

Lessard-Sams Outdoor Heritage Council

Little Devil Track River Restoration ML 2024 Request for Funding

General Information

Date: 05/31/2023

Proposal Title: Little Devil Track River Restoration

Funds Requested: \$4,435,800

Confirmed Leverage Funds: \$855,600

Is this proposal Scalable?: Yes

Manager Information

Manager's Name: Robert Hass

Title: County Engineer **Organization:** Cook County **Address:** 609 4th Ave E

City: Grand Marais, MN 55604 Email: robert.hass@co.cook.mn.us Office Number: 2183873014

Mobile Number: Fax Number:

Website: https://www.co.cook.mn.us/

Location Information

County Location(s): Cook.

Eco regions in which work will take place:

• Northern Forest

Activity types:

Restore

Priority resources addressed by activity:

Habitat

Narrative

Abstract

The project will restore and protect cold-water streams for natural occurring brook trout, a sensitive, and semirare species, by removing an undersized culvert. The structure is a fish barrier and is creating bank erosion. The project is part of a watershed project identified in local planning efforts and through collaboration with local partners. Installing a bridge and instream geomorphology will restore fish habitat, improve stream connectivity, provide cold water refuge upstream and in tributaries, improve climate resiliency, reduce sediment loading, eliminate the current "thumb over the firehose" effect in the river, and allow for future stream habitat work.

Design and Scope of Work

Northeast Minnesota contains many pristine lakes and rivers which support robust populations of wild brook trout and other sensitive or semi-rare aquatic organisms. Brook trout are significant to aquatic ecosystems, recreational fishing, and an indicator of healthy watersheds. Ecological functions of streams are diminished by roads, development, and impairments that degrade the aquatic ecosystem leading to reductions in brook trout populations. Tributaries provide critical services by providing thermal refugia to brook trout populations.

Little Devil Track River (LDTR) is a tributary to Devil Track River, a tributary to Lake Superior. The in-place culvert was identified as a high priority to be replaced for fish passage, being undersized, and having structural issues. The culvert has a scour pool and a drop outlet. Cook County has determined the culvert will be replaced with a bridge to improve native brook trout habitat, build for climate resiliency with increased precipitation events, and aid in maintaining and improving water quality. Cook County and Cook County Soil and Water Conservation District (SWCD), with input from the local MN DNR Fisheries, agree an open bottom structure will be the most beneficial for the water quality and aquatic habitat. Wild Brook Trout have been identified as the primary species in the river. Secondary species in LDTR include slimy sculpin and some sensitive macro-invertebrates indicating a high-water quality biological resource such as rihithrogena, epeorus, and rychacophila.

The current culvert is impeding fish passage, pinching the river since it is not at bankfull width, and does not have natural bottom substrate to accommodate natural aquatic passage. Because it is pinching the river at this location, it is causing an increase in velocity of stream flow, like holding your thumb over a firehose. The velocity is creating shear stress on downstream banks, causing bank erosion and contributing to sediment loading in the river. The project is part of a multi-phase project to restore areas where necessary throughout the LDTR corridor and watershed for the benefit of aquatic habitat and water quality.

Cook County is working to restore the area back to a natural state, meeting the river's bankfull and flood prone width. Instream geomoprhology has been completed to ensure the new stream bottom will provide the correct roughness runs and pools for Brook Trout habitat and spawning. Cook County will provide the following habitat benefits: low flow refugia, high flow refugia, spawning habitat, searing habitat, and invertebrate habitat. To accomplish these habitat benefits, different options are being explored such as: spawning gravels, mid-channel boulder clusters to create pocket water areas, cross vanes with small plunge pools, and woody debris.

In addition to this instream work, with separate funding, Cook County SWCD will be working on stabilizing the banks downstream using natural channel design. Their project will also be a continuation of this project and instream fish habitat work along with floodplain work, riparian revegetation, reestablishment of shade trees and stream bank stabilization. This collaborative effort is planned for 2024 construction with all permitting, design, and engineering complete by December 2023.

