

# Benton County IRVM Plan



Prepared by:

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Benton County IRVM Roadside Manager

**Mission Statement:**

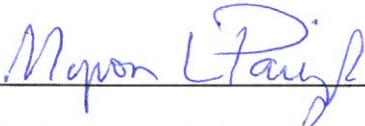
**The mission of the Benton County Integrated Roadside Vegetation Management Program is to create public awareness and provide safe, ecologically diverse, environmentally integrated and aesthetically pleasing roadsides. Per Iowa Code 314.22**

**Committed to preserving our rich ecological past. Striving to conserve our natural resources, restore ecosystem services and protect our environment.**

**Vision Statement:**



IN WITNESS WHEREOF, the parties hereto recognize the efficiencies and benefits the Benton County IRVM program provides for the citizens and traveling public of Benton County and approve the following management plan.

  
\_\_\_\_\_

Benton County Engineer

  
\_\_\_\_\_

Date

  
\_\_\_\_\_

Benton County Roadside Manager

  
\_\_\_\_\_

Date

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I. **Preface:**

A. **Update/Version:**

**RECORD OF ANNUAL REVIEW & FIVE YEAR REVISIONS**

Approved by the Benton County Board of Supervisors on June 2, 2015.

**Annual Review**

<b>Review Year</b>	<b>Date Completed</b>	<b>Reviewer(s)</b>
2015		
2016		
2017		
2018		
2019		
2020		
2021		
2022		
2023		
2024		
2025		
2026		
2027		
2028		
2029		
2030		
2031		
2032		
2033		
2034		

**Five-Year Revision**

<b>Revision Year</b>	<b>Date Completed</b>	<b>Reviser(s)</b>
2020		
2025		
2030		
2035		

**B. Contributors to the Plan:**

This Integrated Roadside Vegetation Management Plan was created by Ben Bonar. Ben Bonar is the Roadside Manager and Weed Commissioner for Benton County. The 2014 Benton County IRVM Steering Committee aided in the creation of the programs mission and vision statement. This plan was adopted by the Benton County Board of Supervisors on June 2, 2015.

**II. Executive Program Elements:**

**A. Goals:**

The Benton County IRVM Program has numerous short and long term goals that will be accomplished as the program ages. These goals are listed below.

*Short Term Goals:*

- Acquire Transportation Alternatives Program (TAP) Seed.
- Secure funding for yearly Living Roadway Trust Fund Grants.
- Begin the development of a network of interconnected right-of-way prairie plantings along Benton County's hard surface roads.
- Develop public awareness for IRVM through public presentations, workshops, Facebook and displays.
- Effectively control noxious and invasive weeds in Benton County ROW.
- Effectively control brush and trees in Benton County ROW.
- Maintain an informative and interesting IRVM website page on the Benton County website.
- Develop a policy and permit for no spray signs.
- Begin work on right-of-way encroachment issues.

*Long Term Goals:*

- Develop a network of interconnected right-of-way prairie plantings along all of Benton County's hard surface roads.
- Set up and maintain a prairie seed production plot that focuses on propagating rare native Benton County prairie plant species.
- Develop a broader network of support for the Benton County IRVM Program.
- Preserve and manage remnant prairie plant communities in the ROW through monitoring, prescribed fire and brush removal.
- Develop a bird nest box program that coincides with highway ROW plantings.

- Manage ROW to reduce the overall brush, tree, noxious weed and invasive weed cover.
- Develop a neighborly policy for dealing with right-of-way encroachment issues.

#### **B. Program History:**

Benton County is required by the State of Iowa to uphold sections of Iowa Code that pertain to noxious weed destruction. The state maintains a list of these weeds and the board of supervisors is tasked with their destruction. In order to efficiently combat noxious weed infestations, the board of supervisors appoints a Weed Commissioner to carry out these duties. The Benton County Weed Commission was an independent department within Benton County until July 1, 2010. It was then merged with the Benton County Secondary Roads Department and later melded into the county's new Integrated Roadside Vegetation Management Program.

Integrated Roadside Vegetation Management began in Benton County in 2005 when the first IRVM management plan was filed. This allowed the county to receive diverse prairie plant seed to restore vegetation in disturbed right-of-way. The county then established an IRVM steering committee in 2009 to guide the program as it moved forward. In 2013, Benton County chose to hire its first Roadside Manager. This individual works out of the Secondary Roads Department and manages all aspects of the IRVM program. Additionally, having a Roadside Manager on staff allows Benton County to receive funding for new equipment purchases and projects. The Roadside Manager also took over the annual duties of the Benton County Weed Commissioner in 2015 after being appointed by the board of supervisors.

#### **C. IRVM Decision Making Process:**

Several individuals are involved in the IRVM decision making process in Benton County. The Roadside Manager works directly with the County Engineer to make decisions about the IRVM program. They determine what the equipment and supply needs are for the program, if grants are available to aid in a purchase and what projects will be completed in a given year. If a grant has been obtained, a formal resolution from the Benton County Board of Supervisors is needed to approve it.

The Roadside Manager also works with the IRVM Steering Committee to determine the needs of the program. Although this committee does not have the final say, their opinion is valued and considered.

**D. Executive Summary:**

Benton County Integrated Roadside Vegetation Management restores and reconstructs native vegetation in county right-of-way to produce a cost-effective solution to roadside weed and erosion control. The Benton County Integrated Roadside Vegetation Management Plan was developed to provide detailed information on how the IRVM program functions in Benton County. It is also meant to be a guide for new IRVM employees to gain an understanding of what the program encompasses.

This plan contains a significant amount of information regarding the IRVM program and how it functions. The beginning sections cover program goals, history and a general overview of how the program operates. Later sections detail what the IRVM program does. This includes all of the procedures that go into restoring or reconstructing native vegetation effectively.

**E. Area Map:**

An area map of Benton County can be found in Appendix B.

**F. Program Type:**

The Benton County IRVM program is housed in the Secondary Roads Department. The program is fully developed and employs a Roadside Manager, Roadside Technician and 2 Part-Time Spray Truck Drivers.

**III. Jurisdictional Recognition:**

**A. Management:**

Several individuals are involved in managing the IRVM program:

*Roadside Manager:*

The Roadside Manger is the primary manager for the IRVM program. This individual works in the Secondary Roads Department with the Benton County Engineer and IRVM Steering Committee when setting goals and making decision that impact the program. The job description for the Roadside Manager can be found in Appendix A Section 1.

*County Engineer:*

The County Engineer is the secondary manager for the IRVM program. This individual oversees the Roadside Manager and aids in setting goals and making decisions that impact the program.

*Board of Supervisors:*

The Board of Supervisors oversees the County Engineer and Roadside Manager. This group of individuals is involved in making high level decisions regarding the IRVM program and receives an annual report regarding the success of IRVM within the county. Annually, the board of supervisors appoints the Roadside Manager as the Weed Commissioner.

*IRVM Steering Committee:*

The IRVM Steering Committee meets at least 4 times annually and was created to support and promote IRVM activities within the county. Though this group does not have any direct management responsibilities, their input is used when making decisions regarding IRVM.

**B. Iowa Code:**

Sections of Iowa Code that pertain to the IRVM program and Weed Commission are listed below. Actual code sections are contained within Appendix C.

- *314.17 Mowing on Interstates and Primary Highways*
- *314.21 Living Roadway Trust Fund*
- *314.22 Integrated Roadside Vegetation Management:*
- *317.1A Noxious Weeds:*
- *317.3 Weed Commissioner:*
- *317.4 Direction and Control:*
- *317.5 Weeds in Abandoned Cemeteries:*
- *317.6 Entering Lands to Destroy Weeds – Notice:*
- *317.7 Report to Board:*
- *317.9 Duty of Board to Enforce:*
- *317.10 Duty of Owner or Tenant:*
- *317.11 Weeds on Roads – Harvesting of Grass:*
- *317.12 Weeds on Railroad or Public Lands and Gravel:*
- *317.13 Program of Control:*
- *317.14 Notice of Program:*
- *317.16 Failure to Comply:*
- *317.17 Additional Noxious Weeds:*
- *317.18 Order for Weed Control on Roads:*
- *317.19 Road Clearing Appropriation:*
- *317.20 Equipment and Materials – Use on Private Property*
- *317.21 Cost of Weed Destruction:*
- *317.22 Duty of Highway Maintenance Personnel:*
- *317.26 Alternative Remediation Practices:*
- *318.1 Definitions:*
- *318.2 Purpose:*

- 318.3 Obstructions in Highway Right-of-Way:
- 318.4 Duty of Highway Authorities:
- 318.5 Removal and Cost:
- 318.6 Public Nuisance:
- 481B Endangered Plants and Wildlife:
- 657.3 Penalty – Abatement:
- 903.1 Maximum Penalty for Misdemeanors: Subsection 2

**C. Permits:**

Permits related to Benton County roadsides are listed below. The actual permit forms can be found in Appendix D. No IRVM or Weed Commission permits have been made at this time but will be added here after they are created.

**IV. Program Organizational Structure:**

**A. Staff Organization Chart:**

More detailed information on job descriptions can be found in Appendix A.

1. Management:

*Roadside Manager:* The Secondary Roads Department employs 1 Roadside Manager.

2. Full Time:

*Roadside Technician:* The Secondary Roads Department employs 1 Roadside Technician.

3. Part Time/Seasonal:

*Seasonal Spray Truck Driver:* The Secondary Roads Department employs 2 Part Time/Seasonal Spray Truck Drivers.

**B. Staffing Needs:**

1. Staffing:

*Seasonal Roadside Conservation Technician:*  
Roadside Management is a field that is difficult to access for young professionals that are building their resumes for future employment in the field of natural resource management. Benton County could benefit from hiring on a Seasonal Roadside Conservation Technician. This individual would help

accomplish tasks that time does not warrant and the job would provide an excellent learning experience for someone interested in Roadside Management.

*Roadside Management Internship:*

Opportunities may arise for Benton County to utilize internships from our local universities. Many require internships for successful completion of Bachelors or Masters Degrees. By offering these opportunities, Benton County could benefit by receiving extra help at no cost and providing on the job experience for college students.

2. Training/Education:

Training and educational requirements for new Benton County IRVM employees are listed below.

*Training:*

- Prescribed Fire: NWCG S-130, S-190, S-290
- Driving: Class B CDL with Air Brake and Tanker Endorsement
- Pesticide Application: Iowa Pesticide Applicators License, Core, 1A, 6

*Education:*

- Roadside Manager: Minimum 4-year degree in a natural resources related field. Preferred Masters Degree in a natural resources related field.
- Roadside Technician: Minimum 2-year degree in a natural resources related field. Preferred 4-year degree in a natural resources related field.

**C. Succession Plan:**

The Benton County Secondary Roads Department does not have a detailed succession plan for the IRVM program. If the Roadside Manager or Roadside Technician positions were to become vacant, a new individual will be sought for either of these positions. At the time a position is vacated, the interview committee should review the positions job description and update any sections as needed.

This management plan will serve as the primary introductory material for new full time employees of the Benton County IRVM Program. If possible, it would be beneficial to have the former Roadside Manager or Technician provide training and guidance when a new individual is hired following a vacancy. However, it is unrealistic to expect this in every situation.

V. **Public Involvement:**

A. **Steering Committee:**

Benton County established an IRVM Steering Committee on December 1<sup>st</sup>, 2009. This committee was instrumental in developing Benton County's IRVM program and remains active today. Its main purpose is to assist in the planning and implementation of Benton County's roadside management efforts. A summary of this committee can be found in Appendix J.

The goals of the IRVM Steering Committee have evolved following the establishment of a fully developed program. The committee now works as a part of a team with the Roadside Manager, Roadside Technician and County Engineer. The committee advises these individuals on all IRVM related issues through quarterly meetings.

B. **Current Members:**

The current members of the Benton County IRVM Steering Committee are:

- Ben Bonar – Roadside Manager
- Matt Purdy – County Conservation Director
- Carol Zander
- Calvin Wolter
- Randy Scheel
- Ann Jorgensen
- Joan Lindberg
- James Huber
- Kathy Chamberlain
- Harold Cassens

C. **Qualifications:**

Qualifications for IRVM steering committee positions include the following background types:

- Native Vegetation
- Roadside Management
- Weed Management
- Environmental Sciences
- Conservation
- Agriculture
- Demonstrate an interest in one of the above stated backgrounds

**D. Terms:**

The members shall serve three-year staggered terms. Terms shall be on a calendar year basis. The initial appointments shall be as follows:

- 3 persons – 1-year term
- 3 persons – 2-year term
- 4 persons – 3-year term

**E. Partners:**

1. Benton County Conservation:

Benton County Conservation partners with the IRVM program for presentations, workshops, reconstruction projects, quarterly newsletters and other miscellaneous projects.

**F. Stakeholders:**

The Benton County IRVM program is always looking for volunteers to help out with a variety of prairie related projects. Additionally, letters of support from other organizations help to show our community members that there is outside support for what we are doing.

**G. Education and Outreach:**

The Benton County IRVM program provides educational materials and opportunities for county residents in a variety of ways.

*Public Presentations:* Public presentations on IRVM and prairie-related topics are conducted annually by the Roadside Manager.

*Public Workshops:* Public workshops on IRVM and prairie-related topics are conducted annually by the Roadside Manager and may include other speakers.

*Newsletters:* A newsletter is compiled by the Roadside Manager annually for the Benton County Secondary Roads Department. Additionally, the Roadside Manager publishes articles in the Benton County Conservation Newsletter that is sent out quarterly.

*Brochures and Other Materials:* Brochures and other materials relating to IRVM are available through the Benton County IRVM program. These can be picked up at the Benton County Engineer's Office or by contacting the Roadside Manager.

## H. **Communication Mechanisms:**

The Benton County IRVM program communicates with the public through a variety of means. These are listed below:

*Meetings:* The Benton County IRVM Steering Committee meetings are open to the public and held 4 times annually. The meeting notices and minutes are published in accordance with the Benton County open records policies.

