

Date: 2-27-2023

TO: Winneshiek County Board of Supervisors

FROM: Lee J. Bjerke, P.E. – Winneshiek County Engineer

The purpose of this report is to give the Board the background information as to why the current roadside management program was created and operates.

### **Background**

At the start of my career as County Engineer in 2000, I looked at all aspects of the Secondary Road operation for multiple reasons:

- To understand why we do it the way we do.
- To see if it could be improved from a service standpoint.
- To see if it could be improved from an efficiency standpoint.
- To see if it could be improved from a safety standpoint.
- To see if it could be improved from a direct cost standpoint.
- To find out if employees doing the work think it is the best option and get their feedback.

My belief has always been to find the balance of cost vs level of service that is reasonable for the crews to manage and be able to maintain the greatest safety for the public, and the crews themselves while doing the work.

Prior to 2017, roadsides were handled by the Foreman and the Superintendent as a mowing, spraying, drainage and tree cutting operation. Nobody on the crew had background in roadside management. The county owned a slide in “sprayer”. Employees would simply drive down the road with a “one size fits all chemical mixture” and spray everything in the ditch or where the wind would blow it.

During the winter months crews would cut trees when there was no snow to plow. If it snowed a lot, little would get cut. The work was typically done within district boundaries that the crews didn't cross.

My predecessor invested in a boom mower (became known as "the mangler") to try and get a better handle on the brush in the county. Many of the ditches are not conducive to having tractors climb down into them and mow everything with a side mower. The boom increased the reach of the mowers, both vertically and horizontally, and that was seen as a better way to handle many of the brush issues. It was not meant to be "the" answer, only another tool in the total answer. Staff was reassigned at that time to put full time work towards one of the roadside functions. The success was minimal because it only addressed one aspect of roadside. The machine became expensive to maintain and its use over time was greatly reduced and eventually eliminated.

Spraying was done by employees that were doing work in a manner that they felt, and were told, was the correct process to have the best maintained ditches. The problem, is not everything they were told and believed was accurate.

In a rather crude summation, I saw our roadside work as an exercise of rinse, lather, repeat with only spotty places of noticeable improvements.

Winneshiek County maintains over 11,000 acres of land that is associated to road right-of-way. Management of those 11,000 acres cannot be done with the endless cycle I mentioned above. There had to be a better way. Thus, I set out to find it. That ended up being years' worth of information and research. Be aware that I am an Engineer by trade. My background is not in ecology, biology, soil nutrients, animals, plants, insects, herbicides or most things that would be necessary background for a roadside manager.

### **The Information**

As I looked at roadsides, I talked with people and groups that had knowledge of the things I listed above: NRCS, DNR, Pheasants Forever, wildlife biologists, the Iowa Flood Center, County Conservations, farmers (both conventional and organic), along with other engineers and

roadside managers who have done work with improving roadsides. I ended up learning that roadsides do many vital things beyond just drainage and snow storage.

- 1) Drainage – Ditches are used to take water away from the road and adjoining lands to the rivers and streams the water is seeking to find. Proper vegetation will limit erosion and/or siltation of the ditches which creates disruption in the drainage process. It will also create more infiltration of water into the soils and less overland flow. In periods of more precipitation, these two characteristics help in reduction of flooding and associated damages.
- 2) Invasive Species – The county is charged with removing various invasive species of plants. The State and the County have lists of plants they feel are invasive. Landowners do not want these species on their property and thus the county must be diligent to remove these species from roadsides. Certain types of vegetation will not allow many invasive species from expanding or taking over an area. In some cases, specific vegetation cultures will even choke out the invasive species on their own.
- 3) Pollinators – It is backed by science that pollinators are disappearing and the negative impact to the environment is real. Roadsides can create a rather undisturbed long-term environment for the pollinators. Many organic farmers and others who grow much of their own food or food for sale, rely on the pollinators. The pollinators promote the good vegetation and do not support the bad vegetation simply in how they live their lives.
- 4) Obstructions and Road Shading– Winneshiek County’s number one accident is the single vehicle run off the road accident. When roads are designed, this type of crash comes to play with how the design will go. Most of the existing roads are not up to current design standards. Keeping obstructions (trees) out of the roadway is an issue of safety. Trees can and will stop vehicles instantly. Winneshiek County has much forested lands and those trees will spread into the right of way if not kept in check. Certain vegetation types can keep the trees at bay better than others.

In winter the sun is a road’s best friend. Chemicals or abrasive materials do much to improve roads, but the sun makes those chemicals work better and warms the roadway on its own. When trees are left to take over an area, the costs for winter maintenance goes up. The chances of crashes go up. The probability of injury goes up. Getting trees out and keeping them out is very important. Getting them out is the hard part from an effort

standpoint, there is no way around that. But keeping them out is made easier with a program that does the right things at the right time.

