

**[2017 M.L. 2017, Chp. 96, Sec. 2, Subd. 08f] Project Abstract**  
For the Period Ending June 30, 2021

**PROJECT TITLE: Prescribed-Fire Management for Roadside Prairies**

**PROJECT MANAGER: Nate Johnson**

**AFFILIATION: Minnesota Department of Transportation**

**MAILING ADDRESS: 2505 Transportation Road**

**CITY/STATE/ZIP: Willmar, MN 56201**

**PHONE: 612-723-4288**

**E-MAIL: nathan.d.johnson@state.mn.us**

**WEBSITE: dot.state.mn.us/roadsides/vegetation/fire.html**

**FUNDING SOURCE: Environment and Natural Resources Trust Fund**

**LEGAL CITATION: M.L. 2017, Chp. 96, Sec. 2, Subd. 08f**

**APPROPRIATION AMOUNT: \$ 345,000**

**AMOUNT SPENT: \$ 331,878**

**AMOUNT REMAINING: \$ 13,122**

**Sound bite of Project Outcomes and Results**

MnDOT's fire program has grown exponentially since this funding was secured. All fire crews have gained extensive experience and have gained a lot of confidence on how and when fire should safely be used. The number of areas and districts in which fire occurs on MnDOT property has increased throughout this project. Within the next 5 years MnDOT will be conducting prescribed fire in 6 of its 8 districts around the state.

**Overall Project Outcome and Results**

MnDOT fire program took major steps forward with this funding and has secured a self-sustaining fire program. Prior to this funding DOT completed less than 5 burns a year, in the 3 years of this program DOT completed 78 burns that totaled 142 miles of ROW burned totaling 1,600 acres of Mn and US highway ROW burned statewide. Even with one years of no burning allowed due to COVID 19, we surpassed our goals of this project and doubled our acres completed. DOT's current burn program has changed how native planting will be installed in the future, by being able to help maintain them for long lasting success. More Roadside Rest Areas around the state will be planted with native vegetation, to help increase pollinator habitat and reduce maintenance cost associated with turf grass. Six MnDOT staff have received fire training on becoming burn bosses, with one person finishing all training and task books required. With additional staff able to complete burns, MnDOT's fire program will continue to grow and expand.

**Project Results Use and Dissemination**

A Master Partnership Agreement was drafted, completed, and currently in place which allows MnDOT to assist the MnDNR on all aspects of wildfire suppression and prescribed fire operations, this agreement includes funding for direct payment between the two state agencies. With MnDOT assisting the DNR in wildfire suppression, it is our hope that we will reduce the number of resources needed from other state agencies and contractors.



# Environment and Natural Resources Trust Fund (ENRTF) M.L. 2017 LCCMR Work Plan Final Report

**Date of Status Update Report:** October 11, 2021

**Final Report**

**Date of Work Plan Approval:** 06/07/2017

**Project Completion Date:** June 30, 2021

**Does this submission include an amendment request?** No

**PROJECT TITLE:** Prescribed-Fire Management for Roadside Prairies

**Project Manager:** Nate Johnson

**Organization:** Minnesota Department of Transportation

**Mailing Address:** 2505 Transportation Road

**City/State/Zip Code:** Willmar, MN 56201

**Telephone Number:** 612-723-4288

**Email Address:** nathan.d.johnson@state.mn.us

**Web Address:** dot.state.mn.us/roadsides/vegetation/fire.html

**Location:** Statewide

**Total ENRTF Project Budget:**

**ENRTF Appropriation:** \$345,000

**Amount Spent:** \$331,878

**Balance:** \$13,122

**Legal Citation:** M.L. 2017, Chp. 96, Sec. 2, Subd. 08f as extended by M.L. 2020, First Special Session, Chp. 4, Sec. 2

**Appropriation Language:**

\$345,000 the first year is from the trust fund to the commissioner of transportation to enhance the prescribed-fire program to manage roadsides to protect and increase biodiversity and pollinator habitat. This appropriation is available until June 30, 2020, by which time the project must be completed and final products delivered.

M.L. 2020 - Sec. 2. ENVIRONMENT AND NATURAL RESOURCES TRUST FUND; EXTENSIONS. [to June 30, 2021]

## **I. PROJECT TITLE: Roadside Prairie Prescribed Fire**

### **II. PROJECT STATEMENT:**

The Minnesota Department of Transportation (MnDOT) manages 185,000 acres of roadsides on 12,000 miles of highways throughout the state. This includes approximately 350 miles of remnant prairie, harboring some of the last remaining populations of several rare plant species. In addition to the remnant prairies, many roadsides have been planted with native grasses and forbs. There are also many more miles that represent untapped potential as habitat for pollinators and other small wildlife, especially in intensively agricultural landscapes. But a lack of prescribed fire is leading to degradation of existing native plant communities and is limiting the potential for restoration of additional roadsides. This project will help to reverse this trend by building the capacity for a self-sufficient prescribed fire program at MnDOT.

In the last five years MnDOT has made significant progress in building a fire program. We have identified several roadsides needing fire management, trained four prescribed fire crews around the state, and formally adopted MN DNR standards for training and qualifications. Despite this progress, we are currently constrained by a shortage of staff qualified to lead the fire crews. By adopting MN DNR standards, we have set a high bar for individuals to become qualified to lead prescribed fires, hereafter referred to as a “burn boss.” To become qualified as a burn boss, an employee must take several classes and work with mentors to demonstrate competency with various skills. Depending on the availability of trainings and mentors, this process can take several years. Without enough qualified burn bosses, we are currently forced to rely on a single burn boss, with occasional help from the MN DNR, and therefore can only implement a handful of prescribed fires each year.

To overcome these constraints, this project will temporarily bring in qualified fire personnel who will train and mentor MnDOT crews and crew leaders. With this mentoring we can train a fully qualified burn boss from within each of our crews, making each crew more self-sufficient. This work is described in more detail in Activities One and Two.

This project will also address several administrative constraints on our fire program. These include roadside vegetation inventory, site prioritization, planning, site preparation, and monitoring. These activities are described in more detail under Activities Three and Four.

The increased assistance provided through this project is temporary, but we are focusing it on areas that can create lasting change. This project will overcome initial hurdles and build the capacity of our fire program. This will allow fire to become a regular and sustainable part of our vegetation management work. By increasing the long-term use of prescribed fire we will more effectively protect the biodiversity of prairie remnants, enhance existing native plantings, and restore additional roadside habitat.

