

How to Develop and Implement An Integrated Roadside Vegetation Management Program



A Guide for Township, City, County, Parish, State, Turnpike and other Roadside Authorities

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The National Roadside Vegetation Management Association

Integrated Roadside Vegetation Management Program Task Force

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PREFACE

Effective vegetation management is not just mowing the grass periodically along the highway and controlling the brush when you can not see around the corner. In a time when government agencies are being held more accountable for the results and costs of their actions and when sufficient additional resources are not available to continue doing things like they have always been done in the past, the need for effective vegetation management practices has become a pressing issue for many roadway agencies and private contractors that provide vegetation control along our nation's highways.

This guide has been developed to assist those agencies, public or private, that are charged with the responsibility to manage and control roadside vegetation. It is intended to be a planning document that will enable each user to develop a management plan that will recognize the specific needs and unique characteristics of their particular location or area. It does not provide an ideal vegetation management plan. It will provide you with a proven process to enable you to develop an appropriate management plan for your area.

This guide is intended to be used by managers, supervisors, and vegetation management teams. It provides order to a planning process and ideas for resource information. It also incorporates some best practices that have proven to be successful in various locations of the United States.

It has been developed by a group of leading experts in the field of vegetation management from both the public and private industry with representation from throughout the United States. This guide will help bring a management perspective to roadside vegetation that will parallel that of the agricultural industry - a perspective that has enabled the United States to be a world class leader for many years with continued leadership into the future.

We hope you find this guide informative and useful, and most importantly we hope it will enable you to provide "Beautiful Roadsides - the key to a beautiful America" in a cost-effective and environmentally responsible manner.

-Richard Arnebeck, 1996 NRVMA President



A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.

—Aldo Leopold, 1949

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INTRODUCTION

Integrated Roadside Vegetation Management (IRVM) is *a decision-making and quality management process for maintaining roadside vegetation that integrates the following:*

- ☐ *needs of local communities and highway users*
- ☐ *knowledge of plant ecology (and natural processes)*
- ☐ *design, construction, and maintenance considerations*
- ☐ *monitoring and evaluation procedures*
- ☐ *government statutes and regulations*
- ☐ *technology*

.....with cultural, biological, mechanical, and chemical pest control methods to economically manage roadsides for safety plus environmental and visual quality.

IRVM is a spinoff of the integrated pest management (IPM) concept used in agriculture, horticulture, and forestry. *IPM is a coordinated decision-making and action process that uses the most appropriate pest control methods and strategies in an environmentally and economically sound manner to meet pest management objectives.* The elements of IPM include:

prevention, monitoring, establishing density and action thresholds, treating pest problems, and evaluation. These elements and the process of monitoring, treating when necessary and evaluating results are crucial to sustaining an effective IRVM program. See Appendices 1 and 2 for the IRVM Decision Making Process and the IPM Threshold Concept.



An effective IRVM program must encompass several key natural and human resource core concepts. Natural resource concepts include: ecological restoration and management, biodiversity, sustainability and selective management. Human resource concepts include: education/communication, employee empowerment, collaboration, integrity and consensus.

Several factors drive the need for effective IRVM programs. They include:

- ☐ **LEGAL REQUIREMENTS**—Many states have noxious weed laws designed to protect public and private land from undesirable, invasive plants. More recently, concerns about the impact of land and water management activities on water quality have resulted in laws and voluntary best management practices to guide land management activities.
- ☐ **QUALITY IMPROVEMENT/COST SAVING MEASURES**—The process of developing local IRVM programs and plans through a deliberate process can improve quality and, in many cases, reduce long-term costs through good planning.

- ❑ **JUDICIOUS USE OF PESTICIDES**—Properly used, pesticides are an important tool in an IRVM program because they often provide the most cost-effective, expeditious solution to vegetation management objectives while minimizing environmental impact.
- ❑ **PUBLIC DEMAND/CUSTOMER EXPECTATIONS**—During the past two decades public acceptance and desire for more attractive roadsides have increased. Effective IRVM programs link with public desires and needs.
- ❑ **TORT CLAIMS**—Motorists now have more opportunity to bring legal action against highway officials based on negligence and improper maintenance after notification of a particular defect. An effective IRVM program reduces an agency's vulnerability for multi-million dollar law suits.

Guidebook Focus On Management of Existing Vegetation—For simplicity, roadside vegetation may be divided into two categories. The first and most prevalent is what might be called “natural vegetation” or that which exists because of the forces of nature. The second is vegetation which exists as a result of the planning and planting efforts by humans.

In its most comprehensive form, IRVM not only involves management of natural vegetation, but also the design, construction and maintenance of planted vegetation. While it is important to avoid building in future management problems when designing and installing roadside vegetation, the focus of this guide will be on the management of existing vegetation, whether natural or planted. The key idea is to encourage desirable plants as much as control undesirables, and to use or consider natural plant succession processes in all efforts and strategies.

This guide provides a tool for developing a quality IRVM Program that operates on dynamic, long-range and annual IRVM plans and reported results.

In the affairs of a great nation we plan and labor not for the present only but for the long future as well.

- Woodrow Wilson

Chapter 1

BENEFITS OF AN EFFECTIVE IRVM PROGRAM

The benefits of taking the time and effort to develop an IRVM program are many and varied. Some of the most obvious are listed below. While the economic and safety benefits are often quickly and clearly visible and documentable, environmental and aesthetic benefits may take several years to show up or may not be generally visible to the average passerby. The degree and type of benefits resulting from developing and implementing an IRVM program will depend greatly on the current conditions and practices in a particular location.

Safety

- ☐ Maintain sight distance requirements
- ☐ Maintain a zone clear of hazardous objects
- ☐ Reduce danger (hazard tree) potential
- ☐ Minimize weather effects of water, snow, ice and other weather related factors
- ☐ Minimize driver fatigue caused by monotonous views
- ☐ Reduce hazardous working conditions for maintenance operators and equipment
- ☐ Reduce fire starts



Economic

- ☐ Increase productivity with planned work rather than reactive work
- ☐ Increase measurable accomplishments
- ☐ Save money both long and short term
- ☐ Attain economically and environmentally sustainable objectives
- ☐ Promote community focus on scenic areas through tourism/wildflower/scenic routes
- ☐ Support community and private enterprise, e.g., local genotype seed sources
- ☐ Extend the life of pavement and roadside hardware
- ☐ Optimize the effectiveness of weed and pest control practices



Flexibility

- ☐ More efficient use of personnel, time and equipment
- ☐ Develop a variety of management tools and techniques to choose from at any given time



USDA APHIS



Environmental

- ☐ Maintain or improve water quality
- ☐ Protect soil resources
- ☐ Preserve, conserve, and enhance biodiversity and integrity of desirable native plant communities including threatened and endangered species
- ☐ Reduce negative effects and spread of invasive plant species
- ☐ Improve safety for wildlife



Appearance

- ☐ Provide attractive roadsides
- ☐ Preserve local biological heritage
- ☐ Reflect local landscape character
- ☐ Provide seasonal variation in form, color and texture



Public Relations

- ☐ Generate teamwork, partnerships, and stakeholder participation
- ☐ Share expertise between state and local agencies
- ☐ Local communities share responsibilities and pleasures of attractive plants
- ☐ Increase awareness and education through better communication
- ☐ Generate positive governmental contacts with constituents by means of consistently well-managed programs
- ☐ Develop ownership of the plan



Chapter 2

PROMOTING AN IRVM PHILOSOPHY

Jump Starting IRVM In Your Organization

Integrated Roadside Vegetation Management (IRVM) is nothing more than a logical application of good information, communication, technology, planning and research in the area of roadside maintenance. It means doing the right things the right way, in the right place and at the right time. It saves money and benefits the environment and society.

So, assuming this is all true, it should be fairly easy to implement an IRVM program—but it is not! Why? Because it is often not a question of “Is it the right thing to do?” The question becomes “How important is good vegetation management in relation to the Big Picture?” The biggest challenges in selling the importance of roadside vegetation management in a public transportation agency come from two universal factors:

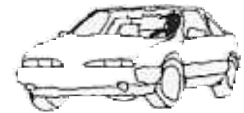
1. In the overall scheme of highway maintenance, roadside vegetation management has to compete with more critical roadway operations.
2. Maintenance funding is less than optimal with more demands on fewer dollars.

For these reasons it is important to work on a long-term approach such as IRVM that will show long-term benefits.

There are still many ways to begin a process change toward this approach by working directly with select individuals and groups of maintenance personnel. However, full implementation of an agency-wide IRVM program may take years, if not decades to accomplish. Understanding and support must be pursued at all process levels having an effect on the condition of our roadsides, from the largest governmental policy and public involvement processes right down to the everyday working practices of highway maintenance employees.

