

APPENDICES

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APPENDIX A. Identification of Possible Trail Routes

In addition to identifying a “Corridor of Opportunity” for the Ice Age NST, planners have found it useful and desirable to identify possible routes for the trail within the corridor. Because of the corridor’s extensive width (generally 3-5 miles), identifying possible routes would focus efforts to establish the trail (time and money), and enable planners to design routes that best exemplify the trail’s mission and goals. The trail was divided up into segments spanning the corridor’s entire length. Again, since participation in the Ice Age NST project is voluntary, the trail’s ultimate location would be determined by the willingness of landowners to sell lands or grant permission to cross their property.

To help design the alternative routes, the Ice Age NST Planning Team identified ten objectives listed below:

- Trail should provide scenic vistas
- Trail should traverse a variety of glacial features.
- Trail links other significant archeological, historical, cultural, geographical, geological, and biological sites.
- Trail utilizes public lands when possible.
- Trail traverses through a variety of plant communities.
- Trail has local landowner and town support.
- Trail avoids development in rural areas.
- Trail provides support facilities.
- Trail links to communities.
- Trail links other significant resource areas.

After the possible trail routes were developed based on the ten objectives, the desirability of each alternative could be evaluated on the basis of criteria grouped into three broad categories of concern: **trail quality**, **environmental considerations**, and **sociological considerations**.

Trail quality is an assessment of each proposed route from the hiker’s point of view. These criteria evaluate, as objectively as possible, how well each route meets the purpose and objectives of the Ice Age NST as set forth in the National Trails System Act. The purpose of National Scenic Trail, as stated in the Act, is “to provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass” [16 U.S.C. 1242(a)(3)]. Criteria studied under **trail quality** include:

- Length – the length of each proposed route. Information was obtained from GIS digital files compiled by Langlade County, the North Central Wisconsin Regional Planning Commission and the National Park Service.
- Road Crossings – the identification and number of road crossings. A high number of crossings may take away from the user’s experience of the trail and create a greater potential for accidents.
- Diversity and Interest of Route – identifies the significant points of interest that are designed into each route to create a desirable hiking experience. Elements evaluated may include significant geologic features, the amount of trail located in the sun and shade, amount of trail located on both hills and valleys, scenic views, and visually outstanding, unique or geographically limited plant communities. Information was obtained from the Core Team members, aerial photographs, and topographic maps.
- Existing development and the probability of future development (low, moderate, high) – the level of existing development and the degree to which each route is likely to be affected by future development. Assessments of future development, while speculative, are based on extrapolations of current patterns of development. Information was obtained from recent aerial photographs, detailed topographic maps and, where available, proposed land use from local land management plans.

Environmental considerations are those impacts that the trail might have on the local natural resources. Information on these impacts has been gathered by questioning Federal, State and County agencies, and interested private organizations and individuals. Criteria studied under **environmental considerations** include:

- Construction Impacts/Number of Stream Crossings – an evaluation of each possible route based on the degree of development needed to construct the trail. The assessment is based on slope, bridge installations, potential of soil erosion or excessive compaction, and impacts to wetlands, floodplains and fisheries. Information sources included, but were not limited to the WDNR Bureaus of Wildlife Management and Water Resources Management.
- Rare, endangered, and threatened species – identifies if a route goes through an occurrence of a plant or animal species that have been identified by the Federal or State government as being endangered or threatened. Information was obtained from the U.S.

Fish and Wildlife Service, and WDNR Bureaus of Wildlife Management and Endangered Resources, and the University of Wisconsin's environmental, biology, and natural resources experts.

Sociological considerations are those impacts that the trail might have on the local human environment, affected landowners, and communities through which the trail may pass. Criteria studied under **sociological considerations** include:

- Number of affected landowners – the number of landowners whose property might be crossed by each route.
- Percentage of public land utilized – the percentage of public lands crossed in relation to the total length of the possible route.
- Secondary benefits – potential positive outcomes resulting from the development of the trail through an area that affect public access, natural resource preservation or enhancement, or economic resources. Information was obtained from local officials, University of Wisconsin staff, local chapters of the Ice Age Trail Alliance, and landowners.

What it means if a possible trail route option goes through your property: Participation by landowners in the Ice Age NST project is voluntary. Planners recognize that actual trail placement will be modified due to the need for landowner acceptance and land-use constraints. The next section provides a summary of each possible route.