### **III. OVERALL PROJECT STATUS UPDATES:**

#### **Project Status as of February 1, 2018:**

Requirement for first scheduled status update has been waived, according to email from LCCMR staff on 7/26/2017.

#### **Project Status as of August 1, 2018:**

Hired one full time employee who is qualified as a Prescribed Fire Burn Boss. This employee has spent the first six months implementing roadside prescribed fires, mentoring crews, providing program support, and has begun developing roadside inventory and fire effects monitoring protocols. His work resulted in our most productive spring fire season so far. This work is described in more detail in activities 1-4.

#### **Project Status as of February 1, 2019:**

The year 2018 was the most productive since the re-initiation of the fire program in 2008, with 21 burns conducted. In addition to the ecological benefits, these burns allowed the training of several new fire crew members, numerous task book assignments for trainees, the completion of three task books, and

the certification of one burn boss type 3. Outside of fire season the roadside inventory began, the fire effects monitoring protocol was designed, additional burn plans were written, and there was additional mentoring and training of crew leaders. Although significant progress has been made and we are meeting our targets for most activities, progress toward qualifying burn bosses is being hampered by the limited availability of prescribed fire classes that are required for burn boss qualifications. The amendment request included with this update is intended to remedy this.

**Amendment Request (02/04/2019):**

Amendment 1:

Add budget item for training, which will be used for: 1) project-specific trainings for project staff and 2) classes needed for district crew leaders to become qualified as MN Burn Boss Type 2. Some trainings may be in-state and others will be out of state. Out of state trainings are needed due to limited availability of in-state trainings.

Background: This work plan aims to increase the qualifications of district crew leaders through mentoring, increasing experience, and providing guidance on training specific to fire qualifications. However, opportunities to take the required classes within Minnesota are very limited. Some of the classes are offered once or twice per year but are in very high demand and fill up very quickly. The more advanced classes are only offered once every 1-3 years. If a prospective trainee does not get into a class when it is offered, they could have to wait anywhere from six months to multiple years for another opportunity. Furthermore, some of the classes have to be taken in a particular order, so missing an opportunity for one class could delay progress by multiple years. Aside from in-state training, however, there are multiple sessions of these classes offered around the country every year. The ability to use project funds for out of state training and the associated travel expenses would expand the number of classes available to MnDOT staff and greatly improve the pace at which district fire crews become self-sufficient. Funds to cover this are available from salary and travel costs that have not been spent due to the decision not to fill the seasonal assistant project coordinator.

Amendment 2:

Use a portion of salary and travel budget items to reimburse district crew leaders/burn boss trainees to assist on burn implementation and support outside of their home districts. This will be in place of hiring a seasonal assistant project coordinator. The total costs are expected to be around \$12,000, which would cover about 15 days during 2019 and the first half of 2020. A portion of the budgeted amounts for salary and for travel will be used to cover these costs.

Background:

The original work plan had budgeted for a seasonal part-time staff member to assist the full time project coordinator. Once work got underway, we realized that hiring a seasonal assistant every spring and fall was not the best use of resources. However, we still have a need for occasional help with implementing burns and other support work, such as reviewing burn plans. One way to secure that help without the overhead of hiring each season is to have district crew leader's help outside of their home districts when weather conditions do not allow burning in their home districts. It can be hard for district managers to justify sending their staff out to other districts, so the ability to use project funds would enable us to use their help. It would amount to a handful of days per year, thus costing much less than the six weeks each season that was originally budgeted, and would be paid from the salary and travel expenses portion of the budget. In addition to being a more cost-efficient way to meet project needs, it would have the added benefit of accelerating the mentoring portion of the work plan by allowing crew leaders to increase their professional development through more burn experience; a wider variety of leadership styles, equipment, and field conditions; and additional task book opportunities.

Amendments 1 and 2 Approved by LCCMR **2/26/2019**

**Project Status as of August 1, 2019:**

The spring of 2019 was another very productive fire season. This project continues to meet or exceed expected outcomes for most activities, including Prescribed Fire Implementation, Inventory & Monitoring, Program Support, and Outreach (Dissemination). We are making good progress with Mentoring, but hope to further improve outcomes in that area. The project remains far below budget. These last two facts, the desire for more progress in Mentoring and the ample budget remaining for the final year, are addressed in the following amendment request.

**Amendment Request (August 1, 2019)** Amendment pending further LCCMR and legislative action as of **08/15/2019**

Amendment 3:

Extend the term of the project for an additional year, changing the final end date from June 30, 2020 to June 30, 2021.

Background: The project has made great strides in increasing MnDOT’s capacity to implement roadside prescribed fires. We are on track to meet or exceed expectations in most areas by the end of the project timeline but would like to make more progress in Activity 2, Mentoring Prescribed Fire Crews, which has been slow due to limited availability of training. Our first amendment allowed us more flexibility to use funds to take advantage of additional training opportunities, but more time is needed to use this increased flexibility. We request permission to extend the end date of the project to June 30, 2021. We are significantly under budget and have the funds to cover another year. This additional year would allow us to achieve our stated goals for qualifications in the Mentoring activity. At the same time we will be able to continue our progress on the other project activities, with the end result of a project that will have far exceeded expectations without any additional cost.

Amendment pending further LCCMR and legislative action as of 08/15/2019

Amendment 4:

Change Project Manager to from Ken Graeve to Nate Johnson due to staffing changes at MnDOT. Amendment Approved by LCCMR **8/15/2019**.

**Project Status as of February 1, 2020:**

The year 2019 was the most productive since the re-initiation of the fire program in 2008, with 21 burns conducted. In addition to the ecological benefits, these burns allowed the training of several new fire crew members and continued training of current fire crew members. Hired a full time employee who is qualified as a Prescribed Fire Burn Boss. Employee has spent the last two months learning department policies, doing required training of new employees, helping with interagency coordination and scouting sites to begin writing burn plans. This employee was hired to backfill for Nate Johnson, who accepted a permanent position with the Department. The budget update shows a brief decrease in the use of project funds because of the time lag between Nate’s promotion and the new hire.

**Project Status as of June 18, 2020:**

**Project extended to June 30, 2021 by LCCMR 6/18/20** as a result of M.L. 2020, First Special Session, Chp. 4, Sec. 2, legislative extension criteria being met.