Explain how the proposal addresses habitat protection, restoration, and/or enhancement for fish, game & wildlife, including threatened or endangered species conservation

Currently, the river has a box culvert with a scour pool, plunge pool and high velocity of water going through it, acting as a barrier for fish passage. The new bridge structure will be wide enough to accommodate bankfull width and be able to handle flood stages of 100-year and larger storm events. It will fully restore the area back to a more natural state. The instream area of the new structure will have natural channel design to aid in fish passage and aquatic habitat. Preliminary work on pebble counts and a geomorphic study have been completed to ensure stream roughness and stream velocity are incorporated into the project.

The reduction in the velocity of water passing through the structure will reduce the shear stress of the downstream banks. The project allows for success of downstream work by reducing the stream velocity and creating additional habitat not currently present. The banks will be restored as the fish passage structure is replaced, ensuring additional habitat restoration and increasing success of the bank stabilization downstream. In addition to downstream habitat benefits, during larger precipitation events, there is backwater upstream of the current structure. This will be resolved following the replacement of the structure, improving fish habitat. The project will reduce sediment loading which warms waters, reduces food for macro-invertebrates and other invertebrates, disrupts food chains, and depletes dissolved oxygen in the water. It will open up an additional 4.25 miles upstream of cold-water refuge for fish in the river and connecting tributaries.

What are the elements of this proposal that are critical from a timing perspective?

With increased precipitation in rain and snow melt events, it is important to be proactive and complete the work now before additional issues arise from an improperly sized culvert. Scouring from the in-place culvert, downstream erosion on the river banks, and fish passage barriers will continue to degrade the quality of the river as long as the culvert is in place. The project allows for success of downstream work by reducing the stream velocity and creating additional habitat not currently present. The opportunity to collaborate between partners to fix this problem area is now. Cook County SWCD has the funding secured to complete the bank stabilization when there is access to the river from this project, minimizing construction disturbance in the stream corridor. Cook County has worked closely with the SWCD as a partner for the importance of the benefits of the fish and aquatic habitat.

Describe how the proposal expands habitat corridors or complexes and/or addresses habitat fragmentation:

Little Devil Track River is tributary to Devil Track River which flows directly into Lake Superior. The Little Devil Track River has smaller tributaries flowing into it. The project will connect an estimated 4.25 miles of the river and tributaries to the river will be connected, addressing habitat fragmentation. The Minnesota Pollution Control Agency has monitored the Index of Biological Integrity (IBI) of the river since 1997. The fish numbers from the studies indicate a healthy fish population both above and below the culvert. The project will allow fish from both upstream and downstream of the culvert to have more habitat and begin to expand their genetic pool with more mobility in the river.

Which Conservation Plans referenced in MS97A.056, subd. 3a are most applicable to this project?

- Minnesota's Wildlife Action Plan 2015-2025
- Other: Lake Superior North, One Watershed One Plan

Explain how this proposal will uniquely address habitat resilience to climate change and its anticipated effects on game, fish & wildlife species utilizing the protected or restored/enhanced habitat this proposal targets.

By incorporating natural channel design, meeting bankfull width, and floodplain connection, the river will return to a natural state and be more climate resilient to handle precipitation challenges. Natural sediment deposition will be less disrupted, providing a more natural channel evolution of the river. The stream will not be pinched to a confined area causing upstream and downstream issues. Flood waters will be able to flow in a more natural way, allowing the stream to function and adapt more naturally. The long-term benefits of this project tie into other projects of bank stabilization downstream. By reducing water velocity and shear bank stress, the bank stabilization will also address climate resiliency through riparian planting, floodplain connection, toe stabilization and natural channel design. Improving stream connectivity will aid in fish accessibility to cold water refuges upstream. These are common practices to help reduce warming water trends.

Which LSOHC section priorities are addressed in this proposal?

Northern Forest

 Protect shoreland and restore or enhance critical habitat on wild rice lakes, shallow lakes, cold water lakes, streams and rivers, and spawning areas

Describe how this project/program will produce and demonstrate a significant and permanent conservation legacy and/or outcomes for fish, game, and wildlife, and if not permanent outcomes, why it is important to undertake at this time:

The area of the project is part of Cook County land in County right of way and will be protected indefinitely. The area is known for cold waters and native brook trout streams. Over time the culvert in place has created many issues for aquatic habitat. With higher rain events and a trend to warming waters, now is the time to be proactive and try and protect aquatic habitats, having structures, practices and vegetation in place to provide climate resiliency to try and maintain cold water habitats.

