

**Environment and Natural Resources Trust Fund
2016 Additional Information / Feedback**

ID	Subd.	Title	Organization	Program Manager
009-A	03c	Prairie Butterfly Conservation, Research and Breeding - Phase 2	Minnesota Zoological Garden	Erik Runquist
018-A	04i	Techniques for Water Storage Estimates in Central Minnesota	U of MN	John Neiber
036-B	04c	Restoring Native Mussels for Cleaner Streams and Lakes	MN DNR	Mike Davis
037-B	04a	Tracking and Preventing Harmful Algal Blooms	Science Museum of Minnesota	Daniel Engstrom
038-B	04b	Assessing the Increasing Harmful Algal Blooms in Minnesota Lakes	U of MN - St. Anthony Falls Laboratory	Miki Hondzo
047-B	04j	Assessment of Surface Water Quality With Satellite Sensors	U of MN	Jacques Finlay
088-B	04u	Surface Water Bacterial Treatment System Pilot Project	Vadnais Lake Area Water Management Organization	Brian Corcoran
091-C	05b	Improving Outdoor Classrooms for Education and Recreation	MN DNR	Amy Kay Kerber
141-E	07f	Hydrogen Fuel from Wind Produced Renewable Ammonia	U of MN	Will Northrop
144-E	07d	Geotargeted Distributed Clean Energy Initiative	Center for Energy and Environment	Carl Nelson
148-E	07g	Utilization of Dairy Farm Wastewater for Sustainable Production	U of MN	Bradley Heins
149-E	07h	Solar Energy Utilization for Minnesota Swine Farms – Phase 2	U of MN - West Central Research and Outreach Center	Lee Johnston
154-F	08c	Establishment of Permanent Habitat Strips Within Row Crops	Science Museum of Minnesota	Shawn Schottler
174-G	09a	State Parks and State Trails Land Acquisitions	MN DNR	Jennifer Christie
180-G	09e	Wilder Forest Acquisition	Minnesota Food Association	Hilary Otey Wold
181-G	09f	Lincoln Pipestone Rural Water System Acquisition for Well Head Protection	Lincoln Pipestone Rural Water System	Jason Overby

Diana Griffith

To: Susan Thornton
Subject: RE: ERIK RUNQUIST PROPOSAL - FW: 2016 LCCMR Project

From: Runquist, Erik (MNZOO) [<mailto:Erik.Runquist@state.mn.us>]

Sent: Monday, November 16, 2015 10:31 AM

To: Susan Thornton <susan.thornton@lccmr.leg.mn>

Cc: Prohaska, Jane (MNZOO) <Jane.Prohaska@state.mn.us>; Harris, Tara (MNZOO) <Tara.Harris@state.mn.us>; Dana, Robert (DNR) <robert.dana@state.mn.us>; Nordmeyer, Cale (MNZOO) <Cale.Nordmeyer@state.mn.us>

Subject: RE: 2016 LCCMR Project

Hi Susan,

After working on our numbers, the Zoo and DNR appear to have landed on a good balance. Of the recommended \$750,000, the Zoo would receive \$421,000 and the DNR would receive \$329,000.

In order to close the Zoo's gap, we had to eliminate the funding for Activity 2 (the database/threats analyst position). There is strong interest in finding a way to conduct this work in some form by our other state/federal partners, but it appears at this time that the Zoo will not be able to fund it.

Thank you. Please let me know if you have any questions.

Erik

Erik Runquist, Ph.D.

Butterfly Conservation Biologist

Minnesota Zoo, 13000 Zoo Blvd

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*Connecting people, animals, and the natural world **to save wildlife***

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November 20, 2015

To: Susan Thornton, Michael McDonough, Commission members

From: John L. Nieber



Subject: Proposed work for recommended amount for project O-18A, "Minnesota: How Much Water? How is it Changing?"

First I would like to thank the LCCMR for recommending funding for the project I submitted in May of this year. I have worked with my collaborators/Co-PIs on the project workplan and we have outlined the work we will be able to complete for the recommended amount of \$250,000. I have attached the budget for this workplan.

The project will complete all three activities proposed in the original proposal and will focus on one contiguous section of the state. The section proposed for the work is shown in the attached figure. That section includes areas where there is currently the greatest concern for overuse of the surface water and groundwater resources within the state. As project deliverable we will provide mapped estimates of water storage for 2002 and 2014, and the methodology for quantifying water storage change within that time period will be developed and tested. That methodology will be based on the fusion of point measurements, satellite measurements, and hydrologic modeling. Naturally the final report of the project will be available to agencies and other interested parties, but also the data files produced during the project activities will be available as well.

The project will be carried out over a two-year period starting with July 1, 2016.

Again, I sincerely appreciate the support of the LCCMR for this timely project.

2016 Detailed Project Budget

ENRTF ID: 018-A / Subd. 04i - John Nieber

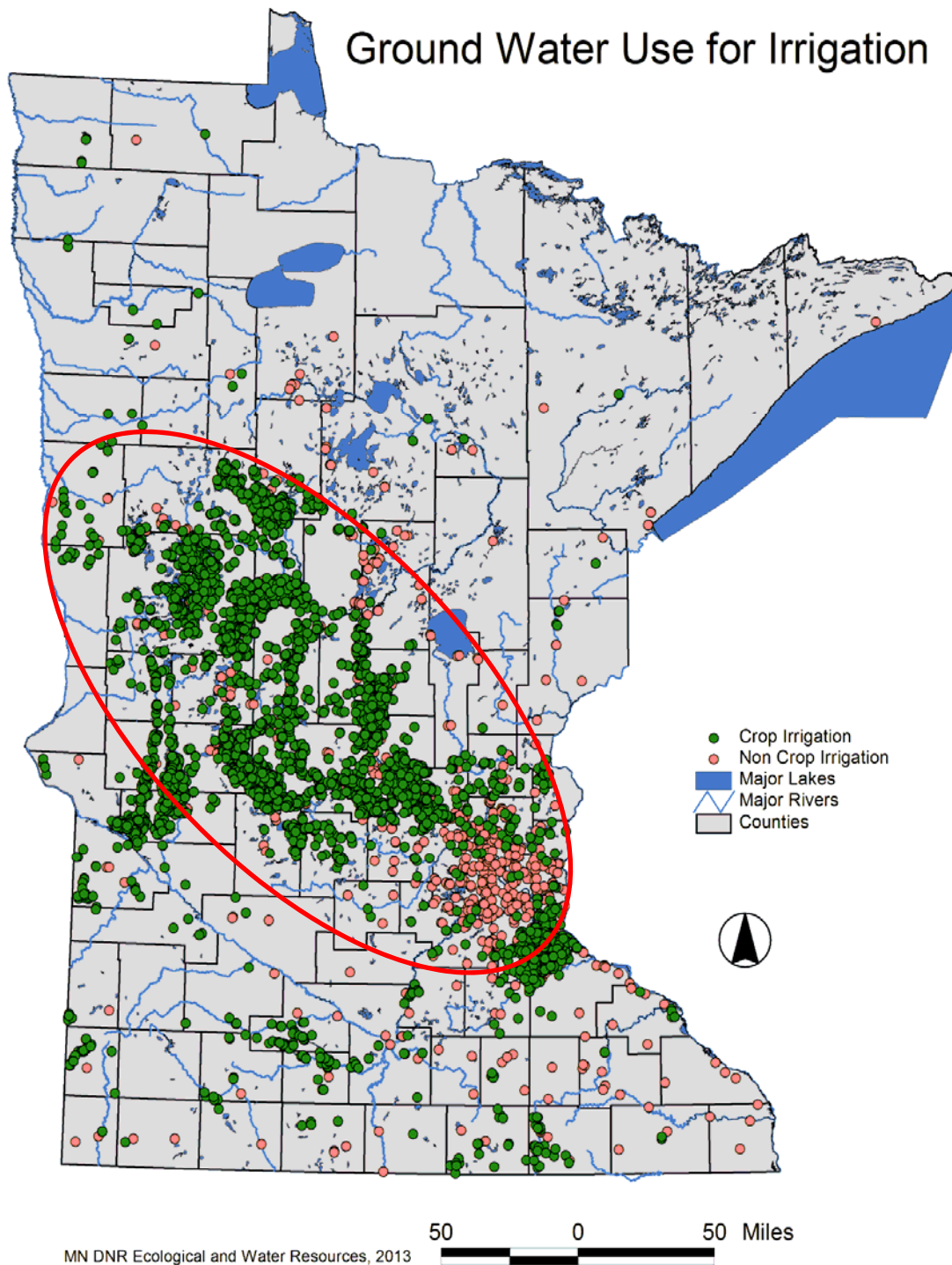
Project Title: Minnesota: How Much Water? How is it Changing?

IV. TOTAL ENRTF REQUEST BUDGET 3 years

<u>BUDGET ITEM</u>	<u>AMOUNT</u>
Personnel:	
John Nieber, Professor, BBE - Will serve as project principal investigator. Will oversee all project activities and manage the project to meet proposed deadlines. Will directly conduct the activities related to the compilation of the data and processing of the data for input to the selected water balance model. Will work directly on the estimation of the baseline water storage distribution in Minnesota. Will work directly with the co-PIs on the application of the water balance model for the calculation and validation of the change in water storage over the period from 2002 to 2015. Period: 7/2016 - 6/2019. 1.5 months/year	0
Bruce Wilson, Professor, BBE - Will work on the uncertainty of estimates of water storage. Period: 7/2016 - 6/2019. 0.5 month/year	0
Timothy Griffis, Associate Professor, SWC - Will conduct the research related to the water balance model. His expertise is in land surface/atmosphere interaction and conducts research on measurement of modeling of evapotranspiration processes. He will advise one of the two graduate students supported on this project. 75% salary/25% benefits. Period: 7/2016 - 6/2019. 1 month/year	29,729
John Baker, Professor and Research Leader, USDA-ARS, SWC - Will work alongside Dr. Griffis on the application of the land surface/atmosphere interaction model. He has expertise in soil moisture monitoring and micrometeorology and evapotranspiration processes. He will work with the quantification of soil moisture storage and also storage of surface waters in lakes and wetlands. Period: 7/2016 - 6/2019. 0.5 month/year	\$0
Roman Kanivest, Adjunct Professor, BBE - Will work with the interpretation of geologic data for the various geologic provinces throughout Minnesota. This is essential to quantify the water storage characteristics of those aquifers. 75% salary/25% benefits. Period: 7/2016 - 6/2019. 1.5 month/year	13,923
Brad Hansen, Senior Research Scientist, BBE - Will work with Dr. Nieber and Mr. Trost to quantify storage in surface and subsurface environment. 75% of his effort will be contributed in the first year of the project. Overall 50% time, 7/2016 - 6/2018.	63,590
Graduate research assistants (one in BBE). This student is identified as Mr. Francisco Lahoud. He will work with the satellite remote sensing data and Dr. Griffis on combining the satellite data results with the meteorological and hydrologic data analysis. He is currently working on his Ph.D. using remote sensing data using GRACE satellite data for quantifying the storage within the Minnesota River Basin. He also has practical experience working with other remote sensing platforms such as Landsat and is familiar with satellites that have soil moisture monitoring sensors. 57% salary/43% benefits. Period: 7/2016 - 6/2018. 6 months/year	79,415
Undergraduate research assistant to assist with data collection, data processing, and results presentation 100% salary. Period: 7/2016 - 6/2018. 4.5 months/year	8,502
Contracts:	
USGS; 25% support for Jared Trost. Will be work with Dr. Nieber on the estimation of water storage in the aquifers of the state. The effort will be 2/3 in the first year and 1/3 in the second year. Period: 7/2016 - 6/2018. 3 months/year	51,840
Equipment/Tools/Supplies:	
None.	\$
Travel:	
To facilitate the ability to travel to different parts of the state to check on monitoring wells, geological data, streamflow data, meteorological data, etc, and to travel to meetings associated with the project.	3,000
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =	\$ 249,999