Following is an outline of five major areas of focus, along with some considerations for promotion of IRVM at each level:

Public Involvement



- ☐ The traveling/tax paying public as well as adjoining landowners are the most important customers; public opinion must be balanced with public education of why and how we manage our roadsides.
- ☐ The public needs to understand the reasons for roadside vegetation management in relation to functional roadway objectives, surrounding land use, the overall ecosystem, natural processes and applied technologies.
- ☐ There needs to be an appreciation for the beauty present in a self-sustaining, low maintenance roadside plant community.

- ❑ IRVM benefits the public through lower life-cycle maintenance costs, less negative environmental impact, and the most efficient use of tax dollars.
- ❑ Local area maintenance personnel have the greatest opportunity to interact with the public through routine contact and to explain the reasons for an IRVM approach.

Legislative

- ❑ This governing body needs to be convinced that IRVM is a worthy investment which will result in lower maintenance life-cycle costs with more built in sustainability; initial costs must be presented clearly in relation to long-term savings with innovative technologies.
- ❑ Maintenance funding must be dedicated at a reasonable base level which allows for accomplishment of all critical roadside activities along with some preventive maintenance activities.

Upper Management

- ❑ Upper management needs to understand and support IRVM as a problem-solving process for roadsides.
- ❑ Agency-wide support and understanding will provide the necessary links with design and construction considerations in terms of the built highway.
- ❑ IRVM is a basis for continuous improvement in the area of roadside maintenance; it applies quality management principles to roadside vegetation management.

Maintenance Managers

- ❑ They are the primary resources for motivation, coordination, communication, guidance, training and follow-through on an IRVM program.
- ❑ The maintenance management system must include necessary record keeping and cost tracking components for measurement and evaluation.
- ❑ They are responsible for development and implementation of relevant technology and computer applications for implementation and practice of IRVM.

Technical Maintenance Crews

- ❑ If workers do not see the reasons and benefits for IRVM, it will not happen. Maintenance personnel will respond to real life examples and proven success.
- ❑ If crews can be hired, trained and dedicated for roadside maintenance, there is a greater chance for success.
- ❑ Individuals must be inspired and motivated to learn and continually improve the quality of roadsides in their care. This is something that will come with time if the program is successful.
- ❑ There needs to be regular recognition of individuals and crews that succeed in improving their roadsides. They want to know that someone cares about what they do.



Aside from these major groups with power to effect roadside development and management, there are many others who do things with an effect on roadside vegetation. There needs to be ongoing, cross-functional communication, primarily between maintenance, design and construction. Anyone within the agency whose work touches on roadside issues needs to be aware of the existence of an IRVM program and have access to information and resources. The same goes for any partners with a shared interest or use of the right of way. These include highway neighbors, local governments, utilities, environmental coalitions, and concerned citizens.

IRVM is a way of supporting continuous improvement through an ongoing process of rethinking how we manage roadsides. It begins with our willingness to align participation with improvement. It helps us determine if we are using the best possible methods to do the right things. It also provides a way to communicate the hows and whys of integrated roadside vegetation management and to encourage learning and respect for the roadside environment at all process levels previously described.

Great discoveries and achievements invariably involve the cooperation of many minds.
- Alexander Graham Bell

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Chapter 3

DEVELOPING AND IMPLEMENTING THE LOCAL IRVM PLAN

This chapter provides the framework for putting together a plan at the local level whether a state department of transportation district, region or maintenance area, a county, a parish, a city, a township or other local jurisdiction.

What is the local level? The answer depends upon the scale. Arguably, the starting place would be the township or town scale. Townships and town governments maintain roadsides under their jurisdiction. They realize benefits from an IRVM plan. On a larger scale, counties may be a logical level for local IRVM plans. Added together township, town and county road authorities manage the lion's share of roadside acres throughout the United States. Within state departments of transportation the local level usually shakes out at the region, district or maintenance area level.

Why local plans? Local plans are the best because they are adapted to fit local cultural, natural heritage, and political concerns. A plan will be implemented if it is accepted by the public and the roadside personnel that carry out the plan. In the case of state departments of transportation, statewide continuity and consistency may be achieved with communication between local steering committees within the state agency.

Although a complete game plan is almost always best, the most important step is to start. "Just do it" through combining knowledge, skills and resources. Follow the steps outlined in this chapter and you will be well on your way to an effective IRVM program.

In this and like communities, public sentiment is everything. With public sentiment, nothing can fail; without it nothing can succeed.

- Abraham Lincoln

Organizing The IRVM Steering Committee

This critical step in program development is well worth the time and energy it requires. Do not be afraid to invite outside input. Assemble the committee right away. Include several people not employed by your agency. If you get good people, they will be your strength, your compass and your insurance, adding greatly to the success of the program.

Steering Committee Selection



Stock the committee with professionals from several disciplines creating a balance of knowledge, interests, and abilities. If the plan is to encompass a large geographical area, involve people possessing local knowledge of vegetation, growing conditions and legalities for distinct regions within the area. Smaller is better when deciding how large an area the committee will serve. Include members of those organizations that helped spark the initial interest in IRVM. The list below is a guide for achieving a representative cross section in your committee.

Agency Staff

Administrator/Policy Maker
Design
Construction
Maintenance

Industry Representative

Herbicide
Equipment
Seed
Erosion Control

Federal

FHWA (Local)
U.S. Forest Service
Bureau of Land Management
Natural Resource

Conservation Service
U.S. Fish & Wildlife Service
Dept. Of Defense
Plant Materials Center

Natural Resources

Soil Conservationist
Forester or Arborist
Landscape Architect
Horticulturist
Biologist
Botanist/Ecologist

Habitat Groups

Ducks Unlimited
Pheasants Forever
Beekeepers Association
North Am. Wildlife Fed.
Garden Club
Native Plant Society
The Nature Conservancy

University Staff/ Educators

Teacher
Researcher
Extension Agent

Agriculture

Agronomist
Farm Bureau Member
Farmer
Rancher
Agronomy Society
Society For Range Management
Forage and Grassland Council

Joint Right-of-Way Occupants

Electrical Power
Gas
Phone
Cable
Drainage Districts

Miscellaneous

Regulatory Agency -
Agriculture Inspector
Soil and Water Conservation
District
Weed Commissioner
Concerned Citizens

The committee should be large enough to include several of the above areas but small enough so it can function without becoming unwieldy. Eight to twelve members is sufficient. Meetings should be held at least monthly until the program is in place and functioning.

Steering Committee Empowerment and Support

Managers must set clear expectations from the planning effort and must be willing to commit their own time to clarify these expectations. They must also be willing to identify this effort as a priority project and allow steering committee members enough time to accomplish objectives. This can usually be done without adding staff or incurring overtime but may require reassignment of certain daily tasks to others if committee members must spend the better part of their workday in planning meetings or investigating others' "best practices."

"Never doubt that a small group of thoughtful, committed citizens can change the world; indeed it is the only thing that ever has."

- Margaret Mead, Anthropologist

Steering Committee Responsibilities

The steering committee develops the IRVM program and plan and provides direction and guidance on how the program is run. Key responsibilities include: writing the long-range plan and reviewing the annual work plan (implementation of long-range plan) and writing an annual accomplishments report to determine if the program results in improved roadsides and is cost-effective.

Keys to Effective Planning Meetings

In order to set up an effective IRVM program, several planning meetings will be necessary. If conducted properly, meetings improve the morale and productivity of the work group. Some keys to effective meetings include the following :

- ☐ Select committee officers—Choose a leader, recorder, and if necessary, bring in a professional facilitator
- ☐ Establish the roles of leader, facilitator and committee members
- ☐ Include in the agenda a one-sentence objective of why you are meeting
- ☐ Prioritize items to be covered and announce duration of the meeting
- ☐ Give credit, support and encouragement for ideas and participation
- ☐ Bring items to closure by consensus or parliamentary procedure

For a more detailed description see "*Keys to Effective Planning Meetings*" in Appendix 3.

Writing The Long-Range Plan

In developing, adopting, and implementing an IRVM Program, one important step is the formulation of a long-range plan that outlines the direction the program will go. It answers the question, "Where do we want to be?" somewhere down the road with our program. Long-range plans typically cover five or more years into the future, and may be general or quite specific in nature. They also become a valuable yardstick to measure program success at a later date.

