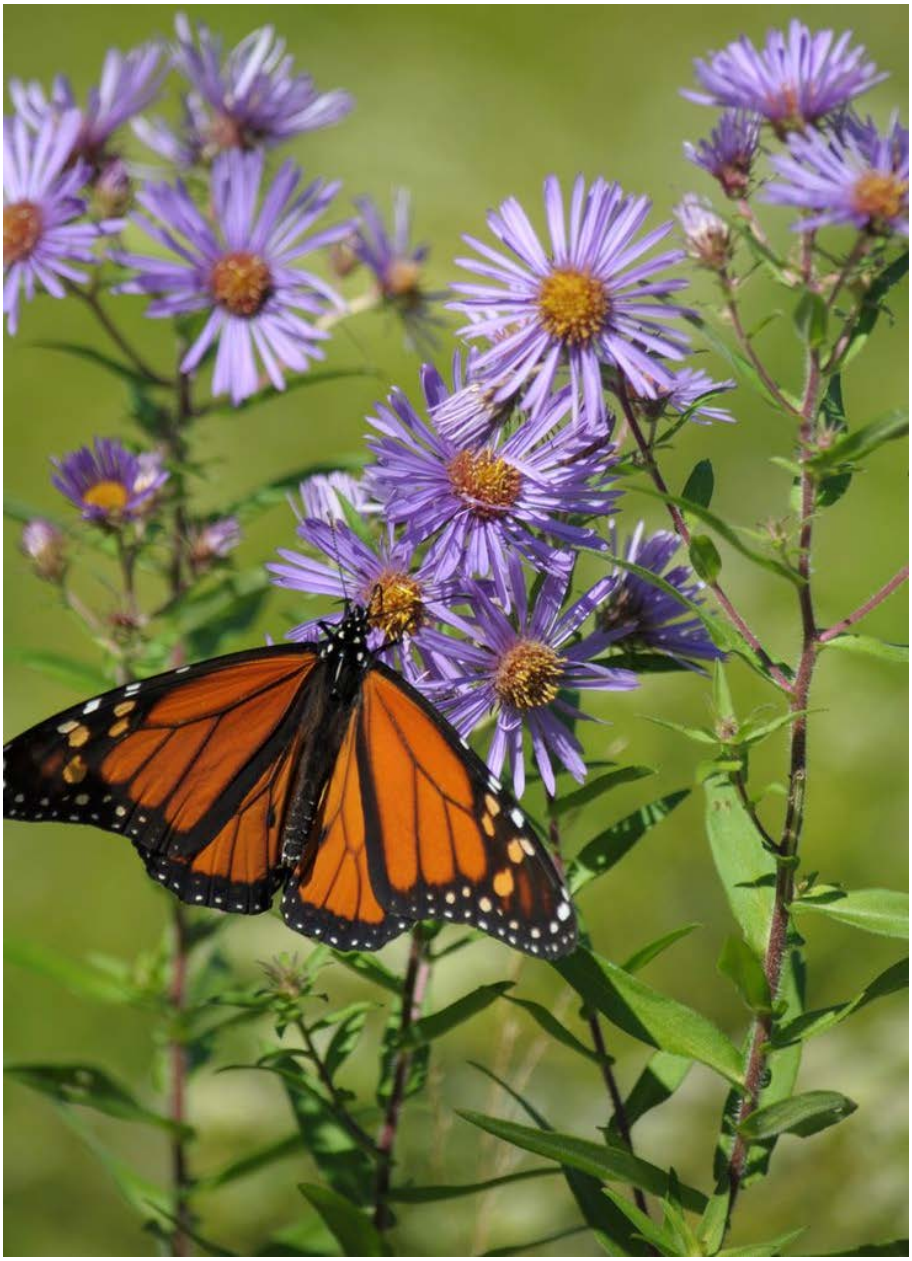
Integrated Roadside Vegetation Management Plan



Hardin County, Iowa

Version 4

April 2018

Prepared by: Megan Dohrman

Roadside Vegetation Management Biologist / Weed Commissioner

Hardin County IRVM Statement of Support

The Hardin County Board of Supervisors, Hardin County Conservation Board, and the Hardin County Engineer came together in cooperation, common goals and shared ideas to manage roadsides in Hardin County by and through utilizing integrated roadside principals.

Following Iowa Code Chapter 314.22, it is declared to be in the general public's welfare of Iowa and Hardin County for the Vegetation of its roadsides to be preserved, planted, and maintained to be safe, visually interesting, ecologically integrated, and useful for many purposes.

We realize that IRVM will be beneficial to our roadside management goals, while being economically and environmentally beneficial.

We understand that working in unison towards improving roadside vegetation is the most efficient way to accomplish the goals of improved, safe and weed free roadsides. This integrated approach will add to the ecologically sound habitat and natural beauty of Hardin County.

We hereby agree to manage Hardin County roadsides according to the provisions described within this management plan to preserving our rich ecological past, striving to conserve our natural resources, restore ecosystem services and protect our environment.

However, this is a flexible plan that requires common sense interpretations which changes as necessary to fit the ever-changing complex circumstances realized in roadside vegetation management.

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Bj Hoffman: BOS Chairman **Date**

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Megan Dohrman: Roadside Vegetation Management Biologist **Date**

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Taylor Roll: County Engineer **Date**

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Wes Wiese: County Conservation Director **Date**

HARDIN COUNTY INTEGRATED ROADSIDE VEGETATION MANAGEMENT PLAN

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Hardin County IRVM plan – Version 4 – April 2018

Contributors

Megan Dohrman - Roadside Vegetation Management Biologist /Weed Commissioner

Nathan Mead - Roadside Vegetation Specialist

Hardin County Board of Supervisors, County Engineer, Conservation Director

2. Executive Program Elements

A. Executive Summary

The Hardin County IRVM Program recognizes that it's in the general public's welfare of Hardin County that vegetation of its roadsides be preserved, planted and maintained for to be safe, visually interesting and attractive right-of-way's, ecologically integrated, proving habitat and food sources to pollinators and wildlife. The IRVM department performs many functions on the landscape such as a sustainable method of controlling erosion and sediment delivery. Hardin County IRVM with cooperation from Hardin County Secondary Roads Department provides an annual roadside vegetation management program which is designed to promote the Iowa Legislature. Integrated Roadside Vegetation Management (IRVM) refers to a comprehensive program that:

- Maintains a safe travel environment by providing adequate line of sight at intersections, minimizing snow drifting, and removing potentially dangerous trees and other obstructions.
- Serves a variety of public purposes including drainage, erosion control, wildlife habitat, recreational uses, noxious weed control, scenic qualities and water quality.
- Is based on a systematic assessment of conditions 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 in roadsides.
- Emphasizes the establishment of adaptable and long-lived vegetation, often native species, matched to the unique environment found in and adjacent to the roadside.
- Incorporates integrated management practices for the long-term control of damaging insect populations, weeds, and invader plant species.
- Builds upon a public education program allowing input from adjacent landowners and the general public.
- Accelerates 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.
- Incorporates 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.

B. Goals

Establish and maintain a self -sustaining and visually interesting plant community within the county right-of-way that provides public safety, controls weeds, reduces erosion, preserves and/or increases biodiversity, improves infiltration, maintains drainage patterns, provides habitat, and provides a reduction in long term maintenance costs.

Objectives:

- Promote, preserve, establish, and manage native plant materials whenever possible and appropriate
- Survey and maintain an updated inventory of the vegetative community and plant species found within the county right-of-way
- Determine and implement the best IRVM practices for maintenance the right-of-way for public safety and an economically and environmentally sustainable plant community
- Maintain safe travel corridors while enhancing the scenic qualities of the roadsides and their value as habitat
- Utilize controlled burns to meet management objectives
- Adopt and implement emerging trends in planning and management of roadsides

- Work with adjacent landowners, government officials, community groups and the public to implement and promote the IRVM program and roadside beautification projects
- Continually evaluate and monitor the effectiveness of implemented IRVM Techniques
- Increase wildlife habitat
- Make efficient and effective use of the roadside spraying program and promote the reduction and potential elimination of herbicide use whenever possible by using other methods of maintaining native prairie.
- To recognize and stop the spread of newly introduced invasive plant species countywide.
- Stabilize road construction projects by seeding and providing adequate erosion control
- Reduce the visibility hazards created by trees and brush on county highways, road intersections, and other area through selective brush control and stump treatment
- Utilize UNI's TAP seed program and LRTF grants
- Address section 317 of the code of Iowa the "Noxious Weed Law", the Integrated Roadside Vegetation Management (IRVM) Manual, and address the provisions of Section 314 of the Code of Iowa

C. Program History

IRVM was introduced to Iowa in the mid-1980s in response to the need for groundwater and surface water protection. Prior to that time roadside weed control had relied exclusively on herbicides, with most counties employing an application method known as blanket spraying. Besides being expensive and potentially harmful, blanket spraying was an ineffective means of weed control, creating openings for weeds by stressing and weakening roadside grasses and eliminating beneficial broadleaf species. Iowa counties were spending a lot of money putting large amounts of herbicide into the environment and, at the same time, making little or no headway in the control of roadside weeds. Clearly, this type of roadside management proved unsustainable.

Another development of the mid-1980s was the Iowa Department of Transportation's use of native prairie grasses and wildflowers for erosion control. A few county conservation boards were also experimenting with this naturally adapted, alternative vegetation for roadsides. When the Iowa Legislature officially adopted IRVM in 1988, the cornerstone of the program became the establishment and protection of native vegetation in Iowa roadsides. The Living Roadway Trust Fund was created the following year, supporting state, city and county roadside projects.

Since that time over 100,000 acres of state and county road right-of-way have been planted to native vegetation. Diverse stands of 15-45 prairie grass and wildflower species – all naturally adapted to local growing conditions – provide stable, low-maintenance roadsides for Iowa.

D. IRVM Decision Making Process and Program Type

The IRVM program is an independent department while maintaining an intra-department relationship with the County Engineer, Board of Supervisors and Conservation Director.

The Hardin County Board of Supervisors approves budgets and performs county and department governance.

The Roadside Vegetation Management Biologist determines the department's day-to-day operations, sets priorities, and carries out administrative functions of the department, including budget and staff oversite. The Roadside Vegetation Specialist and seasonal employees carry out day-to-day duties as assigned.

Major projects, equipment needs, and brush removal will be coordinated between Roadside Biologist Manager and Secondary Roads Department.

E. Area Map

See Appendix A

3. Jurisdictional Recognition and Approval

A. Management

The Hardin County IRVM program will be managed by the Roadside Vegetation Management Biologist/ Weed Commissioner.

The position runs an independent department with cooperative input from the County Engineer, Board of Supervisors and County Conservation Director.

The Roadside Vegetation Management Biologist and Roadside Vegetation Specialist will: seed all bare soil in a timely manner, decide what types of seed to use and when it should be planted, determine what types of soil prep work is needed, conduct erosion control measures as needed (will consult with the County Engineer on all Bridge Projects), manage native vegetation after establishment (burning, spraying, etc.), administer roadside spraying program, determine what area of the county is to be treated, decide what types of herbicides are used and what types of vegetation those herbicides are used on, present public education programs as opportunities develop. (See Appendix B for full Job duties)

B. Board of Supervisors

The Board of Supervisors (BOS) approve the IRVM budget.

Additionally, the BOS appoints the Roadside Vegetation Management Biologist as Weed Commissioner.

The Weed Commissioner meets monthly, during the season, with the Board of Supervisors to update them on the program and receive input. The Weed Commissioner also presents the BOS an Annual Report in the fall of each year that details the work activities of the year and issues that need to be addressed.

Statement of support from the BOS can be found on Page 2 of this document.

