors to Pembina Gorge SRA on these dates agreed to and completed a survey.

Results from the Pembina Gorge SRA public recreation survey are presented below. The completed surveys and associated results represent a snapshot in time of (existing and potentially new) visitor needs and preferences. They are one data point that should be considered alongside other available information, public input from stakeholder meetings, and the professional judgment, experience, and outlook of NDPRD staff in the development of the Pembina Gorge SRA Master Plan.

Pembina Gorge Public Recreation Survey Results

Participation Summary

In total, 413 visitor surveys were submitted between May 16 and July 4, 2014, including 335 online and 78 on-site surveys. Of these, 381 or about 92 percent were usable surveys; that is, visitors completed more than the first survey question (unusable surveys were generally blank except for the first question). Most (31) of the unusable surveys were submitted online. Only one on-site survey was unusable. The summary results presented below are specific to the 381 usable surveys that were collected during the implementation time period.

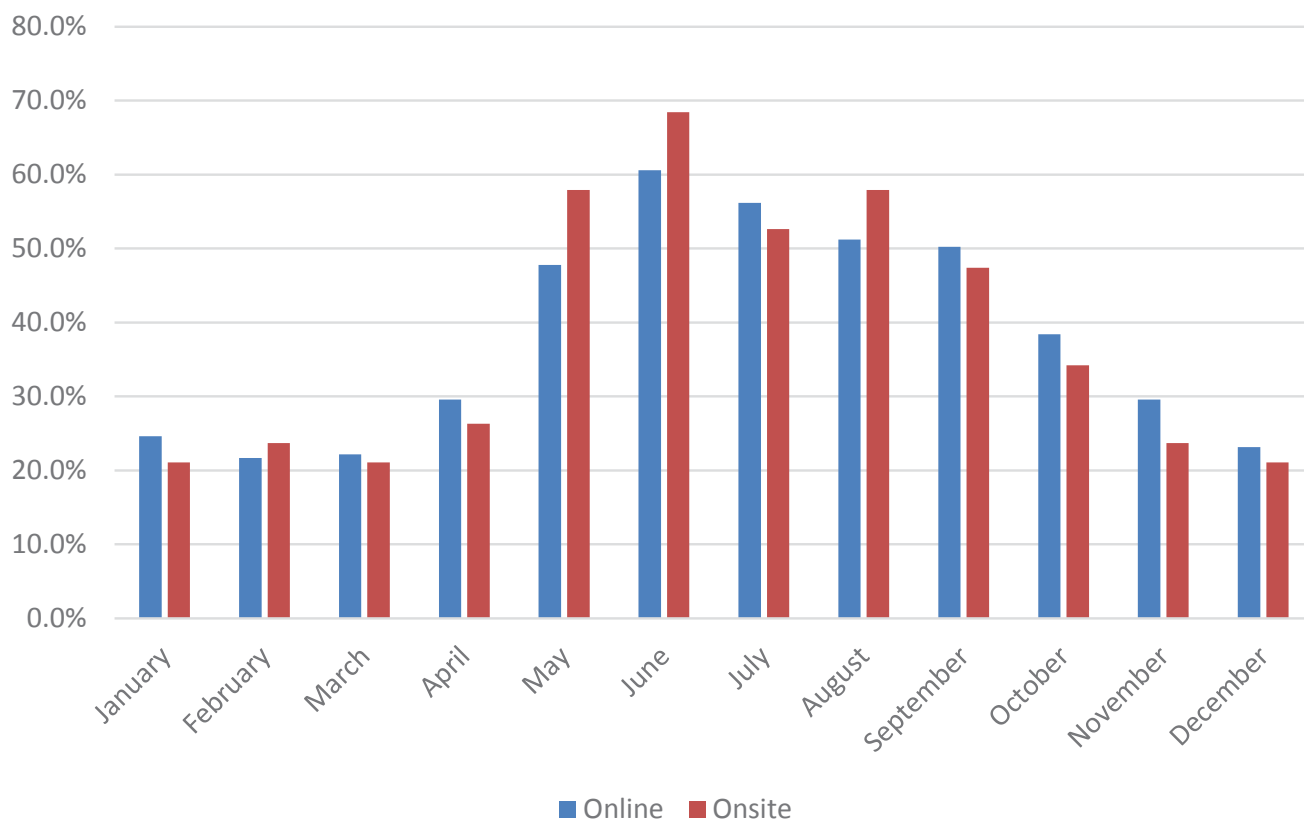
In social science and specifically recreation research, a participation population of 381 is typically adequate to make reliable statistical findings (e.g., 95 percent confidence level, 5 percent sampling error, etc.) about a target visitor population (even if that target population includes 1,000,000 or more visitors). As such, the 381 completed Pembina Gorge public recreation surveys is likely adequate to make generalizations about the entire visitor population. This is not to imply that the survey was specifically designed to meet statistical reliability targets. As noted above, since the visitor population size was unknown prior to implementation of the public recreation survey, a broad methodology was used to encourage participation. The tradeoff of this broad methodology is the potential introduction of participation (e.g., one subgroup dominates participation) and other forms of bias. As such, the public recreation survey results should be reviewed and assessed comprehensively with the other public input elements of the Master Plan process.

Summarized Results

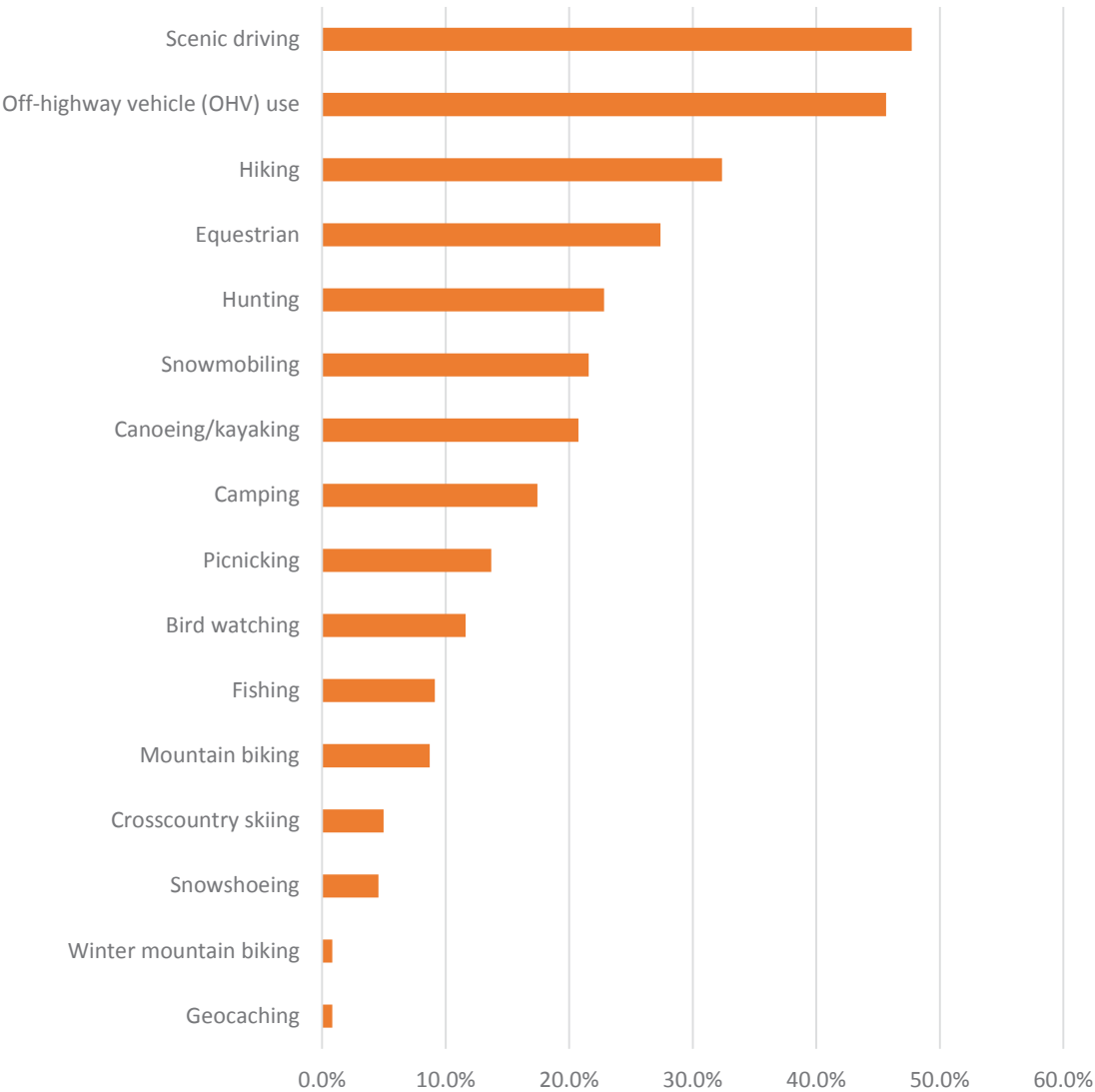
The following tables and figures present summarized results from the Pembina Gorge State Recreation Area (SRA) Master Plan Recreation Visitor Survey. Summary results are presented by question. Where appropriate, the summary results are presented separately for the on-site and online version of the survey. In general, the survey results for online and on-site survey participants were similar; indicating that these visitor population subgroups were not substantially different in their visitation patterns, preferences, and needs.

For questions with open-ended responses, participants' qualitative responses are summarized below. The complete survey report is provided as an appendix to this master plan. Of the survey participants, 63% had visited Pembina Gorge within the last 12 months

During what months did you visit Pembina Gorge?

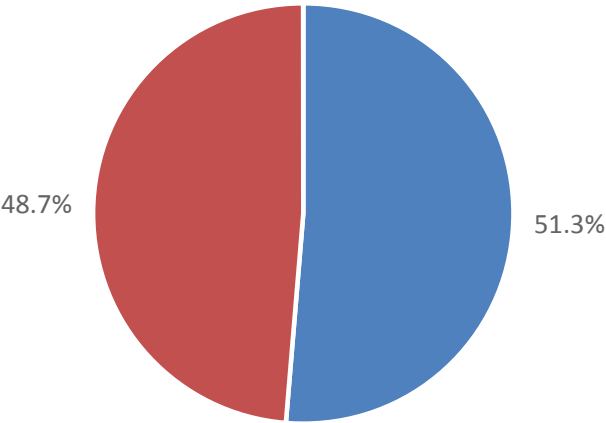
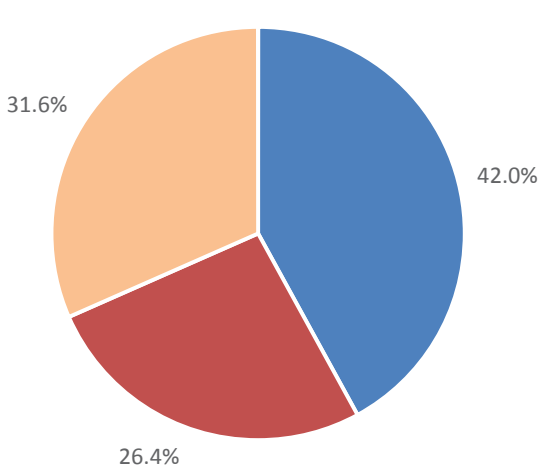


What activities do you typically participate in at Pembina Gorge?



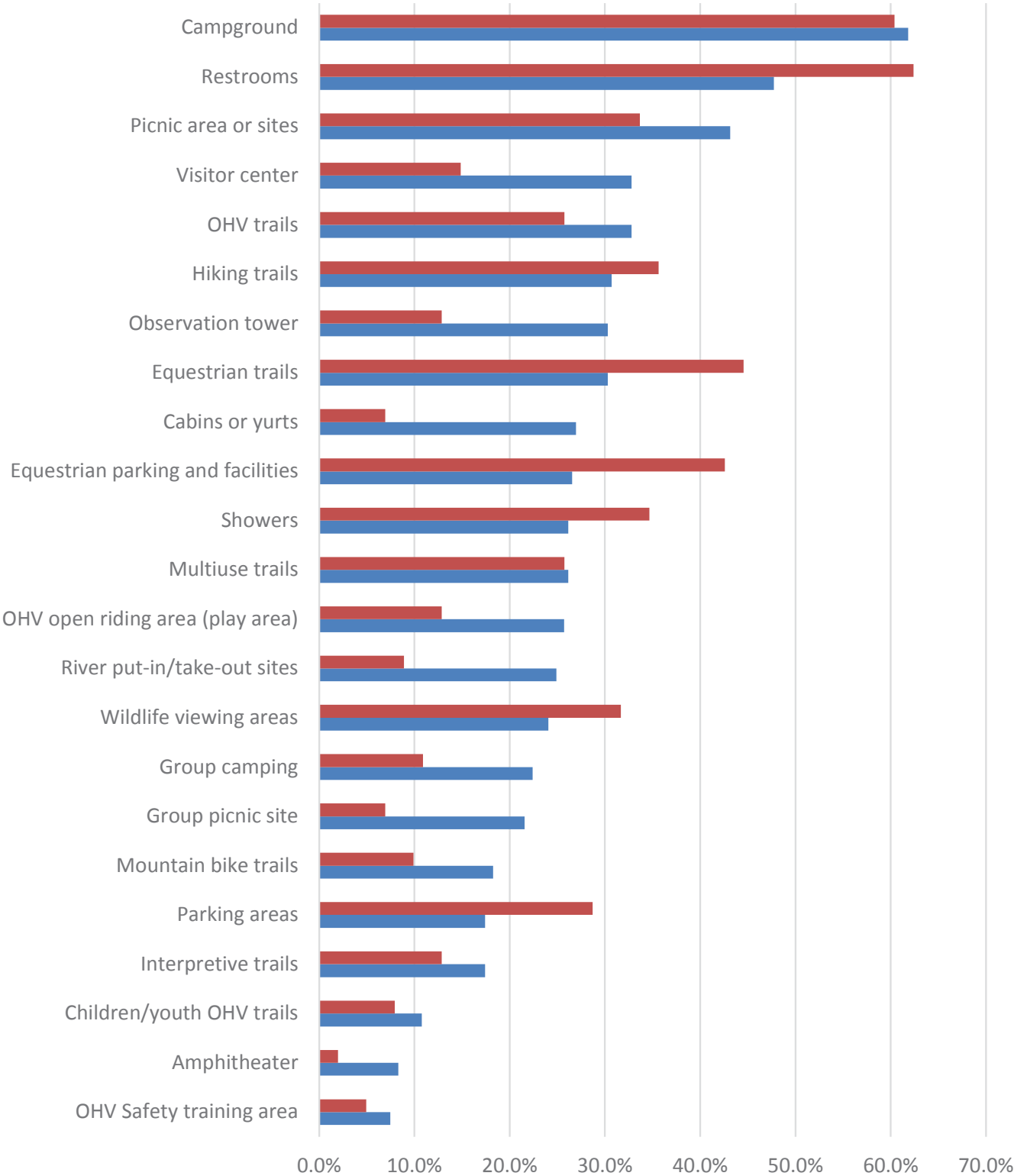
On your last trip/this trip to Pembina Gorge did you/are you spend(ing) the night in the area?

Are the current recreation facilities and amenities provided at Pembina Gorge adequate to meet your needs?



■ Yes ■ No

Of the facilities and amenities listed below, which would you like to see added to Pembina Gorge?



Segmented Results

The Pembina Gorge SRA offers a unique landscape in northeastern North Dakota for both area residents and visitors alike. As displayed in the results above, residents and visitors engage in a variety of activities including hiking, canoeing/kayaking, mountain biking, off-highway vehicle (OHV) use, snowmobiling, scenic driving, fishing, hunting, snowmobiling, and other nature-based outdoor pursuits. While the administration of the recreation visitor survey did not specifically target specific subgroups, the completed surveys do allow for some targeted or segmented summary results for specific subgroups. In general, segmentation provides more informative and specific results that can be used to provide greater precision for the strategic framework and actions in the resulting master plan.

For purposes of the Pembina Gorge recreation visitor survey, local survey participants were defined as those coming from Cavalier, Pembina, and Walsh counties. All other survey participants were considered visitors (i.e., non-local). Overall, just over a third of survey participants were local (34.1 percent).

Have you been to Pembina Gorge in the previous 12 months?

Local survey participants were much more likely to have visited Pembina Gorge within the past 12 months

What activities do you typically participate in at Pembina Gorge?

Locals reported participating in several activities at a higher rate than visitors at Pembina Gorge (Figure 24). Activities with more than a 5 percent difference between

locals and visitors include: scenic driving (+27.6 percent), canoeing/kayaking (+15.6 percent), hunting (+11.6 percent), picnicking (+10.6 percent), OHV use (+8.4 percent), and snowmobiling (+5.7 percent).

Are the current recreation facilities and amenities provided at Pembina Gorge adequate to meet your needs?

Locals were more likely than visitors to report that the current recreation facilities provided at Pembina Gorge are not adequate to meet their needs. This may be due to higher rates of visitation and greater familiarity with the area by locals compared to visitors.

Of the facilities and amenities listed below, which would you like to see added to Pembina Gorge?

Locals' and visitors' preferences for additional recreation facilities and amenities were generally similar. However, there are several facilities/amenities for which there are preference differences between locals and visitors. Locals were more likely (greater than 5 percent difference) than visitors to want the following facilities/amenities: picnic area or sites (+11.3 percent), multiuse trails (10.3 percent), wildlife viewing areas (+7.6 percent), group picnic site (+7.3 percent), and interpretive trails (+5.2 percent). Conversely, visitors were more likely (greater than 5 percent difference) than locals to want the following facilities: campground (+22.4 percent), showers (+11.3 percent), observations tower (+9.2 percent), and OHV trails (+5.6 percent).



Conclusions

The recreation opinion survey provided new valuable and focused answers to key questions related to development of a master plan for Pembina Gorge SRA. Survey results are supported by previous studies that show similar findings. Good participation of current SRA visitors, local residents and other potential visitors from the market area for the SRA to have provided statistically valid findings. NDPRD staff and visitor groups were successful in getting significant participation in the survey. A detailed survey report is provided as an appendix to this master plan.

Key Findings from the Recreation Opinion Survey Include:

- The most popular current recreation activities in the SRA include scenic driving, OHV riding, hiking, equestrian riding, hunting, canoeing, and snowmobiling.
- The most desired new facilities in the SRA include campground, restrooms, picnic areas, visitor center, OHV trails, hiking trails and equestrian trails.
- The recreation activities most likely to draw new and more visitors to the SRA include scenic driving with interesting destinations, staying in a well-designed campground, a visitor center as an overlook and place to get information, diverse and extensive recreational trails. These popular activities are a reflection of preferences from the Pembina Gorge SRA survey and the state-wide recreation survey.



Visitor Center Feasibility

A visitor center feasibility study was conducted as part of preparing this master plan for Pembina Gorge SRA. Visitor centers provide a valuable function in many settings, but their cost and effect on the natural setting need to be carefully considered. Visitor center importance can usually be strengthened by combining it with administrative functions such as office and maintenance spaces.

Potential Visitor Centers Functions and Spaces Includes:

- 24 hour access to self-serve visitor information in foyer
- Information about the SRA
- Interior interpretive exhibits and information
- Restrooms
- Security presence in the SRA
- Emergency response and first aid station
- Store with basic supplies, maps and books
- Potable water source
- Educational/ meeting space
- Office space
- Supplies and materials storage
- Scenic overlook/ deck/ patio
- Parking
- Patio with picnic tables
- Interpretive & information kiosk
- Outdoor gathering space for groups and interpretive talks
- Lawn area for social space and special events
- Landscape with interpretive signs and design
- Maintenance building & storage yard
- Housing for seasonal staff or volunteers



The following tables compares different options in providing visitor centers in the SRA. These include having just a SRA office on site, a complete visitor center on site, a visitor center in Walhalla or using a webpage as a virtual visitor center. One or more of these options could be part of the solution to provide quality visitor information and services. For example, an office and maintenance facility could be developed in the SRA first and then a visitor center could be developed at a later time. If a visitor center is developed in Walhalla, the cost and space could be shared with the City and/or Chamber of Commerce, or other organizations. Virtual internet visitor centers are becoming more common and can be used to help people plan their visit and market visitation to the SRA. Virtual visitor center information

can also be used within physical visitor centers as an interactive interpretive exhibit.

While a visitor center is costly to develop and manage, it can be used to draw more people to the SRA and improve their experience. Due to the remote location of the SRA, need for staff presence and opportunity to provide a unique and comfortable setting for visitors to experience the Gorge, we recommend that a visitor center be developed. The majority of visitors to the SRA will be interested in a low level of effort experience including scenic driving and visit to a comfortable, and an interesting visitor center with a scenic view. The rich history and resources of the Gorge provide a wealth of fascinating information to share in a visitor center.

Table #4. Comparison of Visitor Center (VC)/ Administration Options as the SRA

Criteria/ Type	SRA Office on Site	VC on Site	VC in Town	Virtual VC
Creates a Destination		Yes		
Customer Service	Yes	Yes	Yes	
Safety & Security	Yes	Yes		
Information	Yes	Yes	Yes	Yes
Interpretation		Yes	Yes	Yes
Presentation Space		Yes	Yes	
Outdoor Gathering Space		Yes		
Meeting Space		Yes	Yes	
Store Space		Yes	Yes	
Restrooms	Yes	Yes	Yes	
SRA Office Space	Yes	Yes	Yes	
Office Space for Other Associated Organizations			Yes	
E q u i p m e n t / Maintenance Space	Yes	Yes		
Staffing	Yes	Yes	Yes	
Development Cost	Yes	Yes	Yes	
Administration Cost	Yes	Yes	Yes	Yes

Table #5. Comparison of Existing Visitor Centers

	Turtle River State Park Visitor Center	Fort Stevenson State Park Visitor Center	Icelandic State Park Visitor Center
Location	Arvilla, ND (near Grand Forks)	Garrison, ND	Cavalier, ND
2013 Day Use Visitors	80,000	130,000	100,000
2013 Camping Visitors	4,500	9,500	8,200
Visitor Center Functions	Self-service fee station and information in foyer Reception counter Small store space Interpretive panels Multi-purpose meeting/ presentation room with storage cabinets and kitchenette Small reading/ library space Office space for staff Storage closet Restrooms Outdoor education classes	Reception counter Administrative office Security and support Small interpretive exhibit Conference room Restrooms Office space for staff	Reception counter Restrooms Interpretive space Meeting space Office space for 3 staff
Management	3 full time employees Multiple seasonal employees	3 full time employees Multiple seasonal employees	2 full time employees Multiple seasonal employee
Year Constructed	2006	2014	1989-2014 (improvements)
Cost to Build	\$ 834,320.00	\$781,000	\$1,337,000
Funding Sources	50% - Federal Transportation Enhancement grant funds 50% - State of North Dakota	100% - State of North Dakota	State of North Dakota State Parks Association
Annual Cost to Operate			\$14,500
Lessons Learned	Some grant funding is tied to public spaces and may not cover administrative spaces	Use functional designs to maximize efficient visitor services Windows facing entrance road for monitoring	Use maintenance-free siding Have a designated staff person for interpretation

Public Outreach for the Master Plan

Development of the master plan included an extensive public involvement process. A project webpage was created and used as a communication and information portal for the master plan. All draft and final public documents were posted on the public webpage. Public involvement also consisted of stakeholder interviews, written comments, 3 public meetings in Walhalla and a session at the 2014 North Dakota State Trails Conference. The following is a summary of public comment received throughout the process.

Public Meeting 1 & Stakeholder Interviews

On May 21st, stakeholder interviews were held in Walhalla to discuss the opportunities and issues associated with the development of the Pembina Gorge SRA Master Plan. In the evening, a public meeting was held at the American Legion to introduce the project and planning team. A PowerPoint presentation was used to introduce the project. The 58 participants were asked to form 6 small groups and identify at least 5 issues and 5 opportunities associated with management and improvement of Pembina Gorge SRA. Each group was then asked to choose a representative to present their issues and opportunities to all in attendance. The issues and opportunities presented by the small groups is provided in the below summary.



The following groups participated in stakeholder interviews or the public meeting:

- Forestwood Inn
- Fremont Township
- Frost Fire Ski and Summer Theater
- Manitoba Dirt Riders
- Moonlighter ATV and Snowmobile Club
- North Dakota Extension Office
- Northeast Snowmobile Club Association
- North Dakota Emergency Management
- North Dakota Forest Service
- North Dakota Game and Fish Department
- North Dakota Geological Survey
- North Olga Township
- North Dakota State Senate
- One Majestic Place
- Pembina Gorge Dirt Riders
- Peterson Coulee Hare scramble
- Red River Regional Council
- Walhalla Ridge Riders Saddle Club
- River Rentals
- Sanctuary Guest House
- Walhalla Chamber of Commerce
- Walhalla Economic Development Office
- Walhalla Parks District
- Walhalla Inn
- Walhalla Choice Financial
- Winnebago-Itasca Club of North Dakota



The following comments were provided by participants and are organized in categories. While all comments were considered, some have been excluded as they are beyond the scope of the project and others were incorporated in master plan.

Recreation

- The SRA provides experiences to a diverse group of visitors
- Develop additional walking, bicycling, horseback riding, and cross-country skiing trails
- Backcountry camping opportunities should be developed
- Single-track trails for motorcycles and mountain bikes are needed
- No more motorized trails should be placed in the Pembina Gorge, but established outside the SRA
- Provide more non-motorized trails
- Trail widths currently don't accommodate two-way passage
- It's important for OHV enthusiasts have a legal and managed place to ride to avoid impacts elsewhere
- Winter activities in addition to snowmobiling should be developed such as cross-country skiing and guided winter camping experiences
- Golf, skiing, and other recreational services already exist in the area
- Provide family based and diverse recreational opportunities at the Gorge
- Provide wayside stops for vehicle touring
- Provide groomed cross-country trails

Visitor Facilities & Services

- Facilities for enhancing rafting, kayaking, and canoeing on the Pembina River should be developed (river season is May – mid July)
- A Pembina Gorge interpretive/visitor center should be established with a focus on geology, biology, paleontology, and the history of the Gorge, with displays and a lecture facility for tour guides and educational programs
- The area needs more scenic overlooks
- More people using the river will require more trash receptacles to keep the area clean
- Provide a campground with horse stables similar to Sheyenne Oaks Campground
- Provide Zip-lines on the Gorge
- Designated camping and cooking areas along the trail system
- Provide a large modern RV park with electrical, water and sewer hookups
- Need consistent and quality information and customer service
- Do not construct buildings on top of hills where they will be obtrusive

Management

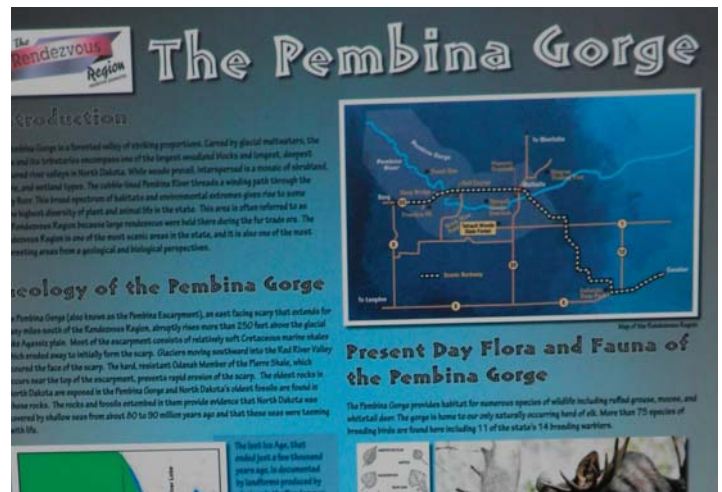
- The Gorge is a biologically and ecologically unique area that provides habitats for several species of rare plants and animals
- The Pembina Gorge area was recommended for Nature Preserve status in the NDPRD 1986 Nature Preserves Annual Report
- The Pembina Gorge area has a unique geological history with fossils found from the Cretaceous period
- More enforcement is needed in the SRA if more trails are developed to minimize conflicts
- Ongoing maintenance is needed to manage the environment and facilities
- Visitation to the Gorge should be expanded through: advertising, good information, guided trips, and events at Frost Fire
- Road work in the Gorge should require review/approval from ND Geological Service to avoid potential impacts to fossil resources
- Important to educate and inform visitors to avoid problems

Private Property

- Would like for NDPRD to purchase Frost Fire and provide an interpretive center and museum
- Some private landowners allow hikers access across their land but not motorized vehicles. Permission from private property owners is required.
- Fewer people are riding on private lands now that there is an OHV trail; however, OHV riding on private lands (without permission) continues
- Motorized vehicles need to stay off private property and avoid the muddy areas to reduce impacts
- A landowner compensation fund should be created for damage to land and general clean-up

Land & River Access

- Conserve the natural resources and beauty of the area
- More access to land and to the river to get to nature
- Should explore opening and maintaining the road to Texas crossing during the summer months for better access to the river
- Wildlife viewing and bow hunting are difficult due to topography and limited access
- Many slopes are unstable in the area and should be carefully studies before construction projects



Information/ Maps/ Signs

- Unobtrusive signage about the biology, geology, and paleontology of the Gorge could be included along the trails
- Provide more informational and directional signage to the Gorge and other sites, with information on gate closure dates, and trail difficulty
- Emergency contact information should be posted at the trailhead and GPS coordinates on signs throughout trails with emergency information

Tourism/Economic Development

- Biological tour adventures should be established for visitors to experience the natural beauty and unique plants and animals that inhabit the Gorge, like birding and botany tours
- Summer job opportunities from entrepreneurship through equipment rental, guided tours, and service and maintenance of outdoor equipment
- More vehicle rentals are needed including bicycles and other recreation equipment
- Horse stables and rentals should be provided in the area
- The Scenic Backway needs to be linked to the SRA to encompass all activities in the area. The backway is an important opportunity to increase visitation to the SRA
- Need a plan to gain funding and support from the State legislature
- Identify target markets for the SRA (i.e. Oil & Gas workers and their families)

Education/Interpretation

- The Gorge is a unique and most extensive strand of native woodlands in North Dakota and a big draw for natural history education and forest stewardship
- Educational programs should be established to encourage the use of the Gorge as an outdoor laboratory
- Supervised public fossil digs should continue
- Star gazing adventure programs should be developed



Public Meeting 2

On June 26 a public meeting was held at the American Legion in Walhalla to review public input to date, guiding statements for the SRA, outcomes of the recreation opinion survey and present 3 draft concepts for the overall master plan. A list of elements for each concept was distributed to provide more details for consideration. The 18 participants were asked to form 3 small groups and asked to provide feedback on the 3 concepts for management and improvement of Pembina Gorge SRA. Each group was then asked to choose a representative to present comments to all in attendance. The following notes are the topics presented by the small groups.

Summary of Public Input from Meeting 2

- Provide more motorized trail opportunities, including single-track motorcycle trails
- Provide single-track motorcycle trails connected to the existing ATV trail
- Provide more hiking trails, including long distance trails
- Funds to maintain and improve Township roads will be needed with increased use
- Consistent maintenance of roads, trails and facilities will be needed
- Law enforcement should be part of increased use of the area
- Provide a visitor center to create a destination and draw people into the Gorge experience
- Need a better SRA headquarters office
- Provide more connections between the recreation trails and Township roads
- Provide canoe access to Texas Crossing on the Pembina River
- Construct a bridge across the Pembina River at Texas Crossing to improve recreation connectivity
- Provide more kayak/canoe opportunities and river access
- Construct a dam and create a new reservoir somewhere on the Pembina River to increase recreation opportunities (*note this action is beyond the scope of this project*)
- Good idea to provide some shorter snowmobile trail loops near Walhalla
- Make the trail along the Pembina River a multi-use trail including ATVs and snowmobiles
- Combine all 3 concept to create one ideal concept
- There is significant funding available in North Dakota for recreation investment, we should be visionary and plan on the ideal solution for the area
- Provide camping in or near the Gorge and primitive camping along the river

Public Meeting 3

On August 5, the draft master plan was presented at the North Dakota State Trails Conference at Turtle River State Park. On August 7 a public meeting was held at the American Legion in Walhalla to review public input to date, guiding statements for the SRA, outcomes of the recreation opinion survey, and present a preferred concept for the overall master plan. There were 16 people in attendance. The preferred concept for the master plan was discussed at length and participant's comments are below.

Summary of Public Input from Meeting 3

- ND Department of Transportation will be rebuilding the historic Brick Mine Bridge. There is an opportunity to improve a river recreation access site as part of this effort.
- ND Game and Fish Department stated that they support the master plan but are not interested in having trails on Wildlife Management Areas (WMA) in the Pembina Gorge area.

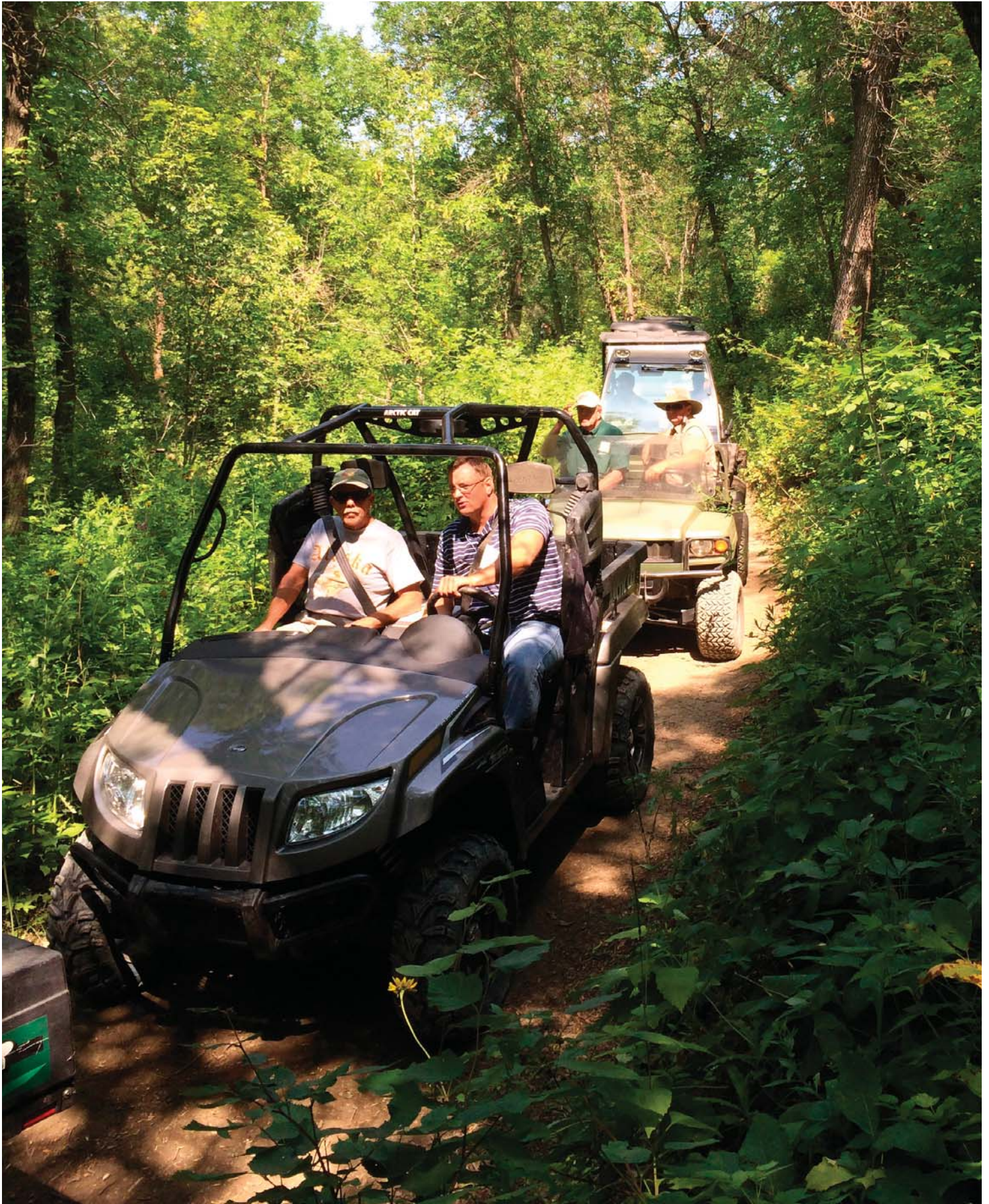
- Review Wolf Trap, Virginia as an example of a visitor center area for Pembina
- Please have meetings with private land owners to discuss the master plan
- More presence and enforcement will be needed as visitation increases
- There is some private land at the Texas Crossing site
- Where is funding going to come from to manage the road to Texas Crossing, other roads, and facilities?
- People who recreate in the Gorge should “pay to play”
- Consider the site across from Frost Fire Ski Hill as a possible site for a visitor center
- Add single-track motorcycle trails to the existing multiuse OHV trail

Implementation Tasks for Pembina Gorge SRA Master Plan

A list of implementation actions was distributed to provide more details and consider priorities. Meeting participants were asked to rank implementation priorities to understand what they think what should be addressed first. The ranked lists from each person were then combined together to see what the group as a whole thinks the priorities should be. This list has been used to identify priorities identified in the implementation section of this master plan.

Approx. Rank	Master Plan Element	Notes
1	Visitor center and associated landscape	
1	Maintenance facility	
2	Wildlife observation sites	
3	Multi-use non-motorized trails	
3	Equestrian trails	
4	Scenic driving routes and associated destinations	
4	Improve Rendezvous Region Scenic Backway information/ signs	
5	More 60 inch OHV trails	
5	Single-track trails (shared Mtn. & Dirt Bike)	
6	River launch sites for paddling	Texas crossing, Brick Mine, etc.
6	Day use picnic and overlook sites with vehicle access	Close to roads
7	Texas crossing bridge	Recreation or vehicle
7	New snowmobile routes and improve existing routes	
7	Trail grooming for winter snowmobile and non-motorized recreation	
7	Mountain bike loop routes on Township roads	
7	Add picnic sites and overlook at the existing trailhead	
8	Paddling-in picnic sites	
8	Multi-use campground	
8	Campground for large groups and event site	
9	Boat-in campsites	
9	Multi-use equestrian campground	
10	OHV loop routes on Township roads	
10	Cabin/yurt rentals (private or public)	

Table #6. Implementation Priorities from Meeting #3



Master Plan

Introduction

North Dakota Parks and Recreation Department (NDPRD) developed this master plan for Pembina Gorge State Recreation Area (SRA) to document a long-term vision for visitor experience, facility development, resource conservation, and management. The plan was developed with extensive input from the public and government agencies. Research described in the previous section was documented to identify opportunities, constraints and public opinion about preferred recreation experiences.