**Project Status as of August 1, 2020:**

Zero prescribed burns were conducted in spring of 2020, due to COVID-19. Even though no burning took place, MnDOT made significant progress in establishing an interagency agreement with the DNR to assist with prescribed burns, wildfire suppression, and emergency response. This will allow for some qualified MnDOT staff to work directly for the MN DNR during times of higher fire danger. The significance of this agreement is important for MnDOT staff to potentially gain the needed experience working in a variety of fire conditions. Overall, the agreement is working towards a “1 Minnesota” objective and utilize resources now available to enhance MnDOT’s Fire program.

MN DNR Prescribed Fire Handbook was recently revised and out to the public in the spring of 2020. The handbook has identified many changes and requirements for prescribed fire planning. Much time was spent on the development of a RX Plan template and guidance to utilize on new or to update MnDOT RX plans.

The MN Prescribed Fire Council has recently been more active. MnDOT involvement has been limited. Currently MnDOT is taking a more active role in the council. Specifically, with subcommittees; Training, Qualifications and Fire Department outreach. It has been identified that an active role will help steer qualification requirements to the benefit of MnDOT to reduce the time and cost to qualify burn staff. In many cases local fire department burn permits are required. Being in an active role for the outreach will give MnDOT the opportunity to meet and educate Fire Departments. The benefit will likely decrease the time between permit application and permit authorization. The effort will potentially establish a comfort level with the Fire Departments in hopes that they will allow us to conduct burns with less restriction parameters.

The MN DNR burn permit process has been streamlined and reduce the time and effort to obtain a permit by 50% to 75%. This has been accomplished by maintaining an active role with the council and having direct contact with DNR leadership.

**Amendment Request (08/01/2020):**

Amendment 5:

Increase personnel budget for project coordinator and crew lead to do more prescribed fires, monitoring, and scouting fires in fall 2020 and spring of 2021. This is needed because personnel budget will run out prior to end of grant date of June 30, 2021. To do this we would move \$18,000 from out of state travel and \$20,000 from instate travel to Personnel. This is possible because travel was limited due to Covid and no fire classes have been offered in state or out of state.

Activity One Personnel increase by \$38,000 revised budget of \$ 170,000. New personnel budget of \$308,000 and new balance of \$118,139.

Activity One Instate travel decreases by \$10,000 revised budget of \$ 15,500.

Activity Two Out of state travel decrease by \$18,000 revised budget of \$ 0. New out of state travel budget \$0 and new balance of \$0.

Activity Three Instate travel decreases by \$5,000 revised budget of \$3,000.

Activity Four Instate travel decreases by \$5,000 revised budget of \$4,000. New Instate travel budget \$29,000 and new balance of \$24,953

Background: Due to COVID, no out of state travel will be accepted and we have only used a small portion of out budget for in state travel. When burning resumes this fall and spring of 2021, I would like to use these funds to further mentor district staff and continue the flexibility of have crews work in multiple districts (approved amendment 2/4/19, amendment 2).

## **Amendment Approved by LCCMR 1/7/2021**

### **Project Status as of February 1, 2021:**

After significant discussion and research, MnDOT received approval to restart the prescribed fire program in late fall. Lots of discussion took place on how to conduct fire safely with COVID-19. Safety protocols and measures were established to help protect all fire fighters from being exposed to others during firing operations.

MnDOT made significant progress in establishing an interagency agreement with the DNR to assist with prescribed burns, wildfire suppression, and emergency response. This agreement is substantially important to the MnDOT Fire program. The benefits would include additional training and qualification opportunities and the utilization of DNR contingency resources. MnDOT currently does not have the equipment to satisfy the contingency element of many RX plans.

The Interagency staffing agreement has also been agreed upon between MnDOT and MN DNR. This will allow for some qualified MnDOT staff to work directly for the MN DNR during times of higher fire danger. The significance of this agreement is important for MnDOT staff to potentially gain the needed experience working in a variety of fire conditions. Overall, the agreement is working towards a "1 Minnesota" objective and utilize resources now available to enhance MnDOT's Fire program.

**Final Overall Project Outcomes and Results October 11, 2021** Overall outcome of this LCCMR grant has been very successful. MnDOT's fire program has grown exponentially since this funding was provided. Almost all fire crew personnel have gained extensive experience and have gained a lot of confidence on how and when fire should be used. We have increased the number of areas where fire is implemented and have grown our equipment needed to preform fires safely. A master partnership agreement with the DNR has been signed and put into use allowing MnDOT fire crews to assist with wildfire suppression. Although COVID 19 did affect some of the overall production, we still managed to meet and exceed most of our goals.

### **Sound bite of Project Outcomes and Results**

MnDOT's fire program has grown exponentially since this funding was secured. All fire crews have gained extensive experience and have gained a lot of confidence on how and when fire should safely be used. The number of areas and districts in which fire occurs on MnDOT property has increased throughout this project. Within the next 5 years MnDOT will be conducting prescribed fire in 6 of its 8 districts around the state.

### **Overall Project Outcome and Results**

MnDOT fire program took major steps forward with this funding and has secured a self-sustaining fire program. Prior to this funding DOT completed less than 5 burns a year, in the 3 years of this program DOT completed 78 burns that totaled 142 miles of ROW burned totaling 1,600 acres of Mn and US highway ROW burned statewide. Even with one years of no burning allowed due to COVID 19, we surpassed our goals of this project and doubled our acres completed. DOT's current burn program has changed how native planting will be installed in the future, by being able to help maintain them for long lasting success. More Roadside Rest Areas around the state will be planted with native vegetation, to help increase pollinator habitat and reduce maintenance cost associated with turf grass. Six MnDOT staff have received fire training on becoming burn bosses, with one person finishing all training and task books required. With additional staff able to complete burns, MnDOT's fire program will continue to grow and expand.

### **Project Results Use and Dissemination**

A Master Partnership Agreement was drafted, completed, and currently in place which allows MnDOT to assist the MnDNR on all aspects of wildfire suppression and prescribed fire operations, this agreement includes funding for direct payment between the two state agencies. With MnDOT assisting the DNR in wildfire suppression, it is our hope that we will reduce the number of resources needed from other state agencies and contractors.

#### IV. PROJECT ACTIVITIES AND OUTCOMES:

##### ACTIVITY 1: Prescribed Fire Implementation

###### Description:

While MnDOT currently has four prescribed fire crews, it has only one burn boss. This shortage results in several days each season during which one or more crews are unable to burn despite favorable weather and fuel conditions. To alleviate this, we will use project funds to hire a full time project coordinator and a seasonal project assistant. The project coordinator will be qualified as a burn boss and able to lead prescribed fires. The assistant will have enough prescribed fire experience to be able to assist the project coordinator in preparing for fires, implementing fires, and mentoring crewmembers. These two staff will work directly with existing crews to conduct prescribed fires on roadsides. Whereas the current MnDOT burn boss is only able to allocate about half time to burning during fire season, these new staff will allocate 100% of their time to burning during fire season. The immediate result will be that MnDOT will more than double its annual prescribed fire accomplishments.