C. Iowa Code and Administrative Rules-State Laws and Regulations

Hardin County IRVM operates under several principles and laws cited in the Code of Iowa and within local policies, agreements, and resolutions (Code sections found in Appendix C). Examples include, but are not limited to:

- Section 314.17 Mowing Law—NO MOWING BEFORE JULY 15TH
- Section 314.19 Reseeding Open Ditches
- Section 314.21 Living Roadway Trust Fund
- Section 314.22 Integrated Roadside Vegetation Management

- Chapter 317 Iowa Weed Law—Noxious Weeds and Enforcement Procedures
- Section 317.11 Weeds on Roads—Harvesting of Grass
- Section 318.3 Obstructions in ROW / Destruction of plants in ROW/ Crops in ROW
- Section 481B Endangered Plants and Wildlife

D. Local Laws and Regulations

Local Laws, Regulations, and Policies pertaining to IRVM in Hardin County reflect that of the Iowa Codes, as well as any other State and Federal Regulations that are specific to management activities that occur within the jurisdiction of the Hardin County's IRVM program. Including:

- Hardin County Noxious Weed Policy
- Hardin County Noxious Weed Resolution
- Hardin County Brush Policy
  (See Appendix D)

Annually in March the Board of Supervisors will pass the "Noxious Weed Resolution" that stipulates what species must be controlled in the County and by what date. This Resolution is advertised in the local media as a Public Notice.

Iowa Code Chapter 314.22 – IRVM. Adopted by resolution by Hardin County Board of Supervisors.

Iowa Code Chapter 317 – loosely governs county noxious weed spraying program and Weed Commission actions.
Roadside Maintenance Agreement and No Spray Permit – allows landowners to opt out of roadside spraying adjacent to their property with formal request (Landowners will be responsible for controlling noxious weeds and brush).

E. Permits

Permits are obtained at the County Engineers Office. Individuals describe what work is being performed or the issue of concern and the appropriate permit or request is retrieved. After the permit or request is filled out with the necessary information and fees collected, the permit or request is issued to the individual and a copy is filed with the county.

Local residents have to option to opt out of spraying on roadsides adjacent to their properties, this is obtained through the IRVM Department. Landowners are responsible for maintaining a weed free roadside if they choose to file a No Spray Application. (See Appendix E for application)

No Spray Application and Alteration of the Right-of-Way
A No Spray Application allows landowners to opt out of chemical application in requested Right-of-way areas.

Work in the Right-of-Way Permit
Persons needing to perform work in a road ditch or other designated county right-of-way area must submit a Work in the Right of Way Permit to the Hardin County Engineer's Office.

Driveway Permit

Access useful information about filing applications for and receiving permits for creating or altering driveways.

Manure Pumping Under Roads Permit

Persons wanting to cross county roads with hoses or pipeline for the purpose of applying liquid manure from livestock facilities must submit a permit application.

One Stop Permit

Access important information about obtaining a One Stop Permit for transporting loads down any Hardin County Road.

Dust Control Permit

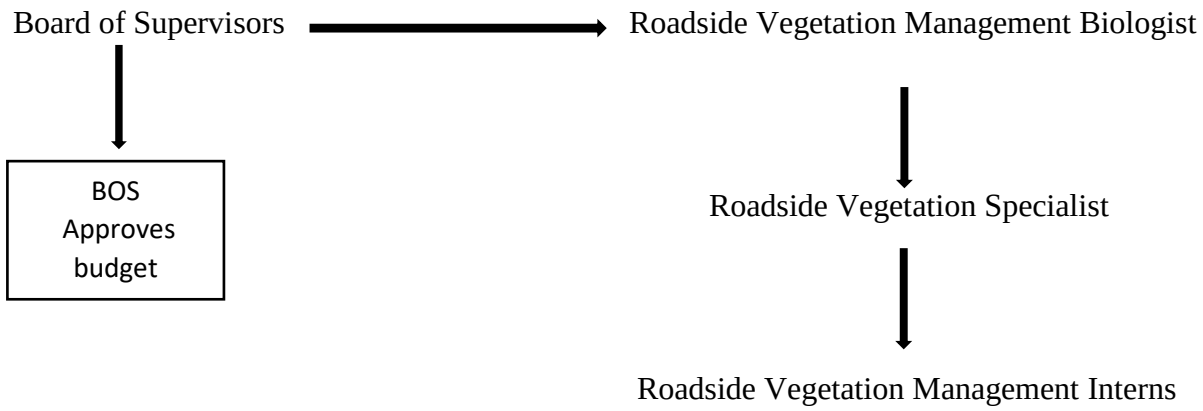
A dust control permit is required before dust control material can be applied.

Utility Permit

A Utility Permit is necessary for telecommunications, electric, gas, water, and sewer utilities.

4. Program Organizational Structure

A. Staff Organizational Chart



B. Staffing Needs and Training

The IRVM program currently has two full-time employees assigned to carry out the day-to day business of the program. Additionally, several temporary Roadside Vegetation Management Intern positions will be utilized between May and November for roadside related duties, and between November and March for roadside maintenance and brush removal.

Roadside Vegetation Intern:

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. Hardin County could benefit from hiring on a Roadside Vegetation Management Intern. This individual would help accomplish tasks that time does not warrant and the job would provide an excellent learning experience for someone interested in natural Resources.

Roadside Management Internship:

Opportunities may arise for Hardin County to utilize internships from our local and surrounding colleges and universities. Many require internships for successful completion of a bachelor's or master's degrees. By offering these opportunities, Hardin County could benefit by receiving extra help at no cost and providing on the job experience for college students.

It is imperative that professionals in the Vegetation Management and natural resource field stay current in advances in related fields and licenses. Involving in professional organizations also stimulates creative processes and offers a forum for sharing ideas. Hardin County will continue to encourage professional development for IRVM Employees.

The Roadside Vegetation Management Biologist /Weed Commissioner and Roadside Vegetation Specialist will carry up to date Iowa Pesticide Licenses in Iowa Core, and category 1A, 5 and 6, at minimum. Annual continued education for the license will be coordinated with Iowa State Extension and Iowa Department of Agriculture and Land Stewardship (IDALS).

Additional trainings for IRVM staff including but, not limited to:

Prescribed Fire: NWCG S-130, S-190, S290
Driving: Class A CDL with Air Break and Tanker Endorsement
GIS/GPS training
Equipment training

C. Succession Plan

When vacancies or additional positions are to be filled, the hiring process will be conducted by the Board of Supervisors and Roadside Vegetation Management Biologist. If the position of Roadside Vegetation Management Biologist is vacant it will be the responsibility for the Board of Supervisors, with the help of the County Engineer and Conservation Director, to interview qualified candidates.

5. Public Involvement

A. Partners/Stakeholders

Integrated Roadside Vegetation Management is implemented on behalf of the citizens of Hardin County.

The Hardin County IRVM program will forge relationships with the Iowa Rivers and Trail committee, Soil and Water Conservation District, NRCS, Iowa State Extension, City Governments, The Nature Conservancy, U.S. Fish and Wildlife Service, UNI's Tallgrass Prairie Center, Kiwanis, Lions Club, USDA- Farm Service Agency, USDA-Natural Resources Conservation Service, Public Schools, Colleges located in and around Hardin County, Community Churches and other local Conservation Organizations.

B. Education and Outreach

The Roadside Vegetation Management Biologist and or Roadside Vegetation Specialist will provide education presentations to public and private groups as time allows and upon request. They will also create and maintain a social media page to promote the IRVM program as well as creating press releases for traditional media outlets.

If possible, providing programing to schools on planting native vegetation in unused spaces of the property, in compliance with the next generation science standards (NGSS).

As part of Hardin County IRVM's education program, staff will continue to:

- Develop a public awareness campaign to gain support for integrated roadside vegetation management through media, established organizations, seminars, and brochures.
- Obtain educational and informational material on IRVM to be presented in seminars and distributed to adjacent landowners, the general public, consultants, and contractors.
- Prepare and distribute instructions on preservation of desirable areas and treatment of areas needing improvement.
- Gather, develop, and distribute information in conjunction with other jurisdictions, municipalities, counties, and non-profit organizations.
- Encourage research in all aspects of IRVM, i.e.; road design, planting methods, management practices, seed sources, seeding rates, seed mixes, planting materials, etc.
- Encourage the use of native seeds and plant materials native to Iowa.
- Document and map all aspects of IRVM progress through Arc GIS or equivalent software.
- Encourage natural resource management practices which improve water quality, wildlife habitat, and use of native vegetation.

6. Inventory and Analysis

A. Natural Resources

1. Tools

Initially, paper maps were used to document all operations (e.g. plantings, herbicide applications, and prescribed fire). Since the development of Arc GIS software, these records are now mapped and saved on the GIS software.

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

Hard copies of spray records are kept indicating roads traveled each day as well as weather conditions, types of chemical used, amounts of chemicals and the rate of applications. Hard copies of planting records will also be kept for easy calculation of planted acres and seed rates to be submitted to the Tallgrass Prairie Center.

Burn plans for prescribed fire applications will also be on file and kept in the IRVM office.

2. Vegetation

Native vegetation, soil, and water are all considered natural resources in the scope of IRVM in Hardin County. On a broader scale, The Hardin County Secondary Roads system traverses other resources such as surface waters and wetlands, natural areas and plant preserves, sensitive areas with a high occurrence of native remnant species, wildlife, historically significant areas, and areas with above-average scenic qualities.

Hardin County's Roadside Inventory was conducted in 1990 by IRVM staff. The survey mapped Hardin County and recorded areas containing native vegetation, non-native vegetation, sites of encroachment and other various categories. Due to the imminent changes of roadside vegetation, a new survey should be conducted. Employees will monitor such things as roadside seeding projects and invasive weed patches. The department has been

using GIS systems to improve the quality and quantity of our data. GIS allows employees to map and plot out where projects and work have been completed.

B. Equipment and Condition

1989 Truax Flex 88 Drill- *Average*
1990 Herd I-92 Broadcast Seeder- *Good*
1990 Bowie SG 50T Straw Mulcher- *Poor*
Alamo SHD74 Flail Mower- *Good*
Culti-packer- *Good*
DR Brush Mower - *Good*
1999 F-250 Ford Pickup- *Average*
2011 F-250 Ford Pickup- *Good*
2014 Polaris 400 ATV- *Good*
Trailer Spray unit 300-gallon tank with Honda GX 160 pump (2) - *Average*
Skid Unit with 150-gallon water tank with Honda GX 160 pump- *Average*
Clipper 2B Fanning Mill- *Average*
Clipper 400 Office Fanning Mill- *Average*
1990 98-SS Sieve Shaker- *Average*
1990 Speed King 915 Hammer Mill- *Average*
Digital Camera- *Good*
Back Pack Sprayer 4 Gal (2) - *Good*
Drip Torches (2) - *Good*
2018 Bowie 1500 Hydroseeder -*New*
Stihl 180C- *New*
Stihl MS 261- *New*
Stihl MS 271-*New*
Danko XL Skid Unit- *New*

7. Program Operations

A. Annual Operation

Operations include but are not limited to:

January-March

- Cut trees/brush from ROW
- Service and repair equipment
- Prepare weed commissioner report
- Research equipment for LRTF Grants
- Obtain herbicide bids
- Attend conferences related to IRVM / all refresher courses to keep current certifications
- Update IRVM Management Plan as needed
- Submit Weed Commissioner Report
- Attend Appointments Meeting of Board of Supervisors
- Budget Work Session

- Frost seeding if needed
- Prescribed fire preparation
- IRVM programs/ Workshops
- BOS Approves weed resolution/ Submit to newspaper

April-September

- Start performing roadside prescribed burning
- Get spray equipment ready
- Complete spring seedings
- Finish grant applications for LRTF grants
- Post noxious weed notice
- Photograph prairie plantings and projects when time permits
- Perform seeding, erosion control projects and bare ground treatment in select areas
- Begin spray operations
- Respond to any weed or brush complaints
- Monitor seedling establishment
- Pick up TAP Seed
- Collect seed from prairie remnants and reconstructions
- Attend conferences related to IRVM/All refresher courses to keep current certifications

October-December

- Complete weed commissioner duties
- Brush removal
- Maintain and repair equipment
- Lead volunteer prairie harvest event
- Conduct fall burning and frost seeding
- Repair and maintain equipment
- Fall seeding projects
- Winterize spraying equipment
- Herbicide workshops
- Prepare IRVM annual Report and other project reports
- Prepare weed commissioner report

B. Work Area Types

1. Rural

The Hardin County IRVM Program works primarily in rural areas. An explanation of how each work zone is handled is listed below. (Conduct work without numerous other considerations.)

