

UNH T² Center Technical Note

Roadside Vegetation Management

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Highway departments have been taking care of our roadsides for many generations. Vegetation in the medians and on the roadsides of public highways require maintenance, and traditionally that has meant mowing and the use of herbicides. However, due to economic and environmental concerns, many municipalities have begun searching for alternatives to traditional forms of roadside management. New technologies and alternative methods are available for highway departments to experiment with what works best for their community.

In some communities, roadside vegetation is now being regarded as a vital part of their public asset management program—a part with practical, economic, and safety-related roles. Vegetation management now includes selective herbicide use, controlled release of weed-eating insects, soil improvement, and the cultivation of native plants, which can offer communities economic, safety, time, and environmental benefits.

Preparation & Maintenance of Roadside Vegetation

One effective and innovative approach to roadside vegetation management programs emphasizes the use of native plants. There are several benefits to using native plants in your roadside vegetation management plan. First, native vegetation is easier for workers to cultivate than other forms of vegeta-



This roadside near the Alton/New Durham area could use some roadside vegetation management to enhance the New England fall natural colors. Photo Credit: Trekearth.com

tion; allowing native plants to flourish in their natural environment is arguably simpler than mowing the grass. Second, native plants are very low-maintenance and non-invasive. Third, native plants have adapted to grow best in their local environments, which also means they are resistant to winter and pests. Fourth, native plants can be colorful, vibrant and more wild-looking than dry and short-cut grass. Fifth, using native plants and vegetation can help departments reduce their carbon footprint.

Some departments have already begun using native plants and flowers in their roadside management plans. For example, InDOT has recently begun using native wildflowers, and commuters routinely

compliment municipal workers on their beautiful roadsides. Also, the State of Iowa has refocused their program to include reseeding ditches with native grasses, forbs, and legumes.

Once planted, native plants may not sprout on their own due to years of mowing and the application of pesticide. Therefore, there is some preparation work that must be done before introducing native plants to our roadsides. The roadside area must first be cleared of all vegetation, including grasses, weeds and other plants. Be sure to pay particular attention to the seedbed. If the seedbed is not cleared, weeds and non-native vegetation are likely to grow back, choking out the native vegetation planted purposefully.

Be sure to confirm that the flowers and plants you intend to plant are actually native to New Hampshire and your local area; otherwise, they will not prosper. See *Table 1* for an easy-to-use chart to

find what native New Hampshire vegetation will grow in what type of environment. Make sure to tailor your roadside vegetation management program to the specific type of environment the vegetation will be growing in.

After preparation and planting, focus on management and maintenance. Native roadside vegetation will require some upkeep, particularly in the first few years after cultivation. It is recommended that departments mow yearly for the first two years and only as necessary after that to keep non-native, invasive, and “woody species” out.

The better prepared the plot is before seeds are planted, the less maintenance is needed. It is also recommended to combine mowing and weed-pulling with herbicide application in order to maintain your roadside vegetation. Doing only one of these maintenance tasks will be less effective than combining the two. Only mowing can leave behind roots that

Table 1: Native New Hampshire Vegetation listed by the environment they most thrive in.

Environment	Dry Areas	Moist Areas	Wet Areas	Streambanks/ Pond Shores	Shallow Ponds
Native New Hampshire Species	Pitch pine, native lupine, bayberry, butterfly-weed, Stiff Aster, Red Pine, Scrub Oak, Lowbush Blueberry, Bracken Fern, Sweetfern, Little Bluestem, Switch Grass, Big Bluestem, Wild Rye.	White Pine, Beech, Red Oak, Hemlock, White Ash, Sugar Maple, Yellow Birch, Flowering Dogwood, Sassafras, Basswood, Solomon’s seal, Black Cherry, Elderberry, Wood Fern, Wild Yellow Lilly, Virgin’s-bower, Highbush Blueberry, Bee-Balm, Columbine, Jewelweed.	Jack-in-the-pulpit, Cardinal Flower, Prairie Cordgrass, Ostrich Fern, Rushes, Sedges, Red Osier Dogwood, Silky Dogwood, Turtlehead, Balsam Fir, Red Spruce, Red Maple, Hemlock, Northern Arrowwood, Winterberry, Atlantic White Cedar, New England Aster, Blue Flag Iris, Sweet Flag.	Willow, Silver Maple, Speckled Alder, Smooth Alder, Sycamore, Monkey Flower, Switch Grass, Pussy Willow.	Bur-reed, Buttonbush, Pondweed, Sedges and Rushes, Duck Potato, Fragrant Water Lily, Yellow Water Lily, Pickerelweed, Wild Rice, Duck Weed.

will sprout again, and just applying herbicides will not kill the more mature, heartier plants. Also be open to exploring alternative roadside vegetation control options, such as the controlled release of weed-eating bugs.