V. OTHER FUNDS

<u>SOURCE OF FUNDS</u>	<u>AMOUNT</u>	<u>Status</u>
Other Non-State \$ To Be Applied To Project During Project Period:	N/A	
Other State \$ To Be Applied To Project During Project Period:	N/A	
In-kind Services To Be Applied To Project During Project Period:		
Indirect Costs/Facilities and Administration (52%)	to be determined	secured
Funding History:		
Remaining \$ From Current ENRTF Appropriation:	N/A	





Date: 11/19/15

Senator David Tomassoni
Representative John Persell
Nancy Gibson
Co-Chairs, Legislative Citizens Commission on Minnesota Resources

Dear Co-Chairs,

Thank you very much for recommending \$600,000 for “Restoring Native Mussels for Cleaner Streams and Lakes”. I would like to change our mussel proposal and budget the recommended amount over the first two years of the project so that we have adequate funds to hire the full time mussel propagation biologist position proposed for the project while retaining existing staff. Fully staffing our facility is critical to our successful implementation of the mussel restoration project. Our intent is to submit another proposal for the FY 18-20 cycle based on what we have learned and been able to accomplish during the first year.

If you think this is a reasonable approach I will go ahead and submit our work plan to reflect this change.

Thank you for your consideration.

Mike Davis, MNDNR



Tracking and Preventing Harmful Algal Blooms (HABs)
LCCMR Proposal 037-B

Contact: Daniel Engstrom, Science Museum of MN, dre@smm.org

What this project will do:

- Analysis of sediment cores from 10 Sentinel Lakes to answer: “Are HABs increasing in MN lakes?”
- Bimonthly analysis of water quality, blue-green algae, and toxins in 5 Sentinel Lakes to answer: “HABs: Where, When, and Who?”
- Instrumentation and modeling in one Sentinel Lake to link external nutrient loading to in-lake processes that produce HABs to answer: “What causes toxic blooms?”

How this project will benefit Minnesota:

- We will provide a statewide assessment of whether the threat of HABs is increasing in Minnesota and, if so, why?
- We will improve our ability to predict when HABs occur, when they produce toxins, and how long those toxins persist.
- We will help determine what causes HABs in order to develop better means of managing them in the future.
- We will establish infrastructure and capacity to identify harmful algae and toxins within the state of Minnesota (state agencies currently outsource this work).

How this project will collaborate with LCCMR Proposal 038-B, “Increasing Harmful Algal Blooms in Minnesota Lakes”:

- Both research teams will have a coordinated monitoring effort on an overlapping set of lakes to extend the reach of this work from intensive laboratory studies to a broad range of observable field conditions in Minnesota lakes.
- Both research teams will regularly share data and results and coordinate the collection of samples when practical.
- Both groups will work jointly with the Minnesota Interagency Workgroup on Blue-Green Algae (MPCA, MDNR, MDH, MN Vet. Med. Assoc.) to update the agencies on our latest findings, coordinate research, response, and outreach efforts, and evaluate any emerging issues.
- We will provide our results for incorporation into the MPCA/MDNR Sentinel Lakes Program

Diana Griffith

Subject: RE: 047-B - FW: Updated information on project 47-B

From: Jacques C Finlay [<mailto:jfinlay@umn.edu>]

Sent: Tuesday, November 17, 2015 2:50 PM

To: Michael McDonough <michael.mcdonough@lccmr.leg.mn>; Susan Thornton <susan.thornton@lccmr.leg.mn>

Subject: Updated information on project 47-B

Dear Susan and Michael,

Thank you for meeting with us recently to discuss our proposed project (047-B) *Innovative Assessment of Minnesota's Surface Waters from Space*.

As requested, we are providing a brief description of our plans for responding to the adjusted funding level (\$250,000) for our project. Our original request (\$458,000) was for completion of three linked activities. The second activity was proposed to apply methods developed in Activity 1 to understanding of implications of our finding for water resources in the state, including contaminant reactions and drinking water treatment. The third activity was proposed to disseminate the results of Activity 1 and 2 via publications and reports, presentations and a website. Because Activities 2 and 3 are contingent on Activity 1, we propose to modify our project as follows:

We would complete Activity 1 with a small reduction in the budgeted amount (i.e. reduced from \$225,000 to \$205,000). This would allow us to develop the methods largely as planned but with slightly less field data collection and validation.

The reduction in funding would require us to eliminate Activity 2, focused on contaminant distributions and reactivity in surfaces waters. Bill Arnold and Ray Hozalski, who were to lead Activity 2, think that a reduced level of support, if available, could allow us to accomplish much of what we proposed. By supporting a post doc and undergraduates instead of a graduate student (as originally proposed) and by eliminating outcome 3, we could accomplish outcomes 1 & 2 under Activity 2 for approximately \$95,000 (reduced from \$160,000).

We would use the balance of funding from LCCMR to complete scaled down dissemination of results (Activity 3, reduced from \$74,000 to \$45,000). We would publish and present results of Activity 1, and integrate data, maps and methods into the website, as proposed. Due to elimination of activity 2, we would be able to disseminate results for that activity, such as predicting levels of pollutants (such as mercury) for specific lakes, and estimating contaminant reactivity in lakes throughout the state. If additional funds were available for activity 2, we could disseminate results as proposed with additional funding for Activity 3 of \$29,000.

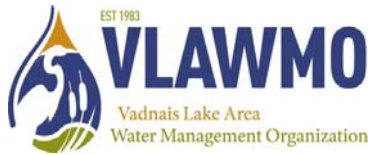
We have discussed these plans at length among our group, and feel that this is the best way to modify our project to accomplish as much as possible toward our goals. Please let me know if any further clarifications would be useful, and thank you again for your guidance with the review process-

Jacques

--

Associate Professor, Director of Graduate Studies, &
Institute on the Environment Fellow
Department of Ecology, Evolution and Behavior

University of Minnesota
1987 Upper Buford Circle
St. Paul, MN 55108
www.cbs.umn.edu/lab/finlay



Surface Water Bacterial Treatment System Pilot Project (088-B)

LCCMR Board,

Thank you for the funding recommendation to the legislature. We are confident the project will maintain the integrity of the original proposal. We have initiated conversation with Tim LaPara from the U of M to help with monitoring and give technical advice on the project. Results from the three treatment wetland cells will allow us to tailor site-specific treatment wetlands that specifically target pollutants (e.g., storm ponds with elevated PAH levels or bacteria from recreational streams) of a given waterbody while minimizing the BMP footprint.

Revised Budget: The project footprint will be 20% of original project size, which maintains the integrity of the research project and meets the LCCMR's proposed funding allocation also allowing for expansion as funds become available. Below is the revised budget that details expense categories.

- Geotechnical _____ \$35,000
- Engineering (Design, Permitting, Bid Documents) _____ \$100,000*
- Construction _____ \$319,400*
(Floating Platform and Vault/Solar Pumps (\$103,000), 3-Cell Subsurface Wetland Areas (\$140,900), Infiltration Area (\$20,500), and Mobilization, Erosion Control Allowance and Contingency (\$55,000))
- Monitoring & Evaluation _____ \$45,600
- Total Cost _____ \$500,000*

Minnesota Department of Natural Resources

500 Lafayette Road · Saint Paul, Minnesota · 55155-4037

Office of the Commissioner

651-259-5555



November 18, 2015

Legislative-Citizens Commission on Minnesota Resources

100 Rev. Dr. Martin Luther King Jr. Blvd.

State Office Building, Room 65

St. Paul, MN 55155

Dear LCCMR Members:

Thank you for recommending funding for "091-C: Improving Outdoor Classrooms for Education and Recreation." This project is a great opportunity to provide focused natural resource management assistance to School Forests and build school district capacity for long-term site maintenance.

The DNR School Forest Program focuses on increasing the quality and quantity of environmental education and developing site management plans. However, we do not provide services for implementing school management plans (e.g. remove buckthorn, build amphitheaters). These are school responsibilities. The School Forest Program will continue to support 130 schools in Minnesota with non-LCCMR funds as follows:

- Train teachers how to teach environmental education, through 8-10 workshops and 1 summit annually.
- Provide educational materials and help teachers meet academic standards while teaching outside.
- Assist with site issues, such as property disputes, liability concerns, community relations, and hunting.
- Provide DNR Forester time to create site management plans and expert management advice.
- Provide .90 FTE staff as School Forest program coordinator and support specialist.

The recommended funding for "091-C: Improving Outdoor Classrooms for Education and Recreation" of \$440,000 by LCCMR directed support to the Conservation Corps Minnesota and Activity 1. As originally proposed by DNR and CCM, the overall project budget was 43% DNR and 57% CCM. Both DNR and CCM believe that the project requires DNR support to be viable and that support is not possible through other funding sources. Therefore, after considering LCCMR's funding direction and talking with LCCMR and CCM staff, we are proposing a revised approach that focuses on CCM deliverables and minimizes LCCMR-funded DNR involvement, yet engages DNR as needed to maximize schools served and project impact. DNR's existing knowledge and established relationships with School Forests increases efficiency, allows for maximum project outcomes, and ensures continuity that is essential to long-term success for the sites. As is, this project cannot move forward without DNR participation. CCM has also submitted a letter stating their support for the proposed approach with DNR involvement.