A generally accepted course to follow in developing a long-range plan would involve the following:

- ❑ Bringing the steering committee together for brainstorming/identifying plan elements
- ❑ Writing vision and mission statements
- ❑ Collecting pertinent data (records, inventories, mapping, etc.)
- ❑ Establishing goals and objectives for the program
- ❑ Analyzing and prioritizing goals and objectives
- ❑ Assigning duties and responsibilities for program participants
- ❑ Discussing and planning for budget considerations
- ❑ Providing opportunity for research and innovation
- ❑ Determining methods for evaluating program successes or shortcomings

Therefore, when we build, let us think that we build forever. Let it not be for present delight, nor present use alone; let it be such work as our descendents will thank us for.
- John Rusk

Bringing The Steering Committee Together

An Integrated Roadside Vegetation Management Plan is only going to be as good as the people who develop and administer it. Setting up a steering committee and having effective meetings is discussed in another section of this document. However, it is important to remember to involve a broad cross section of people from administrators to the maintenance workers actually doing the hands-on implementation of the plan. It should be done in an atmosphere where employees are free to state their thoughts without fear of repercussions from their superiors. It will probably take several meetings over a period of time to put a comprehensive plan together and assign responsibilities for its implementation.

Writing Vision and Mission Statements

Early on in the process take the time to formulate vision and mission statements. Assign two or three people to formulate statements for review, correction and adoption by the steering committee.

Vision--A vision statement is a picture of your roadsides 10 to 20 years in the future. It is idealistic and includes your highest aspirations for what the roadsides can become. The vision statement serves as a source of motivation for everyone associated with or interested in the management of your roadsides. The following is a working vision statement:

The roadsides of the future will have the benefit of a high percentage of established native plant communities that will naturally reduce noxious weeds, make the roadsides more beautiful and easier to maintain, and provide a safer and healthier environment for people and wildlife. - Minnesota Department of Transportation Maintenance Area 3B, St. Cloud

Mission—A mission statement is a broad statement of purpose or “ends” to be achieved by your program or organization. It is the program’s ultimate reason for existence. It usually describes your products, services, and the customers who use them. The following is a working mission statement:

We are committed to managing Metro Division roadsides to ensure the safety, well-being and enjoyment of travelers and adjacent neighbors while using cost-effective and environmentally appropriate vegetation management methods. - Minnesota Department of Transportation, Metro Division, Roseville

Collecting Pertinent Data

In order to know which direction to take in an IRVM Plan, it is important to first know what has been done in the past. Reviewing records of previous maintenance operations, methods and responsibilities, and other pertinent information including roadside inventories will help in proper plan development and may prevent “reinventing the wheel.”



An inventory of vegetation that exists and where it exists is critical. Look for existing data bases of plant information before doing another inventory. Check with your state’s natural heritage program and organizations such as The Nature Conservancy to identify critical or sensitive areas. A good inventory strategy is to begin with critical or sensitive areas and expand the application with experience and available resources over the years.

Establishing Goals and Objectives

The next logical step in formulating an IRVM plan would be to identify and list goals and objectives that would outline the direction the program will follow. A **GOAL** can best be described as an enduring intention to act. Think of them as targets for accomplishment. They are generally longer lasting, and provide a guide for decision makers. An **OBJECTIVE** is a measurable result to be achieved by a specific point in time.

Several objectives may be necessary to achieve a goal. For example the goal may be "To reduce noxious weed cover on roadsides." Objectives to achieve that goal may be:

1. Convert 100 acres of badly infested turf on Interstate 94, between mileposts 100-115, to native grasses in 1997.
2. Spray out all visible noxious weed infestations on all roadsides by upgrading the equipment fleet and designating licensed applicators for herbicide application duty during the proper times of the 1997 growing season.

The "Roadside Vegetation Management Zone Concept," shown in Appendix 4, provides a visual reference point for developing goals and objectives.

Several basic principles need to be considered when establishing goals and objectives for the plan.

- ❑ Safety for the traveling public and the employee
- ❑ Maintenance of the infrastructure and highway integrity
- ❑ Cost-effective use of public resources in both the long and short term
- ❑ Environmentally sound decision making
- ❑ Being a good neighbor to adjacent landowners and the travelling public

Analyzing and Prioritizing Goals and Objectives

After goals and objectives have been adopted for an IRVM program, a priority ranking should be given to each one. Identifying which elements are most important allows problem areas and situations to be dealt with first, many times making the program more of a success and making other goals and objectives easier to reach.

A simple ranking system with numerical values for lowest to highest priorities works well or refer to the matrix in the following table developed by the Washington Department of Transportation. For a more detailed explanation of this matrix prioritization system see Appendix 5.



***A team without goals is just another ineffective committee.
- Successories Incorporated***

Roadside Maintenance Priority Matrix

(adapted from Washington DOT - Example only)

Program Objectives

Maintenance Activity	Provide safe, reliable transportation	Maintain the investment at the lowest life-cycle cost	Support commerce & economic viability	Comply with legal mandates	Be a responsible member of the community	Be environmentally responsible	Contribute to a positive appearance
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Highest Priority Activities

Repair major slide and erosion damage	critical	critical	critical	critical	critical	critical	significant
Maintenance of cross culverts	critical	critical	critical	critical	significant	significant	significant
Control noxious weeds	contributes	critical	critical	critical	critical	critical	contributes
Control of brush and grass in high risk areas	critical	significant	significant	critical	critical	critical	critical
Eliminate danger trees	critical	significant	significant	critical	critical	contributes	contributes
Remove road kill hazards	critical	none	critical	contributes	significant	significant	critical
Repair or clean ditches & side culverts >50% full	significant	critical	significant	significant	critical	significant	significant
Promote long-term plant communities	significant	critical	significant	none	significant	critical	critical
Irrigation operation & repair for plant survival	none	critical	significant	contributes	significant	contributes	critical
Repair fences for safety reasons	significant	significant	contributes	significant	critical	contributes	significant
Dispose of road kill	significant	none	significant	significant	significant	critical	significant

Moderate Priority Activities

	contributes	significant	significant	significant	significant	significant	significant
Weed & brush control in formal landscaping	contributes	significant	significant	contributes	significant	contributes	critical
Control of brush and grass in moderate risk areas	significant	significant	contributes	contributes	contributes	significant	significant
Repair & maintenance of trails, viewpoints and Park & Ride lots	contributes	significant	significant	significant	contributes	contributes	significant
Repair minor slope and erosion damage	contributes	significant	contributes	contributes	significant	significant	contributes
Litter bag pick-up and disposal	contributes	none	contributes	contributes	significant	significant	critical
Turf care	none	significant	contributes	significant	contributes	contribute	significant
Soil enhancement in landscaped areas	none	significant	significant	none	contributes	significant	contributes

Lower Priority Activities

Irrigation operation & repair in established plantings	none	significant	contributes	contributes	contributes	contribute	contributes
Repair fences for other reasons	contributes	contributes	none	contributes	significant	none	significant
Repair or clean ditches & culverts < 50%	contributes	contributes	contributes	contributes	contributes	contributes	contributes
Misc. litter pick-up	contributes	none	contributes	contributes	contributes	contributes	significant
Adopt-A-Highway program administration	none	none	none	significant	contributes	contributes	critical
Control of brush and grass in low risk areas (including for aesthetics)	contributes	none	none	none	contributes	contributes	contributes

“Putting the Plan on Paper”

Now the actual plan may be written to address your goals and objectives in order of priority. Individual elements to accomplish each necessary action can be spelled out. The plan should be written by someone with planning experience—usually just one individual or a small committee with individual assignments. Then it may be reviewed by the whole committee and changed, if necessary, to meet your needs.

Assigning Duties and Responsibilities

At some point in time, either as part of the plan or as a separate exercise, the people who will implement the plan should be assigned duties and responsibilities. This may involve all or part of the current work force, or additional or contracted services. Since these people should already be a part of this planning process, they may have suggestions for what works best, or wish to take on different responsibilities than they previously were assigned.

Discussing and Planning for Budget Considerations

An IRVM plan may involve merely reallocating existing financial resources, be a response to additional funding possibilities or a need to more efficiently cope with dwindling financial resources. Realize that each program element has a cost connected with implementing it and determine if that cost is feasible under current or proposed budgets. Adding additional equipment may also add to problems in adopting the fully integrated approach to roadside vegetation management problems. Many times these problems can be handled by phasing in the program gradually, and starting with the elements easiest to do within existing time and equipment. It is not always necessary to totally change a program, but rather do things in a more efficient manner, using the same tools we already possess. If pessimism prevails start off with an implementation project.

Providing for Research and Innovation

Constantly keep an eye out for research opportunities that may result in innovations for improving quality, reducing costs, and improving working conditions for roadside workers.