*Electronic Media:* The Benton County IRVM program utilizes Facebook to distribute information about the program and issues related to native vegetation.

## VI. **Natural Resources:**

### A. **Tools:**

*Beacon Site:* Beacon is a web based Geographic Information System that allows individuals to browse maps and impose layers that provide data about Benton County. One valuable feature that is used by the IRVM program is the right-of-way overlay.

### B. **Vegetation:**

#### 1. **Roadside Inventories:**

Benton County has had two roadside vegetation inventories conducted. Information regarding these inventories is listed below.

*Iowa Resources Conservation and Development Inventory:*

A roadside inventory was conducted by IRCD in 2002. This survey highlighted remnant populations of prairie plants as well as areas of considerable native vegetation. Fourteen remnants were found throughout the county. A species list was compiled for each remnant. IRCD inventory documents can be found in Appendix E.

*Benton County Inventory by Adam Shirley:*

A roadside inventory was conducted by Adam Shirley in 2011. This survey compiled data on roadside composition, erosion, presence of woody vegetation, encroachment, and bare spots. Survey documents can be found in Appendix E.

#### 2. **Endangered, Threatened and Species of Special Concern:**

Benton County is home to several species of conservation need. These species are classified into different categories based upon their risk of becoming extirpated in Iowa. Iowa Code 481B pertains to protections provided for these species. The following classifications are used in Iowa. Each classification will

have a list of species that have been found in Benton County's roadsides. A list of Iowa's endangered, threatened and special concern plants and wildlife that can be found in Benton County is located in Appendix F.

*Endangered:*

Any species of fish, plant life or wildlife which is in danger of extinction throughout all or a significant part of its range.

*Threatened:*

Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

- Oval Ladies Tresses (*Spiranthes ovalis*)

*Special Concern:*

Any species about which problems of status or distribution are suspected, but not documented, and for which no special protection is afforded under this rule.

- Cleft Phlox (*Phlox bifida*)

**C. Water Bodies:**

Benton County is home to several water bodies. These are listed below.

1. Cedar River:

The Cedar River enters Benton County on its north border in Cedar Township. It then winds south, east and then eventually exits the county on its east border in Polk Township.

2. Hannen Lake:

Hannen Park sits in the South Central portion of Benton County's Leroy Township. This park is home to a 45 acre lake.

3. Iowa River:

The Iowa River enters and exits Benton County in the South West corner of Iowa Township. The river is roughly 323 miles long and is a tributary of the Mississippi River.

4. Pleasant Creek:

Pleasant Creek State Recreation Area sits over the border of Benton County on the East Central side. The lake is approximately 410 acres and sits just to the Northeast of Shellsburg.

5. Price Creek:

Price Creek is located in portions of St. Clair and Florence Townships in Southeast Benton County. The Price Creek watershed is 18,838 acres in size and is a tributary of the Iowa River.

6. Rodgers Park Lake:

Rodgers Park sits in the NE corner of Benton County's Jackson Township. This park is home to a 27 acre lake.

VII. Equipment:

A. **Equipment Inventory:**

An equipment inventory for the Benton County IRVM Program can be found below. This includes when the item was purchased and what condition it is in.

1. Chainsaw Equipment:

*Chainsaws:*

- (2) Stihl MS 180C (New in 2014)
- (1) Stihl MS 192TC (New in 2014)
- (2) Stihl MS 362 (New in 2014)
- (2) Stihl MS 460 (New in 2014)
- (1) Stihl MS 660 (New in 2014)

*Chaps:*

- (3) Stihl Chaps (New in 2014)

*Helmets:*

- (5) Stihl Safety Helmets (New in 2014)

2. Prescribed Fire Equipment:

*UTV:*

- (1) Polaris Ranger 6x6 (New in 2014)

*Drip Torch:*

- (1) Drip Torch (Good Condition)

*Skid Sprayer:*

- (1) Northstar 55 Gallon Skid Sprayer (New in 2014)

*Fire Swatter:*

- (6) Fire Swatters (Excellent Condition)

*Nomex Shirts:*

- (12) Yellow Nomex Shirts (Excellent Condition)

*Nomex Pants:*

- (12) Green Nomex Pants (Excellent Condition)

*Hard Hats:*

- (5) Yellow Hard Hats (Excellent Condition)

*Backpack Sprayers:*

- (2) Yellow Backpack Pumps (New in 2014)

*Leather Gloves:*

- (12) Leather Gloves (New in 2014)

*Goggles:*

- (12) Safety Goggles (New in 2014)

*Weather Meter:*

- (1) Kestrel 4000 Weather Meter (New in 2014)

*Weather Meter Accessories:*

- (1) Kestrel Tripod (New in 2014)
- (1) Kestrel Case (New in 2014)

*Face and Neck Shroud:*

- (12) Face and Neck Shrouds (New in 2014)

3. Spraying Equipment:

*Spray Trucks:*

- (2) GMC Spray Trucks (Good Condition)
- (1) Dodge 4500 Spray Truck (New in 2014)

*Handheld Sprayers:*

- (2) Echo MS-31H Handheld Sprayers (New in 2014)

4. Seeding Equipment:

*Tractor:*

- (1) Ford Tractor (Good Condition)

*Seed Drill:*

- (1) Truax Flex-2 8ft Seed Drill (Refurbished in 2014)

*Hydroseeder:*

- (1) Finn Hydroseeder (Excellent Condition)

*Broadcast Seeders:*

- (1) Truax Broadcast Seeder (Good Condition)

5. Miscellaneous Equipment:

*Camera:*

- (1) Cannon Rebel T3i (New in 2014)

*Skid Steer Attachments:*

- (1) Harley Rake (New in 2014)
- (1) Virnig Brush Cutter (New in 2014)

**B. Equipment Needed:**

New equipment purchases will be necessary as the Benton County IRVM program continues. Below are new equipment purchases that will be needed at some point in the programs future.

1. Chainsaw Equipment:

2. Prescribed Fire Equipment:

- (2) Drip Torch Holders
- (1) Drip Torch
- (1) Kestrel Drop 2
- (1) Weed Eater/Brush Cutter

3. Spraying Equipment:

4. Seeding Equipment:

5. Building Improvements:

- Heating System
- Pesticide Storage Room
- Seed Storage Room
- Concrete Floors
- Insulated Overhead Doors

- Roof

6. Miscellaneous Equipment:

VIII. **Program Operations:**

A. **Annual Operations:**

1. January:

- Attend the Appointments Meeting of the Board of Supervisors
- Submit Weed Commissioner Report
- Submit IRVM Annual Report
- Facilitate 1<sup>st</sup> IRVM Steering Committee Meeting
- Attend Winterfest Conservation Conference
- Cut and Remove Brush and Trees from ROW
- Plow Snow When Necessary
- Prioritize Equipment Needs for the Present LRTF Grant Cycle
- Send Out Letters for Herbicide Bids
- Update IRVM Management Plan

2. February:

- Attend Tallgrass Prairie and Oak Savanna Regional Fire Conference
- Attend RT-130 Wildland Fire Refresher Course
- Update IRVM Management Plan
- Cut and Remove Brush and Trees from ROW
- Plow Snow When Necessary
- Prepare LRTF Grants for Present LRTF Grant Cycle
- Schedule IRVM Programs and Workshops

3. March:

- Attend Annual Weed Commissioners Conference
- Cut and Remove Brush and Trees from ROW
- Plow Snow When Necessary
- Hire Part-Time Truck Drivers

4. April:

- Ready Spray Trucks for Spray Season
- Plant Prairie Seed in Ditch Clean-Outs
- Conduct Prescribed Burns if Conditions Permit
- Facilitate 2<sup>nd</sup> IRVM Steering Committee Meeting
- Post Noxious Weed Notice and Obstructions in the ROW in Papers
- Photograph Prairie Plant and Projects When Time Permits

5. May:
  - Work Hours Change to 7:00 AM to 4:30 PM May 1st
  - Begin Roadside Spraying Operations
  - Conduct Establishment Mowing on Prairie Reconstructions
  - Plant Ditch Clean-Outs and Other Projects
  - Photograph Prairie Plants and Projects When Time Permits
  - Conduct Prescribed Burns if Conditions Permit
  - Respond To Weed Complaints
  
6. June:
  - LRTF Grant Applications Due
  - Continue Roadside Spraying Operations
  - Plant Ditch Clean-Outs and Other Projects
  - Monitor Seedling Establishment
  - Photograph Prairie Plants and Projects When Time Permits
  - Respond to Weed Complaints
  
7. July:
  - Continue Roadside Spraying Operations
  - Plant Ditch Clean-Outs and Other Projects
  - Facilitate 3<sup>rd</sup> IRVM Steering Committee Meeting
  - Mow Weeds After July 15<sup>th</sup> for New Roadside Plantings
  - Monitor Sites Planned for Seed Collection
  - Respond to Weed Complaints
  
8. August:
  - Continue Roadside Spraying Operations
  - Plant Ditch Clean-Outs and Other Projects
  - Collect Seed From Prairie Remnants and Reconstructions
  - Respond to Weed Complaints
  
9. September:
  - Finish Roadside Spraying Operations
  - Plant Ditch Clean-Outs and Other Projects
  - Collect Seed From Prairie Remnants and Reconstructions
  - Attend Annual Roadside Conference and AFIRM Meeting
  - Conduct Prescribed Burns if Conditions Permit
  - Respond to Weed Complaints
  
10. October:
  - Plant Ditch Clean-Outs and Other Projects

- Fall Spray Canada Thistle Along Highways
- Collect Seed From Prairie Remnants and Reconstructions
- Winterize Spraying Equipment
- Facilitate 4<sup>th</sup> IRVM Steering Committee Meeting
- Do a Window Tour of Prairie Remnants and Reconstructions
- Respond to Weed Complaints

11. November:

- Store All IRVM Equipment in IRVM Building
- Plant Ditch-Clean-Outs and Other Projects if Weather Permits
- Conduct Prescribed Burns if Conditions Permit
- Cut and Remove Brush and Trees from ROW

12. December:

- Attend Van Diest Herbicide Meeting
- Solicit Appointees for Retiring IRVM Steering Committee Members
- Cut and Remove Brush and Trees from ROW
- Plow Snow When Necessary
- Prepare IRVM Annual Report and Other Project Reports
- Prepare Weed Commissioner Report

**B. Work Area Types:**

The Benton County IRVM Program works primarily in rural areas. The only variation we have between work zones comes in when a dwelling is adjacent to the right-of-way. An explanation of how each work zone is handled is listed below.

1. Rural Adjacent to Agricultural Ground:

Rural right-of-way adjacent to agricultural ground allows Benton County to conduct work without numerous other considerations. Brush and tree removal, planting natives and spraying are able to be done as the county sees fit.

2. Rural Near Dwelling:

Rural right-of-way adjacent to or near a dwelling is treated differently than ROW adjacent to agricultural ground. The land owner is often consulted when brush and trees are removed and when a ditch clean-out that will involve planting native vegetation will occur. Spraying is usually not conducted near dwellings unless permission is given by the land owner.

**C. Vegetation Types for Specific Uses:**

Most plantings that occur in Benton County Roadsides utilize the Diverse Prairie Mix or Ditch Clean-Out Mix provided by UNI's Tallgrass Prairie Center. The

Diverse Prairie Mix is used in larger ROW projects whereas the Ditch Clean-Out Mix is used primarily in ditch clean-outs. On occasion the program will tailor one of these mixes to a site if it is on an extreme end of the soil moisture gradient. For example we may select species that are adapted to wet soils if the ground in a ditch clean-out is very wet.

**D. Special Projects:**

1. University of Northern Iowa Tallgrass Prairie Center Research:

*2014/2015 Prairie Seed Predation Study:*

In 2014, UNI's Tallgrass Prairie Center approached the Benton County IRVM Program regarding a seed predation study they wanted to conduct in county roadsides. The Roadside Manager worked with Jessica Riebkes to select a site and the study began in the fall of 2014.

The project's hypothesis was that the addition of non-viable bird seed to a newly planted prairie reconstruction could support higher prairie plant germination by providing a different food source for mice and birds that would normally prey on prairie seed. To test this, non-viable bird seed was broadcast on planted sites south of Atkins on 33<sup>rd</sup> Avenue. Rows of seed cards were then placed at set intervals along the planted and non-planted sites. Seed Cards are made from small pieces of sand paper with prairie seeds glued on top. Graduate students then observed how the cards were impacted by predation over a week. If their prediction is correct, then there should be more prairie seed left on the cards in the sites with non-viable bird seed than those that were not planted with it.

2. Iowa DNR Prairie Resource Center Seed Production Plot:

The Benton County IRVM Program has entered into talks with the Iowa DNR Prairie Resource Center to construct a seed production plot. This plot would produce prairie forb and grass seed that would supplement what the program receives from the Tallgrass Prairie Center. Plants are chosen based upon several characteristics. These include rarity, native to Benton County and ease of production. The plot will hopefully be up and running in 2016.

3. Eastern Bluebird Nest Box Program:

Development of an Eastern Bluebird nest box program will coincide with the reconstruction of prairie along hard surfaced roads. The Benton County IRVM program will collaborate with the Benton County Conservation Department and the Izaak Walton League to create and maintain the boxes.

Since the Benton County IRVM Program is small, a limited number of nest boxes will be established so that maintenance and monitoring do not interfere

with other duties. These nest boxes will be placed along highways that have large ROW widths.

IX. **Prairie, Savanna, Forest and Wetland Remnant Management:**

Many remnant plant communities exist in Benton County's 5184 acres of right-of-way. The Benton County IRVM program is tasked with the management and preservation of these areas. A detailed description of prairie and forest remnant management procedures can be found below.

A. **Documentation:**

Many small remnants have been found in Benton County's ROW. However, there are undoubtedly more that remain to be discovered. It is the job of the Benton County IRVM program to document these areas when found. A list of remnants and their locations can be found in Appendix (F).