Outcomes

Programs in the northern forest region:

• Improved aquatic habitat indicators ~ The project will eliminate impediments for Brook Trout passage to 4.25-miles of upstream headwaters habitat expected to hold spawning reaches by restoring 220-feet of new channel (in place of the existing culvert). Modeling of the current culvert condition suggests the current bankfull velocities to prohibit fish passage, which would present a fish barrier. To fully restore fish passage, the project proposes to fully restore the Little Devil Track River back to its natural habitat with various features to meet aforementioned habitat: Low flow refugia, High flow refugia, Spawning habitat, Rearing habitat, and Invertebrate habitat.

What other dedicated funds may collaborate with or contribute to this proposal?

• N/A

Per MS 97A.056, Subd. 24, Please explain whether the request is supplanting or is a substitution for any previous funding that was not from a legacy fund and was used for the same purpose.

These funds are not supplanting or substituting previous funds allocated for this project.

How will you sustain and/or maintain this work after the Outdoor Heritage Funds are expended?

The project is part of larger scope of projects in the Devil Track River watershed through an adopted 319 Nine Element Plan to benefit water quality. The Little Devil Track River has several banks that will be restored over the next 16 years and bluff and riparian areas to be protected and vegetated. The bridge that will allow the Little Devil Track River to be restored back to its natural habitat will be maintained by Cook County for the lifespan of the structure and, in partnership with Cook County SWCD, future structures and the Little Devil Track River will be maintained into perpetuity.

Actions to Maintain Project Outcomes

Year	Source of Funds	Step 1	Step 2	Step 3
2024 and beyond	local	initial bridge	document	continue inspections
		inspection	observations	and documentation
				for lifespan of
				structure
2024 and beyond	local	monitor restored	document	continue to monitor
		stream	observations	stream and make
				necessary
				adjustments

Provide an assessment of how your program may celebrate cultural diversity or reach diverse communities in Minnesota, including reaching low- and moderate-income households:

Enhancing and protecting the Devil Track River watershed is in direct alignment with the goals set out by the 1854 Treaty Authority to protect, preserve, and enhance the hunting, fishing and gathering rights of the Grand Portage and Bois Forte bands of Lake Superior Chippewa in the 1854 Treaty area. By improving the water quality, creating better fish habitat, and reducing bank erosion this project is directly benefiting the Grand Portage and Bois Forte bands of Lake Superior Chippewa.

Activity Details

Requirements

If funded, this proposal will meet all applicable criteria set forth in MS 97A.056? Yes

Will restoration and enhancement work follow best management practices including MS 84.973 Pollinator Habitat Program?

Yes

Is the restoration and enhancement activity on permanently protected land per 97A.056, Subd 13(f), tribal lands, and/or public waters per MS 103G.005, Subd. 15 or on lands to be acquired in this program? Yes

Where does the activity take place?

- Public Waters
- County/Municipal

Land Use

Will there be planting of any crop on OHF land purchased or restored in this program?

No

Will neonicotinoid pesticide products be used within any activities of this proposal?

No

Other OHF Appropriation Awards

Have you received OHF dollars in the past through LSOHC that are current OPEN appropriations? $\ensuremath{\text{No}}$

Timeline

Activity Name	Estimated Completion Date
Design, engineering, and permitting	September 2023
Bid Letting	December 2023
Begin Construction	July 2024
End Construction	October 2024

Budget

Totals

Item	Funding Request	Total Leverage	Leverage Source	Total
Personnel	\$9,800	\$31,600	county levy/tax	\$41,400
Contracts	\$4,426,000	\$824,000	state and federal	\$5,250,000
Fee Acquisition w/	-	-	-	-
PILT				
Fee Acquisition w/o	-	-	-	-
PILT				
Easement Acquisition	-	-	-	-
Easement	-	-	-	-
Stewardship				
Travel	-	-	-	-
Professional Services	-	-	-	-
Direct Support	-	-	-	-
Services				
DNR Land Acquisition	-	-	-	-
Costs				
Capital Equipment	-	-	-	-
Other	-	-	-	-
Equipment/Tools				
Supplies/Materials	-	-	-	-
DNR IDP	-	-	-	-
Grand Total	\$4,435,800	\$855,600	-	\$5,291,400