Evaluating Program Success

This may be the hardest, but certainly the most important part of writing and implementing an IRVM Plan. It is imperative to have some benchmark, some comparison, some yardstick to measure program success. As much as we need to know where we have been and where we are going, we need to know if we are successful in our endeavors. Short-term goals and objectives need to be reached and documented. Records of implementation activities need to be maintained over time to evaluate overall direction and accomplishments. Periodic evaluations by program principals need to be reviewed to see if the program is moving forward and if the IRVM Plan has reasonable and attainable goals and objectives. Changes can then be made to allow us to reach the level of accomplishment that is expected. The entire plan should be reviewed during and at the end of its term. Goals and objectives can be reviewed and re-ranked to see if they are still viable over time. Performance of the plan should be reviewed separately from employee performance. Once the IRVM Plan has been written and adopted, it is time to move forward into the implementation phase.

Implementing The Long-Range IRVM Plan *“Putting the plan to work”*

There are five important procedures to follow when implementing a long-range IRVM plan. They can be summed up as follows:

- ☐ Annual Work Plan
- ☐ Method Identification and Application
- ☐ Training
- ☐ Recordkeeping
- ☐ Program Evaluation

Annual Work Plan

An annual work plan is the first stage in implementing an IRVM plan. It spells out what will be done, who will be responsible for accomplishing the task, and a schedule for achieving the end result. It identifies what we are going to do this year to accomplish the overall goals and objectives of the long-range plan. An annual work plan should address each element of the overall IRVM plan. As each individual action is accomplished, it should be recorded. See Appendix 6 for an example of an annual work plan.

Method Identification and Application

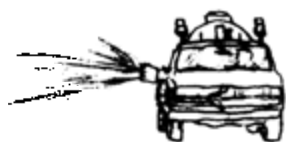
A variety of methods are used to implement a totally Integrated Roadside Vegetation Management plan. Many times we use the same or similar methods that we have used in the past, although the timing or scope of the operation may be changed. For example, terrain features will determine the extent of mowing. The use or non-use of chemicals will decide the life-cycle frequency of brush cutting. Sometimes new methods, along with a corresponding change in thinking, may have to be adopted. The methods used can be categorized under the following headings:

- ☐ **Mechanical** - mowing, brushing, blading, in general, using equipment to do the task.



- ☐ **Biological** - using natural processes or living organisms to control a pest or problem.

- ☐ **Cultural** - Using methods such as seed selection, planting, mulching and controlled burning aimed at the successful establishment of species that aid in erosion control, enhance aesthetics, improve habitat and diversity, and restore natural vegetation.



- ☐ **Chemical** - using pesticides, primarily herbicides, to control problem pests

- ☐ **“Hands Off” Approach** - a conscious decision not to act and allow natural plant succession to take place with minimal or no intervention.

- ☐ **Preservation and Conservation** - caring for existing populations of threatened, rare, and endangered plants and plant communities through avoiding disturbances and assuring judicious application of IRVM methods.

Training

Training of staff cannot be overstressed. No matter how good the work plan, untrained workers will cost time and money and may lead to other problems. Set up a training program that meets the needs of your operation. Training topics taught by qualified instructors should include:

- ☐ Plant identification and planting techniques
- ☐ Chemical, cultural, biological and mechanical methods of pest control
- ☐ Safe and accurate equipment use
- ☐ Employee safety, e.g., clothing, emergency procedures, etc.
- ☐ Recordkeeping
- ☐ Public relations

*Education makes a person easy to lead, but difficult to drive;
easy to govern but impossible to enslave.*

- Lord Brougham

Recordkeeping

As important as it is to use reliable methods in implementing a roadside program, it is equally important to maintain timely records of those operations as they are completed. Recordkeeping is essential for future planning and for evaluation of effectiveness. Take advantage of computer databases, geographic information systems (GIS) and global positioning systems (GPS), technology to make recordkeeping more effective and retrievable. Record and file the following information for each project effort:

- ☐ Project Location
- ☐ Project Description
- ☐ Weather Conditions (Especially with herbicides)
- ☐ Acres or Miles Completed
- ☐ Amount of Materials Used
- ☐ Worker and Equipment Hours Devoted to Project
- ☐ Person Responsible for Activity
- ☐ Follow-up Observations



Program Evaluation

Each year take time to honestly evaluate what worked and what did not. If you used a steering committee to help with plan development, you may want to involve them in the evaluation process. Find out if progress was made in achieving your goals and objectives. Quantify what was accomplished in each program element. If shortcomings are observed, ask the following questions:

- ☐ Was adequate time allocated to the project?
- ☐ Were adequate staff and resources available?
- ☐ Did weather or seasonal changes influence completion?
- ☐ Were our goals unattainable?
- ☐ Were the roadsides safer?

Conclusion

The beauty of IRVM programs is that they can and must be designed to fit each individual situation. The “best practices” of one state or county program may not be the “best practices” in your program. The thoughts and ideas presented in this booklet represent a compilation by 15 people from 10 states and is designed to be a basic overview of roadside management possibilities. We hope it will stimulate your thoughts in designing a roadside program to fit your needs. The task force urges you to pick and choose what is best for your operation in developing your own Integrated Roadside Vegetation Management Program. Remember it is important to get started and take one step at a time. Just do it! Good luck in your efforts!

To promote cooperation remember:

People tend to resist that which is forced upon them. People tend to support that which they help to create.

- Vince Pfaff

World's greatest management principle:

You can work miracles by having faith in others. To get the best out of people, choose to think and believe the best about them.

- Successories Incorporated

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Chapter 4

ADDITIONAL RESOURCES/EXPERTISE

By the time you get a steering committee together and work through the process of developing an IRVM program, you will be impressed by the expertise and resources found within the group. Synergy causes the sum of the parts to be greater than the whole. But do not stop there! Tap into some additional resources and expertise including the following:

Roadside Programs In Other States: Appendix 7 lists Roadside Program contacts for all 50 states and for the Federal Highway Administration. Some publish a roadside newsletter including Alabama, Florida, Iowa, Michigan, Minnesota, Missouri, and Texas. Ask to be placed on another state's newsletter distribution list. The FHWA newsletter "Greener Roadsides" provides a forum for exchanging state and local roadside experiences and research.

Public Agencies and Conservation Groups: There may be other IRVM programs already in your state with people willing to share their ideas and experiences with you. Suggested contacts include your state's Departments of Natural Resources and Agriculture and Natural Heritage or Natural Areas programs. Universities, state extension agents, federal land management agencies (e.g. Natural Resources Conservation Service, Bureau of Land Management, U.S. Forest Service, U.S. Army Corps of Engineers, National Park Service, and U.S. Fish and Wildlife Service), and conservation groups such as The Nature Conservancy are other possible sources of information and partnerships. Names, addresses and phone numbers for most of these public agencies and conservation groups may be found in the 1996 Plant Conservation Directory which is available from the Missouri Botanical Gardens, P.O. Box 299, St. Louis, Missouri 63166 (314-577-9450).

Herbicide Manufacturers: One of the best sources for technical and applied information about herbicides is the company that manufactures the herbicide. By calling **800 INFORMATION** (1-800-555-1212) you can get a toll-free number for many of the major manufacturers. Ask for a local contact familiar with roadside vegetation management programs.

National Pesticide Telecommunications Network (NPTN): By calling 1-800-858-7378 you access a service that provides objective, science-based information about a wide variety of pesticide related subjects. NPTN is a source of factual chemical, health, and environmental information about the more than 6,000 pesticide active ingredients incorporated into over 50,000 different products.

Equipment Manufacturers: Establish good relations with manufacturers and representatives of seeding, cutting and herbicide application equipment. They rely on honest feedback from roadside workers in order to produce (or retrofit) the best possible equipment for efficient roadside practices.

Public Relations: A good public relations plan can contribute to the success of your IRVM program. Inform the public and others in your agency through newsletter articles. Consider establishing a working relationship with environmental reporters from local newspapers or television stations. Periodically keep agency public affairs personnel aware of photo and press release opportunities regarding roadside management. Collaborate with your agency's Office of Communications to assist in preparation of informative videos on IRVM.