B. **Inventory:**

Conducting native plant inventories on remnants is one of the most important processes when considering management of a remnant. It allows you to know what plants are there and determine timeframes on when management should occur. The Benton County IRVM program puts together inventories for all of its remnants. These inventories can be found in Appendix (F).

C. **Management:**

1. **Tree and Brush Clearing:**

*Prairie Remnants:*

Most trees and brush are removed from prairie remnants as they were not present historically. However, it may be beneficial to leave the occasional native tree or shrub to diversify the plants in the landscape. Care should be taken to not allow these native woody species to become too dominant.

*Savanna Remnants:*

Savanna remnants are handled similarly to forest remnants. Non-native trees and shrubs are removed but desirable trees and shrubs are left if they do not pose a threat to the safety of the traveling public. It is difficult to maintain a proper

distribution of trees in a roadside oak savanna remnant but care is taken to do so as best as possible.

*Forest Remnants:*

Forest remnants are handled differently than prairie remnants when it comes to tree and brush removal. Non-native brush and trees are always removed. However, native trees and shrubs are managed in a way that promotes the historical distribution of these species within an area. One exception is in the case of brush dependent species such as Oval Ladies Tresses which thrive after large disturbances in woodlands. This species then requires brush and tree growth in order to persist at a site. However, if trees cause safety concerns than they may be removed regardless of their necessity in the community.

*Wetland Remnants:*

Wetland remnants are handled similarly to prairie remnants. Non-native trees and shrubs are removed where present. Additionally, any native trees and shrubs that compromise the remnant will also be removed.

2. Prescribed Fire:

Prescribed fire is an important tool used in managing remnant vegetation. Fire can be used to manage each type of remnant and support native plant growth. The timing and frequency of burns on each remnant will vary based upon the needs of the area. Burn plans for each remnant will be created at a later time.

3. Herbicide Application:

The application of herbicide in a remnant plant community will only take place as a last resort management effort if prescribed fire and other management strategies are ineffective. Herbicide application may be necessary if aggressive weeds or other non-desirable vegetation begin to compromise the remnant.

4. Seeding Native Vegetation:

If a remnant plant community requires seeding it will only be done with seeds from native plant species adapted to the conditions on the remnant (i.e. soil type, moisture, sun light etc.). Additionally, remnants will only be planted with seeds that come from local plant populations.

## X. **Vegetation Establishment:**

Creating conditions that are conducive to native plant establishment are vital to the success of the planting. The following subsections contain information on how to properly prepare a seed bed, plant an area and control for erosion.

### A. **Procedures:**

This section highlights the general order of procedures that take place when establishing native vegetation within the right-of-way.

- Scout the Site
- Prepare the Seedbed
- Plant the Site
- Control for Erosion
- Vegetation Establishment Maintenance
- Ongoing Maintenance

### B. **Site Preparation:**

Site preparation enhances seed to soil contact. This helps ensure proper planting depth and can even provide erosion control. The following is derived from the IRVM Technical Manual.

#### 1. Prior to Working the Site:

- Walk the site looking for gullies, culverts and other hazards (e.g. logs, stones, stumps, etc.)
- If weed growth is excessive, mow and disk stubble into the soil if possible.
- Check with Iowa One Call before disking.
- Calculate the size of the area to be planted and the amount of seed it will take.
- Size up the watershed and the site's erosion potential.

#### 2. Seedbed Preparation for Drill Seeding:

- Ideal seedbeds are friable, firm and smooth.
- To reduce soil erosion, don't smooth up the site until just before planting.

- Relatively level sites can be worked with a disk, chain-tooth harrow or similar equipment.
- To avoid excess clodding, don't work the site while it's too wet.
- Cultipacking can help firm the seedbed and reduce clods.

### 3. Seedbed Preparation for Hydroseeding:

- Steep slopes can be ripped with a wide-track dozer.
- Directional tracking can be used to interrupt water flow.
- Seedbeds can be left rougher to reduce soil erosion.
- Work the site perpendicular to the slope to interrupt water flow.

### 4. Heavily Compacted Soils:

- Try to work the site to a depth of 3 in.
- A heavy disk might be necessary.
- Some sites may need to be worked with long bulldozer tines.

## C. **Seed Mixes and Rates:**

Two seed mixes are used in the right-of-way plantings in Benton County. The first is a diverse prairie mix that is used in larger areas. The second is a ditch clean out mix that is used in smaller areas. Each of these mixes can be found in Appendix G.

Seeding rates are determined based upon the quantity of seed available and where the project is located. Generally, right-of-way along hard surfaced roads is planted at a higher rate than those in more remote areas if plenty of seed is available.

## D. **Seeding Techniques:**

Four seeding methods are used to plant native prairie seed. These include drilling, hydroseeding, broadcast seeding and hand seeding. The following descriptions come from the Iowa IRVM Technical Manual.

### 1. Drill Seeding:

Drilling is a one-step process, and is quicker and cheaper than hydroseeding. Drills do a better job of establishing native grasses and produce faster results overall. However, drills do not work well on slopes. At 3:1 or steeper, the drill will try to slide sideways causing the disk openers to dig in and bury the seed. Projects with silt fences present another challenge. Maneuvering a tractor and drill around these fences is difficult.

## 2. Drill Seeding Tips:

- Calibrate the drill in the shop and set the rate a little lighter than what you actually want. Bouncing over the ground, a drill set at 6.5 lb. to the acre might actually seed 8 lbs. to the acre.
- When planting very clean seed with an older drill, use a filler to slow it down. Bulk-harvested seed or fluffy little bluestem works well.
- For good seed distribution, use the small seed box for fine seed and the fluffy seed box for grasses, large forb seed and seed that hasn't been well-cleaned. Alternatively, sprinkle a portion of the forb seed on top of the other seed in the drill's middle hopper, then add more forbs every other round or two.
- Do not plant native seed deeper than ¼ in. Most native seed is small and lacks the energy to emerge if planted too deep.
- For uniform coverage, drill seed at a light rate and go over the area twice.
- Multiple passes packs the seed well and creates more rills that hold seed and interrupt water flow.
- To prevent seed from being buried too deep, disconnect the lower end of the drill's seed tubes. Some of the seed will land on the soil surface and not be buried in the furrow. Some people prefer to unhook only every other tube. Others unhook only the tubes coming from the small seed box.

## 3. Hydroseeding:

Hydroseeding is ideal for bridge approaches, cleanouts, culverts and wet or steep slopes. In most cases, the entire project can be hydroseeded from the shoulder. Other hydroseeding advantages include:

- Hydromulch reduces soil erosion.
- The risk of seeding too deep is eliminated.
- Colored mulch on the soil makes a positive impact on the public.

## 4. Hydroseeding Tips:

- It's best to seed after a rain, not just before. Seed and mulch stick better on moist soils. Some moisture is captured under the mulch. Mulch needs time to set up before it rains.
- Increase overall seeding rate by 25% to compensate for seed damaged going through hydroseeder mechanics and for seed that gets hung up in the mulch.

- The “shadow areas” behind larger dirt clods sometimes get no seed. For better coverage, try to seed in two passes, one from each direction. Seed lightly - so the seeding rate is not doubled – at 7 to 8 mph, with flow rate reduced.
- An 800 gallon hydroseeder is the minimum recommended size. A 1,500 gallon hydroseeder can cover 1/3 acre per load. This yields about 1,000 lb./acre.
- Seed the area farthest from the road first.
- On steep slopes, try to embed the seed by using a more concentrated stream and holding the gun at a sharper angle.
- For the sake of efficiency, most county roadside manager apply seed and mulch in one pass. The “two-pass” method – seed applied first, hydromulch follow – results in better establishment since more seed is in direct contact with the soil.

5. Hydromulching Rates:

- 1,000 lb./acre – a token amount to help carry the seed and show what area has been seeded.
- 2,000 lb./acre – appropriate for most 3:1 slopes.
- 3,000 lb./acre – very heavy rate for long, steep slopes.

6. Broadcast Seeding:

Broadcast seeding is another viable option for establishing native vegetation. Seed is flung from a broadcast seeder and deposited on the surface of the soil.

7. Broadcast Seeding Tips:

- Broadcasting finer-seeded species prevents them from getting buried under too much soil.
- For very clean seed, the Vicon TM broadcaster can be adjusted down to the “nth” degree.
- For fluffy seed just open the gate a lot wider.
- A broadcast seeder on a 3-point is more compact than a drill and easier to get in and out of ditches.
- Broadcast seeders can be backed up to silt fences to sling seed on both sides.

8. Hand Seeding:

Scattering seed by hand followed by light raking is very effective for smaller sites and prevents fine seed from being planted too deeply.

## 9. Hand Seeding Tips:

- To improve distribution, mix the seed with some kind of carrier. Sand is best. Kitty litter or oats are also used.
- Mix the seed and carrier in a bucket and scatter it over the site by hand.
- Many wet prairie species have fine seed and should be seeded this way.

## E. **Erosion and Sediment Control:**

Erosion control is an important aspect of the Benton County IRVM program. Controlling erosion helps in protecting water quality, the structural integrity of the roadways and germinating seed. In addition, implementing erosion control helps counties comply with National Pollutant Discharge Elimination System Phase II regulations. The following sections will cover types of erosion and control methods currently employed by Benton County Secondary Roads. This section should be updated as new erosion control measures are developed or more effective means are used.

### 1. Types of Erosion:

- *Splash Erosion:* Splash erosion occurs when rain drops dislodge exposed soil particles. These particles settle in soil pores and when dry, form a crust, reducing infiltration during subsequent rains.
- *Sheet Erosion:* Sheet erosion occurs in heavier rains on uniformly smooth soil surfaces. Dislodged particles become suspended and are transported downslope.
- *Rill Erosion:* Rill erosion occurs when slight differences in soil surface elevation cause runoff to concentrate and form a pattern of cuts or rills.
- *Channel Erosion:* Occurs in concentrated flow areas and is caused by downward scour due to flow shear stress. Many, if not all roadsides are conduits for concentrated flow.

### 2. Hydromulching:

Hydromulching is an erosion control process in which a slurry of various fibers is tank mixed with water and blown on an areas of bare ground. This is done through the use of a hydroseeder. A hydroseeder is a machine that is composed of a tank and spray unit that is either carried on a truck or trailer. Hydromulch is applied with or on top of seed to conserve soil moisture and reduce the effects of erosion. However, it is not a suitable solution for concentrated flow situations.

3. Wattles, Sediment Logs and Filter Socks:

Wattles and sediment logs are tubes of straw, coir or excelsior fibers encased in burlap or degradable plastic netting anchored by wooden stakes. Both filter sediment and slow water flow. Wattles and logs containing densely packed material – especially straw – are good as slope interrupters. Excelsior logs are more porous and less likely to float, so are better suited for ditch checks. Both are good for perimeter applications and inlet protection.

Filter socks are degradable tubes filled with compost, generally used for perimeter control or at intervals along a slope to capture sheet flow. To enhance sediment control, polyacrylamide (PAM) may be added to the compost. PAM captures clay particles creating cleaner runoff.

Wattles, logs and filter socks are usually easy to install and can be put on bare soil or over erosion control blankets.

4. Silt Fence:

Silt fences are geotextile barriers trenched into the ground and supported by posts. They are useful on perimeters and in channels with relatively low flow. Silt fences filter out small amounts of sediment as runoff passes through the fabric. They need to be kept clean to function properly and must be removed after final stabilization, but are easy to install and relatively low cost.

Silt fences are not effective in high-volume flows and should not be used as a check dam. During moderate or heavy rains, a silt fence check dam will concentrate water from the entire channel, along with the water's energy. This concentration either goes around the outside of the fence or over the top at the lowest point. It can also go underneath the fence, causing erosion.

**F. Vegetation Maintenance:**

1. Establishment Mowing:

Establishment mowing is used to control weed growth during the first few growing seasons after a prairie is planted.

*Year 1:* Mowing is used during the first growing season to reduce competition. Mowing is done each time weed growth reaches approximately 10 inches in height and this vegetation will be cut to a height of approximately 4 to 5 inches.

*Year 2 and Beyond:* In the second growing season and beyond, mowing is done only where excessive weed growth occurs.

2. Prescribed Fire:

Prescribed fire can be used to help establish native vegetation. Stages of prairie establishment are listed below with how fire is used in each scenario.

*Year 1:* Prescribed fire is not used during the first growing season following a prairie planting.

*Year 2 and 3:* Prescribed fire can be used during the second and third growing season if sufficient fuel is present to conduct a burn. This will help in deterring weed growth and stimulate prairie plant growth.

*Year 4, 5 and 6:* Prescribed fire will be used during years 4 through 6 to deter weeds and promote prairie plant growth. Burn will occur during each of these years and hit weeds when they are the most vulnerable.

*Year 7 and Beyond:* Prescribed fire will continue to be used as a management tool from year 7 and beyond. The area will either be divided into three separate sections with one being burned every year or the whole are will be burned on a three year rotation.

3. Spraying:

Spraying will be used sparingly when establishing native vegetation on a site. It is reserved for those instances where noxious or invasive weeds have taken over a significant portion of the planting area and is necessary to get these weeds under control.

**G. Planting Evaluation and Documentation:**

Evaluating and documenting new roadside plantings is an important process for the Benton County IRVM program. This process is highlighted in the following sub-headings.

1. Project Reports:

A project report will be created for new roadside plantings along hard surfaced roads that exceed 1 acre in size. This is done to document the procedures and other data associated with the establishment of these prairies. Details on how these reports are created can be found in the following bullet points.

- *IRVM Overview:*

This section provides a general overview of what the IRVM program does in Benton County. This includes a current mission and vision statement for the program.

- *General Information:*

This section provides general information on the project site, seeding plan and the importance of the project.

- *Project Details:*

This section provides details on the project area including the total acres planted, seeding rates, planting day details, the seed mix used and other details.

- *Research:*

This section highlights any research that was done in conjunction with the planting.