Personnel

Position	Annual FTE	Years Working	Funding Request	Total Leverage	Leverage Source	Total
Cook County	1.0	1.0	-	\$7,000	county	\$7,000
Engineer					levy/tax	
Cook County	1.0	1.0	-	\$24,600	county	\$24,600
Inspector					levy/tax	
SWCD Habitat	1.0	1.0	\$9,800	-	-	\$9,800
Coordinator						

Amount of Request: \$4,435,800 **Amount of Leverage:** \$855,600

Leverage as a percent of the Request: 19.29%

DSS + Personnel: \$9,800

As a % of the total request: 0.22%

Easement Stewardship: -

As a % of the Easement Acquisition: -

Total Leverage (from above)	Amount Confirmed	% of Total Leverage	Amount Anticipated	% of Total Leverage
\$855,600	\$855,600	100.0%	1	0.0%

Detail leverage sources and confirmation of funds:

Local levy/tax dollars pay the inspector and engineer leverage. State funds come from Cook County's annual state aid allocation for use on construction projects on state aid routes. Federal funds comes from secured grant and regionally allocated sources. State and federal sources will cover construction leverage.

Does this proposal have the ability to be scalable?

Yes

If the project received 50% of the requested funding

Describe how the scaling would affect acres/activities and if not proportionately reduced, why?

The proposed project could proceed with 90% of the requested funds. To make up the difference the county could bond against its state aid allocation. This would still allow the project to proceed as proposed and restore the river back to its natural state.

Describe how personnel and DSS expenses would be adjusted and if not proportionately reduced, why?

Neither would be affected. The leverage for the county inspector and engineer come from local county levy funds. For habitat coordinator rate would remain the same and the need for additional construction money would come from bonding as mentioned above.

If the project received 30% of the requested funding

Describe how the scaling would affect acres/activities and if not proportionately reduced, why?

The project could not proceed at 30% of requested funding. The county does not have funding to restore the Little Devil Track River back to its natural state so the problems of poor fish habitat, bank erosion, sediment loading, and lack of climate resiliency would still persist.

Describe how personnel and DSS expenses would be adjusted and if not proportionately reduced, why?

The county does not have the funding.

Personnel

Has funding for these positions been requested in the past?

No

Contracts

What is included in the contracts line?

Included in the contracts line are costs associated with mobilizing equipment, removing the existing culvert, abutment concrete, concrete beams and diaphragms, excavation of fill material, piling, stream restoration, stream diversion, and riprap.

Federal Funds

Do you anticipate federal funds as a match for this program?

Yes

Are the funds confirmed?

Yes

Other: Federal Lands Access Program

Is Confirmation Document attached?

<u>Yes</u>

Output Tables

Acres by Resource Type (Table 1)

Type	Wetland	Prairie	Forest	Habitat	Total Acres
Restore	0	0	0	1	1
Protect in Fee with State PILT Liability	0	0	0	0	0
Protect in Fee w/o State PILT Liability	0	0	0	0	0
Protect in Easement	0	0	0	0	0
Enhance	0	0	0	0	0
Total	0	0	0	1	1

Total Requested Funding by Resource Type (Table 2)

Туре	Wetland	Prairie	Forest	Habitat	Total Funding
Restore	-	-	ı	\$4,435,800	\$4,435,800
Protect in Fee with State PILT Liability	-	-	ı	ı	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-
Protect in Easement	-	-	-	-	-
Enhance	-	-	-	-	-
Total	-	-	-	\$4,435,800	\$4,435,800

Acres within each Ecological Section (Table 3)

Туре	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest	Total Acres
Restore	0	0	0	0	1	1
Protect in Fee with State PILT Liability	0	0	0	0	0	0
Protect in Fee w/o State PILT Liability	0	0	0	0	0	0
Protect in Easement	0	0	0	0	0	0
Enhance	0	0	0	0	0	0
Total	0	0	0	0	1	1

Total Requested Funding within each Ecological Section (Table 4)

Туре	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest	Total Funding
Restore	-	-	-	-	\$4,435,800	\$4,435,800
Protect in Fee with State PILT Liability	-	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-	-
Protect in Easement	-	-	-	-	-	-
Enhance	-	-	-	-	-	-
Total	-	-	-	-	\$4,435,800	\$4,435,800