This master plan is intended to be a shared vision for an outstanding recreation solution for the SRA and its surrounds. The master plan is ambitious and will require cooperation of several organizations to succeed at implementing it. Pembina Gorge is a unique and extraordinary landscape in North Dakota that has great potential as both an outdoor recreation destination and conservation area. The successful implementation of the master plan will require a significant investment that will return outstanding a “one of a kind” experience to a great number of visitors and thus strengthen the state and local economy. The timeframe to implement the master plan will depend on several factors including cooperation, public support, visitation levels, funding and other forms of support. Priorities to implement the master plan are defined in this plan.

Master Plan Process – 2014

April – May	Inventory & Analysis
May – June	Research & Public Opinion Survey
May	Public Meeting 1 – Project Introductions & Opportunity Analysis
June	Public Meeting 2 - Conceptual Master Plan
August	Public Meeting 3 – Draft Master Plan
Sept. – Nov.	Prepare and Publish Final Master Plan

Guiding Statements for Pembina Gorge SRA

Guiding statements clarify basic assumptions about SRA management, and provide context for how it should be used. These statements provide the foundation for goals, objectives, and actions outlined in this plan. Actions identified in this master plan should not conflict with the guiding statements. The following statements were developed from legal documents created as part of the purchase of SRA lands as well as the opinion of NDPRD staff that have been involved since the establishment of the SRA. The public and other state agencies were also invited to contribute to these statements as part of the master plan process. There was little information documented relating to the SRA’s guiding statements in previous planning efforts. This plan established the guiding statements for Pembina Gorge SRA.

North Dakota Parks and Recreation Department mission statement also provides guidance:

“The Department will provide and enhance outdoor recreation opportunities through diverse parks and programs that conserve the state’s natural diversity.” State recreation areas are defined by NDPRD as “Areas where a clear emphasis is placed on the provision of opportunities for primarily active recreation activities. These might include recreational beaches, water theme parks, etc.”





Purpose

Purpose defines the reason(s) the area was set aside as a SRA property:

- The Pembina Gorge State Recreation Area was established to provide various types of outdoor recreation, while conserving the natural resources and preserving the intrinsic quality of the area.

Significance

Significance is summarized in statements that capture the essence of each SRA's importance to the natural and/or cultural heritage. The SRA has the following important qualities:

- A biologically diverse area in North Dakota encompassing extensive, uninterrupted forested land. There is a convergence of three bio-geographical zones including woodland, prairie, and riparian.
- The Rendezvous Region was the first area settled by Europeans in North Dakota.
- The Pembina Gorge has rich paleontological & geologic resources.
- The SRA is one of the few designated motorized trail systems in the state of North Dakota.
- Pembina River is unique in its water flow, water quality and scenic beauty.

Primary Recreation Experiences

Primary recreation experience statements define the intended visitor experiences, related facilities and programs:

- Nature-based recreation activities should be the focus of programs and facilities
- 4 seasons of recreation opportunities should be

provided

- Provide a multi-use trails system including hiking, OHV, equestrian, biking, paddling, and snowmobiling
- River recreation including canoeing, kayaking, paddle boarding and other forms of non-motorized boating
- Visitor experience should be rural/rustic with facilities immersed in natural settings
- Programs and facilities should be family oriented and meet ADA accessibility guidelines (wheelchair)

Primary Interpretation Themes

The primary interpretive themes describe the most relevant and interesting topics to provide through materials, facilities, and programs.

- Biological diversity & watchable wildlife of the Pembina Gorge SRA provide visitors with a unique understanding of the landscape.
- Paleontological sites and resources provide visitors with a glimpse into life of the oceans that existed here millions of years ago.
- The earliest European settlement in North Dakota occurred in this part of the state and centered around the fur trade.

Goals & Objectives

The following goals and objectives define a plan to provide visitor experiences and managing SRA resources.

Goal: Provide educational opportunities regarding the values of the natural, paleontological, cultural, and visual resources and the importance of responsible use and stewardship of the land.



- Design, develop and manage a visitor center for the SRA to serve as a space for interpretation, information, services, and administrative offices. Create indoor and outdoor spaces for interpretive exhibits and presentations.
- Continue to provide supervised paleontological fossil dig events and improve interpretive materials for use online, as presentations, and in exhibits.
- Develop a series of interpretive programs and information for various visitor groups to expand learning opportunities and interest in the SRA.

Goal: Provide and promote safe, diverse and enjoyable outdoor nature-based recreation opportunities.

- Develop and manage at least one multi-use campground to diversify recreation opportunities and provide a unique experience in a natural and rural setting.
- Provide designated backcountry campsites near the Pembina River and other remote locations to establish a rustic camping opportunity.
- Develop and manage additional diverse types of recreational trails as additional lands become available for recreational use:
 - Multi-use non-motorized single-track trails: hiking, mountain biking, equestrian
 - 60 inch OHV trails
 - Single-track off-road motorcycle trails
 - Snowmobile routes with shorter loops near Walhalla
- Improve public access to Pembina River by acquiring or leasing lands, improving roads, providing parking and basic facilities. If funding becomes available, collaborate with the

Township to construct a new bridge across the Pembina River at Texas Crossing.

- Partner with the Town of Walhalla, Pembina and Cavalier Counties to prepare a plan and manage township and county roads in the area as recreation routes.
- Improve scenic driving opportunities to and from the SRA on Township and County roads. Improve Rendezvous Region Scenic Backway with interpretive information, picnic sites, overlook sites and other destinations.

Goal: Protect, manage and enhance natural, paleontological, cultural and visual resources including maintaining and promoting healthy ecosystems and their processes.

- Identify the locations and habitats of rare and sensitive plant and animal species and take management actions to protect them.
- Locate, protect, and research paleontological resources in the area.
- Manage water quality in the Gorge through soil conservation measures and control of agricultural chemicals, human waste, fuel spills, trash and other potential sources of contamination.
- Continue to provide hunting and fishing as methods to manage wildlife populations while providing traditional outdoor recreation opportunities.

Goal: Partner with other agencies and organizations to cooperatively improve and manage recreation and conservation values in the vicinity of the SRA.

- Partner with another organization to provide an information center in the Town of Walhalla to increase interest and awareness in the SRA.



- Apply for funding with partner organizations to cooperatively implement the master plan and programs.
- Establish a cooperative management organization to plan projects, seek funding, and address issues as they come up.
- Actively participate in the review of land use regulations and proposed new land uses in the vicinity of the SRA to promote a natural, rustic outdoor recreation setting in the area.
- Purchase or lease lands from willing land owners to expand recreation opportunities and conservation resources as funding becomes available.
- Support private investment in nature-based outdoor recreation services in the area including downhill skiing, equestrian facilities, camping, canoe/ kayak, cabin/yurts, special events, and other recreation facilities.

Goal: Define management policies, plans, programs, and funding for the above goals.

- Design and develop a maintenance and storage facility to administrate the SRA.
- Establish a maintenance plan and budget to effectively manage facilities in the SRA for safety, cleanliness, and environmental quality.
- Improve enforcement of rules, regulations, and safety through an operation plan, patrolling, and communication.
- Establish a communication system with adjacent private land owners and others to manage issues and information and prevent conflict.
- Analyze the need for staff and volunteer expertise and numbers to assure a well-managed SRA.

- Study the potential to implement a recreation fee and permit structure to generate funds for use in management of SRA facilities and programs.

Alternative Concepts

Three concepts were created as part of developing this master plan. Alternative concepts allowed the planning team and public to compare and contrast several options to understand the strengths and weaknesses of each. These concepts were presented at a public meeting and posted on the project webpage for all stakeholders to consider and to provide feedback. Concept graphics can be viewed in figure #2.

Rendezvous River

This concept focuses visitor experiences and facilities around the Pembina River corridor. While this concept emphasizes visitor experiences on and adjacent to the river, it includes trails in the Gorge and scenic driving routes on several County and Township roads. The following improvements would complement existing recreational opportunities.

- River destinations
 - Paddling-in picnic sites
 - Boat-in campsites
 - Day use picnic and overlook sites with vehicle access
 - Visitor center
 - Paddling put-in/take-out sites
- River access sites
 - Texas Crossing
 - Vang Bridge
 - Brick Mine Bridge
 - Tetrault Woods
 - Riverside Park in Walhalla
- Improve the road to Texas Crossing and provide day-use facilities



- Multi-use non-motorized trail along the river from Walhalla to the Canadian border
- Trail connection to Little North Pembina and Lady Slipper trail
- Support private business to provide equipment rentals for river recreation
- Maintenance facility in the SRA to better manage facilities and resources

Recreation Network

This concept focuses on improving recreation routes to and from Pembina Gorge, the Town of Walhalla and other areas in the County. While this concept emphasizes visitor experiences on rural roads, it also includes new trails and other private or public nature-based recreation facilities. The combination of roads, trails, destinations and services could create an extensive recreation network on both public and private lands. The following improvements would complement existing recreational opportunities.

- Recreation Road Routes Including:
 - Scenic Driving
 - OHV Riding
 - Mountain Biking
 - Snowmobiling
- Tie the Network to Key Destinations
 - Services in Walhalla
 - Scenic Overlooks
 - Fossil Site
 - Frost Fire
 - Golf Course
 - River Access Points
 - Trailhead
 - Historic Sites
 - State Recreation Area
 - Wildlife Management Areas
 - A Group Picnic/ Use site
 - Tetrault Woods State Forest

- More river recreation access
- Cooperative visitor center in Walhalla
- Country campground (private or public)
- Additional 60 inch wide OHV trails
- New single-track trails (shared Mtn. & Dirt Bike)
- Additional non-motorized trails
- Improve snowmobile trail network
- Equestrian trails and facilities (private or public)
- Wildlife viewing sites
- Cabin/yurt rentals (private)
- Support private business to provide equipment rentals for river recreation
- Maintenance facility in the SRA to better manage facilities and resources

Enhancements to Current SRA

This concept would include minimal improvements to the SRA to meet visitor and administrative needs. There is strong interest in having staff presence in the SRA to provide information and enforce rules and regulations. More trails are desired by all visitor groups and this concept would include some new trails if adequate land is available. The following improvements would complement existing recreational opportunities.

- Small visitor contact station and office
- Primitive camp sites near the existing trailhead
- Additional non-motorized trails
- Picnic and overlook site at the current trailhead
- Improve scenic backway information, signs, and add interpretation stations
- Trail grooming for winter non-motorized recreation
- Improve snowmobile trails
- Maintenance facility in the SRA to better manage facilities and resources

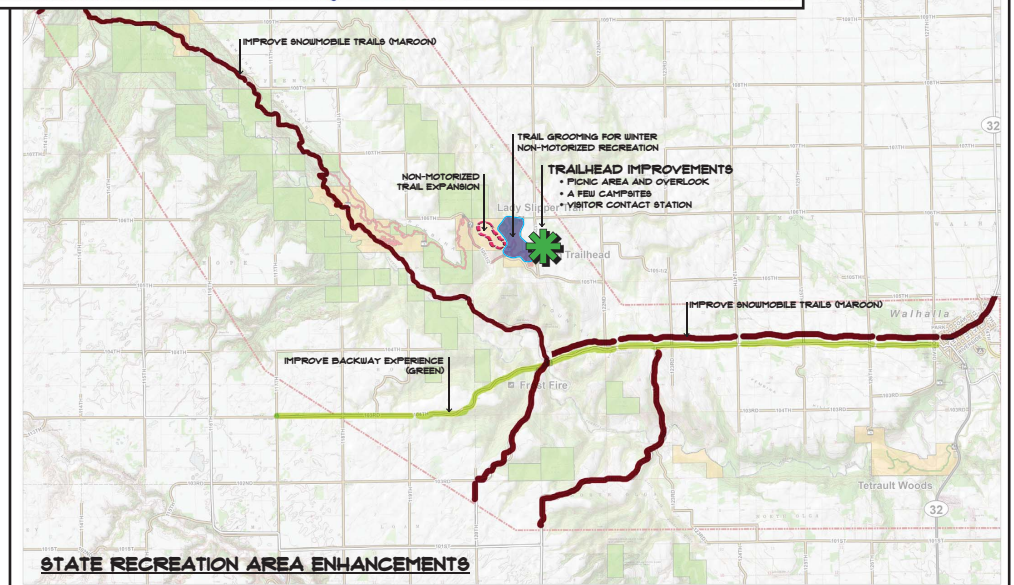
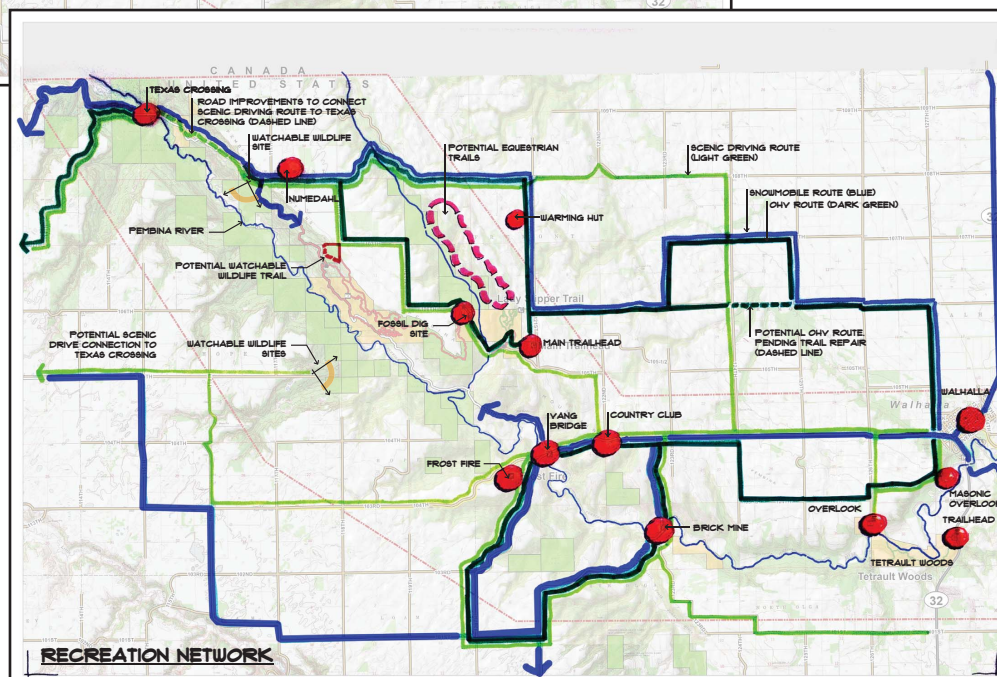
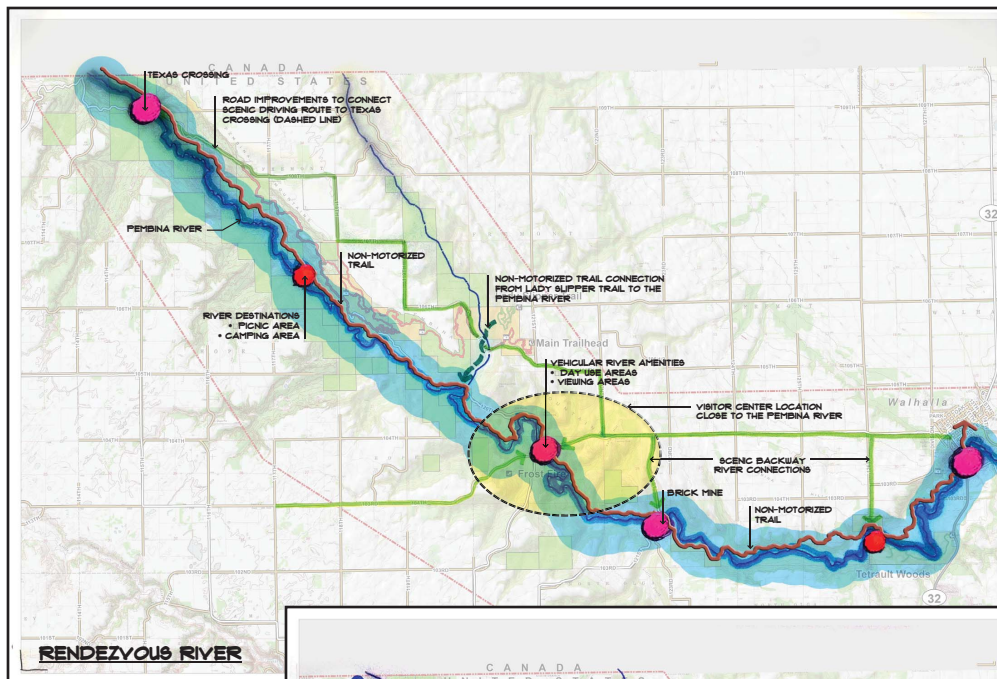


Figure #2

Preferred Action

The preferred action described below is the ideal solution to conserve resources, improve visitor experiences and expand outdoor recreation opportunities in and around the SRA. There was overwhelming support from the public, agencies, and the planning team to combine all three concepts described above into one complete solution for the SRA and the area. It's important to emphasize that this plan improves outdoor recreation opportunities not only the SRA, but also in the landscapes surrounding it. It will be important to purchase or lease additional lands from willing private land owners to implement the proposed actions in this plan. Township and County roads provide a good opportunity to be used as recreation routes, but more land will be needed to create more trails and camping opportunities. Some of these improvements could be private or public-private partnerships.

The overall vision for the master plan is to expand outdoor recreation opportunities through a network of recreation routes and trails that connect to recreation sites, the Pembina River, and visitor services. This broad vision has the potential to draw more visitors and types of outdoor recreational activities that will in turn generate revenue to manage these resources and strengthen both the local and state economies. This vision will require a strong partnership and investment, both public and private, to expand outdoor recreational opportunities while conserving the beautiful Pembina Gorge landscape. The connectivity of the recreation network is one of the most significant strengths of this plan to make the whole greater than the sum of their parts.

New facilities should be high quality for durability and have a rustic style in a natural setting. Facilities would be similar to ones found in other state parks but with an attempt to minimize building size, paving and to have native vegetation dominate recreation sites. Architecture and other facilities should use rustic materials such as logs and river stone to represent tradition pioneer styles from the settlement period. This style will appear more vernacular, or "natural", and will blend in with the natural setting rather than contrasting with it. Facilities, especially buildings, should be designed and located to

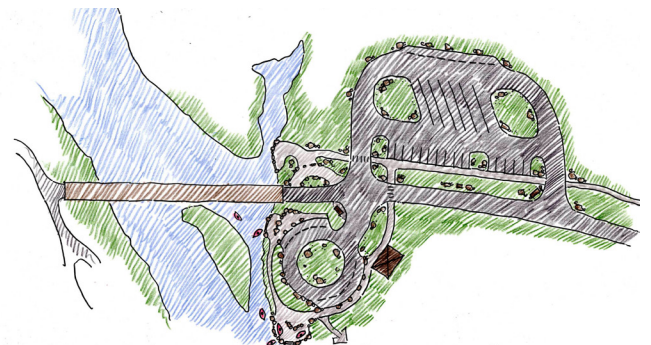
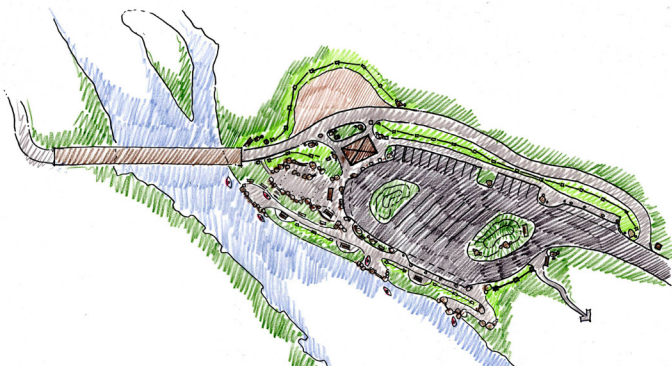
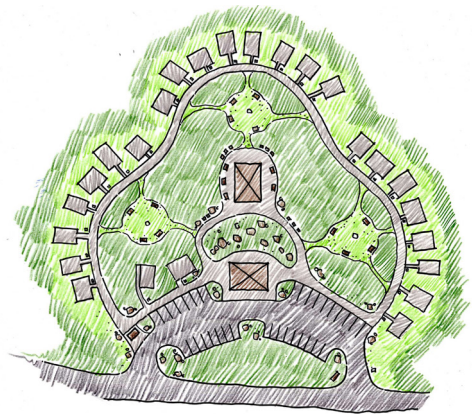
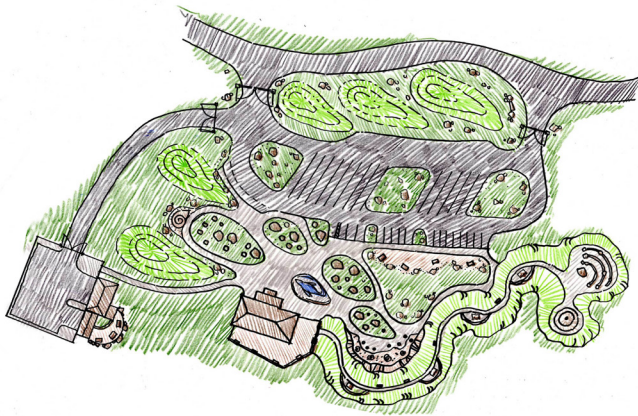
blend into the landscape and have little to no impact on the scenic quality of the natural landscape. All facilities and management of recreational activities should be implemented with sustainability as an objective.

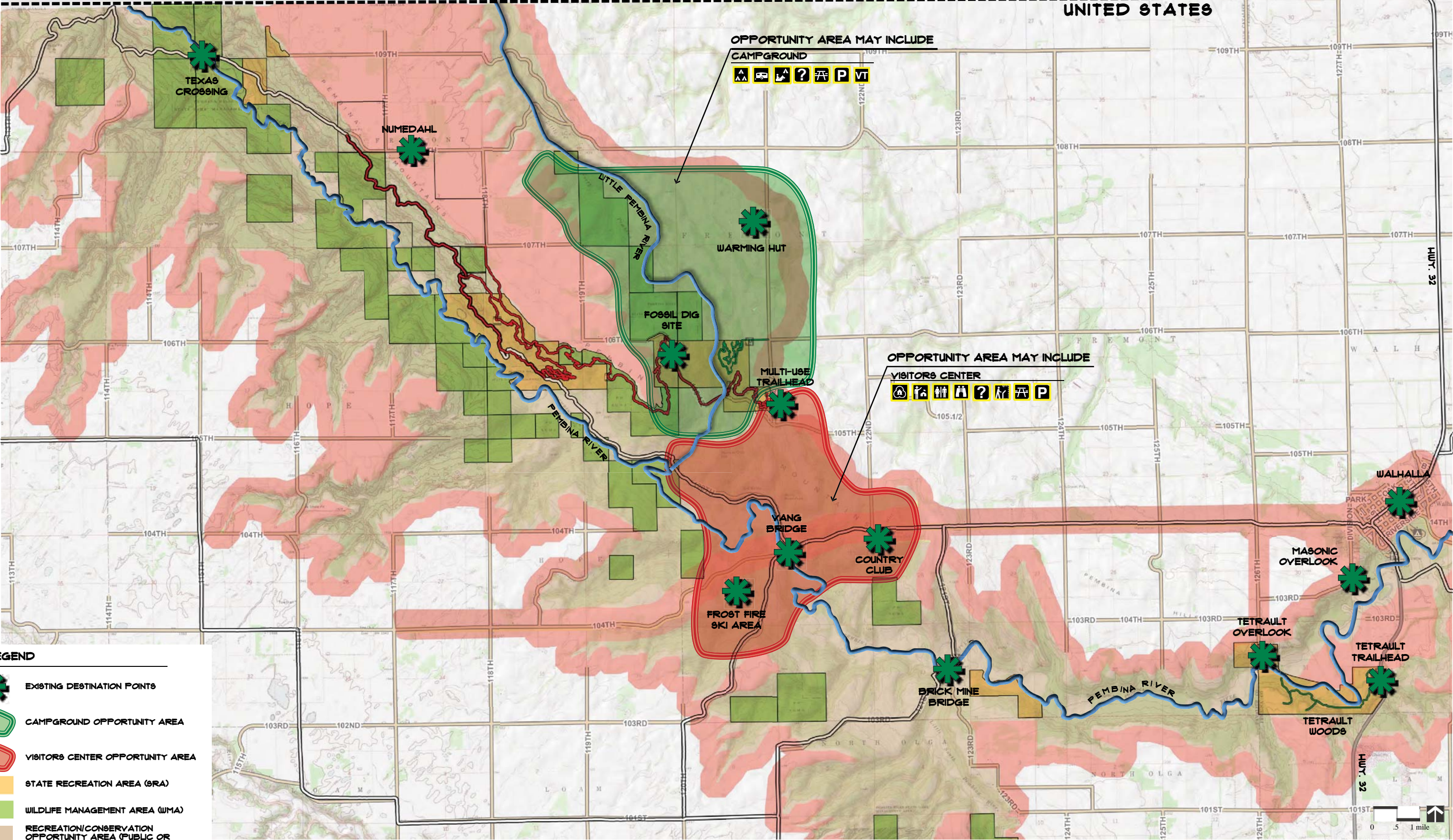
There is a significant opportunity to expand outdoor recreation opportunities on both public and private lands in the Pembina Gorge. At the same time, the natural environment should be conserved and even improved. The private and public lands in and around the Pembina Gorge are a collective landscape that depends on each of the parts. Private landowners will likely have the largest influence on the quality of the landscape and visitors experiences depending on how they choose to use their lands. Private land ownership and use should and will be respected, but landowners should also have a responsibility to consider greater community values. Current private landowners understand the collective value of the Pembina Gorge landscape and have managed their lands accordingly. Significant impacts to the landscape are more likely to come from new landowners that may bring their own ideas on how their land should be used, sometimes irrespective of the community value. It will be important for agencies and private landowners to cooperatively manage land use in and around the Pembina Gorge as part of County and Township land use plans and policies.

The master plan map shows a Recreation and Conservation Area that delineates the area of greatest value for both conservation and outdoor recreation opportunities. In addition to SRA lands, the other lands in this area are either in private, North Dakota Forest Service, or North Dakota Game and Fish ownership. These landowners should be encouraged to manage their lands in these areas to consider these values. This would also be a high priority area for the state to acquire new lands to add to the SRA from willing landowners. This area is defined by its proximity to the Pembina River, its tributaries and other lands located within the Pembina Gorge. Management of scenic quality and vistas within this area is an important consideration for land use decisions. Topography and some unstable soils in this area also make it somewhat less suitable for residential or other development which

also lends itself to conservation. Biodiversity and natural habitats are concentrated in this area which also lends itself to conservation and recreation. The Recreation and Conservation Area can be seen on map #4.

The lands surrounding the Recreation and Conservation Area have significant value as either agricultural lands or as a Nature-Base Tourism Opportunity Area. Agricultural lands are an important part of the heritage and livelihood of residents and so should be respected. Agricultural lands also have value as wildlife habitat and contribute to the scenic quality of the area. As visitation to the SRA increases, private investment in tourism services such as lodging, food, entertainment, trails and other privately operated recreation facilities should be developed. This development would be most suitable in this tourism opportunity area which borders the Pembina Gorge, and extends along the scenic backway into Walhalla. Land use, architectural style, and landscape style should be regulated by the Township and County to assure continuity in quality and services in this area. The Frostfire Lodge is an example of a private investment in the Gorge that has sought to compliment the natural setting and experience. The Nature-Base Tourism Opportunity Area can be seen on map #4.





LEGEND

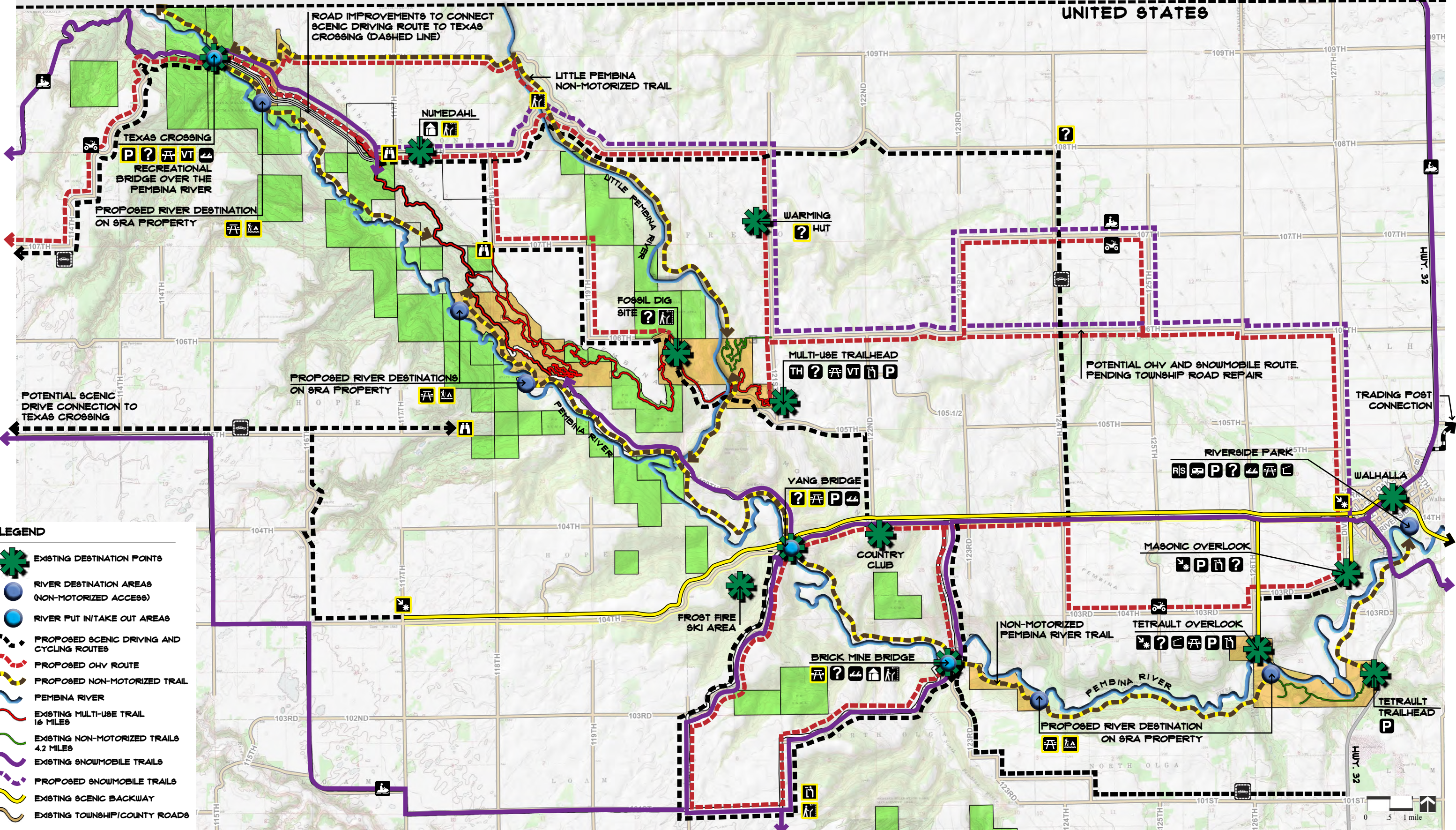
- EXISTING DESTINATION POINTS
- CAMPGROUND OPPORTUNITY AREA
- VISITORS CENTER OPPORTUNITY AREA
- STATE RECREATION AREA (SRA)
- WILDLIFE MANAGEMENT AREA (WMA)
- RECREATION/CONSERVATION OPPORTUNITY AREA (PUBLIC OR PRIVATE)
 - OHV TRAILS
 - SNOWMOBILE TRAILS
 - NON-MOTORIZED TRAILS
- POTENTIAL TOURISM OPPORTUNITY AREA

RIVER PUT INTAKE OUT	PICNIC AREA	VEHICLE PARKING	INFORMATION	SCENIC BACKWAY INFORMATION/ PULL OUTS	WATCHABLE WILDLIFE	SHELTER	RESTROOM AND SHOWERS
VAULT TOILET (NO WATER)	RIVER CAMPING	TRAILHEAD	SCENIC OVERLOOK	HISTORIC SITE	INTERPRETIVE OPPORTUNITY	RV/TRAILER CAMPING	NOTE: ALL RECREATION SYMBOLS WITH YELLOW OUTLINE ARE PROPOSED IMPROVEMENTS
FLUSH TOILETS	VISITORS CENTER	PARK STAFF AND LAW ENFORCEMENT	GROUP CAMPING	EQUESTRIAN CAMPING			

RECREATION MASTER PLAN

CANADA
UNITED STATES

PORT OF ENTRY



- LEGEND**
- EXISTING DESTINATION POINTS
 - RIVER DESTINATION AREAS (NON-MOTORIZED ACCESS)
 - RIVER PUT INTAKE OUT AREAS
 - PROPOSED SCENIC DRIVING AND CYCLING ROUTES
 - PROPOSED OHV ROUTE
 - PROPOSED NON-MOTORIZED TRAIL
 - PEMBINA RIVER
 - EXISTING MULTI-USE TRAIL 16 MILES
 - EXISTING NON-MOTORIZED TRAILS 4.2 MILES
 - EXISTING SNOWMOBILE TRAILS
 - PROPOSED SNOWMOBILE TRAILS
 - EXISTING SCENIC BACKWAY
 - EXISTING TOWNSHIP/COUNTY ROADS

- STATE RECREATION AREA (SRA)
- WILDLIFE MANAGEMENT AREA (WMA)

- | | | | | | | | |
|-------------------------|-----------------|--------------------------------|-----------------|---------------------------------------|--------------------------|--------------------|--|
| RIVER PUT INTAKE OUT | PICNIC AREA | VEHICLE PARKING | INFORMATION | SCENIC BACKWAY INFORMATION/ PULL OUTS | WATCHABLE WILDLIFE | SHELTER | RESTROOM AND SHOWERS |
| VAULT TOILET (NO WATER) | RIVER CAMPING | TRAILHEAD | SCENIC OVERLOOK | HISTORIC SITE | INTERPRETIVE OPPORTUNITY | RV/TRAILER CAMPING | NOTE:
ALL RECREATION SYMBOLS WITH YELLOW OUTLINE ARE PROPOSED IMPROVEMENTS |
| FLUSH TOILETS | VISITORS CENTER | PARK STAFF AND LAW ENFORCEMENT | GROUP CAMPING | EQUESTRIAN CAMPING | SNOWMOBILE ROUTE | OHV ROUTE | SCENIC DRIVING ROUTE |

Master Plan Elements

The following are key elements of the master plan vision. These elements will require more planning and design before they can be funded or developed. These elements should follow the style, quality, and sustainability principles outlined in the master plan. Preliminary schematic designs for several of the elements have been included to illustrate one possible solution for them. The location of these elements can be seen on map #4.

Visitor Center

The public that participated in the process and the planning team showed a strong opinion to develop a visitor center within the SRA. The main reasons discussed included: having more staff presence, providing interpretive and other information to visitors. Several options for a visitor center were discussed and analyzed. The detailed analysis of these options can be reviewed in the research section of the master plan. It was decided that a full visitor center would best meet visitor's needs, provide office space in the SRA, and act as a destination to attract more visitors. The majority of potential visitors to the SRA would be interested in a scenic drive and visit to an attractive and comfortable visitor center. These potential visitors are unlikely to visit the SRA without its presence. The visitor center can be phased in over time based on funding and visitation to the the SRA over time.

A site to develop a visitor center could not be selected as part of this master plan due to the limited amount of flat land found within the current SRA. Land with suitable space for a building, associated parking and potentially a maintenance area will need to be acquired before it can be developed. The ideal location for a visitor center would be on the east side of the Pembina Gorge at a site that has an expansive view of the Gorge. The site would also ideally be located close to County Road 55 to have better travel conditions during all seasons and weather. Proximity of existing utilities and good road access would help limit utility costs. Map #4 shows the best general area to locate a visitor center.

The ideal experience at the visitor center would be to see a building that looks like it was designed to complement the natural setting and would have a patio

with a panoramic view of the Gorge. A short trail and interpretive landscape could be provided to create a setting for small groups to gather and hear interpretive talks or appreciate interpretive panels.



People that enter the visitor center would feel that they are walking into a natural history museum that features the resources, views, and history of the Pembina Gorge. If the visitor center can be located with an outstanding view of the Gorge, a wall of glass would provide panoramic views regardless of the weather. The building would also have functional spaces such as restrooms, information counter, presentation/ meeting space, offices and some storage space. Figure #3 illustrates a potential design, but has not been prepared for a particular site.