- Rural Adjacent to Agriculture Ground
    - Native seed mixes, spot spraying, mowing, burning, tree and brush removal
- Rural Adjacent to Non -Agricultural Ground
    - Native seed mixes, spot spraying, mowing, burning
- Rural Adjacent to Homesteads
    - Cool Season grasses, lawn mix, spot spray, mowing
- Rural Adjacent to Subdivision
    - Vegetation determined based on site

- Rural densely population areas
    - Vegetation determined based on site

2. Urban

Very little work is done currently in the urban interface

- Unincorporated Towns
    - Spot spraying as needed, address noxious weed complaints
- Rural-Urban Interface
    - Spot spraying as needed, address noxious weed complaints

C. Vegetation Types for Specific Uses

Most plantings that occur in Hardin County Roadsides utilize the diverse prairie mix provided by UNI's Tallgrass Prairie Center and purchased with grants.

- Residential ROW's- turf grass, mowed areas in front of houses
- Non-Residential ROW- native tallgrass prairie species- Areas where long term establishment and persistence of tallgrass prairie is deemed feasible by the Roadside Management Biologist
- Miscellaneous ROW/ Borrow Area/ Easement- cool season grasses- Areas where long term establishment and persistence of tallgrass prairie is deemed not feasible by the Roadside Management Biologist.

D. Special Projects

Currently Hardin County IRVM does not have any special projects in place. In the near future some special projects that are being considered are:

- American Kestrel Program
- Bluebird Nest Box Program
- Gateway Parks Programs

8. Methods

A. Vegetation Establishment and Maintenance

Management methods utilized by IRVM are outlined in the IRVM Technical Manual found at:

http://tallgrassprairiecenter.org/sites/default/files/irvm-technical-manual-2015-2_0_0.pdf

A hard copy of the IRVM manual is located in the IRVM office.

The IRVM program has planted, on average, 30 acres of roadsides annually. Planting activities follow construction projects including road re-grades, drainage improvement, and culvert/bridge replacement. Vegetation establishment after road construction and maintenance projects is essential for the health of the roadside. Each site is inspected, and management's decisions are based on site location, conditions, and concerns for soil erosion. It is the purpose of Hardin County IRVM to provide an efficient, successful, and visually appealing planting in right-or-way projects.

1. 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 Erosion
- Vegetation Establishment Maintenance
- Ongoing Maintenance

2. 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.

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.

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.
- Culti-packing can help firm the seedbed and reduce clods.

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.

Heavily Compacted Soils

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

3. Seed Mixes and Rates

Two seed mixes are used in the right-of-way plantings in Hardin 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 F. 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.

4. Seeding Techniques

When and where possible, roadside construction projects will be seeded with mixes of native grass and wildflower species. When necessary, mixes will be tailored to the characteristics of a site (soil moisture, safety/maintenance considerations). See Appendix G for Planting Record.

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.

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.

Drill Seeding Tips

- Calibrate the drill in the shop and set the rate a little lighter than what you 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 are 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 pack 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.

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

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

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 form 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.

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.

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.

Broadcast Seeding Tips
- Broadcasting finer-seeded species prevents them from getting buried under too much soil.
- For very clean seed, the Vicon TM broadcaster or any broadcast seeder 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.

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.

Hand Seeding Tips
- To improve distribution, mix the seed with a 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.

5. Erosion and Sediment Control

Erosion control is an important aspect of the Hardin 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 Hardin County Secondary Roads. This section should be updated as new erosion control measures are developed or more effective means are used.

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.

Hydromulching

Hydromulching is an erosion control process in which a slurry of various fibers is tank mixed with water and blown on an area of bare ground. This is done using 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.

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.

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.

6. Vegetation Establishment Maintenance

Hardin County IRVM will mow new roadside plantings to stimulate growth and reduce weed competition. Spot mowing will also be done to remove sight distance issues and to control brush and noxious weeds in the right-of-way.

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.

Prescribed Fire

Prescribed fire is recognized as a valuable tool in brush and invasive plant control and is used to enhance and maintain native plant communities. Hardin County recognizes the potential hazards relating to prescribed fire. Therefore, all burn crew personnel are required to have a minimum certification in the National Wildfire Coordinating Group's S-130, S-190, and S-290 (for full-time staff) basic fire fighter and fire behavior courses.

Burn Notifications are sent to adjacent landowners prior to conducting prescribed burns, and a press release is published in the local newspapers (See Appendix H).

Hardin County IRVM conducts prescribed fire in natural areas, wildland areas, seed nurseries, prairie remnants, plantings, and along roadside ditches.

Prescribed fire plans are completed in advance, burn records for all sites are transferred to Arc GIS (see Appendix I)

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 to control 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.

Hardin County IRVM Spray Policy

Products and rates used for chemical control of target species are at the discretion of the Roadside Vegetation Management Biologist and are evaluated regularly. All employees who mix and apply pesticides, as required by the duties of their job, shall be certified according to Chapter 206 of the Iowa Pesticide Act, as administered by the Iowa Department of Agriculture and Land Stewardship (IDALS). No employee may apply any product required to be applied by a certified pesticide applicator without having the required training and current certification. Employees shall maintain their certified pesticide applicator status by re-testing or by attending continuing education through approved instructional courses as set forth by IDALS in the rules for the commercial pesticide applicator certification. Certification in Categories 1A, and 6 will be required to apply herbicide in the right-or-way.

Environmental factors are recorded at the start and end of every application. Spray records are filled out for each herbicide application completed by IRVM staff and kept for a minimum or three years. (See Appendix J)

Chemical Control for Noxious weeds

Hardin County IRVM promotes the safe and wise use of pesticides. Pesticide application equipment is calibrated throughout each spray season. A spot spray program is utilized to manage noxious weeds and other invasive plants. All hard surface roads, connector routes, and farm- to market corridors are prioritized. Areas on gravel roads and natural areas are dealt with on a case to case basis.

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.

Bare Ground Herbicide Application

Application of bare ground herbicide is used to control pre-emergent and emergent vegetation. Graveled shoulders along hard surface roads are sprayed to assist in maintenance activities and clearly define the shoulder edge. Graveled county parking lots and equipment storage areas may also be sprayed to control vegetation. Special equipment is used in this application to minimize any off-target drift. Selection of chemicals is based on label constraints and residual effects on the environment. Application areas are monitored to document herbicide effectiveness and impact upon target and non-target species. Areas designated for bare ground application will be determined by the Roadside Vegetation Management Biologist.

Tree and Brush Control (Chemical)

Hardin County's IRVM program controls woody vegetation within the right of way to improve sight distance around road signs and intersections, reduce snow traps, and improve conditions that might impede the maintenance of the right of way.

Staff use foliar spraying in a variety of equipment in late summer as needed. A handgun spray application has proven to reduce herbicide use and effectively control brush. Chemicals used are based on effectiveness and their adverse effect on the surrounding landscape. All brush inside the right of way is treated. Except for brush taller than 10 feet or trees that can't be effectively treated without causing damage outside the right of way (trees in fence line or brush directly in front of farmsteads and sensitive areas).

Basal Bark

Basal bark herbicide may be used to control brush species in certain areas in order to reduce collateral damage.

Site Distance Issues

The safety of motorists is the number one priority of the Hardin County IRVM Department. Sight distance hazards develop due to overgrowth or vegetation in right of ways, near intersections, and around road signage. Sight distance reports are directed from the county engineer's office or directly to the IRVM department. Upon receiving these reports, the IRVM department will inspect each site. Once identified, action is taken as soon as possible by either IRVM staff or Secondary Roads Staff to remove hazards.

Weed Commissioner Duties

Since 1990, the Hardin County Board of Supervisors have appointed the Roadside Vegetation Management Biologist as Hardin County's Weed Commissioner. Hardin County's standard operation procedures are based on Iowa Code Chapter 317.3 In cases where noxious weeds and other undesirable plants are deemed to be a problem, the weed commissioner makes an onsite visit and attempts to communicate directly with the landowner/tenant. If a meeting can't be arranged, contact is made via telephone communication. In all cases, a certified letter is sent for tracking and record keeping purposes. The weed commissioner may serve as liaison between landowners and spray contractors to reach necessary management goals. In some cases, this may result in Hardin County's IRVM department to

perform contract labor and landowners are billed accordingly. Special efforts are made to educate landowners and operators in the control or undesirable species.
(See Appendix C for Iowa Code 317 pertaining to Weed Commissioner duties)

7. Planting Evaluation and Documentation

Evaluating and documenting new roadside plantings is an important process for the Hardin County IRVM program. This process is highlighted in the following subheadings.

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:

- *IRVM Overview*:
  This section provides a general overview of what the IRVM program does in Hardin 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.

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 Management Biologist and Roadside Vegetation Specialist who prescribe management in person on a case by case basis.

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 may not be created for other plantings. These are evaluated by the Roadside Management Biologist and Roadside Vegetation Specialist 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.

8. 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.

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 cutting too close, 8 inches is acceptable.

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.

9. Chemical Control for Noxious Weeds, Other Invasives and Bare Ground

Hardin County actively treats infestations of noxious and invasive weeds on a yearly basis. This is done by the Roadside Management Biologist and Roadside Vegetation Specialist. The county is divided into two sections with each employee handling one of the territories, as seen in Appendix J.

10. Tree and Brush Removal

Iowa's State Noxious Weed list includes a few woody species, and additionally 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.
- Allow for safe vehicle recovery if a vehicle leaves the road.
- Alleviate substantial and chronic drifting of snow.
- Reduce shade where it prolongs ice on the road.

11. 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:

- Discouraging the growth of invasive and woody species.
- Invigorating 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.

Training Requirements

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

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.

Equipment

Hardin County owns a variety of prescribed fire equipment. An inventory of this equipment can be found, 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.

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.

12. 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.

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.

Purpose: **Timing:**

Purpose:	**Timing:**
Weed Control *	Late Spring
Brush Control *	Spring
Warm-season Grass Stimulation	Mind to Late Spring
Cool-season Grasses	Enhanced by early spring and fall burns. Suppressed by late spring burns.
Forbs	Enhances by early spring and fall burns

Routine Maintenance (thatch removal)	Anytime
***Research specific weed and brush species before using fire for management. Some may have a positive response.**	

Burn Plans

A complete burn plan, developed in advance, is the first step toward executing a successful burn. Each burn conducted by the Hardin 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

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: 20-5030-70 %
- Wind Speed: 5-15 mph
- Wind Direction: Away from the road and safety-sensitive areas.

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

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

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.

9. Material Procurement

A. Grants

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

Living Roadway Trust Fund Grants

The Hardin 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 Hardin County has received can be found in Appendix K.

B. Sourcing

Seed

The majority of seed used for roadside prairie reconstruction in Hardin County comes from the Transportation Alternatives Program (TAP). 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 in conjunction with the Tallgrass Prairie Center.

Additional seed comes from several other sources. The Hardin 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.

Erosion Control Materials/ Hydroseeding

Erosion control materials are purchased through Colman and Moore, in Des Moines Iowa.

Herbicide

Herbicide is purchased annually for the Hardin County IRVM program. This is done via a competitive bidding process from vendors specializing in Right-of-way herbicides.

C. Material Handling and Storage

Seed

The viability of native seed decreases substantially when exposed to high temperature and high humidity. Hardin 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 degrees increase in temperature, seed longevity is halved.
- For each 1% increase in moisture content of the seed (not RH), longevity is also halved.

Erosion Control Materials

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

Hydroseeding

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

Herbicide

Herbicide is stored in 90-gallon JUSTRITE storage cabinets in the IRVM shop.