DESCRIPTION AND ANALYSIS OF POSSIBLE TRAIL ROUTES

Trail Quality	Segment ID		
	1A	1B	1C
Approx. Segment Length (miles)	2.58	2.46	1.4
Road Crossings	3	2	1
Diversity and Interest of Route	Begins on forested ground moraine near the headwaters of Deer Creek before passing through agricultural fields along eastern edge of tunnel channel. Terminates at Mueller Lake Park in the community of Polar.	Begins on forested ground moraine in commercial woodlands. Crosses Hwy 64 near 5 th Avenue which is used to traverse wetlands associated with Deer Creek. Passes through state and private lands and restoration area before terminating at Goto Lake SFA.	Provides for connection between Goto Lake SFA, Mueller Lake County Park, and community of Polar, passes through residential development along east side of lake.
Existing Development and Probability of Future Development	Properties near lake and along Hwy 64 and Polar Road are currently developed	Land is currently divided into 40-acre parcels or larger and used for recreational and/or agricultural purposes. Parcels located along improved roads may face pressure to subdivide into smaller, residential properties.	North and east ends of lake are already developed, the remaining parcels will face development pressure in the future.
Environmental Considerations			
Construction Impacts/Number of Stream Crossings	0	1	0
Endangered, Threatened, or Special Concern Species Identified by USFWS or WDNR BER	No federally listed species	No federally listed species	No federally listed species

	Segment ID		
Sociological Considerations	1A	1B	1C
Number of Landowners Affected	3	5	3
Landowner Interest		Some support shown by local landowners	Some support shown by local landowners
Public Lands and Rights-of-way Used	2%-Mueller Lake County Park	28%-Goto Lake SFA, Deer Creek, 5th Avenue right-of-way	48%-Goto Lake SFA, Hanke Road, Hwy 64 right-of-way
Secondary Benefits	Eliminates more than 2 miles of trail currently routed along roads and incorporates existing trailhead at Mueller Lake Park.	Eliminates more than 2 miles of trail currently routed along roads and provides a connection between 2 WDNR properties and possible support facilities	Provides connection or possible spur trail to existing trailhead at Mueller Lake Park and existing support facilities

	Segment ID		
Trail Quality	2A	2B	2C
Approx. Segment Length (miles)	1.36	2.12	0.49
Road Crossings	2	1	0
Diversity and Interest of Route	Begins at the existing trailhead at Mueller Lake Park and traverses a relatively flat, primarily wooded landscape with many openings.	Incorporated both the Goto Lake SFA and Rabe Lake SFA . This route option passes through primarily wooded landscapes with a large agricultural opening in the center. It features a contrast between the gently sloping agricultural fields, the high relief of the Goto Lake SFA and spring fed Rabe Lake SFA.	This segment serves as a connection between the northern and southern route options. It passes through commercial forest lands and rolling hills before terminating at the NW corner of the Rabe Lake SFA.
Existing Development and Probability of Future Development	Properties near Mueller Lake and Polar Road are currently developed. Those located along improved roads may face pressure to subdivide into smaller, residential properties.	There is some development pressure.	There is little development pressure.
Environmental Considerations			
Construction Impacts/Number of Stream Crossings	0	1	0
Endangered, Threatened, or Special Concern Species Identified by USFWS or WDNR BER	No federally listed species	No federally listed species	No federally listed species

	Segment ID		
Sociological Considerations	2A	2B	2C
Number of Landowners Affected	8	3	2
Landowner Interest	Some support shown by local landowners	Some support shown by local landowners	Some support shown by local landowners
Public Lands and Rights-of-way Used	9%	66%- Goto Lake SFA and Rabe Lake SFA	No public lands or rights-of-way
Secondary Benefits	Provides for a connection to the existing trailhead Mueller Lake Park and the community of Polar	Provides connection between existing public lands and possible support facilities	Provides for a connection between the northern and southern route options.

	Segment ID				
Trail Quality	3A	3B	3C	3D	3E
Approx. Segment Length (miles)	2.99	4.07	2.77	0.64	2.47
Road Crossings	3	4	4	0	2
Diversity and Interest of Route	This option travels through woodlands on hummocky topography as it heads west across County Highway S, skirting the edge of a former apple orchard as it approaches the edge of the terminal moraine.	Starting at Rabe Lake SFA, this option passes through a relatively flat agricultural landscape with some undulation and scattered woodlots. Midway along the segment are the Town of Polar ball fields and perennial gardens. The segment ends near Demlow Springs SFA, which features an undisturbed white-cedar dominated seepage swamp.	This route option traverses through commercial forest lands on the Almond Moraine interspersed with some agricultural fields and features a distinct north-south oriented ridgeline.	This option is mostly located on the Demlow Springs SFA and includes the headwaters of Mayking Creek, a tributary of the Red River. It is primarily wooded with gently rolling topography	This route option begins at Demlow Springs SFA, passes to the west of Kennedy Lake, and ends near the edge of the Almond Moraine. Primarily, it traverses woodlands interspersed with agricultural fields through gently rolling hills and relatively flat areas.
Existing Development and Probability of Future Development	Lands in the area are currently being subdivided into 10-acre lots. Those located along improved roads may face pressure to subdivide into smaller, residential properties.	Currently there is little pressure to convert these parcels into residential or other uses.	The wooded moraine and Kennedy Lake is an attractive setting for residential development.	Public lands are protected from development. Road access to private lands is limited.	The wooded moraine and Kennedy Lake is an attractive setting for residential development.