###### Summary Budget Information for Activity 1:

**ENRTF Budget: \$190,000**  
**Amount Spent: \$172,887**  
**Balance: \$17,113**

Outcome	Completion Date
1. Conduct 10-20 prescribed burns (10-40 miles/70-280 acres of roadside) per year	Annually

###### Activity 1 Status as of February 1, 2018:

Requirement for first scheduled status update has been waived, according to email from LCCMR staff on 7/26/2017

###### Activity 1 Status as of August 1, 2018:

Worked with four prescribed fire crews to conduct 13 prescribed burns (18 miles and 101 acres) ten burns were conducted on state or interstate highway (18 miles) and 3 burns on off-site native plantings. This represents the first season in which we've conducted this many burns. Also, this is the first season in which we've been able to conduct at least two burns in each district, which has the substantial benefit of maintaining the skills of crew members and the support of management.

###### Activity 1 Status as of February 1, 2019:

Worked with three prescribed fire crews to conduct 8 prescribed burns (4.5 miles and 83 acres) 5 burns were conducted on state or interstate highway, 2 burns at Rest Areas, and 1 burn on off-site native plantings.

###### Activity 1 Status as of August 1, 2019:

Worked with four prescribed fire crews to conduct 20 prescribed burns (25 miles and 364 acres). 17 burns were conducted on state or interstate highway (24.5 miles) and 2 burns on native plantings at roadside safety rest areas. Entered all burns conducted by MnDOT in previous 12 years, helping track frequency of when sites need to be burned.

###### Activity 1 Status as of February 1, 2020:

Worked with two prescribed fire crews to conduct 4 burns (5 miles and 43 acres) in the fall of 2019. Three burns were conducted on state highway and one burn on a native planting for the purpose of restoration. Falls burn season was extremely wet, thus limiting the amount of burns completed.

###### Activity 1 Status as of August 1, 2020:

Zero prescribed burns were conducted in the spring of 2020. Worked with 4 districts on getting staff signed up for interagency agreement.

###### Activity 1 Status as of February 1, 2021:



Worked with 3 prescribed burn crews to conduct 10 burns (22 miles and 240 ac). 8 burns were completed on state highway (20 miles) and 2 burns were completed at Rest areas. Fall burn season got off to a late start due to COVID-19 restrictions.

**Final Report Summary:**

The goal for the 3 years of Phase 1 of the fire program was a total of 60 burns completed, 120 miles, and 840 acres burned. We completed 78 burns, 142 miles, and 1600 acres. As burn crews gained experience and became more aware of what to do, miles and acres increased. Even with one spring burn season canceled due to COVID-19 MnDOT exceeded its original goals and almost doubled the acres.

**ACTIVITY 2: Mentor Prescribed Fire Crews**

**Description:** Activity 2 will use mentoring to address several obstacles to developing self-sufficient fire crews.

The first obstacle is qualifications. The MnDOT prescribed fire policy requires that fire personnel follow the same training and qualification standards as the MN DNR. These rigorous standards are important to ensuring the safety and effectiveness of roadside prescribed fire but they present a major obstacle to developing a self-sufficient fire program. While all existing crew members are trained to the basic level (that of Wildland Firefighter Type 2), at least one member of each crew needs to become qualified as a burn boss in order to lead that crew on prescribed fires. Opportunities for burn boss trainees to develop their qualifications have been quite limited under the current structure. To meet this challenge, the project staff will work with trainees to develop their qualifications. This will include arranging opportunities to develop skills and expand breadth of expertise, providing guidance on required coursework, and evaluating progress in task books.

Another obstacle is crew experience. Crews need experience working on numerous fires and in a variety of conditions in order to ensure their professionalism in a high profile roadside environment. Project staff will coach crew members on skills development while leading prescribed fires and will arrange opportunities to burn in more varied conditions to increase crew members’ breadth of expertise.

The third barrier to be addressed by this activity relates to equipment. Effective prescribed fire equipment such as ATVs or engines can be expensive if purchased ready to go. However, MnDOT already owns many pieces of equipment, such as water trucks and herbicide sprayers, which are almost suitable but not quite adequate for fire suppression. With slight modifications or creative retrofits much of this equipment could be made effective for prescribed fire. Making these modifications requires knowledge of the various performance parameters that most crew members do not possess. The project staff will help each crew identify equipment needs and modify existing equipment to function effectively on prescribed fires. The project staff will also help crews troubleshoot equipment and radios and identify needs for hand tools and personal protective equipment.

**Summary Budget Information for Activity 2:**

**ENRTF Budget: \$25,000**  
**Amount Spent: \$26,423**  
**Balance: \$ -1,423**

Outcome	Completion Date
1. Qualify at least 3 MnDOT employees to the level of MN Ignition Specialist Type 2.	June 30th, 2019
2. Qualify at least 2 MnDOT employees as MN Burn Boss Type 2.	June 30th, <del>2020</del> 2021
3. Increase crewmembers level of experience by working on 10-20 burns per year.	Annually
4. Ensure that each crew has access to suitable equipment.	April 1, 2019

**Activity 2 Status as of February 1, 2018:**

Requirement for first scheduled status update has been waived, according to email from LCCMR staff on 7/26/2017

**Activity 2 Status as of August 1, 2018:**

Met with district fire coordinators to discuss problems and opportunities and create an opportunity for them to learn from each other. Finished one Burn Boss Type 3 task book. Finished one Ignitions Specialist task book. Initiated three Ignitions Specialist task books. Worked with three MN DNR wildlife offices acquiring additional experience for MnDOT fire staff. Worked with numerous MnDOT employees with little to no RX fire experience teaching them basic lighting and suppression techniques. Brought two district crew leaders to help on burns in other districts to increase experience and collaboration. Worked with fire coordinators on modifying existing equipment and retrofitted two Polaris Rangers to safely carry fire equipment. Acquired additional RX fire hand tools and PPE for new employees. Set up system to track training taken, required to become burn boss.