- 5) Endangered Species – Federal and State laws protect many endangered species, plant and animal. Whether it is the plants themselves or animals that live in the trees in the right-of-way, proper removal or mitigation must be done. This type of work is very well spelled out as to how it should be done. The difficult issue is knowing when these species exist so that the county does handle it properly. This is an important responsibility of a roadside manager.
- 6) Water Quality – Although many will say this is not relevant to roadsides, I disagree. With the proper vegetation in roadsides the impacts of drainage through the ditches reduces the negative impacts to water quality -- very much in line with the drainage points I made earlier. Farming and construction practices have changed over the years due to issues with water quality. Why not roadsides too?
- 7) Partnership with Landowners – The county has over 50 agreements with landowners to manage the roadsides adjacent to their property. These agreements save the county from costs in these roadside areas because the landowners do the work, as the agreements spell out, and that work is based on the county's roadside management principles and plan.
- 8) Long Term Cost – This is the biggest benefit of a good roadside program, and I have somewhat touched on this above. Winneshiek County's roadside program is still very young. Like anything new, the greatest costs are the startup. The Boards of Supervisors that began this program knew this but still greatly believed in its value. Attached are letters and numbers from other counties with more mature programs that show and discuss significant cost reductions over time. This is the biggest reason the county began this program.

### **The Goals**

The Goals of the Winneshiek County Roadside Program are very simple:

- 1) Ensure that the county is compliant with laws and regulations with respect to endangered species and their habitat, erosion control, wetland mitigation and other environmental requirements, and to help reduce the cost to the county when mitigation and maintenance of those sites is required.

- 2) Remove obstructions from the right-of-way to improve safety of the roadways and reduce winter maintenance costs.
- 3) Create a roadside that can withstand the effects of heavier and more frequent rain events and reduce the repair costs to the right-of-way and neighboring properties. In addition, create more infiltration of water into the soils and not overland flow, another piece of the fight against flooding.
- 4) Reduce labor costs and equipment replacement and maintenance costs by removing from the roadsides what is not wanted and more difficult to maintain and replace it with what is easier and less demanding to maintain. Over time, this will allow funds to be shifted away from roadside to other services provided under the road department.
- 5) Keep invasive species down by controlling them in the right-of-way and working with the county Weed Commissioner and the public to remove them from private property.
- 6) Create an environment in our ditches that promotes the pollinators that are important to our ecology and that many residents of the county depend on.
- 7) Promote partnerships with landowners who want to be a part of roadside management that in turn reduces costs and responsibilities of the county.

### **The Numbers**

The gee-wiz numbers from that last 20 years (2004-2024):

#### Revenue Increases

- 1) Local Effort Revenues (property tax and local option sales tax) – Increased 93%
- 2) Road Use Tax Fund (license plates, car titles, driver’s licenses, etc.) – Increased 47%
- 3) Bridge Replacement Funds – Increased 61%

#### Expenditure Increases

- 1) Rock Prices – Increased 258%
- 2) Concrete Pavement – Increased 164%
- 3) Hot Mix Asphalt – Increased 158%



In addition, if you take into consideration the successful grants that were sought out by the roadside manager and the donations that were received by people who believe in the program, as shown in columns 5 and 7, the numbers are even better.

Over the five years that Corey Meyer has been the Roadside Manager for Winneshiek County, the county has made an investment in the manager himself of over \$400,000, with a net cost to the program of just over of \$140,000. Prior to the manager, grants and donations were slim as the manager is the one who knows what is needed and said manager did not exist. As a bonus, when you add the grants and the donations that came to the program, the county is ahead almost \$13,000 in 5 years and has accomplished more work and has bigger improvements to the roadsides than ever before.

In these numbers are equipment upgrades. The “mangler” has been dismantled and is no longer needed. Spraying is done more precisely and with the right chemicals at the right applications at the right times. Better brush handling equipment along with seeding and mulching are being used, proper erosion techniques have been implemented, all of which is reducing trips back to the same sites.

### **Summation**

If you do not believe that roadside management is important and the county returns to past roadside practices, then you will see the costs of doing business with roadsides go up without any gains worth noting.

If you see any benefit of roadside or believe that some or all of the items I listed are important, then Winneshiek’s roadside management program is accomplishing the goals the previous Boards of Supervisors set out to achieve and is showing budgetary gains already.

It needs to be stated again, our program is relatively young. As I earlier stated, enclosed is information and letters from counties that have much more mature programs. That is where Winneshiek County wanted the program to go upon its conception.

I strongly encourage anyone reading this to do the homework the previous Boards of Supervisors and I did when this program was created. Talk to those who have the background and expertise with what roadside is expected to accomplish. Don’t take my word for this, get theirs.