The proposed approach would deliver new land management activities and create sustainability at School Forests dividing the overall project budget 70% to CCM and 30% to DNR.

- DNR - Provide a new .5 FTE temporary staff person to coordinate schools and enhance student participation.
- DNR - Create four new regional land management workshops focused on local, area-specific needs.
- CCM - Complete on-site natural resource management projects at a minimum of 60 sites.
- CCM - Provide site-specific conservation skill training to teachers, facility managers, and community members.
- CCM - Engage a minimum of 3,000 students in hands-on school forest stewardship.

We have begun development of a work plan that reflects the approach outlined in this letter. We hope you concur with our approach. We look forward to your response and creating a successful project with LCCMR and CCM.

Sincerely,

Tom Landwehr
Commissioner



91-C Proposed Adjusted Budget \$440,000				
LCCMR				
	CCM	DNR	Total	Reduction
Activity 1 (\$394,625 original)				
1. Complete land management projects at a minimum of 60 sites	\$187,880	\$28,300	\$216,180	
2. Train school staff & volunteers in hands-on land management and invasive species control skills specific to site needs	\$24,640	\$25,700	\$50,340	
3. Provide 4 regional trainings (includes supplies & materials)		\$42,100	\$42,100	
4. Evaluate project outcomes		\$2,600	\$2,600	
Activity 1 Adjusted Totals	\$212,520	\$98,700	\$311,220	-\$82,572
Activity 2 (\$371,938 original)				
1. Engage 3,000 students in service-learning, CCM focused outcome of Activity 2	\$95,480	\$33,300	\$128,780	
<i>All other Activity 2 outcomes eliminated.</i>				
Activity 2 Adjusted Totals	\$95,480	\$33,300	\$128,780	-\$243,991
Adjusted Total Request	\$308,000	\$132,000	\$440,000	-\$326,563
% Total Adjusted Budget	70%	30%		



Resources restored. Lives changed.

11/18/2015

Legislative-Citizens Commission on Minnesota Resources
100 Rev. Dr. Martin Luther King Jr. Blvd.
State Office Building, Room 65
St. Paul, MN 55155

Dear LCCMR:

Thank you for recommending funding for "091-C: Improving Outdoor Classrooms for Education and Recreation." This project will improve outdoor classrooms all across Minnesota, thereby helping to create the next generation of conservationists. We at the Conservation Corps are excited to provide the on-the-ground work needed at school forest sites to make them into accessible, safe and welcoming outdoor classrooms.

The role of the Conservation Corps in this project is to complete the on-site natural resource management projects at school forests. These are meant to be short, impactful projects that are currently beyond the skills, know-how, safety level, and capacity of schools to do on their own. Examples include chainsaw work, largescale buckthorn removal, building shelters, removing poison ivy, etc. Once complete, schools will be in a much better position to continue the ongoing maintenance, as per the management plan for each school forest. In addition to these larger projects, our corpsmembers will provide hands-on training at each site to teachers, facility managers, community members, and students to support long-term site management.

The leadership of the Minnesota Department of Natural Resources is critical to an efficient implementation of this project. DNR has already established relationships with school forest contacts. DNR has in-depth knowledge of the needs at each site. DNR will be the one to provide ongoing technical support to school forests, beyond the timeframe of this project. With trained and equipped crews all across the state, the Conservation Corps is well-positioned to do the on-the-ground work and support local training. DNR is essential for efficient implementation during this project and in ensuring long-term sustainability of the school forest sites. The collaboration will bring the best results.

The Conservation Corps has consulted with DNR staff and think that funding of \$308,000 for the Corps will be sufficient to complete the activities outlined in the revised project plan. There is a strong need for both parties – the Corps and DNR – to continue involvement at the levels outlined in the revised budget in order to efficiently accomplish the of on-the-ground work, while building long-term capacity at the local level.

Sincerely,

Len Price
Executive Director

cc: Amy Kay Kerber, MN DNR

ENRTF ID: LCCMR: **Clean Vehicles Fueled by Hydrogen from Renewable Ammonia**

W. Northrop, 11/6/2016

Response to Commission Question:

“The work plan must clearly explain what research has been previously done on this effort by the proposer and what new innovation or different approach is being pursued in this effort and how that will improve the environment in Minnesota.”

Our research team has conducted dual fuel research for diesel engines using hydrous ethanol as the secondary fuel as part of sponsored research from Minnesota Corn Growers and the Agricultural Utilization Research Institute (AURI). This LCCMR project is similar in that we will explore dual fuel strategies for improving emissions and efficiency of diesel engines using ammonia as the secondary fuel. Ammonia presents specific challenges that will be addressed only during the project. The thermally integrated reforming technology to be used in the project has been developed on another project for diesel fuel and ethanol. This system will be adapted and optimized for ammonia decomposition as part of the proposed work plan.

The technology developed in this project will have positive impact on the environment in Minnesota by lowering both pollutant and greenhouse gas emissions of diesel engines that implement it. Carbon dioxide reductions are directly proportional to the amount of ammonia used in the engine and we expect that criteria pollutants like soot and hydrocarbons will also be significantly reduced using the developed technology.

November 6, 2015

TO: LCCMR staff

FROM: Carl Nelson, CEE

RE: **Status of cost-share for revised funding levels: Geotargeted Distributed Clean Energy Initiative**

Per your request, I'm providing here details on the status of our cost-share for our ENRTF proposal 144-E. As you noted in your memo of 10/23/2015, of the \$800,000 for our project recommended for appropriation, "Funding of \$600,000 is for Activity 1 and 3 as proposed. Funding for Activity 2 is for \$200,000 contingent upon providing a match of a minimum of \$1 to \$1 with non-state funds." As staff noted, our original proposal had an estimated match of \$1 million (\$800,000 from Xcel Energy and \$200,000 from foundations) based on our original request of \$1.85 million (we had originally proposed \$1.25 million for Activity 2). The \$800,000 cost-share from Xcel Energy was anticipated to be from a combination of in-kind staff time towards all three activities, and capital cost funding for the technologies that would be installed as part of Activity 2. Our cost-share from foundations was not anticipated to be for Activity 2 activities, although we have not started any fundraising efforts here yet; we may seek this out depending on the project need. Our LCCMR funding for Activity 2 is intended to cover the non-capital "soft" costs of implementing programs; which in high-penetration programs such as the one proposed, can be expected be roughly 50% of total implementation costs. Thus, a \$200,000 expenditure on soft costs funded by LCCMR might leverage \$200,000 in capital expenditures of installed clean energy technologies.

To expand further on the soft costs (LCCMR funded) versus hard costs, the soft costs of program implementation could cover such activities as:

- Development and implementation of a marketing and communications plan for program outreach and recruitment;
- Analysis of market and energy consumption data in order to target market to high-opportunity customers (i.e., analysis of customer billing data to identify high-usage customers);
- Customer-specific work to identify and analyze specific opportunities for saving energy, including diagnosis of where there are specific energy savings opportunities, and preparation of reports of those opportunities (e.g., an energy audit report);
- Follow-up and technical assistance for customers that are interested in participating in programs.

The hard costs would be the expenses to actually install clean energy technologies. As identified in our proposal, this could include energy efficiency (e.g., more efficient ventilation systems, a new chiller for a commercial building, more efficient central air conditioning), solar or other distributed energy technologies (at an individual home or business), battery storage technologies, or what is referred to as "demand response," or technologies that will help reduce the load during peak times, such as a "savers switch" that will cycle air conditioning on and off during times of peak energy demand. It is anticipated that the cost to install these would be provided by a combination of Xcel Energy and the individual

customer for all four kinds of technologies.¹ Note that while Xcel is required to spend money on efficiency, these efforts would be incremental to what they already have planned.² Other, non-LCCMR funding sources may be sought out as well for specific technologies.

I would note that Activity 1 is a planning activity that is intended to provide more definition and detail to the actual programs and funding requirements that are necessary to carry out Activity 2. Thus, it would be premature to be able to say with any certainty the exact budget for Activity 2 (beyond the LCCMR-funded portion), and what exactly in terms of specific technologies or programs that funding would be spent on. An outcome of Activity 1 would be a more detailed plan with this information. It is important to note that as even as proposed, the Xcel Energy cost-share amount was only an estimate, and a not hard commitment. Any funding commitment from Xcel Energy will again be dependent upon the plan produced in Activity 1. In our conversations with Xcel, they thought that it was reasonable they would be able to commit funding for \$800,000 for three communities (based on receiving \$1.25 million in LCCMR funding for Activity 2). Even with a commitment for Xcel funding in place, it is also important to note that since Xcel customers will also be asked to provide a portion of the cost-share to install clean energy technologies, customer willingness to participate in the programs will play a factor in the actual funding for the programs as well. Given the 80%+ reduction in LCCMR funding for Activity 2, we would anticipate that we would be looking at doing implementation in one community, instead of the originally-proposed three communities.

A challenge for cost-share is that the soft costs (marketing, identifying opportunities, and working with customers to implement those opportunities, etc.) generally need to occur prior to customers spending money on the installing clean energy technologies. Thus, there is a time lag between when LCCMR dollars would be spent, and when the cost-share dollars would be spent, which could be 6 months or more. Some of the Xcel cost-share (Xcel internal staff time on the project) would occur earlier in the project in Activity 1, so this could help to offset this issue. Additionally, if we raise foundation dollars towards Activity 1 and 3, this could potentially be applied to the cost-share requirement as well.

Another thing to note is that both Activity 1 and 3 are stand-alone activities from Activity 2, and they are not dependent upon completion of Activity 2. Thus, in the case that insufficient cost-share funding was available for Activity 2, and a decision was made to un-appropriate the \$200,000 in LCCMR funding towards this activity, Activities 1 and 3 could be completed and the full \$600,000 spent, and would be valuable activities to complete in and of themselves. Obviously, we are hoping this won't happen, but just thinking through contingencies.

¹ We are assuming here that the clean energy technologies would be customer-sited; while we expect this to mostly or entirely be the case, I would just note that that would not necessarily be the case for all installations; for example, battery storage located at an Xcel-owned substation could be an equally-valid installation.

² I would note that while we have defined the potential technologies to be deployed broadly, the planning done in Activity 1 can be expected to result in a more narrow deployment in Activity 2, based on engineering requirements and cost-effectiveness.