**Activity 2 Status as of February 1, 2019:**

Continued coordination with district fire coordinators on identifying new sites to write burn plans. Developed protocol on most effective way for district staff to burn in other districts. Finished one Ignitions Specialist Task book and had the Burn Boss type 3 task book completed in the spring certified by MN DNR. Worked with two district fire crews on adding new members, with one district still in the process of adding crew members and the other district adding four members. Worked with two district fire crews on personnel taking additional fire training classes to become burn boss. Have been in discussions with DNR and other agency partners about the shortage of sessions of required prescribed fire classes, and about ways of increasing the number of sessions available.

**Activity 2 Status as of August 1, 2019:**

Continued coordination with district fire coordinators on identifying new sites to write burn plans. Finished two Ignitions Specialist Task books and initiated two more. Mentored new burn crew members in all four districts. Coordinated sending eight burn crew members to additional burn classes at the MN Fire Academy for advancement on becoming burn bosses. Coordinated burn crew members working with four DNR offices around the state gaining valuable experience and increasing interagency collaboration. Assisted with research and mentored one district on ordering new equipment to increase productivity of current fire equipment. Ordered fire safety equipment for two burn crew members and assisted with order additional safety equipment for three districts.

**Activity 2 Status as of February 1, 2020:**

Acquired verbal commitment with Camp Ripley staff to assist with large scale burns on Camp Ripley grounds for the purpose of professional development for MnDOT burn crews. Continued coordination with district fire coordinators on identifying new sites to write burn plans. Finished one Ignitions Specialist task book. In the process of working with a new district to get a burn crew started. Provided district with information on process of most efficient way to get crew started.

**Activity 2 Status as of August 1, 2020:**

No burning was done in the spring of 2020, therefore no mentoring took place.

**Activity 2 Status as of February 1, 2021:**

Initiated two ignitions specialist task book. Main priority for fall burning was related to COVID safety, crews were kept smaller than normal. Ordered new equipment to help with safety and production in all districts.

MNDOT is working heavily with the MNDNR to establish the training requirements and course content for the MN Certified Burner Program. This will include the actual course development and refresher content. COVID has forced a change in delivery and we plan on implementing more virtual instruction.

MN Prescribed Fire Council. MNDOT is still active in Qualification and Training subcommittees. In addition, conversation of MNDOT facilitating or assisting in the qualification and evaluation process may evolve into a DNR funded responsibility.

**Final Report Summary:**

We qualified and completed 4 people with ignitions task book and 1 person with Burn Boss type II task books. Getting MnDOT staff into fire classes has been more challenging than expected and fire classes have been on hold for the last 1.5 years due to COVID-19. We have two burn personnel that only need 2 more classes to finish the burn boss II track. MnDOT has expanded the district we burn in, going from 4 to 6 district that have a fire program. Three of the original districts are very proficient in the overall process of how to conduct burns in a safe and effective manner.

**ACTIVITY 3: Roadside prairie inventory and fire effects monitoring**

**Description:**

There are hundreds or thousands of miles of roadsides that could benefit from prescribed fire. These need to be prioritized to promote the most efficient use of resources. The project staff will inventory and map roadsides with native vegetation. Roadsides with prairie vegetation will be ranked using various factors to prioritize them for burning. Ranking criteria will include quality of native plant communities, remnant or planted status, conduciveness to use of fire, etc.

The project staff will establish a fire effects monitoring program to evaluate results. This information will be used to ensure that fires are meeting vegetation management objectives while limiting negative impacts on wildlife, including insects. With this information we will be able to adjust the timing, frequency, and intensity of fires as needed. Monitoring data will also be used to demonstrate accomplishments.

Inventory and monitoring data will be stored in GIS format in a geodatabase.

**Summary Budget Information for Activity 3:**

**ENRTF Budget: \$ 65,000**  
**Amount Spent: \$ 66,740**  
**Balance: \$ -1,740**

<b>Outcome</b>	<b>Completion Date</b>
1. Inventory prairie remnants and native plantings on 2000 miles (30,000 acres) of roadside.	June 30th, 2020
2. Research and set up monitoring protocol.	June 30th, 2018
3. Monitor fire effects at 20-40 sites across the state.	June 30th, 2020

**Activity 3 Status as of February 1, 2018:**

Requirement for first scheduled status update has been waived, according to email from LCCMR staff on 7/26/2017.

**Activity 3 Status as of August 1, 2018:**

In Process of researching and set up of monitoring protocol through ArcMap 10.5 and Collector App. Identified 10 sites to monitor and inventory for additional burn sites. Monitored 13 burns, taking before and after pictures showing fire effects.

**Activity 3 Status as of February 1, 2019:**

Set up monitoring protocol through Collector App to inventory native road side vegetation. Inventoried native vegetation on 1,045 miles of state or interstate highway right-of-way. Researched and identified 18 research monitoring sites on state highways to monitor native vegetation over time. Signs, posts, and hardware for monitoring sites were designed and purchased to clearly mark research plots.

**Activity 3 Status as of August 1, 2019:**

Set up 12 vegetation monitoring sites in two districts and did initial survey, which will monitor change of vegetation in response to fire over long periods of time. Continued efforts on setting up Collector App to inventory road side vegetation. Inventoried native vegetation on 936 miles of state and interstate highway right-of-way.

**Activity 3 Status as of February 1, 2020:**

Inventoried native vegetation on 537 miles of state and interstate highway right-of-way. Completed setup of Collector App for the purpose of collecting native vegetation data on road side vegetation. This information will be used to determine future burn sites as well as determine the quality of habitat statewide.

**Activity 3 Status as of August 1, 2020:**

Inventoried native vegetation on 253 miles of state highway right-of-way. In process of getting new district set up and trained to do their own vegetation mapping.

**Activity 3 Status as of February 1, 2021:**

Trained two individuals on how to inventory roadside vegetation. A total of 4,053 miles of roadside vegetation was mapped and entered in Collector App. This information has been a valuable tool used during MnDOT’s permit review process.

**Final Report Summary:**

MnDOT conducted inventory on 6,825 miles of state and federal highways in the state, which more than tripled our goal of 2,000 miles. We set up 18 fire effects monitoring sites around the state and are in the initial stages of putting data together for long term evaluation of fire effects.

**ACTIVITY 4: Prescribed fire program support**

**Description:**

This activity will develop prescribed fire plans and coordinate site preparation and local outreach activities.