The biggest goal for the roadside is to reduce costs over time. I have stated many times in the Board room that Winneshiek County should only purchase CAT motor graders. Our history has shown that over the life of the machines, although the upfront costs tend to be higher, the long-term cost to the county is lower. Same for roadsides.

Thank you for your time. I am happy to answer any questions or discuss anything that may not be as clear as I intended.



February 23, 2023

Winneshiek County  
201 W. Main Street  
Decorah, Iowa 52101

RE: Integrated Vegetation Roadside Management Program

I implemented the Pottawattamie County Roadside program in the early 2000's. We were using a contractor that needed us to estimate work and provide quantities over the winter. If we had more or less work, we would have to do change orders for extra materials or restocking fees. We had to contact then coordinate with the contractor to make sure they scheduled the work to be done. A roads employee would have to be dispatched to go back out and document the work. Our employees would then monitor the site to make sure seeding would become established and recall the contractor if necessary.


After implementing the program Crew leaders notify the Roadside Manager of project completion; then seeding and erosion control is handled and monitored. While the contractor had a "one size fits all" approach our own folks continue to improve and provide more effective solutions. We simply provide a higher quality solution at a lower cost, since much of our equipment and seed costs are covered by grants.


We knew that the program would save us money on direct cost of materials; but the second order savings has been the time we recovered not managing a contractor. Those Crew Leaders are now onto the next project and never look back; so the crew isn't idle and making erosion repairs while waiting for the seeding contractor. This was an opportunity cost recovered that we hadn't fully anticipated; and because of it those crews are more productive.

That is how we got started, but the evolution of the program has also made significant impacts on brush removal; nuisance tree and weed abatement; improved intersection site distance/safety; restoring prairies; monarch and pollinator habitat; and providing pheasant nesting areas. Even though these issues weren't original goals, our County is better because of it.

Pottawattamie County is pragmatic and fiscally conservative. Likely the reason we didn't have a program was that it is really marketed as an extra effort to restore Prairies. In tough times that doesn't seem essential. The key term in the title of the program is "Integrated". The reality is the program supports the DNR compliance of the Roads Department; with those extra conservation pieces being covered by grants.

Sincerely,

  
John Rasmussen, P.E.  
County Engineer

  
Dustin Ausdemore, Roadside Manager

Year	**Cost	Miles	Target	Notes
1999	79,009.15	461	weeds + brush	Contracted
2000	97,240.58	404	weeds + brush	Contracted
2001	102,494.70	461	weeds + brush	Contracted
2002	96,356.70	404	weeds + brush	Contracted
2003	96,256.94	461	weeds + brush	Contracted
2004	73,794.44	404	weeds	Contracted
*2005	55,432.26	461	weeds	Contracted
2006	53,294.79	404	weeds	Contracted
2007	61,284.46	461	weeds	Contracted
2008	46,589.69	404	weeds	Contracted
2009	55,245.00	461	weeds	Contracted
2010	19,594.00	404	weeds	Contracted
2011	26,985.00	461	weeds	Contracted
2012	22,000.00	404	weeds	Contracted
2013	25,000.00	461	weeds	Contracted
2014	23,000.00	404	weeds	Contracted
2015	10,252	461	weeds	Jones County
2016	12,997.00	554	weeds + brush	Jones County
2017	0.00	0	none	Jones County
2018	12,930.00	452	weeds + brush	Jones County
2019	22,388.00	762	weeds + brush	Jones County
2020	23,408.00	865	weeds + brush	Jones County
2021	25,697.00	864	weeds + brush	Jones County
2022	19,878.00	761	weeds + brush	Jones County

- Represents contracted spraying costs only, no supplemental spraying occurred.
- Represents contracted spraying costs only, although supplemental in-house spraying occurred.
- Represents in-house spraying costs only, no contracted spraying occurred.

#### Miscellaneous Notes

- \*Roadside Manager hired in March 2005
- Approximately 52 sets of guard rail are sprayed by the roadside manager annually (not represented in these costs)
- Specialty spraying (Japanese knotweed, Japanese hops, Chinese silvergrass, obstructed sight distance and traffic signs, etc.) is conducted by the roadside manager (not represented in these costs)
- 3 communications towers and all outshop parking lots are sprayed annually by the roadside manager (not represented in these costs)
- \*\*Cost. Jones County herbicide cost numbers are those of the actual cost of herbicides for that year. Fuel costs are based on the approximate fuel mileage of the spray truck, the number of miles, and the average fuel cost across years. Labor and equipment costs are based on actual hours for 461 miles of spraying (measured in 2015) and an hourly wage. Equipment rates are based on 2024 DOT rates.



## DALLAS COUNTY OFFICE OF SECONDARY ROADS

Alan A. Miller P.E. County Engineer  
Andy Case, P.E. Asst. County Engineer

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February 24, 2023

Winneshiek County Board of Supervisors  
Winneshiek County Courthouse  
201 West Main St.  
Decorah, IA 52101

Dear Winneshiek County Supervisors,

It has come to my attention that you are considering eliminating the Roadside Management Program in your county. I wanted to provide some of Dallas County's numbers for you and also make you aware of some intangible benefits of having a roadside program that can be subtle and unseen, but very real.