- *Management Overview:*

This section shows a broad step by step overview of how the planting will be managed over time.

- *Maps and Pictures:*

This section includes maps of the site as well as any other images that help to show how the site progresses over time.

## 2. Evaluation:

Evaluation of new native plantings is a recurring process that takes shape in several ways. For 1 acre plantings or larger along hard surfaced roads, project reports are created to keep track of how the site changes over time. Evaluations are documented in the project report and occur on a yearly basis. However, project reports are not created for other plantings. These are evaluated by the Roadside Manager and Roadside Technician who prescribe management in person on a case by case basis.

3. Documentation:

Documentation of new native plantings is a recurring process that takes shape in several ways. For 1 acre plantings or larger along hard surfaced roads, project reports are created to keep track of management and other details. However, project reports are not created for other plantings. These are evaluated by the Roadside Manager and Roadside Technician who prescribe management in person on a case by case basis. No formal documentation is made besides the information needed to fill out the yearly report for TAP seed.

**H. Mowing:**

Mowing is an effective vegetation management option that can be used in a variety of scenarios. These scenarios are listed below and are adapted from the IRVM Technical Manual.

1. Establishment Mowing:

During the growing season, native seedlings remain small and can suffer losses due to competition by tall, thick weeds. Thus mowing is a necessary process that will be used to help establish native plantings.

- Mow the planting three or four times during the first growing season.
- Don't wait until weeds are too tall.
- A mowing height of 4 inches is good but to avoid scalping, 8 inches is better.

2. Mowing to Control Noxious and/or Invasive Weeds:

In some instances it may be necessary to mow off invasive and/or noxious weeds in established prairie plantings if the stands of undesirable vegetation threaten the resilience of the planting. If mowing is to take place, it will be conducted when noxious and/or invasive weeds are most vulnerable.

**I. Chemical Control for Noxious Weeds, Other Invasives and Bare Ground:**

Benton County actively treats infestations of noxious and invasive weeds on a yearly basis. This is done by the Roadside Manager and Roadside Technician. The county is divided into two sections with each employee handling one of the territories. A map depicting these territories can be seen in Appendix H.

## 1. Chemicals Used:

Benton County uses several chemicals to treat weed infestations. These chemical are listed in the bullets below along with a description of what they are used for.

- *Patron 170*: 2, 4 D used to treat a broad group of weeds. Predominately used in weed spray trucks.
- *Milestone*: used in treating a variety of thistle species. Predominately used in weed spray trucks.
- *ProDeuce*: Broad spectrum weed control for guard rails and around shops.

## J. **Tree and Brush Removal:**

Iowa's noxious weed list includes a few woody species, and several non-listed trees and shrubs have become troublesome in non-agricultural land throughout the state. In roadsides, all trees and brush are potential safety hazards. The primary goal of county roadside tree and brush control is to provide safe roads for the traveling public. Safety goals include:

- Provide motorists unobstructed lines of sight.
- Ensure visibility of traffic control and warning signs.
- Eliminate immovable objects.
- Alleviate substantial and chronic drifting of snow.
- Reduce shade where it prolongs ice on the road.

## 1. Bat Conservation:

Bat conservation has become a serious issue in recent years. Bats utilize forested areas for foraging and roosting. Unfortunately, several bat species have seen severe declines in their populations due to disease and habitat loss. The Indiana Bat is listed as endangered under the federal Endangered Species Act. This allows certain protections for the bat. In the road right-of-way, trees are not cut in project areas between March 31<sup>st</sup> and October 15<sup>th</sup>.

## K. **Prescribed Burning:**

Prescribed fire is an essential component of native vegetation establishment and management. Though challenges are associated with the process, prescribed burning can be executed safely and effectively in the roadside environment.

Prescribed fire is a management tool used for two main objectives:

- Discourages the growth of invasive and woody species.
- Invigorates the growth of native plants.

A timely burn can slow the growth and spread of weeds and small trees, both of which are susceptible to the intense heat associated with fire. Most native prairie species, on the other hand, have a positive response to fire. Historically, this ecological relationship was critical to the existence of the tallgrass prairie, and today it continues to be an essential management practice in roadside prairie remnants and plantings.

1. Training Requirements:

Benton County personnel hired after January 1, 2014 will be required to complete National Wildfire Coordinating Group (NWCG) S-130, S-190, L-180 and S-290 if they wish to participate in prescribed fires conducted through the Benton County IRVM program. These employees will also be required to maintain said certifications by attending Annual Fireline Safety Refresher (RT-130) each year. Further NWCG graining is encouraged but not required.

2. Personnel Requirements:

Staff requirements for roadside burns vary with the conditions at each site; the size of the crew depends on the size and complexity of the burn. As a general rule, two to four qualified people can safely execute most roadside burns. Burning alone or understaffed is not advised, so it may be necessary to coordinate efforts with other agencies. Secondary road maintenance crews, county conservation boards, local fire departments, and other county IRVM programs are possible partners.

3. Equipment:

Benton County owns a variety of prescribe fire equipment. An inventory of this equipment can be found in VII, the equipment section of this management plan. All ignition and fire-fighting equipment should be inventoried, inspected and tested prior to the burn season and immediately before each burn.

4. Public Notification:

Prior to a burn season, notify the public that trained personnel will be conducting prescribed burns in the ROW with specific management objectives in mind. A simple press release to the local media will do. Adjacent landowners can be notified in person or by letter as part of the planning process. Any questions/concerns should be addressed at this time.

5. Burn Season Plan:

Goals and objectives for the upcoming burn season should be established in advance. This includes developing a list of potential burn sites and prioritizing that list. A simple spread sheet is a good way to compile and organize this data.

There is often only a small window of time during which conditions are appropriate for prescribed burning. For this reason, it is critical to establish clear objectives, so sites of highest priority can be burned first. A reasonable goal for burning native prairie remnants or plantings is approximately once every 3-5 years and should be prioritized on the list accordingly. Some sites may require more frequent burns to address weed or brush infestations. Those should be moved higher on the list.

As a general rule, any burn is better than no burn. While it is common to burn whenever conditions are favorable, the seasonal timing of a burn will have an impact on the plant community's response. A table describing appropriate burn times to achieve given vegetation management objectives is listed below.

<b>Purpose:</b>	<b>Timing:</b>
<b>Weed Control*</b>	Late Spring
<b>Brush Control*</b>	Spring
<b>Warm-season Grass Stimulation</b>	Mid to Late Spring
<b>Cool-season Grasses</b>	Enhanced by early spring and fall burns. Suppressed by late spring burns.
<b>Forbs</b>	Enhanced by early spring and fall burns
<b>Routine Maintenance (thatch removal)</b>	Any time
<b>*Research specific weed and brush species before using fire for management. Some may have a positive response.</b>	

6. Burn Plans:

A complete burn plan, developed in advance, is the first step toward executing a successful burn. Each burn conducted by the Benton County IRVM program will have an associated burn plan. The following information should be included in each burn plan:

- Area to be burned
- Potential hazards
- Desired weather parameters

- Equipment and personnel requirements
- Firebreaks and anchor points
- Special concerns

7. Weather Parameters:

Weather is the most important outside factor affecting fire behavior, so it is essential to determine the weather parameters within which each burn can be safely executed. The following are reasonable guidelines for conducting most roadside burns.

- Temperature: 40-70 F
- Relative Humidity: 30-70 %
- Wind Speed: 5-15 mph
- Wind Direction: Away from the road and safety-sensitive areas.

8. Pre-Burn Checklist:

Prior to conducting a prescribed fire, the pre-burn checklist should be consulted to determine if the burn meets the prescription. A pre-burn checklist is as follows:

- Check weather forecast
- Observe adjacent land use activities and make notifications
- Collect on-site weather data
- Check equipment
- Install signage and traffic control measures
- Develop a plan of attack and brief personnel
- Assign duties
- Notify headquarters and local authorities

9. Post-Burn Checklist:

Following a prescribed fire, the post-burn checklist should be consulted to determine if the burn was successful in meeting the prescription and that the site is safe to leave. A post-burn checklist is as follows:

- No flames – no smoke
- All smoldering materials extinguished
- Firebreaks secured
- Personnel debriefed
- Weather data collected
- Local authorities notified of a successful burn

10. Record Keeping:

Complete records are necessary to support a prescribed burning program. Recording and compiling data for each burn will help establish future management objectives.

Weather data collection is a vital piece of the data collection process. Weather data must be collected to ensure conditions are within the parameters of the burn plan. Hand-held weather units are inexpensive, accurate and the most effective means of monitoring on-site weather conditions. Hourly printouts are available from NOAA for specific areas.

XI. Material Procurement:

A. **Grants:**

The Benton County IRVM program seeks out funding opportunities through grants to purchase equipment, conduct projects and further the goals of the program.

1. Living Roadway Trust Fund Grants:

The Benton County IRVM program has received numerous grants from the Iowa Living Roadway Trust Fund. These grants have been used primarily to purchase new equipment used for prairie reconstruction and management in the right-of-way. A list of grants Benton County has received can be found in Appendix K.

B. **Sourcing:**

1. Seed:

The majority of seed used for roadside prairie reconstruction in Benton County comes from the Transportation Alternatives Program. This program was established in 2012 by Congress and is funded through a proportional set-aside of the Federal-aid Highway Program. Funds from this program are administered through the Iowa Department of Transportation.

Additional seed comes from several other sources. The Benton County IRVM program harvests prairie seed from several of its roadside remnants and reconstructions. Any remaining seed that is needed is purchased from reputable native prairie plant vendors.

2. Erosion Control Materials:

Erosion control materials are purchased through local companies.

3. Hydroseeding:

Hydroseeder mulch and other materials are usually ordered through Finn Corporation which is based near Cincinnati, Ohio. This is due to the specialized nature of the products needed for hydroseeding applications.

4. Herbicide:

Herbicide is purchased annually for the Benton County IRVM program. This is done via a competitive bidding process. The lowest price is then selected and the herbicide is delivered in early April.

**C. Storage:**

1. Seed:

The viability of native seed decreases substantially when exposed to high temperature and high humidity. Benton County is in the process of building a seed storage room in a storage bay of its equipment storage facility. This will be done with funding from a grant through the Iowa Living Roadway Trust Fund.

This seed storage facility will be climate controlled and designed to meet the guidelines set by the IRVM Technical Manual. These guidelines are listed below.

- A general rule of thumb is that temperature plus humidity should not exceed 100.
- Most seed will last a year at 50 degrees Fahrenheit and 50% relative humidity.
- For each 10 degree increase in temperature, seed longevity is halved.
- For each 1% increase in moisture content of the seed (not RH), longevity is also halved.

2. Erosion Control Materials:

Erosion control materials such as erosion control socks are stored in the IRVM equipment storage facility.

3. Hydroseeding:

Hydroseeding supplies such as wood mulch and tackifier are stored in the IRVM equipment storage facility.

4. Herbicide:

Herbicide is stored in several places in the Benton County Secondary Roads Department Complex. During the spring through fall most is stored in the IRVM equipment storage facility. However, several chemicals are moved into heated buildings once winter arrives.

Benton County is in the process of building a herbicide storage room in one of the bays of the IRVM equipment storage facility. This room will have a containment cell that will protect against spills and be heated so that all chemicals can be stored in the same room throughout the year. Partial funding for this project is being requested through the Iowa Living Roadway Trust Fund.

XII. **Research Opportunities:**

An important aspect of the Benton County IRVM program is furthering knowledge regarding restoration, reconstruction and management of native ecosystems. Funding for research projects can be attained from LRTF. Research projects also provide an excellent opportunity to involve students in the Benton County IRVM program. This could lead to internships for students majoring in a natural resource related field. Potential research projects are listed below.

*Remnant Management:*

Managing prairie remnants is an important part of the Benton County IRVM program. As we do not fully understand sand prairie remnants and Benton County has several in the right-of-way, research projects may be devised to help us understand them better.

*Seed Production:*

To help increase the diversity of the seed mix we use when reconstructing right-of-way vegetation, Benton County will create a seed production plot to grow species that are not provided in the TAP seed mix. Research will be conducted on several species that will be grown to see how to best germinate, grow and manage these plants.

*Native Short Grasses and Forbs on Road Shoulders:*

When tall growing native grass and forb species are planted near road shoulders and not mowed, drifting following snowfall can occur in winter months. A study will be conducted to determine if planting shorter growing native grass and forb species near road shoulders would eliminate this problem. This would result in less mowing for counties and more cover and food for native insects and wildlife throughout the winter.

### XIII. **Program Evaluation:**

Benton County Integrated Roadside Vegetation Management is a young program that has been set up for success. IRVM has progressed slowly in Benton County which has resulted in steady growth for the program. The Benton County IRVM program was initially derived from the Benton County Weed Commission which oversaw the destruction of noxious weeds within the county. This allowed the IRVM program to begin with equipment, facilities and positions.

It is my personal opinion that Benton County has one of the best roadside programs in the state. There is a great deal of support for IRVM from members of our county government and county residents. This has allowed us to expand our program and become more efficient through new equipment purchases. A list of what I view as the strengths and opportunities for improvement for the IRVM program can be found below.

#### *Strengths:*

- Supportive IRVM Steering Committee that advocates for the program.
- Adequate equipment, facilities and positions to conduct IRVM activities.
- Supportive County Engineer.
- Detailed map of remnant vegetation in Benton County ROW.

#### *Opportunities for Improvement:*

- Improve facilities to incorporate proper pesticide and prairie seed storage.
- Improve upon the public's view of IRVM. It is not bad but could be improved.
- Position descriptions should be updated to reflect IRVM principles.

### XIV. **Appendices:**

#### **A. Position Descriptions and Qualifications:**

##### 1. **Roadside Manager Job Description:**

#### ***Summary:***

The Roadside Manager shall administer, develop, plan and conduct a program of vegetative habitat management that seeks to control unwanted vegetation and

promote desirable vegetation on Benton County ROW and public drainage ditches and perform related duties as assigned by the County Engineer. The Roadside Manager is hired in the Benton County Engineer's Office to address the provisions of Section 314 of the Code of Iowa, the Integrated Roadside Vegetation Management Manual and Section 317, the Noxious Weed Law.