Plant Material Sources: Seed and plant stock appropriate for your locale may be commercially available. Contact your local Natural Resources Conservation Service (NRCS) or one of the nine USDA Plant Materials Centers. Seed and plant stock source directories for most portions of the United States are as follows:

National -

Sources of Native Seeds and Plants. 1993. Soil and Water Conservation Society, Ankeny, Iowa
Northwest Region -

Hortus Northwest, \$9.00/2 issues. 3000 Market Street NE, Ste. 521, Salem, OR 97301-9865
Hawaii -

Directory of Sources for Native Hawaiian Plants, \$4.00 to Hawaiian Plant Conservation Center, NTBG, P.O. Box 340, Lawai, Kaua'i, Hawaii 96765

Alaska -

Directory of Alaska Native Plant Sources, Alaska Department of Natural Resources, Call 907-745-4469

Western Region -

Source List of Native Plants for the West, Native Plant Society of New Mexico, P.O. Box 5917, Santa Fe, NM 87502

Nursery Sources for California Native Plants. 1995. \$10.00 to Division of Mines and Geology, P.O. Box 2980 Sacramento, CA 95812-2980

Midwest Region -

Midwest Native Plant Seed Sources, \$5.00 to the National Wildflower Research Center, 4801 La Crosse, Austin, TX 787739

Midatlantic Region -

Contact the Brandywine Conservancy, 215-388-7601

Northeast Region -

Sources of Propagated Native Plants and Wildflowers, \$3.00 to the New England Wildflower Society, Garden in the Woods, Hemenway Road, Framingham, MA 01701

Southeast Region -

Nursery Sources of Native Plants of the Southeastern United States, \$9.00 to Wildflower, 234 Oak Tree Trail, Wilsonville, AL 35186

Contact your state Native Plant Society and Nursery and Landscape Association for state-specific information and dealers. Contact the American Seed Trade Association (202-638-3128) for other seed growers in your state.

****Note:** This Page has been updated as of 12/21/2004

World Wide Web: Use of the Internet system is rapidly becoming commonplace. Check home pages from herbicide and equipment manufacturers also. Some addresses which may help include:

State DOT Sites	http://www.fhwa.dot.gov/webstate.htm
United States DOT	http://www.dot.gov
Federal Highway Administration	http://www.fhwa.dot.gov
Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW)	http://ficmnew.fws.gov/
Transportation Research Board (TRB)	http://trb.org/
Washington State Roadside Maintenance	http://www.wsdot.wa.gov/maintenance/roadside_maint.htm
General Services Administration Federal Supply Services	http://www.gsa.gov
Department of Interior	http://www.doi.gov
Library of Congress	http://www.loc.gov
Information Systems for Agriculture	http://www.aginfo.com
Flora of North America	http://hua.huh.harvard.edu/FNA
Natural Resource Conservation Service	http://www.nrcs.usda.gov
The Nature Conservancy	http://www.nature.org
Urban Forestry Council (State example)	http://www.mnstac.org
International Society of Arboriculture	http://www.isa-arbor.com
Integrated Pest Management Practitioners Association	http://www.efn.org/~ipmpa
National Pesticide Information Center	http://npic.orst.edu/index.html
Pesticide Education Resources	http://pested.unl.edu/
National Roadside Vegetation Management Association	http://www.nrvma.org

****Note:** This Page has been updated as of 12/21/2004

Computer Based Information Systems: Watch for development of “Expert Systems” that utilize high speed computer and compact disk(CD-ROM) technology. Examples include:

The U.S. Army Corps of Engineers’ Noxious and Nuisance Plant Management Information System which allows rapid access to a variety of information on 34 noxious and nuisance plant species including management options (call 601-634-2972 for information).

The Minnesota Department of Transportation’s Trees and Shrubs For Minnesota Landscapes and Roadsides which provides data and images for over 320 trees and shrubs applicable to roadside and landscape planting in Minnesota (call 612-772-7926 Shawn or Rose for information).

Research: NRVMA maintains a Research and Development Subcommittee which serves as a source of roadside vegetation management research and information. If you are looking for any available research on a particular subject or if you have any research that you want to share with counterparts in other states, contact Paul Northcutt, Texas DOT at (512) 416-3091.

The Transportation Research Board (TRB) promotes innovation and progress in transportation by stimulating and conducting research and encouraging the implementation of research results. Committees active in research applicable to roadside management include: A3C07—Committee on Roadside Maintenance, A3C53—Task Force on Environmental Maintenance, A3C53(1) Subcommittee on Environmental Maintenance on Travel Way Elements and A3C53(2) Subcommittee on Environmental Maintenance on Roadside and Winter Services. For further information or to obtain a catalog of TRB publications in print write to Transportation Research Board Business Office, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418 (telephone 202-334-3214).

NRVMA Proceedings: The National Roadside Vegetation Management Association publishes proceedings of its annual conferences including papers from each presenter. Copies of the annual proceedings are available from 1985 to the present.

GLOSSARY

Biological Diversity	Refers to the variety and variability of living organisms (plants, animals) on the planet (or a given area)
Biological Integrity	A state of being in which an area contains only those species which are native to the area, unpolluted by the introduction of undesirable or alien species
Chemical	A synthetic compound which, when applied properly to target vegetation or other pests will kill any part or all of that pest
Consensus	General agreement or concord; the judgment arrived at by most of those concerned
Ecosystem	An ecological community together with its physical environment, considered as a unit
Ecosystem Based Management	An approach that considers the whole system, not just the parts, and brings people together to work for the health of the land and the communities it supports
Ecological Restoration	The process of repairing damage caused by humans to the diversity and dynamics of indigenous ecosystems (Society For Ecological Restoration, 1994)
Empowerment	To provide authority to make independent judgments within certain guidelines
Facilitator	A process leader, one who assists in developing and implementing a plan and related communication, one who channels discussions and maintains continuity and focus during the development of the plan
Goal	An enduring intention to act. Goals are targets for accomplishment. They are generally long lasting and provide a guide for decision makers
Herbicide	A chemical used for killing or inhibiting the development or growth of plants

Integrated Roadside Vegetation Management	<p>A decision-making and quality management process for maintaining roadside vegetation that integrates the following:</p> <ul style="list-style-type: none"> -the needs of local communities and highway users -the knowledge of plant ecology and natural processes -design, construction, and maintenance considerations -monitoring and evaluation procedures -government statutes and regulations -technology <p>.....with cultural, biological, mechanical, and chemical pest control methods to economically manage roadsides for safety plus environmental and visual quality</p>
Landscape	All or any portion of the surface features of the earth, including natural and built elements
Landscape Character	That visual quality or combination of qualities that distinguishes one landscape from another
Local Genotype	The genetic constitution shared by all individuals of a species in a particular locale
Mission Statement	Answers the question "why do we exist?" from a customer's perspective. It usually describes products, services, and the customers who use them. (Also referred to as a "purpose statement")
Native Plant	A plant (species) which occurs naturally in a particular area without human cause or influence. Known to exist in an area prior to European settlement
Native Plant Community	A diverse group of native plants which grow together in the same general place and have mutual interactions
Objective	A specific, measurable result to be achieved by a specific point in time. Objectives are often established annually and stem directly from goals
Pesticide	Any substance or mixture of substances intended for controlling insects, rodents, fungi, weeds, and other forms of plant or animal life that are considered to be pests
Policy	A guideline for action that is intended to coordinate decision-making and action-taking across an organization

Steering Committee	A group of people assembled for the purpose of guiding the development and implementation of a plan or program
Sustainable	Use or impact level which allows resources to continue to exist for future generations at or above current use levels.
Vision	A picture of an organization 10 to 20 years in the future. It includes the highest aspirations for what the organization can become. It is idealistic. It captures the greatness inherent in the organization and serves as a source of motivation for everyone associated with the organization.
Wildflower Route	A highway or system of highways which has been identified as having significant native or planted population of wildflowers available for viewing by travellers.