Average Cost per Acre by Resource Type (Table 5)

Type	Wetland	Prairie	Forest	Habitat
Restore	-	-	-	\$4,435,800
Protect in Fee with State PILT Liability	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-
Protect in Easement	-	-	-	-
Enhance	-	-	-	-

Average Cost per Acre by Ecological Section (Table 6)

Туре	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest
Restore	-	-	-	-	\$4,435,800
Protect in Fee with State	-	-	-	-	-
PILT Liability					

Protect in Fee w/o State PILT Liability	-	-	-	-	-
Protect in Easement	-	-	-	-	-
Enhance	-	-	-	-	-

Target Lake/Stream/River Feet or Miles

4.25 miles

Parcels

Sign-up Criteria?

No

Explain the process used to identify, prioritize, and select the parcels on your list:

The parcel identified below is the location of the fish barrier.

Restore / Enhance Parcels

Name	County	TRDS	Acres	Est Cost	Existing Protection
Remove fish barrier	Cook	06101209	1	\$4,435,800	-

Parcel Map



Little Devil Track River Restoration

Restoring stream connectivity and fish habitat for naturally occurring brook trout in the Lake Superior Basin

Synopsis: The proposed project is located in the Arrowhead region just outside the city limits of Grand Marais on the historic Gunflint Trail. The culvert sits approximately 20-ft below the Gunflint Trail in the Little Devil Track River, a 6-mile tributary of the Devil Track River whose waters feed into Lake Superior.

The culvert is causing downstream bank erosion, sediment runoff into the river, and is inhabitable to native fish species. Replacing the culvert with a bridge, is the only way the river can be restored back to its natural condition and gain increased resiliency from the impacts of climate change, flooding, and intense rain events, while also restoring needed fish habitat for naturally occurring brook trout. A bridge replacement is the only action available to prevent further damage to the waterway and to meet the habitat needs of the naturally occurring brook trout and other aquatic species.



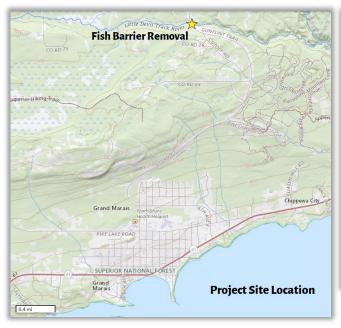


Project Lead:

Cook County

Project Partner:

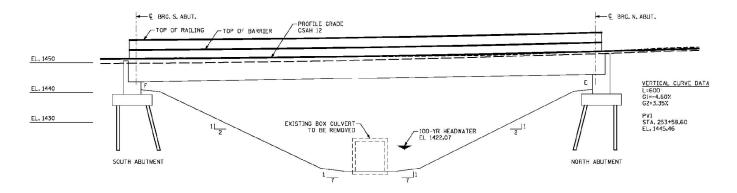
Cook County Soil and Water Conservation District





Above: A native brook trout.

Above: The project site location.



Above: Partial plan set illustrating the culvert removal to improve aquatic habitat and fish passage.

Cook County has already funded engineering and project development expenses. This is a chance for the Council to make this a habitat project instead of a highway project. With this funding, the project is a stream restoration project, going beyond the usual culvert replacement of putting back what is currently there. The project will be shovel ready when funds are appropriated.

Velocity Table								
Flood Event	ood Event Existing		Natural					
Location	Upstrm - Culvert Dnstrm - Cul		Upstrm X-Section: 533	Dnstrm X-Section: 294				
	ft/s	ft/s	ft/s	ft/s				
1-yr	8.5	15.8	6.7	1.9				
2-yr	9.9	17.5	7.5	2.6				
5-yr	12.1	20.2	8.6	3.9				
10-yr	13.7	22.0	9.5	4.9				
25-yr	15.8	24.1	10.5	6.2				
50-yr	16.1	28.4	11.2	7.2				
100-yr	20.4	32.4	12.1	8.1				
200-yr	25.3	37.4	12.9	8.9				

Above: Stream velocity data illustrates the improperly sized culvert's impact.



Above: Downstream view at the culvert outlet and an example of the bank erosion caused by increased river velocities due to the improperly sized culvert.



