



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

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**Date of Submission:** September 14, 2016  
**Date of Next Status Update Report:** February 1, 2018  
**Date of Work Plan Approval:** 06/07/2017  
**Project Completion Date:** June 30, 2020  
**Does this submission include an amendment request?** No

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

**Project Manager:** Ken Graeve  
**Organization:** Minnesota Department of Transportation  
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**Location:** Statewide

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<b>Total ENRTF Project Budget:</b>	<b>ENRTF Appropriation:</b>	<b>\$345,000</b>
	<b>Amount Spent:</b>	<b>\$0</b>
	<b>Balance:</b>	<b>\$345,000</b>

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**Legal Citation:** M.L. 2017, Chp. 96, Sec. 2, Subd. 08f

**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.

**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:**

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

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

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

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

**Overall Project Outcomes and Results:**

**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: \$180,00 0**  
**Amount Spent: \$0**  
**Balance: \$180,000**

<b>Outcome</b>	<b>Completion Date</b>
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:**

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

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

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

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

**Final Report Summary:**

**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, that 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: \$ 0**  
**Balance: \$ 25,000**

<b>Outcome</b>	<b>Completion Date</b>
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, 2020
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:**

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

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

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

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

**Final Report Summary:**

**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: \$ 70,000**  
**Amount Spent: \$ 0**  
**Balance: \$ 70,000**

<b>Outcome</b>	<b>Completion Date</b>
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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:**

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

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

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

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

**Final Report Summary:**

**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: \$70,000**  
**Amount Spent: \$ 0**  
**Balance: \$ 70,000**

Outcome	Completion Date
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:**

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

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

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

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

**Final Report Summary:**

**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:**

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

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

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

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

**Final Report Summary:**

**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.**

<b>Budget Category</b>	<b>\$ Amount</b>	<b>Overview Explanation</b>
Personnel:	\$ 290,000	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:	\$47,000	Mileage, lodging, and meals
<b>TOTAL ENRTF BUDGET:</b>	<b>\$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	\$	Funding from Office of Environmental Stewardship for reimbursement of prescribed fire assistance from DNR
MnDOT Operating Budget (In-kind support)	\$225,000	\$	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>\$</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: Ken Graeve, MnDOT Prescribed Fire Program Coordinator

Ken 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.

<b>Funding Source and Use of Funds</b>	<b>Funding Timeframe</b>	<b>\$ Amount</b>
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

**VIII. REPORTING REQUIREMENTS:**

- **The project is for 3 years, will begin on 07/01/2017, and end on 06/30/2020.**
- **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, 2020.**

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

See accompanying document titled: Roadside Prairie Prescribed Fire Visual Component

Environment and Natural Resources Trust Fund

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: Ken Graeve

Organization: Minnesota Department of Transportation

M.L. 2017 ENRTF Appropriation: \$345,000

Project Length and Completion Date: 3 Years, June 30, 2020

Date of Report: September 14, 2016



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 BALANCE
<b>BUDGET ITEM</b>	<b>Prescribed Fire Implemenation</b>		<b>Mentor Prescribed Fire Crews</b>			<b>Inventory and Monitoring</b>			<b>Program Support</b>					
<b>Personnel (Wages and Benefits)</b>	\$150,000		\$150,000	\$20,000		\$20,000	\$60,000		\$60,000	\$60,000		\$60,000	\$290,000	\$290,000
Project Coordinator: \$240,000 (75% salary 25% benefits); 100% FTE each year for 3 of years														
Assistant Coordinator: \$50,000 Amount (75% salary 25% benefits); 25% FTE each year for 3 of														
<b>Equipment/Tools/Supplies</b>	\$4,500		\$4,500	\$500		\$500	\$2,000		\$2,000	\$1,000		\$1,000	\$8,000	\$8,000
personal protective equipment (2 sets for \$1500														
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>	\$25,500		\$25,500	\$4,500		\$4,500	\$8,000		\$8,000	\$9,000		\$9,000	\$47,000	\$47,000
Travel to and between sites for inventory, site preparation, burning and monitoring: Mileage: \$27,000; lodging: \$10,000; meals: \$10,000														
<b>COLUMN TOTAL</b>	<b>\$180,000</b>	<b>\$0</b>	<b>\$180,000</b>	<b>\$25,000</b>	<b>\$0</b>	<b>\$25,000</b>	<b>\$70,000</b>	<b>\$0</b>	<b>\$70,000</b>	<b>\$70,000</b>	<b>\$0</b>	<b>\$70,000</b>	<b>\$345,000</b>	<b>\$345,000</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

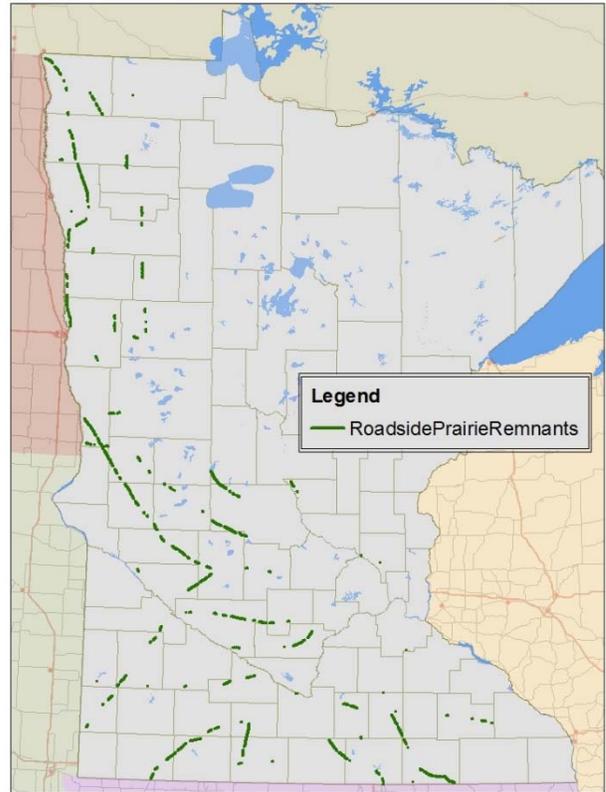


Figure 2: Map of roadside prairie remnants in Minnesota



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

## For More Information

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