Hardin County is in the process of purchasing an outdoor herbicide storage container to be located on the East side of the IRVM shop. 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.

10. Appendices

A. Area Map

HIGHWAY AND TRANSPORTATION MAP

HARDIN COUNTY
IOWA

Prepared By

IOWA DOT

OFFICE OF SYSTEMS PLANNING
Phone: (515) 239-1664
WWW.IOWADOT.GOV/MAPS

In Cooperation With
United States
Department of Transportation

JANUARY 1, 2017

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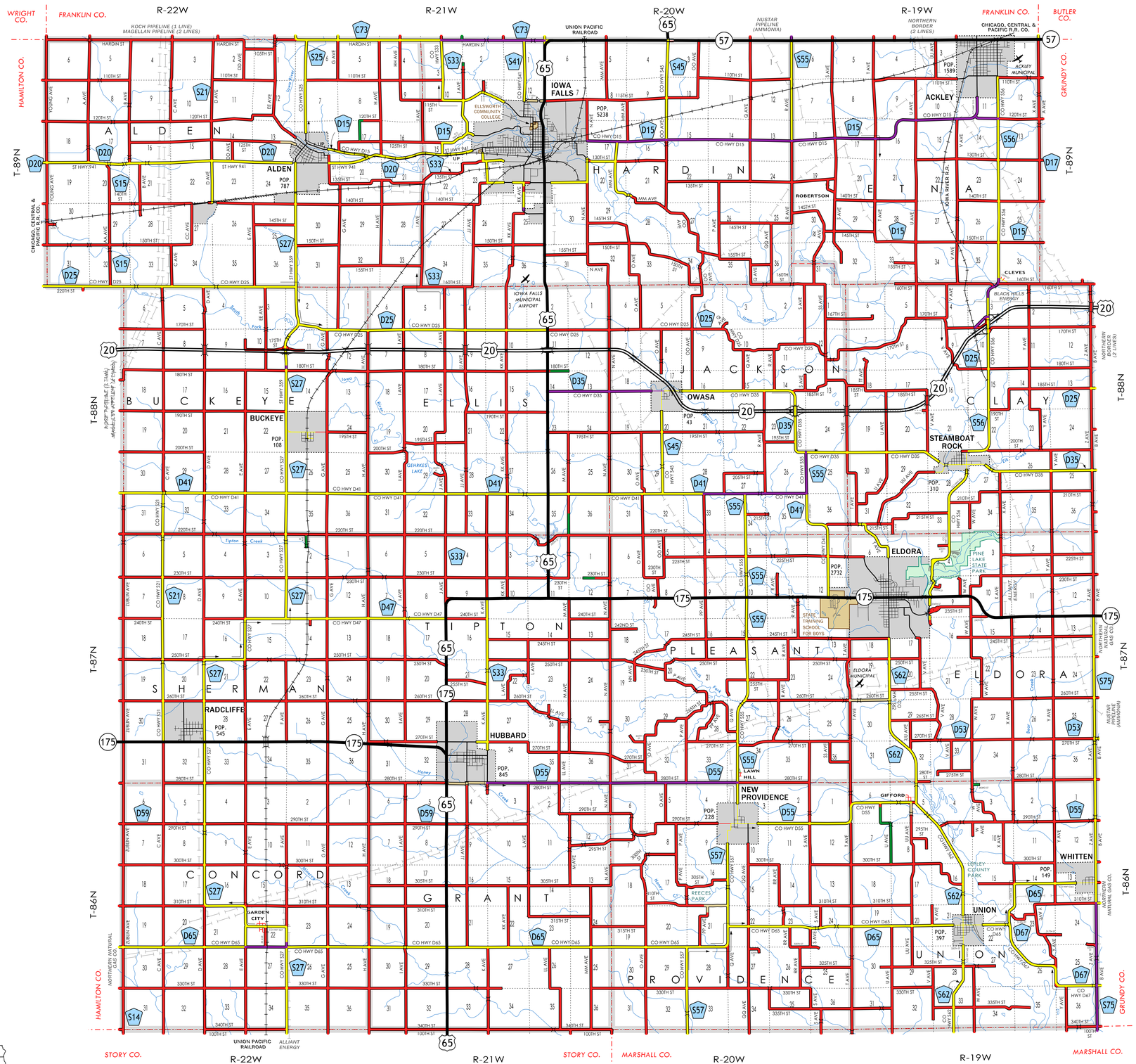


LEGEND

- INTERSTATE HIGHWAY
- PRIMARY HIGHWAY-DIVIDED
- PRIMARY HIGHWAY
- PORTLAND CEMENT CONCRETE ROAD
- ASPHALT ROAD
- BITUMINOUS ROAD
- GRAVEL ROAD
- EARTHEN ROAD

- INTERSTATE HIGHWAY — 80
- UNITED STATES HIGHWAY — 65
- STATE HIGHWAY — 237
- COUNTY HIGHWAY — S27

- RAILROAD
- PIPELINE
- AIRPORT
- HYDROLOGY
- BRIDGE

- STATE BOUNDARY
- COUNTY BOUNDARY
- CORPORATE BOUNDARY
- TOWNSHIP LINE
- SECTION LINE
- ROAD NAMES — ABBEY ROAD
- UNINCORPORATED PLACE — ELWOOD

- STATE PARKS
- STATE INSTITUTIONS
- FEDERAL LAND

B. Position Description and Qualifications

Roadside Vegetation Management Biologist/ Weed Commissioner

Department: Integrated Roadside Vegetation Management (IRVM)
FLSA Status: Exempt
Reports to: Board of Supervisors
Supervises: Full-time & seasonal employees
Date updated: September 7, 2017
Date Adopted:

General Definition of Work:
Implement intermediate skilled and technical work ensuring compliance with Iowa State Code regarding Integrated Roadside Vegetation Management (IRVM). Administer, develop, plan, and conduct a program involving habitat management which strives to control unwanted vegetation and promote desirable vegetation on Hardin County Right-of-Ways and public drainage ditches to restore and preserve native prairie. Perform related duties as assigned by the Board of supervisors in consultation and cooperation with county conservation and the county engineer. The roadside manager also serves as Hardin Counties Weed Commissioner and addresses the necessities of Section 314 of the Code of Iowa, and Section 317, the Noxious Weed Law, and the IRVM technical Manual.

Qualification Requirements:
To perform this job successfully, an individual must be able to perform each essential task satisfactorily. The requirements listed 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 Experience:
Required:

1. Bachelor's degree from an accredited college or university with course work in natural resource, wildlife, forestry, biology, botany or a related field and moderate experience in a related position.
2. Valid driver's license in the State of Iowa

Recommended upon hire, but must be within 6 months or within a reasonable date only with prior approval from Board of Supervisors:

1. Maintain a valid pesticide applicator's license category 6 (Right-of-way), category 1A (Agriculture)
2. Maintain a valid class A commercial driver's license with air break endorsement in the State of Iowa, Ability to maintain drug free environment and pass periodic random drug screening.
3. Must possess Wildland Fire Training Certification- S130/S190 and S290
4. CPR/First Aid Certification

Essential Functions and Responsibilities:

1. Develops, plans, and administers a program to control problem vegetation in rights-or-way and drainage districts.
2. Preserve and restore natural prairie lands; maintains required records.
3. Evaluate soil type and what type of vegetation would be best for that area
4. Determine if an area is highly erodible and use proper equipment and tools for a successful planting.
5. Coordinates and administers the removal of trees and brush causing safety concerns along county rights-of-way
6. 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

7. Supervises and participates in planting and maintaining native and introduced grass and flower communities in newly graded, cleaned out or otherwise disturbed sites on county rights-or-way
8. Oversees maintenance and record keeping on equipment, facility, and vehicles assigned to the IRVM department
9. Cooperates with universities and other agencies in conducting research and analyzing data to determine trends in roadside vegetation and wildlife to help facilitate IRVM decisions if asked by any agency
10. Network with support groups and agencies such as NRCS, FSA, etc. to implement IRVM Goals when time allows
11. Control noxious weeds in rights-of-way and public drainage ditches (herbicide application, mowing, etc.)
12. All weed commissioner duties and responsibilities
    a. Must be able to identify invasive, noxious and exotic weed species
    b. Where noxious weeds and other undesirable plans are deemed to be a problem the weed commissioner makes an onsite visit and attempts to communicate directly with the landowner/tenant. If a meeting cannot be arranged, contact may be made via telephone. If no communication is made certified letters are sent for tracking and record keeping purposes
    c. May serve as liaison between landowners and spray contractors to reach necessary management goals
    d. In some cases, Hardin County's IRVM department performs contract labor and landowners are billed accordingly
    e. Attend annual weed commissioner's conferences and related workshops/events
    f. Work with the NRCS for any issues reported in CRP fields
    g. Follows the Code of Iowa Chapter 317
13. Serves as trainer/inspector/manager for all staff dealing with seeders, tractors, mowers, sprayers and other IRVM equipment
14. Performs administrative duties such as grant writing, and writing of reports for monthly and annual updates as requested, including yearly IRVM budget
15. Serves as the IRVM coordinator for Hardin County
16. Organizes meetings
17. Provides employees with direction and expertise
18. Attend state and regional conferences relating to IRVM
19. Assist to the best of their ability the enforcement of all local, state, and federal laws pertaining to the operation of roadside vegetation management within Hardin County and serves as a liaison for conservation law enforcement agencies if applicable
20. Supervises staff including, but not limited to assigning, checking and planning the work schedules of fulltime and seasonal staff and volunteers
21. Financial responsibilities would include long term planning for roadside development that meets the goals and objectives of IRVM
22. Assists the County Conservation Department and County Secondary Roads Department in the planting and monitoring of public lands and parks where applicable to promote the expansion of native prairie in the county
23. Ability to routinely talk, hear; use hands, grasp, handle or feel; push or pull and reach with hands and arms; stand, walk, reach, sit, kneel, stoop, balance, climb, and routinely lift, carry (25-60 pounds), push and pull objects weighing 50-100 pounds for extended periods of time.

Functions and responsibilities will change depending on the time of year, weather, staffing, availability of resources, etc.

Language Skills:

Ability to read, analyzes, and interprets general business periodicals, professional journals, technical procedures, product labels or governmental regulations. Ability to successfully write reports for business correspondence and procedure manuals

Essential Technical Skills:

1. Ability to identify native trees, prairie plants, as well as exotic and invasive weed species
2. Thorough working knowledge of prairie grass, forb, cover crop, and cool season seed planting and care
3. Knowledge of erosion control techniques
4. Ability to work remote/satellite work stations and locations
5. Ability to communicate effectively both orally and in writing
6. Ability to plan work thinks conceptually, analyze data, observe and evaluate and make sound decisions and recommendations
7. Ability to utilize Microsoft Windows/ Office, for work processing and data management
8. GIS/GPS/ Pictometry, equipment expertise as required for monitoring
9. Demonstrate strong organization skills
10. Knowledge of the principles of wildlife management/ protection and conservation practices relating to roadsides
11. Ability to safely operate any equipment owned by Hardin County and ability to operate non-agency owned, job specific equipment to achieve work objectives
12. Ability to be insurable for driving under county insurance company policies

Physical Demands/Work Environment:

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. Ability to routinely talk, hear; use hands and fingers, grasp, handle or feel; push or pull and reach with hands and arms; stand, walk, reach, sit, kneel, stoop, balance, climb, and routinely lift, carry (25-60lbs), push and pull objects weighing 50-100 pounds for extended periods of time. Ability to operate various types of vehicles, tools, machinery and equipment including but not limited to; tractors, mowers, chainsaws, pickups, straight trucks, trailers, skid loaders, tree planters, prescribed fire equipment, hand tools, seeders, and chemical spray equipment. Ability to work outdoors in extreme hot, cold, rainy, snowy, and windy weather conditions and be exposed to chemicals, allergens, insects, dust, fumes, smoke, and loud noises.