ENRTF ID: 144-E / Subd. 07d - Carl Nelson
2016 Detailed Project Budget

Project Title: Geotargeted Distributed Clean Energy Initiative -- Activity 2: Program Implementation

(only estimated budget for LCCMR / matching funds for Activity 2)

<u>BUDGET ITEM</u>	<u>AMOUNT</u>
Personnel:	
Carl Nelson, Project Manager (70% salary, 30% benefits); 5% FTE yr 2&3	\$ 14,000
Program Coordinator (70% salary, 30% benefits); 50% FTE yr 2&3	\$ 79,000
Engineering support (70% salary, 30% benefits); 15% FTE yr 2&3	\$ 36,000
Program outreach and implementation staff (70% salary, 30% benefits); 60% FTE yr 2, 23% FTE yr 3	\$ 71,000
Matching funds	
Incentives (from Xcel or foundations) for installing clean energy equipment	\$ 200,000
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUNDS =	\$ 200,000
TOTAL MATCHING FUNDS =	\$ 200,000
TOTAL BUDGET =	\$ 400,000

Notes:

The availability of LCCMR funds will be crucial to securing matching funds.

An important outcome of Activity 1 will be a more detailed feasibility study and workplan for Activity 2, at which time more detail will be provided about matching funds.

**Environment and Natural Resources Trust Fund (ENRTF)****2016 Main Proposal****Project Title: Utilization of dairy farm wastewater for sustainable production****PROJECT TITLE: Utilization of dairy farm wastewater for sustainable production****Timeline:** July 2016 to June 2019**Project Team:****Bradley Heins (Principal Investigator): West Central Research and Outreach Center, Dairy Scientist****Funding: \$500,000**

We will development of an integrated system to recycle and more effectively utilize nutrients in dairy wastewater to reduce agricultural runoff. This project will benefit all size dairy operations in Minnesota ranging from 50 to 500 cows. Research and outreach information will be disseminated after the data are collected, analyzed, and summarized.

We will interrupt dairy wastewater streams. We will clean the dairy waste stream through algae production before it moves to farm fields and streams instead of applying the dairy waste directly to the land. This will reduce the environmental impact of dairy waste from entering streams and watersheds. This project will be scalable to any size dairy farm in Minnesota.

Aspects of the project remaining:

- We will utilize dairy farm wastewater at the West Central Research and Outreach Center (WCROC), Morris, MN.
- We will test different algal strains that will optimize nutrient removal rate in the dairy wastewater.
- Optimize nutrient removal rate of photo bioreactor algae system at the WCROC.
- Feeding algal trial to dairy calves and nursery pigs at WCROC, Morris MN.
- Educational workshops and field days for farmers and industry representatives and the public.
- The project will include graduate student to conduct the research project.

Aspects that will be removed:

- Aquaponic system
- Hydroponic system (We will modify an existing system at WCROC to incorporate in the project).
- The algal production system will be scaled back to clean a smaller amount of dairy wastewater.
- The salary portion of the project will be greatly reduced to accommodate the scope of the project.

Future Funding sources:

Additional funding from the following sources will be applied for in the next few months: University of Minnesota Water Resources Center and Rapid Agricultural Response Fund of the Minnesota Agricultural Experiment Station.

In-kind labor for installation of project materials and algal system will be provided by the WCROC.

Project Title: *Utilization of farm wastewater for sustainable dairy production*

IV. TOTAL ENRTF REQUEST BUDGET: 3 years

<u>BUDGET ITEM</u>	<u>AMOUNT</u>
Personnel:	
Paul Chen, 20% FTE in year 1, 2, and 3; 33.7% fringe rate	20,720
Pedro Urriola, 10% FTE in year 1, 2, and 3; 33.7% fringe rate	10,000
Ruan Graduate research assistant for 2 years	85,910
Heins-Gardener Graduate Research Assistant for 2 years	79,890
Chi-Chen partial graduate research assistant	9,980
Total Personnel:	206,500
Professional/Technical/Service Contracts:	
Total Contracts:	10,000
Equipment/Tools/Supplies:	
Column, reagents, HPLC vial, chemical standards, biochemical kits for Chi Chen laboratory	10,000
Supplies for scoping parameters for the photobioreactor system for Roger Ruan laboratory	30,000
Urban calf feeder for feeding algae as a probiotic to pre-weaned dairy calves	32,000
Small research facility and vacuum ammonia stripping (for both ammonia sulfate production and enhancement of the wastewater process	50,000
Algal cultivation system, centrifuge to harvest algae, pumps for moving water and wastewater throughout system at the research and outreach center	159,000
Costs include Extension programming, workshops, and dissemination of information.	2,500
Total Equipment/Tools/Supplies	283,500
Travel:	
Total Travel	0
Additional Budget Items:	
Total Additional	
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =	\$ 500,000

V. OTHER FUNDS


<u>SOURCE OF FUNDS</u>	<u>AMOUNT</u>	<u>Status</u>
In-kind Services To Be Applied To Project During Project Period: <i>The 52% in foregone federally negotiated ICR funding constitutes the University of Minnesota's cost share to the project.</i>	\$ 260,000	<i>Secured</i>

UNIVERSITY OF MINNESOTA

*West Central Research and Outreach Center**Minnesota Agricultural
Experiment Station
College of Food, Agricultural
and Natural Resource Sciences**46352 State Hwy. 329
Morris, MN 56267-2135
320-589-1711
Fax: 320-589-4870
<http://wcroc.cfans.umn.edu>*

November 5, 2015

To: Susan Thornton, Director

From: Lee Johnston, Professor 

RE: Summary of re-scoping for Project 149-E

We appreciate the opportunity to re-scope our project entitled “Innovative Solar Energy Utilization for Minnesota Swine Farms” (149-E) and are confident that we can complete a meaningful project within the new budget target of \$500,000. The central goal of this project is to generate electricity from on-farm solar photovoltaic panels and use that electricity on the same farm to cool pigs and improve pig performance. The primary environmental benefits accrue because solar power will displace coal-fired power from the commercial utility power grid. Furthermore, improved pig performance allows more pork to be generated from existing inputs of feed grains and water which reduces the carbon and water footprints of consumer-ready pork products. Another important objective of this project is to develop energy systems that apply to and are cost effective for the full range of small and large swine farms in Minnesota.

In the re-scoped project, we will retain Activity 1 which includes installing a 20 kW solar collector on the sow farrowing barn at WCROC to power a cooling system which includes chillers, circulating pumps, and cooling pads under the sows. We will retain the portion of Activity 2 that provides cooled drinking water to sows while they are birthing and nursing their piglets. And, we will keep Activity 4 in the project which allows us to perform an economic analysis of the sow cooling systems and disseminate our findings to interested stakeholders. Importantly, we retained two undergraduate student interns in each of years 2 and 3 of the project. We also retained \$132,600 of matching funds from the University of Minnesota unrecovered indirect charges.

In the updated project, we removed cooling of water for growing-finishing pigs which was a portion of Activity 2 and we deleted Activity 3 entirely. We also removed a portion of time contributed by the technical support staff as described below.

Refinement of our cost estimates and our proposed changes in scope resulted in several adjustments to the budget that can be summarized as follows:

- Reduced estimated costs of the solar collector and installation to about \$4.40 per watt based on recent bids for another project. These costs are still somewhat higher than residential costs mentioned by the LCCMR Commissioners but we are using “Made in Minnesota” collectors and must meet University of Minnesota building codes and construction guidelines that increase costs over residential systems.
- Removed space heating in the sow barn (Activity 3).
- Reduced one technician’s time to 2 years for the installation and commissioning portions of the project.
- Reduced the Junior Scientist to 1 year for the data collection portions of the project when performance of the sows and the cooling system will be evaluated.
- Removed cooling of drinking water for growing-finishing pigs (portion of Activity 2).

Results of our research will be disseminated broadly via our WCROC website, popular press articles and University of Minnesota Extension programs. We will develop a “virtual” tour video to allow farmers to see our system without the risk of transferring disease to or from our WCROC swine facilities. We will also include our results as a prominent segment of an upcoming Midwest Farm Energy Conference hosted by WCROC.

St. Croix Watershed Research Station



16910—152nd Street North, Marine on St. Croix, MN 55047
TEL (651) 433-5953 FAX (651) 433-5924 WWW.SMM.ORG

November 18, 2015

Legislative-Citizen Commission on Minnesota Resources (LCCMR)
Attn: Susan Thornton
100 Rev. Dr. Martin Luther King, Jr. Blvd.
Room 65, State Office Building
St. Paul, MN 5555-1201

Dear Susan:

We sincerely appreciate the Commission's decision to support our project: *Seeding Between the Lines: Permanent Habitat Within Row-crops* (154-F). The project was proposed at \$179,400. Funding was recommended at 159,000 with a lower budget for fabrication of a custom planter. We can certainly complete the project at this amount but want to clarify how we will implement the project with the recommended funding.

The concept and methods being developed in this project are new but once demonstrated should offer a low-cost conservation practice available to farmers. Having a seed drill developed that can either be copied or loaned out to other farmers would greatly facilitate future adoption of the method. At the funding level recommended for this portion of the project, we will be unable to deliver and demonstrate a planter specific to this conservation technique.

The original budget covered the design and fabrication of a custom planter. While we may start with an existing drill/planter, extensive modification and additional features will be needed to meet the unique specifications of the project. In the project, we will need to plant 30" wide strips of native prairie species into existing no-till row-crop fields. No seed drill or planter currently exists that can complete this task, and modifying existing seed drills is a challenge for several reasons:

- a) The planter, including wheelbase, must be less than 30" wide so that it will not interfere with the corn/soy rows.
- b) Because of the heavy corn/soy residue in a no-till field, the native seed needs to be drilled and not broadcast. Thus a drop seeder will not work.
- c) The planter needs to work with multiple species with a wide range of seed sizes.
- d) Ideally the planter should be customized to "piggy-back" onto the rear of the 24-row planter used to plant the corn/soy rows.

Again, we thank the Commission for their support of this project and look forward to demonstrating a new conservation practice.

Sincerely,

Shawn Schottler
Senior Scientist

Diana Griffith

Subject: FW: DNR-Parks and Trails-Potential Significant Acquisition-Minneopa

Good afternoon Michael,

Per our phone conversation, the following is a summary of a potential significant acquisition from a single landowner at Minneopa State Park, along with a state trails and state park map, drawn to the best of my ability:

DNR-Parks and Trails Division has an active acquisition project listed in the 2015 LCCMR work plan that's located within the statutory boundary of Minneopa State Park. While working on acquiring 147 acres from this willing seller, the landowner expressed an interest to sell the remainder of his 417 acre total ownership, an additional 270 acres, to the State Park over the next three years or so.