As you are aware, brush control and tree removal are critical in the road right-of-way to maintain motorist safety and infrastructure protection. Control of noxious weeds is required by Chapter 317 of Iowa Code. Spot spraying with low-volume foliar herbicide treatments has been shown to be one of the most cost-effective methods of control, therefore most roadside programs, including Dallas County, engage in this practice.

Dallas County records submitted to Iowa Dept of Agriculture and Land Stewardship from 2012-2022 show the 11-year average for total herbicide purchases is \$15,366, with \$18,789 being spent in 2022. Since this time, both brush and noxious weeds have been sprayed on an average of 458 centerline miles each year. Additionally, 114 bridge/guardrail structures, 11 County shop/facilities and 2 E-911 communication radio towers have been annually sprayed for bareground control. All 'new' invasive species were also sprayed county-wide (see list of species below). Roadside personnel cut trees and brush throughout the year but heavily focus on this practice along with other maintenance crews in the fall and winter. All tree stumps are treated with herbicide after cutting and various amounts of basal bark treatments have been done on brush in select areas. Costs for total herbicide used in 2022 per these activities are as follows:

\$1100 for cut stump and basal bark treatments  
\$443.1 for bareground treatments ( $\$443.1 \div 127 \text{ shop/structures} = \$3.49 \text{ each}$ )  
\$16,157 for brush *and* weeds ( $\$16,157 \div 450 = \$35.90 \text{ per centerline mile}$ )  
\$1088.90 unused inventory

Contract rates in Iowa (labor and for only brush control can range from \$70 to \$200 per centerline mile. Available figures on bareground control for bridges are \$65 per bridge, which was last year in Franklin County.

Many noxious and invasive weeds are spread via transportation corridors. Because of this, having people on staff with plant identification skills that are actively working on the roadsides is a big positive for the county. When dealing with above mentioned 'new' invaders, it is much cheaper for the County

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to utilize "Early detection and control" rather than wait until a large infestation occurs, especially if that infestation spreads onto adjacent private lands which can burden individual taxpayers with extra costs of their own.

These 'new' invaders that have negative economic and environmental impacts are listed below:

Japanese knotweed – outcompetes forage, prevents timber establishment and regeneration, can grow through pavements and destroy infrastructure, degrades aquatic and terrestrial habitats

Cut-leaved teasel and Common teasel – outcompetes forage, degrades habitat

Serecia lespedeza – outcompetes forage, degrades habitat

Common St. Johnswort – outcompetes forage, poisonous to livestock, degrades habitat

Spotted knapweed – outcompetes forage, degrades habitat

Asian bittersweet – harms and kills native trees, threat to timber production and habitat

Purple loosestrife – outcompetes forage and degrades aquatic and terrestrial habitat

Phragmites australis – obstructs visibility, degrades aquatic and terrestrial habitat

Miscanthus sacchariflorus - obstructs visibility, degrades habitat

Leafy spurge – outcompetes forage, degrades habitat

Callery Pear – outcompetes forage and native trees, degrades habitat

In addition to the benefits of an in-house herbicide spraying program, having a roadside program conduct seeding and erosion control also has benefits to the taxpayer, whereas the program can protect a construction/maintenance project, via seeding and erosion control, as final grade is being completed or immediately after. This minimizes potential erosion damage to the project and can greatly reduce weed establishment while waiting for a contractor to mobilize. Projects are also monitored by roadside management staff which prevents small erosion issues from turning into big problems.

Furthermore, by having a roadside program, the permanent seed mixture used to do such seedings can be acquired at no cost through the Tallgrass Prairie Center (TPC) at the University of Northern Iowa. Dallas County receives on average 30 acres (~\$12,000 worth) of free native seed each year through the TPC. Although sometimes not immediately, over time these native seedings contain less wild parsnip and Canada thistle than areas planted to traditional Eurasian grasses (i.e., brome, fescue, bluegrass).

One final benefit of having a roadside program that can be easily overlooked is there are additional personnel watching out for missing or broken signs, sight distance issues, and various infrastructure issues (i.e., undermined and/or separated culverts, foreslope sloughing, erosion at guardrails and bridge abutments). Most often, when these types of infrastructure issues are small, they are easier to spot by people working in the ditches, rather than on the roadway. Identifying structural problems in the roadside and being able to make repairs while they are small saves the County money as repair costs are smaller.

Thank you for taking the time to read this letter. I hope it has broadened your knowledge and helped to better illustrate the various benefits of investing in a roadside management program.

Respectfully,

Jim Uthe  
Dallas County Roadside Biologist