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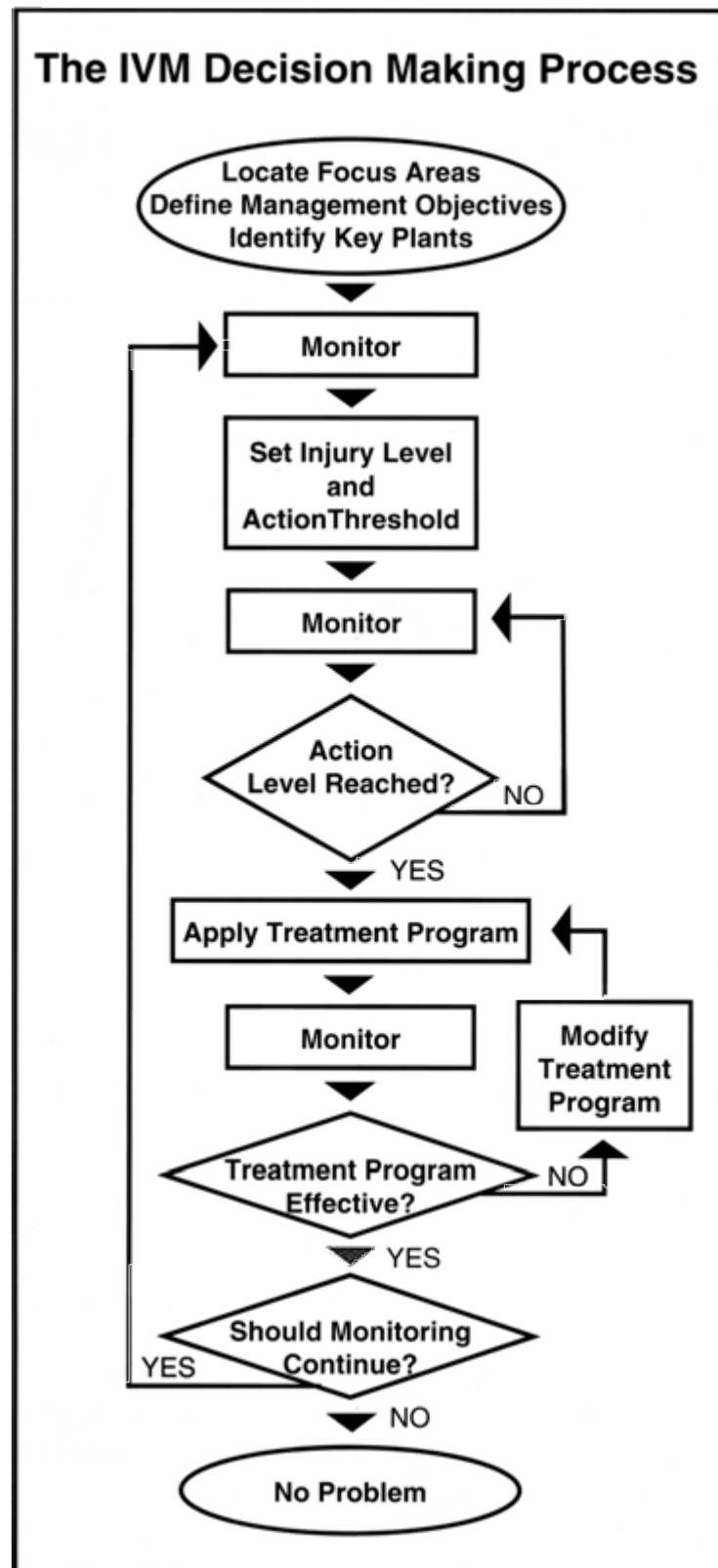
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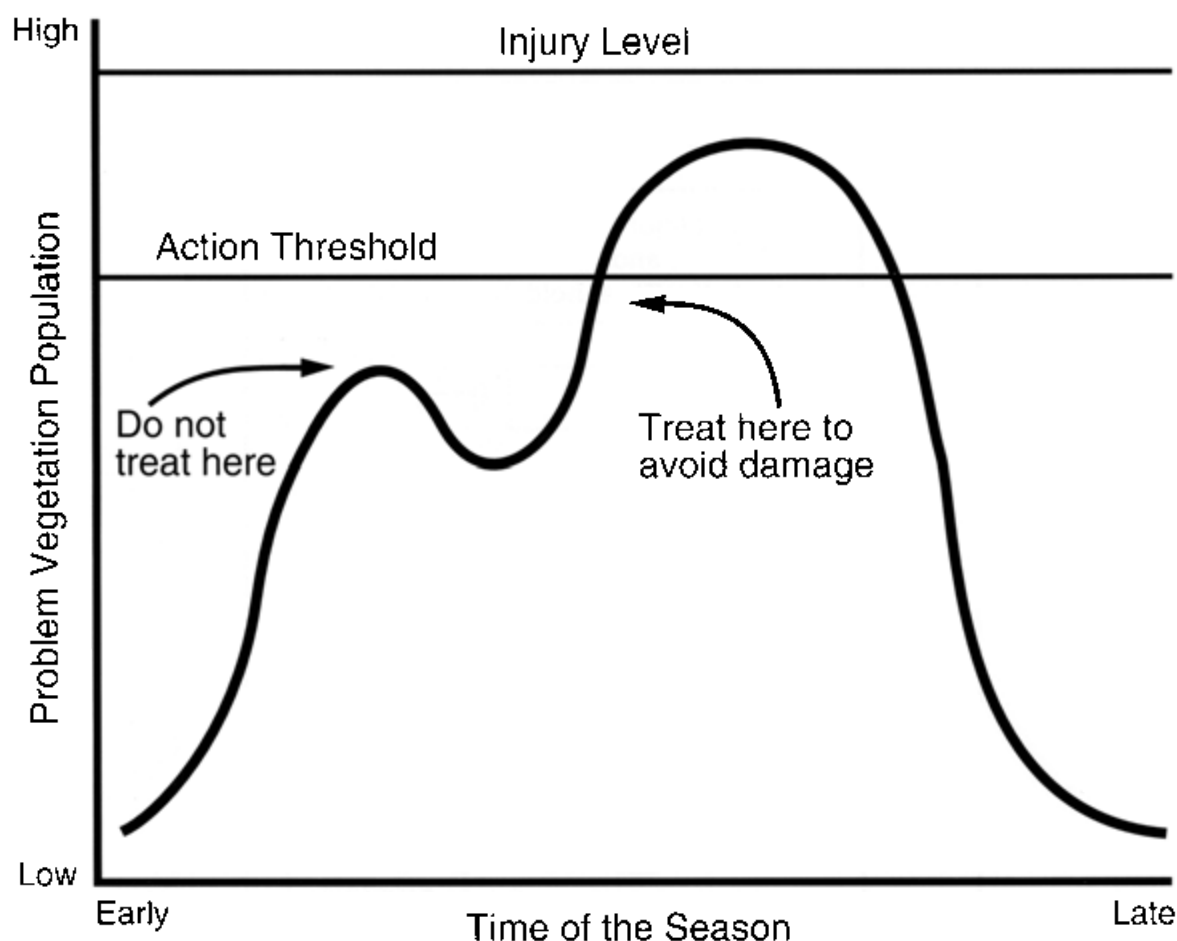
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**APPENDIX 1 -The Integrated Vegetation Management Decision-Making
Process (State of Washington) (Example Only)**



APPENDIX 2 - Integrated Pest Management (IPM)
Threshold Level Concept (State of Washington DOT)

**The Relationship Between Injury Level
and Action Threshold**



Injury Level - The number, area of cover, or quantity of some plant characteristic which will cause unacceptable functional, economic, aesthetic, or environmental damage when reached by a type of vegetation.

Action Threshold - The point when the number, area of cover, or quantity of some plant characteristic reaches a level when treatment action must be taken to avoid reaching the injury level.

APPENDIX 3 - Keys To Effective Planning Meetings

In order to set up a good IRVM program several group/team planning meetings may be necessary. Meetings are “management in action.” If run properly, meetings can greatly improve the morale and productivity of a work group. If run poorly, they can waste a lot of time and money and lower group morale and productivity. Meetings are an investment in which we should look to maximizing our return on that investment. Some keys to effective meetings include the following:

- ☐ Select team/group/committee officers—Choose a leader, recorder and, if necessary, a facilitator. If the group is just getting started it may be very productive to bring in a professional facilitator to get the planning process underway. Many state DOT's now employ facilitators for this very purpose. A group or committee member may also take on the role of facilitator. However, serving in a dual role may rob this individual of the opportunity to fully participate in the process as a professional with an area of expertise to share.
- ☐ Establish the roles of the leader, facilitator and committee members.