- The current acquisition is for 147 acres and is expected to close by the end of the 2015 calendar year. The acquisition amount is \$495,000 and it is being funded with ENRTF M.L. 2015, Chp. 76, Sec. 2, Subd. 9a
- Additional 270 acres are owned by the same landowner. All the remaining land is located within statutory boundary of Minneopa State Park. The estimated budget for the remaining 270 acres is \$1,500,000
- Total acreage potential is 417 acres from this one willing seller
- Minneopa State Park has approximately 2,700 acres located within the statutory boundary
- MnDNR currently manages, on behalf of the public, approximately 1,750 acres, leaving 950 acres of "in-holdings" for this park. This total acquisition would reduce in-holdings to less than 500 acres.
- The property has been identified potential future alignment for the Minnesota State Trail and this segment would be about 1.5 miles.
 - The Minnesota River State Trail is a legislatively authorized state trail which, when complete, will connect Big Stone Lake State Park to the city of Le Sueur.
 - A master plan for the section between Big Stone Lake State Park and the city of Franklin was completed in February 2008.
 - This master plan addresses the section between Franklin and Le Sueur, as well as a loop connecting the cities of Redwood Falls and Sleepy Eye to Fort Ridgely State Park.
 - The trail is envisioned to connect communities, state and county parks, regional trails, and historic and cultural sites in the Minnesota River Valley.
 - In Le Sueur, it will ultimately connect to the Minnesota Valley State Trail, which is planned to extend to Fort Snelling State Park.
- Significant preservation of approximately 1.5 miles of the Minnesota River shoreline
- High likelihood of cultural resources such as potential American Indian habitation sites
- Natural heritage database on rare and endangered species has documented the following species within this segment of the Minnesota River corridor, including this property: American bald eagle, western fox snake, shovelnose sturgeon, and small white ladyslipper
- Located within the vicinity of the bison reintroduction area, and could be potential expansion area in the long-term. The bison are currently occupying around 325 acres
- Established in 1905, Minneopa is the third oldest state park in Minnesota
- This state park has a history of local support, especially with the recent bison reintroduction program

Any possible funding assistance from LCCMR through ENRTF to accelerate this valuable land acquisition opportunity would be appreciated!

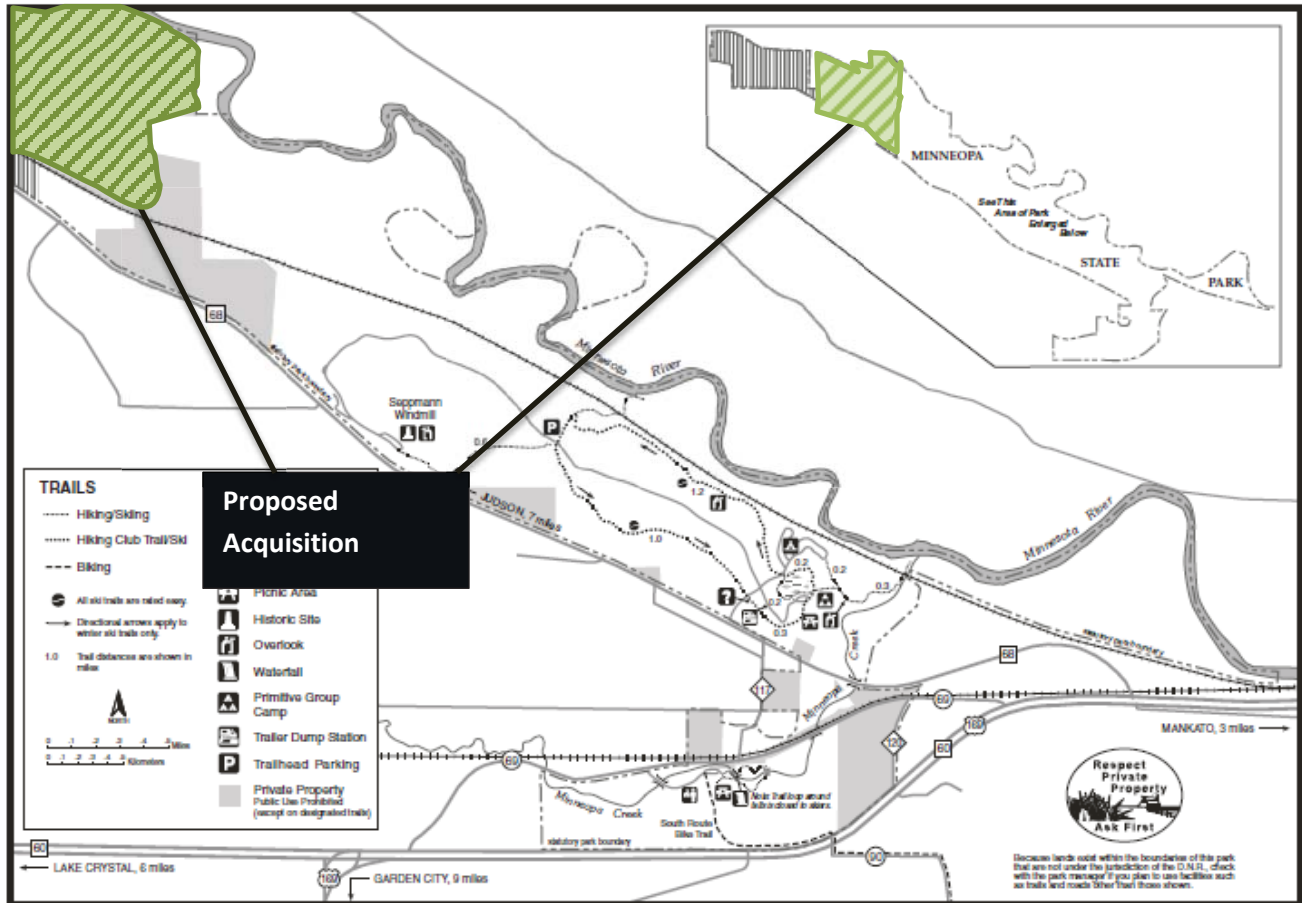
As always, please let me know if you have any further questions, or would like any additional information.

Thanks,
Jennifer Christie

Parks and Trails Division
Acquisition Consultant
500 Lafayette Road
St. Paul, MN 55155
651-259-5579

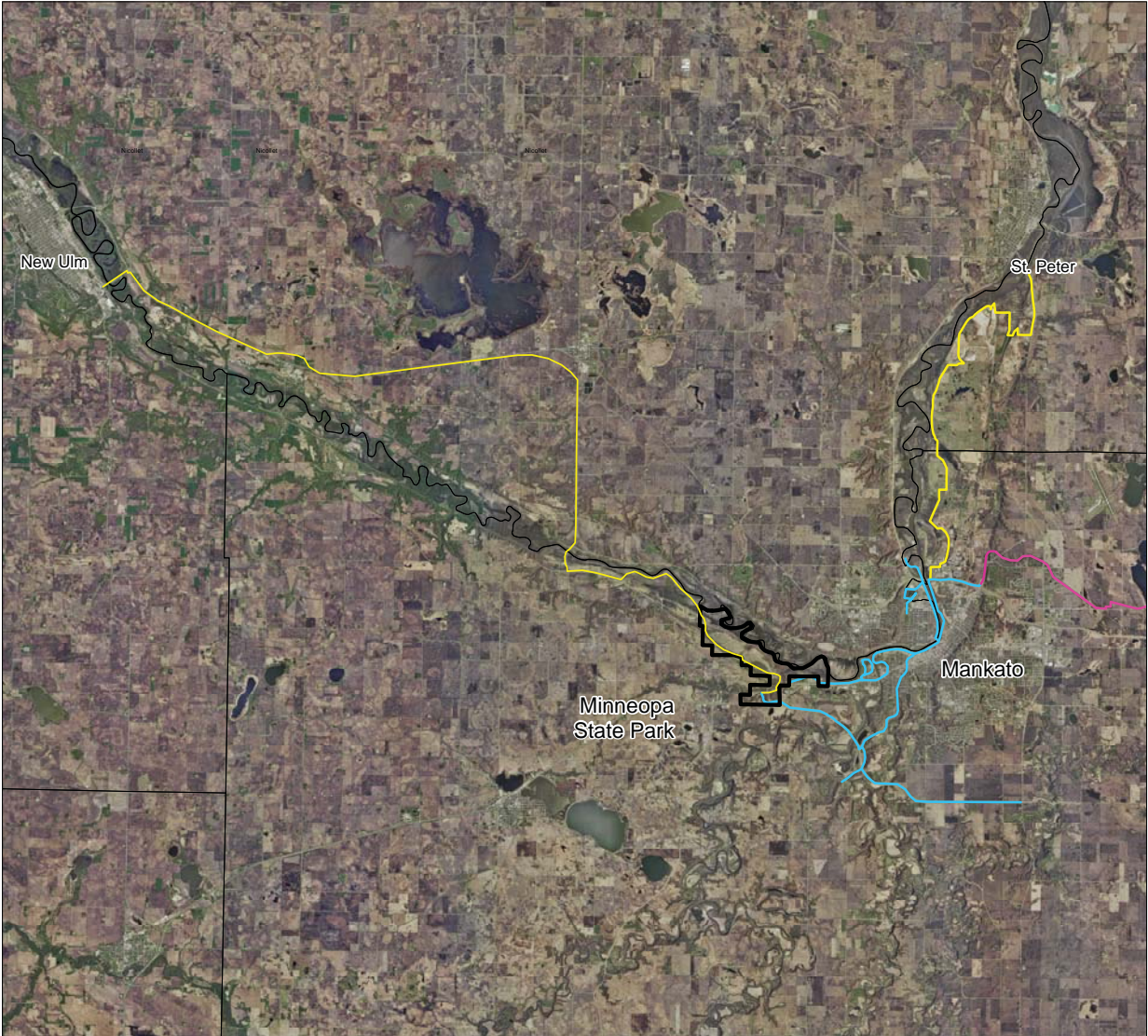
Minnesota Department of Natural Resources
Parks and Trails Division