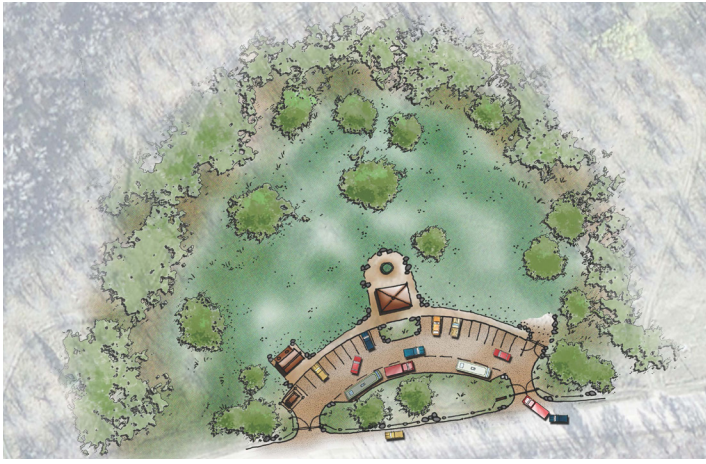
List of Visitor Center Elements

- Accessible Interpretive Plaza with Exhibits and Environmental Education Areas
- Picnic Areas/Multi-Use Outdoor Spaces
- Parking Area for Small and Large Vehicles
- Outdoor Deck off the Visitors Center for Views of the Gorge

If a site with adequate size can be acquired, it would be ideal to co-locate a maintenance and storage area with the visitor center. The maintenance area should only be co-located if it can be separated both physically and visually from the visitor's experience area. The maintenance facility would be most convenient and secure if located next to the visitor center but this should be secondary to the quality of the visitor's experience.

List of Maintenance Area Elements

- Enclosed Storage Area
- Maintenance and Office Buildings



Overlook and Picnic Site

The existing trailhead on 121st Road is an ideal location to create a picnic site and scenic overlook. As the main trailhead for the SRA, many visitors are already using the site which has both parking and toilets. Many people who are currently touring the area in their vehicle pull into the trailhead but don't get out of their vehicles because an experience hasn't been designed for them. The overlook and picnic site would only be used by visitors during fair weather, so a limited number of picnic tables and gathering space would suffice. The existing multi-use trail at the site may need to be realigned to allow some separation from and space for the picnic site. Figure #4 illustrates a potential design for the site.

List of Elements

- Views of Pembina Gorge with Interpretive Panels
- Accessible Trail to the Overlook

Campground

The recreation opinion survey described in the research section of this master plan shows a strong interest in having camping facilities in the SRA. Visitors would not only like to have a campground with convenient access the trails and the river, but would also like to camp in a rural, natural setting. There is a Town-owned campground in Walhalla but it is at capacity during popular camping periods and provides more of a town setting. It may be necessary to build a campground in phases to meet demand as it increases. The SRA does not have a suitable flat site to develop a camping area, so it will be necessary to purchase land from a willing private land owner before it can be constructed.



The ideal location for a campground would be on the east side of Pembina Gorge, close to the existing trailhead, close to County Road 55, and near existing utilities. The campground should be set back from roads to provide a more tranquil setting. A new campground site would need to be relatively flat and ideally have good views into the Gorge.

The campground will be designed to accommodate various types of campers with some camping spurs designed for specific recreation activities/equipment such as OHVs and equestrians. The campground should be designed to allow for phased development by having camping spurs off a main road that can be constructed as needed. These spurs could also be closed individually based on demand during various periods. Figure #7a-7b illustrates a potential campground design which has not been prepared for a particular site.

List of Campground Elements:

- Large Camp Sours to Accommodate Equestrian and OHV users
- Vault toilet Facilities
- Trail Connections and Perimeter Trails
- "Rustic" Campground Feel
- Training/Kids Area at the OHV Campground

Texas Crossing Launch and Day Use Area

Texas Crossing is located on the Pembina River ½ mile south of the United States - Canadian border where 108th Road reaches the river. This is a popular launch site for canoes and kayaks. There used to be a bridge across the Pembina River at this location but it was washed away in a flood. This northern section of the river is most pristine and therefore an attractive launch



location. A snowmobile trail crosses the river at this location during the winter months. The existing 108th Road is currently in poor condition where it drops down into the Gorge; has mud holes, poor drainage, and little or no gravel base course.

NDPRD should partner with the local governments to improve the road to Texas Crossing, develop a paddle launch site and day use area on the edge of the river. Improving access and facilities at this site would increase popularity of paddling on the river and would become a popular destination for scenic driving, bicycling, hunting, birding and OHV riding. This would also become a trailhead location if the proposed Pembina River trail is constructed. Construction of a new bridge crossing the river is proposed and would depend on funding sources. It could be a recreational trail bridge or a full-size vehicle bridge. A full-size vehicle bridge would have added benefit of road connectivity for local resident use, emergency access and for other recreational activities. Figure #6 illustrates a potential design for the Texas Crossing site.

List of Elements:

- Vault Toilet Facilities and Information Kiosk
- Small and Large Vehicle Parking with Trailers
- Vehicular and Pedestrian Bridge over the Pembina River
- River Access/Launch Area
- Picnic Areas

OHV Routes & Trails

Off-highway vehicle (OHV) recreation has been a popular activity in the Pembina Gorge for a long time. In the past, much of the riding happened on private



and Game and Fish lands, usually without permission. Since a multi-use OHV trail was constructed in the SRA, many riders now ride on this trail or on Township roads, which are open to OHV use. There is strong interest and demand for more OHV riding opportunities, especially on designed trails. This master plan recommends development of more OHV trails including multi-use and single-track OHV trails. A specific area for development of more OHV trails has not been identified in the master plan, because these trails would have to be developed on newly acquired lands. Another alternative would be to purchase trail easements from willing private land owners. These methods have already been used in the SRA for landowners not interested in selling, but are supportive of trail development. New OHV trails should be designed and constructed to standards similar to the ones used for the existing OHV trail in the SRA.

Township roads are popular for OHV riding for people looking for a scenic ride with little technical challenge. There are many potential visitors that would enjoy this kind of scenic riding. The popularity of recreational off-highway vehicles (ROV), or side-by-sides, is likely to make easy OHV riding even more popular in the future. The master plan proposes use of some Township roads to create looped riding routes with destinations such as a visitor center, picnic sites, scenic overlooks, etc. There are approximately 47 miles of proposed OHV routes shown on map #5 that also connect to Walhalla. These routes have been planned to be separate from scenic driving routes to reduce the potential for crowding. It would be important for NDPRD to formalize an agreement with the Township on how to manage of OHV use on these roads.

Scenic Driving Routes

The existing Rendezvous Region Scenic Backway extends from Akra, through Walhalla, and west along County Road 55 through the Pembina Gorge. The Backway is proposed to be part of a series of scenic driving loops between Walhalla and the Gorge. The driving loops would follow existing Township roads and lead to destinations such as the visitor center, interpretive panels, scenic overlooks, day use sites, etc. Many of the roads in the area have a native soil surface which will limit their use as scenic driving routes during dry periods. There are approximately 60 miles of proposed scenic driving routes shown on map #5. It will be important for NDPRD to formalize an agreement with the Township on how to fund management of scenic driving on these roads.

Equestrian Trails

The recreation opinion survey indicates a strong interest in development of trails and facilities for equestrian riding and camping. This is an important traditional activity for local residents and people in this part of North Dakota. The number of people that would use equestrian facilities is uncertain, but development of these facilities would most likely increase equestrian activities. A specific location for new equestrian trails has not been identified in the master plan because more land would need to be acquired or leased from willing private landowners to develop them. Equestrian riders require adequate parking and space to stage riding activities. They also need camping sites designed for management of horses and their feed. Equestrian trails and facilities could also be provided on private property in the area.

Non-motorized Trails

Project participants and the recreation opinion survey showed a strong interest for the development of additional non-motorized trails for hiking and mountain bicycling. The primary idea that emerged from the master plan is to develop non-motorized trails along the Pembina and Little Pembina Rivers from Walhalla to the Texas Crossing. A trail connection along 109th Road would connect the Pembina and Little Pembina rivers at the north end. These trail corridors are loose, conceptual ideas that would need to be aligned to stay

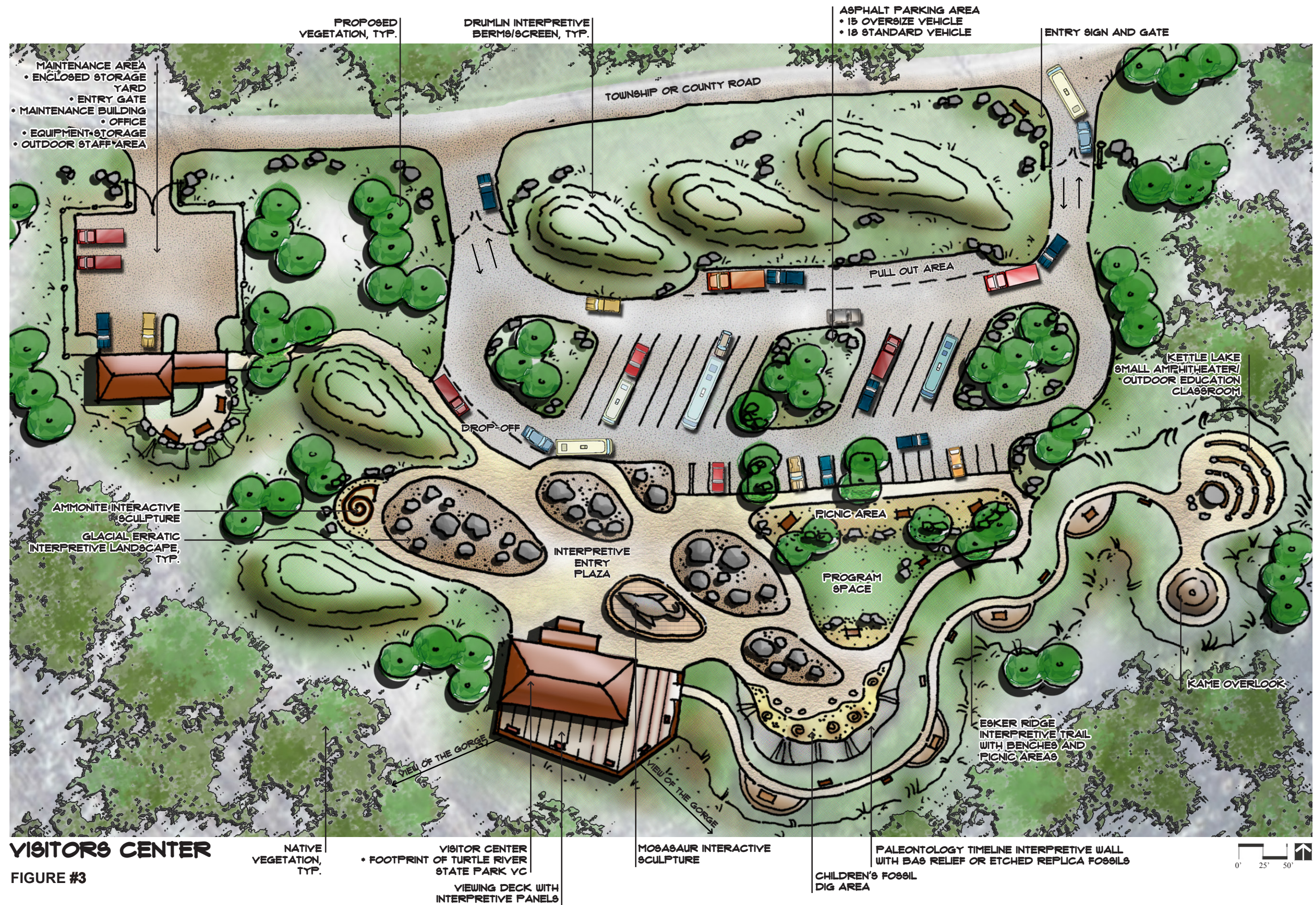
on public land or in road right-of-ways. Some land or trail easements would also need to be acquired from willing land owners. There would be approximately 26 additional miles of non-motorized trails which can be reviewed on map #5. These trails would require a specific plan and would need to be developed over time. Creating long-distance non-motorized trails like these would help to make Pembina Gorge a regional destination for multi-day backpacking trips. Additional non-motorized trails could also be developed on new lands added to the SRA. There are plans for the existing Lady Slipper Trail to be extended to the west when funding becomes available.

Snowmobile Trails

There are currently 450 miles of snowmobile trails in the Rendezvous Region of the Pembina Gorge. This plan proposes improving existing trails in the Gorge to flatten their surface and to cut back vegetation. The plan also proposes adding additional shorter snowmobile loops on Township roads to create shorter riding experiences close to Walhalla and the SRA. There would be approximately 63 miles of snowmobile routes in the SRA/ Walhalla area as shown on map #5. It would be important for NDPRD to formalize an agreement with the Township, SND, and NESCA on how to manage snowmobiling on these roads. A snowmobiler's warming hut has also been proposed on the Numedahl property, which is labeled on map #5.

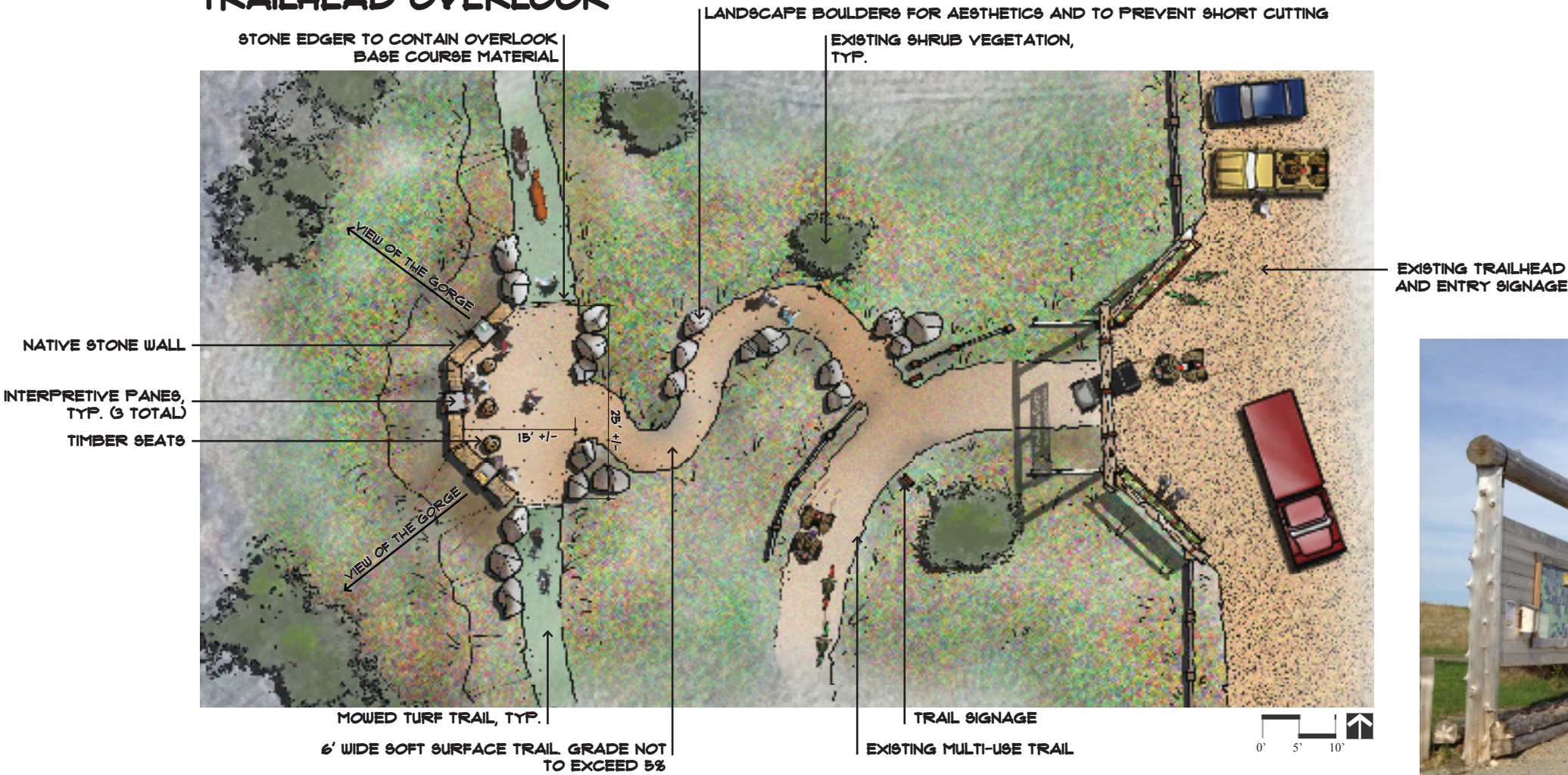
Backcountry Campsites

A non-motorized trail and paddling on the Pembina River would provide the opportunity for backcountry primitive camping near the edge of the river. A limited number of campsites will be designated and their use evaluated to understand interest in using them and their management needs. They would be located above the annual flood level of the river to prevent damage to the campsites. The campsites would have a fire ring, tent pad, and pit toilet. The toilets would be constructed away from the river and other water sources to prevent contamination. The campsites should be located relatively close to OHV trails or roads so they can be easily maintained. Campers would be required to pack trash out. Approximate locations for campsites can be seen on map #5.



TRAILHEAD OVERLOOK

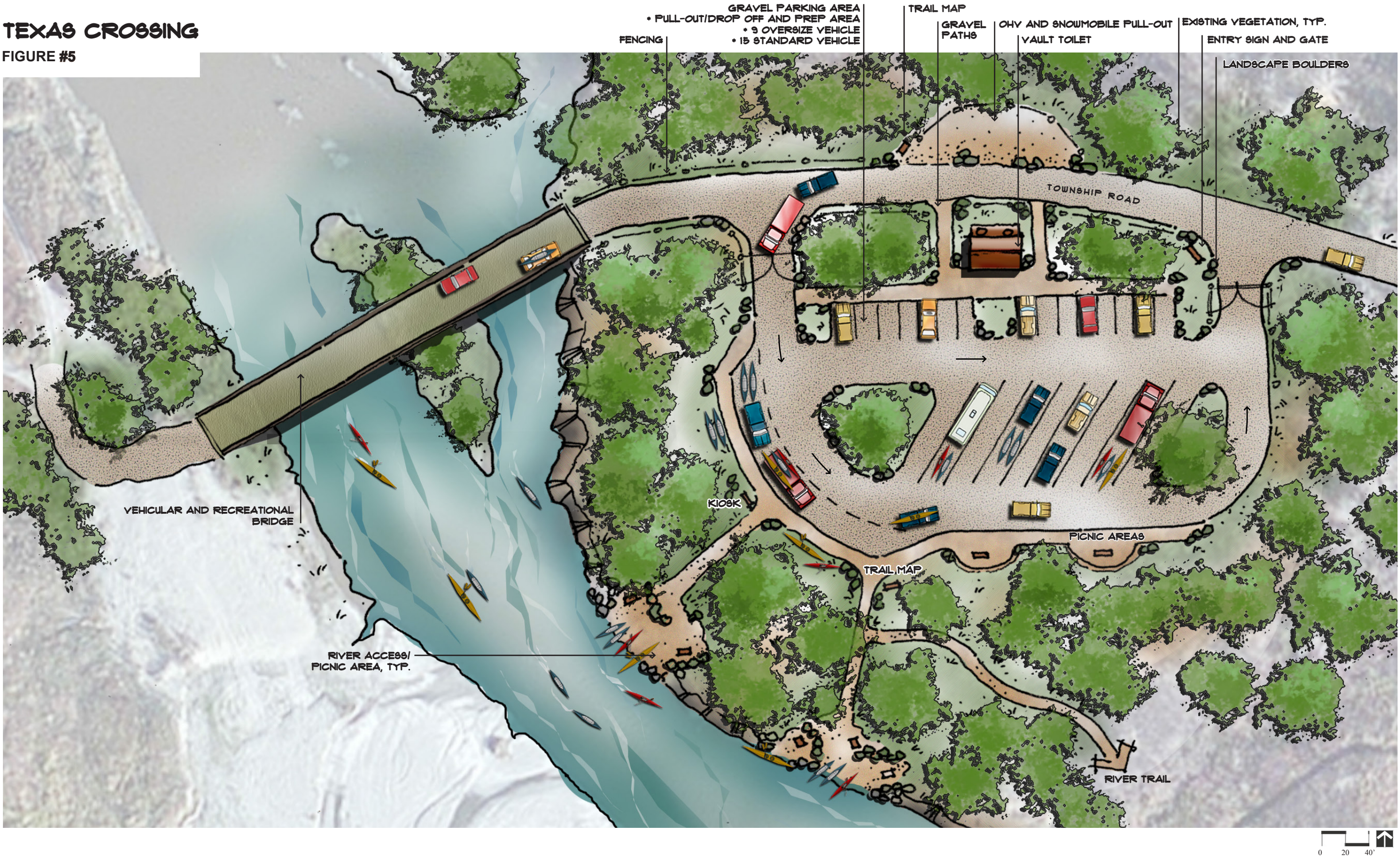
FIGURE #4



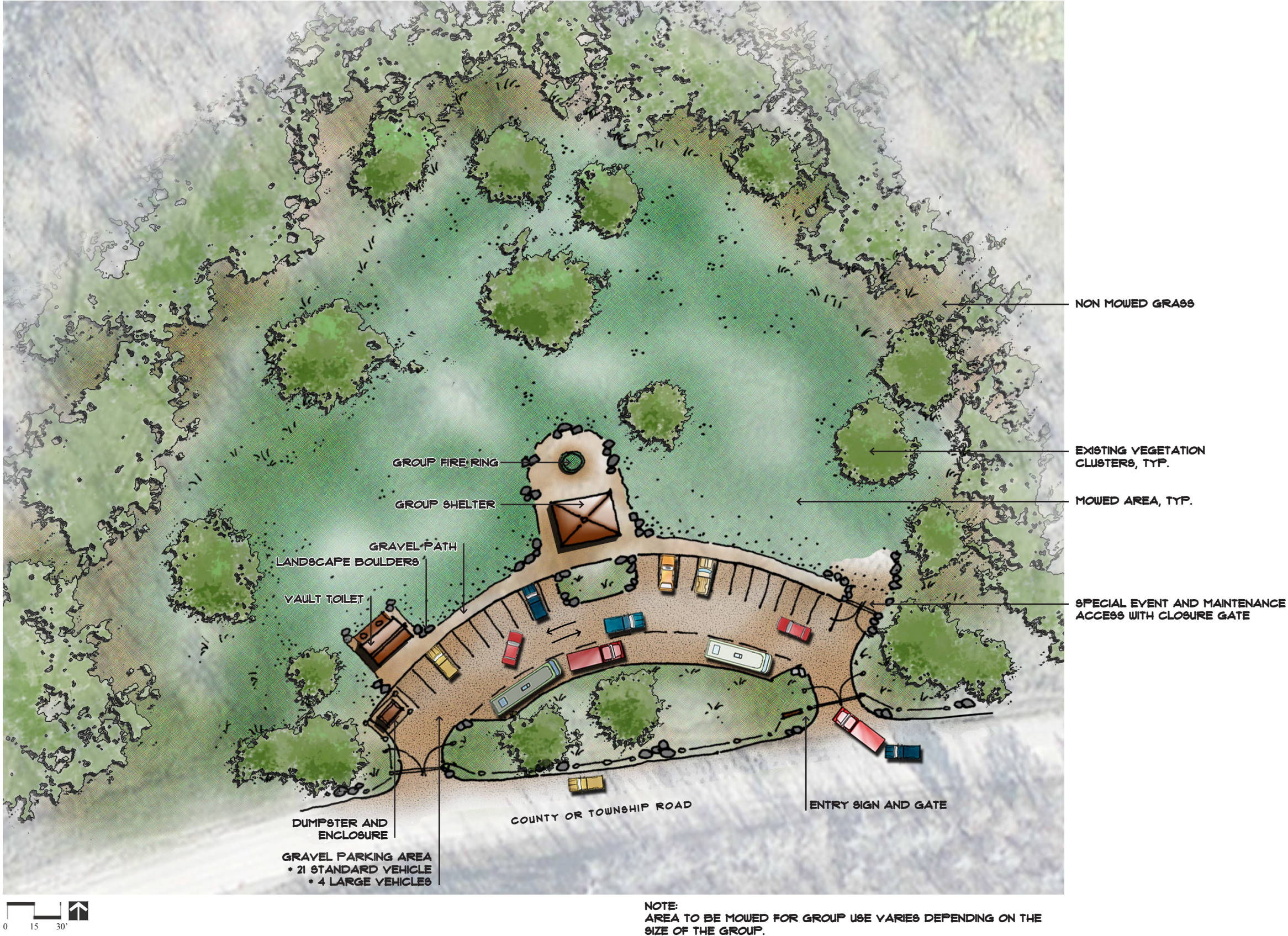
VIEW OF THE GORGE FROM THE PROPOSED OVERLOOK LOCATION

TEXAS CROSSING

FIGURE #5



GROUP USE AREA FIGURE #6



MULTI-USE CAMPGROUNDS FIGURE #7a

OHV AND MULTI-USE
APPROX. SITE AREA: 6.3 ACRES
ACCOMMODATES OHV USERS (LONGER SPURS)
20 PULL-THROUGH, DOUBLE AND SINGLE VEHICLE CAMP SPURS
1 HOST SITE

TRAINING/KIDS AREA ENTRY
• RULES AND REGULATIONS SIGN
• WIDTH RESTRICTOR
• CLOSURE GATE

TRAIL CONNECTION TO TRAINING/
KIDS RIDING AREA



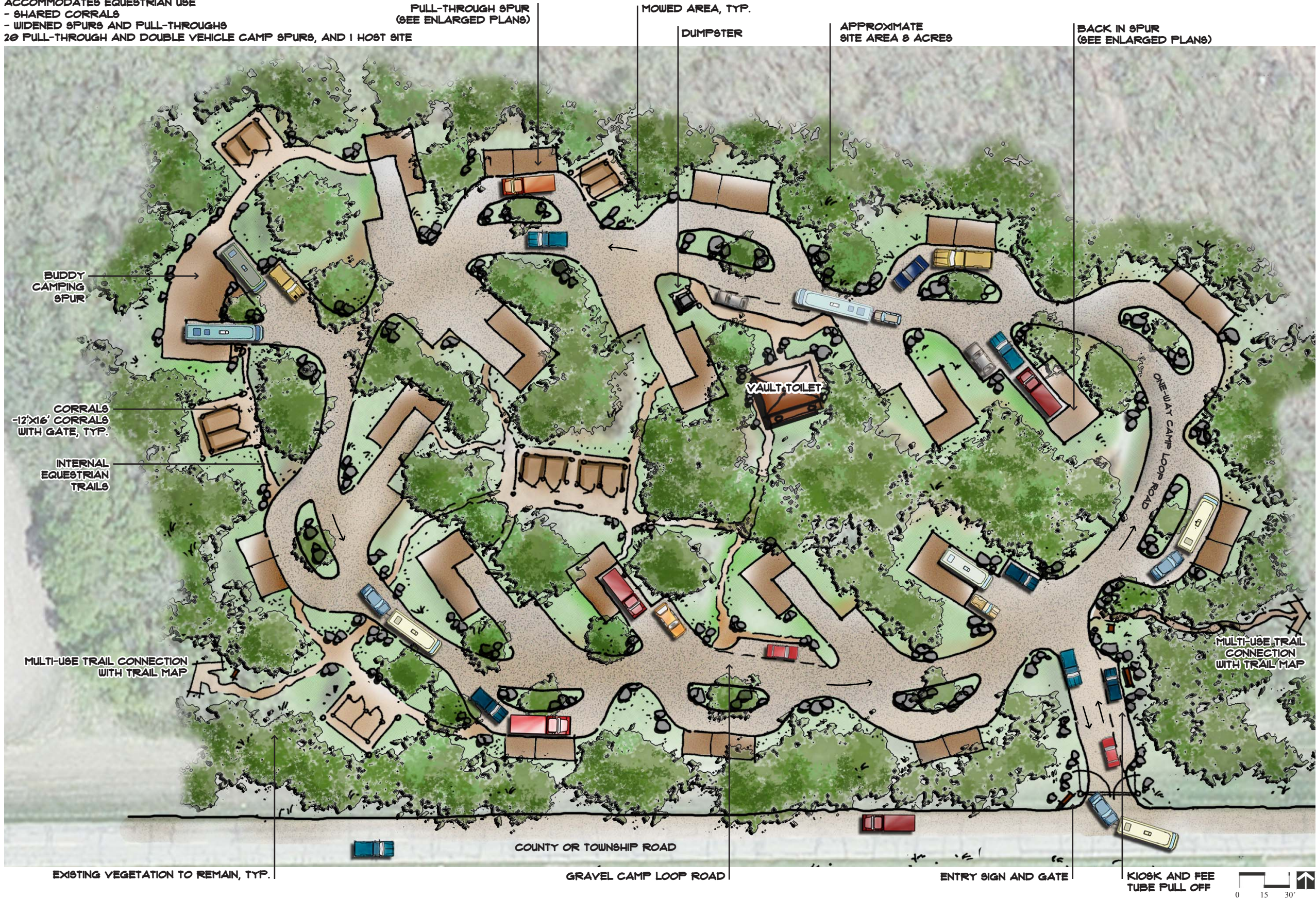
TRAINING/KIDS RIDING AREA FIGURE #7b

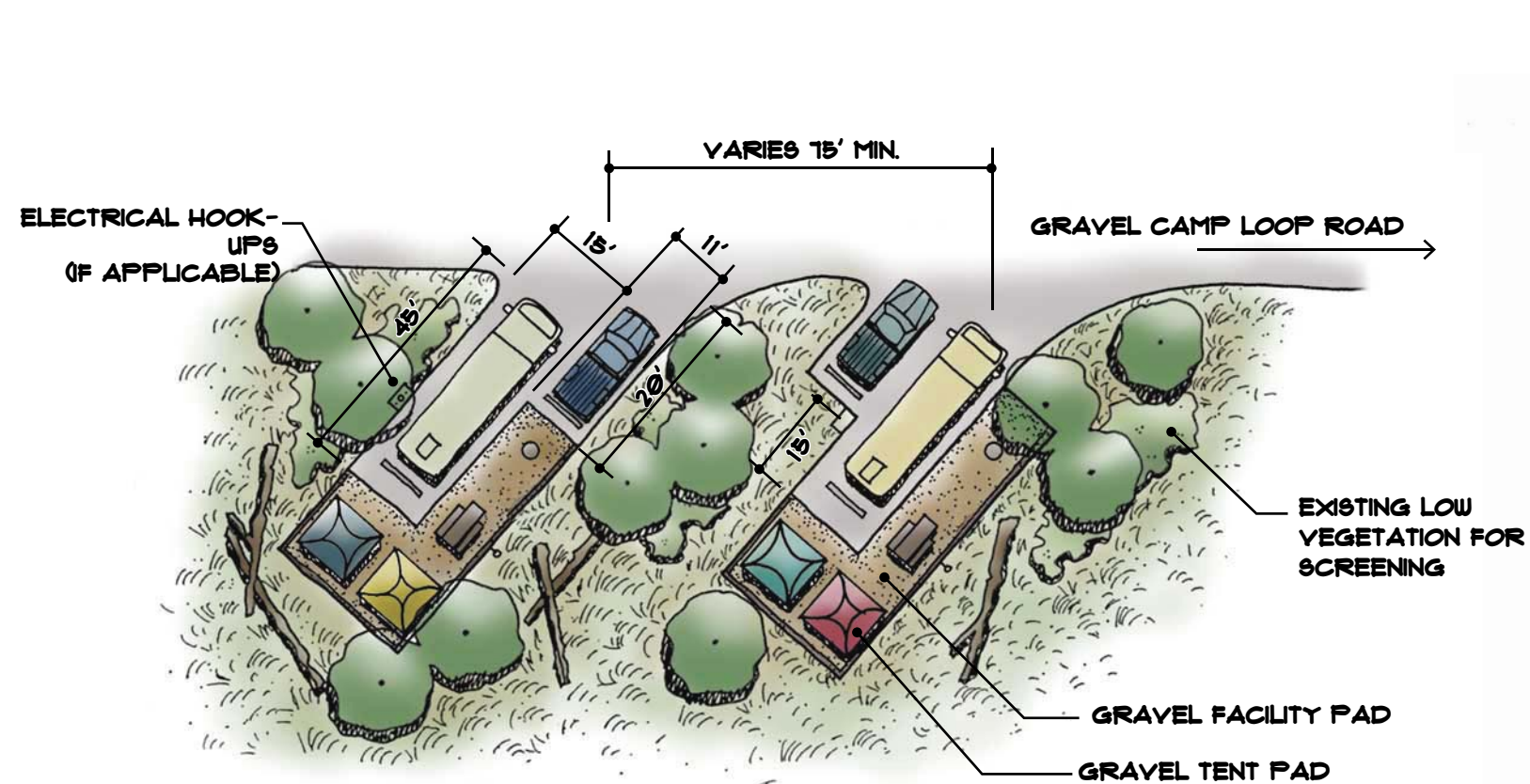


MULTI-USE CAMPGROUND FIGURE #8

EQUESTRIAN AND MULTI-USE
ACCOMMODATES EQUESTRIAN USE

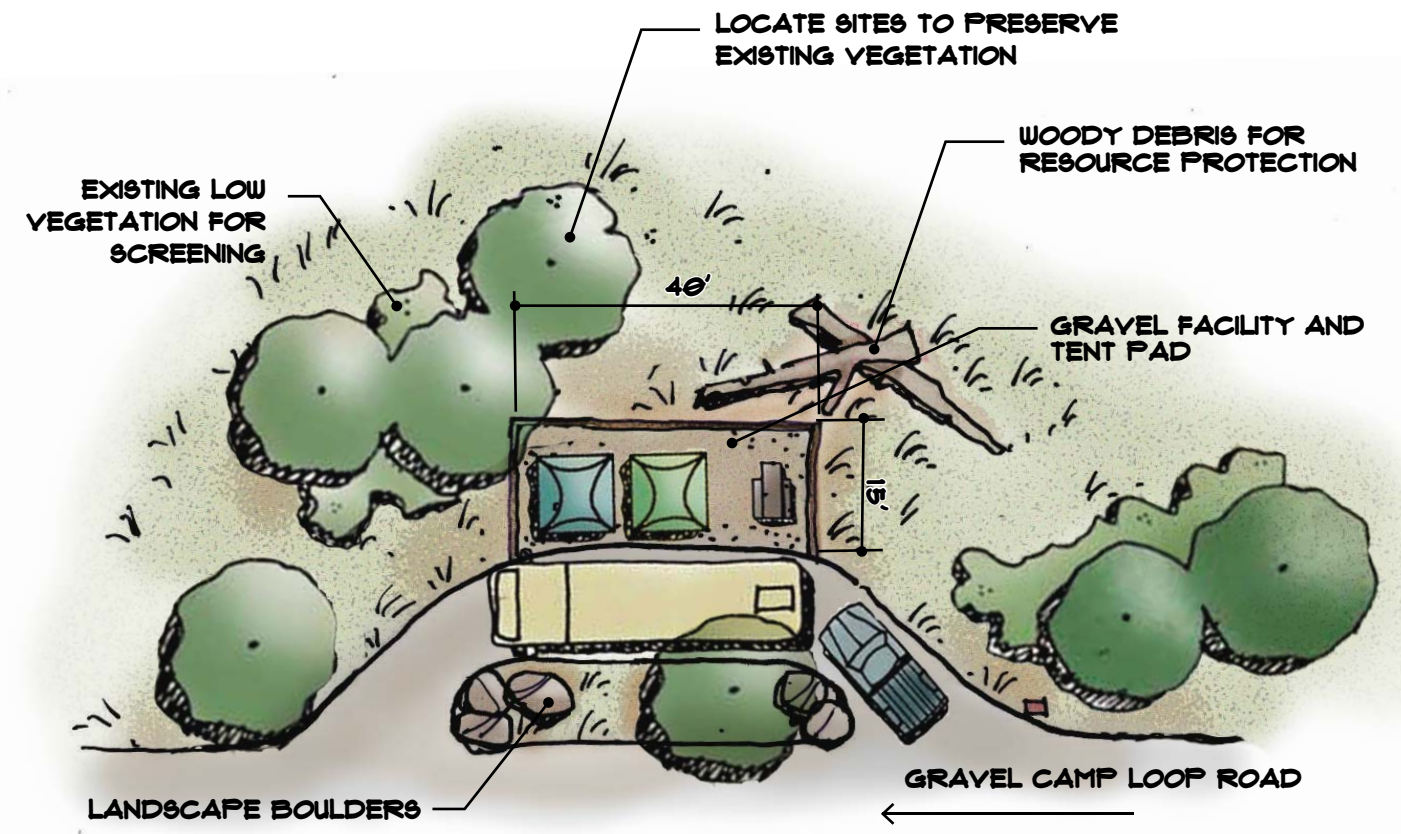
- SHARED CORRALS
- WIDENED SPURS AND PULL-THROUGHS
- 20 PULL-THROUGH AND DOUBLE VEHICLE CAMP SPURS, AND 1 HOST SITE