	Segment ID				
Environmental Considerations	3A	3B	3C	3D	3E
Construction Impacts/Number of Stream Crossings	0	1	0	0	0
Endangered, Threatened, or Special Concern Species Identified by USFWS or WDNR BER	No federally listed species	No federally listed species	No federally listed species	No federally listed species	No federally listed species
Sociological Considerations					
Number of Landowners Affected	11	11	11	2	7
Landowner Interest	Some support shown by local landowners	Some support shown by local landowners			Some support shown by local landowners
Public Lands and Rights-of-way Used	No public lands or rights-of-way	23%-Demlow Springs SFA , Town of Polar ball fields and perennial gardens	No public lands or rights-of-way	73%, Demlow Springs SFA	no public lands or rights-of-way
Secondary Benefits		Provides for a connection between Rabe Springs SFA, Town of Polar baseball fields and perennial gardens, and Demlow Spring SFA,		Possible trailhead location	

	Segment ID	
Trail Quality	4A	4B
Approx. Segment Length (miles)	1	3.6
Road Crossings	1	3
Diversity and Interest of Route	This option affords some of the best views of the Antigo Flats from atop the primarily wooded Almond Moraine. It features a stunning contrast between hummocky topography of the moraine and the vast outwash plain known as the Antigo Flats.	This option connects Demlow Springs SFA, to the Steffen Memorial Forest and Perch Lake. It passes through headwaters area of the Red River, large, relatively flat agricultural fields with some scattered woodlots. It offers expansive views of and agricultural landscape.
Existing Development and Probability of Future Development	The wooded moraine is an attractive setting for residential development. Large boulder field located along proposed route.	Larger parcels; although wooded portions may be attractive for residential development, this would be limited by road access to sites.
Environmental Considerations		
Construction Impacts/Number of Stream Crossings	0	0
Endangered, Threatened, or Special Concern Species Identified by USFWS or WDNR BER	No federally listed species	No federally listed species
Sociological Considerations		
Number of Landowners Affected	5	7
Landowner Interest		Little support shown by local landowners
Public Lands and Rights-of-way Used	No public lands or rights-of-way	18%-Steffen Memorial Forest

Secondary Benefits		Provides for a connection between the Demlow Springs SFA and Steffen Memorial Forrest, possible support facilities
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	Segment ID			
Trail Quality	5A	5B	5C	5D
Approx. Segment Length (miles)	2.23	3.14	1.83	0.51
Road Crossings	4	4	0	1
Diversity and Interest of Route	This route option lies atop the Almond Moraine. It is primarily wooded, with some agricultural fields. It highlights the contrast between relatively steep side slope and flatter bottom of a tunnel channel with the moraine's hummocky topography.	This route option begins in the Steffen Memorial Forest near the headwaters of the Red River. It passes through a relatively flat, mixed landscape of woodlands and large agricultural fields, and also passes near the springs which make up the headwaters of W Branch of Red River.	This segment follows a tunnel channel from the Trout Springs SFA, through the Almond Moraine. It is primarily wooded with portions that are relatively flat.	This route segment provides for a connection between routes that traverse the forested leading edge of the Almond Moraine, and one which highlights the more open agricultural fields and gently rolling topography of the headwaters of Red River.
Existing Development and Probability of Future Development	Wooded ground moraine is an attractive setting for residential development.	The land is currently divided into large parcels and used for recreational and/or agricultural purposes, and/or commercial woodlands.	Wooded moraine is an attractive setting for residential development.	Primarily protected lands
Environmental Considerations				
Construction Impacts/Number of Stream Crossings	0	2	0	1

Endangered, Threatened, or Special Concern Species Identified by USFWS or WDNR BER	No federally listed species	No federally listed species	No federally listed species	No federally listed species
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	Segment ID			
Sociological Considerations	5A	5B	5C	5D
Number of Landowners Affected	7	11	6	1
Landowner Interest	Some support shown by local landowners	Some support shown by local landowners	Some support shown by local landowners	Entire segment located on public land
Public Lands and Rights-of-way Used	No public lands or rights-of-way	6%-Steffen Memorial Forest	28%-Trout Springs SFA	100%-Steffen Memorial Forest and Trout Springs SFA
Secondary Benefits		Possible support facilities	Possible support facilities	Provides for a connection between the Steffen Memorial Forest and Trout Springs SFA, possible support facilities.