Roadside Vegetation Management Specialist

Department: Integrated Roadside Vegetation Management (IRVM)
FLSA Status: Non-Exempt
Reports to: Roadside Vegetation Management Biologist/Weed Commissioner
Date updated: December 4th, 2017
Date Adopted: February 5th, 2018

General Definition of Work:

Performs intermediate technical work assisting with duties associated with Hardin Counties Integrated Roadside Vegetation Management (IRVM) program and related work as apparent or assigned by the roadside vegetation Biologist. Work is performed under the general direction of the Roadside Vegetation Biologist.

Qualification Requirements:

To perform this job successfully, an individual must be able to perform each essential function satisfactorily (alone or with minimal supervision at times). The requirements listed below are representative of the Knowledge, skill, and/or abilities required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Education and Experience:

Recommended upon hire, but must be within 6 months of hire date

1.A four-year college degree in natural resource management, forestry, botany, or a related field of study. Or a two-year degree with 2-3 years of work in the natural resource field. With moderate experience in conservation.
2.A valid pesticide applicators license in categories 6 (right-of-way), 1A (Agricultural weeds) 5 (Aquatic).
3. A valid class A CDL with air break and tanker endorsement, in the state of Iowa.
4.Certification of completion for S130/S190 and S290 Wildland Firing Training.
5.CPR/First Aid certification

Essential Functions and Responsibilities:

1.Works alone or with minimal supervision from the Roadside Vegetation Manager at times.
2.Assists with the implementation of all aspects of integrated vegetation management. Duties include, but not limited to; noxious and invasive weed control, brush control and prairie management.
3.Operates appropriate equipment to carryout brush and weed control including the wise use of chemical pesticides.
4.Supervise seasonal employee(s).
5.Assists with planning and conducting prescribed prairie burns.
6.Maintains spray, planting and maintenance records (for all shop equipment).
7.Performs routine and preventative maintenance on department equipment and facilities.
8.Stays progressive and is involved in learning the latest trends in IRVM, natural resource

management and safety by attending and participating in meetings, conferences and workshops; as appropriate.
9.Performs other duties as assigned.

Essential Technical Skills:

1.Strong organization skills
2.Good oral and written communication skills
3.Ability to utilize Microsoft office programs (word, Excel, PowerPoint, Publisher)
4.Knowledge of native and introduced plant species including identification
5.Ability to work well with the public and private sectors on diverse roadside projects
6.Knowledge of wildlife management and conservation practice related to roadsides
7.Ability to operate and maintain equipment and implements
8.Ability to multi-task and prioritize job activities to achieve maximum results

Physical Demands/Work Environment:
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. Ability to routinely talk, hear; use hands and fingers, grasp, handle or feel; push or pull and reach with hands and arms; stand, walk, reach, sit, kneel, stoop, balance, climb, and routinely lift, carry (25-60lbs), push and pull objects weighing 50-100 pounds for extended periods of time. Ability to operate various types of vehicles, tools, machinery and equipment including but not limited to; tractors, mowers, chainsaws, pickups, straight trucks, trailers, skid loaders, tree planters, prescribed fire equipment, hand tools, seeders, and chemical spray equipment. Ability to work outdoors in extreme hot, cold, rainy, snowy, and windy weather conditions and be exposed to chemicals, allergens, insects, dust, fumes, smoke, and loud noises.

C. Iowa Code and Sections

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 rights-of-way which include drainage ditch areas.
2. On rights-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. This also includes the secondary roads in Iowa and has been extended to July 15.

314.19 RESEEDING OPEN DITCHES

The department shall have the topsoil of each open ditch along the side of a highway reseeded with prairie grass seed and the seed of other adapted grass and legumes including native grass species after the construction, reconstruction, improvement, repair, or maintenance of a highway whenever feasible.

314.21 LIVING ROADWAY TRUST FUND.

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 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-ways. 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 toward 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.

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 planting 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 ordinances, 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-ways.

3. a. Moneys 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. Moneys 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 conditions 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 integrate roadside vegetation management.

(5) Reviewing applications for funding assistance.

(6) Securing funding for research and 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 from 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 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.

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 the 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 area 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-ways, parks and recreation areas, converted railroad right-of-ways, state board of regents' property, lands 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.

317.11 WEEDS ON ROADS—HARVESTING OF GRASS

1. The county boards of supervisors and the state department of transportation shall control noxious weeds growing on the roads under their jurisdiction. Spraying for control of noxious weeds shall be limited to those circumstances when it is not practical to mow or otherwise control the noxious weeds.

2. Nothing under this chapter shall prevent the landowner from harvesting, in proper season on or after July 15, the grass grown on the road along the landowner’s land except for vegetation maintained for highway purposes as part of an integrated roadside vegetation management plan which is consistent with the objectives in section 314.22.

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.

318.8 PERMIT REQUIRED

A person shall not excavate, fill, or make a physical change within a highway right-of-way

without obtaining a permit from the applicable highway authority. At the request of a permittee, a modification may be granted in the discretion of the highway authority. Work performed under the permit shall be performed in conformity with the specifications prescribed by the highway authority. If the work does not conform to permit specifications, the person shall be notified to make the conforming changes. If after twenty days the changes have not been made, the highway authority may make the necessary changes and immediately send a statement of the cost to the responsible person. If within thirty days after sending the statement the cost is not paid, the highway authority may institute legal proceedings to collect the cost of correction. A violation of the permit specifications shall be considered a violation of section 318.3. A public utility subject to section 306A.3 is exempt from this section.

CHAPTER 481B
ENDANGERED PLANTS AND WILDLIFE

Referred to in §232.8, 455A.4, 455A.5, 456A.14, 456A.24, 481A.1, 481A.130, 481A.134, 481A.135, 481A.145, 483A.32, 805.16, 903.1

This chapter not enacted as a part of this title; transferred from chapter 109A in Code 1993

See §481A.134 and 481A.135 for point system and additional penalties

481B.1 Definitions.

As used in this chapter:

1. *"Commission"* means the natural resource commission.
2. *"Director"* means the director of the department of natural resources.
3. *"Endangered species"* means any species of fish, plant life, or wildlife which is in danger of extinction throughout all or a significant part of its range. "Endangered species" does not include a species of insect determined by the commission or the secretary of the United States department of interior to constitute a pest whose protection under this chapter would present an overwhelming and overriding risk to humans.
4. *"Fish or wildlife"* means any member of the animal kingdom, including any mammal, fish, amphibian, mollusk, crustacean, arthropod, or other invertebrate, and includes any part, product, egg, or offspring, or the dead body of parts thereof. Fish or wildlife includes migratory birds, nonmigratory birds, or endangered birds for which protection is afforded by treaty or other international agreement.
5. *"Import"* means to bring into, or introduce into, or attempt to bring into, or attempt to

introduce into, any place subject to the jurisdiction of this state.
6. *"Person"* means person as defined in section 4.1, subsection 20.
7. *"Plant"* or *"plant life"* means any member of the plant kingdom, including seeds, roots, and other parts thereof.
8. *"Species"* includes any subspecies of fish, plant life, or wildlife and any other group of fish, plants, or wildlife of the same species or smaller taxa in common spatial arrangement that interbreed or cross-pollinate when mature.
9. *"Take"*, in reference to fish and wildlife, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect and it includes an attempt to engage in any such conduct.
10. *"Take"*, in reference to plants, means to collect, pick, cut, dig up or destroy in any manner.
11. *"Threatened species"* means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
[C77, 79, 81, §109A.1]
86 Acts, ch 1245, §1856, 1857
C93, §481B.1
481B.2 Cooperation with federal government.
The commission shall perform those acts necessary for the conservation, protection, restoration, and propagation of endangered and threatened species in cooperation with the federal government, pursuant to Pub. L. No. 93-205, and pursuant to rules promulgated by the secretary of the interior.
[C77, 79, 81, §109A.2]
C93, §481B.2
2006 Acts, ch 1010, §124
481B.3 Investigations.
The director shall conduct investigations on fish, plants, and wildlife in order to develop information relating to population, distribution, habitat needs, limiting factors, and other biological and ecological data to determine management measures necessary for their continued ability to sustain themselves successfully. On the basis of these determinations and other available scientific and commercial data, which may include consultation with scientists and others who may have specialized knowledge, learning, or experience, the commission shall pursuant to chapter 17A promulgate a rule listing those species of fish, plants, and wildlife which are determined to be endangered or threatened within the state. The commission shall review the state list of endangered and threatened species at least every two years and may amend the list.
[C77, 79, 81, §109A.3]
C93, §481B.3
Referred to in §481B.4, 481B.5, 481B.6
481B.4 Programs.
The director shall establish programs, including acquisition of land or aquatic habitat, necessary for the management of endangered or threatened species.
In carrying out the programs authorized by this section, the commission may enter into cooperative agreements with federal and state agencies, political subdivisions of the state, or with private persons for the administration and management of any area or program established under this section or for investigation as outlined in section 481B.3.
[C77, 79, 81, §109A.4]

C93, §481B.4
481B.5 Prohibitions.
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:
1. 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.
2. 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.
3. The United States list of endangered or threatened plants as contained in 50 C.F.R. pt. 17 as amended to December 30, 1991.
4. 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.
[C77, 79, 81, §109A.5]
92 Acts, ch 1133, §1, 2
C93, §481B.5
2003 Acts, ch 108, §89
Referred to in §805.8B(3)(e)
For applicable scheduled fines, see §805.8B, subsection 3, paragraph e
481B.6 Species not on list.
The commission may, by rule, treat any species as an endangered species or threatened species even though it is not listed pursuant to section 481B.3 if it finds that the species so closely resembles in appearance a species which is listed pursuant to section 481B.3 and that enforcement personnel would have substantial difficulty in attempting to differentiate between the listed and unlisted species, and the effect of this substantial difficulty is an additional threat to an endangered or threatened species, or finds that the treatment of an unlisted species will substantially facilitate the enforcement and further the intent of this chapter.
481B.7 Special care to ensure survival.
The director may permit the taking, possession, purchase, sale, transportation, importation, exportation, or shipment of endangered or threatened species which appear on the state list for scientific, zoological, or educational purposes, for propagation in captivity of such fish, plants, or wildlife, to ensure their survival.
[C77, 79, 81, §109A.7]
C93, §481B.7
481B.8 Damage to property or human life.
Upon good cause shown and where necessary to reduce damage to property or to protect human health, endangered or threatened species found on the state list may be removed, captured, or destroyed, but only pursuant to a permit issued by the director.
[C77, 79, 81, §109A.8]
C93, §481B.8
481B.9 Exemptions.
A species of fish, plant, or wildlife appearing on any of the lists of endangered species or threatened species which enters the state from another state or from outside the territorial limits of the United States may enter, be transported, possessed, and sold in accordance with

rules adopted by the commission.
[C77, 79, 81, §109A.9]
92 Acts, ch 1133, §3
C93, §481B.9
481B.10 Penalties.
Whoever violates any of the provisions of this chapter shall be guilty of a simple misdemeanor.

D. Hardin County Noxious Weed Policy

HARDIN COUNTY
NOXIOUS WEED POLICY

INTEGRATED ROADSIDE VEGETATION MANAGEMENT

February 26th, 2018

This policy addresses the control of invasive and noxious weeds within the Hardin County Secondary Road System public right of way. The County is required to control Primary and Secondary noxious weeds as listed in the Code of Iowa, Chapter 317(see appendix A).

Hardin County Board of Supervisors approved an Integrated Roadside Vegetation Management Program (IRVM) to better serve the public by using an integrated approach to roadside vegetation maintenance.

The IRVM Department is also responsible for upholding the Iowa Weed Law (Chapter 317, code of Iowa) within Hardin County. The County Weed Commissioner (IRVM director) oversees the control of noxious weeds on all public and private property. Controlling noxious weeds is an important aspect of responsible land management. If noxious weeds are left uncontrolled they can cause severe economic and environmental loss.