***Essential Duties and Responsibilities:***

- Planting and maintenance of native and introduced grass/forb communities in newly graded, cleaned out or otherwise disturbed sites on county ROW.
- Development of a program of public information and education to promote public understanding of IRVM and wise land use that contributes to the goals of the IRVM program.
- Inventorying and documenting plant communities and trends along county ROW.
- Managing those areas of native vegetation identified by the inventory process to improve their diversity and promote their continued health.
- Remove all trees and brush causing safety concerns along county roadways.
- All Weed Commissioner duties and responsibilities and performs other duties as assigned.
- Control of noxious weeds in rights-of-way and public drainage ditches.
- Serves as the trainer/inspector/manager for staff dealing with seeders, tractors, mowers, sprayers and other roadside management equipment.
- Performs administrative duties such as successful grant writing and writing reports for monthly and annual updates as requested.
- Serves on the Benton County IRVM Steering Committee. Attends and organizes meetings. Assists with the direction of the group's vision.
- Attends state and regional conferences relating to the field as directed.
- Assist to the best of your ability the enforcement of all Local, State and Federal laws pertaining to the operation of roadside vegetation management within Benton County and serves as a liaison for previously mentioned law enforcement agencies.
- Supervises staff. This includes assigning, checking, planning the work schedules of full-time, seasonal and volunteers.
- Establishes a long term plan for roadside development that meets the goals and objectives of the Secondary Roads and Benton County Conservation Departments. This includes long term budgeting for capital expenditures.
- Assists the County Conservation Department in the planting of park lands where applicable to promote the expansion of native prairie in the state of Iowa.

***Qualifications:***

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Education and/or Experience: (Recommended upon hire but can be within 6 months)

- Maintain a valid pesticide applicator's license in Category 1A (Agriculture) and 6 (Right-of-way).
- Maintain a valid Class B Commercial Driver's License with air brake endorsement.
- Have a minimum four-year college degree in a natural resource related field with major course work in botany and wildlife or equivalent work related experience.
- Maintain NWCG Certifications S130, S190, S290 for prescribed fire.
- Ability to read, analyze and interpret general business periodicals, professional journals, technical procedures and governmental regulations.
- Ability to write reports for business correspondence and procedure manuals.

***Technical Skills:***

- Ability to utilize Microsoft Windows / Office Programs
- GIS and GPS equipment expertise as required for monitoring
- Demonstration of strong organizational skills
- Demonstration of good oral and written communication skills
- Knowledge of principles of land use and the environmental, social and economic problems that affect it.
- Ability to plan work, think conceptually, analyze data, observe and evaluate and make sound decisions and recommendations.
- Ability to work well with the public and private sectors on diverse roadside projects.
- Ability to identify native and introduced plant species including invasive or non-desirable plants.
- Knowledge of the principles of wildlife management/protection and conservation practices relating to roadsides.
- Ability to supervise and engage support staff to carry out program goals.
- Ability to operate and maintain power equipment.
- Ability to multi-task and prioritize job activities to achieve maximum overall results.

***Physical Demands:***

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the

essential functions. While performing the duties of this job the employee is regularly required to talk or hear. The employee is frequently required to stand, walk, use hands to finger, grasp, handle, feel, climb balance, stoop, kneel, crouch, crawl, push, pull and reach with hands and arms. The employee must frequently lift and/or move up to 10 pounds, occasionally lift and/or move up to 20 pounds and occasionally exert up to 50 pounds of force to move objects. The visual requirements for this position are similar to those classified as machine operations. This is a minimum standard for use with those whose work deals with machines such as lathes, drill presses, power saws and mills where the seeing job is at or within arm's reach. Also, mechanics and skilled tradespeople and those who do work of a non-repetitive nature such as carpenters, technicians, service people, plumbers, painters, mechanics, etc.

***Work Environment:***

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. This worker is subject to outside environmental conditions year around. This worker is subject to extreme cold and extreme heat. The worker is subject to noise and hazards including moving mechanical parts, electrical current, working on scaffolding and high places, exposure to high heat or exposure to chemicals; conditions that may include fumes, odors, dusts, mists, gasses or poor ventilation; oils.

2. Roadside Technician Job Description:

**SUMMARY:** The Roadside Technician is responsible for the control and destruction of noxious weeds in the county. This involves the spraying of noxious weeds and controlling brush growing in the rights-of-way on county roads. Assists in seeding county roadway ditches and cutting brush and trees in the rights-of-way.

**ESSENTIAL DUTIES AND RESPONSIBILITIES** include the following. Other duties may be assigned.

1. Operates equipment in the control and destruction of noxious weeds in the county.
2. Performs maintenance on equipment including, but not limited to, preparing trucks for use in the spring and for winter storage, cleaning, routine and preventative care.
3. Cuts, removes, piles, and burns brush, along with tree trimming, as needed.
4. Assists with new seeding along roadways including operating tractor, no-till drill, hydroseeder and broadcast seeders.

5. Operates a heavy truck to plow for snow and ice removal, haul and spread granular surfacing materials and assist in road maintenance and construction projects.
6. Performs other duties as assigned.

### **QUALIFICATIONS**

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

### **EDUCATION and/or EXPERIENCE**

High school diploma or equivalent

Class B Commercial Drivers License, Airbrakes and Tanker

Class IA + 6 Chemical Commercial Applicators license

Hazmat Certification

### **LANGUAGE SKILLS**

Ability to read and interpret documents such as safety rules, operating and maintenance instructions and procedures manuals. Ability to write routine reports and correspondence. Ability to speak effectively before small groups of customers or employees of the County.

### **OTHER SKILLS AND ABILITIES**

- Ability to multi-task and prioritize job activities to achieve maximum overall results
- Ability to operate heavy machines/equipment including, but not limited to, boom truck, spray equipment, dump truck, flatbed truck, snowplow, skid loader and power equipment.
- Ability to supervise assigned personnel in performance of their duties such that performance exceeds or meets expectations.
- Ability to perform manual labor.
- Ability to operate hand tools.
- Ability to give attention to detail.
- Ability to drive a manual transmission.
- Ability to work with others in the attainment of department duties and organization goals.
- Demonstration of good oral and written communication skills.
- Demonstration of strong organizational skills.
- Knowledge of roadway maintenance including snow/debris removal.

## **PHYSICAL DEMANDS**

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job the employee is regularly required to stand; walk; stoop, kneel, crouch, crawl, push or pull and reach with hands and arms. The employee is regularly required to use hands to finger, grasp, feel or sustain repetitive movements. The employee must constantly lift and/or move up to 20 pounds; frequently lift and/or move up to 50 pounds and occasionally exert up to 100 pounds of force to lift and/or move objects.

The visual requirement of this job is similar to those classified as mobile equipment operators. This is a minimum standard for use with those who operate cars, trucks, forklifts, cranes and high lift equipment.

## **WORK ENVIRONMENT**

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. This worker is subject to both internal and external environmental conditions including extreme cold and heat. The worker is subject to extreme cold temperatures below 32 degrees and to extreme heat- temperatures above 100 degrees. The worker is subject to conditions such as vibration, fumes, odors, dusts, mists, gasses or poor ventilation; oils and chemicals. This worker is subject to noise, hazards including moving mechanical parts, electrical current, working on scaffolding and high places, exposure to heat or chemicals.

Depending on the month, this position is required to work non-regular hours, as needed, to assist in weed control, seeding, snow removal and/or removing trees and other objects from roadways after storms.

### **B. Area Map of Benton County:**

### **C. Iowa Code:**

#### ***314.17: Mowing on Interstates and Primary Highways***

On or after January 1, 2003, the department shall not mow roadside vegetation on the rights-of-way or medians on any primary or interstate highway. Mowing shall be permitted as follows:

1. On right-of-way which include drainage ditch areas.
2. On right-of-way within three miles of the corporate limits of a city.

3. To promote native species of vegetation or other long-lived and adaptable vegetation.
4. For establishing control of damaging insect populations, noxious weeds and invader plant species.
5. For visibility and safety reasons.

***314.21: Living Roadway Trust Fund***

1. Subsection 1:
  - a. The living roadway trust fund is created in the office of the treasurer of state. The moneys in this fund shall be used exclusively for the development and implementation of integrated roadside vegetation management plans. Except as provided in subsections 2 and 3, the moneys shall only be expended for areas on or adjacent to road, street and highway right-of-way. The state department of transportation in consultation with the department of natural resources shall establish standards relating to the type of projects available for assistance. For the fiscal period beginning July 1, 1988, and ending March 31, 1990, the moneys in the fund shall be expended as follows: fifty six percent on state department of transportation projects; thirty percent on county projects; and fourteen percent on city projects.
  - b. A city or county which has a project which qualifies for the use of these funds shall submit a request for the funds to the state department of transportation. A city or county may, at its option, apply moneys allocated for use on city or county projects under this subsection toward qualifying projects on the primary system. The state department of transportation in consultation with the department of natural resources shall determine which projects qualify for the funds and which projects shall be funded if the requests for the funds exceed the availability of the funds. In ranking applications for funds, the department shall consider the proportion of political subdivision matching funds to be provided, if any, and the proportion of private contributions to be provided, if any. In considering the proportion of political subdivision matching funds provided, the department shall consider only those moneys which are in addition to those which the political subdivision has historically provided towards such projects. Funds allocated to the cities, the counties, and the department which are not programmed by the end of each fiscal year shall be available for redistribution to any eligible applicant regardless of the original allocation of funds. Such funds shall be awarded for eligible projects based upon their merit in meeting the program objectives established by the department under section 314.22. The department shall submit a report of all projects funded in the previous fiscal year to the governor and to the general assembly on January 15 of each year.
  - c. Beginning April 1, 1990, the moneys in the living roadway trust fund shall be allocated between the state, counties, and cities in the same proportion that the road use tax funds are allocated under section 312.2, subsection 1, paragraphs

“a”, “b”, “c”, and “d”. However, after April 1, 1990, a city or county shall not be eligible to receive moneys from the living roadway trust fund unless the city or county has an integrated roadside vegetation management plan in place consistent with the objectives in section 314.22.

3. Subsection 2:

- a. The department may authorize projects which provide grants or loans to local governments and organizations which are developing community entryway enhancement and other plantings demonstration projects. Planning, public education, installation, and initial maintenance planning and development may be determined by the department to be eligible activities for funding under this paragraph. Projects approved under this paragraph require a local match or contribution toward the overall project cost.
- b. The department may authorize projects which provide grants or loans to local governments for the purchase of specialized equipment and special staff training for the establishment of alternative forms of roadside vegetation. Projects approved under this paragraph require a local match or contribution toward the overall project cost.
- c. The department, in order to create greater visual effect, shall investigate alternatives for concentrating plantings at strategic locations to gain a greater visual impact and appeal as well as stronger scenic value. Equal attention shall be given to providing safe and effective habitats for wildlife which can coexist with highways.
- d. The department may authorize projects which provide grants or loans to local jurisdictions for increased protection through the use of easements, fee title acquisition, covenants, zoning ordinance or other provisions for protection of vegetation and desirable environment adjacent to the right-of-way. Off right-of-way projects shall emphasize vegetation protection or enhancement, scenic and wildlife values, erosion control and enhancement of vegetation management projects within the right-of-way.

4. Subsection 3:

- a. Money allocated to the state under subsection 1 shall be expended as follows:
  - 1) Fifty thousand dollars annually to the department for the services of the integrated roadside vegetation management coordinator and support.
  - 2) One hundred thousand dollars annually for education programs, research and demonstration projects, and vegetation inventories and strategies, under section 314.22, subsections 5, 6 and 8.
  - 3) All remaining moneys for the gateways program under section 314.22, subsection 7.

- b. Moneys allocated to the counties under subsection 1 shall be expended as follows:
  - 1) For the fiscal year beginning July 1, 1995, and ending June 30, 1996, and each subsequent fiscal year, seventy five thousand dollars to the university of northern Iowa to maintain the position of the state roadside specialist and to continue its integrated roadside vegetation management program providing research, education, training, and technical assistance.
  - 2) All remaining money for grants or loans under subsection 2, paragraph “a”.
- c. Money allocated to the cities shall be expended for grants or loans under subsection 2, paragraph “a”.

***314.22: Integrated Roadside Vegetation Management***

- 1. Objectives: It is declared to be in the general public welfare of Iowa and a highway purpose for the vegetation of Iowa’s roadsides to be preserved, planted and maintained to be safe, visually interesting, ecologically integrated and useful for many purposes. The state department of transportation shall provide an integrated roadside vegetation management plan and program which shall be designed to accomplish all of the following:
  - a. Maintain a safe travel environment.
  - b. Serve a variety of public purposes including erosion control, wildlife habitat, climate control, scenic qualities, weed control, utility easements, recreation uses and sustenance of water quality.
  - c. Be based on a systematic assessment of condition existing in roadsides, preservation of valuable vegetation and habitats in the area and the adoption of a comprehensive plan and strategies for cost-effective maintenance and vegetation planting.
  - d. Emphasize the establishment of adaptable and long-lived vegetation, often native species, matched to the unique environment found in and adjacent to the roadside.
  - e. Incorporate integrated management practices for the long-term control of damaging insect populations, weeds and invader plant species.
  - f. Build upon a public education program allowing input from adjacent landowners and the general public.
  - g. Accelerate efforts toward increasing and expanding the effectiveness of plantings to reduce wind-induced and water-induced soil erosion and to increase deposition of snow in desired locations.
  - h. Incorporate integrated roadside vegetation management with other state agency planning and program activities including the recreation trails program, scenic highways, open space and tourism development efforts.

Agencies should annually report their progress in this area to the general assembly.