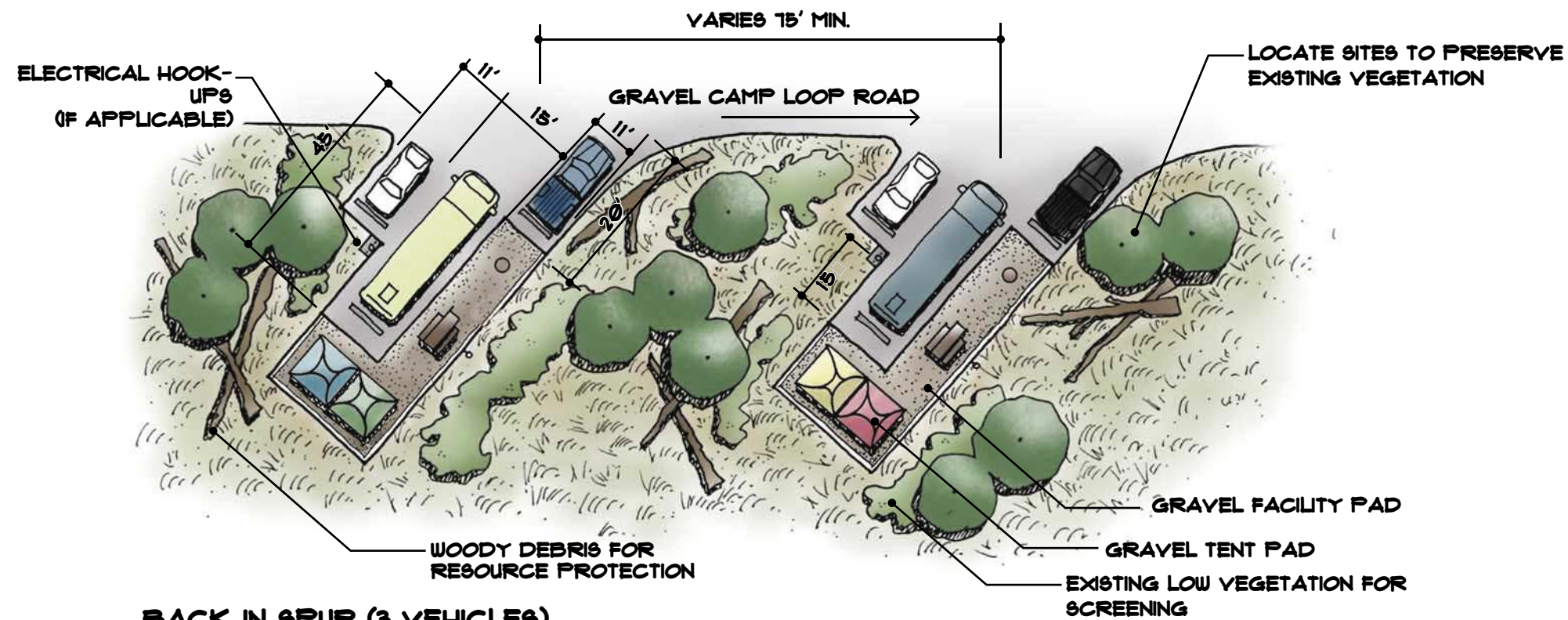
BACK IN SPUR (2 VEHICLES)

NOT TO SCALE



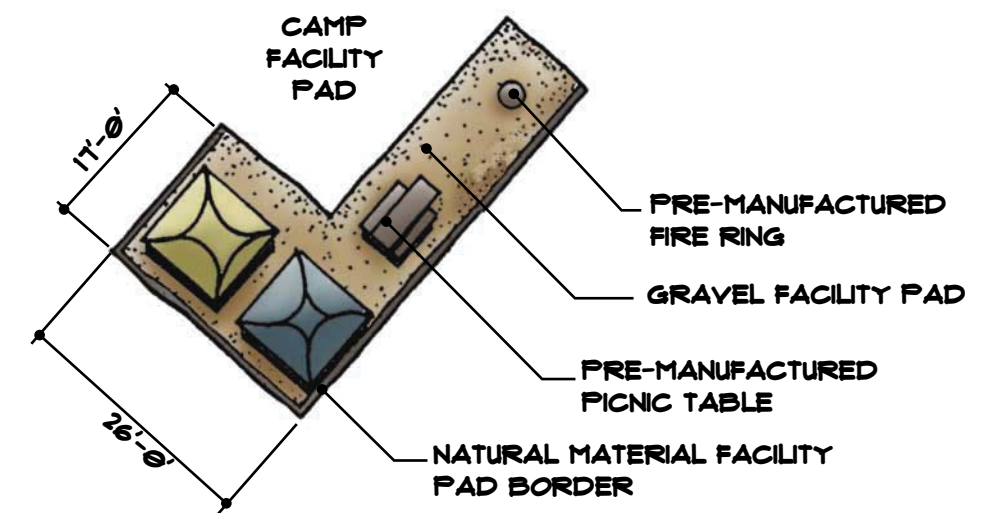
PULL-THROUGH SPUR (2-3 VEHICLES)

NOT TO SCALE



BACK IN SPUR (3 VEHICLES)

NOT TO SCALE



TYPICAL CAMP FACILITY PAD

NOT TO SCALE

Probable Cost to Develop Select Recreation Facilities

The following Preliminary Concept Plan Opinion of Probable Cost is an opinion costs for the design, planning and construction of the plan elements and areas as presented in the Pembina Gorge Specific Area Designs. Detailed costs may be found in the appendix. Assumptions utilized in the development of the estimates include:

1. The estimate is a Conceptual Plan (Class C) estimate due to the conceptual level of planning and design that is in support of this estimate. At the preliminary stages of planning and design, it is very difficult to determine the complete scope of the project in detail; programming of the project is an approximation and is based on project meetings, existing site inventory and the concepts included in this. The estimate should be used for preliminary budgeting purposes only.
2. The preliminary unit quantities are both take-offs of features from the Concept Designs as well as assumptions based on project programming and similar project experience. The assumptions are noted in the notes column of the specific estimate detail sheets.
3. The unit costs are based on cost estimate data collected from similar types of projects bid in the past few years as well as published cost data information for some project elements. The unit costs reflect unit costs typically found in a bid and construct project.
4. The estimate does not include an annual escalation factor. The costs reflect estimated costs for 2014.
5. Costs for compliance and/or mitigation permitting costs are not included.
6. Costs for land acquisition or land leasing are not included
7. The costs included for utilities are assumptions only as existing and proposed utility plans were not available.
8. Estimate Markup and Contingencies. This estimate contains a series of cost markups and contingencies that are applied to the estimate. The markups and contingencies are applied to the estimate subtotal. The following is a brief description of each of these:
 - a. Owner's Contingency. This contingency is a recommended fund that the Owner should hold aside for use during project construction. The fund can be applied to additions and or changes made during the construction process. The Owners Contingency applied to this estimate is three (3) percent of estimated construction cost.
 - b. Schematic Design Contingency. This mark-up relates to the accuracy of the estimate and completeness of the design documents on which the estimate is based. Design Contingencies are generally gradually reduced by the stage the project is in the design process, which ranges from early conceptual planning through construction documentation. This estimate is based on the Plan document which is at the preliminary stages of planning and design. At this stage in this project it is very difficult to determine the complete scope of the project in detail, therefore the design contingency is set at a fairly high percentage. The Schematic Design Contingency applied to this estimate is twenty five (25) percent of estimated construction cost.
 - c. Contractors Bid Bonds. This markup is the estimated percentage the General Construction Contractor and Subcontractors cost of bid, construction, warranty and repair bonds required by the project. The Contractors Bid Bonds markup applied to this estimate is four (4) percent of estimated construction cost.
 - d. Contractors Mobilization, General Requirements and Profit. This markup is the estimated percentage the General Construction Contractor and Subcontractors cost for mobilizing for the project, the cost of the specified general requirements and the general contractors profit markup for the project. The Contractors Bid Bonds markup applied to this estimate is ten (10) percent of estimated construction cost.

9. Design Services Allowances. This estimate, in a separate total, contains a series of allowances for professional fees and expenses for design consultants, including: planning and design services fees and expenses; special studies fees and expenses, including surveying and geotechnical investigations; and construction administration fees and expenses. These allowance markups estimate subtotal. The following is a brief description of each of these:
- Schematic Design, Design Development & Construction Documents Fees and Expenses Allowance. This markup is for Consultant planning and design services required for future design tasks required to move the project through the design process from Concept Planning through Construction Document development for construction contract bidding. This percentage will vary depending on the types of design disciplines required, the project feature that is being designed as well as the size of the design project and or project phase. The percentage utilized in this estimate is at the high end of the normal range, due to the conceptual level of project planning and the assumption that the project will be developed in numerous phases. The Schematic Design, Design Development & Construction Documents markup applied to this estimate is twelve (12) percent of estimated construction cost.
 - Construction Administration Fees and Expenses Allowance. This markup is for Consultant services in support of project construction including: project construction observations visit; review of submittals; response to questions or clarifications; development of change orders; and other many other tasks. This percentage will vary depending on the types of design disciplines required, the project feature that is being designed as well as the size of the design project and or project phase. The Construction Administration Fees and Expenses Allowance markup applied to this estimate is three (3) percent of estimated construction cost.
 - Special Studies. This markup is for Consultant services in support of project planning, design and construction and may include: geotechnical investigations; topographic and improvements surveying and mapping; materials testing; existing utility investigations and others. This percentage will vary depending on the types of special studies required for planning and design and or construction. The Special Studies Fees and Expenses Allowance markup applied to this estimate is two (2) percent of estimated construction cost.

Area	Total Construction Cost	Total Design Services	Grand Total Construction and Design
Visitors Center	\$2,567,041	\$385,056	\$2,952,097
Group Use Area	\$218,598	\$32,790	\$251,388
OHV Campground	\$661,697	\$99,255	\$760,952
Equestrian Campground	\$637,655	\$95,648	\$733,303
Texas Crossing	\$202,618	\$30,393	\$233,011
GRAND TOTAL	\$4,287,609	\$643,142	\$4,930,751

Implementation Strategy

This master plan is a long-term vision to improve and manage Pembina Gorge State Recreation Area. This plan could take up to 25 years to implement depending on funding, cooperation and popularity of the SRA. Implementation of the master plan will require cooperation and collaboration with other organizations. Land will be needed to expand outdoor recreation opportunities. It will be essential for the NDPRD and other organizations to purchase or lease private lands from willing land owners. As visitation increases and additional facilities are developed, NDPRD will need to fund more staff positions to manage these resources and provide quality service.

The following implementation table outlines a strategy to implement this master plan over time. This table lists an ideal order for actions to be implemented, but the order of these actions will largely depend on which actions are funded first and which actions other organizations choose to support. A significant investment into developing recreational facilities will be needed before visitation significantly increases. Local residents and potential visitors have shown an interest in recreating in the Pembina Gorge and this interest is expected to increase as the SRA becomes more well known. Improving information about the SRA and promoting it also has good potential to increase visitation.

To realize the vision established in this master plan, NDPRD will need to partner with several organizations. Some organizations can help fund and implement the master plan, while others can show their support and advice on management of outdoor recreation and resources. A collaboration organization or association needs to be established to assist with implementing this plan and to address issues as they come up. While it will require a significant amount of funding and commitment to implement this master plan, the returns on experience and economic development will be worth the investment. It may be beneficial to establish a non-profit organization that can raise funds and gain support to implement the master plan. It could also contribute to management of the SRA in various ways.

Organizations that could help implement the master plan and support the SRA include:

- North Dakota Parks and Recreation Department
- Town of Walhalla
- Walhalla Chamber of Commerce
- Walhalla Economic Development Office
- Cavalier County
- Pembina County
- North Dakota Forest Service
- North Dakota Game and Fish Department
- North Dakota Geological Survey
- Red River Regional Council
- Fremont Township
- SND
- North Dakota Department of Transportation

Table #7. Master Plan Implementation Priorities

Priority	Master Plan Implementation Actions	Notes
1	Establish an organization to support improvement, management and promotion of the SRA.	This organization would be facilitated by NDPRD staff and could develop into a non-profit organization. The organization would also be used to outreach with private landowners.
2	Design and build a visitor center and associated landscape	Land will need to be acquired to develop this facility.
3	Design and build a maintenance and storage facility	Land will need to be purchased to develop this facility. If possible, locate close to the visitor center.
4	Design and build campsites or a campground	Land will need to be purchased to develop this facility. Campsites and spurs can be phased-in over time as funding becomes available and demand increases. Provide a group campsite that can also be used as a special event site.
5	Establish wildlife observation and scenic overlook sites	Partner with Game & Fish to determine the best locations for these.
6	Design and build additional multi-use non-motorized trails	Expand the Lady Slipper Trail to the west. Additional land or trail easement leases will need to be acquired to significantly expand trail opportunities.
7	Develop more multi-use and single-track OHV trails	Additional land or trail easement leases will need to be acquired to significantly expand trail opportunities. Cooperate with private landowners that may be interested in providing OHV facilities on their land.
8	Develop equestrian trails	Additional land or trail easement leases will need to be acquired to significantly expand trail opportunities. Cooperate with private landowners that may be interested in providing equestrian facilities on their land.
9	Designate and manage scenic driving routes and improve destinations along the routes, including Rendezvous Region Scenic Backway	Partner with the Town of Walhalla, Fremont Township and other organizations to plan, fund, and promote these routes.
10	Improve River launch and access sites for paddling at Texas crossing, Vang Bridge, Brick Mine, and in Walhalla	Additional land or easements will be needed to provide parking, toilets, and other facilities at these sites. Road improvements will be needed to access these sites.
11	Design and develop a day use picnic and overlook site at the Pembina Trailhead	The existing multi-use trail may need to be realigned to create a space for this use.
12	Designate new snowmobile routes and improve existing routes.	Partner with the North East Snowmobile Club Association and other organizations to plan, fund, and promote these routes.
13	Trail grooming for winter non-motorized recreation	Purchase grooming equipment and groom some existing trails for winter non-motorized recreational use. Phase in groomed trails as demand increases.
14	Develop boat-in/ hike-in campsites along the Pembina River	Develop a few camp sites and analyze their use level and maintenance to understand value versus cost
15	Designate and manage OHV loop routes on Township roads	Partner with the Town of Walhalla and other organizations to plan, fund and promote these routes.
16	Develop cabins or yurts as lodging in the area	These could be provided in the SRA campground or could be developed by private landowners. These structures could attract visitors that would not otherwise be interested in camping.

Contributors

This publication was prepared by the North Dakota Parks and Recreation Department with support from Great Outdoors Consultants (lead), Robert Peccia and Associates and Red Canoe LLC. A special thanks to Mark Zimmerman, Director of NDPRD, for his support and leadership in making this master plan a reality. All organizations and individuals that contributed are thanked for their input and dedication to implementing the master plan.

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ACRONYMS

ADA	Americans with Disabilities Act
ATV	All-terrain Vehicle
EIS	Environmental Impact Statement
Gorge	Pembina River Gorge
NDGF	North Dakota Game and Fish
NDGS	North Dakota Geological Survey
NDNHI	North Dakota Natural Heritage Inventory
NDPRD	North Dakota Parks and Recreation Department
NESCA	Northeast Snowmobile Club Association
OHV	Off-Highway Vehicle
PGSRA	Pembina Gorge State Recreation Area
ROV	Recreational Off-Highway Vehicle (aka side-by-side)
SCORP	State Comprehensive Outdoor Recreation Plan
SND	Snowmobile North Dakota
SRA	State Recreation Area
USGS	United States Geological Survey
VC	Visitor Center
WMA	Wildlife Management Area

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Pembina Gorge State Recreation Area Public Recreation Survey

Summary Results



**Conducted in Support of the
Pembina Gorge State Recreation Area Master Plan**

August 2014

**Great Outdoors
Consultants**



Red Canoe, LLC

Visitor and public surveys (or questionnaires) are a useful and efficient instrument to collect data and information from a visitor population regarding demand and generalized opinions and preferences for recreational opportunities (e.g., access, activities, facilities, programs, services such as a visitor center, etc.). Great Outdoors Consultants, in cooperation with Red Canoe, LLC and North Dakota Parks and Recreation Department (NDPRD), implemented a broad public recreation survey to collect resident and visitor input that will inform the development of the Master Plan for the Pembina Gorge State Recreation Area (SRA). The public recreation survey was intended to augment the other public and stakeholder actions (e.g., public meetings, stakeholder interviews, etc.) completed as part of the Master Plan development process.

The Great Outdoors Consultant team (including staff from NDPRD and Red Canoe, LLC) developed the questions included on the public recreation survey. The team reviewed other statewide recreation surveys and pertinent reports for consistency in the types and wording of questions. These other statewide recreation surveys and reporting efforts included the following:

- 2013-2017 North Dakota State Comprehensive Outdoor Recreation Plan (household survey component)
- 2013-2017 North Dakota State Comprehensive Outdoor Recreation Plan Recreational Trail Needs
- North Dakota Parks and Recreation Department Off-Highway Vehicle Program 2012-2016 Strategic Plan and Research Study
- North Dakota Snowmobile Program Strategic Plan 2013-2017

While these sources were reviewed for questions and wording, the questions used on the public recreation survey were specifically tailored for the master planning effort.

The Pembina Gorge SRA Master Plan public recreation survey was administered on-site (at the Pembina Gorge trailhead) and using a web-based survey tool. Both the on-site and online survey forms consisted of similar questions; the specific questions included in each version of the survey are provided in Appendix 1. On site or field-based surveys are an efficient way to target existing visitors to an outdoor recreation area, while Internet surveys are an efficient and effective method to administer a general public input survey, in particular as more and more households gain convenient access to the Internet through home computers and other connected devices (e.g., smartphones, tablets, etc.). Internet accessibility rates are particularly high in North Dakota (84 percent of individuals live in a household that accesses the internet), as well as neighboring Minnesota (87.7 percent) and Manitoba (79.9 percent) (US Census Bureau 2012; Statistics Canada 2013).

The Internet-based Pembina Gorge public recreation survey was available for participation between May 16 and July 4, 2014. The survey was completely open; that is, anyone with the survey link could participate in the survey (this type of broad, open methodology was used since an identifiable visitor population was not readily available for a closed, sample-driven

survey). While this open methodology limits statistical representation (between the sample population and the entire visitor population), it does not reduce the value of the survey results. The opinions of participants, including special interest and stakeholder groups, provide key insight into the needs and preferences of specific user populations. These specific needs and preferences are valuable in crafting a master plan that is responsive and inclusive of all visitors.

In addition to the Internet-based survey, NDPRD and Great Outdoors Consultants staff administered the survey to visitors to Pembina Gorge SRA on five days, including May 17, 18, 24, 25, and 26 (Memorial Day). NDPRD also administered several on-site surveys in June. During these on-site survey implementation dates, all visitors to the Pembina Gorge SRA trailhead were informed about the Master Plan process and provided the opportunity to participate in the survey. In general, more than 80 percent of visitors to Pembina Gorge SRA on these dates agreed to and completed a survey.

Results from the Pembina Gorge SRA public recreation survey are presented below. The completed surveys and associated results represent a snapshot in time of (existing and potential new) visitor needs and preferences. They are one data point that should be considered alongside other available information, public input from stakeholder meetings, and the professional judgment, experience, and outlook of NDPRD staff in the development of the Pembina Gorge SRA Master Plan.

Pembina Gorge Public Recreation Survey Results

Participation Summary

In total, 413 visitor surveys were submitted between May 16 and July 4, 2014, including 335 online and 78 onsite surveys. Of these, 381 or about 92 percent were usable surveys; that is, visitors completed more than the first survey question (unusable surveys were generally blank except for the first question). Most (31) of the unusable surveys were submitted online. Only one on-site survey was unusable. The summary results presented below are specific to the 381 usable surveys that were collected during the implementation time period.

In social science and specifically recreation research, a participation population of 381 is typically adequate to make reliable statistical inferences (e.g., 95 percent confidence level, 5 percent sampling error, etc.) about a target visitor population (even if that target population includes 1,000,000 or more visitors). As such, the 381 completed Pembina Gorge public recreation surveys is likely adequate to make generalizations about the entire visitor population. This is not to imply that the survey was specifically designed to meet statistical reliability targets. As noted above, since the visitor population size was unknown prior to implementation of the public recreation survey, a broad methodology was used to encourage participation. The tradeoff of this broad methodology is the potential introduction of participation (e.g., one subgroup dominates participation) and other forms of bias. As such, the public recreation survey results should be reviewed and assessed comprehensively with the other public input elements of the Master Plan process.

Summarized Results

The following tables and figures present summarized results from the Pembina Gorge State Recreation Area (SRA) Master Plan Recreation Visitor Survey. Summary results are presented by question. Where appropriate, the summary results are presented separately for the on-site and online version of the survey. In general, the survey results for online and on-site survey participants were similar, indicating that these visitor population subgroups were not substantially different in their visitation patterns, preferences, and needs.

For questions with open-ended responses, participants' qualitative responses are summarized below. Verbatim, non-summarized responses are provided in Appendix 2.

Have you been to Pembina Gorge in the previous 12 months?

In general, a majority of survey participants had been to the Pembina Gorge SRA in the previous 12 months (Figure 1).

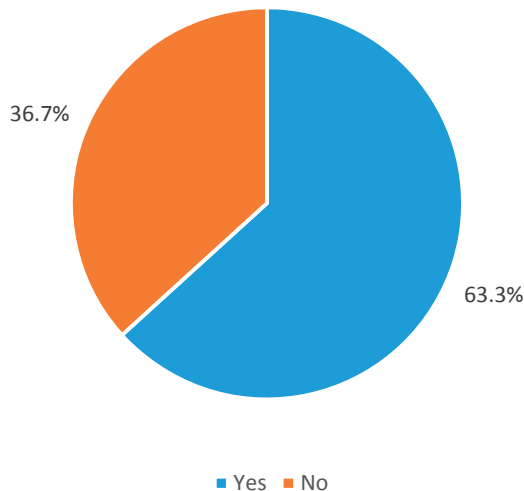


Figure 1. Visitation to Pembina Gorge SRA in the Previous 12 Months.

Online survey participants were more likely than on-site participants to have visited the Pembina Gorge SRA in the previous 12 months (Figure 2). Based on anecdotal discussions with on-site visitors, many stopped at the Pembina Gorge SRA on their way to another destination or out of curiosity (e.g., they had heard about the site, but had not previously visited).

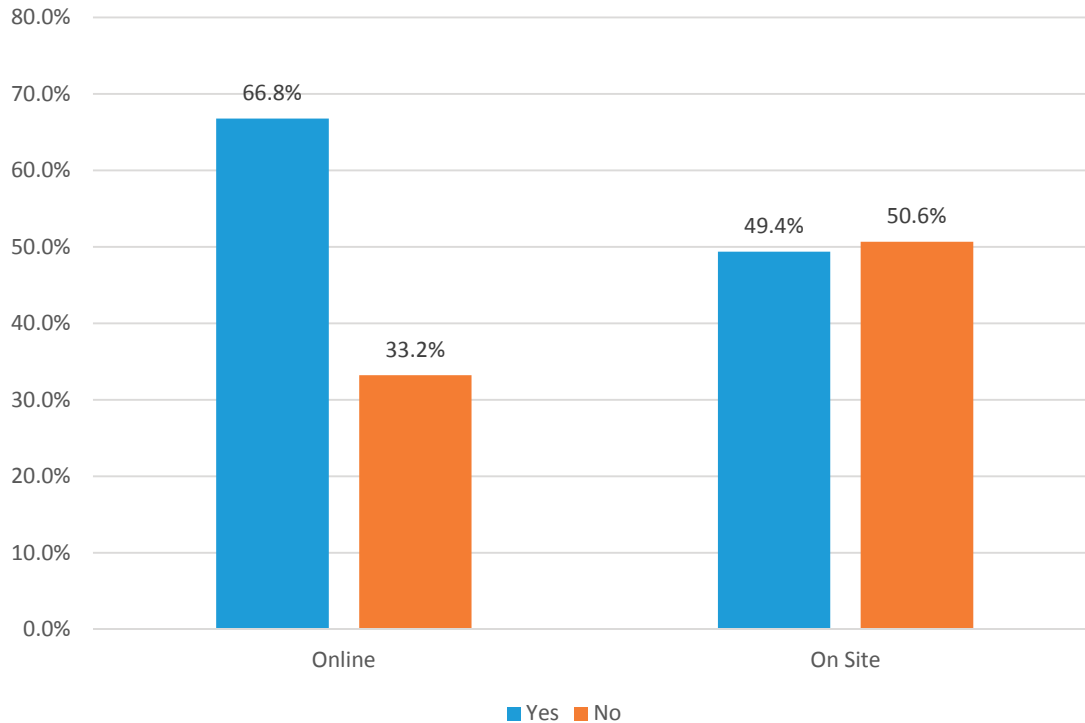


Figure 2. Previous Visitation Online vs. Onsite Comparison.

Participants who responded “No” to Question 1 were asked several additional questions about their familiarity with the Pembina Gorge SRA, as well as their general recreation habits and preferences. Summary responses from these questions are provided below.

[Q1 = No] If No (to Question 1), are you familiar with Pembina Gorge and its recreation opportunities?

A majority of survey participants (72.3%) who had not been to Pembina Gorge in the previous 12 months were familiar with the area and its recreation opportunities (Figure 3).

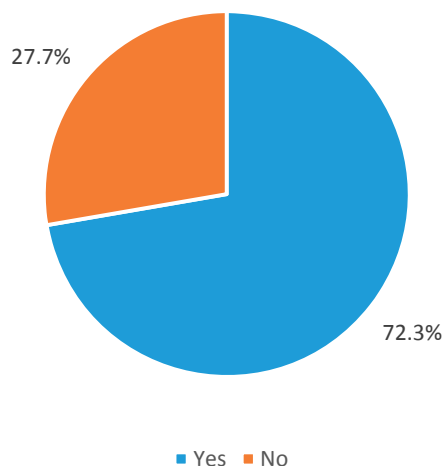


Figure 3. Familiarity with Pembina Gorge SRA.

[Q1 = No] How likely are you to visit Pembina Gorge in the next 12 months?

Slightly less than 50 percent of participants (who responded “No” to Question 1) were highly likely or definitely planning to visit Pembina Gorge in the next 12 months (Figure 4).

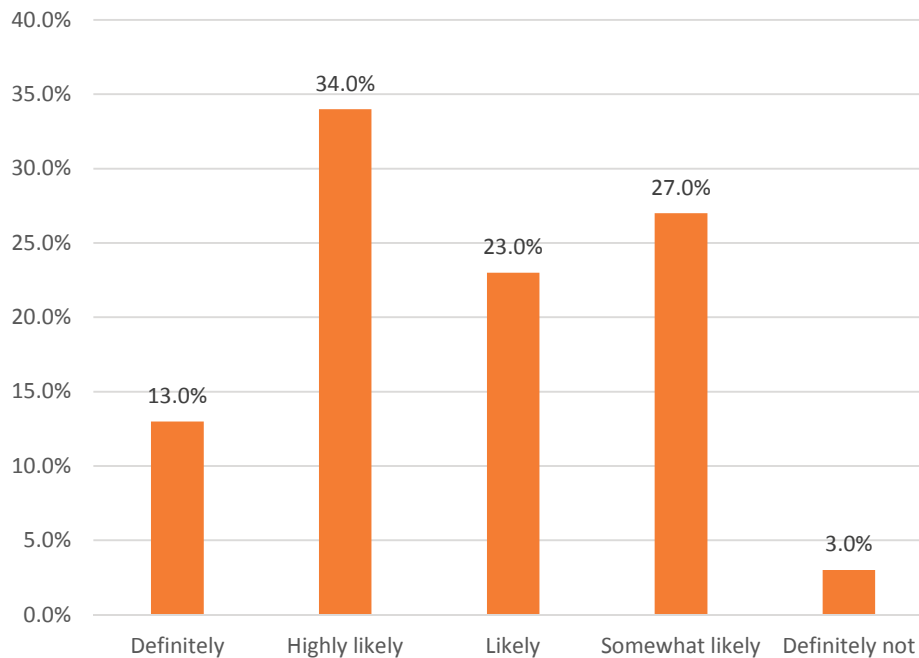


Figure 4. Likelihood of Visiting Pembina Gorge in the next 12 months.

[Q1 = No] If NDPRD could do one thing at Pembina Gorge to encourage your visit, what would it be?

Twenty-five participants (who responded “No” to Question 1) provided a response to this question. Their open-ended, qualitative responses have been summarized and grouped into the categories below (number in parentheses indicates number of responses).

- Improve/expand the trail system (11)
- Add camping (5)
- Advertise and provide more information (4)
- Add horse-related amenities/opportunities (3)
- Make it a State Park (2)

[Q1 = No] What activities do you typically participate in at any outdoor recreation area?

More than 40 percent of survey participants who responded “No” to Question 1 indicated that they typically participate in camping, equestrian (horse) use, hiking and scenic driving, respectively (Figure 5). The percentages listed in Figure 5 total to more than 100 percent since participants could check all activities that they typically participate in.

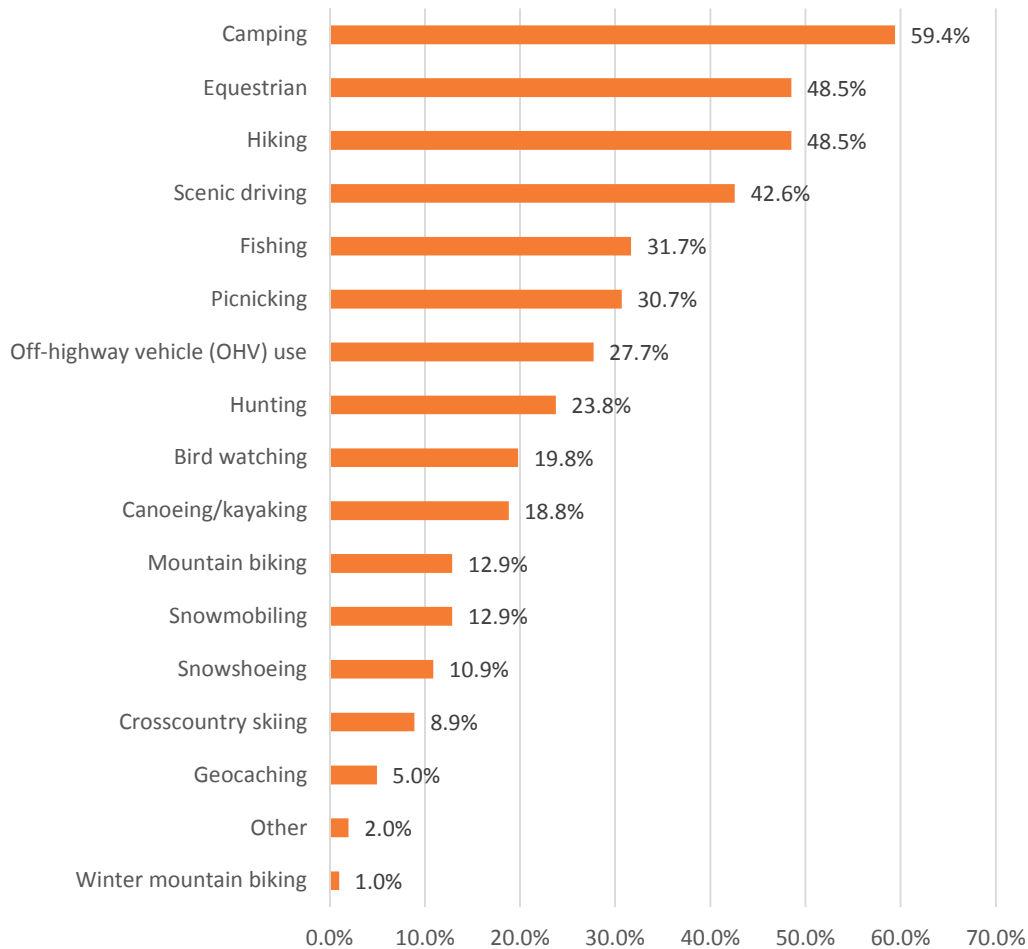


Figure 5. Typical Outdoor Recreation Activities of Survey Participants (who have not been to Pembina Gorge in the previous 12 months).

“Other” responses to this question included: downhill skiing (1 response) and rock climbing (1 response).

[Q1 = No] When choosing an outdoor recreation area or site, what facilities or amenities are important in your decision?

More than 60 percent of participants who responded “No” to Question 1 indicated that both restrooms and campgrounds, respectively, were important in their decision regarding where to recreate (Figure 6). Additionally, more than 40 percent of participants (who responded “No” to Question 1) indicated that equestrian trails and equestrian parking and other facilities, respectively, are important in deciding where to visit. The prevalence of equestrian-related facilities/amenities is likely related to the high percentage of equestrian users who responded “No” to Question 1 (nearly 50%).

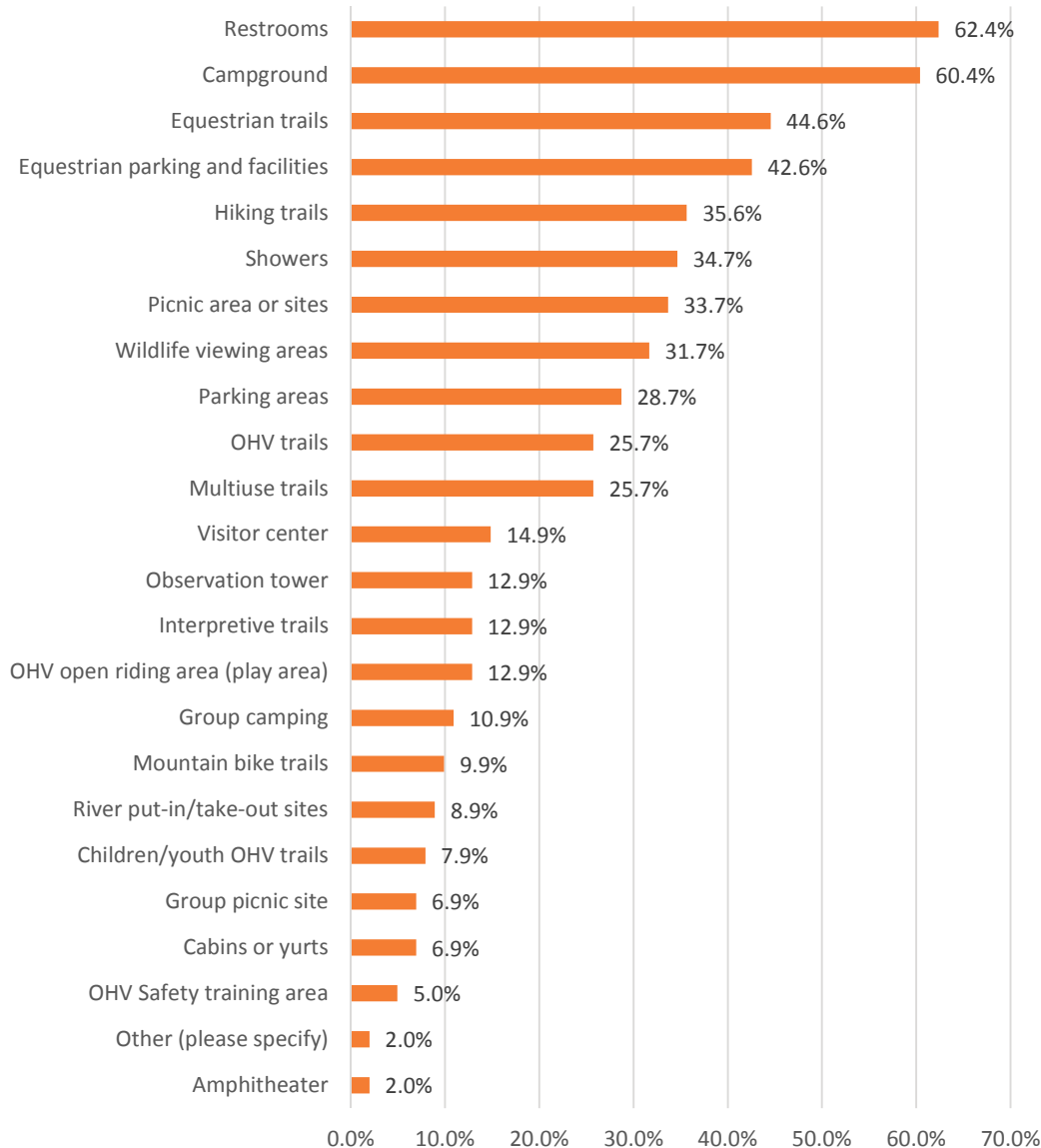


Figure 6. Preferred Outdoor Recreation Facilities and Amenities of Survey Participants (who have not been to Pembina Gorge in the previous 12 months).

This was the final question specific to participants who answered “No” to Question 1. The remaining survey questions (as provided below) were specific to those participants who responded “Yes” to Question 1, unless noted otherwise.

If Yes (to Question 1), about how many times?

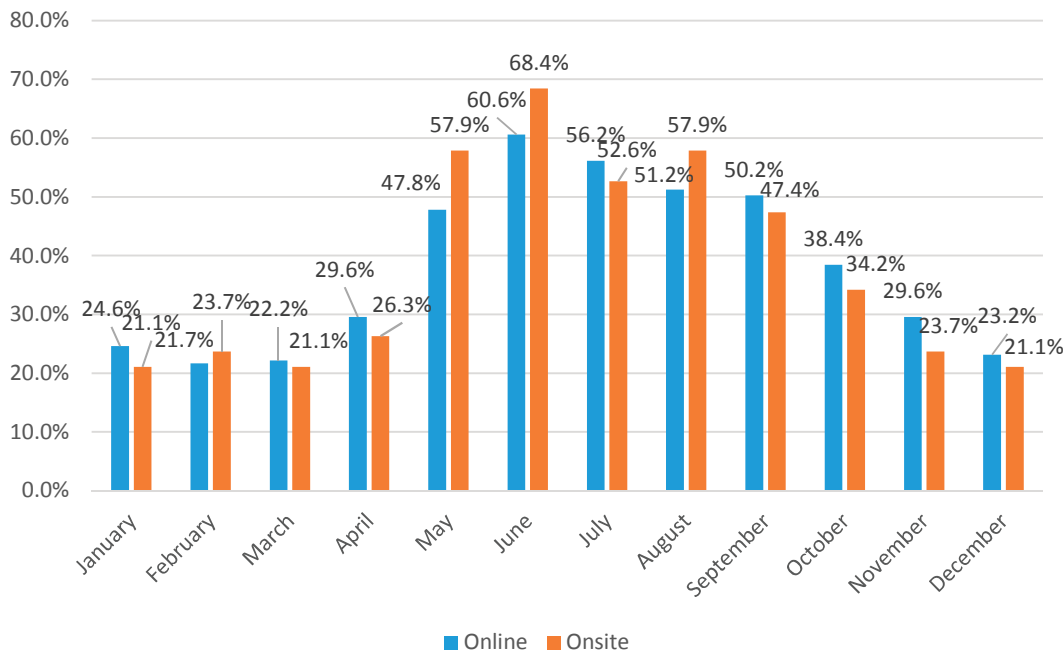
Table 1 below lists the minimum, maximum, average, and median number of visits by survey participants to Pembina Gorge in the past 12 months. The values in the first column (“All Responses”) were calculated based on all 217 responses. The values in the second column (“Outliers Removed”) were calculated using the same response pool, though exclude the 7 participants who provided responses of 75 or more visits.