Prior to conducting a prescribed fire we require a detailed plan that has been reviewed by qualified fire personnel and signed by relevant department officials. The time required to write these prescribed fire plans has limited their number and therefore has limited the number of roadsides on which fire can be used. As part of this activity the project coordinator will assist and mentor burn boss trainees in preparing plans. Plans will be written for roadsides that have been identified as priorities using data gathered in Activity 3. This has a dual impact on increasing self-sufficiency in that plans will be useful for several years and burn boss trainees will gain skills needed to write new plans (or update existing plans) as needed.

Implementing a prescribed fire requires a great deal of preparation. This includes creating and maintaining fire breaks, arranging for and preparing equipment, obtaining burn permits, notifying local authorities and neighbors, preparing press releases, and reporting accomplishments. The project staff will assist district crews with this coordination, helping to do the work when necessary but empowering crews to do it themselves as much as possible.

**Summary Budget Information for Activity 4:**

**ENRTF Budget: \$ 65,000**  
**Amount Spent: \$ 65,828**  
**Balance: \$ -828**

<b>Outcome</b>	<b>Completion Date</b>
1. Complete or update prescribed fire plans for at least 20 sites across the state.	June 30th, 2020
2. Coordinate site preparation as needed prior to burning each site.	Ongoing

**Activity 4 Status as of February 1, 2018:**

Requirement for first scheduled status update has been waived, according to email from LCCMR staff on 7/26/2017.

**Activity 4 Status as of August 1, 2018:**

Met with district fire coordinators discussing and modifying existing equipment, coordinated obtaining burn permits from four DNR forestry offices, coordinate mowed fire breaks on three off-site native plantings, established protocol on who and how local authorities and neighbors are notified on burn days. Completed one new burn plan and updated ten additional burn plans. Mentored fire coordinators on how to write effective prescribed burn plans and reporting accomplishments.

**Activity 4 Status as of February 1, 2019:**

Completed three new burn plans and updated 2 additional plans, in the process of adding three additional burn plans. Obtained burn permits for fall burns in three districts. Coordinated and made maps for district staff to mow fire breaks for one burn.

**Activity 4 Status as of August 1, 2019:**

Completed three new burn plans and updated several additional burn plans. Obtained burn permits for spring burn season in all four districts.

**Activity 4 Status as of February 1, 2020:**

Completed one new burn plan and updated three other plans. Scout several possible burns in three districts for the purpose of adding new areas to burn in the future. Met with MN Prescribed Fire Council, MN Incident Command System Prescribed Fire & Fuels Working Team, and MN DNR Prescribed Fire Committee regarding prescribed fire collaboration.

**Activity 4 Status as of August 1, 2020:**

Completed new template for burn plans, which is required due to DNR's new standards. Updated four burn plans. Starting scouting new burns areas in a district that will be new to burning in 2021. Continued coordination with MN Prescribed Fire Council.

**Activity 4 Status as of February 1, 2021:**

Burn plans: Due to COVID "best practices" for prescribed fire many of the burn plans that have been updated need additional audits. Smoke management and contingency resources are the primary elements of concern.

Best Practice for prescribed fire: MNDOT has been active in the development of the new practice and continually will be active as issues and problem solving are consistent.

Burn Exemptions: MNDOT has been coordinating with MNDNR and MNICS in developing an exemption request for agencies to be allowed to conduct prescribed fire. It is undetermined if MNDOT will have to write a separate exemption or we will be included with the MNDNR.

Prescribed Fire Policy: MNDOT has completed an updated first draft and is planned to be finalized for signature prior to the spring 2021 burn season.

Debris and Pile Burning. MNDOT has completed a draft and is planned to be finalized for signature prior to the spring of 2021 burn season.

Equipment and supply: much needed equipment and supplies are planned to be ordered prior to the spring of 2021 to better equip crews at the DNR standards.

**Final Report Summary:**

15 new burn plans and sites have been added to our burn rotation, 5 burn plans have been expanded to include addition areas, and 15 burn plans have been updated to fit our newest version with updated contact information.

**V. DISSEMINATION:**

**Description:**

Prescribed fire catches the public's interest, especially when it happens on roadsides. We will notify communities of planned burns via press releases at the local level. We will explain why we use prescribed fire via statewide news media and social media. Links to specific press releases, news stories, and social media posts will be provided in status updates.

**Status as of February 1, 2018:**

Requirement for first scheduled status update has been waived, according to email from LCCMR staff on 7/26/2017.

**Status as of August 1, 2018:**

Assisted with preparation of press releases in three districts. One example can be seen at this link: (<http://www.dot.state.mn.us/d6/newsrels/18/05/7-i90.html>). Began preparations with MnDOT Communications Office to create prescribed fire video. MnDOT Wildlife Ecologist described our work to increase capacity of roadside prescribed fire program (with credit given to ENRTF) in front of 300 people at a Pollinator Friendly Alliance summit (<https://www.pollinatorfriendly.org/pollinator-friendly-summit-2018>).

**Status as of February 1, 2019:**

Worked with two district Information Officers on preparing Press Releases, which notify traffic of upcoming prescribed burns, to increase safety for motorist and MnDOT workers. Coordinated with local Fire Departments on notification of MnDOT burns taking place and for contingency resources on those burn sites. Preparing to present on roadside prescribed fire at the Rights of Way as Habitat Working Group's workshop in February, in the Chicago area.

**Status as of August 1, 2019:**

Worked with four district Information Officers on preparing Press Releases. Coordinated with numerous Fire Departments, notifying them of MnDOT burns and coordinating contingency resources. Met with maintenance leadership in a MnDOT district that does not have a fire crew to discuss the possibility of starting another crew. Conducted a prescribed fire-themed Emergency Management Tabletop Exercise for MnDOT Senior Leadership Team. Explained our roadside prescribed fire program in a presentation at the Right of Ways as Habitat Working Group conference in February in the Chicago area. Shared methods, tactics, and lessons learned in roadside prescribed fire with representatives of the Ontario Ministry of Transportation, to help them in their efforts to use fire to manage ecological restoration elements of a major highway infrastructure project south of Detroit.

**Status as of February 1, 2020:**

Worked with Jeff Lormand of Parsons Corp (Engineering firm) of Denver Colorado on a prescribed burn synthesis project, which provided information on MnDOT prescribed burn program. The prescribed burn synthesis project is in developmental stage and will gather data/research from different state DOT's burn programs.

**Status as of August 1, 2020:**

Worked with DNR, TNC, USFW on COVID-19 issues associated with setting guidelines for safely conducting prescribed burns statewide.

**Status as of February 1, 2021:**

MNDOT is working with additional non-agency organizations to burn on MNDOT owned and or administrated lands. Policy and procedures are currently in development.