	Segment ID			
Trail Quality	6A	6B	6C	6D
Approx. Segment Length (miles)	2.08	2.58	2.29	0.26
Road Crossings	3	3	3	0
Diversity and Interest of Route	This option meanders through the rolling topography of the Almond Moraine. It is mostly wooded with several residential developments near its northern end.	This route option traverses the Almond Moraine. It is primarily wooded with some agricultural field. It features the contrast between relatively steep side slope and flat of tunnel channel and hummocky topography of the moraine.	This option connects the Trout Springs SFA and the County Gun Range atop the gently rolling, primarily wooded Almond Moraine. It passes near eskers and offers a view north of the receding hills associated with the moraine.	This segment provides for a connection between the two options which skirt the County Gun Range and landfill. It traverses a primarily wooded tunnel channel.
Existing Development and Probability of Future Development	Wooded moraine is an attractive setting for residential development.	Most parcels along this route are already held as individual home sites with the exception of a large agricultural tract to the south.	Wooded moraine is an attractive setting for residential development.	Wooded moraine is an attractive setting for residential development.
Environmental Considerations				
Construction Impacts/Number of Stream Crossings	0	0	0	0
Endangered, Threatened, or Special Concern Species Identified by USFWS or WDNR BER	No federally listed species	No federally listed species	No federally listed species	No federally listed species

	Segment ID			
Sociological Considerations	6A	6B	6C	6D
Number of Landowners Affected	7	11	5	2
Landowner Interest	Some support shown by local landowners		Some support shown by local landowners	Some support shown by local landowners
Public Lands and Rights-of-way Used	No public lands or rights-of-way	No public lands or rights-of-way	No public lands or rights-of-way	No public lands or rights-of-way
Secondary Benefits			Provides for a connection between the Trout Springs SFA and the County Gun Range, possible support facilities.	

Trail Quality	Segment ID			
	7A	7B	7C	7D
Approx. Segment Length (miles)	2.2	1.16	1.82	2.94
Road Crossings	2	2	1	4
Diversity and Interest of Route	This option skirts the County Gun Range, which is located in a tunnel channel, and the Landfill. The gently rolling topography is primarily wooded with some openings and potential views of gravel operations. It passes under Hwy 45 via a cattle crossing.	This option passes through the historic community of Elmhurst and generally follows an abandoned RR grade through a relatively open, flat landscape.	This option skirts the County Gun Range, which is located in a tunnel channel, and the Landfill. The gently rolling topography is primarily wooded with large residential lots. It crosses Hwy 45 just north of a former DOT wayside.	This route segment traverses the rolling topography of the Almond Moraine, primarily through woodlands, skirting some large agricultural fields and passing some large residential lots.
Existing Development and Probability of Future Development	The land has already been divided into small parcels for individual home sites.	This area is currently being subdivided into 10-20 acre residential lots.	This route's proximity to county landfill and gravel operations makes additional residential development unlikely.	The land is currently divided into large parcels and used for recreational and/or agricultural purposes, and/or commercial woodlands. Its proximity to Antigo and State Hwy 45 makes it attractive for additional development.

	Segment ID			
Environmental Considerations	7A	7B	7C	7D
Construction Impacts/Number of Stream Crossings	-	-	-	-
Endangered, Threatened, or Special Concern Species Identified by USFWS or WDNR BER	No federally listed species	No federally listed species	No federally listed species	No federally listed species
Sociological Considerations				
Number of Landowners Affected	6.00	2.00	6.00	9.00
Landowner Interest	Some support shown by local landowners		Some support shown by local landowners	Some support shown by local landowners
Public Lands and Rights-of-way Used	52%-County Gun Range and Landfill	No public lands or rights-of-way	44%, County Gun Range and Landfill	No public lands or rights-of-way
Secondary Benefits	Possible support facilities	Passes through the historic community of Elmhurst	Possible support facilities	