Table 1. Number of Trips to Pembina Gorge by Survey Participants.

	All Responses	Outliers Removed
Minimum	1	1
Maximum	365	50
Average	12.3	7.1
Median	4	4

During what months did you visit Pembina Gorge? (check all that apply)

The highest visitation to Pembina Gorge by survey participants (both online and on-site) tended to be between the months of May and September (Figure 7). This generally coincides with the summer season, when many outdoor recreation sites and areas (in particular in areas with defined seasonality) experience an increase in visitation due to favorable weather and summer vacations. Visitation levels tended to be lower through the fall, winter, and spring seasons.

**Figure 7. Monthly Visitation to Pembina Gorge by Survey Participants.**

Online survey participants were slightly more likely than on-site participants to have visited the Pembina Gorge SRA during most months, though on-site participants did report slightly higher visitation levels in February, May, June, and September (Figure 7). The higher visitation levels in May and June may be due to the timing of the on-site survey (primarily in May and June).

What other regional recreation areas have you visited in the past 12 months?

Participants were provided with a list of other regional recreation areas that they may have visited in the past 12 months. Of these regional recreation areas, about a third of survey participants visited Icelandic State Park (Figure 8). Since the Pembina Gorge SRA does not

have camping opportunities, Icelandic State Park is a popular camping destination for some visitors to Pembina Gorge. Additionally, Icelandic State Park is connected to Pembina Gorge via the the Rendezvous Region Backcountry Byway that encourages and facilitates travel between the two sites.

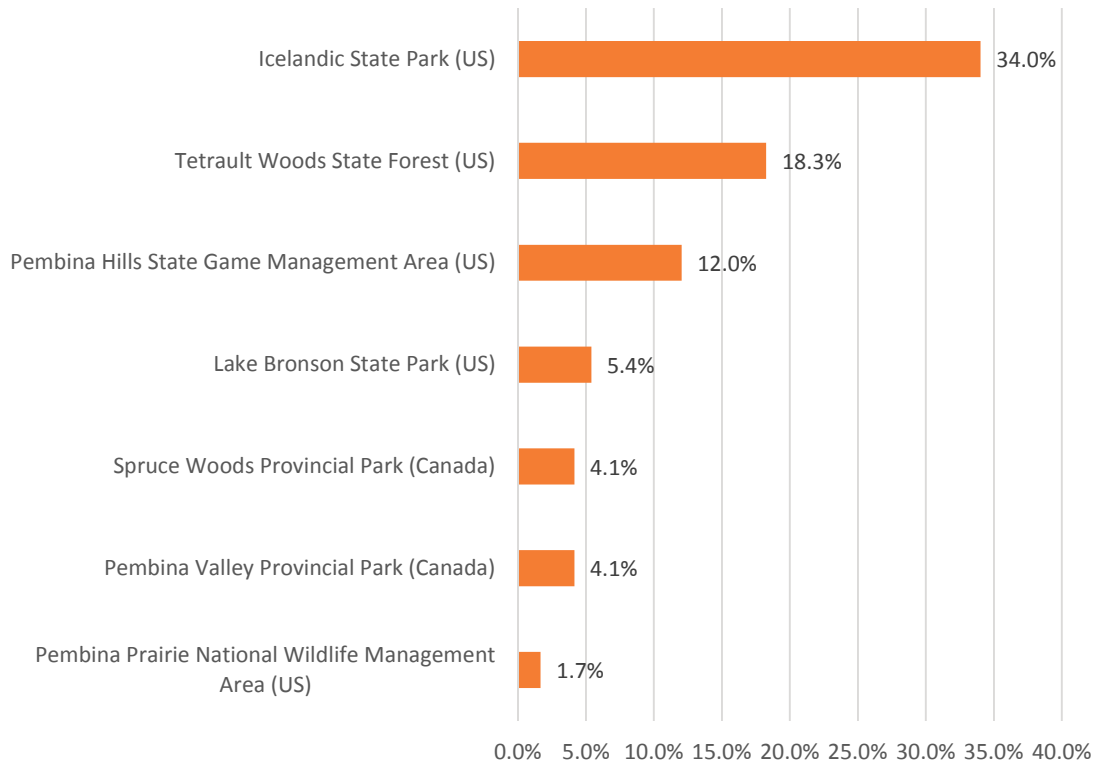


Figure 8. Regional Recreation Area Vistation by Survey Participants.

Only those regional sites that were checked by at least one survey participant are displayed in Figure 8. No participants indicated that they had visited two of the regional sites that were listed on the survey form. These sites include the Juhl and Houghton National Wildlife Management Areas.

What activities do you typically participate in at Pembina Gorge?

The Pembina Gorge SRA offers a variety of outdoor recreation opportunities throughout the year. Nearly half of the survey participants indicated that they either participate in scenic driving and/or off-highway vehicle (OHV) use at Pembina Gorge (Figure 9). Other popular activities among survey participants include hiking, equestrian use, hunting, snowmobiling, and canoeing/kayaking.

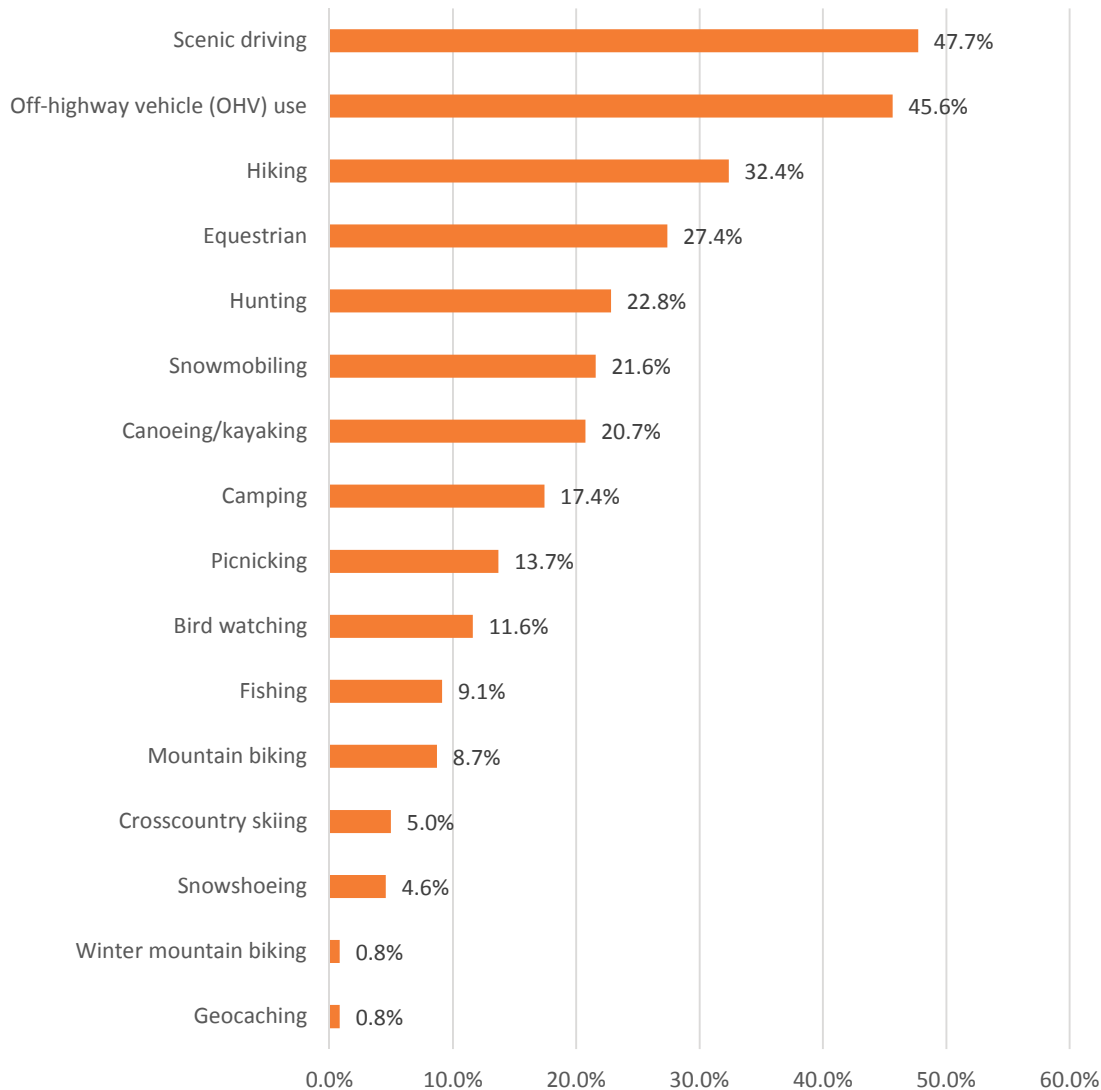


Figure 9. Common Activities at Pembina Gorge Among Survey Participants.

Since survey participants could indicate more than one activity to this question the values in Figure 9 total more than 100 percent. The distribution of responses (no single activity dominates) is indicative of the variety of recreation opportunities at Pembina Gorge, as well as visitor preferences for these different activities (as opposed to just a few).

There were several differences between online and onsite survey participants to the typical activity question. As displayed on Figure 10, a greater number of online participants tended to participate in several activities compared to on-site participants (more than a 5 percent participation difference between the two groups). These activities include: scenic driving, equestrian, hunting, camping, and fishing. Notably, equestrian survey participants only participated via the online survey (i.e., no on-site survey participants reported equestrian use as one of their typical activities at Pembina Gorge). Conversely, on-site participants reported

higher levels of activity participation compared to online participants for the following activities: OHV use, hiking, canoeing/kayaking, mountain biking, and winter mountain biking.

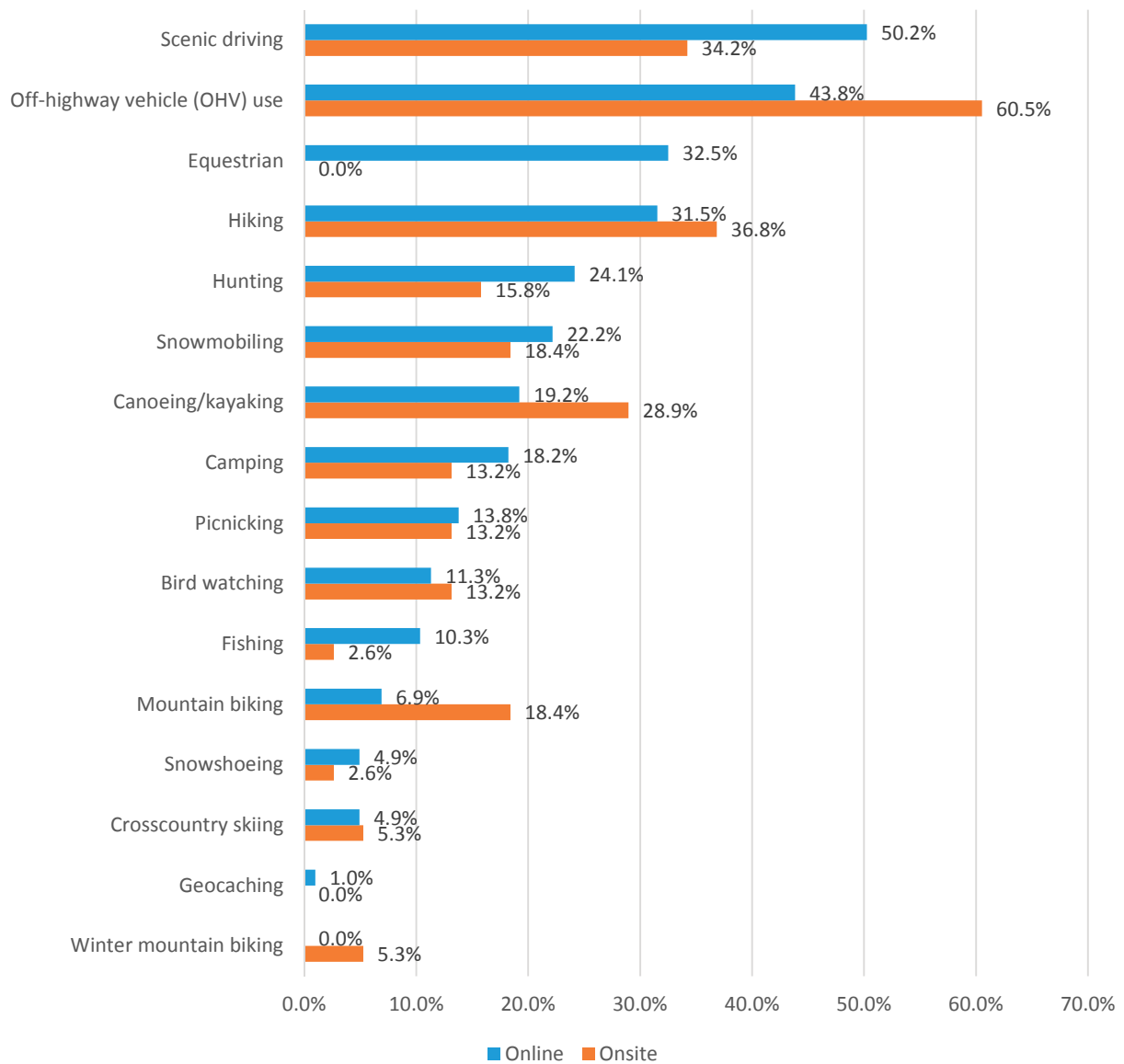


Figure 10. Common Activities at Pembina Gorge Among Online and On-Site Survey Participants.

What was/is your primary activity on your last trip/today's trip to Pembina Gorge?

Survey participants were also asked about the primary activity they participated in during their last (for online participants) or current (for on-site participants) visit to Pembina Gorge. Over a third of survey participants indicated that OHV use was their primary activity on their last/current visit to Pembina Gorge (Figure 11). Other primary activities included equestrian use, scenic driving, and hiking. All of these activities are provided and encouraged at Pembina Gorge.

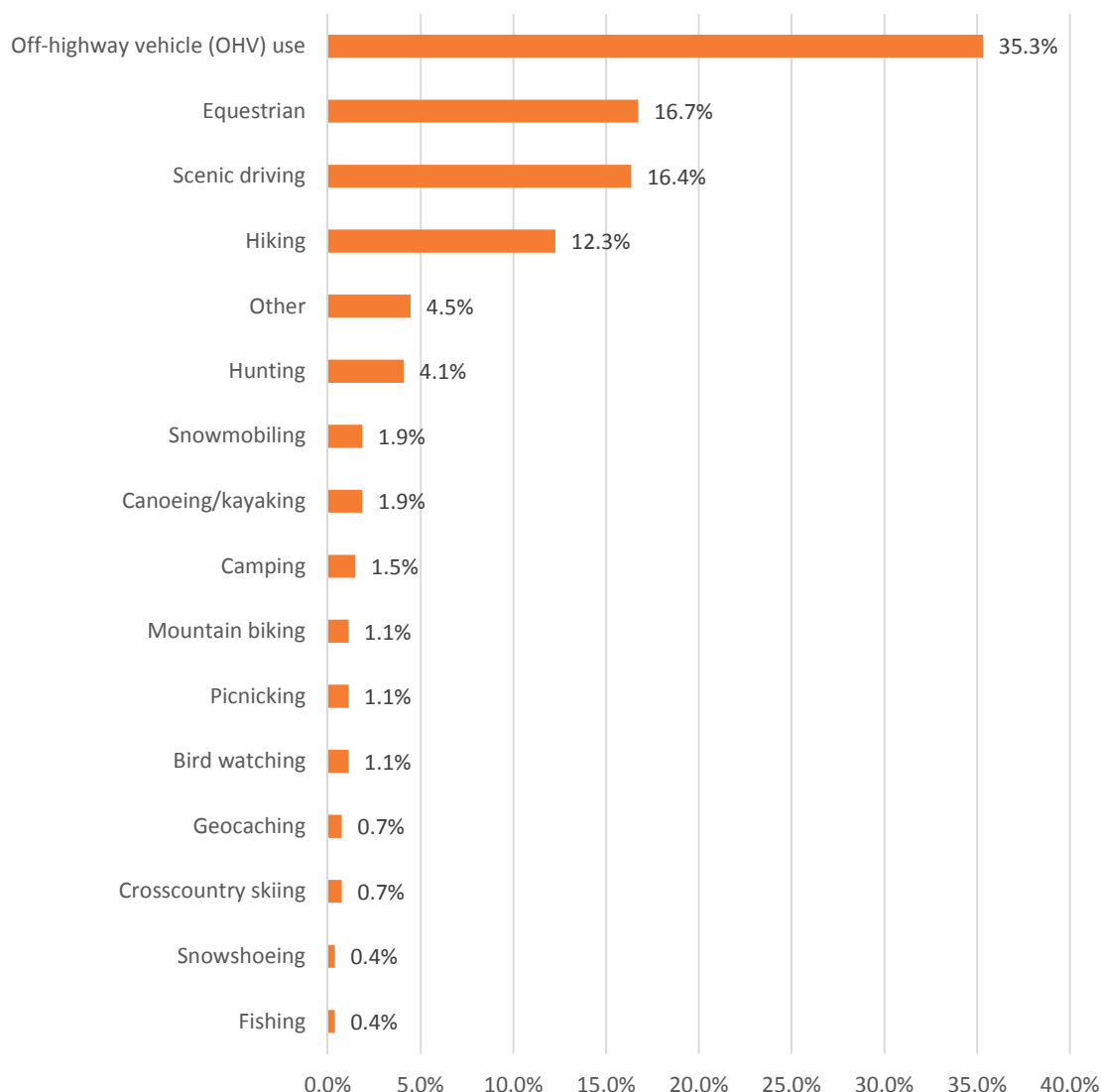


Figure 11. Primary Activities of Survey Participants at Pembina Gorge.

“Other” responses to this question included adventure racing, downhill/alpine skiing, golf, trail running, star gazing, general enjoyment, and a family gathering.

The top primary activities of online and on-site survey participants were nearly identical. The primary difference between the two subgroups was equestrian use. For online participants, equestrian use was the second most identified primary activity (top five primary activities:

OHV use, equestrian use, scenic driving, hiking, and hunting). For on-site participants, equestrian use was not in the top five most identified primary activities (top five primary activities: OHV use, hiking, scenic driving, other, and mountain biking).

On your last trip/this trip to Pembina Gorge were you/are you alone or with a group?

The majority of survey participants (85.3%) visited Pembina Gorge as part of a group (i.e., not alone) (Figure 12).

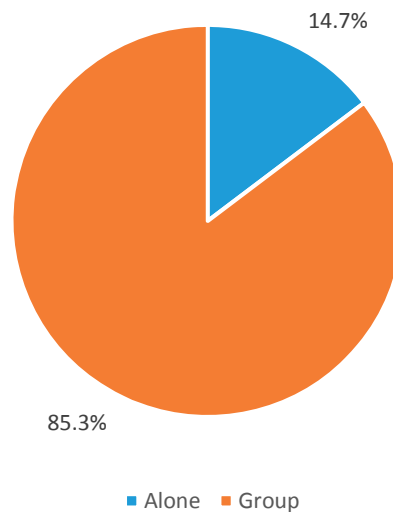


Figure 12. Solo vs. Group Visits to Pembina Gorge by Survey Participants.

If “with a group,” how many people were/are in your group?

Table 2 below lists the minimum, maximum, average, and median group size of survey participants (who indicated they were not along on their last/current visit) to Pembina Gorge. The values in the first column (“All Responses”) were calculated based on all 272 responses to this question. The values in the second column (“Outliers Removed”) were calculated using the same response pool, though exclude the 10 participants who provided responses of 40 or more. Note, the maximum group size (100), as well as several other high values were provided by survey participants who were contacted during a special event (adventure race) at Pembina Gorge SRA.

	All Responses	Outliers Removed
Minimum	1	1
Maximum	100	30
Average	8.8	5.9
Median	4	4

On your last trip/this trip to Pembina Gorge did you/are you spend(ing) the night in the area?

About one third of survey participants reported spending the night in the area during their last/current visit to Pembina Gorge (Figure 13). Slightly more than a quarter of survey participants indicated that they did not spend the night in the area (i.e., they are day users only). A plurality of survey participants (42 percent) reported being local and thus while they spent the night in the area (likely at their residence), they are day users only at Pembina Gorge. In total, about two-thirds of survey participants are day users at Pembina Gorge (combined “No” and “No, I’m a local” response categories).

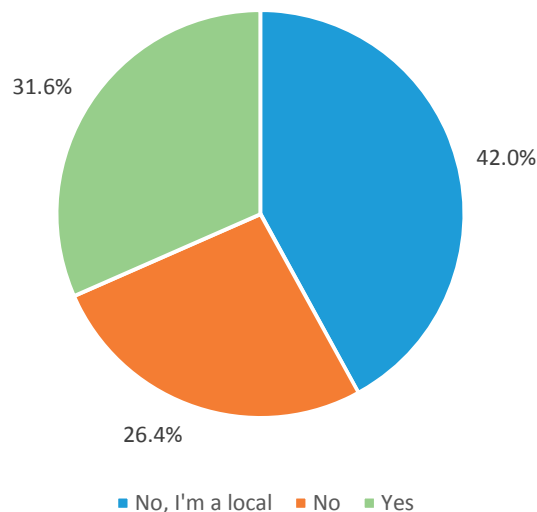


Figure 13. Survey Participants who Spend the Night in the Area.

If “Yes” (to spending the night in the area), what type of lodging did you use/are you using?

For the third of survey participants who reported spending the night in the area, the majority indicated an “other” response for the type of lodging they used on their last/current trip to Pembina Gorge (Figure 14). The majority of “other” responses included “staying with family” and other camping locations (e.g., dispersed camping, camping on private property, etc.). Nearly a quarter of survey participants (who reported spending the night in the area) indicated they spent the night at a hotel/motel.

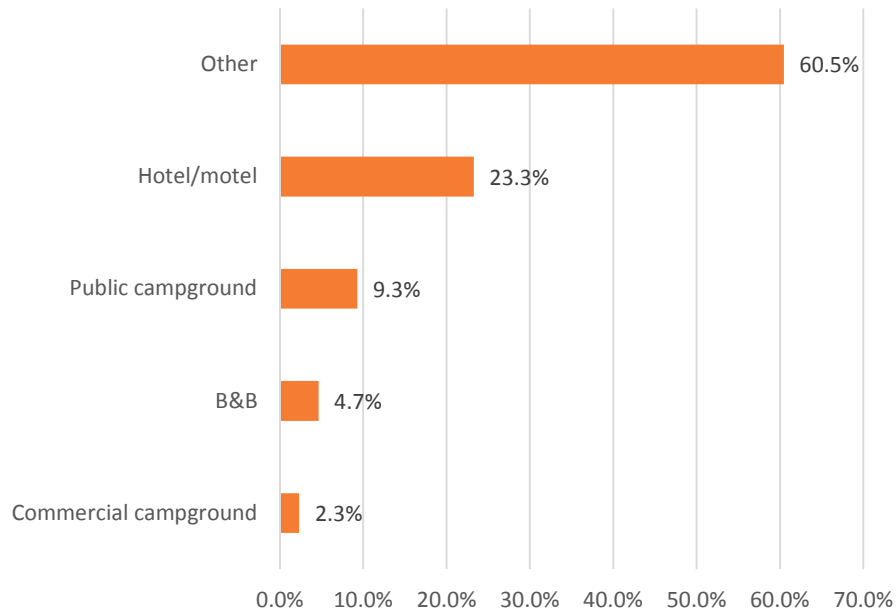


Figure 14. Overnight Lodging Types of Survey Participants.

Are the current recreation facilities and amenities provided at Pembina Gorge adequate to meet your needs?

A slight majority of survey participants indicated that the current recreation facilities and amenities provided at Pembina Gorge are adequate to meet their needs (Figure 15).

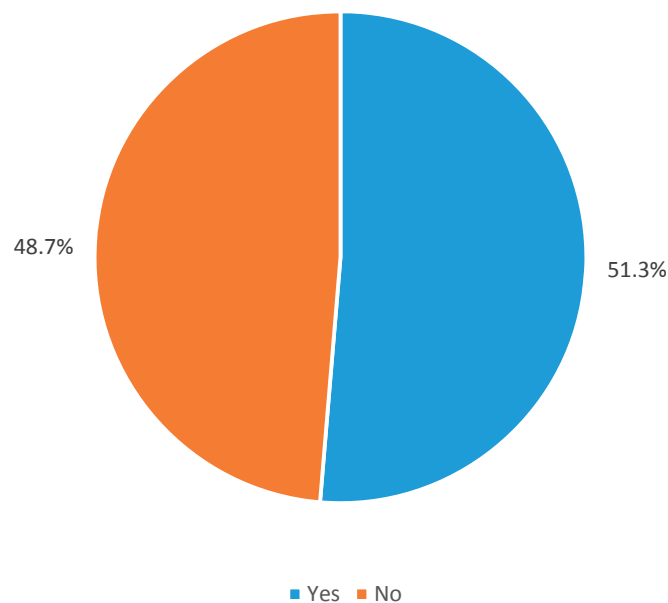


Figure 15. Adequacy of Recreation Facilities and Amenities at Pembina Gorge.

If “No,” why not?

Survey participants who indicated that the current recreation facilities and amenities at Pembina Gorge are not adequate to meet their needs were then asked to describe why the facilities and amenities are not adequate. Survey participants’ open-ended, qualitative responses have been summarized and grouped into the categories below (number in parentheses indicates number of responses).

Trail-specific Needs (26)

- Larger trail network/more trails (7)
- More OHV trails (4)
- More hiking trails (4)
- Single track dirt bike trails (3)
- More non-motorized trails (2)
- Biking/mountain biking trails (2)
- Groomed crosscountry ski trails (2)
- More/improved snowmobile trails (3)
- Downhill mountain bike trails (1)

Trail-related Needs (9)

- Better trail maintenance (2)
- Open trails to other types of vehicles (1)
- Designate trails for specific activities (1)
- Add a length limit on vehicles (1)
- Install guard rails on steep drop offs (1)
- Provide wider trails (3)

Camping/Overnight Needs (27)

- Campground/camping facilities (24)
- Small, primitive camp sites (1)
- More overnight facilities (1)
- Full service hotel (1)

Equestrian Needs (40)

- Camping (14)*
- Corrals (11)*
- Parking (9)
- Improved equestrian trails (5)
- Water for horses (1)

* Survey participants typically identified both camping and corrals in the same statement of need.

Information and Education Needs (18)

- Better/more signage (8)
- More promotion/information about the area (4)
- Interpretive/visitor center (4)
- Maps (2)

Other Facility/Amenity Needs (23)

- Restrooms (3)
- Picnic area/sites (3)
- Drinking water (2)
- Road to Texas Crossing (2)
- Improved canoe/kayak put-ins (2)
- Better fishing (2)
- Zip line (1)
- Garbage/trash receptacles (1)
- Benches (1)
- More scenic views (1)
- Disc/Frisbee golf (1)
- Mud bog for OHV use (1)
- Improve (pave) access roads (1)
- Showers (1)
- Dam (1)

Of the facilities and amenities listed below, which would you like to see added to Pembina Gorge?

In addition to the adequacy of facilities and amenities question, survey participants were also asked to identify (from a list) which facilities and amenities they would like to see added to Pembina Gorge. A majority of survey participants indicated that they would like to see a campground added to Pembina Gorge (Figure 16). This is similar to the identified need for both camping and equestrian-specific camping from the previous question. Other desired facilities and amenities included restrooms (47.7 percent), picnic area/sites (43.2 percent), a visitor center (32.8 percent), and several types of trails (OHV trails, 32.8 percent; hiking trails, 30.7 percent; and equestrian trails, 30.3 percent).

Both recent visitors to Pembina Gorge (i.e., those participants who had visited Pembina Gorge in the previous 12 months) and other participants (i.e., those participants who had not visited Pembina Gorge in the previous 12 months) were both asked about their recreation facility and amenity preferences and needs (see Page 6, Figure 6). “Other participants” were more likely to want several types of recreation facilities and amenities compared to recent visitors (Figure 16). These include: restrooms, hiking trails, equestrian trails, equestrian parking and facilities, showers, wildlife viewing areas, and parking areas. Since these other participants had not been to Pembina Gorge in the previous 12 months, they may be unaware of the current recreation facilities and amenities at the site and/or chose not to visit because the site did not have the types of facilities/amenities they want.

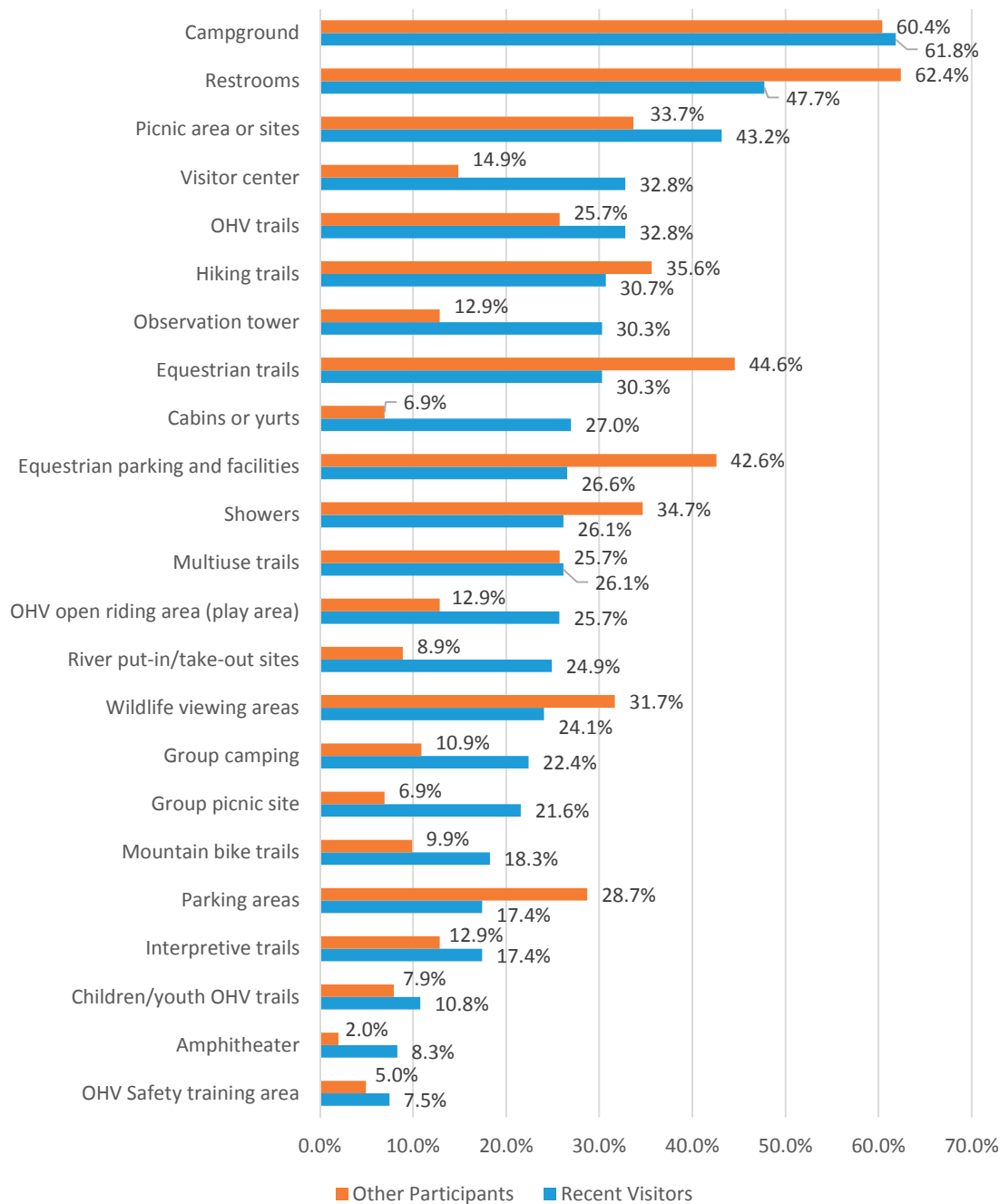


Figure 16. Recreation Facility and Amenity Preferences and Needs.

NDPRD charges fees at State Parks and other facilities around the State. These fees help maintain the high quality recreation facilities and amenities that visitors expect from NDPRD-managed sites. Would you be willing to pay a fee (in line with NDPRD fees) to access the recreation opportunities at Pembina Gorge knowing these fees would be used to help manage and maintain the area?

In general, a majority of survey participants would be willing to pay a fee to access the recreation opportunities at Pembina Gorge (Figure 17). That said, no attempt was made to establish a specific price point for this willingness (other than acknowledging that any potential future fees at Pembina Gorge would be commensurate with fees at other NDPRD-managed sites).

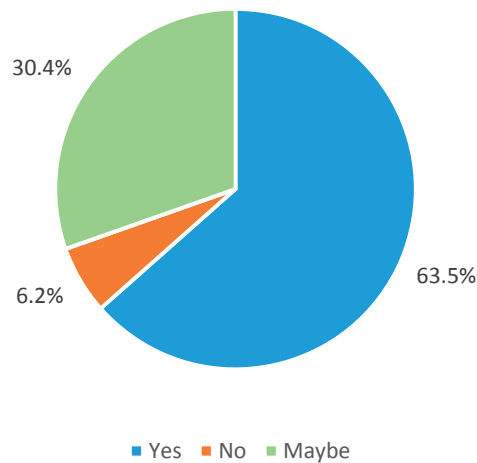


Figure 17. Willingness to Pay for Access to Pembina Gorge.

Gender of Participants

A slight majority of survey participants were women (Figure 18).

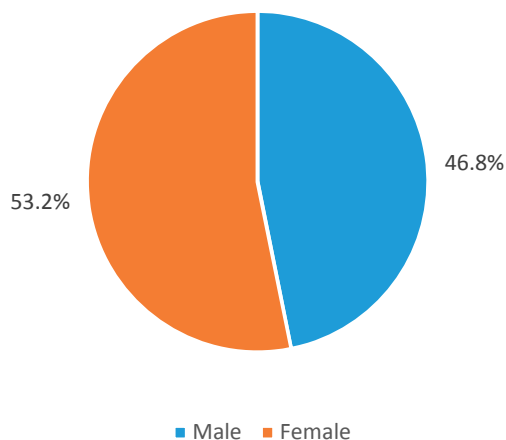


Figure 18. Gender of Survey Participants.

Age of Participants

Survey participants tended to be distributed evenly across most age groups (Figure 19).

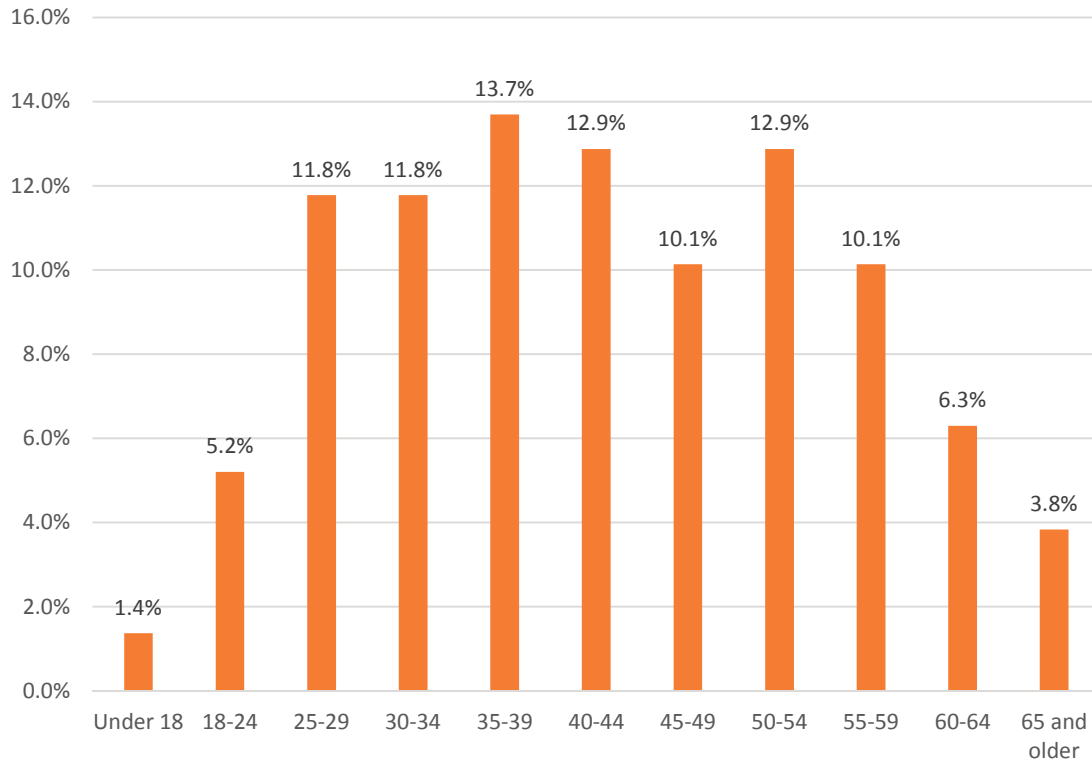


Figure 19. Age Profile of Survey Participants.

What is the Zip (US) or postal (Canada) code of your primary residence?

In total, survey participants provided 361 usable Zip and postal codes. Based on these usable Zip and postal codes, the majority of survey participants were from the US (Figure 20).

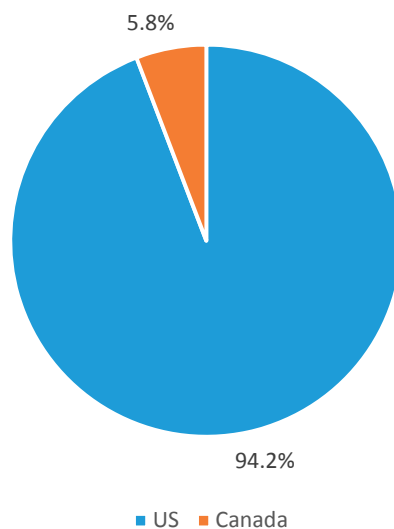


Figure 20. Country of Origin of Survey Participants.