Above: The culvert interior and the barrier in place that prohibits fish passage and degrades fish habitat.





Above: Views looking upstream (left) and downstream (right) demonstrate that the culvert is undersized and does not meet the bankfull condition of the Little Devil Track River.

Roger J. Skraba State Representative District 03A



Minnesota House of Representatives

To whom it may concern,

Please accept this letter of support for the box culvert replacement on the Gunflint Trail in Cook County Minnesota. I represent this district and give my wholehearted approval.

Here is a little about the project: To replace an undersized box culvert on the Gunflint Trail over the Little Devil Track River just north of Grand Marais. The existing culvert is undersized and causing habitat deterioration for brook trout as well as bank erosion issues up- and down-stream. By replacing the culvert with a bridge, it will restore the Little Devil Track River back to its natural habitat, better protect the river from future bank erosion, sediment runoff, and create a better connected habitat for fish species.

Your support on this vital project would help in many ways.

Cordially

Rep/Røger J. Skraba State Office Building

100 Rev Dr Martin Luther King Jr Blvd

St. Paul, MN 55155



COOK SOIL & WATER CONSERVATION DISTRICT

- protecting and restoring soil and water resources -



May 17, 2023

Robert Hass
Cook County
609 East 4th Avenue
Grand Marais, MN 55604

Dear Mr. Hass,

Cook County Soil and Water Conservation District (SWCD) is in support of the Cook County's project to the Lessard-Sam's Outdoor Heritage Council Outdoor Heritage Fund. The project's goal of improving aquatic habitat and fish connectivity along with providing improved water quality and climate resiliency is a benefit to the Lake Superior Basin for cold water fisheries. The project fits in with the work and goals of the SWCD and supports work that is completed within the locally adopted Lake Superior North, One Watershed One Plan and the adopted EPA approved 319 Nine Element Plan for the Devil Track River Watershed.

The SWCD works with landowners and partners to implement conservation for the benefit of both soil and water resources. The SWCD will be working with Cook County. to address downstream issues on private property. As their project is being installed, it will allow for access to restore the downstream bank erosion on three banks caused by shear stress due to the velocity of the water from the culvert. Natural channel design will be used and tied into the project with Cook County benefiting aquatic habitat and water quality. The SWCD supports the efforts of Cook County and looks forward to collaborating on this stream restoration project for the benefit of the native Brook Trout in the Little Devil Track River.

The project provides a great opportunity in the northeast region for increasing the capacity of natural resource management.

Sincerely,

Ilena Hansel District Manager

Robert Hass

From: Bobby Deschampe <robertdeschampe@grandportage.com>

Sent: Monday, May 22, 2023 6:37 PM

To: Robert Hass

Subject: Re: Lessard Sams Outdoor Heritage Fund LOS

[NOTICE: This message originated from a non-Cook County email address. Use Caution when clicking links or opening attachments.]

Grand Portage takes water quality very serious, this project is within our 1854 treaty area which we have reserved rights to fish, hunt and gather. We are in full support of this project.

From: Robert Hass < Robert. Hass@co.cook.mn.us>

Sent: Monday, May 22, 2023 1:04 PM

To: Bobby Deschampe < robertdeschampe@grandportage.com >

Subject: Lessard Sams Outdoor Heritage Fund LOS

Good afternoon Chairman Deschampe,

I wanted to reach out and discuss a proposal we are working on through the Outdoor Heritage Fund to replace an undersized box culvert on the Gunflint Trail over the Little Devil Track River just north of Grand Marais. The existing culvert is undersized and causing habitat deterioration for brook trout as well as bank erosion issues up- and downstream. By replacing the culvert with a bridge we will be able to restore the Little Devil Track River back to its natural habitat, better protect the river from future bank erosion, sediment runoff, and create a better connected habitat for fish species. We are only able to replace this box culvert with a bridge by securing funds through the Outdoor Heritage Fund so your support would go a long ways in helping us do so!

Please reach out and let me know if you have any questions.

Thank you,

Robert Hass, P.E.

Highway Dept. Director/County Engineer Cook County, Minnesota

Phone: 218-387-3014

Email: robert.hass@co.cook.mn.us

609 East 4th Avenue Grand Marais, MN 55604

www.co.cook.mn.us