MNDOT is currently in the process obtaining the credentials from the DNR to conduct Work Capacity Test and Annual Refreshers. Uncertainty of the process still exist due to COVID and the required delivery methods.

Railroad: CP Rail has not been easy to coordinate with in the fall of 2020. In the process of negotiating an agreement or understanding that will allow burning without railroad fees and a 30 day notice.

**Final Report Summary:**

A Master Partnership agreement has been completed and will be in effect the fall of 2021 for MnDOT fire crew members to assist DNR on wildfire suppression, prescribed fire operations, and help with smoke chasing activities on weekends.

**VI. PROJECT BUDGET SUMMARY:**

**A. Preliminary ENRTF Budget Overview:**

**\*This section represents an overview of the preliminary budget at the start of the project. It will be reconciled with actual expenditures at the time of the final report.**

Budget Category	\$ Amount	Overview Explanation
Personnel:	\$ 308,000	1 project coordinator at 100% FTE each year for 3 years 1 assistant coordinator at 25% FTE each year for 3 years
Equipment/Tools/Supplies:	\$8,000	Personal protective equipment; Hand tools and supplies; Monitoring equipment and miscellaneous supplies
Travel Expenses in MN:	\$29,000	Mileage, lodging, and meals
<b>TOTAL ENRTF BUDGET: \$345,000</b>		

**Explanation of Use of Classified Staff:** N/A

**Explanation of Capital Expenditures Greater Than \$5,000:** N/A

**Total Number of Full-time Equivalent (FTE) Directly Funded with this ENRTF Appropriation:** 3.75 FTEs

**Total Number of Full-time Equivalent (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation:** N/A

**B. Other Funds:**

Source of Funds	\$ Amount Proposed	\$ Amount Spent	Use of Other Funds
<b>Non-state</b>	N/A	N/A	N/A
	\$	\$	
<b>State</b>			
MnDOT Office of Environmental Stewardship (Cash support)	\$15,000	\$5,525	Funding from Office of Environmental Stewardship for reimbursement of prescribed fire assistance from DNR
MnDOT Operating Budget (In-kind support)	\$225,000	\$ 220,000	Participation of existing MnDOT fire crews and equipment on fires; Project management by existing MnDOT Prescribed Fire Program Coordinator; Office and computer provided by MnDOT Office of Environmental Stewardship
<b>TOTAL OTHER FUNDS:</b>	<b>\$240,000</b>	<b>\$225,525</b>	

**VII. PROJECT STRATEGY:**

**A. Project Partners:**

Funds from the ENRTF will be used by the MnDOT Office of Environmental Stewardship to greatly increase the support it can provide to the prescribed fire program. This increased support will allow MnDOT to overcome current obstacles to building self-sufficient fire crews and will set in motion a sustainable prescribed fire program.

Project Leader: Nate Johnson, MnDOT Prescribed Fire Program Coordinator

Nate will coordinate the work of the burn boss and the district fire crews, prioritize prescribed fire sites and objectives, identify the training needs of the district burn boss trainees, and support the program in other ways as needed.

Pollinator/Entomology Advisor: Christopher Smith, MnDOT Wildlife Ecologist

Chris will assess the impacts of roadside prescribed fire on pollinator and insect species and recommend ways to reduce adverse impacts on insect communities.

MnDOT District fire crew coordinators:

There are five coordinators in four districts. They will provide local coordination of crews and equipment while simultaneously working toward their burn boss qualifications.

MnDOT District Fire Crews:

There are four crews composed primarily of maintenance personnel. These crews will implement prescribed fires under the leadership of the burn boss and the district fire crew coordinators.

We do not have any formal partner outside of MnDOT on this project. However, to help implement our prescribed fire we collaborate with the Minnesota DNR and various railroad companies. Through the DNR we get help with training, tracking qualifications, and some implementation. Most of this assistance is provided in-kind by DNR but a small portion of the implementation assistance is reimbursed by MnDOT. We also coordinate with the railroads for permission to burn their right of way in cases where it adjoins MnDOT right of way and contains high quality remnant prairie. Railroads require that one of their employees be on-site during a burn if trains will be present. Recognizing that fire also accomplishes some of the railroad’s vegetation management objectives, they typically provide this “flagging service” free of charge. Such collaboration with both entities will increase as this project increases our use of fire.

**B. Project Impact and Long-term Strategy:**

Past prescribed fire at MnDOT was inconsistent and heavily reliant upon outside assistance. While interagency collaboration will always be important, a self-sufficient fire program is necessary to effectively manage the hundreds of miles of native vegetation on MnDOT roadsides. This project will catalyze MnDOT’s prescribed fire program by empowering existing crews to become self-sufficient. This increased capacity will ensure that fire becomes a routine part of roadside vegetation management and allow MnDOT to effectively protect the biodiversity of remnant prairies and manage native plantings on roadsides.

**C. Funding History:**

These amounts are estimates based on an assumed cost per burn times the number of burns accomplished in each biennium, plus program support work. Precise costst are difficult to extract from spending reports because of the way they are lumped in with other work: Because prescribed fire is still relatively new and a small portion of MnDOT activities, it is lumped in with other vegetation management work in our expense tracking system. Mn DNR and Railroad contributions are also estimates because no money exchanged hands and no request for specific tracking was made for previous collaboration.

Funding Source and Use of Funds	Funding Timeframe	\$ Amount
MnDOT Operating Funds, in-kind	July 1 2015 – June 30 2016	\$51,000
MN DNR, in-kind	July 1 2015 – June 30 2016	\$2,000
Railroads, in-kind	July 1 2015 – June 30 2016	\$1,400
MnDOT Operating Funds, in-kind	July 1 2013 – June 30 2015	\$78,000
MN DNR, in-kind	July 1 2013 – June 30 2015	\$4,000
Railroads, in-kind	July 1 2013 – June 30 2015	\$2,800
MnDOT Operating Funds, in-kind	July 1 2011 – Jun 30 2013	\$102,000



Railroads, in-kind	July 1 2011 – Jun 30 2013	\$1,400
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**VIII. REPORTING REQUIREMENTS:**

- The project is for ~~3~~4 years, will begin on 07/01/2017, and end on 06/30/2021.
- Periodic project status update reports will be submitted February 1 and August 1 of each year.
- A final report and associated products will be submitted between June 30 and August 15, 2021.