Nearly all Canadian survey participants were from Manitoba (one participant was from New Brunswick). The majority of US survey participants were from North Dakota (Figure 21).

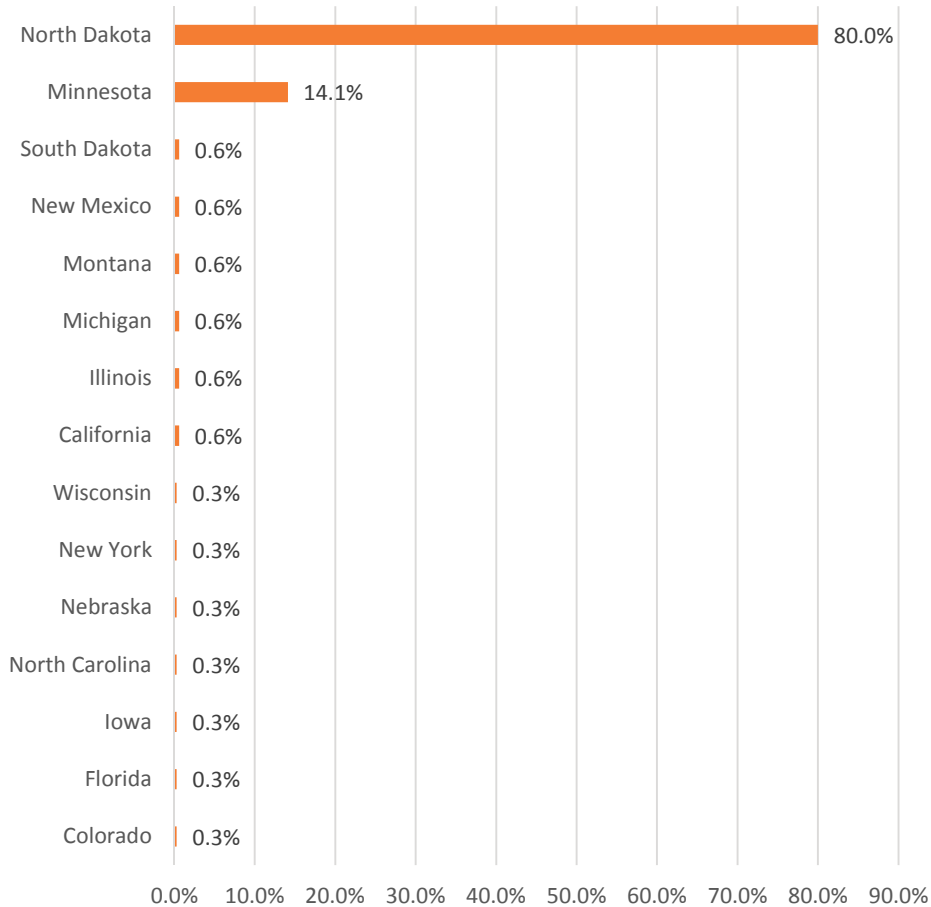


Figure 21. States of Origin of US Survey Participants.

Slightly less than half of survey participants from North Dakota were from Cavalier, Pembina, or Walsh counties (Figure 22).

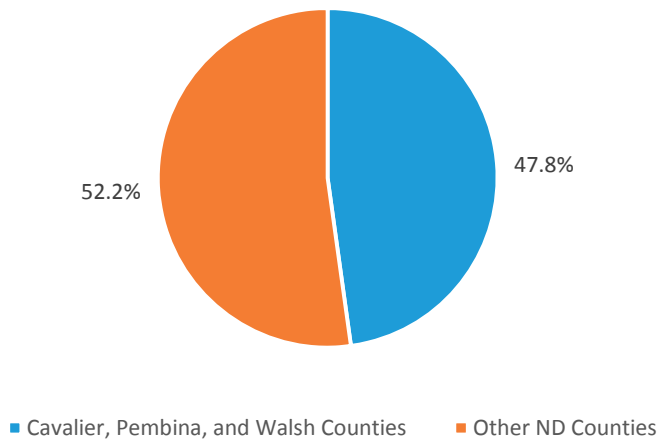


Figure 22. Counties of Origin of North Dakota Survey Participants.

Please use this space to share any additional ideas you have regarding the future of outdoor recreation at Pembina Gorge?

The final question of the survey asked participants for their ideas regarding the future of outdoor recreation at Pembina Gorge. Survey participants' open-ended, qualitative responses have been summarized and grouped into the categories below (number in parentheses indicates number of responses).

- Trail improvements (46)
 - expand/add more miles (12)
 - more OHV trails (8)
 - more single track (5)
 - more activity-specific trails – general (4)
 - more hiking trails (3)
 - add pullouts for passing (3)
 - increase enforcement (2)
 - prevent erosion on trails (1)
 - limit impact from OHVs (1)
 - make trails one-way (1)
 - add more mountain bike trails (2)
 - add loop trails (1)
 - add river crossings (1)
 - add UTV-specific trails (1)
 - more technical trails (1)
- Other (40)
 - positive comments (19)
 - general comments (18)
 - anti-OHV/motorized recreation (3)
- Provide equestrian facilities (20)
 - campground (12)
 - trails (3)
 - corrals (3)
 - parking (1)
 - water (1)
- Add a campground (10)
- Add signage (8)
- Don't overdevelop the area (8)
- Better promote the area (5)
- Provide a visitor center (4)
- Provide recreation equipment rentals (4)
- Increase access for canoeing/kayaking/tubing on the Pembina River (4)
- Add an OHV play area (2)
- Add a zipline (2)
- Add a children's playground (2)
- Increase access (2)

- Add a lake for fishing and boating (2)
- Provide more recreation amenities – general (2)
- Provide primitive camping opportunities (2)
- Purchase additional lands (2)
- Add trail maps (2)
- Purchase Frost Fire (1)
- Add picnic areas (1)
- Add scenic overlooks (1)
- Provide parking at scenic overlooks (1)
- Make it a State Park (1)
- Provide a brochure (1)
- Provide lodging (1)
- Provide guided tours on trails (1)
- Facilitate more OHV racing (1)
- Facilitate a 5k mud run (1)

Segmented Results

The Pembina Gorge SRA offers a unique landscape in northeastern North Dakota for both area residents and visitors alike. As displayed in the results above, residents and visitors engage in a variety of activities including hiking, canoeing/kayaking, mountain biking, off-highway vehicle (OHV) use, snowmobiling, scenic driving, fishing, hunting, snowmobiling, and other nature-based outdoor pursuits. While the administration of the recreation visitor survey did not specifically target specific subgroups, the completed surveys do allow for some targeted or segmented summary results for specific subgroups. In general, segmentation provides more informative and specific results that can be used to provide greater precision for the strategic framework and actions in the resulting master plan.

The following tables and figures present summarized and segmented results from the recreation visitor survey for select questions.

Locals vs. Visitors

For purposes of the Pembina Gorge recreation visitor survey, local survey participants were defined as those coming from Cavalier, Pembina, and Walsh counties. All other survey participants were considered visitors (i.e., non-local). Overall, just over a third of survey participants were local (34.1 percent).

Have you been to Pembina Gorge in the previous 12 months?

Local survey participants were much more likely to have visited Pembina Gorge within the past 12 months (Figure 23).

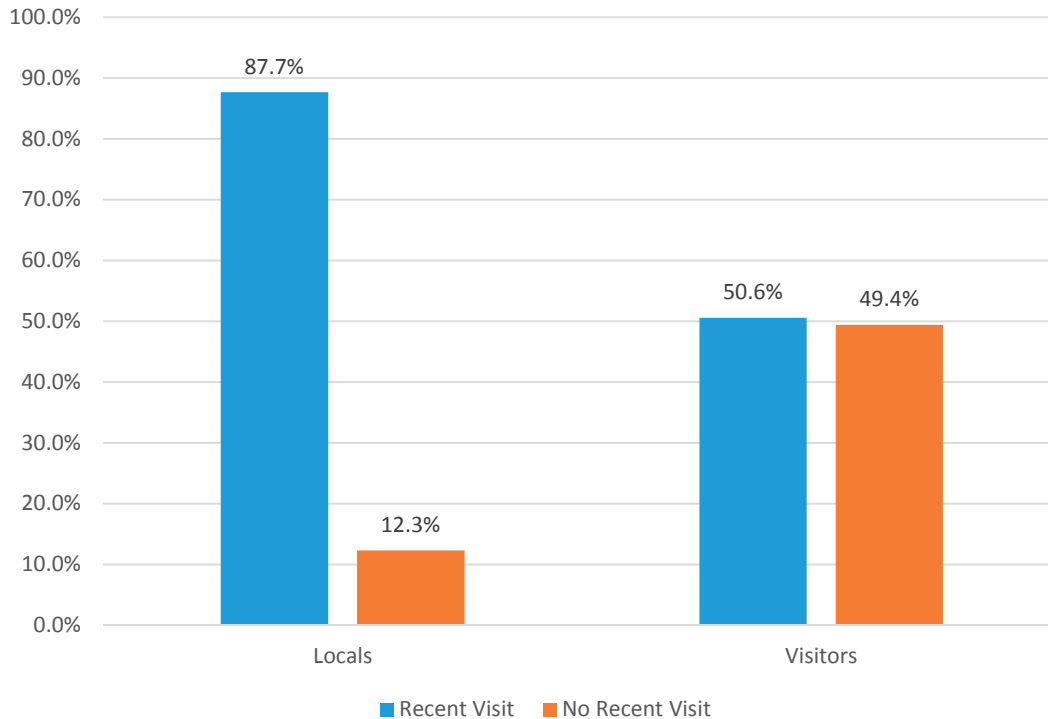


Figure 23. Visitation to Pembina Gorge SRA in the Previous 12 Months by Locals and Visitors.

What activities do you typically participate in at Pembina Gorge?

Locals reported participating in several activities at a higher rate than visitors at Pembina Gorge (Figure 24). Activities with more than a 5 percent difference between locals and visitors include: scenic driving (+27.6 percent), canoeing/kayaking (+15.6 percent), hunting (+11.6 percent), picnicking (+10.6 percent), OHV use (+8.4 percent), and snowmobiling (+5.7 percent).

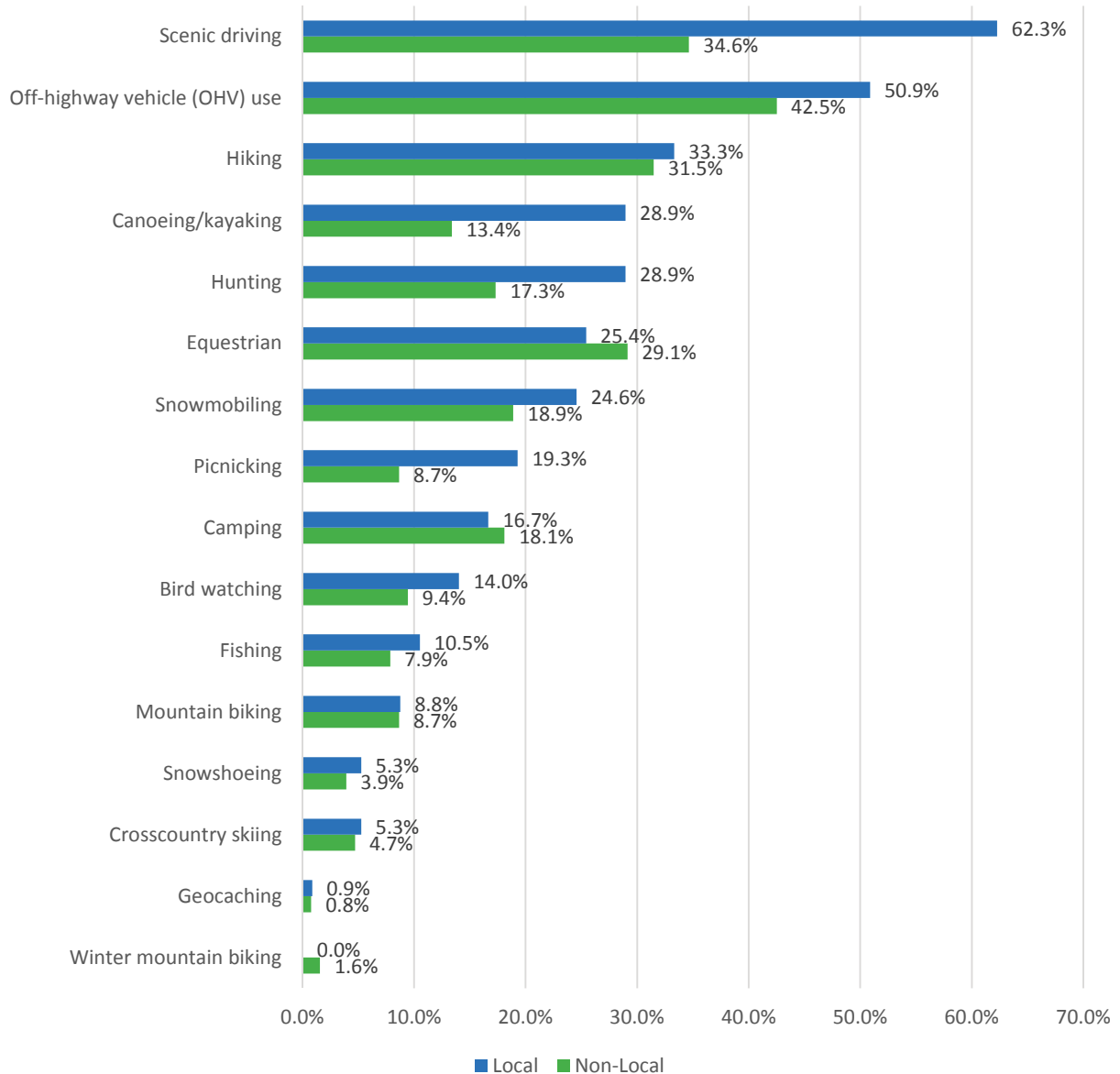


Figure 25. Activity Participation Preferences Among Locals and Visitors to Pembina Gorge.

Are the current recreation facilities and amenities provided at Pembina Gorge adequate to meet your needs?

Locals were more likely than visitors to report that the current recreation facilities provided at Pembina Gorge are not adequate to meet their needs (Figure 26). This may be due to higher rates of visitation and greater familiarity with the area by locals compared to visitors.

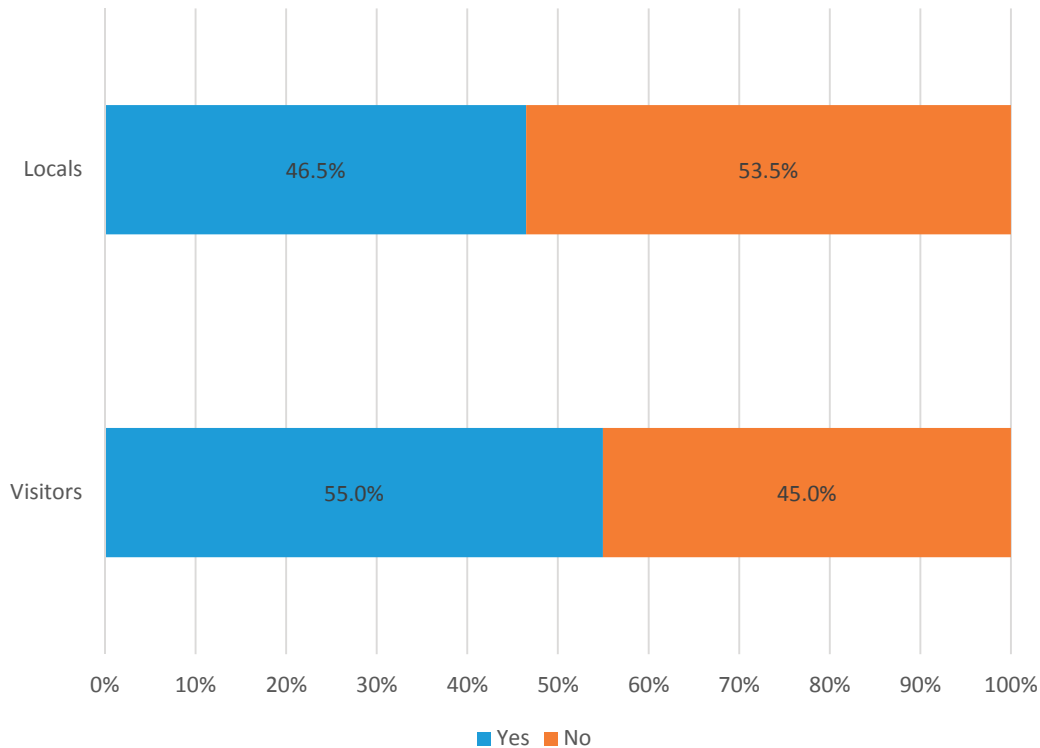


Figure 26. Adequacy of Recreation Facilities and Amenities for Locals and Visitors at Pembina Gorge.

Of the facilities and amenities listed below, which would you like to see added to Pembina Gorge?

Locals' and visitors' preferences for additional recreation facilities and amenities were generally similar (Figure 27). However, there are several facilities/amenities for which there are preference differences between locals and visitors. Locals were more likely (greater than 5 percent difference) than visitors to want the following facilities/amenities: picnic area or sites (+11.3 percent), multiuse trails (10.3 percent), wildlife viewing areas (+7.6 percent), group picnic site (+7.3 percent), and interpretive trails (+5.2 percent). Conversely, visitors were more likely (greater than 5 percent difference) than locals to want the following facilities: campground (+22.4 percent), showers (+11.3 percent), observations tower (+9.2 percent), and OHV trails (+5.6 percent).

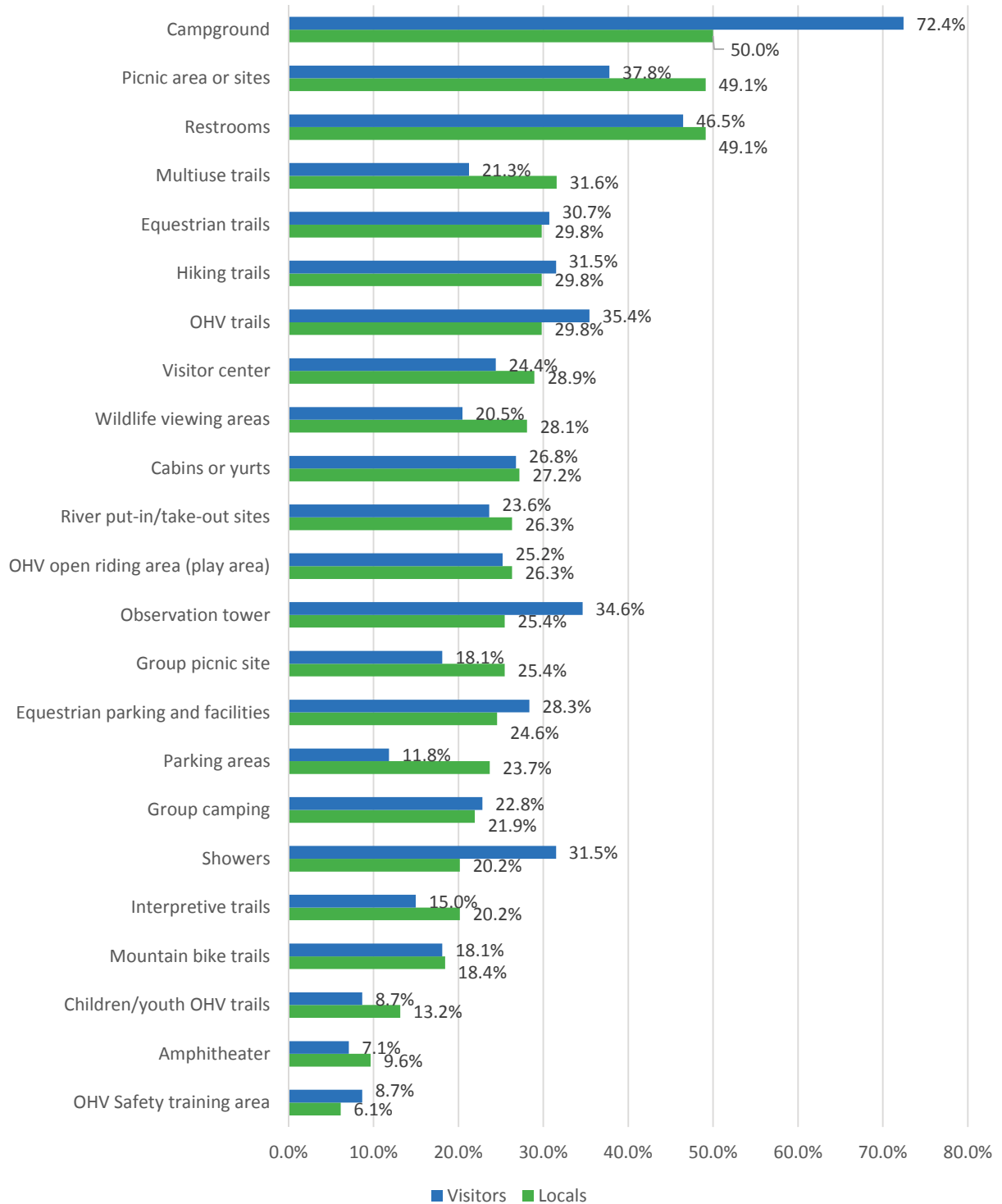


Figure 27. Recreation Facility and Amenity Preferences and Needs (Locals and Visitors).

Activity Subgroups

For purposes of the Pembina Gorge recreation visitor survey, survey participants were grouped into three broad user types based on their primary activities (see Page 11, Figure 11). These three broad user types include motorized, non-motorized, and equestrian users (further segmenting by activity type was generally not possible due to small subpopulation sizes). As displayed in Figure 28, the largest activity-based subgroup was motorized users.

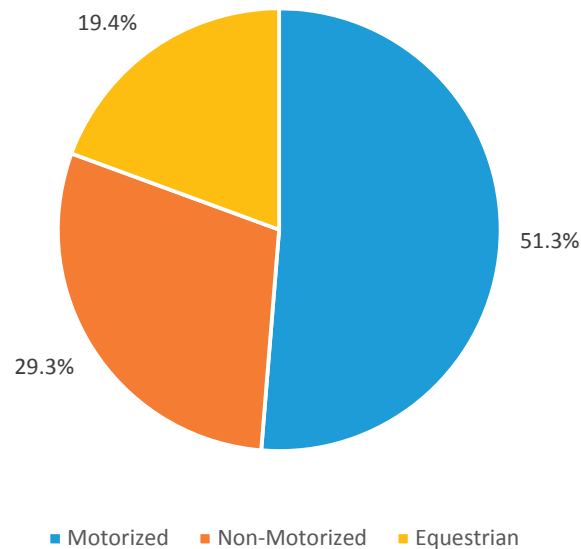


Figure 28. Percent of Survey Participants per Activity Subgroup.

Are the current recreation facilities and amenities provided at Pembina Gorge adequate to meet your needs?

Equestrian users were the most likely subgroup to indicate that the current recreation facilities and amenities provided at Pembina Gorge are not adequate to meet their needs (Figure 29). Motorized users on the other hand were most likely to indicate that the current recreation facilities and amenities are adequate.

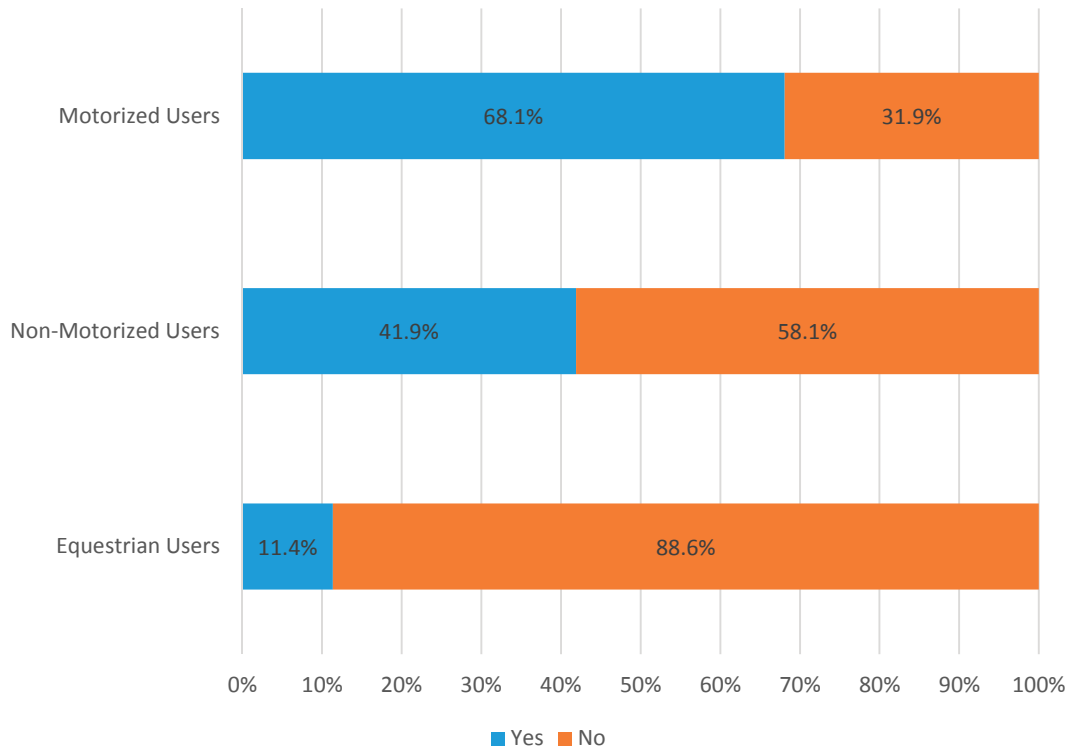


Figure 29. Adequacy of Recreation Facilities and Amenities for Activity-Specific Subgroups.

Of the facilities and amenities listed below, which would you like to see added to Pembina Gorge?

Activity subgroup preferences for additional recreation facilities and amenities were generally similar, in particular for facilities that would serve all types of recreation users (Figure 30). That said, the activity subgroups did each have specific facility/amenity preferences. The top five facility/amenity needs by activity subgroup are listed in Table 3.

Table 3. Top Five Facility/Amenity Needs by Activity Subgroup.

Motorized Users	Non-Motorized Users	Equestrian Users
Campground (62.2 percent)	Campground (60.3 percent)	Equestrian Trails (88.9 percent)
OHV Trails (49.6 percent)	Hiking Trails (52.9 percent)	Equestrian Parking and Facilities (88.9 percent)
Restrooms (46.2 percent)	Picnic Area/Sites (50 percent)	Campground (68.9 percent)
Picnic Areas/Sites (44.5 percent)	Restrooms (48.5 percent)	Restrooms (60 percent)
OHV Open Riding Area (39.5 percent)	River Put-in/Take-out Sites (44.1 percent)	Showers (44.4 percent)

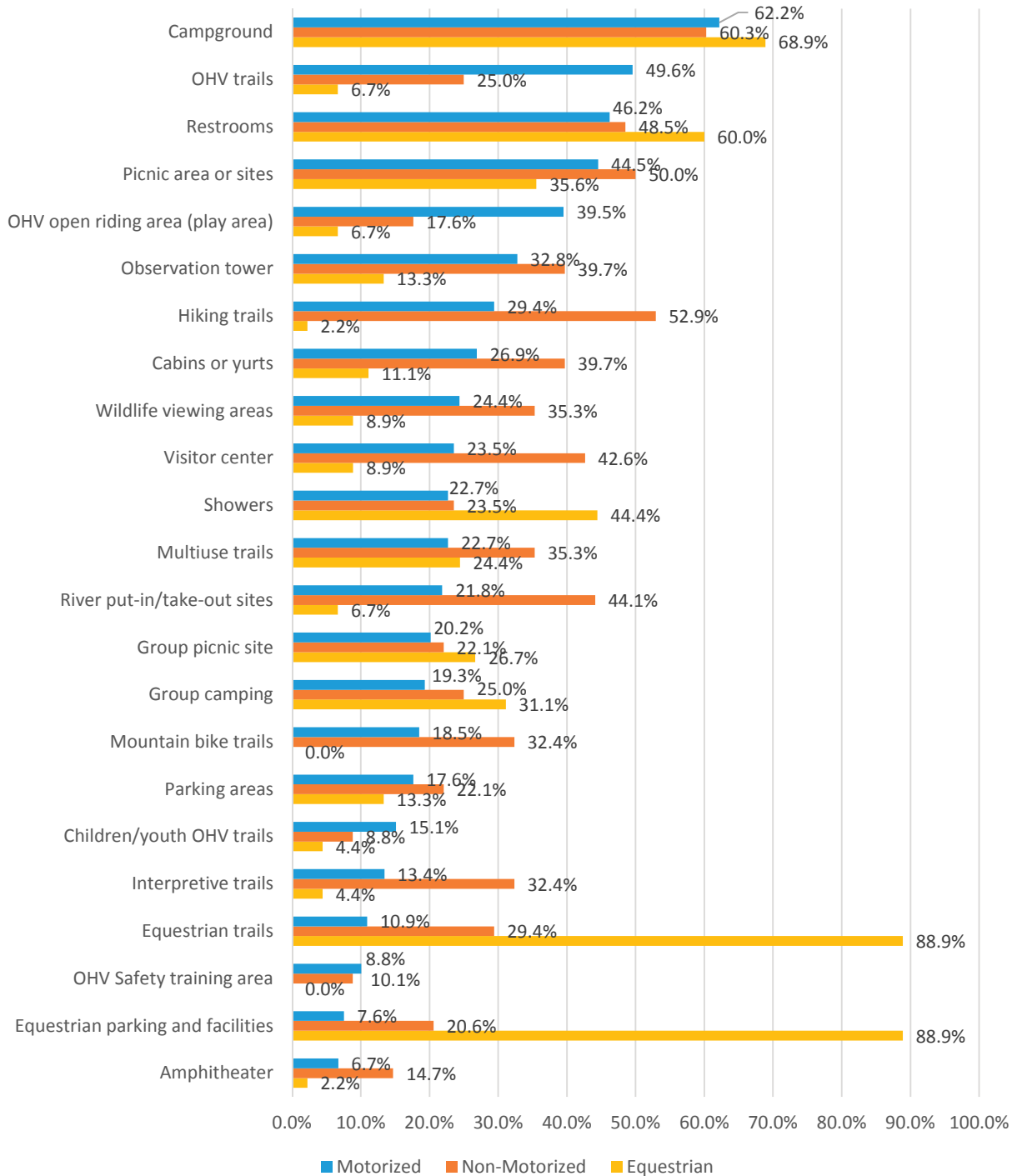


Figure 30. Recreation Facility and Amenity Preferences and Needs (Activity Subgroups).

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Appendix 1. Public Recreation Survey Questions

This appendix includes the questions that were used for the online and on-site versions of the Pembina Gorge SRA Master Plan Public Recreation Survey.

Online Survey Questions

The online survey included automatic skip logic; that is, the online survey software automatically advanced a participant to the appropriate question based on their response to a previous question. Numbering and “go to” instructions are provided below for clarity.

Q1. Have you been to Pembina Gorge in the previous 12 months?

- Yes (go to Q2)
- No (go to Q2.N1)

Q2.N1. If NO, are you familiar with Pembina Gorge and its recreation opportunities?

- Yes
- No

Q2.N2. How likely are you to visit Pembina Gorge in the next 12 months?

- Definitely
- Highly likely (about a 75% chance)
- Likely (about a 50% chance)
- Somewhat likely (about a 25% chance)
- Definitely not

Q2.N3. If NDPRD could do one thing at Pembina Gorge to encourage your visit, what would it be?

- Open-ended

Q2.N4. What activities do you typically participate in at any outdoor recreation area/site? (check all that apply)

- | | |
|---------------------------------|--------------------------|
| • Hiking | • Scenic driving |
| • Canoeing/kayaking | • Crosscountry skiing |
| • Equestrian | • Fishing |
| • Bird watching | • Hunting |
| • Picnicking | • Camping |
| • Off-highway vehicle (OHV) use | • Snowshoeing |
| • Snowmobiling | • Geocaching |
| • Mountain biking | • Other (please specify) |
| • Winter mountain biking | |

Q2.N5. When choosing an outdoor recreation area or site, what facilities or amenities are important in your decision? (check all that apply)

- | | |
|-------------------|-------------------------------------|
| • Visitor center | • Equestrian trails |
| • Campground | • Interpretive trails |
| • Group camping | • Parking areas |
| • Cabins or yurts | • Equestrian parking and facilities |
| • Amphitheater | • Restrooms |

- Multiuse trails
- OHV trails
- OHV open riding area (play area)
- OHV safety training area
- Children/youth OHV trails
- Hiking trails
- Mountain bike trails
- Showers
- Picnic area or sites
- Group picnic site
- River put-in/take-out sites
- Observation tower
- Wildlife viewing areas
- Other (please specify)

Q2. If YES, about how many times?

- Open-ended

Q3. During what months did you visit Pembina Gorge? (check all that apply)

- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December

Q4. What other regional recreation areas have you visited in the past 12 months?

- Icelandic State Park (US)
- Pembina Hills State Game Management Area (US)
- Lake Bronson State Park (US)
- Houghton National Wildlife Management Area (US)
- Juhl National Wildlife Management Area (US)
- Pembina Prairie National Wildlife Management Area (US)
- Tetrault Woods State Forest (US)
- Pembina Valley Provincial Park (Canada)
- Spruce Woods Provincial Park (Canada)
- Other (please specify)

Q5. What activities do you typically participate in at Pembina Gorge?

- Hiking
- Canoeing/kayaking
- Equestrian
- Bird watching
- Picnicking
- Off-highway vehicle (OHV) use
- Snowmobiling
- Mountain biking
- Winter mountain biking
- Scenic driving
- Crosscountry skiing
- Fishing
- Hunting
- Camping
- Snowshoeing
- Geocaching
- Other (please specify)

Q6. During your last trip to Pembina Gorge, what was your primary activity?

- Hiking
- Canoeing/kayaking
- Equestrian
- Bird watching
- Picnicking
- Off-highway vehicle (OHV) use
- Snowmobiling
- Mountain biking
- Winter mountain biking
- Scenic driving
- Crosscountry skiing
- Fishing
- Hunting
- Camping
- Snowshoeing
- Geocaching
- Other (please specify)

Q7. Think about your last trip to Pembina Gorge, were you alone or with a group?

- Alone (go to Q8)
- With a group (go to Q7.G1)

Q7.G1. If WITH A GROUP, how many people were in your group?

- Open-ended

Q8. On your last trip to Pembina Gorge, did you spend the night in the area?

- No, I'm a local (go to Q9)
- No (go to Q9)
- Yes (go to Q8.Y1)

Q8.Y1. If YES, what type of lodging did you use?

- Hotel/motel
- B&B
- Commercial campground
- Public campground
- Other (please specify)

Q9. Are the current recreation facilities and amenities provided at Pembina Gorge adequate to meet your needs?

- Yes (go to Q10)
- No (go to Q9.N1)

Q9.N1. If NO, why not?

- Open-ended

Q10. Of the facilities and amenities listed below, which would you like to see added to Pembina Gorge?

- Visitor center
- Campground
- Group camping
- Equestrian trails
- Interpretive trails
- Parking areas

- Cabins or yurts
- Amphitheater
- Multiuse trails
- OHV trails
- OHV open riding area (play area)
- OHV safety training area
- Children/youth OHV trails
- Hiking trails
- Mountain bike trails
- Equestrian parking and facilities
- Restrooms
- Showers
- Picnic area or sites
- Group picnic site
- River put-in/take-out sites
- Observation tower
- Wildlife viewing areas
- Other (please specify)

Q11. NDPRD charges fees at State Parks and other facilities around the State. These fees help maintain the high quality recreation facilities and amenities that visitors expect from NDPRD-managed sites. Would you be willing to pay a fee (in line with NDPRD fees) to access the recreation opportunities at Pembina Gorge knowing these fees would be used to help manage and maintain the area?

- Yes
- No
- Maybe

Q12. What is your gender?

- Male
- Female

Q13. What is your age?

- Under 18
- 18 – 24
- 25 – 29
- 30 – 34
- 35 – 39
- 40 – 44
- 45 – 49
- 50 – 54
- 55 – 59
- 60 – 64
- 65 and over

Q14 What is the Zip (US) or postal (Canada) code of your primary residence?

- Open-ended

Q15. Please use this space to share any additional ideas you have regarding the future of outdoor recreation at Pembina Gorge.

- Open-ended

On-site Survey Questions**Q1. Other than today, have you been to Pembina Gorge in the previous 12 months?**

- Yes
- No (go to Q5)

Q2. If YES, about how many times have you been to Pembina Gorge in the previous 12 months?

- Open-ended

Q3. During what months did you visit Pembina Gorge? (check all that apply)

- | | |
|------------|-------------|
| • January | • July |
| • February | • August |
| • March | • September |
| • April | • October |
| • May | • November |
| • June | • December |

Q4. What activities do you typically participate in at Pembina Gorge?

- | | |
|---------------------------------|--------------------------|
| • Hiking | • Scenic driving |
| • Canoeing/kayaking | • Crosscountry skiing |
| • Equestrian | • Fishing |
| • Bird watching | • Hunting |
| • Picnicking | • Camping |
| • Off-highway vehicle (OHV) use | • Snowshoeing |
| • Snowmobiling | • Geocaching |
| • Mountain biking | • Other (please specify) |
| • Winter mountain biking | |

Q4. What other regional recreation areas have you visited in the past 12 months?