The ultimate purpose of any Roadside Vegetation Management program is to provide a safe, healthy, and environmentally sustainable roadway, to preserve and improve both aesthetics and native biodiversity along the county's secondary road system. IRVM is a program for accomplishing these objectives in the most economically and environmentally responsible manner possible. The IRVM program is based on the belief that Hardin County's approximately 6,000 acres of rights of way represent a significant resource worth managing by the most sustainable methods possible to the greatest benefit to the county.

Noxious weeds are often exotic, introduced plant species which have no natural controls, spread rapidly, produce abundant seed, and can displace native plant communities. Noxious weeds quietly suffocate and lower diversity and quality of native plant communities. Once well established, most species of noxious weeds are very difficult, if not impossible to control or eradicate, as well as being expensive and time-consuming to do so. A primary weed management goal is to keep plants from producing seeds and becoming well established. Without proper control, most of these exotic species can quickly expand their populations and encroach into farm lands, lawns, pastures, roadsides, etc. Because most roadsides are highly disturbed, have unadaptable plant communities, and contain variable soil conditions, weeds quickly establish in roadside ditches. Roadsides can serve as an entry point for exotic species to rapidly travel into new and unwanted areas via vehicles, cargo, livestock, road maintenance equipment, etc.

WEED CONTROL

Hardin County will provide regular, ongoing training on various noxious weed control methods to employees. Training will be on topics such as: traffic and equipment safety, weed and plant identification, safe and correct herbicide application, IRVM fundamentals (i.e. prescribed burning, prairie planting, etc.), seeding and mowing techniques, etc. The County is committed to providing education to employees about right of way vegetation management and ways to improve roadsides. Training will be conducted by the Roadside Vegetation Manager or by using other training professionals.

Native Prairie Seeding-

Planting of native prairie vegetation will help control encroaching/establishment of brush and weeds.

Prescribed Fire-

Requires proper weather conditions, equipment, and management skills are required for prescribed burning. Rotational burning at the right time can boost native vegetation historically linked with fire to promote growth. Expanded use of spring and fall burning can help to eliminate seeds and stress weeds as they are not fire adapted. Burning can also be a valuable management tool to improve restored or remnant prairie areas, in place of, or in conjunction with, other weed management methods.

Mowing-

Mowing will be used to reduce speed proliferation, improve site distance at intersections and signs, and to reduce snow drifting. Limited mowing also decreases equipment maintenance, fuel requirements, and labor costs.

Chemical-

Spot spraying techniques are used to spot kill weeds. It targets specific weed problems like Canada and Musk thistle. Select herbicides used are effective, yet environmentally sensitive. In the past, blanket spraying killed or stressed many plants in the roadside resulting in weedy vegetation and water quality issues. It was also very expensive and has led to the chemical resistance of many wee species.

A critical tool employed by IRVM programs is a spot herbicide application program designed to control and reduce noxious weed populations. A spot application program:

1). Targets and treats specific noxious weeds,

2). Identifies growth characteristics and cycles,

3). Uses herbicides labeled specifically for that weed species and location,

4). Uses appropriate equipment to minimize drift and off-site movement,

5). Attempts to minimize disturbance to beneficial plant communities

NO SPRAY APPLICATION

No Spray Applications (see attached), are available from the Roadside Vegetation Management Biologist and online, allows property owners to manage vegetation within the right of way adjacent to their property without the use of spot herbicide applications. An Alteration of Right-of-Way Application must be filed in conjunction with the No Spray Application. Vegetation must be maintained in accordance with Hardin County Brush Control & Noxious Weed Policies and Iowa State Noxious Weed laws. The property owner shall request this annual application which explains the property owner's responsibilities in order to avoid herbicide application. Organic producers, beekeepers, etc. are encouraged to fill out the No Spray Application and post no spray signs at property borders. All land owners with sensitive crops are encouraged to register such sites with the State of Iowa at http://www.fieldwatch.com/fieldwatch-state-registries/.

CONCLUSION

Hardin County needs to take a strong stand to control weed invasion from the right of way onto private land, and weeds from private lands encroaching into the right of way. This policy is proposed because of the need to proactively control noxious weeds in accordance with Iowa's Noxious Weed Law and Board of Supervisors' Resolutions. Weed control in the past has been a subject for many debates. Using all of the weed management techniques outlined in this policy, Hardin County's Integrated Roadside Vegetation Management Program can provide a more economically maintained, environmentally friendly roadside for residents to enjoy.

NOXIOUS & INVASIVE WEED SPECIES TO BE CONTROLLED

The Iowa Department of Agriculture and Land Stewardship and the Code of Iowa have declared 27 species of plants as noxious weeds which need to be controlled. The following weeds have been acknowledged as noxious by the State of Iowa:

Iowa Code Section 317.1A Noxious weeds.

1. The following weeds are hereby declared to be noxious and shall be divided into two classes, as follows:

a. Primary noxious weeds, which shall include:

(1) Quack grass (Elymus repens).
(2) Perennial sow thistle (Sonchus arvensis).
(3) Canada thistle (Cirsium arvense).
(4) Bull thistle (Cirsium vulgare).
(5) European morning glory or field bindweed (Convolvulus arvensis).
(6) Horse nettle (Solanum carolinense).
(7) Leafy spurge (Euphorbia esula).
(8) Perennial pepper-grass (Cardaria draba).
(9) Russian knapweed (Acroptilon repens).
(10) Buckthorn (Rhamnus spp., not to include Frangula alnus, syn. Rhamnus frangula).
(11) All other species of thistles belonging in the genera of Cirsium and Carduus.

b. Secondary noxious weeds, which shall include:

(1) Butterprint (Abutilon theophrasti) annual.
(2) Cocklebur (Xanthium strumarium) annual.
(3) Wild mustard (Sinapis arvensis) annual.
(4) Wild carrot (Daucus carota) biennial.
(5) Buckhorn (Plantago lanceolata) perennial.
(6) Sheep sorrel (Rumex acetosella) perennial.
(7) Sour dock (Rumex crispus) perennial.
(8) Smooth dock (Rumex altissimus) perennial.
(9) Poison hemlock (Conium maculatum).
(10) Multiflora rose (Rosa multiflora).
(11) Wild sunflower (wild strain of Helianthus annuus L.) annual.
(12) Puncture vine (Tribulus terrestris) annual.
(13) Teasel (Dipsacus spp.) biennial.
(14) 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

INVASIVE WEED SPECIES WHICH MERIT MANAGEMENT CONSIDERATION

New exotic weed pests are continually being discovered encroaching into the State of Iowa. Many of these weed species can be controlled early in the discovery phase, and before infestation. The IRVM Program and the County Weed Commissioner, while focusing on noxious weeds, also evaluates the spread and the environmental impacts of new weeds on Hardin County. If a weed species is considered to have a significant detrimental impact on the resources of Hardin County, the Weed Commissioner can seek to have that species declared noxious by the Board of Supervisors. That weed species can then be included as part of the overall weed management plan.

This is a list of plant species which are considered invasive or aggressive by the Hardin County IRVM Program and County Weed Commissioner. These species are unsuitable for use or growth in roadside plant communities. Because of concern for their spread into public right of ways, planting these species in adjacent private lands is discouraged. This plant species list is not all-inclusive, and may be edited to include or remove certain species as conditions or situations dictate.

Pampas Grass (Miscanthus species)
Garlic Mustard (Alliaria petiolate)
Crown Vetch (Coronilla varia)

E. No Spray Application

Integrated Roadside Vegetation Management

1215 Edgington Ave Suite 1 Eldora, Iowa 50627
Phone: 641-849-0333

No Spray Application **Application No.: S-_____**

APPLICANT INFORMATION (PLEASE PRINT CLEARLY OR TYPE)

Applicant Name: _____ Owner Name (if different): _____
Mailing Address: _____
(Street Address) (City) (State) (Zip)

Phone Number: _____ Cell Phone No.: _____

NO SPRAY LOCATION * Please Include Map of Area

Address/Road Name: _____Township: _____ Sec.: _____

Location Description: _____
(Example: "Centered on house" or "From 200' N of driveway to 100' S of driveway")

Side of road (North, South, East, or West): _____ Length of location: _____FT.

Applicant Responsibilities:

1. Maintenance and installation of approved 'No Spray' signage.
   a. Applicants are recommended to contact 811 or 1-800-292-8989 prior to any sign installation or digging.
   b. Applicants must pick up No Spray signage from the IRVM shop, 1704 5th Ave., Eldora, IA 50627.
2. Signs are to be mounted at least four (4) feet above the ground line and placed within three (3) feet of the right-of-way line.
3. Control undesirable vegetation in accordance with Chapter 317 of the Iowa Code. Also includes brush and trees that may limit site distance, compromise utilities or the integrity of the road system.
4. A completed Work in the Right-of-Way Permit must also be on file with the Hardin County Engineer's Office for all work completed within the right of way.

If Applicant does not control noxious weeds, trees and brush within designated No Spray Location the County may cut, spray, or otherwise control the noxious weeds, trees and brush according to County practice and this Application shall be terminated. This agreement does not prohibit herbicide applications, or brush removal by utility companies or other entities.

Applicant Signature: _____ Date: _____

FOR COUNTY USE ONLY

Special Provisions: _____
_____
_____

Signs: _____ @ $15.00 per sign Additional Fees: $_____
Authorized By: _____ Date: _____

F. Alteration of Right of Way Permit

Hardin County IRVM
1704 5th Ave
Eldora, IA 50627
Telephone: (641) 849-0333
Email: mdohrman@hardincountyia.gov

APPLICATION FOR ALTERATION OF PUBLIC RIGHT-OF-WAY

Application No.: S-____

APPLICANT INFORMATION (PLEASE PRINT CLEARLY OR TYPE)

Applicant Name: _____ Owner Name (if different): _____

Mailing Address: _____
(Street Address) (City) (State) (Zip)

Phone Number: _____ Cell Phone No.: _____

LOCATION OF PROPOSED ALTERATION ***Please Include Map of Area**

Address/Road Name:_____Township:_____Sec.:_____

Description of alteration: _____

_____

_____

Application Requirements:

1. The work described in this Application shall be completed as proposed in compliance with the requirements and special provisions within the time frame stated for said request. Failure on the part of the Applicant to abide by the requirements or in altering the work described as stipulated and within the time frame stated shall render this Application and request null and void. The Applicant shall indemnify and agrees to save harmless Hardin County from any and all causes of action, suits at law or in equity, or losses, damages, claims, or demands, and from any and all liability and expenses or what so ever nature for, on account of or due to the acts or omissions of said applicant's officers, members, agents, representatives, contractors, employees or assigns arising out of or in connection with its (or their) use or occupancy of the public highway under the conditions and requirements of this application.
2. The work to be required and permitted within this agreement shall include and be limited to; control of noxious weeds, and brush. Work shall be completed without causing unnecessary disturbance or physical change to the right-of-way.
3. The Applicant shall seed and mulch all disturbed areas within the roadway right-of-way and shall be responsible for the vegetative cover until it becomes well established. When necessary for the maintenance of the Right-of-Way, prescribed burning will be conducted by the Hardin County IRVM department upon request.
4. The Applicant is responsible for contacting Iowa One-Call 811or (1-800-292-8989) prior to any sign installation.
5. THIS APPLICATION DOES NOT ALLOW ANY CONSTRUCTION IN THE RIGHT-OF-WAY. Any alteration in the Right-of-Way NOT pertaining to vegetation, please contact The Hardin County Engineers Office.

In signing and accepting this Application for Alteration of Public Right-of-Way I agree to perform alteration in accordance with the above stated requirements and any special provisions. The applicant shall be notified of non-conforming work and be required to make the necessary changes or be responsible for any costs required to correct any deficiencies.