2. Counties may adopt plans. A county may adopt an integrated roadside vegetation management plan consistent with the integrated roadside vegetation management plan adopted by the department under subsection 1.
3. Integrated roadside vegetation management technical advisory committee.
  - a. The director of the department shall appoint members to an integrated roadside vegetation management technical advisory committee which is created to provide advice on the development and implementation of a statewide integrated roadside vegetation management plan and program and related projects. The department shall report annually in January to the general assembly regarding its activities and those of the committee. Activities of the committee may include, but are not limited to, providing advice and assistance in the following areas:
    - 1) Research efforts.
    - 2) Demonstration projects.
    - 3) Education and orientation efforts for property owners, public officials and the general public.
    - 4) Activities of the integrated roadside vegetation management coordinator for integrated roadside vegetation management.
    - 5) Reviewing applications for funding assistance.
    - 6) Securing funding for research demonstrations.
    - 7) Determining needs for revising the state weed law and other applicable Code sections.
    - 8) Liaison with the Iowa state association of counties, the Iowa league of cities and other organizations for integrated roadside vegetation management purposes.
  - b. The director may appoint any number of persons to the committee but, at a minimum, the committee shall consist of all of the following:
    - 1) One member representing the utility industry.
    - 2) One member of the Iowa academy of sciences.
    - 3) One member representing county government.
    - 4) One member representing city government.
    - 5) Two members representing the private sector including community interest groups.
    - 6) One member representing soil conservation interests.
    - 7) One member representing the department of natural resources.
    - 8) One member representing county conservation boards.

Members of the committee shall serve without compensation, but may be reimbursed for allowable expenses from the living roadway trust fund created under section 314.21. No more than a simple majority of the members of the committee shall be of the same gender as provided in section 69.16A. The director of the department shall appoint the chair of the committee and shall establish a minimum schedule of the meetings for the committee.

4. Integrated Roadside Vegetation Management Coordinator. The integrated roadside vegetation management coordinator shall administer the department's integrated roadside vegetation management plan and program. The department may create the position of integrated roadside vegetation management coordinator within the department or may contract for the services of the coordinator. The duties of the coordinator include, but are not limited to, the following:
  - a. Conducting education and awareness programs.
  - b. Providing technical advice to the department and the department of natural resources, counties and cities.
  - c. Conducting demonstration projects
  - d. Coordinating inventory and implementation activities.
  - e. Providing assistance to local community-based groups for undertaking community entryway projects.
  - f. Being a clearinghouse for information from Iowa projects as well as from other states.
  - g. Periodically distributing information related to integrated roadside vegetation management.
  - h. General coordination of research efforts.
  - i. Other duties assigned by the director of transportation.
  
5. Education Program. The department shall develop educational programs and provide educational materials for the general public, landowners, governmental employees, and board members as part of its program for integrated roadside vegetation management. The educational program shall provide all of the following:
  - a. The development of public service announcements and television programs about the importance of roadside vegetation in Iowa.
  - b. The expansion of existing training sessions and educational curriculum materials for county weed commissinoers, government contract sprayers, maintenance staff and others to include coverage of integrated roadside management topics such as basic plant identification, vegetation preservation, vegetation inventory techniques, vegetation management and planning procedures, planting techniques, maintenance, communication and public relations. County and municipal engineers, public works staffs,

planning and zoning representatives, parks and habitat manager and others should be encourage to participate.

- c. The conducting of statewide and regional conferences and seminars about integrated roadside vegetation management, community entryways, scenic values of land adjoining roadsides and other topics relating to roadside vegetation.
  - d. The preparation, display and distribution of a variety of public relations material, in order to better inform and educate the traveling public on roadside vegetation management activities. The public relations material shall inform motorists of a variety of roadside vegetation issues including all of the following:
    - 1) Benefits of various types of roadside vegetation.
    - 2) Long-term results expected from planting and maintenance practices.
    - 3) Purposes for short-term disturbances in the roadside landscapes.
    - 4) Interesting aspects of the Iowa landscape and individual landscape regions.
  - e. Preparation and distribution of educational material designed to inform adjoining property owners, farm operators and others of the importance of roadside vegetation and their responsibilities of proper stewardship of that vegetation resource.
6. Research and Demonstration Projects. The department, as part of its plan to provide integrated roadside vegetation management, shall conduct research and feasibility studies including demonstration projects of different kinds at a variety of locations around the state. The research and feasibility studies may be conducted in, but are not limited to, any of the following areas:
- a. Cost effectiveness or comparison of planting, establishing and maintaining alternative or warm-season, native grass forb roadside vegetation and traditional cool-season nonnative vegetation.
  - b. Identification of the relationship that roadsides and roadside vegetation have to maintaining water quality, through drainage wells, sediment and pollutant collection and filtration and other means.
  - c. Impacts of burning as an alternative vegetation management tool on all categories of roads.
  - d. Techniques for more quickly establishing erosion control and permanent vegetative cover on recently disturbed ground as well as interplanting native species in existing vegetative cover.
  - e. Effectiveness of techniques for reduced or selected use of herbicides to control weeds.

- f. Identification of cross section and slope steepness design standards which provide for motorist safety as well as for improved establishment, maintenance and replacement of different types of vegetation.
  - g. Identification of a uniform inventory and assessment technique which could be used by many counties in establishing integrated roadside management programs.
  - h. Equipment innovations for seeding and harvesting grasses in difficult terrain settings, roadway ditches and fore-slopes and back-slopes.
  - i. Identification of the perceptions of motorists and landowners to various types of roadside vegetation and configuration of plantings.
  - j. Market or economic feasibility studies for native seed, forb and woody plant production and propagation.
  - k. Impacts of vegetation modifications on increasing or decreasing wildlife populations in rural and urban areas.
  - l. Effects of vegetation on number and location of wildlife road-kills in rural and urban areas.
  - m. Costs to the public for improper off-site resource management adjacent to roadsides.
  - n. Advantages, disadvantages and techniques of establishing pedestrian access adjacent to highways and their impacts on vegetation management.
  - o. Identification of alternative techniques for snow catchment on farmland adjacent to roadsides.
7. Gateways Program. The department shall develop a gateways program to provide meaningful visual impacts including major new plantings at the important highway entry points to the state and its communities. Substantial and distinctive plantings shall also be designed and installed at these points. Creative and artistic design solutions shall be sought for these improvements. Communications about these projects shall be provided to local groups in order to build community involvement, support, and understanding of their importance. Consideration shall be given to a requirement that gateways projects produce a local match or contribution toward the overall project cost.
8. Vegetation Inventories and Strategies.
- a. The department shall coordinate and compile integrated roadside vegetation inventories, classification systems, plans and implementation strategies for roadsides. Areas of increased program and project emphasis may include, but are not limited to, all of the following:
    - 1) Additional development and funding of state gateways projects.
    - 2) Accelerated replacement of dead and unhealthy plants with native and hardy trees and shrubs.

- 3) Special interest plantings at selected highly visible locations along primary and interstate highways.
  - 4) Pilot and demonstration projects.
  - 5) Additional snow and erosion control plantings.
  - 6) Welcome center and rest areas plantings with native and aesthetically interesting species to create mini-arboretums around the state.
- b. The department shall coordinate and compile a reconnaissance of lands to develop an inventory of sites having the potential of being harvested for native grass, forb and woody plant material seed and growing stock. Highway right-of-way, parks, and recreation areas, converted railroad right-of-ways, state board of regents' property, land owned by counties and other types of public property shall be surveyed and documented for seed source potential. Sites volunteered by private organizations may also be included in the inventory. Inventory information shall be made available to state agencies' staffs, county engineers, county conservation board directors and others.

**317.1A: Noxious Weeds**

The following weeds are hereby declared to be noxious and shall be divided into two classes, namely:

1. Primary noxious weeds, which shall include quack grass (*Agropyron repens*), perennial sow thistle (*Sonchus arvensis*), Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium lanceolatum*), European morning glory or field bindweed (*Convolvulus arvensis*), horse nettle (*Solanum carolinense*), leafy spurge (*Euphorbia esula*), perennial pepper-grass (*Lepidium draba*), Russian knapweed (*Centaurea repens*), buckthorn (*Rhamnus*, not to include *Rhamnus frangula*), and all other species of thistles belonging in genera of *Cirsium* and *Carduus*.
2. Secondary noxious weeds, which shall include butterprint (*Abutilon theophrasti*) annual, cocklebur (*Xanthium commune*) annual, wild mustard (*Brassica arvensis*) annual, wild carrot (*Daucus carota*) biennial, buckhorn (*Plantago lanceolata*) perennial, sheep sorrel (*Rumex acetosella*) perennial, sour dock (*Rumex crispus*) perennial, smooth dock (*Rumex altissimus*) perennial, poison hemlock (*Conium maculatum*), multiflora rose (*Rosa multiflora*), wild sunflower (wild strain of *Helianthus annus L.*) annual, puncture vine (*Tribulus terrestris*) annual, teasel (*Dipsacus*) biennial, and shattercane (*Sorghum bicolor*) annual.

The multiflora rose (*Rosa multiflora*) shall not be considered a secondary noxious weed when cultivated for or used as understock for cultivated roses or as ornamental shrubs in gardens, or in any county whose board of supervisors has by resolution declared it not to be a noxious weed. Shattercane (*Sorghum bicolor*) shall not be considered a secondary

noxious weed when cultivated or in any county whose board of supervisors has by resolution declared it not to be a noxious weed.

### ***317.3: Weed Commissioner***

The board of supervisors of each county may annually appoint a county weed commissioner who may be a person otherwise employed by the county and who passes minimum standards established by the department of agriculture and land stewardship for noxious weed identification and the recognized methods for noxious weed control and elimination. The county weed commissioner's appointment shall be effective as of March 1 and shall continue for a term at the discretion of the board of supervisors unless the commissioner is removed from office as provided for by law. The county weed commissioner may, with the approval of the board of supervisors, require that commercial applicators and their appropriate employees pass the same standards for noxious weed identification as established by the department of agriculture and land stewardship. The name and address of the person appointed as county weed commissioner shall be certified to the county auditor and to the secretary of agriculture within ten days of the appointment. The board of supervisors shall fix the compensation of the county weed commissioner and deputies. In addition to compensation, the commissioner and deputies shall be paid their necessary travel expenses. At the discretion of the board of supervisors, the weed commissioner shall attend a seminar or school conducted or approved by the department of agriculture and land stewardship relating to the identification, control, and elimination of noxious weeds.

The board of supervisors shall prescribe the time of year the weed commissioner shall perform the powers and duties of county weed commissioner under this chapter which may be during that time of year when noxious weeds can effectively be killed. Compensation shall be for the period of actual work only although a weed commissioner assigned other duties not related to weed eradication may receive an annual salary. The board of supervisors shall likewise determine whether employment shall be by hour, day or month and the rate of pay for the employment time.

### ***317.4: Direction and Control***

As used in this chapter, "commissioner" means the county weed commissioner or the commissioner's deputy within each county. Each commissioner, subject to direction and control by the county board of supervisors, shall supervise the control and destruction of all noxious weeds in the county, including those growing within the limits of cities, within the confines of abandoned cemeteries, and along streets and highways unless otherwise provided. A commissioner shall notify the department of public safety of the location of marijuana plants found growing on public or private property. A commissioner may enter upon any land in the county at any time for the performance of the commissioner's duties, and shall hire the labor and equipment necessary subject to the approval of the board of supervisors.

### ***317.5: Weeds in Abandoned Cemeteries***

The commissioner shall control the weeds growing in abandoned cemeteries in the county as needed. Spraying for control of weeds shall be limited to those circumstances when it is not practical to mow or otherwise control the weeds.

### ***317.6: Entering Lands to Destroy Weeds - Notice***

If there is a substantial failure by the owner or person in possession or control of any land to comply with any order of destruction pursuant to the provisions of this chapter, the county weed commissioner, including the weed commissioner's deputies, or employees acting under the weed commissioner's direction may enter upon any land within the commissioner's county for the purpose of destroying noxious weeds. The entry may be made without the consent of the landowner or person in possession or control of the land. However, the actual work of destruction shall not be commenced until five days after the landowner and the person in possession or control of the land have been notified. The notice shall state the facts relating to failure of compliance with the county program of weed destruction order or orders made by the board of supervisors. The notice shall be delivered by personal service on the owner and persons in possession and control of the land. The personal service may be served by the weed commissioner or any person designated in writing by the weed commissioner. However, in lieu of personal service, the weed commissioner may provide that the notice be delivered by certified mail. A copy of the notice shall be filed in the office of the county auditor. The last known address of the owner or person in possession or control of the land may be ascertained, if necessary, from the last tax list in the county treasurer's office. Where any person owning land within the county has filed a written instrument in the office of the county auditor designating the name and address of its agent, the notice may be delivered to that agent. In computing time for notice, it shall be from the date of service as evidenced on the return of service. If delivery is made by certified mail, it shall be from the date of mailing.

### ***317.7: Report to Board***

Each weed commissioner shall for the territory under the commissioner's jurisdiction on or before the first day of November of each year make a written report to the board of supervisors. Said report shall state:

1. The name and location of all primary noxious weeds, and any new weed which appears to be a serious pest.

2. A detailed statement of the treatment used, and future plans, for eradication of weeds on each infested tract on which the commissioner has attempted to exterminate weeds, together with the costs and results obtained.

3. A summary of the weed situation within the jurisdiction, together with suggestions and recommendations which may be proper and useful, a copy of which shall be forwarded to the state secretary of agriculture.

***317.10: Duty of Owner or Tenant***

Each owner and each person in the possession or control of any lands shall cut, burn, or otherwise destroy, in whatever manner may be prescribed by the board of supervisors, all noxious weeds thereon as defined in this chapter at such times in each year and in such manner as shall be prescribed in the program of weed destruction order or orders made by the board of supervisors, and shall keep said lands free from such growth of any other weeds, as shall render the streets or highways adjoining said land unsafe for public travel.