- Icelandic State Park (US)
- Pembina Hills State Game Management Area (US)
- Lake Bronson State Park (US)
- Houghton National Wildlife Management Area (US)
- Juhl National Wildlife Management Area (US)
- Pembina Prairie National Wildlife Management Area (US)
- Tetrault Woods State Forest (US)
- Pembina Valley Provincial Park (Canada)
- Spruce Woods Provincial Park (Canada)
- Other (please specify)

Q6. What is your primary activity on today's trip to Pembina Gorge?

- Hiking
- Canoeing/kayaking
- Equestrian
- Bird watching
- Picnicking
- Off-highway vehicle (OHV) use
- Snowmobiling
- Mountain biking
- Winter mountain biking
- Scenic driving
- Crosscountry skiing
- Fishing
- Hunting
- Camping
- Snowshoeing
- Geocaching
- Other (please specify)

Q7. On this trip to Pembina Gorge are you alone or with a group?

- Alone (go to Q9)
- With a group

Q8. If WITH A GROUP, how many people are in your group?

- Open-ended

Q9. On this trip to Pembina Gorge are you spending the night in the area?

- No, I'm a local (go to Q11)
- No (go to Q11)
- Yes

Q10. If YES, what type of lodging are you using?

- Hotel/motel
- B&B
- Commercial campground
- Public campground
- Other (please specify)

Q11. Are the current recreation facilities and amenities provided at Pembina Gorge adequate to meet your needs?

- Yes (go to Q13)
- No

Q12. If NO, why not?

- Open-ended

Q13. Of the facilities and amenities listed below, which would you like to see added to Pembina Gorge?

- Visitor center
- Campground
- Group camping
- Equestrian trails
- Interpretive trails
- Parking areas

- Cabins or yurts
- Amphitheater
- Multiuse trails
- OHV trails
- OHV open riding area (play area)
- OHV safety training area
- Children/youth OHV trails
- Hiking trails
- Mountain bike trails
- Equestrian parking and facilities
- Restrooms
- Showers
- Picnic area or sites
- Group picnic site
- River put-in/take-out sites
- Observation tower
- Wildlife viewing areas
- Other (please specify)

Q14. NDPRD charges fees at State Parks and other facilities around the State. These fees help maintain the high quality recreation facilities and amenities that visitors expect from NDPRD-managed sites. Would you be willing to pay a fee (in line with NDPRD fees) to access the recreation opportunities at Pembina Gorge knowing these fees would be used to help manage and maintain the area?

- Yes
- No
- Maybe

Q15. What is your gender?

- Male
- Female

Q16. What is your age?

- Under 18
- 18 – 24
- 25 – 29
- 30 – 34
- 35 – 39
- 40 – 44
- 45 – 49
- 50 – 54
- 55 – 59
- 60 – 64
- 65 and over

Q17 What is the Zip (US) or postal (Canada) code of your primary residence?

- Open-ended

Q18. Please use this space to share any additional ideas you have regarding the future of outdoor recreation at Pembina Gorge.

- Open-ended

Appendix 2. Verbatim Responses to Open-Ended Survey Questions

This appendix includes the verbatim (non-summarized) responses to the open-ended questions in the public recreation survey. All responses were copied directly from the survey forms and have not been edited.

If NDPRD could do one thing at Pembina Gorge to encourage your visit, what would it be?

- 1. Allow 64" wide Side by Sides on trails. You allow up to 60" but a huge number of the current production SxS's are 64"
- 2. Longer OHV trail system. Even if additional trails are easy it still makes it so much more appealing.
- Add horse staging area & camping
- Add horse trails
- advertise it more
- allow 2 people to ride on one four-wheeler ATV
- Allow camping with horses!
- ATV/ Four Wheeler Trail System I've been there many times on a snowmobile but got out of the sport to get an ATV.
- camping areas with corrals for horses.
- Create a horse camp and extend the trail system
- Create a place for motor homes, I travel in an RV.
- Create a State Park with trails, restrooms, and information.
- Create roomy camper pad sites, similar to Lake Sakakawea State Park, with paved walking & biking trails. I have been to the Pembina Gorge a few years ago deer hunting. we did not do well hunting, as we did not know the area, and did not have private land to hunt. I was very impressed with the spectacular beauty of the area, and would very much like to do a camp trip with our 5th wheel camper. we would love to have water & electric, and access to a park dump station.
- Equestrian campground
- Equine camping facilities
- Facilitate more primitive camping opportunities within the recreation area and non motorized recreational opportunities. By that I mean narrow, shorter trail loops than the ohv trail with good maps and signage.
- Get rid of ATVs
- Have a campground with hook ups on site.
- Have a place for people to bring their horses for camping and to park trailers with electrical and water hookups.
- Have a place to set up camp for horse camping. We have a big rig and a couple horses.
- Have corrals for "horse" campers.
- Have horse trails and overnight camping .
- Hiking
- Horse back
- Horse camp
- Horse camping. We have horses and love to go riding and enjoy the wilderness.
- Horse facilities with electric hook ups
- Horse trails.
- Horse trails. I would love to visit with my horse. I hear rumor of some already existing trails but am unable to find much info on them.

- I-29 advertising
- Kayak trail
- Keep it in its natural state-don't ruin it like Medora
- Keep it open for horses.
- Maintain good horse trails!
- Make horse camping available
- Make horse facilities would do it for me
- Make it a state park
- Make it available for Horse Driving wagons as well as Horse Riding/with rustic campgrounds Picnic areas/Scenic look outs/hiking trails/monitored by DNR
- Make it more horse travel friendly. I travel with my horses on vacation and do alot of trail riding in the areas.
- more ATV trails
- More ATV trails in the area.
- More Atv trails.
- More hiking and mt biking trails.
- More OHV trails!!!
- Motorcycle oriented
- Not sure
- Nothing, it is on my travel plans. Money is the big problem right now, otherwise I would be there right now.
- Offer ATV/SxS rentals!
- Overnight camping and horse corals
- Places to camp with my horses.
- Premium ATV Trails
- Provide facilities for horses to be kept for overnight trail rides.
- Publish a trail map
- Put in a horse campground.
- RV Campground (I own a motorhome)
- Send me updated lists of events and activities
- Show more about UTV trails, maps, places to go ect... on web.
- Sight see & hike
- staging area for horses, camping area with pens for horses
- There are no camping facilities and I live in the western part of the state so it is too far to drive to go horsebackriding without having a place to stay. It would also be awesome if their were horse facilities like a few corrals for overnights too.
- Updated trail conditions and when it's open
- would definitely go if there was overnight horse facilities availabe for camping with horses.

Are the current recreation facilities and amenities provided at Pembina Gorge adequate to meet your needs? If “No,” why not?

- A nice camping area would be nice
- are area to corral horses and plug in my trailer would be great. We could stay and ride longer and it would be easier.
- Available drinking water
- Campground. Picnic area. Interpretive Center.
- Camping. Visitor center. Better signage for trailhead better signage from Walhalla to the trailhead scenic byway
- could be more atv trails
- Could use more directions and signs.
- Could use more walking trails and road to Texas Crossing
- greater/easier access to water and trails... and it would be AWESOME to take my horse and be able to stay all day/overnight...but there isn't adequate parking or corrals, etc, to facilitate this! Makes it hard to invite a group up to enjoy the Gorge!
- Having equestrian facilities would enable be to go more often then just the scheduled big rides.
- I am a horseback rider and find the parking inadequate. Love the trail but needs to be widened and have some turn around places.
- I am in driving distance but I would like to ride horse and stay over night there
- I believe there could be more done to attract not only locals, but also many other people to this beautiful area. As it is now, without knowing the area, or going with someone who does, one cannot see and do many of the things that can be done in the area.
- I personally would like to see more single track dirt bike trails. Maybe a better campground.
- i think the roads need improving...county road 55 should be paved all the way through the gorge and the gravel roads could use some work...widening and smoothed out a bit. river access is very limited. some shoreline should be accessible for tourists with tubing, rafting, canoeing, kayaking available...and concessions would be nice, also.
- I want to see overnight stabling available with corrals, Showers for humans would be nice. Also make a camping area available with plug ins for living quarters trailers.
- I would enjoy a lake in this area as well as the wilderness.
- I would like to camp out and have a safe place for my horse to stay at night
- I would like to see a brochure in relation to the geology of the Pembina gorge
- I Would Like To See A Larger Trail network, And Better Advertised Rentals And accomedations
- I would like to see a place to camp with panels/horses and also have non motorized vehicle trails.
- I would like to see hiking trails such as those at Icelandic State Park, a camping ground such as Icelandic State Park, good cross country ski trails,
- I would like to see more legal atv trails

- I would like to see more miles of ohv trails. To few for the trip out there.
- I would like to see trails opened for off highway motorcycles as well as the ATV/UTV trails.
- I would love to see a visitors center
- I would love to see a Zip Line
- I'd like to see a single track trail to be developed, also would like to see our moonlighter snowmobile club trail to be improved and lenghted. (moonlighters club I believe is the oldest club in ND)
- If no? I think it's supposed to read lol. Hauling panels to overnight large groups of horses is a lot of work. Also drinking water for them. Very difficult to find room to camp with a horse trailer, let alone many horse trailers.
- I'm unaware of what is there.
- Improve equestrian trails and facilities especially to allow overnight camping facilities for equestrian trail events
- It was difficult to get the canoes into the water. More signage. Some primitive small campsite, would be great.
- It would be nice if there were more designated hiking or biking trails. Trails with signs marking the paths that are easy to get to from parking locations. Picnic shelters, garbages, benches, restrooms facilities, etc. along trails or at the beginning and end of hiking trails would be a very nice amenity to. Having these options would make it much more likely to bring our children with us.
- It would be nice to have an equestrian park with corrals and outlets for camping
- It would be nice to have corrals and a camping area.
- It would be nice to have more to do there. Like horseback riding areas.
- Lack of facilities - 24/7 Most of the area closes at dusk or 9 pm. 2 hour drive is easier
- limited horse trailer parking
- Love to see more mountain bike trails.
- Maps, more trails, etc
- More access for equestrian would be amazing. If Tetrault could be opened for equestrian as it was many years ago it would be ideal!
- More camping facilities would be great!
- More horse trails, corrals, and camping areas
- More RV camping would be nice do to the volume at Icelandic State Park.
- More signs and map information
- More trails, more restroom facilities, signage. The area is worth a state park.
- Mostly,due to the fact i would like to have a place to camp for a couple of days and not trailer home all the time! We enjoy camping with our horses, friends and family...
- Need a campground
- Need a place to put horse trailers/campers when bringing horses, and corrals would be nice
- need campground

- Need corrals for horses
- Need groomed cross country ski trails.
- Need more atv trails, better upkeep, and a way to work with land owners to keep private trails open. We need trails for all types of activities for example, atv/motorcycle trails as well as some for jeep sized vehicles, along with hiking and horse trails. There is more than enough opportunity to keep trails available for all types of vehicles/ foot traffic. This way the trails that were established and listed for a specific use can be kept up and people can use the trails that best suit them, without destroying ones not meant for the specific traffic.
- Need more equestrian friendly areas.
- Need more horse friendly
- Need more off road stuff instead of making our own trails
- need places to park a horse trailer, put up a temp corral and , overnight horse camping
- Need signs to point where you're going.
- Need water. Picnic area. Full service hotel. 18 holes of golf.
- need, corral for Horses, electricity, cabins would be ideal
- Needs a DAM...for water sports; and better fishing
- Needs camping, electric, corrals for horses.
- Needs dedicated trail for the various sports. Xcountry skis don't mix with snow machines, etc. need more facilities to use as a base for activities. Better fishing opportunities would make it less likely that I would spend my money in MN or MB. How about a trout stream or lake?
- Never thought about staying there.
- No convenient camping or sufficient trailer parking spots for equestrian activities
- No equestrian camping. You have the most beautiful place in the area to ride, you should have an equestrian camp site. People would come. You should model it after Sheyenne Oaks horse camp, <http://www.sheyenneoaks.com/>
- No where to park my horse trailer with living quarters to camp in and no place to pen or put up temporary pens to safely keep horses overnight. This beautiful area is cheating itself of income from many horse people who would frequently enjoy riding and camping in the pembina gorge.
- Not enough trails
- Our ranger crew was to long for the trails should have a length limit and guard rails on some of the steep drop offs would be nice
- Restrooms
- Signage is not good
- Some camping facilities would be nice.
- The gorge needs equestrian trails and more for equestrians
- The Pembina Gorge needs more trailer parking for atv/equestrian use. Campsites in the area are limited.
- The trails were too narrow and made it difficult to pass ATV's while on the horses.

- There are lots of areas to drive through, but it's hard to get to some areas that offer the best scenery.
- There are no down hill mountain bike trails that us younger adults and teens are wanting.
- There is no where to camp with horses.
- There needs to be more trails open to dirt bikes, personal owned land limits riding and access to other trails.
- There needs to be much more non-motorized trail. We hiked the new hike/bike route but it was under 2 miles. Great views, we will be back there to ride bikes when our son is old enough. Wish there were more bike trail that ATV users can't get onto.
- There should be a world-class environmental learning center in the Gorge with exhibits, field trips, programs, etc, on tons of wildlife topics, the ancient mounds and Paleo-Indians that are / were in the area, anything to do with Glacial Lake Agassiz. Tons of programs on birds, star-gazing, animal tracking, archaeological research, ancient people, hiking, botany, etc, could be developed at this kind of a nature / wildlife research center.
- They needs to be more snowmobiles trails through the gorge. It the best riding in the state!
- to restraint
- too many ruts
- Trails are not wide enough for our RZR.
- Want a mud bog
- We enjoy horseback riding in the Gorge and often would like to camp for the weekend or just overnight, but there are no facilities(corrals & water) for our horses or for our large trailers to park.
- we had to us private land, due to no public area available to camp with the horses and the not all the trails are set up for horses
- We have a 36 foot toy hauler that takes a large camping spot by the park rangers got permission for us to use the atv unloading area for the night. Special thanks to Michael, Travis and rest of the staff for their excellent service to us. Hats off to this crew.
- We need a place to corral the horses and park so we can camp and stay overnight.
- We need more snowmobile trails.
- Would be nice if there was a camp site set up to overnight with horses. (Correls)
- Would be nice to have an area to park horse trailers and set up corrals rather than just tying them to the trailer and taking up a bunch of space in the gravel parking lot
- Would be nice to have more recreational area for camping and access areas for hunting
- Would go there more often if had a place to camp with horses
- Would like a camp ground!
- Would like better road to Texas Crossing

- Would like more trails for horse use.
- Would like more trails...
- Would like to bring our 4-wheelers, but unsure of the trail system and other requirements to ride 4-wheelers.
- Would like to hike and camp as well as other activities. You can go down the river one day on a canoe, it would be nice to do something else the next day - maybe disc golf/frisbee golf. something besides just hiking
- Would like to see camping closer. Would have rode the trails more if camping was closer than Icelandic State Park. Lots of work to load and unload atv's plus the 30 mile drive one way.
- Would like to see trailer parking for horses. Maybe corrals, tether lines, a manure dump site, etc.
- Would love to see some equestrian-friendly camp sites. Possibly holding corrals, water, plug in's for camper/trailers. I think it would see lots of use through-out the summer as several groups in the state would use it for "annual" trail rides and special events.

Please use this space to share any additional ideas you have regarding the future of outdoor recreation at Pembina Gorge?

- 5 k mud run would be awesome
- a small play ground area for smaller children!
- A zip line would be fun.
- Add a visitor center that offers a good overview of the recreation area, state forest, wma's, historic sites and scenic byway to provide a multi disciplined overview of why this area is significant touching on the paleontological, geological and natural features of the immediate area, which led to the early settlement of this region of ND. Keep up the good work in providing managed recreational opportunities in this unique area.
- Add some pull outs so people can pass along the trail Add signage and trail maps
- An the area of ATV specific climbing jumping racing and maybe a mud area. We also need a hose down area when finished.
- Anything to promote tubing and kayaking on the Pembina river would be nice. I also prefer hiking and easy mountain biking trails to be developed as well as parking areas for these activities.
- Beautiful area that could be home to one of the nicest state parks around. There will always be some that are not on board, need to move forward with a big plan. The state should purchase frostfire and some surrounding land, with the intent to open a state park. The state of North Dakota is financially able to do this at this time. In the near term I think some restrooms at various locations would be an immediate improvement, that would improve peoples experiences in the gorge.
- Beautiful area. Need to add pull-off or passing areas on the trails every 1/4 mile or so in the really tight areas. Also so picnic tables or parking areas at some of the scenic overlooks would be great.

- Better marking to trailhead. Granular topping on trail to prevent erosion. Trail is great. Thank you.
- By making the river more easily accessible more people may go tubing, kayaking etc. It's a really popular thing to do.
- Campground might make it very popular
- Don't close it. I want to come back.
- Don't hear much about Pembina Gorge (what it is, what it offers, what I can expect when I get there). Also what it's near (town).
- Don't Muck It Up!!!
- don't overdo the development of the gorge, it's primitiveness is what makes it beautiful. I have personally probably spent as much time as anyone in the area going to the gorge, starting when I was a very young child
- Enjoyed the walk I knew they were developing years ago like 1984 and have a aunt that still lives in Walhalla so thought I'd check it out ,enjoyed the day not sure many know of this place or not, it was beautiful and fun enjoyed hiking
- Expand the trail system
- facilities to camp and ride would be great.
- From what I have heard there needs to be more miles of trails . But I guess that is what the master plan is all about? So you get two thumbs up from keep up the good work!
- Great trail. More trails maybe.
- Growing up in Walhalla, I am excited about this possibility, but cautious at the same time. The area desperately needs the economic boost, but you need to involve the local residents to make sure you're all on the same page and get their buy in (think summer jobs for their kids, part-time work for retired people, planned activities (not just thrown together a month before). Maybe have the owners of the local business share the impact tourism has on their livelihoods (present actual \$s) I would also hate to see it turn into a Somerset, WI or something like the Ottertail Tubing thing where bad press about partying is all you hear about. Promotion for activities and the area in general has been lacking for several years - I hear from my family they didn't even realize "events" were taking place near Walhalla (this past weekend's Enduro-Race) until the week of. This should be promoted not only to people in Grand Forks, but locals as well (that poor newspaper could use some news in it besides obituaries). Quite honestly if I had not seen a post on Facebook last year AFTER the event I never would have even known that event existed. In Fargo - I NEVER see any promotion of the Gorge - which is a shame. Of course I think the tourism dept. shares some responsibility there - they seem to promote Medora endlessly... Best of luck to this group - I hope for the best outcome that makes everyone happy and people learn to treasure the Gorge as much as those of us who have known it our whole lives.
- Guided tour on the trail to publicize the facilities available
- Had a great time! Trails were awesome on a dirt bike!
- Have camped at the Tamarac state forest in MN and love their facilities. horse camp sites, pits, tables, places to tie horses, separated horse trails from the atvs.

- Have to see what's here first.
- Having a brochure with pictures of plants and weeds for everyone to search for as some education.
- Having more single track trail. Also improving the snowmobile trail
- Hopefully the rec area can accommodate all types of people, 4x4, sidebysides, bikes, hikers, ect.... With the amount of land out there it would be easy to have specific trails for specific adventurers. Bikes, walkers, or 4 wheelers. Use the already established trails for everyone with the option to go off on a trail specific to your needs. What we've got going on out there is already awesome and will only get better I'm sure. Thank you
- Horse camp. Outside stalls campsite across from your horse so multiple stalls around camp site. Hookups
- Horse Corrals
- I am very encouraged to see the addition of the UTV trails but i have not seen much about them such as pictures maps ect...This is a welcome addition as our family land has seen an improvement from atv's and utv's trespassing has went down since this trail has started. They need a place to go and if there isnt.. they find a place. thank you
- I am very much looking forward to future recreation opportunities in the Pembina Gorge.
- I feel there are just not enough amenities in the area, such as: boat/kayak/canoe rental, tube rentals, more parking with easier access points, more signage of what available in the hills, restrooms, history centers, lodging is a big concern, maybe a small campground with electrical and maybe water source, the city of walhalla doesnt offer much for people looking to use the gorge. Besides the ski area, there isnt a lot of places where people can interact with each other in the gorge. The Des Lacs refuge is a prime example of there being an interpretive center in an area with way less to offer than the pembina gorge.
- I feel this area could be a prime visitor attraction for our area. Having lived in Walhalla for 23 years with my horses, there is a huge demand for trails and parking areas, as a lot of people inquire about our area to ride at annually. Also the need to advertise these areas publically so the word gets out. Hope to see some great changes at the Gorge! Thanks for all your efforts and hard work!
- I grew up going to the hills often this land means so much to the people there!!
- I grew up here and Im happy to see this area being use and well taken care of.
- I have enjoyed the the Pembina Gorge area on snowmobile for years and would love more reason to do so in my Side By Side.
- I have live in walhalla all my life and love the gorge and enjoying doing all outdoor activities with my family but when I think about paying a fee for things I've have enjoyed for 18 years at no cost would make me cut back on what I do
- I have many friends that go horseback riding in the Pembina Hills several times a year. We often go as groups obtaining permission from Private Land owners, howver it would be better if there were established trails, and camping areas. Most

of the rides I am involved in have anywhere from 30-75 Horseback riders. Occaissionally smaller groups.

- I just love that you are working to keep this area beautiful and serene.
- I know several people who would like to ride horses in the Pembina Gorge but they need horse friendly camping facilities or secure stables for their horses because of how far they would travel to get here, they would need a place for themselves and their horses to stay overnight.
- I look forward to visiting.
- I ride horse all over North Dakota and Minnesota, and hands down, the Pembina Gorge is my favorite place to ride. Even better than western North Dakota. If you had an equestrian campground, people would come from all over to ride there. My friends and I frequently visit Sheyenne Oaks horse camp in Leonard, North Dakota. The trails aren't anything special, but the facilities are fantastic.
- I think using ATVs should be closely monitored as much destruction is being done by the increased use of these machines. A primary moderately sized camping site would be great not only for tents but also larger campers for recreational use in the fall for hunting opportunities. Also secondary more primitive areas for tents would also be great This will be a difficult request, but I don't think it is in the state's interest to develop this area and have it filled with Canadian traffic at all time. Preference should be given to North Dakota residents in the utilization of this area as that will be who is responsible for the funding of this area.
- I think we have an amazing opportunity here in the Pembina Gorge & we have many horse riders that love to come and ride up here, but sadly, there is no place for them to camp with their horses & trailers. Even the locals would use a camping area where they can board horses overnight or for the weekend while they enjoy the trails with family & friends as it is quite a drive even for locals to get to the trail system. Also, with the size of the horse trailers used these days, the approaches definitely need to be wider to accommodate these rigs as they enter & exit the trail head. There should also be a water supply for the campers and horses.
- I was there as a child every weekend it is a gem I always liked it up there and still do have many childhood memories. I hope it continues to grow but still I want it to be our little piece of heaven!!!
- I would hate to see it over-developed- I would like visitors to enjoy it in its natural state. Maybe a small visitor center with maps for hiking or of other scenic interest . Please don't get over zealous and disturb the natural habitat of creatures and flora.
- i would like to see a sizable body of water for fishing and boating. a campground on the lake would bring in tourist dollars to our region, along with the canoeing, tubing, etc. water activities on the river. trails for hiking and biking and separate trails for ATVs and the like would be attractive to campers and water activity enthusiasts. this area is beautiful and has such potential that has been untouched for far too long.
- I would like to see this area kept wilderness.
- I would like to them build a place for RV camping.

- I would love an equestrian campground it would make our trips down more enjoyable to spend more than a day there.
- I would love to ride my horses and camp at the Penning Gorge!
- I would love to see more trails and the road to the river in the Neumendalhs be better maintained. Other than that GREAT JOB!!!
- I would love to see the Pembina Gorge developed along the lines of a combination of Sully's Hill National Game Preserve at Devil's Lake, Icelandic State Park and Grahams Island. This would include lots of observation areas of the natural wildlife that find their home in the Pembina Gorge, camping places, a visitors center, places to park if just on a day drive, winter time activities etc. I would also love to see the ND Park system take over Frost Fire and the amphitheater there. Dick and Judy Johnson are not getting any younger and have made Frost Fire into a wonderful wintertime recreation area. Perhaps a visitors center could be located there. Frost Fire could also be expanded to include cross country ski trails (was tried in years past by local people but was too much work to keep it cleared). North Dakota has done well in developing it's parks to be respectful of nature first and I would hope that the same philosophy would apply to the Pembina Gorge. It's a naturally beautiful area and any development must be considered wisely so as not to ruin the nature that is there.
- I would really like to ride there but it is a long drive up there with no place to park and camp overnight.
- I would suggest repairing the road down to the river and having some sort of picnic area or something down there. Also if the trail could be made into more of a loop and traffic headed only one direction that would be amazing, as the blind corners can be a bit hairy with the amount of traffic the trails have had a few of the times I have been up there.
- Interpretive Center scenic overlooks birding controllers bike rentals four wheeler rentals house rentals
- It is a beautiful area to preserve for future generations, it needs the protection and management of a state park status.
- It is going to be very hard to please everyone. I personally would like to see single track motorcycle trails. But a campground, and hiking trails too.
- It is great to see the improvements made in the Gorge. I think the addition of equestrian camping area would be a great draw for a lot of riders.
- It is so important to have a recreation area for all outdoor activities - hiking, biking, fishing, ATV's and horses. I know some of those don't always get along with each other, but we all need to learn to live with each other and have places for all to go.
- It would be a great area for a nice campground with lots of hiking and riding trails.
- it would be nice to have trails from the north west through the south east (walhalla) and into other parts of the coulee.
- It's a beautiful area that definately should be developed. Build it and they will come!!!
- It's a great place

- I've heard great things about the current trails. I will be making a trip soon with a group of motorcyclists.
 - Keep the beauty and wilderness intact; don't pave the paths; leave it rustic; Keep it safe with DNR outposts/Emergency sites along both sides of the river
 - Keep the good things coming! I did not know that it was being developed for outdoor recreation! I always believed that this was an untapped resource for NE ND! It is clearly one of the most beautiful parts of the state!
 - Keep up the good work. Keep the spot alive.
 - Like to see trails opened for motorcycles only along with shared trails with ATV/UTVs.
 - Lodging would be great for weekend use of all routes.
 - Longer trails
 - Lots of ATV trails would be great.
 - Love to have a place not too far from MN to go camping with my horses and enjoy the scenery and wildlife.
 - Make a mud area
 - Make it known to the rest of the state
 - Many equestrian groups from all over the state, from Minnesota and South Dakota, would love to access these trails. Tourist amenities must keep up with the demands of all outdoor enthusiast groups.
 - Many of the North Dakota Breed-Specific clubs (such as the North Dakota Paint Horse Club and the North Dakota Appaloosa Club) host annual weekend trail rides, along with special events that pop up during the season. I think they would like to come to this area, but right now there are no trails or facilities to handle the truck/trailer traffic or places to camp for a weekend without getting special permission from private landowners - a detail that's hard to overcome for a group with no local contact. There's so much to offer in this area to these types of tourism groups.
 - Marketing will make it a success for you. Keep it natural.
-
- More atv trails
 - More atv trails needed. More advertising to promote the area.
 - More directions and signs
 - More family easy for kids
 - More info about canoeing and kayaking. More hiking. Good maps online.
 - More promotion. Hear very little even in grand forks.
 - More public access
 - More sign so we know where we are going.
 - More signage and more access points.
 - More technical dirt biking trails of of the existing trail. Here is a link to a MN trail near akeley this is a great example if an awesome riding area
<http://files.dnr.state.mn.us/maps/ohv/martineau.pdf> Thanks for hear what I and

many other have to say we love the trail system and it gets us very excited to have hope for more in the future.

- More trails and more picnic areas
- Multi purpose trails on both sides of the river; with Interpretive Center bordering Canada, to encourage Canadian customers; Need a DAM to support the flow and encourage more water activities; wind surfing/water skiing/knee boarding/tubing/fishing and inlets/ramps to allow swimming; Have parking at different areas for different activities; horse-related activities - park on the northeast side of river; ATV on northwest side; boating/water with ramps on south end with campgrounds in each area to keep groups separate but happy campers if there are joint events going on; Interpretive tours to Dinosaur sites and/or guided tours.
- Need more equine camping opportunities in the state
- Need natural atv trails & not digging all that soil to make trails. Use the natural terrain to weave your way
- Need to build a dam for an artificial lake to promote tourism and boating.
- None at this time thank you!
- OHM(off highway motorcycle) single track trails. Reopening existing closed trails. Hill climbing/freeriding areas would be my first priority. I personally think that charging a fee to use the trail system is a bad idea. This is supposed to be a publicly funded state recreation area. That is why we all pay taxes and OHV registration fees. Charging a fee would limit the number of people who would use it. It is out of the way for most people to get there. Several hours from any populated area in the U.S. To then have to pay a fee on top of that is too much to ask. We don't charge fees to use the state funded snowmobile trails, this i consider to be the same. Not to mention the costs associated with staffing a person the be there to collect fees from all users. it would cost more to pay them then you would ever make back in a year. I would like to say that the trail system that is currently in place is a very fun trail for motorcycles and mountain bikes. With a few more miles of awesome single track this could very well be a destination riding area for ohm enthusiasts from many states and provinces. But if word gets around that every time you show up to ride you are checked by park rangers, have to pay fees, closed gates, trails not open...etc, it will not be used to its full potential because people have been scared off. I know folks personally who have had this experience and will not go back there. It is a shame because it is a beautiful area that should be enjoyed and respected by all types of users. Thank you for your consideration I look forward to seeing the progression of this OHV riding area for many years to come. I hope my children will be able to grow up having a first class riding area that i did not have as a child.
- Our family has lived in the Pembina River Valley for over 125 years. My parents , Lloyd and Mary Danielson farmed and raised their family there , as did my grandparents and great grandparents. My mother ,Mary, struggled and worked very hard , especially in her later years to maintain the farm and the integrity of the land. The farm was closed to ATV access ,but hunting is still allowed and snowmobiling on a designated trail. Overseeing those activities was never an easy

task, as many people do not respect private land -or public. The garbage left behind, the degradation to fields due to erosion from rogue snowmobilers and ATV users cutting trails and fences, as well as the not infrequent rescues of lost trespassing tubers , canoeists, ATVers, snowmobilers, hikers, bikers, hunters and etc. are just a few examples. Through our mother's vigilant stewardship the farm has remained a relatively untouched preserve. It is as close to wilderness as you might find in N.D. The Pembina River Valley is an important, fragile riparian habitat. University studies have been done to try to catalog the many diverse species of birds, plants and animals that are found there. I, and my siblings, take our responsibility to the area as seriously as she did. Any recreational development in the area will certainly impact our farm through noise. erosion and pollution. Any thoughtful plan must consider the preservation and conservation of those precious public lands for future generations, not just a place to play.

- Playground or other kid related activities would be a draw for us
- Please do not spoil the natural beauty.
- Please focus on OHV and motorized trail. I pay license fees and I feel right now I am not getting what I am paying for. Surrounding states Such as Minnesota are much more advanced already in this area.
- Please keep trails open for equestrians.
- Please limit OHV trails, they are noisy and disturb wildlife.
- Preserve this beautiful natural area. Don't commercialize it.
- Primitive campsite, more advertising, more access to river. primitive rental cabins
- Purchase more private land from the Walhalla area towards the Canadian border. If there was more miles of access there could possibly be more miles of trails, camping, etc.
- Rent OHVs
- Rent OHVs through the state or privately owned.
- Safety is a concern, having separate trails for motorcycles would reduce the chance of meeting 4 wheeled vehicles head on especially around a sharp corner.
- Sell kites to kids and adults up on the hill on a windy and sunny day. The color of the kites shows how high they go. Exciting to me and colorful. Kodak moment!
- Signage and Walhalla
- Signs should be more informational to get to this spot.
- Since the Pembina Gorge is such an internationally-significant area, home to three different biogeographical biomes, home to all kinds of rare, threatened, endangered species of flora and fauna . . . it sure seems as tho the Gorge could become a world-class area for many things that DO NOT include the use of ATV's. With so many ancient mounds and other sites in the area that date back 10 to 14,000-years-ago, to the time of Glacial Lake Agassiz, the State should be researching, preserving and protecting these ancient sites, rather than catering to ATV'ers who could be driving over these mounds thinking they are just great jumps instead. Does the State Historical Society realize how many mounds, encampment sites, and other ancient sites are out in the Gorge??? The ATV'ers could sure do

their jumping and trail driving in less critically endangered areas. Extinction is forever.

- So far it seems to be catering largely to ORV. It's a shame that such a unique, nearly pristine area is being developed for noisy motorized vehicles. Contrary to the put-on happy face information about ORV users, many don't stay on trails, don't obey signs, and care little about the natural and cultural diversity of the land. Rather, they believe they are entitled to use it all for their narrow-scoped activity. But I suppose they provide the most income to the region (gas stations and bars), and hikers and birders contribute the least. And money always wins.
- Stalls for horses
- such a beautiful place it would be nice to take better advantage of it
- Thanks for increasing the recreational options in this beautiful part of North Dakota
- Thanks! Looks great. Will plan on coming back!
- the area has so much potential, what has been done there in the last few years seems like only a small start to a much bigger recreational area
- The new trails you have built are very nice and well done. I, however, as a person who has ridden the trails for over 40 years, would like to see existing trails stay accessible unless closed by the landowner. I also know that N. Dak. laws restrict underage riders and riding double, but I believe this negatively affects your endeavor, in that I think these are some of the most desirable users of your trails. I have been able to ride with my children there since they were about 6 years old. I now have grandchildren of that age that I would like to have the same opportunity. Thank you.
- The off road trails are designed well and well maintained. I personally wouldn't mind seeing some mountain biking trails or some cool camping area's off some of these paths that we could use. It would be really fun to tent it down off the trails somewhere.
- The plan needs to be put in place. This has great potential for the future of North Dakota. Some won't like but the majority rules.
- The space is beautiful. The signage is so sparse you don't know where you are or what to see.
- The state could work with a private organization to help put together offroad racing. This would be a major draw to the area.
- The trails are a good thing to write for fun. We could use some rest areas and maybe some widened areas to pass.
- the trails were great. Much better than expected. Would have liked more markings along trail that would match up with trail map to see where we were.
- There are no camping facilities and I live in the western part of the state so it is too far to drive to go horsebackriding without having a place to stay. It would also be awesome if there were horse facilities like a few corrals for overnights.
- There needs to be more trails along the river for the fourwheelers to ride and get muddy. One big thing that teens and people around would like to see is some faster paced, down hill mountain bike trails. We have the perfect terrain for these types of trails.

- This area is beautiful and needs to be shared with people who appreciate all outdoor activities. This part of the state needs to be exploited. I live in Minot and people here have never heard of the Pembina Gorge and the ones that have can't stop talking about it and its beauty. It truly could be another Medora type attraction area.
- This is a great opportunity for horse people in our area.
- This is a hidden jewel in northern North Dakota, and we take most of our out-of-town friends through the gorge when they visit. It would be really nice to have more places to stop and get out of the vehicle for all ages (easily accessible). I know we don't want to compromise the natural beauty, but maintain a good balance between nature and man. Keep up the good work!
- This place would be so awesome if it had a place to even park a horse trailer and a few corrals. There are massive amounts of people that love to ride up there. It would be more than worth it. Charge \$20 a night or so.
- This will only be successful if laws & regulations are enforced & people feel safe
- Trails and trail access points are my top priority. Promotion and access to the Pembina River would be great. There are not many rivers in the area which would be fun to be on. The Pembina River is one of the fun ones
- Very excited about the development of the Master Plan! I would love to bring my children to the Gorge more but am not sure what all we could do there during a day trip. It is a best kept secret and while additional amenities are important to more tourism development, I hope there is concern provided to maintaining a nature-based environment. Tourism has been listed and supported through the Pembina County Economic Development Strategic Plan, Pembina County Job Development Authority, and the efforts of the Red River Regional Council. Great work Walhalla team on initiating this effort and I look forward to participating in and supporting this process!
- Very fun place to ride. Would be nice if there were a few more miles of OHV trails. The tight turns and narrow trails make it seem like you are riding in a mountain area rather than ND.
- We all love the current trails. More of the same or trails made for smaller vehicles, motorcycles, would be nice. The group that I usually go with feels the same and all ride motorcycles
- We are moving to Pembina County in 2 days and would LOVE to ride our horses at Icelandic State Park.
- We like to ride motorcycle, anything to accommodate us would be great. Single track
- We use both motorized and non-motorized trails. However we have been there a lot and there is little or no enforcement on the trails, it seems like the ATVs can go wherever they want. More enforcement, more education, and good design for keeping motorized vs non-motorized use separate. We aren't anti-motorized but we sure don't want to encounter a speeding motor vehicle on a trail while out with our small child or on horseback. What abuses we have seen seem to be by the locals, not out-of-area visitors. There is very little field presence by rangers. Perhaps

rangers who aren't from Walhalla area would be a good idea, they wouldn't be so tight with the locals and might write a few tickets. And please put in more hike and bike trails! There is room enough in the Gorge for everyone to enjoy but without rangers the whole place will be taken over by atv riders!!!! Educate and enforce! We have so little public land here in ND, it is great to see this being developed. We would also love to have a "water trail" where we could have established put-in and take-outs with camp sites along the river.

- With all the area there is a lot of potential to make more similar trails. My group would like to see more technical trails, something not every rider can attempt. Thanks
- -work with land owners for public use of private lands -do not block out atv/snowmobile access -establish new trails suitable for larger atvs (side by sides) - put in river crossings -establish new trails, work on upkeep of exiting trails
- Would be nice to make a weekend destination rather than day trips. We tent camp and do not travel to spend the weekend in a motel. Summer months of course
- would like more ATV trails
- Would LOVE to see an area for horse camping. It has been a few years since I have been there because there is nowhere for horse camping.
- Would love the opportunity to add this park to our list of places to go with our horses!!!!
- Zipling would be an AMAZING opportunity to draw many many ppl to the area with little or no damage to the landscape

This visitor center feasibility study was conducted as part of preparing the master plan for Pembina Gorge SRA. Visitor centers provide a valuable function in many settings, but their cost and effect on the natural setting need to be carefully considered. Visitor center importance can usually be strengthened by combining it with administrative functions such as office and maintenance spaces.