Applicant Signature: _____ Date: _____

FOR COUNTY USE ONLY
Special Provisions: _____

_____

G. Seed Mixes and Rates

Species included

Big bluestem 1.5 lbs./ac	Purple coneflower 1.6 oz./ac
Sideoats gramma 2 lbs./ac	Rattlesnake master 2.4 oz./ac
Canada wild rye 2.5 lbs./ac	Ox-eye sunflower 4 oz./ac
Little bluestem 2 lbs./ac	Roundheaded bushclover 1 oz./ac
Indiangrass 1.5 lbs./ac	Wild bergamot 0.6 oz./ac
Partridge pea 8 oz./ac	Foxglove penstamen 0.5 oz./ac
Leadplant 0.5 oz./ac	Large flowered penstemon 0.5 oz./ac
Butterfly milkweed 0.8 oz./ac	Prairie blazingstar 0.8 oz./ac
Swamp milkweed 1 oz./ac	Yellow coneflower 4 oz./ac
New England aster 0.3 oz./ac	Blackeyed susan 3 oz./ac
Canada milkvetch 0.8 oz./ac	Compass plant 0.5 oz./ac
White wild indigo 0.5 oz./ac	Stiff goldenrod 0.3 oz./ac
Purple prairie clover 4 oz./ac	Ohio spiderwort 0.8 oz./ac
Showy tick trefoil 0.5 oz./ac	Hoary vervain 0.5 oz./ac
Goldenrod 0.8 oz./ac	Rough dropseed 16 oz./ac

H. Planting Record

Planting Record Sheet

Hardin County IRVM

708 16th Street Eldora, IA 50627

Date:_____ Time:_____ Personnel:_____

Work Order Number:_____ Temperature:_____

Cloud Cover: Clear Partly Cloudy Cloudy Wind/speed:_____Rain:_____

Planting Type: Roadside, Other _____(Local Native)(Non-Local Native)(Non-Native)

Site Condition: Cleanout, Regrade, Other: _____ Soil: Wet, Dry, Other_____

Seed Source and Description:

ISTEA Mix: Forbs: Amt/Yr:_____ Grasses: Amt/Yr:_____

Hand Harvest:_____

Cover Crop: _____

Cool Season Species:_____

Special Mixes:_____

Planting Method: Drill, Broadcast, Hand, Hydroseed, Other _____

Quantities used: Mulch (amt)_____ Tack (kind/amt)_____

Location of planting: Twp_____ Sec_____ 911 address_____

Map of planted area:

Acres:_____

Comments:

I. Prescribed Fire Notice

Hardin County, Iowa

Integrated Roadside Vegetation Management (IRVM)

Press Release for Immediate Distribution
Fall Prescribed Fire Season is Starting in Hardin County

Date: October 4, 2017

Starting the week of October 10th, Hardin County's IRVM department will be conducting prescribed burns throughout the county. The burns will be done as weather and site conditions permit, during the month of October, by the IRVM staff who are certified in wildland firefighting. Prescribed fires are conducted under a strict and predetermined set of parameters that include temperature, windspeed and direction, relative humidity, current and expected forecast and fuel conditions. Before burning, the roadside manager ensures that all the parameters are within their prescribed ranges, so the fire can be conducted safely, and the objectives can be met. The purpose of prescribed fire is to help eliminate brush from the roadsides, maintain and improve wildlife habitat and native plant communities that have been planted in the county right-of-way.

Fire is a natural ecological process in Iowa and is used to simulate the historic fires that burned naturally or were set intentionally by Native Americans. In addition to using prescribed fire to restore all-natural process, they are an important tool for stimulate native vegetation growth and seed production, improve wildlife habitat and provide valuable opportunities for training and scientific research, managing invasive species, and reducing wildfire dangers. Many of the plants and animals of Iowa's prairies are fire adapted. They need periodic fires to thrive.

Hardin County's Integrated Roadside Vegetation Management department protects and maintains over 6,000 acres of roadsides spread over 2,000 miles of county roads.

Contact Person:
Megan Dohrman

Hardin County IRVM Department
1704 5th Ave
Eldora, IA 50627
Office Phone (641) 939-8263
Mobile Phone (641) 849-0333

J. Prescribed Fire Plan

Hardin County IRVM Prescribed Burn Plan

Date

Road or Area Township Section

Burn Purpose (brush or weed control, stimulate vegetation, pre-construction, etc.)

Description of burn

Burn History Site History

Crew Leader Crew

Acres or Miles Fuel Load and Type

Equipment

Utilities or Hazards

Special Precautions

Emergency Information

Fire Department Police or Sheriff

Neighbors

Pre-burn Checklist

Complete the following:

Necessary prep. ☐ Smoke mgmt. plan ☐ Weather checked and recorded ☐

Equipment inspected ☐ Personnel briefed ☐ Notifications made ☐

Conditions at Ignition

Time	Temp.	R. Humidity	Wind Speed	Wind Direction

Conditions at Completion

Time	Temp.	R. Humidity	Wind Speed	Wind Direction

Comments

Burn Plan Detail

Ignition technique

Smoke Management Plan

Mop up instructions

Contingency Plans

Attached NOAA hourly weather report (A)

Attached aerial map (B)
(incl. boundaries, access, smoke sensitive areas, species of concern, firebreaks, adjacent land use/fuel, nearby utilities)

K. Spray Record

Spray Record
Hardin County
Integrated Roadside Vegetation Management
License #: 0713-000-S-PO

Date:_____ Begin Time:_____End Time:_____ Vehicle #:_____

Target Area: ROW (Road name: _____) Parks Private Other_____

Personnel spraying (incl. certificate #):_____
_____

Target Species: _____

Developmental State: Rosette Bud Flower Seeded Other_____

Environmental Conditions:

Temperature:_____ Humidity:_____ Wind Speed/Direction:_____

Cloud Cover: Clear Partly Cloudy Cloudy Dominant Vegetation:_____

List of all Pesticides, Surfactants and Defoamers missed (include full label name):

_____

_____

_____

Mixture Ratio:

Total Gallons of Water: _____

Pesticide:_____ Amount:_____

Pesticide:_____ Amount:_____

Pesticide:_____ Amount:_____

Other:_____ Amount:_____

Total Mixture Applies (gallons): _____ Area treated:_____

Townships:_____

Sections: _____

Attach map of treated area.

L. Grants

Fiscal Year	Project Name	Dot Project Number	Awarded Amount	Project Summary	Reap Award Portion
1990	Special Equipment	90-42-LRTF-001	$6,543.75	Equipment - Bowie mulch blower	$3,663.50
1990	Special Seeding	90-42-LRTF-002	$2,197.81	Special project hwy S-56	$1,229.77
1990	Special Seed Production	90-42-LRTF-003	$1,635.00	Equipment for diverse plantings	$914.60
1991	Native seed	90-42-LRTF-104	$2,265.00	Hwy D-35 excess right-of-way triangles	$1,607.15
1992	Equipment - No-Till	90-42-LRTF-201	$2,320.00	Equipment attachment for no-till	$1,275.00
1993	Equipment - Fire Pumper	90-41-LRTF-301	$5,108.00	Smeal fire unit	$2,348.68
1995	Kestrel project	90-42-LRTF-501	$361.12	Ten kestrel nest boxes, built and installed	$147.06
1995	Equipment - Hydro seeder	90-42-LRTF-502	$4,921.00	Turbo turf hydroseeder, split with Butler Co.	$2,016.61
1998	Bluebird boxes	90-42-LRTF-801	$202.00	Special project	$93.94
2000	Equipment - Hydro seeder	90-42-LRTF-001	$12,550.00	Finn T90 hydroseeder	$6,274.00
2008	Equipment - Canon digital camera	90-42-LRTF-801	$134.98	Camera	$61.09
2009	Equipment - Brush chipper	90-42-LRTF-901	$10,000.00	Vermeer BC1500 brush chipper	$6,599.00
2012	Equipment - GPS/GIS	unknown	$1,359.20	Trimble Juno SC hand held GPS, arc pad 10	$597.05
2015	Equipment purchase	unknown	$280.00	Electronic equipment - Digital camera	$150.20

2015	**Equipment purchase**	**unknown**	**$504.75**	**Equipment - Fire packs**	**$271.57**
2016	**IRVM Storage Building**	**90-42-LR16-(319)**	**$15,000.00**	**IRVM Storage Building**	**$8,504.00**
2017	**Prescribed Fire Equipment**	**90-42-LR17-(318)**	**$1,636.56**	**Fire equipment and safety gear**	**$882.74**

M. Hardin County Brush Policy

Hardin County Brush Control Policy

Integrated Roadside Vegetation Management (IRVM)

February 26th, 2018

It is the policy of Hardin County that the vegetation of its roadsides be preserved, planted, and maintained to be safe, visually attractive, ecologically integrated, and useful for many purposes. (See Iowa Code section 314.22 for full statement of the purpose of this policy.)

This policy addresses the procedures and methods for the proactive management of woody vegetation adjacent to roads under the jurisdiction of the Hardin County Board of Supervisors. It is the duty of the Board of Supervisors, Hardin County Secondary Roads Department and the Hardin County IRVM Department to maintain a county road system that is safe and convenient for public travel and to manage roadside resources with an eye toward, promotion and preservation of beneficial plant communities.

This policy represents the County's authority, in its discretion, to:

- Cut and/or spray any woody vegetation in the right-of-way which pose a current or future hazard to the traveling public. Such safety threats may include:
  - Snow traps (drifts, drifting) and/or shading of the road.
  - Site distance problems relating to road signs or intersections.
  - Conditions that impede maintenance of or improvements to the right-of-way.
  - Width or height restrictions imposed on vehicles or equipment using the roadway.

  Small/medium woody materials cut or sprayed will be left to decompose in the right-of-way.

- Burn roadside vegetation to destroy small brush and stimulate desirable vegetation.

Hardin County's Integrated Roadside Vegetation Management Program, with assistance from Secondary Roads Department, will use several management techniques to provide a safe and environmentally sound roadway.

RIGHT-OF-WAY AREAS TO BE TREATED

Tree and brush management priority shall be by road system, with the primary roads having the highest priority. Management priority shall be as follows: asphalt or concrete mats (paved), granular surface roads (gravel), and lastly, level B maintenance roads, in that order.

Along all county roads, paved, gravel, and dirt, the County's normal procedure will be to clear the entire right-of-way, utilizing level cuts as low as possible, including immediate stump treatment, with a few general exceptions provided for trees and shrubs positioned near dwellings. (For exceptions, refer to the Tree and Shrub Plantings section of this policy.)

There are certain conditions within the right-of-way in which brush or trees present clear hazards. In these situations, the brush and trees which are near the road surface must be removed. Trees within the right-of-way but farther than 30 feet from the road surface present reduced hazard and may be considered individually.

Areas in which brush and trees must be managed to promote safety:

1). All brush and trees on the foreslope and ditch bottom must be removed.
2). Brush at intersections must be removed to a minimum distance of 350 feet to provide visibility of hazards or oncoming vehicles.
3). Brush must be removed around traffic warning signs to a minimum distance of 350 feet, allowing viewing at typical road speeds.
4). Brush on inside horizontal curves at points obscuring driver vision.
5). Brush on outside horizontal curves and trees in a target position for errant vehicles.
6). Trees and limbs overhanging road surfaces, creating icing or snow drifting hazards, providing too little vertical or horizontal clearance, or which cause a vehicle to move out of the proper lane must be either pruned or removed.

Trees/brush will also be considered for removal in these instances:

1). Accident frequency (evidence of vehicle/tree accident), either from actual reports or scarring.
2). Trees/brush deemed problem species which encourage the spread of disease or which have been designated by USDA/IDALS or Hardin County as invasive, noxious, or undesirable.
3) Violating Iowa Code Chapter 318 (obstructions in the ROW) by planting trees in the right-of-way.

If the following conditions exist within the right-of-way, it may be possible to retain trees that would otherwise be considered for removal:

1). There are trees of endangered/threatened species, as defined by state or federal listings,
2). Trees behind guardrails, providing a minimum of 4 feet of clearance from guardrail to tree,
3). Trees within the right-of-way which are greater than 30 feet from the traveled portion of the road, or
4). Where removal would adversely affect wetlands or water quality.
5). Approved tree or shrub species, which, when located on the backslope, and are not causing drifting, icing, visibility problems, or other road hazards, should be left for wildlife habitat.