Leader

- ☐ builds agenda with facilitator
- ☐ helps group stick to agenda
- ☐ gives group credit, support, encouragement for ideas and participation
- ☐ makes sure action items are followed up on
- ☐ active participant
- ☐ gives the group direction, assists in setting goals, objectives and plans
- ☐ brings action items to closure by consensus or, if necessary, through parliamentary procedures

Facilitator

- ☐ neutral servant of the group
- ☐ does not evaluate ideas
- ☐ suggests alternative measures and procedures
- ☐ protects individuals and ideas from attack
- ☐ encourages participation
- ☐ helps group find win/win solutions
- ☐ moves the group to end-results/completion

Group Members

- ☐ focus energy on the content of the problem
- ☐ respect and listen to others
- ☐ be open-minded
- ☐ do not be prematurely negative or overly defensive
- ☐ do not cut people off or put words in their mouths
- ☐ make sure ideas are being recorded accurately

- ❑ Group leader and facilitator should collaborate on the meeting agenda—agenda should be distributed in advance and should include the following:
 - ❑ one sentence objective of why you are meeting
 - ❑ topics organized by priority so that most important items are covered first
- ❑ Group leader should run a meeting using the following guidelines:
 - ❑ begin on time and assume the late comer is not showing up
 - ❑ clearly state the purpose of the meeting in the introductory comments
 - ❑ announce the duration of the meeting
 - ❑ encourage open discussion—perhaps start with a round robin
 - ❑ leader should not dominate the meeting
 - ❑ keep discussion on track and press for closure
 - ❑ avoid “group think”—groups often move like a herd to hasty decisions
 - ❑ welcome conflict— “The more conflict the more likely a good solution”
 - ❑ summarize at the end—make sure members are clear on their assignments
 - ❑ distribute minutes within 24 hours

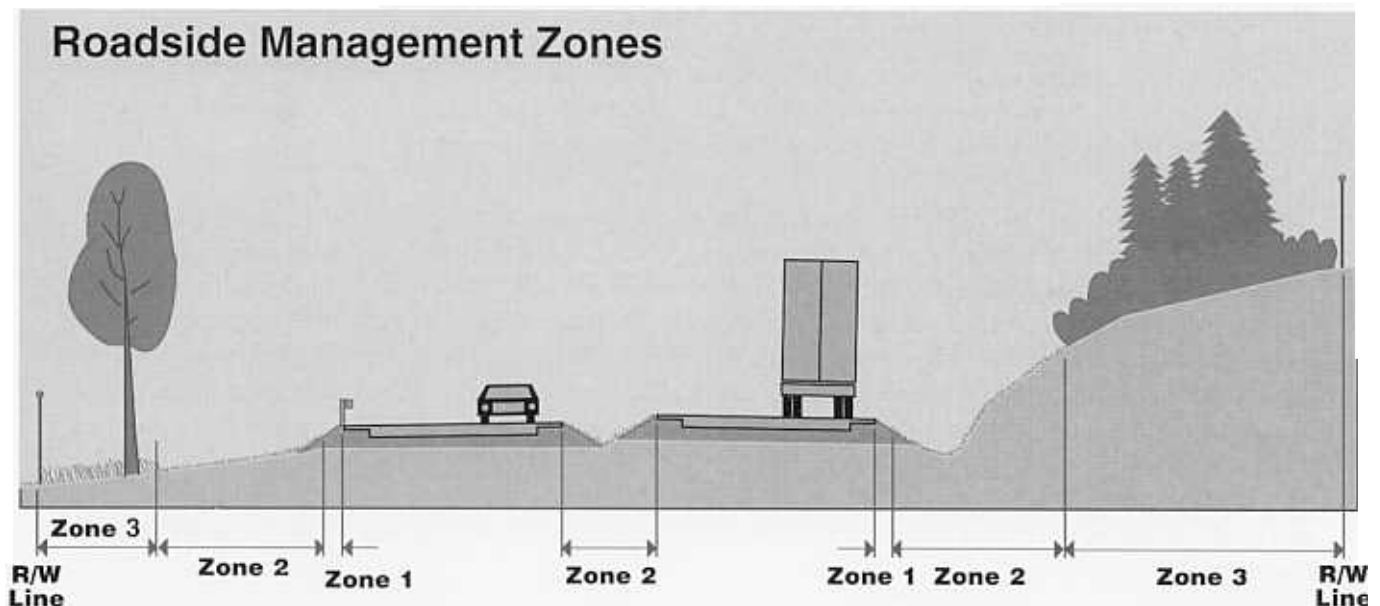
An IRVM steering committee develops the IRVM Program and Annual Plan with a relatively small core of people in primarily **problem-solving** meetings. “Storyboarding With Ideas” can be a very effective and time-saving exercise to maximize participation and reach better solutions to problems during these meetings.

Once the IRVM Program/Plan is in place information meetings for the purpose of bringing other roadside vegetation workers up to speed on the program will be necessary. Allow ample time for these people to express their feelings and opinions on the program. In some cases informational meetings may include other interested parties.

“...Outside of traffic, there is nothing that has held this country back as much as committees.”

- Will Rogers

APPENDIX 4 - Roadside Management Zone Concept (Example only)



Functional Zone Objectives

Zone 1: Vegetation Free Zone

(0' to 2' from pavement)

- provide for surface drainage
- reduce fire potential
- provide for visibility and maintenance of roadside hardware
- prevent pavement breakup by invasive plants
- provide sight distance for passing, stopping, and at intersections
- prevent the buildup of wind blown debris and winter sand at the pavement edge

Zone 2: Operational Zone

(from Zone 1 to meet operational needs)

- maintain vehicle recovery area
- provide sight distance for passing, stopping, and at intersections
- maintain hydraulic capacity of ditches
- eliminate hazard trees (and trees shading the highway)
- control weeds
- prevent erosion
- provide wildlife habitat where compatible with roadway traffic
- accommodate underground utilities
- enhance visual quality

Zone 3: Transition Zone

(from Zone 2 to R/W line)

- promote low maintenance plant communities
- blend and/or screen adjacent surroundings to meet the goals and objectives of the Roadside Classification Plan
- control weeds
- prevent erosion
- maintain and enhance visual quality
- preserve wetlands and wildlife habitat
- accommodate utilities
- preserve and conserve native plants and wildflowers

APPENDIX 5 - Roadside Prioritization Matrix (Adapted from Washington DOT)

Developing a Roadside Priority Matrix

The following roadside priority matrix and description illustrate how one State DOT used a matrix in prioritizing roadside maintenance activities. The weighting and scores in this appendix are not a NRVMA recommendation but are simply to illustrate the use of the matrix.

In Washington State, the 1995-97 biennium transportation maintenance budget reduced funding for roadside maintenance activities by approximately 30%. The budget also included language that directed the Washington State Department of Transportation (WSDOT) to look at methods for providing a consistent maintenance level of service throughout the state. Using Quality Management tools, the Team developed a Roadside Maintenance Activity Priority Matrix. The matrix is a reference tool that maintenance people could utilize in planning and budgeting their work. It can also be used as a basis to develop policy aimed at providing consistency in the delivery of the roadside maintenance program.

The matrix shows the contribution each roadside maintenance activity makes toward the objectives and goals of the maintenance program and prioritizes the activities into groups from the highest to the lowest priority work.

In order to develop a matrix the team had to identify basic program objectives. The program objectives are the criteria that the activities are evaluated against to determine how important they are to program delivery. The objectives answer the question "Why do we maintain highways?" The other things the team needed to identify were the individual maintenance activities. The activities are the "What we do to maintain the roadsides." By evaluating the "what" in terms of achieving the "why", it could then be determined what activities were most important to deliver the overall program. The activities could then be ranked in order of importance and the resulting prioritized list would provide a logical basis for consistent management decisionmaking.

The WHY, Identifying Program Objectives

First, each team member, on their own, identified what they felt the overall big picture objectives of the program were. Everyone's ideas were then reviewed by the team for commonality. All the identified objectives, upon review, were ultimately combined into seven basic program objectives. It should be emphasized that the team identified objectives of the entire highway maintenance program, not just the objectives for roadside maintenance. Since the majority of maintenance personnel have to deal with all highway maintenance issues, such as snow and ice control, pavement repair and others, it was important to identify the total maintenance program objectives so it could be determined how the roadside activities fit within the overall program.

The highway maintenance program objectives identified by the team are:

- ☐ **Provide safe, reliable transportation**
- ☐ **Maintain the investment at its lowest life cycle cost**
- ☐ **Support commerce and economic viability**
- ☐ **Comply with legal mandates**
- ☐ **Be a responsible member of the community**
- ☐ **Be environmentally responsible**
- ☐ **Contribute to a positive appearance**

Weighting The Criteria (Program Objectives)

Once the basic objectives were identified, the next step was to determine their relative importance to the program. Although each and every objective is important, some objectives are more important than others. This was accomplished by first identifying the single most important objective, then identifying the single least important objective and determining how much more important the most important objective is. Once the most and least important objectives are identified, the relative value of the other criteria can be interpolated in between.

The team weighted the value of the criteria as follows:

<u>Program Objectives</u>	<u>Weight</u>
Provide safe, reliable transportation	10
Maintain the investment at its lowest life cycle cost	7
Support commerce and economic viability	6
Comply with legal mandates	5
Be a responsible member of the community	4
Be environmentally responsible	3
Contribute to a positive appearance	2

Identifying Program Activities (The What)

The team then developed a list of roadside maintenance activities. The list was intended to be a list of "what" work is done, and not "how" it was done. As an example, noxious weed control is the "what." The activity can be done by a variety of methods, such as spraying, mowing, biological control or cultural control. The intent of the activity matrix is to address the first part of "doing the right things first". Show what activities are important to help identify the "right things." How are they done, or doing them correctly, is another part of the equation and not something that is part of this service.