While a visitor center is costly to develop and manage, it can be used to draw more people to the SRA and improve their experience. Due to the remote location of the SRA, need for staff presence and opportunity to provide a unique and comfortable setting for visitors to experience the Gorge, this study recommends that a visitor center be developed. The majority of visitors to the SRA will be interested in a low level of effort experience including scenic driving and visit to a comfortable, and an interesting visitor center with a scenic view. The rich history and resources of the Gorge provides a wealth of fascinating information to share in a visitor center.

Potential Visitor Centers Functions and Spaces Could Include:

- 24 hour access to self-serve visitor information in foyer
- Information about the SRA
- Interior interpretive exhibits and information
- Restrooms
- Security presence in the SRA
- Emergency response and first aid station
- Store with basic supplies, maps and books
- Potable water source
- Educational/ meeting space
- Office space
- Supplies and materials storage
- Scenic overlook/ deck/ patio
- Parking
- Patio with picnic tables
- Interpretive & information kiosk
- Outdoor gathering space for groups and interpretive talks
- Lawn area for social space and special events
- Landscape with interpretive signs and design
- Maintenance building & storage yard
- Housing for seasonal staff or volunteers

The following table compares different options in providing visitor centers in the SRA. These include having just a SRA office on site, a complete visitor center on site, a visitor center in Walhalla or using a webpage as a virtual visitor center. One or more of these options could be part of the solution to provide quality visitor information and services. For example, an office and maintenance facility could be developed in the SRA first and then a visitor center could be developed at a later time. If a visitor center is developed in Walhalla, the cost and space could be shared with the City and/or Chamber of Commerce, or other organizations. Virtual internet visitor centers are becoming more common and can be used to help people

plan their visit and market visitation to the SRA. Virtual visitor center information can also be used within physical visitor centers as an interactive interpretive exhibit.

Table: Comparison of Visitor Center (VC)/ Administration Options

Criteria/ Type	SRA Office on Site	VC on Site	VC in Town	Virtual VC
Creates a Destination		Yes		
Customer Service	Yes	Yes	Yes	
Safety & Security	Yes	Yes		
Information	Yes	Yes	Yes	Yes
Interpretation		Yes	Yes	Yes
Presentation Space		Yes	Yes	
Outdoor Gathering Space		Yes		
Meeting Space		Yes	Yes	
Store Space		Yes	Yes	
Restrooms	Yes	Yes	Yes	
SRA Office Space	Yes	Yes	Yes	
Office Space for Other Associated Organizations			Yes	
Equipment/ Maintenance Space	Yes	Yes		
Staffing	Yes	Yes	Yes	
Development Cost	Yes	Yes	Yes	
Administration Cost	Yes	Yes	Yes	Yes

The following case studies summaries provide information about visitor centers at other state parks in North Dakota. This information can be used to compare the cost versus value of providing a visitor center in Pembina Gorge SRA.

Turtle River State Park Visitor Center

Location

Arvilla, North Dakota – near Grand Forks, ND

Annual Number of Visitors

Day Use Visitors: 80,000

Camping Visitors: 4,500

Architecture, Landscape & Engineering

The visitor center has a rural wood siding (fiber cement siding) with stone accents. The landscape is a hard surface in the high traffic front of the building with land and native trees on the other edges. Parking is designed to provide short-term parking for visitors getting information and paying fees. There is a small patio on the side of the building for use by employees or visitors. A small shed adjacent to the visitor center provides cover and space for firewood.

Building Functions & Programs

- Self-service fee station and information in foyer. This is left open when the visitor center is closed.
- Service counter
- Small store space
- Interpretive panels
- Multi-purpose meeting/ presentation room with storage cabinets and kitchenette
- Small reading/ library space
- Office space for staff (private area)
- Storage closet (private area)
- Rest rooms
- Interpretive programs: Outdoor education classes, “Eco Ed”, university day camps, NRCS summer aquatic programs.

Management & Partnerships

How is the visitor center managed? The Visitor Center is managed as the hub for Turtle River State Park’s administrative and management functions. It houses offices of 3 FTE positions (park manager, asst. manager and the park’s learning center interpretive coordinator). In addition, it has a large work space for the park seasonal security rangers. The seasonal ranger work space is where these staff pick-up duty lists, radios, cash/permit boxes and computer services are arranged for rangers to file end of shift reports etc. The interpretive space was part of the function of the “Transportation Enhancement” grant program and is required to fill a transportation component in the interpretive message. The classroom was designed to hold from 25 to 30 people as a typical school class size, i.e. the size a teacher can reasonably handle.

As the main point of contact, the park endeavors to have the building open and functioning for visitor services during generally accepted business hours (8AM to 5PM) but, those hours may fluctuate during peak periods.

Are there any partnerships in construction, management or maintenance? 50% of the construction costs were supported by Federal Transportation Enhancement grant funds. The 50% funding was calculated by the feds based on components of the building which would have the transportation theme or would be used by visitors using the transportation component (restrooms, lobby, visitor service desk etc.).

Maintenance of the building is funded 100% by NDPRD funds. Majority of operation and maintenance funds are from user fee generation at the park.

Cost to Build

Building: Building construction \$692,320 in 2006. A/E fees were \$71,400. Cost per square foot for the building in 2006 was \$182/square foot. (2014 construction costs of comparable buildings in NDPRD is in the range of \$225 - \$250/square foot.

Landscape including parking: An additional \$142,000 was obligated to parking lot construction/paving, sidewalks, septic/drain field construction, and utilities to the site, concrete plaza off of the classroom and security cameras.

Lessons Learned

Important lessons learned in development or management of the visitor center. NDPRD, across the system has systematically been upgrading state park administrative office buildings. Most critical in development of a visitor center is to identify the most important features/spaces needed to best serve the public. Arguably the most important function in NDPRD's development of visitor/administrative office centers is consolidating staff and visitor services in one building. Located at main visitor entry points in the parks, the visitor services component is the most frequently used and provides the best opportunity for interaction between park staff and the public.

Don't sell your soul just to get funds!!! In the Turtle River Visitor Center project, NDPRD accessed Federal Highway's Transportation Enhancement grant funds. Typically an 80/20 match grant program, in the end Federal Highways disqualified a significant portion of the building due to their opinion those areas were for park operation purposes and not transportation related (park manager/asst. manager offices, work room, seasonal ranger staff area, storage areas). NDPRD then had to cut other project areas to complete this one leaving some areas not done – yet.

Photographs



Fort Stevenson State Park Visitor Center

Location:

Three miles south of Garrison, North Dakota

Annual Number of Park Visitors

130,000 average day users

9, 500 camper nights per year

Architecture, Landscape & Engineering

Materials: Wood frame, rock wainscot exterior, maintenance free lap siding, clad windows

Associated buildings: None at time of construction

Parking: 8 vehicle parking spaces for employees and longer term visitors. Temporary/short term parking for RV's/visitors gathering park info, paying fees

Landscape & exterior spaces: Park single track trail links building to park campgrounds/day use areas, native prairie/forbs plantings, native shrub plantings near building. Has small exterior seating space.

Energy: Primary component is state of the art geothermal HVAC system. Has excellent energy conservation design. Each room individually climate controlled.

Building Functions & Programs

The building function is primarily as the park administrative office / visitor services center. Park is an intensively used recreational park and has heavy traffic loads in the summer. Building provides security and support for adjacent "entrance booth" during summer months. The building provides efficiency in visitor services in shoulder seasons and mid-week public services by combining administrative assistant / park attendant duties at one desk. Building strategically located immediately adjunct to the park entrance road and is the first park development encountered when visitors enter the park.

Small commons area provides snapshot of the history of the park. However, this park has a separate interpretive building which provides historical interpretation of Fort Stevenson.

Building has a conference room, public bathrooms, office space for manager, asst. manager, administrative assistant, work area for summer rangers and reception desk.

Management & Partnerships

How is the visitor center managed? It is managed primarily as the park administrative /public information services building. Park visitors pay fees, collect camping permits, reservations, park and area information. Building also provides updated reservoir information, up to date weather information and emergency services.

Cost to Build

100% funded by ND State General Funds

Building: \$575,000 for a 2,500s.f. Building = \$230/square foot

Landscape: Including parking Parking/pull offs/RV temp parking, earthwork = \$160,000 /

Landscape (native grass/shrub plantings remote impact areas / close in intensive shrub/tree plantings \$46,000

Cost to Operate

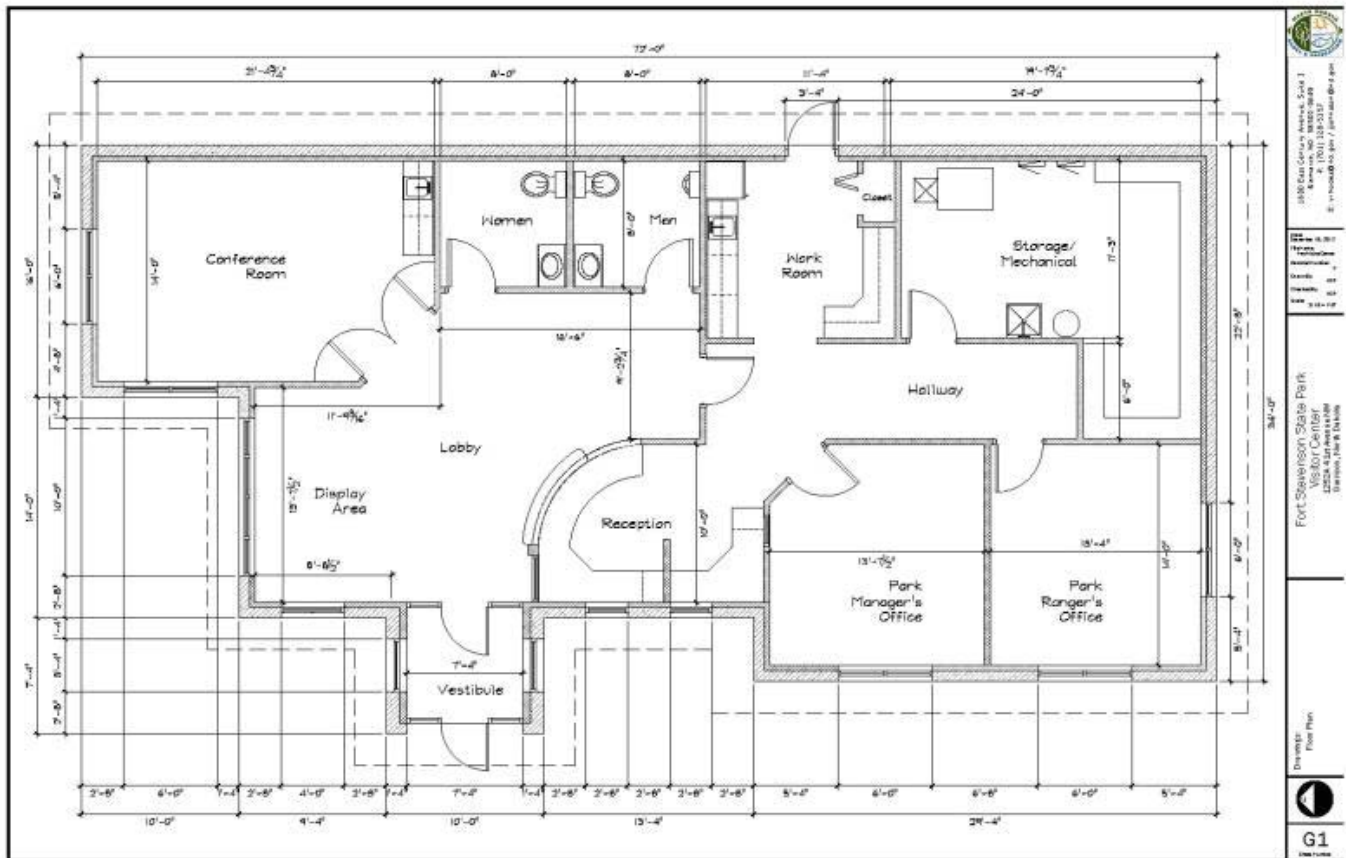
Staff: Building designed to operate with 1 staff during normal hours.

Lessons Learned

Important lessons learned in development or management of the visitor center. Identify key components and critical services needed in the building. Use functional designs to maximize efficient visitor services. At entrance to state park, offices have windows facing entrance road for monitoring traffic, provide additional safety for adjacent entrance booth. Build on practices/designs used in other parks with similar users.

Designs





Icelandic State Park Visitor Center

Location

Five miles west of Cavalier, ND

Annual Number of Park Visitors

Day use: 100,000 + per year

Overnight: 3 year average = 8200 camper nights per year

Architecture, Landscape & Engineering

Materials: Wood structure and cedar siding

Associated buildings: Historic buildings are restored wood structures and maintained through donated trust fund annual revenue

Parking: Not adequate for special events

Landscape & exterior spaces: Originally native plants and grasses – now more of a flower garden with perennials to be inviting

Energy: Electric heat/ propane back up (original building) addition = geothermal

Management & Partnerships

How is the visitor center managed? Managed by 2 FTE and one seasonal year around employee

Are there any partnerships in construction, management or maintenance? Yes the Northeastern North Dakota Heritage Association paid for the construction of the original building and were general managers of the project. The park paid the engineering and architecture fees. The expansion (2009) the association paid \$140,000 of the construction and the park paid \$375,000 of the construction and \$62,000 for the geothermal.

Building Functions & Programs

Reception counter, restrooms, interpretive space, meeting space, office space for 3 staff.

Cost to Build

Approximate Cost to design & build: original building (1989) \$325,000 plus \$175,000 for exhibits. 2009 addition \$577,000 (see above) 2014 – 2015 exhibits \$260,000. Government funding = \$150,000 Association \$110,000

Cost to Operate

Approximate cost to operate: Utilities approximately \$12,000/ year, utilities, copy machine, elevator contract. It costs \$3,500 to stain the building every 5 years. Approximately \$1- 3,000 is needed for office supplies and materials for upkeep.

Lessons Learned

Important lessons learned in development or management of the visitor center. Do not go with cedar siding. Go with a maintenance free siding and metal roof. Ask for an interpreter / staff to oversee the complex / visitor center to not tax the manager/ assistant manager.

Photographs



APPENDICES PROBABLE COST TO DEVELOP SELECT RECREATION FACILITIES

OHV Campground Opinion of Probable Cost

ITEM	QTY	UNIT	UNIT COST	EXTENDED COST	NOTES
DEMOLITION					
Clear and Grub	7.0	AC	\$500.00	\$3,500	Excludes training/kids area grading/seeding
Misc. Demolition Elements	1	Allow	\$2,500.00	\$2,500	
CATEGORY SUBTOTAL				\$6,000	
GRADING					
Cut and Fill	22,439	CY	\$4.00	\$89,756	2' over seeding limits shown
Finish and Fine Grading	7.0	AC	\$3,000.00	\$21,000	Import fill not included
Topsoil	22,439	CY	\$2.00	\$44,878	
Erosion Control	3	Allow	\$1,000.00	\$3,000	at existing road and 2 other locations TBC
Drainage Structures	4	Allow	\$1,000.00	\$4,000	Culverts & riprap allowance for TBD site drainage conditions
CATEGORY SUBTOTAL				\$162,634	
UTILITIES					
Electric Utilities		Allow	\$5,000.00	\$0	NONE
Water		Allow	\$5,000.00	\$0	NONE
Sanitary Sewer		Allow	\$6,000.00	\$0	NONE
CATEGORY SUBTOTAL				\$0	
ARCHITECTURE					
Accessible Comfort Station Vault 2 Stalls	1	LS	\$49,000.00	\$49,000	Pre-manufactured ADA CXT vault toilet, 2 stalls
CATEGORY SUBTOTAL				\$49,000	
PEDESTRIAN PAVING					
Pullout/Restroom Hardener	1,020	SF	\$1.00	\$1,020	4" thick crushed gravel w/ hardeners in addition to above
Pullout/Restroom Geotextile	1,020	SF	\$0.25	\$255	
Crushed Gravel Trail	11,612	SF	\$1.00	\$11,612	
CATEGORY SUBTOTAL				\$12,887	
PARKING/ROAD					
Aggregate Base Course Road & Parking	1,081	TON	\$25.00	\$27,025	6" thick
Closure Gate (Manual)	1	EA	\$1,250.00	\$1,250	
CATEGORY SUBTOTAL				\$28,275	
LANDSCAPE					
Upland Seed Mix	5.3	AC	\$250.00	\$1,325	* Assumes truck watering for establishment Excludes training/kids area grading/seeding
Landscape Boulders	350	EA	\$50.00	\$17,500	
Trees 1" Cal.	0	EA	\$150.00	\$0	
CATEGORY SUBTOTAL				\$18,825	
GENERAL SITE FURNISHINGS					
Perimeter / Interior Fence	5,285	LF	\$25.00	\$132,125	
Dumpster w/ Enclosure Double	1	EA	\$2,000.00	\$2,000	
Recycling Containers	2	EA	\$100.00	\$200	
CATEGORY SUBTOTAL				\$2,200	

OHV Campground Opinion of Probable Cost (Cont.)

ITEM	QTY	UNIT	UNIT COST	EXTENDED COST	NOTES
CAMPING SPURS-FACILITY & TENT PADS					
RV Facility Tent Pad	21	EA	\$1,500.00	\$31,500	3" depth native stone mulch w/ border
CATEGORY SUBTOTAL				\$31,500	
CAMPING SPURS - VEHICLE PAD PAVEMENT					
RV Spurs - ABC	21	EA	\$2,000.00	\$42,000	Assumes 6" ABC to road edge
CATEGORY SUBTOTAL				\$42,000	
CAMPING SPURS - FURNISHINGS					
Picnic Table	21	EA	\$1,500.00	\$31,500	1 per site
Fire Ring	21	EA	\$300.00	\$6,300	1 per site
Spur Marker	21	EA	\$50.00	\$1,050	1 per site
Corral	0	EA	\$1,500.00	\$0	in locations shown
Wheelstops	21	EA	\$50.00	\$1,050	2 per site, 1 per parking space
CATEGORY SUBTOTAL				\$39,900	
SIGNAGE					
Wayfinding Signs	3	EA	\$500.00	\$1,500	
Regulatory Signs	4	EA	\$250.00	\$1,000	
Camp Entry Sign	1	EA	\$3,000.00	\$3,000	
Informational/Interpretive	1	EA	\$1,200.00	\$1,200	
CATEGORY SUBTOTAL				\$6,700	
TOTAL					
				\$465,984	
Owner's Construction Contingency			3.00%	\$13,979.52	
Concept Level Planning Contingency			25.00%	\$116,496.00	
Contractors Bid Bonds			4.00%	\$18,639.36	
Contractors Mobilization & General Requirements			10.00%	\$46,598.40	
GRAND TOTAL CONSTRUCTION				\$661,697.28	
Design Services					
Schematic Design, Design Development & Construction Documents			10.00%	\$66,169.73	
Construction Administration Fees			3.00%	\$19,850.92	
Special Studies - Survey, Geotechnical			2.00%	\$13,233.95	
GRAND TOTAL DESIGN SERVICES				\$99,254.60	
GRAND TOTAL CONSTRUCTION AND DESIGN SERVICES				\$760,951.88	

EquestrianCampground Opinion of Probable Cost

ITEM	QTY	UNIT	UNIT COST	EXTENDED COST	NOTES
DEMOLITION					
Clear and Grub	6.5	AC	\$500.00	\$3,250	to perimeter of seeding limits shown
Misc. Demolition Elements	1	Allow	\$2,500.00	\$2,500	
CATEGORY SUBTOTAL				\$5,750	
GRADING					
Cut and Fill	20,973	CY	\$4.00	\$83,892	2' over seeding limits shown
Finish and Fine Grading	6.5	AC	\$3,000.00	\$19,500	Import fill not included
Topsoil	20,973	CY	\$2.00	\$41,946	
Erosion Control	3	Allow	\$1,000.00	\$3,000	at existing road and 2 other locations TBI
Drainage Structures	4	Allow	\$1,000.00	\$4,000	Culverts & riprap allowance for TBD site drainage conditions
CATEGORY SUBTOTAL				\$152,338	
UTILITIES					
Electric Utilities		Allow	\$5,000.00	\$0	NONE
Water		Allow	\$5,000.00	\$0	NONE
Sanitary Sewer		Allow	\$6,000.00	\$0	NONE
CATEGORY SUBTOTAL				\$0	
ARCHITECTURE					
Accessible Comfort Station Vault 2 Stalls	2	LS	\$49,000.00	\$98,000	Pre-manufactured ADA CXT vault toilet, 2 stalls
CATEGORY SUBTOTAL				\$98,000	
PEDESTRIAN PAVING					
Pullout/Restroom Hardener	1,440	SF	\$1.00	\$1,440	4" thick crushed gravel w/ hardener in addition to above
Pullout/Restroom Geotextile	1,440	SF	\$0.25	\$360	
Crushed Gravel Trail	4,240	SF	\$1.00	\$4,240	
CATEGORY SUBTOTAL				\$6,040	
PARKING/ROAD					
Aggregate Base Course Road & Parking	1,133	TON	\$25.00	\$28,325	6" thick
Closure Gate (Manual)	1	EA	\$1,250.00	\$1,250	
CATEGORY SUBTOTAL				\$29,575	
LANDSCAPE					
Upland Seed Mix	4.3	AC	\$250.00	\$1,075	* Assumes truck watering for establishment excludes corrals, trails, roads, pads
Landscape Boulders	300	EA	\$50.00	\$15,000	
Trees 1" Cal.	0	EA	\$150.00	\$0	
CATEGORY SUBTOTAL				\$16,075	
GENERAL SITE FURNISHINGS					
Perimeter Fence	670	LF	\$25.00	\$16,750	
Dumpster w/ Enclosure Double	1	EA	\$2,000.00	\$2,000	
Recycling Containers	2	EA	\$100.00	\$200	
CATEGORY SUBTOTAL				\$2,200	
CAMPING SPURS-FACILITY & TENT PADS					
RV Facility Tent Pad	20	EA	\$1,500.00	\$30,000	3" depth native stone mulch w/ border
CATEGORY SUBTOTAL				\$30,000	
CAMPING SPURS - VEHICLE PAD PAVEMENT					
RV Spurs - ABC	20	EA	\$2,000.00	\$40,000	Assumes 6" ABC to road edge
CATEGORY SUBTOTAL				\$40,000	

EquestrianCampground Opinion of Probable Cost (Cont.)

ITEM	QTY	UNIT	UNIT COST	EXTENDED COST	NOTES
CAMPING SPURS - FURNISHINGS					
Picnic Table	20	EA	\$1,500.00	\$30,000	1 per site
Fire Ring	20	EA	\$300.00	\$6,000	1 per site
Spur Marker	20	EA	\$50.00	\$1,000	1 per site
Corral	11	EA	\$1,500.00	\$16,500	in locations showr
Wheelstops	20	EA	\$50.00	\$1,000	2 per site, 1 per parking space
CATEGORY SUBTOTAL				\$54,500	
SIGNAGE					
Wayfinding Signs	2	EA	\$500.00	\$1,000	
Regulatory Signs	4	EA	\$250.00	\$1,000	
Camp Entry Sign	1	EA	\$3,000.00	\$3,000	
Informational/Interpretive	1	EA	\$1,200.00	\$1,200	
CATEGORY SUBTOTAL				\$6,200	
TOTAL					
				\$449,053	
Owner's Construction Contingency			3.00%	\$13,471.59	
Concept Level Planning Contingency			25.00%	\$112,263.25	
Contractors Bid Bonds			4.00%	\$17,962.12	
Contractors Mobilization & General Requirement			10.00%	\$44,905.30	
GRAND TOTAL CONSTRUCTION				\$637,655.26	
Design Services					
Schematic Design, Design Development & Construction Document			10.00%	\$63,765.53	
Construction Administration Fees			3.00%	\$19,129.66	
Special Studies - Survey, Geotechnica			2.00%	\$12,753.11	
GRAND TOTAL DESIGN SERVICES				\$95,648.30	
GRAND TOTAL CONSTRUCTION AND DESIGN SERVICES				\$733,303.56	

Texas Crossing Opinion of Probable Cost

ITEM	QTY	UNIT	UNIT COST	EXTENDED COST	NOTES
DEMOLITION					
Clear and Grub	1.3	AC	\$500.00	\$650	township
Misc. Demolition Elements	1	Allow	\$2,500.00	\$2,500	
CATEGORY SUBTOTAL				\$3,150	
GRADING					
Cut and Fill	4,254	CY	\$4.00	\$17,016	2' over seeding limits shown
Finish and Fine Grading	1.3	AC	\$3,000.00	\$3,900	Import fill not included
Topsoil	4,254	CY	\$2.00	\$8,508	
Erosion Control	3	Allow	\$1,000.00	\$3,000	at existing road and 2 other locations TBD
Drainage Structures	2	Allow	\$1,000.00	\$2,000	Culverts & riprap allowance for TBD site drainage conditions
CATEGORY SUBTOTAL				\$34,424	
UTILITIES					
Electric Utilities		Allow	\$5,000.00	\$0	NONE
Water		Allow	\$5,000.00	\$0	NONE
Sanitary Sewer		Allow	\$6,000.00	\$0	NONE
CATEGORY SUBTOTAL				\$0	
ARCHITECTURE					
Accessible Comfort Station Vault 2 Stalls	0	LS	\$49,000.00	\$0	Pre-manufactured ADA CXT vault toilet, 2 stalls
CATEGORY SUBTOTAL				\$0	
PEDESTRIAN PAVING					
Pullout/Restroom Hardener	12,840	SF	\$1.00	\$12,840	4" thick crushed gravel w/ hardeners
Pullout/Restroom Geotextile	12,840	SF	\$0.25	\$3,210	in addition to above
Crushed Gravel Trail	12,840	SF	\$1.00	\$12,840	
CATEGORY SUBTOTAL				\$28,890	
PARKING/ DRIVE LANE					
Aggregate Base Course Road & Parking	1,084	TON	\$25.00	\$27,100	6" thick
Closure Gate (Manual)	2	EA	\$1,250.00	\$2,500	
CATEGORY SUBTOTAL				\$29,600	
LANDSCAPE					establishment
Upland Seed Mix	1.3	AC	\$250.00	\$325	excludes corrals, trails, roads, pads,
Landscape Boulders	200	EA	\$50.00	\$10,000	includes sidewalk-road delineator
Trees 1" Cal.	30	EA	\$150.00	\$4,500	Majority of trees replaced inside limits of work due to re-grading. Material cost only
CATEGORY SUBTOTAL				\$14,825	

Texas Crossing Opinion of Probable Cost (Cont.)

ITEM	QTY	UNIT	UNIT COST	EXTENDED COST	NOTES
GENERAL SITE FURNISHINGS					
Perimeter Fence	820	LF	\$25.00	\$20,500	
Dumpster w/ Enclosure Double	1	EA	\$2,000.00	\$2,000	
Recycling Containers	2	EA	\$100.00	\$200	
CATEGORY SUBTOTAL				\$2,200	
FURNISHINGS					
Picnic Table	7	EA	\$1,500.00	\$10,500	1 per site
Wheelstops	15	EA	\$50.00	\$750	1 per site
CATEGORY SUBTOTAL				\$11,250	2 per site, 1 per parking space
SIGNAGE					
Wayfinding Signs	1	EA	\$500.00	\$500	
Regulatory Signs	4	EA	\$250.00	\$1,000	
Entry Sign	1	EA	\$3,000.00	\$3,000	
Informational/Interpretive	3	EA	\$1,200.00	\$3,600	
CATEGORY SUBTOTAL				\$8,100	
TOTAL					
				\$142,689	
Owner's Construction Contingency			3.00%	\$4,280.67	
Concept Level Planning Contingency			25.00%	\$35,672.25	
Contractors Bid Bonds			4.00%	\$5,707.56	
Contractors Mobilization & General Requirements			10.00%	\$14,268.90	
GRAND TOTAL CONSTRUCTION				\$202,618.38	
Design Services					
Schematic Design, Design Development & Construction Documents			10.00%	\$20,261.84	
Construction Administration Fees			3.00%	\$6,078.55	
Special Studies - Survey, Geotechnical			2.00%	\$4,052.37	
GRAND TOTAL DESIGN SERVICES				\$30,392.76	
GRAND TOTAL CONSTRUCTION AND DESIGN SERVICES				\$233,011.14	

Group Area Opinion of Probable Cost

ITEM	QTY	UNIT	UNIT COST	EXTENDED COST	NOTES
DEMOLITION					
Clear and Grub	2.2	AC	\$500.00	\$1,100	existing shade trees to remain
Misc. Demolition Elements	1	Allow	\$2,500.00	\$2,500	
CATEGORY SUBTOTAL				\$3,600	
GRADING					
Cut and Fill	1,784	CY	\$4.00	\$7,136	2' over work limits shown
Finish and Fine Grading	2.2	AC	\$3,000.00	\$6,600	Import fill not included
Topsoil	1,784	CY	\$2.00	\$3,568	
Erosion Control	3	Allow	\$1,000.00	\$3,000	at existing road entries and group area
Drainage Structures	2	Allow	\$1,000.00	\$2,000	Culverts & riprap allowance for TBD site drainage conditions at 2 crossings
CATEGORY SUBTOTAL				\$22,304	
UTILITIES					
Electric Utilities	0	Allow	\$5,000.00	\$0	NONE
Water	0	Allow	\$5,000.00	\$0	NONE
Sanitary Sewer	0	Allow	\$6,000.00	\$0	NONE
CATEGORY SUBTOTAL				\$0	
ARCHITECTURE					
Accessible Comfort Station Vault 2 Stalls	1	LS	\$49,000.00	\$49,000	Pre-manufactured ADA CXT vault toilet, 2 stalls
CATEGORY SUBTOTAL				\$49,000	
PEDESTRIAN PAVING					
Amphitheater and Trail Hardener	5,550	SF	\$1.00	\$5,550	4" thick crushed gravel w/ hardeners
Amphitheater and Trail Geotextile	5,550	SF	\$0.25	\$1,388	in addition to above
Crushed Gravel Trail	5,550	SF	\$1.00	\$5,550	
CATEGORY SUBTOTAL				\$12,488	
PARKING/ DRIVE LANE					
Aggregate Base Course Entry & Parking	535	TON	\$25.00	\$13,375	6" thick
Closure Gate (Manual)	3	EA	\$1,250.00	\$3,750	
CATEGORY SUBTOTAL				\$17,125	

Group Area Opinion of Probable Cost (Cont.)

ITEM	QTY	UNIT	UNIT COST	EXTENDED COST	NOTES
LANDSCAPE					* Assumes truck watering for establishment
Upland Seed Mix	1.8	AC	\$250.00	\$450	
Landscape Boulders	85	EA	\$50.00	\$4,250	in landscape areas
Trees 1" Cal.	0	EA	\$300.00	\$0	Majority of trees existing to remain
		CATEGORY SUBTOTAL		\$4,700	
GENERAL SITE FURNISHINGS					
Perimeter Fence	365	LF	\$25.00	\$9,125	
Dumpster w/ Enclosure Double	1	EA	\$2,000.00	\$2,000	
Recycling Containers	2	EA	\$100.00	\$200	
		CATEGORY SUBTOTAL		\$11,325	
FURNISHINGS					
Picnic Table	6	EA	\$1,500.00	\$9,000	
Bench Seating	0	EA	\$2,500.00	\$0	
Fire Ring	1	EA	\$300.00	\$300	1 for shared use
Spur Marker		EA	\$50.00	\$0	1 per site
Corral		EA	\$1,500.00	\$0	in locations shown
Wheelstops	21	EA	\$900.00	\$18,900	2 per site, 1 per parking space
		CATEGORY SUBTOTAL		\$28,200	
SIGNAGE					
Wayfinding Signs	0	EA	\$500.00	\$0	
Regulatory Signs	4	EA	\$250.00	\$1,000	
Entry Sign	1	EA	\$3,000.00	\$3,000	
Informational/Interpretive	1	EA	\$1,200.00	\$1,200	
		CATEGORY SUBTOTAL		\$5,200	
TOTAL				\$153,942	
Owner's Construction Contingency			3.00%	\$4,618.26	
Concept Level Planning Contingency			25.00%	\$38,485.50	
Contractors Bid Bonds			4.00%	\$6,157.68	
Contractors Mobilization & General Requirements			10.00%	\$15,394.20	
GRAND TOTAL CONSTRUCTION				\$218,597.64	
Design Services					
Schematic Design, Design Development & Construction Documents			10.00%	\$21,859.76	
Construction Administration Fees			3.00%	\$6,557.93	
Special Studies - Survey, Geotechnical			2.00%	\$4,371.95	
GRAND TOTAL DESIGN SERVICES				\$32,789.64	
GRAND TOTAL CONSTRUCTION AND DESIGN SERVICES				\$251,387.28	

Visitors Center Opinion of Probable Cost

ITEM	QTY	UNIT	UNIT COST	EXTENDED COST	NOTES
DEMOLITION					
Clear and Grub	5.5	AC	\$500.00	\$2,750	excludes road and bridge work by township
Misc. Demolition Elements	1	Allow	\$2,500.00	\$2,500	
CATEGORY SUBTOTAL				\$5,250	
GRADING					
Cut and Fill	17,747	CY	\$4.00	\$70,988	2' over work limits shown
Finish and Fine Grading	5.5	AC	\$3,000.00	\$16,500	Import fill not included
Topsoil	17,747	CY	\$2.00	\$35,494	
Erosion Control	4	Allow	\$1,000.00	\$4,000	at existing road and 2 other locations TBI
Drainage Structures	3	Allow	\$1,000.00	\$3,000	Culverts & riprap allowance for TBD site drainage conditions at 3 crossings
CATEGORY SUBTOTAL				\$129,982	
UTILITIES					
Electric Utilities	1	Allow	\$5,000.00	\$5,000	NONE
Water	1	Allow	\$5,000.00	\$5,000	NONE
Sanitary Sewer	1	Allow	\$6,000.00	\$6,000	NONE
CATEGORY SUBTOTAL				\$16,000	
ARCHITECTURE					
Maintenance Building	1,575	SF	\$200.00	\$315,000	Serves as interim visitor contact station
Visitor Center	2,530	SF	\$200.00	\$506,000	
CATEGORY SUBTOTAL				\$821,000	
PEDESTRIAN PAVING					
Amphitheater and Trail Hardener	6,200	SF	\$1.00	\$6,200	4" thick crushed gravel w/ hardeners
Amphitheater and Trail Geotextile	6,200	SF	\$0.25	\$1,550	in addition to above
Crushed Gravel Trail	6,200	SF	\$1.00	\$6,200	
Colored Concrete Paving	17,155	SF	\$7.00	\$120,085	
CATEGORY SUBTOTAL				\$134,035	
PARKING/ DRIVE LANE					
Aggregate Base Course Maintenance Entry & Parking	275	TON	\$25.00	\$6,875	6" thick - interim visitor contact
Aggregate Base Course Visitor Entry & Parking	1,685	TON	\$25.00	\$42,125	6" thick - below asphalt
Asphalt at Visitors Center	5,057	SY	\$22.50	\$113,783	
Closure Gate (Manual)	3	EA	\$1,250.00	\$3,750	
CATEGORY SUBTOTAL				\$166,533	

Visitors Center Opinion of Probable Cost (Cont.)

ITEM	QTY	UNIT	UNIT COST	EXTENDED COST	NOTES
LANDSCAPE					
	3.2	AC	\$250.00	\$800	* Assumes truck watering for establishment
Upland Seed Mix					excludes interpretive landscape and program
Landscape Boulders	100	EA	\$50.00	\$5,000	space plantings
Interpretive Glacial Boulders and Ammonite	1	ALLOW	\$200,000.00	\$200,000	in landscape area:
	62	EA	\$300.00	\$18,600	for interpretive plaza, includes substrate
Trees 2" Cal.					Majority of trees replaced inside limits of
	CATEGORY SUBTOTAL			\$224,400	work due to re-grading. Material cost only
GENERAL SITE FURNISHINGS					
Perimeter Fence	275	LF	\$25.00	\$6,875	
Dumpster w/ Enclosure Double	1	EA	\$2,000.00	\$2,000	
Recycling Containers	2	EA	\$100.00	\$200	
	CATEGORY SUBTOTAL			\$9,075	
FURNISHINGS					
Picnic Table	8	EA	\$1,500.00	\$12,000	
Bench Seating	8	EA	\$2,500.00	\$20,000	2 per picnic site along trail to amphitheater
Wheelstops	19	EA	\$900.00	\$17,100	2 per site, 1 per parking space
Deck with Railing	3,180	SF	\$75.00	\$238,500	
	CATEGORY SUBTOTAL			\$287,600	
SIGNAGE					
Wayfinding Signs	3	EA	\$500.00	\$1,500	
Regulatory Signs	4	EA	\$250.00	\$1,000	
Entry Sign	1	EA	\$3,000.00	\$3,000	
Informational/Interpretive	7	EA	\$1,200.00	\$8,400	
	CATEGORY SUBTOTAL			\$13,900	
TOTAL					
				\$1,807,775	
Owner's Construction Contingency			3.00%	\$54,233.25	
Concept Level Planning Contingenc			25.00%	\$451,943.75	
Contractors Bid Bonds			4.00%	\$72,311.00	
Contractors Mobilization & General Requirement			10.00%	\$180,777.50	
GRAND TOTAL CONSTRUCTION				\$2,567,040.50	
Design Services					
Schematic Design, Design Development & Construction Document			10.00%	\$256,704.05	
Construction Administration Fee:			3.00%	\$77,011.22	
Special Studies - Survey, Geotechnica			2.00%	\$51,340.81	
GRAND TOTAL DESIGN SERVICES				\$385,056.08	
GRAND TOTAL CONSTRUCTION AND DESIGN SERVICES				\$2,952,096.58	