Situations will be inspected individually by Hardin County's Roadside Vegetation Manager.

HARDIN COUNTY BRUSH CONTROL POLICY SUMMARY

Locations where brush and trees are managed in the county right-of-way

1. ALL brush and trees will be removed from the shoulder and ditch bottom.

2. ALL brush and trees will be removed at least 350 feet from all intersections and in front of traffic warning signs.

3. ALL brush and trees on inside or outside corners.

4. ALL brush and trees in locations:
   - Obstructing driver vision.
   - Causing drifting or icing hazards.
   - Which made a vehicle move out of its appropriate travel lane.
   - Which are in a target position for errant vehicles will be removed or pruned.

5. Brush and trees overhanging the traveled portion of the road (25 feet minimum height required).

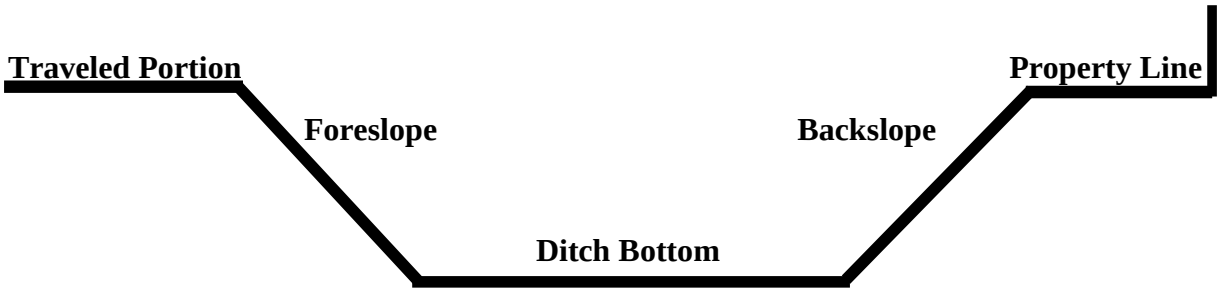
6. Brush located on the backslope of the road which will exceed 4 inches in diameter at maturity will be removed (i.e. Elm, Mulberry, Oak, Boxelder, etc.).

Possible Suitable Locations for Brush and Trees in County Right-of-way

1. Brush and tree species with less than 4-inch stem diameter at maturity, which when located on the backslope, and are not causing a visibility, drifting, icing or other problem, may be left. Requirements of #2 and #4 above must still be met for signs and intersections.

2. Brush and tree species with greater than 4-inch stem diameter at maturity, which when located greater than 30 feet from the traveled portion of the road and do not present a hazard for errant vehicles, will be considered individually for management.

3. Brush and trees behind guardrails with at least 4 feet of clearance between guardrail and tree.



Typical Road Cross Section and Locations

TREATMENT METHODS

Hardin County will provide regular, ongoing training on various brush and tree control methods to employees. Training will be on topics such as: traffic and equipment safety; tree and plant identification; safe and correct use of herbicide application, equipment and products; proper pruning techniques; and IRVM fundamentals including prescribed burning, prairie planting, seeding and mowing techniques. The county is committed to providing education to employees about right-of-way vegetation management and ways to improve roadsides. Training will be conducted by the Roadside Vegetation Manager or by using appropriate training professionals.

Mechanical-

Naturally occurring remnant prairies will have brush removed by hand. Reconstructed prairies will be subject to listed management methods, with the goal of avoiding disturbance to beneficial plant communities.

Physical removal of trees and brush with large equipment (excavators, bulldozers, etc.), or hand cut with chainsaws, etc. Brush control may be either by mechanical means or hand-cutting consistent with the physical and cost restraints of limited equipment, time, personnel, and funds for this purpose.

Mechanical brush cutters will be used in rural non-residential areas with small scattered brush and trees where debris will be allowed to lie on slopes. Trees larger than 8 inches in diameter will be cut with chain saws, or excavator, and will be cut flush to the ground whenever possible. Large side branches will be trimmed to the main trunk of the first lateral branch.

Mowing-

Removal of small trees or brush and chemically treating stumps (when practical) to prevent resprouting. This may entail mowing of foreslope, ditch bottom, or backslope which are infested with brush and small trees.

Prescribed Burning-

Using controlled fire to stunt or kill small brush species and to prevent woody encroachment into remnant or established prairie locations. This is not effective on larger trees (i.e., > 2-3 inches diameter).

Chemical-

No foliar application for woody species control will be done in naturally occurring remnant prairies.

Using a spot herbicide application program with IRVM goals to control small brush within the right-of-way. The spot application is designed to target specific problem species to avoid disturbance to more beneficial plant communities. The herbicides used will be only those approved by appropriate state and federal agencies for this purpose and in this location. All applicators shall receive annual training on herbicide use and safety, and plant identification. Herbicides shall be applied only by state licensed and properly trained or supervised personnel, using appropriate equipment, and shall be applied in a timely fashion, with the intent of killing, or significantly retarding, woody plant growth. This includes cut stump, frill, basal bark, and limited foliar applications. Foliar applications shall be limited to spot spraying of small individual brush in problem locations. No blanket foliar spraying will be done. Foliar applications will only be used in areas where other treatment methods are ineffective.

Hardin County is committed to the wise use of herbicides on its roadsides and being consistent with employee and environmental safety and with regulations controlling the use of roadside application of pesticides in the state.

Competitive Seeding-

Planting of native prairie vegetation or other hardy perennial plants, where feasible, to help control encroaching brush and weeds and to reduce long-term area maintenance costs. This method shall be used in large brush removal areas as time and funds permit.

Property Owners-

No Spray Applications, along with an Alteration of the Right-of-Way Applications, are available in order to allow the property owner to manage vegetation within the right-of-way adjacent to their property without the use of spot herbicide applications. Vegetation must be maintained in accordance with Hardin County Brush Control and Noxious Weed Policies. The property owners must annually fill out the No Spray Application (found online or obtained from the IRVM department) and have completed an Alteration of the Right-of-Way Application (found online or obtained from the IRVM Department). Organic producers, beekeepers, etc. are encouraged to obtain a No Spray Application and post official signs at property borders. All land owners with sensitive crops are required to register such sites with the State of Iowa at: http://www.fieldwatch.com/fieldwatch-state-registries/

TREE AND SHRUB PLANTINGS

No tree or shrub species will be planted in naturally occurring remnant or reconstructed prairies.

Trees or shrubs shall not be planted or allowed to grow in the right-of-way within 30 feet of the traveled portion of a public road (Iowa Code 318).

Existing trees or shrub plantings adjacent to a home or dwelling which have been planted in close proximity to the roadway, or are causing a vision problem, i.e. inside curves, intersections, or are causing a snow drifting or icing problem, will be removed. Landowners shall have the option to transplant these trees or shrubs, at their expense, out of the public right-of-way adjacent to their property. Landowners shall be notified to remove these trees or undesirable vegetation, with 30 days to complete the work (unless otherwise specified). This gives the landowner ample time to move the trees or vegetation to a more desirable location. If, after 30 days, the work has not been satisfactorily completed, a follow up letter will be sent specifying the removal will be done by Hardin County when conditions permit.

1. Trees and shrubs that extend into residential yards or acreages whose bases are inside the right-of-way line by no more than 5 feet may remain, if so desired by the landowner, but limbs must be pruned back to the nearest lateral branch, so that limbs extend no further than 8 feet into the right-of-way. A written notice of the County's intended work will be sent or delivered to these property owners a minimum of seven (7) days prior to the commencement of work. This notice will provide the landowner an opportunity to arrange for his/her own trimming and/or to request any larger material for firewood. (Landowner will be responsible for cutting wood into lengths and removing from ditch.)

2. Side trimming of limbs of trees will be done by pruning them back to no more than eight (8) feet from the right-of-way line when the tree base is actually outside the right-of-way.

OTHER CONSIDERATIONS

An ongoing inventory of roadside vegetation resources and problems will be developed in order to facilitate better management. The inventory will contain information on prairie locations, areas of tree and brush infestations, noxious weed infestations, etc. This inventory process can help to identify areas which need special consideration and treatment, as well as problem areas which need attention. This inventorying process will also help to identify and protect naturally occurring remnant plant communities.

Trees/limbs within the right-of-way which are diseased/dead and could fall onto the roadway shall be removed. Trees which fall off private property onto the roadway will be removed/trimmed within the borders of the public right-of-way. Trees which fall off the public right-of-way onto private land will be removed by the County. The County assumes no liability for damages caused by, or removal of, said trees.

Brush and trees removed within the right-of-way will be handled differently depending on situation and location. Brush will be either: chipped into roadside, chipped and hauled away, left in roadside, buried, hauled away, or burned. Low impact control methods shall be used, if possible, in areas of naturally occurring native plant communities including prairies, savanna, and wetlands.

This policy is proposed because of the need to address woody plant species within the County Right of Way. There is a clear need to have a set policy in regards to tree and brush removal, which is based on public safety, and sound environmental management practices. Using Integrated Roadside Vegetation Management to provide a proactive approach to brush and tree management is both publicly and environmentally friendly. Additionally, using several management tools for woody plant species control gives the IRVM program the flexibility needed to provide Hardin County with a safe and attractive roadside, along with improved wildlife habitat and erosion control.

N. Brush Spraying Notice

Hardin County, Iowa

Integrated Roadside Vegetation Management (IRVM)

Press Release for Immediate Distribution

Date: June 28, 2017

Contact Person:
Megan Dohrman
Hardin County IRVM Department
1704 5th Ave
Eldora, IA 50627
Office Phone (641) 939-8263
Mobile Phone (641) 849-0333

HERBICIDE BRUSH AND TREE SPRAYING PUBLIC ANNOUNCEMENT

Hardin County's Integrated Roadside Vegetation Management (IRVM) Department will begin herbicide brush spraying starting the week of July 10, 2017 (weather permitting) and end spraying the last week of September. This herbicide application is intended for brush and trees less than 10 feet tall, located in county right-of-way.

Brush and tree spraying will be done in sections. This year the IRVM department will work in Union and Providence townships.

All county employees spraying are trained and certified in strict conformance with the State of Iowa's requirements and the manufacturer's recommendations. Anyone who is interested in Material Safety Data Sheets (MSDS) for product information can contact The Roadside Vegetation Management Biologist, Megan Dohrman at (641) 939-8263.

11. APPROVAL

Hardin County Board of Supervisors

_____ Date: _____
Bj Hoffman, Chairman

IRVM Department

_____ Date: _____
Megan Dohrman, Roadside Vegetation Management Biologist

Hardin County Secondary Roads Department

_____ Date: _____
Taylor Roll, County Engineer

Hardin County Conservation Board

_____ Date: _____
Wes Wiese, Conservation Director

Hardin County LRTF Funding History through FY 2018

DOT Project Number	Applicant	Award	FiscalYear	Description	Type
DOTProjectNumber	**Applicant**	**Award**	**FiscalYear**	**Description**	**Type**
90-42-LRTF-001	Hardin County	$ 6,543.75	1990	Special Equipment	County
90-42-LRTF-002	Hardin County	$ 2,197.81	1990	Special Seeding	County
90-42-LRTF-003	Hardin County	$ 1,635.00	1990	Special Seed Production	County
90-42-LRTF-104	Hardin County	$ 2,265.00	1991	Native seed	County
90-42-LRTF-201	Hardin County	$ 2,320.00	1992	Equipment - No-Till	County
90-42-LRTF-301	Hardin County	$ 5,108.00	1993	Equipment - Fire Pumper	County
90-42-LRTF-501	Hardin County	$ 361.12	1995	Kestrel project	County
90-42-LRTF-502	Hardin County	$ 4,921.00	1995	Equipment - Hydro seeder	County
90-42-LRTF-801	Hardin County	$ 202.00	1998	Bluebird boxes	County
90-42-LRTF-001	Hardin County	$ 12,550.00	2000	Equipment - Hydro seeder	County
90-42-LRTF-801	Hardin County IRVM	$ 134.98	2008	Equipment - Canon digital camera	County