Minneopa State Park—Potential Large Acquisition—11/2015






Minnesota River State Trail Proposed Trail Route

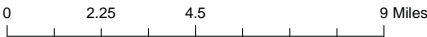



Mn River Trail Proposed Route

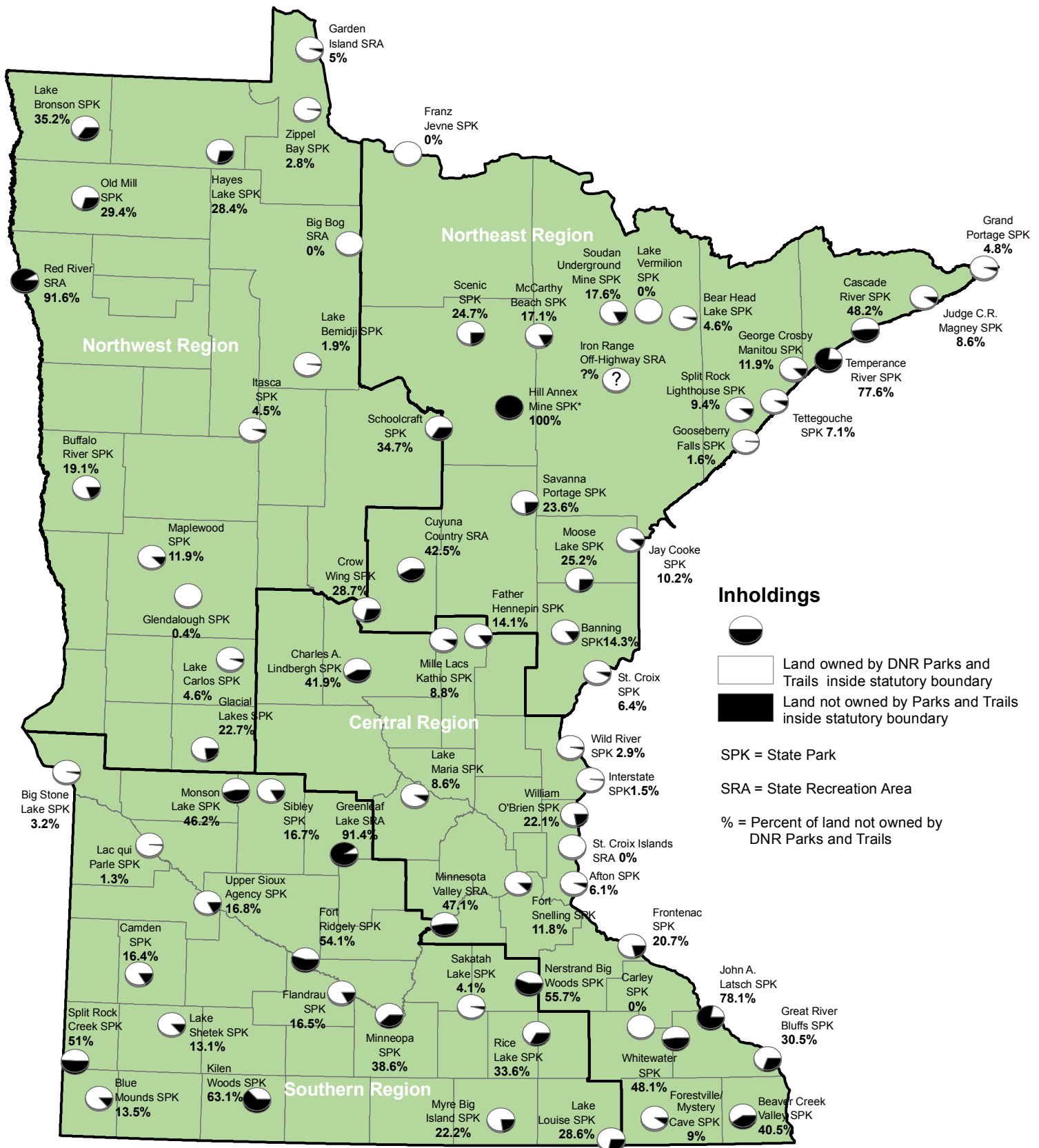

Sakatah State Trail


Mankato City/Red Jacket Trail


Minneopa State Park



Minnesota State Park Inholdings



ENRTF ID: 174-G / Subd. 09a - Jennifer Christie

6/1/15 MnDNR Administered and Statutory Bounday based on PAT database--Still Under Reconciliation

PARK	DNR Acres Owned	Statutory Boundary	In-holdings
Afton State Park	1,578	1,601	23
Banning State Park	5,200	6,098	897
Bear Head Lake State Park	2,933	4,610	1,676
Beaver Creek Valley State Park	747	1,177	430
Big Bog State Recreation Area	9,175	9,175	0
Big Stone Lake State Park	992	1,024	33
Blue Mounds State Park	1,579	1,826	247
Buffalo River State Park	1,082	1,337	255
Camden State Park	1,877	2,245	369
Caribou Falls State Wayside	88	88	0
Carley State Park	209	209	0
Cascade River State Park	2,875	5,554	2,679
Charles A. Lindbergh State Park	421	566	145
Crow Wing State Park	2,262	3,069	807
Cuyuna Country State Recreation Area	2,708	4,641	1,933
Devils Track Falls State Wayside	240	240	0
Father Hennepin State Park	275	320	45
Flandrau State Park	840	1,006	166
Flood Bay State Wayside	28	28	0
Forestville Mystery Cave State Park	3,398	3,676	279
Fort Ridgely State Park	537	1,030	493
Fort Snelling State Park	2,655	3,010	355
Franz Jevne State Park	118	118	0
Frontenac State Park	2,312	2,870	558
Garden Island State Recreation Area	734	772	39
George Crosby Manitou State Park	6,191	6,212	21
Glacial Lakes State Park	1,872	2,463	591
Glendalough State Park	1,924	1,932	8
Gooseberry Falls State Park	1,661	1,687	27
Grand Portage State Park	278	292	14
Great River Bluffs State Park	2,147	3,082	934
Greenleaf Lake State Recreation Area	284	1,121	837
Hayes Lake State Park	2,118	2,958	840
Hill Annex Mine State Park*	634	634	0
Inspiration Peak State Wayside	82	82	0
Interstate State Park	286	290	5
Iron Range OHVRA	2,292	2,292	0
Itasca State Park	30,349	30,875	525
Jay Cooke State Park	7,858	8,808	949
John A. Latsch State Park	409	1,871	1,462
Joseph R. Brown State Wayside	3	3	0
Judge C. R. Magney State Park	4,323	4,763	440
Kilen Woods State Park	202	548	346
Kodonce River State Wayside	131	131	0
Lac Qui Parle State Park	906	918	12

Statutory Boundary	275,264
DNR manages	233,339
In-holdings	41,925

Lake Bemidji State Park	1,653	1,685	32
Lake Bronson State Park	2,808	4,335	1,527
Lake Carlos State Park	1,231	1,292	61
Lake Louise State Park	819	1,149	330
Lake Maria State Park	1,475	1,615	140
Lake Shetek State Park	938	1,112	174
Lake Vermilion State Park	3,035	3,217	183
LaSalle State Recreation Area	990	990	0
Maplewood State Park	8,151	9,255	1,103
McCarthy Beach State Park	2,021	2,443	422
Mille Lacs Kathio State Park	9,773	10,745	972
Minneopa State Park	1,653	2,685	1,032
Minnesota Valley State Recreation Area	2,831	5,018	2,187
Monson Lake State Park	344	349	5
Moose Lake State Park	820	1,100	280
Myre - Big Island State Park	1,578	2,028	450
Nerstrand Big Woods State Park	1,748	2,924	1,175
Old Mill State Park	287	407	120
Ray Berglund State Wayside	50	50	0
Red River State Recreation Area	103	1,234	1,131
Rice Lake State Park	712	1,071	360
Sakatah Lake State Park	813	848	35
Sam Brown State Wayside	1	1	0
Savanna Portage State Park	15,200	15,932	732
Scenic State Park	2,787	3,518	731
Schoolcraft State Park	147	226	78
Sibley State Park	2,510	3,014	505
Soudan Underground Mine State Park	1,014	1,051	37
Split Rock Creek State Park	953	1,909	957
Split Rock Lighthouse State Park	2,202	2,360	158
St. Croix Islands State Recreation Area	25	25	0
St. Croix State Park	31,727	33,908	2,181
Temperance River State Park	1,134	5,090	3,956
Tettegouche State Park	9,049	9,606	557
Upper Sioux Agency State Park	1,066	1,608	542
Whitewater State Park	1,678	2,452	773
Wild River State Park	6,572	6,773	201
William O'Brien State Park	1,803	2,084	280
Zippel Bay State Park	2,826	2,906	80

233,339

275,264

41,925



State Trail System Summary

As of December 31, 2014

The following trail mile summary statistics are estimates that apply to State Trails as authorized in MS 85.015, MS 84.029, and MS 86A.04. Some of the mile numbers may have changed due to revised estimates.

STATE TRAIL STATUS

	2014	2013	Change
Authorized (This is an estimate based upon general authorized trail routes in statute, and may increase or decrease as trails are acquired and developed, or as exact routes are known.)	2,878	2,916	(37)
Ownership/Acquired (Fee title, easement, or 20-year lease by the State of Minnesota.)	1,016	1,011	5
Ownership/Acquired including Arrowhead State Trail agreements (About 440 additional miles of the Arrowhead State Trail System are owned either by federal or local agencies, or by private entities and are managed by various agreements.)	1,456	1,451	5
Developed	1,450	1,442	8

STATE TRAIL SURFACE

	2014	2013	Change
Natural Surface	901	925	(24)
Aggregate (compacted aggregate/gravel, e.g. limestone or granite)	60	59	1
Paved Trails	591	565	26
Total Hardened and Improved Surface Miles	651	624	27