**IX. VISUAL COMPONENT or MAP(S):**

See accompanying document titled: Roadside Prairie Prescribed Fire Visual Component

**Environment and Natural Resources Trust Fund  
FINAL M.L. 2017 Project Budget**

**Project Title:** Prescribed-Fire Management for Roadside Prairies  
**Legal Citation:** M.L. 2017, Chp. 96, Sec. 2, Subd. 08f  
**Project Manager:** Nate Johnson  
**Organization:** Minnesota Department of Transportation  
**M.L. 2017 ENRTF Appropriation:** \$345,000  
**Project Length and Completion Date:** 4 Years, June 30, 2021  
**Date of Report:** October 11, 2021



**Revised date (Previous approved changes):** 8/1/2020

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	Activity 1 Budget	Amount Spent	Activity 1 Balance	Activity 2 Budget	Amount Spent	Activity 2 Balance	Activity 3 Budget	Amount Spent	Activity 3 Balance	Activity 4 Budget	Amount Spent	Activity 4 Balance	TOTAL BUDGET	TOTAL SPENT	TOTAL BALANCE
<b>BUDGET ITEM</b>															
<b>Personnel (Wages and Benefits)</b>	\$170,000	\$154,483	\$15,517	\$18,000	\$23,767	-\$5,767	\$60,000	\$59,416	\$584	\$60,000	\$59,416	\$584	\$308,000	\$297,082	\$10,918
Project Coordinator: \$240,000 (75% salary 25% benefits); 100% FTE each year for 3 of years [18k act 2, 47.5k act 3, 47.5 act 4]	\$162,000			\$18,000			\$47,500			\$47,500					
District Crew Leader time when assisting outside of their home district. (Estimated 15 days, 12-14 hrs each at \$40/hr = \$8,000)	\$8,000														
<b>Equipment/Tools/Supplies</b>	\$4,500	\$4,104	\$396	\$500	\$456	\$44	\$2,000	\$1,824	\$176	\$1,000	\$912	\$88	\$8,000	\$7,295	\$705
personal protective equipment (2 sets for \$1500 total)															
fire hand tools and supplies (\$3,000)															
monitoring equipment and miscellaneous supplies ( \$3,500; transect tapes, sample pins, tablets, etc)															
<b>Travel expenses in Minnesota</b>	\$15,500	\$14,300	\$1,200	\$6,500	\$2,200	\$4,300	\$3,000	\$5,500	-\$2,500	\$4,000	\$5,500	-\$1,500	\$29,000	\$27,501	\$1,499
Travel to and between sites for inventory, site preparation, burning and monitoring: Mileage: \$27,000; lodging: \$10,000; meals: \$10,000	\$11,500			\$1,500											
Travel related to training in MN \$5,000 to be used under Activity 2 for training fees and expenses in MN, to cover an estimated 5 courses (\$750 lodging & meals + \$250 course fee) (2,000 taken from Activity 2 Salary and 3,000 taken from Activity 2 Travel)				\$5,000											
Includes travel expenses and per diem for District Crew Leader when assisting outside of their home district. (Estimated 15 days, 350-400 miles each @ \$0.58/mile + \$36 per diem = \$4,000)	\$4,000														
<b>Out of State Travel Expenses</b>				\$0	\$0	\$0							\$0		\$0
Travel related to training outside of MN \$18,000 to be used under Activity 2 for training fees and expenses for courses that are not available within MN in a timely manner, to cover an estimated 10 courses (\$400 course fee + \$400 airfare + \$1,000 lodging & meals for each course) (to be taken from Activity 1 Salary)				\$18,000											
<b>COLUMN TOTAL</b>	<b>\$190,000</b>	<b>\$172,887</b>	<b>\$17,113</b>	<b>\$25,000</b>	<b>\$26,423</b>	<b>-\$1,423</b>	<b>\$65,000</b>	<b>\$66,740</b>	<b>-\$1,740</b>	<b>\$65,000</b>	<b>\$65,828</b>	<b>-\$828</b>	<b>\$345,000</b>	<b>\$331,878</b>	<b>\$13,122</b>

# Roadside Prairie Prescribed Fire

This project will protect biodiversity and enhance pollinator habitat on roadsides by helping to create a self-sufficient prescribed fire program at the Minnesota Department of Transportation

## Minnesota’s state & federal highways contain:

- Over 350 miles of remnant prairie
- Some of the last remaining populations of certain rare plant species
- Hundreds more miles of native grass and forb plantings
- Thousands of miles of potential habitat for pollinators and other wildlife

## Prescribed fire is critical to protecting and maintaining roadside prairies



Figure 1: Roadside native grass and wildflower planting

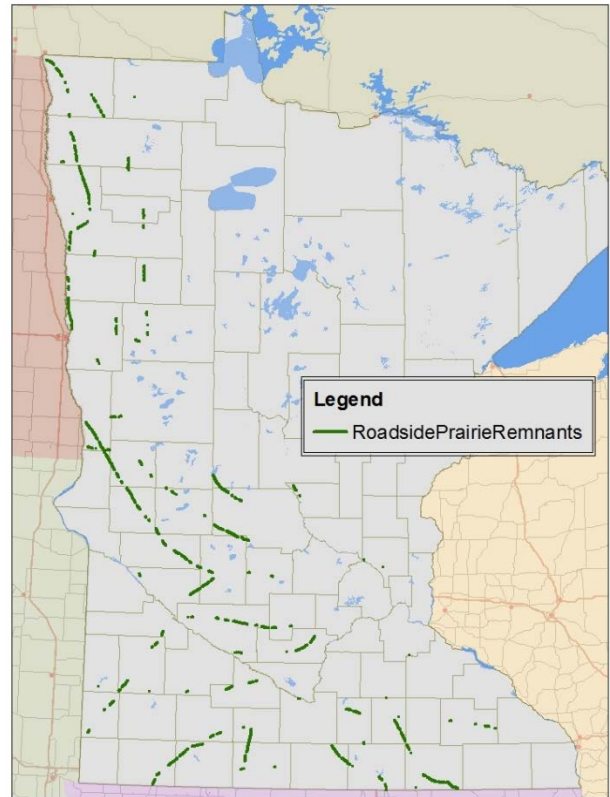


Figure 2: Map of roadside prairie remnants in Minnesota



Figure 3: Prescribed fire in progress on a roadside prairie remnant

## For More Information

Contact: Nate Johnson, MnDOT, 651-723-4288 [nathan.d.johnson@state.mn.us](mailto:nathan.d.johnson@state.mn.us)