Trail Quality	Segment ID			
	8A	8B	8C	8D
Approx. Segment Length (miles)	0.53	2.66	0.88	0.4
Road Crossings	1	0	0	0
Diversity and Interest of Route	This route option provides for a transition between the Hancock and Almond moraines. The relatively flat landscape is primarily agricultural fields with some woodlots.	This segment traverses the hummocky topography of the Almond Moraine. It follows an abandoned RR grade for approximately 1/2 of its length, skirting wetlands associated with the headwaters of Elmhurst Creek. It passes near two eskers before terminating at the Marathon County Line.	This route option generally follows an abandoned RR grade, traversing forestlands with some open areas and wetlands associated with Bear Lake and the headwaters of the Plover River.	This option skirts wetlands associated with Bear Lake and the headwaters of the Plover River, generally following an abandoned RR grade, providing a connection to the historic community of Elmwood.
Existing Development and Probability of Future Development	A large subdivision already exists here. Its proximity to Antigo and State Hwy 45 makes this area attractive for development.	Land is currently divided into 40-acre parcels or larger and used for recreational and/or agricultural purposes. Additional development limited by access.	This route option is currently located on linear parcel- former RR grade, land on either side is not currently subject to development pressure	Currently there is little pressure for development
Environmental Considerations				
Construction Impacts/Number of Stream Crossings	0	0	0	0

Endangered, Threatened, or Special Concern Species Identified by USFWS or WDNR BER	No federally listed species			
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	Segment ID			
Sociological Considerations	8A	8B	8C	8D
Number of Landowners Affected	4	4	2	2
Landowner Interest		Some support shown by local landowners	Little support shown by local landowners	Some support shown by local landowners
Public Lands and Rights-of-way Used	No public lands or rights-of-way	18%-Former RR right-of-way owned by County	No public lands or rights-of-way	No public lands or rights-of-way
Secondary Benefits				

	Segment ID		
Trail Quality	9A	9B	9C
Approx. Segment Length (miles)	2.1	2.16	0.91
Road Crossings	1	2	0
Diversity and Interest of Route	This route option begins near an ice-walled lake plain at the apex of the Hancock Moraine. It traverses the Hancock Moraine's hummocky topography on its way towards a second ice-walled lake plain through commercial forest lands and some larger openings.	This route option transitions between the front of the Almond Moraine and the back edge of the Hancock Moraine, eventually skirting wetlands associated with the headwaters of the Plover River. It terminates at the Marathon County Line.	This route option begins in a wetland area associated with Bear Lake and the headwaters of the Plover River. It traverses the Hancock Moraine and ends at a pine plantation located atop an ice-walled lake plain.
Existing Development and Probability of Future Development	The land is currently divided into 40-acre parcels or larger and used for recreational and/or agricultural purposes. Additional development limited by access.	This route option is currently located on linear parcel-former RR grade, land on either side is not currently subject to development pressure	Development is currently limited by lack of road access.
Environmental Considerations			
Construction Impacts/Number of Stream Crossings	0	0	0
Endangered, Threatened, or Special Concern Species Identified by USFWS or WDNR BER	No federally listed species	No federally listed species	No federally listed species

	Segment ID		
Sociological Considerations	9A	9B	9C
Number of Landowners Affected	10	3	2
Landowner Interest	Some support shown by local landowners		Some support shown by local landowners
Public Lands and Rights-of-way Used	No public lands or rights-of-way	No public lands or rights-of-way	No public lands or rights-of-way
Secondary Benefits			

	Segment ID
Trail Quality	10A
Approx. Segment Length (miles)	1.71
Road Crossings	0
Diversity and Interest of Route	This route option begins in a pine plantation atop an ice-walled lake plain and traverses the primarily wooded hummocky topography of the Hancock Moraine, crossing an esker before terminating at the Marathon County line.
Existing Development and Probability of Future Development	Land in the area is currently divided into 40-acre parcels or larger and used for recreational and/or agricultural purposes. Additional development limited by access.
Environmental Considerations	
Construction Impacts/Number of Stream Crossings	0
Endangered, Threatened, or Special Concern Species Identified by USFWS or WDNR BER	No federally listed species
Sociological Considerations	
Number of Landowners Affected	7
Landowner Interest	Some support shown by local landowners
Public Lands and Rights-of-way Used	No public lands or rights-of-way
Secondary Benefits	

Insert MAP 1
Possible Route Options

Back Side Map 1

Insert MAP 2
Possible Route Options

Back Side of Map 2

Insert MAP 3
Possible Route Options

Back Side of Map 3

Insert MAP 4
Possible Route Options

Back Side of Map 4