Safety Benefits of Roadside Vegetation Management

There is another strong incentive to maintaining our roadsides: safety. A driver's visibility can be severely impaired if roadside vegetation is not maintained. The driver may have an obscured view of the road ahead, traffic control devices, approaching vehicles, wildlife and livestock, and pedestrians and bicycles. This increases the chance of an accident or even death.

For more information about the safety implications of proper roadside vegetation management programs, see the FHWA's "Vegetation Control for Safety: A Guide for Local Highway and Street Maintenance Personnel." The purpose of the guide is to help "local road agency maintenance workers identify locations where vegetation control is needed to improve traffic and pedestrian safety, to provide guidance for maintenance crews, and to make them aware of safe ways to mow, cut brush, and otherwise control roadside vegetation" (Barbaccia 14). *Contact the NH LTAP Center for a free copy.*

Environmental/Practical Benefits of Roadside Vegetation Management

It is important to use a variety of diverse plants in your roadside vegetation program for many environmental and ecological reasons. First, a variety of native species allows for the development of natural habitats for animals, insects, and birds. Second, species that are native and adapted to our climate allow our roadsides to help control erosion and keep roadsides clear of weeds. Third, some can reduce runoff and non-point source pollution by allowing greater stormwater filtration.

A roadside vegetation management program



Butterfly weed is a native New Hampshire plant that grows in dry areas, and may be suitable for roadside use. Photo Credit: Prairie vegetation Wiki

that utilizes several different maintenance methods will have several benefits. First, using less herbicide is better for the environment. Second, since the application of herbicide is seldom used, it is assumed the workers are taking more care to spray only the areas they know are problems, thus saving the other plants that are healthy and beneficial. Third, since less product is required, departments can purchase the most effective herbicides and use the latest spraying technology.

A comprehensive roadside vegetation management program will yield many benefits to your community, such as stabilizing roadside slopes, reducing erosion, creating habitats for native plants and animals, decreasing stormwater runoff pollution (including that which is derived from herbicide use), and increasing aesthetics.

Economics & Partnerships

We all understand the nation's current economy and the need to "do more with less". We are seeing the effects of this in reduced budgets for most, if not all, municipal departments. Creating and implementing an integrated roadside vegetation management program can actually save your department a lot of money in the long run.

InDOT provides a nice example of how this could work for your department. InDOT began

rethinking its roadside vegetation program around six years ago. InDOT has since planted over 300 acres of flowers and wild grasses, and over 1,500 trees—all native species. Because of these efforts, and the changes that have been made in instituting an integrated roadside vegetation management program, InDOT is saving money and creating more beautiful and environmentally conscious roadsides. Because InDOT is using native vegetation and spraying herbicides pro-actively and effectively, mowing is required far less often, which saves InDOT time and money. In one district in Indiana, the budget for mowing decreased from \$900,000 to \$450,000 annually. Additionally, InDOT has created “seed sites” where they grow their own wildflower and grass seeds. Growing instead of purchasing has saved over \$40,000 in seed costs.

Public-Private Partnerships

It is important to note that InDOT also forged a public-private partnership for their new roadside vegetation management plan. A partnership was formed between “Save the Dunes” and InDOT, which allowed both organizations to accomplish more than either one organization could do alone. Initially, InDOT provided the trees and plants, and Save the Dunes provided the manpower to weed, till, and plant.

Another example of a private-public partnership that can yield economic benefits to a public department is that between the MSDOT and Mississippi State University (MSU). MSU tests herbicides for MSDOT before they are used on their roadsides. While MSDOT benefits because they do not have to spend time and money on efficacy testing, MSU benefits from the research opportunities afforded by such testing. The University and the Department of Transportation work together to decide what vegetation to plant along Mississippi’s roadways, and what herbicides will work best with that vegetation.

New approaches to roadside vegetation management can offer municipal highway departments

alternatives to reduce cost and create a beautiful, landscaped roadside that is safe, practical, and environmentally beneficial. It is beneficial for highway departments to research adopting new maintenance plans for roadside vegetation. Be sure to stay abreast of new technologies and methods available.

References

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Wild grasses such as this type of wild rye are excellent for roadside vegetation because they are native and do not obstruct drivers’ views.

Photo Credit: Ultimate Pheasant Hunting