STATE TRAIL USES

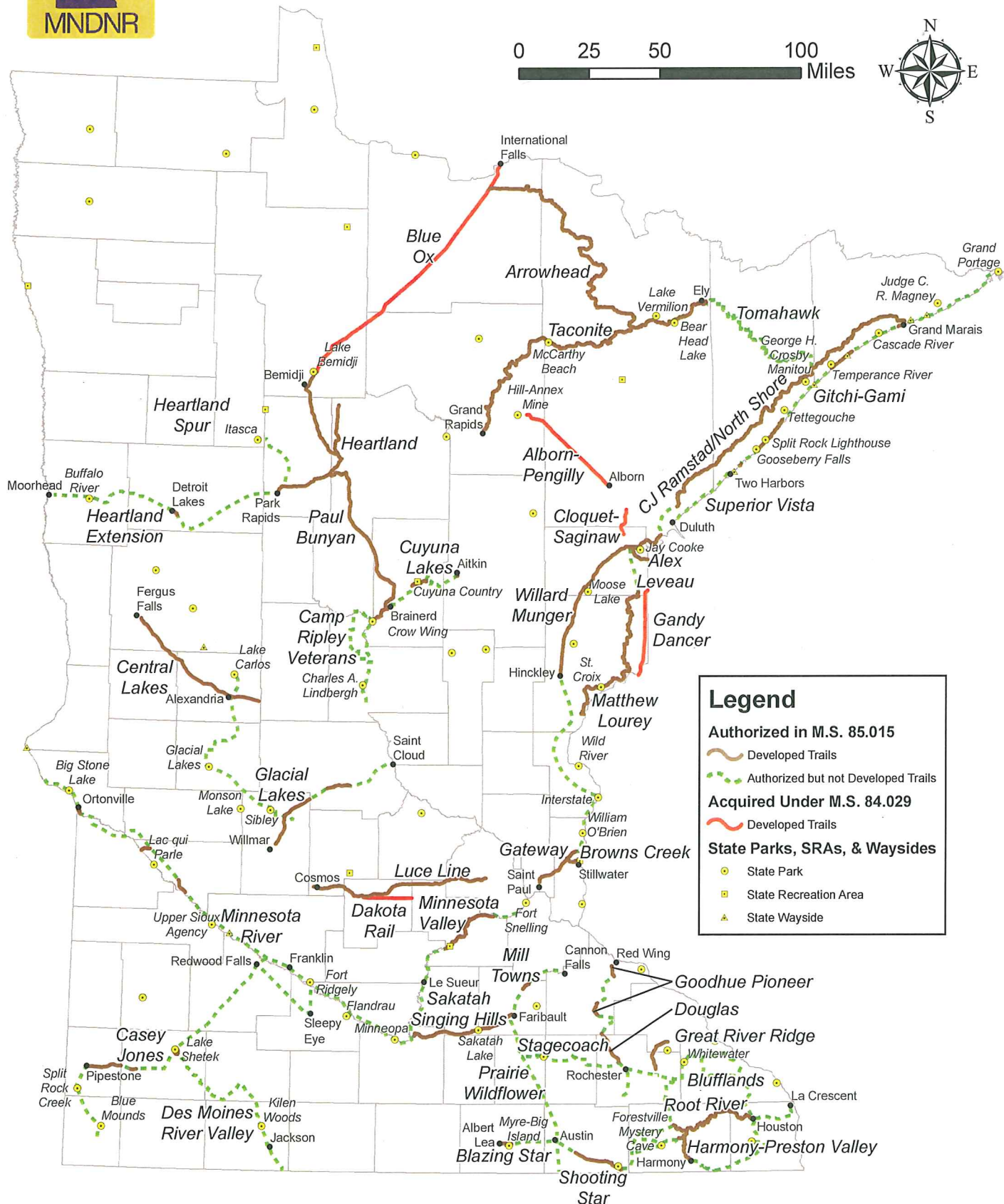
State Trails are "multiple use" with two or more uses authorized on the same treadway. In addition, there can be dual treadways within the same corridor. There is a **total of 1450 miles currently developed**, open to the public, and managed.

	2014	2013	Change
Hiking	1,311	1,285	27
"All" Biking	1,306	1,280	27
Biking on Improved Surfaces (Aggregate + Paved)	651	624	27
Mountain Biking on Natural Surfaces	656	656	-
In-line Skating	591	565	26
Horseback Riding	526	450	76
Snowmobiling	1,290	1,297	(7)
Skiing on Groomed Trails	81	78	3
Off-Highway Vehicle/Motorized	188	178	10



State Trail System Summary

As of December 31, 2014

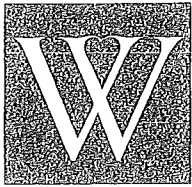


[illegible]

	STATUS			SURFACE			USE					
	Authorized	Acquired	Developed	Aggregate	Natural	Paved	Bike	Hike	Horse	Snow	Ski (Gr)	OHV
Douglas ST	13	13	13	0	13	13	13	13	13	13	0	0
Goodhue Pioneer ST	46.6	13.6	8.6	0	4.1	8.6	8.6	8.6	8.6	8.6	0	0
Douglas Trail System TOTAL	59.6	26.6	21.6	0	17.1	21.6	21.6	21.6	21.6	21.6	0	0
Gitche-Gami	88.9	30.1	30.1	0	0	30.09	30.09	30.09	0	1.89	2.8	0
Glacial Lakes	146	37	30	0	15	30	37	37	37	37	0	0
Great River Ridge	15	0	13	0	8	13	13	13	8	13	0	0
Heartland Extension	97	0	2.5	0	0	2.5	2.5	2.5	0	1.1	0	0
Heartland Spur	20	0	0	0	0	0	0	0	0	0	0	0
Heartland State Trail	49	49	49	0	27	49	49	49	27	49	0	0
Heartland TOTAL	166	49	51.5	0	27	51.5	51.5	51.5	27	50.1	0	0
Luce Line	65.5	64.5	64.5	54	9	1.5	64.5	64.5	64.5	59.5	0	0
Mill Towns	28	1	0	0	0	0	0	0	0	0	0	0
Minnesota River	208	4	13	0	0	13	13	13	0	0	0	0
Minnesota Valley	60.1	27.1	27.1	0	17.6	9.5	27.1	27.1	23.1	26.8	0	0
Paul Bunyan	114.5	106.8	113.5	0	0	113.5	113.5	113.5	0	106.8	0	0
Prairie Wildflower	48	0	0	0	0	0	0	0	0	0	0	0
Sakatah Singing Hills	39	39	39	0	2	39	39	39	0	39	2	0
Shooting Star	38.8	29.35	19.6	0	0	19.6	19.6	19.6	0	0	0	0

	STATUS			SURFACE			USE					
	Authorized	Acquired	Developed	Aggregate	Natural	Paved	Bike	Hike	Horse	Snow	Ski (Gr)	OHV
Stagecoach	38	0	0	0	0	0	0	0	0	0	0	0
Superior Vista	29	0	0	0	0	0	0	0	0	0	0	0
Alex Leveau ST	8	8	8	0	2	6	8	8	0	8	0	0
Browns Creek ST	6	6	6	0	2	6	6	6	2	0	3	0
Gateway ST	44	24	19	0	9.6	19.4	19.4	19.4	9.6	0	6.6	0
Munger ST	69.5	69.5	69.5	0	0	69.5	69.5	69.5	0	69.5	0	0
Proctor/Duluth/Hermantown	33	7	30	0	30	0	0	0	0	30	0	0
Taylor Falls to Hinckley (Oberstar)	55	0	0	0	0	0	0	0	0	0	0	0
Willard Munger System TOTAL	215.5	114.5	132.5	0	43.6	100.9	102.9	102.9	11.6	107.5	9.6	0
Alborn-Pengilly*	39	39	39	0	39	0	39	39	0	39	0	39
Blue Ox Trail*	74	74	74	0	74	0	74	74	74	74	0	74
Cloquet-Saginaw*	12	12	12	0	12	0	12	12	0	12	0	12
Dakota Rail* (Hutch.-Lest. Prairie)	17	17	3	0	3	0	0	0	0	3	0	0
Gandy Dancer*	31	31	31	0	31	0	31	31	0	31	0	31
Grand Total	2878	1016	1450	60	901	591	1306	1311	526	1290	81	188

*The Majority of State Trails are authorized under M.S. 85.015, however M.S. 84.029 allows the Commissioner to acquire abandoned railroad right-of-way for use as recreational trails and MS 86A.04 includes these as State Trail Units of the Minnesota Outdoor Recreation System. These identified trails are authorized under 84.029.



AMHERST H.
WILDER
FOUNDATION

ESTABLISHED 1906

Here for good.

October 29, 2015

CORPORATE
ADMINISTRATION
—
CORPORATE COMPLIANCE
—
FINANCE
—
HUMAN RESOURCES
—
INFORMATION SERVICES
—
REAL ESTATE ASSET
MANAGEMENT
—
TREASURY
451 Lexington Parkway North
Saint Paul, MN 55104
651-280-2000

Legislative-Citizen Commission on Minnesota Resources
100 Rev. Dr. Martin Luther King Jr. Blvd.
State Office Building, Room 65
Saint Paul, Minnesota 55155