***317.16: Failure to Comply***

1. In case of a substantial failure to comply by the date prescribed in any order of destruction of weeds made pursuant to this chapter, the weed commissioner may do any of the following:

a. Enter upon the land as provided in section 317.6 and provide for the destruction of the weeds as provided in section 317.6.

b. Impose a maximum penalty of a ten dollar fine for each day, up to ten days, that the owner or person in possession or control of the land fails to comply. If a penalty is imposed and the owner or person in possession or control of the land fails to comply, the weed commissioner shall cause the weeds to be destroyed.

2. If the weed commissioner enters the land and causes the weeds to be destroyed, the actual cost and expense of cutting, burning, or otherwise destroying the weeds, along with the cost of providing notice and special meetings or proceedings, if any, shall be paid by the county and, together with the additional assessment to apply toward costs of supervision and administration, be recovered by an assessment against the tract of real estate on which the weeds were growing, as provided in section 317.21. Any fine imposed under this section shall be recovered by a similar assessment.

***317.21: Cost of Weed Destruction***

When the commissioner destroys any weeds under the authority of section 317.16, after failure of the landowner responsible to destroy such weeds pursuant to the order of the

board of supervisors, the cost of the destruction shall be assessed against the land and collected from the landowner responsible in the following manner:

1. Annually, after the weed commissioner has completed the program of destruction of weeds by reason of noncompliance by persons responsible for the destruction, the board of supervisors shall determine as to each tract of real estate the actual cost of labor and materials used by the commissioner in cutting, burning, or otherwise destroying the weeds, the cost of serving notice, and of special meetings or proceedings, if any. To the total of all sums expended, the board shall add an amount equal to twenty-five percent of that total to compensate for the cost of supervision and administration and assess the resulting sum against the tract of real estate by a special tax, which shall be certified to the county auditor and county treasurer by the clerk of the board of supervisors, and shall be placed upon the tax books, and collected, with interest after delinquent, in the same manner as other unpaid taxes. The tax shall be due on March 1 after assessment, and shall be delinquent from April 1 after due. However, when the last day of March is a Saturday or Sunday, such amount shall be delinquent from the second business day of April. When collected, the moneys shall be paid into the fund from which the costs were originally paid.

2. Before making any such assessment, the board of supervisors shall prepare a plat or schedule showing the several lots, tracts of land or parcels of ground to be assessed which shall be in accord with the assessor's records and the amount proposed to be assessed against each of the same for destroying or controlling weeds during the fiscal year.

3. Such board shall thereupon fix a time for the hearing on such proposed assessments, which time shall not be later than December 15 of the year, and at least twenty days prior to the time thus fixed for such hearing shall give notice thereof to all concerned that such plat or schedule is on file, and that the amounts as shown therein will be assessed against the several lots, tracts of land or parcels of ground described in said plat or schedule at the time fixed for such hearing, unless objection is made thereto. Notice of such hearing shall be given by one publication in official county newspapers in the county in which the property to be assessed is situated; or by posting a copy of such notice on the premises affected and by mailing a copy by certified mail to the last known address of the person owning or controlling said premises. At such time and place the owner of said premises or anyone liable to pay such assessment, may appear with the same rights given by law before boards of review, in reference to assessments for general taxation.

### ***317.22: Duty of Highway Maintenance Personnel***

All officers directly responsible for the care of public highways shall make a complaint to the weed commissioners or board of supervisors, if it appears that the provisions of this chapter may not be complied with in time to prevent the blooming and maturity of noxious weeds or the unlawful growth of weeds or

marijuana, whether in the streets or highways for which they are responsible or upon lands adjacent to the same.

### ***318.1: Definitions***

As used in this chapter, unless the context otherwise requires:

1. “Department” means the state department of transportation.
2. “Highway Authority” means the county board of supervisors in the case of secondary roads and the department in the case of primary roads.
3. “Highway right-of-way” means the total areas of land, whether reserved by public ownership or easement, that is reserved for the operation and maintenance of legally established public central traveled way including the shoulders and that remainder on both sides of the road, between the outside shoulder edges and the outer boundaries of the right-of-way.
4. “Obstruction” means an obstacle in the highway right-of-way or an impediment or hindrance which impedes, opposes or interferes with free passage along the highway right-of-way, not including utility structures installed in accordance with an approved permit.
5. “Officer” means any department employee, county employee or elected county official.
6. “Traveled portion of the right-of-way” means that area of the highway right-of-way, not including the shoulders, on which vehicles normally travel.
7. “Utility” means all private, public, municipal or cooperative owned systems for water, sewer, natural gas, electric, telegraph, telephone, transit, pipeline, heating plants, railroads, bridges, street lights or traffic control signals.
8. “Utility Structures” means the aboveground devices, required by a utility, including poles, lines and wires, used for telephone, electric, natural gas and other distribution or transmission purposes and natural gas and electric substations.

### ***318.2: Purpose***

The purpose of this chapter is to enhance public safety for those traveling the public roads and allow economical maintenance of highway rights-of-way.

### ***318.3: Obstructions in Highway Right-of-Way***

A person shall not place or cause to be placed, an obstruction within any highway right-of-way. This prohibition includes, but is not limited to, the following actions:

1. The excavation, filling or making of any physical changes to any part of the highway right-of-way, except as provided under section 318.8.
2. The cultivation or growing of crops within the highway right-of-way.
3. The destruction of plants placed within the highway right-of-way.
4. The placing of fences or ditches within the highway right-of-way.
5. The alteration of ditches, water breaks or drainage tiles within the highway right-of-way.
6. The placement of trash, litter, debris, waste material, manure, rocks, crops or crop residue, brush, vehicles, machinery or other items within the highway right-of-way.
7. The placement of billboards, signs or advertising devices within the highway right-of-way.
8. The placement of any red reflector or any object or other device which shall cause the effect of a red reflector on the highway right-of-way which is visible to passing motorists.

#### ***318.4: Duty of Highway Authorities***

The highway authority shall cause all obstructions in the highway right-of-way under its jurisdiction to be removed.

#### ***318.5: Removal and Cost***

1. An obstruction in a highway right-of-way which constitutes an immediate and dangerous hazard shall, without notice or liability in damages, be removed by the highway authority.
2. An obstruction not constituting an immediate and dangerous hazard shall be removed by the highway authority without liability after forty-eight-hour notice served in the same manner in which an original notice is served, or in writing by certified mail, or in any other manner reasonably calculated to apprise the person responsible for the obstruction that the obstruction will be removed at the person's expense. The highway authority shall assess the removal cost.
3. Upon removal of the obstruction, the highway authority may immediately send a statement of the cost to the person responsible for the obstruction. If within ten days after sending the statement the cost is not paid, the highway

authority may institute legal proceedings to collect the cost of removal. The removal costs shall be assessed against the following persons as applicable:

- a. The vehicle owner in the case of an abandoned vehicle.
  - b. The abutting property owner in the case of a fence, other than a right-of-way line fence, or other temporary obstruction placed within the highway right-of-way by the owner or tenant of the abutting property.
  - c. The owner or person responsible for placement of any other obstruction.
4. All removals shall be without liability on the part of any officer ordering or effecting such removal.

***318.6: Public Nuisance***

1. Any person who places, or causes to be placed, any obstruction in a highway right-of-way as prohibited under section 318.3 is deemed to have created a public nuisance punishable as provided in chapter 657.
2. If a person is found guilty of placing an obstruction within a highway right-of-way, the court may, in addition to any fine imposed, or judgment for damages or costs for which a separate execution may issue, order that the obstruction be abated or removed at the expense of the defendant. The costs for abatement or removal of the obstruction may be entered as a personal judgment against the defendant or assessed against the property where the obstruction occurred, or both.

***481B.5: Endangered Plants and Wildlife***

Except as otherwise provided in this chapter or by rule, a person shall not take, possess, transport, import, export, process, sell or offer for sale, buy or offer to buy, nor shall a common or contract carrier transport or receive for shipment, any species of fish, plants or wildlife appearing on the following lists which shall be adopted by rule of the commission:

- The list of fish, plants and wildlife indigenous to the state determined to be endangered or threatened within the state pursuant to section 481B.3.
- The United States list of endangered or threatened native fish and wildlife as contained in 50 C.F.R. pt. 17 as amended to December 30, 1991.
- The United States list of endangered or threatened foreign fish and wildlife as contained in 50 C.F.R. pt. 17 as amended to December 30, 1991.

**657.3: Penalty – Abatement**

Whoever is convicted of erecting, causing, or continuing a public or common nuisance as provided in this chapter or at common law when the same has not been modified or repealed by statute, where no other punishment therefor is specially provided, shall be guilty of an aggravated misdemeanor and the court may order such nuisance abated, and issue a warrant as hereinafter provided.

**903.1: Maximum Sentence for Misdemeanors: Subsection 2**

When a person is convicted of an aggravated misdemeanor, and a specific penalty is not provided for, the maximum penalty shall be imprisonment not to exceed 2 years. There shall be a fine of at least six hundred twenty five dollars but not to exceed six thousand two hundred fifty dollars. When a judgment of conviction of an aggravated misdemeanor is entered against any person and the court imposes a sentence of confinement for a period of more than one year the term shall be an indeterminate term.

**D. Permits:**

Permits will be added to this Appendix Section as they are created.

**E. Roadside Inventories:**

1. Roadside Remnant Inventory:
2. Roadside Inventory:

**F. Remnant Inventories:**

1. Cedar River Sand Prairie:

The Cedar River Sand Prairie is a prairie remnant located in Benton Township. This is one of the most diverse prairie remnants in Benton County. A species list can be found below:

*Forbs:*

- Beach Wormwood, *Artemisia campestris*
- Bellwort, *Uvularia grandiflora*
- Black-eyed Susan, *Rudbeckia hirta*
- Butterfly Milkweed, *Asclepias tuberosa*

- Cleft Phlox, *Phlox bifida*
- Common Milkweed, *Asclepias syriaca*
- Compass Plant, *Silphium laciniatum*
- Evening Primrose, *Oenothera biennis*
- Flowering Spurge, *Euphorbia corollata*
- Fringed Puccoon, *Lithospermum incisum*
- Grey-headed Coneflower, *Ratibida pinnata*
- Ground Nut, *Apios americana*
- Hoary Vervain, *Verbena stricta*
- Illinois Tick Trefoil, *Desmodium illinoense*
- Ohio Spiderwort, *Tradescantia ohiensis*
- Prairie Cinquefoil, *Potentilla arguta*
- Prairie Coreopsis, *Coreopsis palmate*
- Prairie Wild Rose, *Rosa arkansana*
- Round Headed Bush Clover, *Lespedeza capitata*
- Showy Tick Trefoil, *Desmodium canadense*
- Sky Blue Aster, *Aster oolentangiensis*
- Spotted Bee Balm, *Monarda punctata*
- Thimbleweed, *Anemone cylindrical*
- Whorled Milkweed, *Asclepias verticillata*
- Yarrow, *Achillea millefolium*

*Grasses:*

- Big Bluestem, *Andropogon gerardii*
- Indian Grass, *Sorghastrum nutans*
- Little Bluestem, *Schizachyrium scoparium*
- Porcupine Grass, *Stipa spartea*
- Side Oats Grama, *Bouteloua curtipendula*

2. Oak Grove Remnant:

The Oak Grove Remnant is located in Benton Township. The remnant contains a diverse mixture of native forest plant species including Oval Ladies Tresses (*Spiranthes ovalis*) which is listed as a threatened plant by the state of Iowa. A species list can be found below.

*Ferns:*

- Maiden Hair Fern, *Adiantum pedatum*

*Forbs:*

- Bloodroot, *Sanguinaria canadensis*
- Indian Tobacco, *Lobelia inflata*
- Jack-in-the-Pulpit, *Arisaema triphyllum*
- Jacob's Ladder, *Polemonium reptans*
- May Apple, *Podophyllum peltatum*
- Oval Ladies Tresses, *Spiranthes ovalis*
- Sharp-lobed Hepatica, *Hepatica acutiloba*
- Showy Orchis, *Galearis spectabilis*
- Solomon's Seal, *Polygonatum biflorum*
- White Trout Lily, *Erythronium albidum*

3. Polk Township Mesic Prairie:

The Polk Township Mesic Prairie is a prairie remnant located in Polk Township. It is composed of a diverse community of mesic to wet soil loving native plants. A species list can be found below:

*Forbs:*

- Canada Anemone, *Anemone canadensis*
- Golden Alexanders, *Zizia aurea*
- Great Blue Lobelia, *Lobelia siphilitica*
- Michigan Lily, *Lilium michiganense*
- Purple Meadow Rue, *Thalictrum dasycarpum*
- Showy Goldenrod, *Solidago speciosa*

4. Benton Township Mesic Prairie:

The Benton Township Mesic Prairie is a prairie remnant located in Benton Township. It is composed of a diverse community of mesic to wet soil loving native plants. A species list can be found below:

*Forbs:*

- Bottle Gentian, *Gentiana andrewsii*
- Great Blue Lobelia, *Lobelia siphilitica*
- Mountain Mint, *Pycnanthemum virginianum*
- Prairie Blazing Star, *Liatris pycnostachya*
- Round Headed Bush Clover, *Lespedeza capitata*
- Slender Gerardia, *Agalinis tenuifolia*
- Wild Bergamot, *Monarda fistulosa*

**G. Benton County Endangered, Threatened and Special Concern Plants:**

In the following list, S implies special concern, T implies threatened and E implies Endangered.