Re: **Wilder Forest Acquisition for Conservation, Preservation and Education**

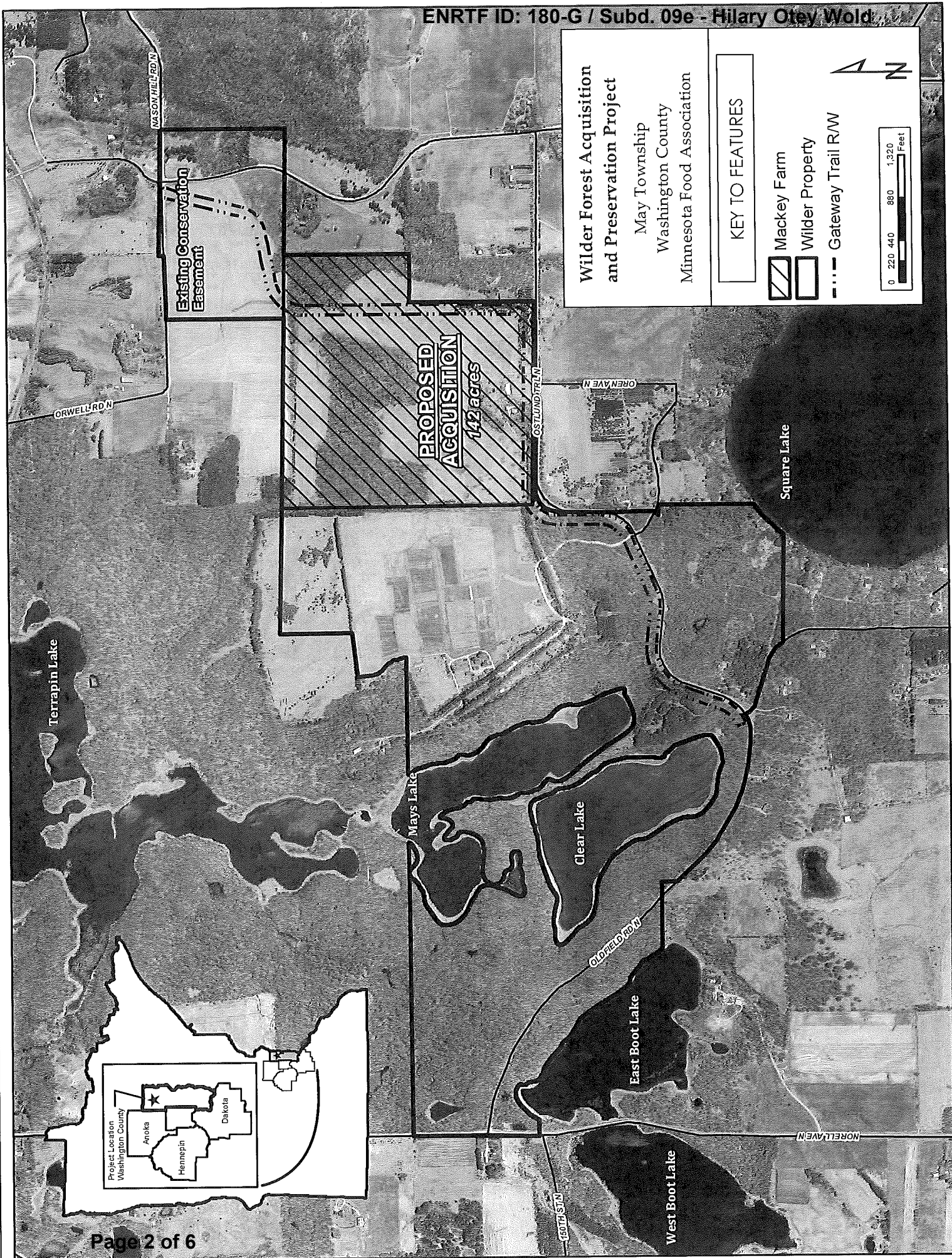
The Minnesota Food Association (MFA) has been a valued partner of Wilder Foundation for several years. We believe in their mission and we have a strong relationship with them through their continued lease of agricultural land at Wilder Forest.

During your recent deliberations we understand the LCCMR wondered whether Wilder Foundation would be willing to sell a portion of the property to MFA. While we are not currently marketing the property and have not negotiated an agreement with MFA, we would consider an offer from MFA on a portion of the property.

Sincerely,

Joan McCusker
V.P. Finance and Administration, CFO





Wilder Forest Acquisition
and Preservation Project
May Township
Washington County
Minnesota Food Association

KEY TO FEATURES

- Mackey Farm
- Wilder Property
- Gateway Trail R/W



180-G

Wilder Forest Acquisition for Conservation, Preservation and Education
Otey Wold

LCCMR Workplan Proposal Outline – DRAFT -

11/5/2015

142 acres (Mackey Parcel) with LCCMR funds also purchase with non-LCCMR funds 58 acres (Hackman Parcels) exempt from LCCMR funding because already has a conservation easement on it.

Letter from Wilder Foundation concerning selling individual parcels, see attached.

Working with Washington County on joint agreement arrangement.

200 acres total purchase
Estimated cost 2 million
LCCMR funding \$500,000
Washington County \$1,000,000
Minnesota Food Association \$500,000

142 Acres – Mackey Parcel – PID 14.031.20.31.0001

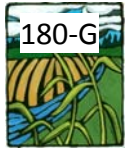
This parcel is comprised of mostly grassland and mesic oak forest with some agricultural areas. The oak forests are high quality with a low presence of invasive species and little evidence of past non-natural disturbance. The forests were present in aerial images from 1938 demonstrating their significant age and historical/ecological value. The parcel overlaps the range for a threatened amphibian species and includes areas mapped by the Minnesota County Biological Survey as having high biodiversity significance.

Developed	8
Agriculture	15
Grassland	70
Mesic oak forest	48
Pine plantation	1

58 Acres - Hackman 1 and 2 - PID 14.031.20.14.0001 and PID 14.031.20.13.0006, exempt from LCCMR
Hackman 1 is primarily agricultural land with some grassland and lowland hardwood forest. A portion of the forest is mapped as a native plant community by the Minnesota County Biological Survey, is a site of moderate biodiversity significance, and is a regionally significant ecological area.

Hackman 2 is an agricultural field with a small area of mesic forest. It is an area with significant habitat restoration potential.

Mesic oak forest	1
Developed	4
Agricultural and grassland	47
Mesic oak forest	4
Lowland hardwood forest	4



Wilder Forest Acquisition for Conservation, Preservation and Education
Otey Wold

November 19, 2015

Legislative-Citizen Commission on Minnesota Resources
100 Rev. Dr. Martin Luther King Jr. Blvd.
State Office Building, Room 65
Saint Paul, Minnesota 55155

Dear Commissioners and Susan Thornton:

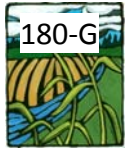
Thank you for your recent support and votes of confidence in earmarking \$500,000 for the Minnesota Food Association's (MFA) 2015 LCCMR proposal to purchase the Wilder Forest located in northern Washington County's Carnelian Creek Corridor and May Township. We have been asked to submit this letter to confirm project viability.

This project, as you know, is a compelling one. Involving more than 600 prime acres of high quality land in the greater Twin Cities Metropolitan Area, these lands have long been identified and prioritized in state, regional and local natural resource plans. Washington County has had the property listed as a high priority for its own Land and Water Legacy Program funding since 2006. A future Gateway Trail extension also runs through the property providing already planned connectivity and access that will assuredly become a well-traveled path and destination by many Minnesotans near and far in the coming years.

The property's natural features speak for themselves as an opportunity not to be missed. The MLCSS classifies the area as having high quality tamarack swamp, oak forest, northern forest, aspen birch forest, maple basswood forest, prairie, grassland and wetlands. The MnDNR's Natural Heritage Database and MCBS contain fourteen records of rare or significant plant communities, plant species, and animal species in the area, including Blanding's Turtle, Red Shoulder Hawk, and Milk Snake. It encompasses high biodiversity, a corridor for wildlife movement not far from the St. Croix River, species of concern, and two lakes (56 acres) with 3.26 miles of shoreline.

This project originated with the Wilder Foundation working through MFA to assure our careful and demonstrated stewardship of the land can continue well into the future. Over the past few months as the project concept has evolved, we have successfully brought the Washington County Board into the process. It has formally indicated its willingness to partner with MFA in developing the best possible approach and ownership model for these parcels, and its commitment to the project has already resulted in funding a full appraisal, now near completion.

Based on feedback from Commission members and staff, we recommend the appropriation be structured as follows: The funds would be made available to Washington County for the public purchase of at least 80 acres of land within the Wilder Forest/Carnelian Creek Corridor in May Township. The state funds would be matched by non-state sources. This appropriation will allow the protection of a portion of the



Wilder Forest Acquisition for Conservation, Preservation and Education
Otey Wold

larger project area, while the partners review opportunities to complete the protection of the remaining Wilder Property.

With Washington County we will continue to work hard to assure this project is successful and aligned with state, regional and local stakeholders' highest and best interest and has the support of its closest neighbors. Though this project has only been underway for a few months, we have garnered the support of many community members as you witnessed by our many letters of support and presence of our diverse supporters at the hearing. We think most Minnesotans applaud your financial support of this project and would consider it worthy of even more funding this year in the event it becomes available.

Again, thank you for all your hard work in vetting proposals and for your continued support of our efforts.

Sincerely,

Daniel J Tilsen

Daniel Tilsen
Chair, Land Task Force
Minnesota Food Association
651-283-7546

ENRTF ID: 181-G Long-Term Drinking Water Supply Protection, Recreation, Habitat Plan

LCCMR Support Letter

The fundamental goal of wellhead protection is to prevent contaminants from entering public water supplies. In accordance with Minnesota Rules (MR 4720.5100 to 4720.5590), Lincoln-Pipestone Rural Water System (LPRW) and members of its Wellhead Protection Team have developed and administered Wellhead Protection Plans structured to meet this goal. As an integral member of the Wellhead Protection Team, the Minnesota Department of Health (MDH) administers these rules and establishes a framework to be considered when determining wellhead protection area (WHPA) boundaries. This framework includes minimum criteria that guides WHPA delineations and vulnerability assessments.

Due to the size of LPRW's wellhead areas, the nature of the geology of the area and characteristics of the aquifers, a two-tiered strategy was formulated to protect LRPW's delineated Drinking Water Management Supply Areas (DWSMA). This approach, coupled with scientific data generated through the delineation process, provides a sound basis for where, what and how management strategies should be directed within each DWSMA. Highly vulnerable areas can be prioritized and targeted for funding initiatives.

MDH, along with many other Federal, State and local entities, have been integral members of LPRW's Wellhead Protection Team and its efforts towards source water protection.

Sincerely,

Jason Overby

LPRW Interim-CEO

Diana Griffith

Subject: FW: SUPPORT LETTER - LPRW

From: Jason Overby [<mailto:lprw@itctel.com>]
Sent: Wednesday, November 25, 2015 4:43 PM
To: Susan Thornton <susan.thornton@lccmr.leg.mn>
Subject: RE: PRINTED SUPPORT LETTER - LPRW

Susan,

In conjunction with the Department of Health, LPRW will be creating a prioritization matrix that will be related to “distance from water source”. Through our Wellhead Protection Plan efforts, we place emphasis on protection beginning at the well and progressing outwards (i.e. Emergency Response Area; 1-yr time of travel; 10-yr time of travel; and finally the DWSMA boundary). Other factors relating to vulnerability will come into play in the development of this matrix, including surface water interactions, ag land use, transportation corridors, etc. Those parcels having a closer proximity and a higher vulnerability status will receive a greater value within the matrix and subsequently be targeted for permanent resource protection.

Proactive landowner contacts will be performed to determine landowner interest and acquisition opportunities. Acquisition will be through voluntary direct and indirect purchases via 1031 land exchanges with offsite land purchases to effectuate the exchange. Restoration of acquired lands will include conversion from current agricultural use practices to permanent conservation easements, such as the RIM set-aside program. Project goals and activities will be performed through efforts from LPRW staff and board members, and established Wellhead Protection Plan Team partnerships with local county SWCD offices, Bureau of Water and Soil Resources, Minnesota Rural Water Association, Department of Health, Department of Agriculture, other local and state and private entities.

If you need further information, or have any questions regarding the grant proposal, please contact me via email at lprw@itctel.com, or by phone at 507-368-4248.

Respectfully submitted,

Jason Overby