1. Birds:

- Bald Eagle, *Haliaeetus leucocephalus* (S)
- Red-shouldered Hawk, *Buteo lineatus* (E)

2. Fish:

- American Brook Lamprey, *Lampetra appendix* (T)
- Black Redhorse, *Moxostoma duquesnei* (T)
- Blacknose Shiner, *Notropis heterolepis* (T)
- Weed Shiner, *Notropis texanus* (E)
- Western Sand Darter, *Ammocrypta clara* (T)

3. Freshwater Mussels:

- Cylindrical Papershell, *Anodotoides ferussacianus* (T)
- Ellipse, *Venustaconcha ellipsiformis* (T)

4. Mammals:

Plains Pocket Mouse, *Perognathus flavescens* (E)

5. Plants:

- Bent Milkvetch, *Astragalus distortus* (S)
- Bog Willow, *Salix pedicellaris* (T)
- Cleft Phlox, *Phlox bifida* (S)
- Kitten Tails, *Besseya bullii* (T)
- Lance-leaved Violet, *Viola lanceolata* (S)
- Muskroot, *Adoxa moschatellina* (S)
- Narrowleaf Pinweed, *Lechea intermedia* (T)
- Sage Willow, *Salix candida* (S)
- Slender Copperleaf, *Acalypha cracilens* (S)
- Swamp Thistle, *Cirsium muticum* (S)
- Sweet Indian Plantain, *Cacalia suaveolens* (T)
- Green's Rush, *Juncus greenei* (S)
- Oval Ladies Tresses, *Spiranthes ovalis* (T)
- Slender Sedge, *Carex leptalea* (S)
- Small White Lady's Slipper, *Cypripedium candidum* (S)

- Tall Cotton Grass, *Erophorum angustifolium* (S)
- Western Prairie Fringed Orchid, *Platanthera praeclara* (T)
- Yellow-eyed Grass, *Xyris torta* (E)
- Ledge Spikemoss, *Selaginella rupestris* (S)
- Northern Adder's-tongue, *Ophioglossum pusillum* (S)

6. Reptiles:

- Blanding's Turtle, *Emydoidea blandingii* (T)
- Ornate Box Turtle, *Terrapene ornata* (T)
- Smooth Green Snake, *Liochlorophis vernalis* (S)
- Wood Turtle, *Clemmys insculpta* (E)

H. **ROW Seed Mixes:**

1. Diversity Mix:

*Forbs:*

- Black-eyed Susan, *Rudbeckia hirta*
- Butterfly Milkweed, *Asclepias tuberosa*
- Canada Milkvetch, *Astragalus canadensis*
- Compass Plant, *Silphium laciniatum*
- Fox Sedge, *Carex vulpinoldea*
- Golden Alexanders, *Zizia aurea*
- Green Bulrush, *Scirpus atrovirens*
- Grey-headed Coneflower, *Ratibida pinnata*
- Hoary Vervain, *Verbena stricta*
- Large-flowered Beardtongue, *Penstemon grandiflorus*
- Lead Plant, *Amorpha canescens*
- New England Aster, *Symphyotrichum novae-angliae*
- Ohio Spiderwort, *Tradescantia ohioensis*
- Ox-eye Sunflower, *Heliopsis helianthoides*
- Pale Purple Coneflower, *Echinacea pallida*
- Partridge Pea, *Chamaecrista fasciculata*
- Prairie Blazing Star, *Liatris pycnostachya*
- Prairie Sedge, *Carex bicknellii*
- Purple Prairie Clover, *Dalea purpurea*
- Rattlesnake Master, *Eryngium yuccifolium*
- Rough Blazing Star, *Liatris aspera*
- Round-headed Bush Clover, *Lespedeza capitata*
- Showy Tick Trefoil, *Desmodium canadense*

- Sneezeweed, *Helenium autumnale*
- Stiff Goldenrod, *Oligoneuron rigidum*
- Swamp Milkweed, *Asclepias incarnate*
- White Wild Indigo, *Baptisia alba*
- Wild Bergamot, *Monarda fistulosa*
- Wild Petunia, *Ruellia humilis*

*Grasses:*

- Big Bluestem, *Andropogon gerardii*
- Canada Wild Rye, *Elymus canadensis*
- Indian Grass, *Sorghastrum nutans*
- Rough Dropseed, *Sporobolus asper*
- Sideoats Grama, *Bouteloua curtipendula*
- Switch Grass, *Panicum virgatum*

2. Ditch Clean-Out Mix:

*Forbs:*

- Black-eyed Susan, *Rudbeckia hirta*
- Canada Milkvetch, *Astragalus canadensis*
- Grey-headed Coneflower, *Ratibida pinnata*
- Ox-eye Sunflower, *Heliopsis helianthoides*
- Pale Purple Coneflower, *Echinacea pallida*
- Partridge Pea, *Chamaecrisa fasciculata*
- Purple Prairie Clover, *Dalea purpurea*
- Rattlesnake Master, *Eryngium yuccifolium*
- Stiff Goldenrod, *Oligoneuron rigidum*
- Swamp Milkweed, *Asclepias incarnate*

*Grasses:*

- Big Bluestem, *Andropogon gerardii*
- Canada Wild Rye, *Elymus canadensis*
- Indian Grass, *Sorghastrum nutans*
- Little Bluestem, *Schizachyrium scoparium*
- Rough Dropseed, *Sporobolus asper*
- Sideoats Grama, *Bouteloua curtipendula*
- Switch Grass, *Panicum virgatum*

**I. Noxious Weed Notifications:**

1. Public Notice Destruction of Noxious Weeds:

Each owner and each person in possession or control of any lands in Benton County shall cut, burn or otherwise destroy all noxious weeds thereon, as defined in this chapter, at such times in each year and in such manner as shall prevent said weeds from blooming or coming to maturity, and shall keep said lands free from such growth of any other weeds as shall render the streets or highways adjoining said land unsafe for public travel. Noxious weeds shall be cut or otherwise destroyed on or before the following dates and as often thereafter as is necessary to prevent seed production:

Group 1, By May 11, 2015 for Leafy Spurge, Perennial Peppergrass, Sour Dock, Smooth Dock, Sheep Sorrel and Purple Loose Strife.

Group 2, By May 11, 2015 for Canadian Thistle, Russian Knapweed, Buckhorn, Wild Mustard and Buckthorn.

Group 3, By May 11, 2015 for European Morning Glory or Field Bindweed, Wild Carrot, Poison Hemlock, Multiflora Rose, Horse Nettle, Perennial Sow Thistle, Quack Grass, Butterprint, Puncture Vine, Cocklebur, Bull Thistle, Musk Thistle, Wild Sunflower, Shattercane, and Teasel.

Each owner and person in the possession or control of any lands in Benton County infested with any of the following noxious weeds shall adopt a program of weed destruction described by the Weed Commissioner, which in five days may be expected to destroy and will immediately keep under control such infestations of said noxious weeds.

- a. Primary Noxious Weeds: Quack Grass, Perennial Sow Thistle, Canada Thistle, Bull Thistle, Musk Thistle, European Morning Glory or Field Bindweed, Horse Nettle, Leafy Spurge, Perennial Peppergrass, Russian Knapweed, Buckthorn and Purple Loosestrife.
- b. Secondary Noxious Weeds: Butterprint, Cocklebur, Wild Mustard, Puncture Vine, Teasel, Wild Carrot, Buckhorn, Sheep Sorrel, Sour Dock, Smooth Dock, Poison Hemlock, Wild Sunflower, Multiflora Rose and Shattercane.

If the owners or persons in possession or control of any land in Benton County fail to comply with the foregoing orders, the Weed Commissioner shall cause this to be done and the expense of said work, including costs of serving notice and other costs, if any, shall be assessed against the real estate.

Order of the Benton County Board of Supervisors by Resolution Adopted on

**J. Integrated Roadside Vegetation Management Steering Committee Documents:**

1. Benton County IRVM Steering Committee General Information:

BENTON COUNTY  
INTEGRATED VEGETATION ROADSIDE MANAGEMENT (IVRM)  
ADVISORY COMMITTEE

An Integrated Vegetation Management Advisory Committee is formed to assist in the planning and implementation of Benton County's roadside management efforts. The committee shall consist of no more than ten persons and be comprised of five persons representing the public sector (federal, state, and local) and five persons representing the private sector. Committee members should possess a background in native vegetation, weed management, environmental sciences, conservation, agriculture or have a demonstrated interest in one of the stated areas and/or roadside management.

It is suggested, but not required, that consideration be given to the following persons, departments and organizations when making appointments:

Public Sector:

Benton County Engineer  
Benton County Conservation  
School Districts/Educators  
Natural Resources Conservation Service (NRCS)  
Benton County Soil and Water Conservation District (LSWCD)  
Benton County Board of Supervisors and/or their designee

Private Sector:

County residents interested in roadside management  
Trees Forever, Pheasants Forever, or other conservation organizations  
Farm Bureau, Soybean Association, Corn Growers Association, or other persons/organizations involved in or with the agricultural industry

It shall be the sole authority of the board of supervisors to appoint members to the committee. The county engineer and/or current committee members may recommend persons for appointment; however, the board of supervisors may accept or reject any or all such recommendations.

The members shall serve three-year staggered terms. Terms shall be on a calendar year basis. The initial appointments shall be as follows:

3 persons – 1-year term  
3 persons – 2-year term  
4 persons – 3-year term

The committee shall elect a chairperson from the membership to preside over meetings and perform other duties. The chairperson will serve for one year and may be re-elected

by the committee. The committee or the board of supervisors may designate a member of the committee or other county employee to serve as secretary of the committee.

The committee shall be subject to Chapter 21 and 22 of the Code of Iowa concerning open meetings and public records. Meetings of the IVRM will be held quarterly at a minimum and at additional times as determined by the committee and/or chairperson. However, consideration should be given to the public's ability to participate.

Expenses of the committee, if any, shall be the responsibility of the county engineer and must be approved in advance.

The board of supervisors may amend the purpose, duties, structure, composition, or any matter relating to the committee at their sole discretion at any time.

**K. Grants:**

1. Living Roadway Trust Fund Grants:

## Benton County LRTF Funding History through FY 2015

DOTProjectNumber	Applicant	Award	FiscalYear Description	Type
90-06-LRTF-201	Benton County	\$ 4,500.00	2002 Inventory	County
90-06-LRTF-101	Benton County Secondary Roads	\$ 24,000.00	2011 Equipment - Hydroseeder	County
90-06-LRTF-102	Benton County Secondary Roads	\$ 1,909.46	2011 Equipment - Fire	County
90-06-LRTF-301	Benton County Secondary Roads	\$ 3,000.00	2013 Laptop computer and GIS training	County
90-06-LR14-(302)	Benton County Secondary Roads	\$ 1,326.00	2014 Equipment - Fire	County
90-06-LR15-(300)	Benton County Secondary Roads	\$ 4,959.20	2015 Equipment - Brushcutter	County
90-06-LR15-(301)	Benton County Secondary Roads	\$ 480.00	2015 Electronic equipment - Digital camera	County
90-06-LR15-(302)	Benton County Secondary Roads	\$ 311.90	2015 Equipment - Fire gear	County
90-06-LR15-(303)	Benton County Secondary Roads	\$ 6,794.40	2015 Equipment - Harleyrake	County
90-06-LR15-(304)	Benton County Secondary Roads	\$ 1,360.00	2015 Equipment - Sprayer	County
90-06-LR15-(305)	Benton County Secondary Roads	\$ 8,000.00	2015 Equipment - UTV	County
<b>Total LRTF Funding Awarded FY1990 - FY2015</b>		<b>\$ 56,640.96</b>		

# BENTON COUNTY IOWA



Office of Systems Planning  
Phone: (515) 239-1289  
WWW.IOWADOT.GOV/MAPS



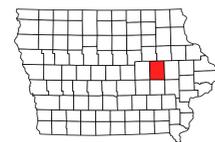
In Cooperation With  
**United States  
Department of Transportation**

JANUARY 1, 2014



### LEGEND

- INTERSTATE HIGHWAY
- PRIMARY HIGHWAY-DIVIDED
- PRIMARY HIGHWAY
- PORTLAND CEMENT CONCRETE ROAD
- ASPHALT ROAD
- BITUMINOUS ROAD
- GRAVEL ROAD
- EARTHEN ROAD
- INTERSTATE HIGHWAY
- UNITED STATES HIGHWAY
- STATE HIGHWAY
- COUNTY HIGHWAY
- RAILROAD
- PIPELINE
- AIRPORT
- HYDROLOGY
- BRIDGE
- STATE BOUNDARY
- COUNTY BOUNDARY
- CORPORATE BOUNDARY
- TOWNSHIP LINE
- SECTION LINE
- ROAD NAMES
- UNINCORPORATED PLACE
- STATE PARKS
- STATE INSTITUTIONS
- FEDERAL LAND



**Resolution #15-31**

**Benton County Integrated Roadside Vegetation Management Plan**

WHEREAS, The Benton County Board of Supervisors support the use of Integrated Roadside Vegetation Management (IRVM) in the right-of-way of the Benton County secondary roads system; and

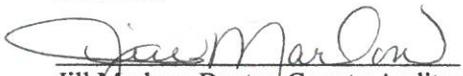
WHEREAS, The Iowa Department of Transportation requires Integrated Roadside Vegetation Management Plans for county IRVM programs; and

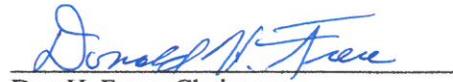
WHEREAS, The Living Roadway Trust Fund (LRTF) requires an updated IRVM Plan for counties seeking funding for its competitive grant program; and

WHEREAS, The Benton County Roadside Manager has drafted an IRVM plan to meet the new guidelines set by the Iowa Department of Transportation and the Iowa Living Roadway Trust Fund.

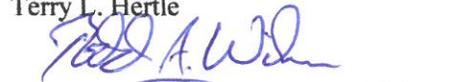
THEREFORE BE IT RESOLVED, that the Benton County Board of Supervisors support the adoption of the updated Benton County Integrated Roadside Vegetation Management Plan.

ATTEST:

  
\_\_\_\_\_  
Jill Marlow, Benton County Auditor

  
\_\_\_\_\_  
Don H. Frese, Chairman

  
\_\_\_\_\_  
Terry L. Hertle

  
\_\_\_\_\_  
Todd A. Wiley