Rating the Activities against the Objectives

Each of the activities is then evaluated to determine how to help achieve the various program objectives using the following factors:

☐ **Critical to achieving the objective rating = 9**

If the activity is critical to achieving the objective it is given a rating of 9. In most cases no more than 15% of the activities should be given a "critical" rating. These are the very most important activities for achieving a given objective.

☐ **Significant to achieving the objective rating =3**

Activities that are significant in achieving the objective but are not as important, nor are they critical to the objective, are given a rating of 3. No more than 30% of the activities should be given this rating.

☐ **Contribute to achieving the objective rating = 1**

Any activity that provides some support to achieving an objective, no matter how small the contribution, should receive a rating of 1. There is no limit to how many items can contribute.

☐ **No contribution toward achieving the objective rating = 0**

If an activity makes no contribution toward an objective it should receive no value.

Limits are placed on the number of activities that were “critical” or “significant” because it is important to identify the very most consequential activities and to insure they are equal in importance. If there were no limits all activities would tend to be of equal value.

Computing The Priorities

The next step is simply a mathematical calculation to determine the weighted value of each activity. The rating given each activity is multiplied by the weighted importance value of the objective. This gives a weighted value of that activities contribution to achieving each objective. The weighted values under each objective are added together to obtain a total score for each activity. The activities are then sorted by total score. The activities receiving the highest scores are the highest priority activities.

Roadside Maintenance Activities Priority Matrix	Provide safe, reliable transportation 10		Maintain investment, lower life-cycle costs 7		Support commerce and economic viability 6		Contribute to a positive appearance 2		Comply with legal mandates 5		Be a responsible member of community 4		Be environmentally responsible 3		SCORE
Repair major slide and erosion damage	9	90.0	9	63.0	9	54.0	3	6.0	9	45.0	9	36.0	9	27.0	321.0
Maintenance of cross culverts	9	90.0	9	63.0	9	54.0	1	2.0	9	45.0	3	12.0	3	9.0	275.0
Control noxious weeds	1	10.0	9	63.0	9	54.0	3	6.0	9	45.0	9	36.0	9	27.0	241.0
High risk brush & grass control	9	90.0	3	21.0	3	18.0	9	18.0	9	45.0	9	36.0	3	9.0	237.0
Eliminate danger trees	9	90.0	3	21.0	3	18.0	1	2.0	9	45.0	9	36.0	1	3.0	215.0
Remove roadkill hazards	9	90.0		0.0	9	54.0	9	18.0	1	5.0	3	12.0	3	9.0	188.0
Repair or clean ditches & culverts (> 50%)	3	30.0	9	63.0	3	18.0	3	6.0	3	15.0	9	36.0	3	9.0	177.0
Promote long-term plant communities	3	30.0	9	63.0	3	18.0	9	18.0	0	0.0	3	12.0	9	27.0	168.0
Irrigation operation & repair for plant survival		0.0	9	63.0	3	18.0	9	18.0	1	5.0	3	12.0	1	3.0	119.0
Repair fences for safety reasons	3	30.0	3	21.0	1	6.0	3	6.0	3	15.0	9	36.0	1	3.0	117.0

Continued on page 37.

Roadside Maintenance Activities Priority Matrix	Provide safe, reliable transportation 10	Maintain investment, lower life-cycle costs 7	Support commerce and economic viability 6	Contribute to a positive appearance 2	Comply with legal mandates 5	Be a responsible member of community 4	Be environmentally responsible 3	SCORE
Dispose of roadkill	3 30.0	0.0	3 18.0	3 6.0	3 15.0	3 12.0	9 27.0	108.0
Control nuisance weeds	1 10.0	3 21.0	3 18.0	3 6.0	3 15.0	3 12.0	3 9.0	91.0
Weed & brush control in formal landscaping	1 10.0	3 21.0	3 18.0	9 18.0	1 5.0	3 12.0	1 3.0	87.0
Moderate risk brush & grass control	3 30.0	3 21.0	1 6.0	3 6.0	1 5.0	1 4.0	3 9.0	81.0
Repair & maintenance of trails, viewpoints and P&R lots	1 10.0	3 21.0	3 18.0	3 6.0	3 15.0	1 4.0	1 3.0	77.0
Repair minor slope and erosion damage	1 10.0	3 21.0	1 6.0	1 2.0	1 5.0	3 12.0	3 9.0	65.0
Litter bag pick-up and disposal	1 10.0	0.0	1 6.0	9 18.0	1 5.0	3 12.0	3 9.0	60.0
Turf care	0.0	3 21.0	1 6.0	3 6.0	3 15.0	1 4.0	1 3.0	55.0
Soil enhancement in landscaped area	0.0	3 21.0	3 18.0	1 2.0	0 0.0	1 4.0	3 9.0	54.0
Irrigation operation & repair in established plantings	0.0	3 21.0	1 6.0	1 2.0	1 5.0	1 4.0	1 3.0	41.0
Repair fences for other reasons	1 10.0	1 7.0	0.0	3 6.0	1 5.0	3 12.0	0 0.0	40.0
Repair or clean ditches & culverts (< 50%)	1 10.0	1 7.0	1 6.0	1 2.0	1 5.0	1 4.0	1 3.0	37.0
Misc. litter pick-up	1 10.0	0.0	1 6.0	3 6.0	1 5.0	1 4.0	1 3.0	34.0
Adopt-A-Highway program administration	0.0	0.0	0.0	1 2.0	3 15.0	1 4.0	1 3.0	24.0
Low risk brush & grass control (Including aesthetic reasons)	1 10.0	0.0	0.0	1 2.0	0 0.0	1 4.0	1 3.0	19.0

Doing The Right Things

By identifying what activities are highest priority, the matrix should help identify what are the “right things” to do. It also points out some right things that may not be getting done. One of the activities that ended up in the high priority category is “Promote long-term plant communities”. This is preventive maintenance and something that most maintenance people know is the right thing, but do not have the resources to address. Preventive maintenance is as important for roadsides as it is for any other area of maintenance. Dealing with vegetation problems when they are small is so much more cost effective than waiting until they are major problems. Today’s moderate risk problems will be high risk tomorrow, and the cost to address the problem is significantly higher.

For a more detailed explanation of the above prioritization matrix contact the Washington DOT Roadside Section at 360-705-7865.

APPENDIX 6 -Example of Annual Work Plan Fayette County Iowa

ANNUAL PROGRAM OF WORK FY '90 (July 1, 1989 - June 30, 1990)

WEED CONTROL PROGRAM			
ACTION	WHO	WHEN	ACCOMPLISHED
Spot treat Canada Thistle and other noxious weeds	Roadside Vegetative Manager (RVM) Asst., Crews	July - August, 1989	
Evaluate effectiveness of Weed Control Program	RVM, Asst.	July-August, 1989	
Return or store excess chemicals	RVM, Asst.	September, 1989	
Evaluate new chemicals and applications	RVM, Asst.	October, 1989 - March, 1990	
Train new employees and start spraying program	RVM, Asst.	May-June, 1990	

BRUSH CONTROL PROGRAM			
ACTION	WHO	WHEN	ACCOMPLISHED
Secure necessary brush control equipment	RVM, Asst.	July - August, 1989	
Train Crews in proper brush removal techniques and procedures	RVM, Assist	July - September, 1989	
Clear obstructions at intersections or other safety problem areas	RVM, Asst., Crews	July-September, 1989	
Start implementation on farm-to-market, hard-surfaced roads, north and west ditches first	RVM, Asst., Crews	July, 1989- April, 1990	

SEEDING NATIVE GRASSES			
ACTION	WHO	WHEN	ACCOMPLISHED
Ordering seeding mixtures for 1990	RVM	February - March, 1990	
Evaluate stand density of 1989 nursery seedings	RVM, Asst.	April - May, 1990	
Seed new nursery areas	RVM, Asst., Crews	April - May, 1990	
Provide necessary weed control	RVM, Asst., Crews	July - August, 1989 April - June, 1990	

DITCH CLEANOUT AND MANAGEMENT PROGRAM			
ACTION	WHO	WHEN	ACCOMPLISHED
Identify and evaluate ditches with erosion and siltation damage	RVM, Asst.	July, 1989 - June, 1990	
Work with adjacent landowners and SCS in developing soil conservation plan to alleviate problem	RVM, Asst.	July, 1989 - June, 1990	
Reseeding ditch after clean-out by county crews	RVM, Asst., Crews	August, 1989 - May, 1990	
Provide weed control and maintenance as needed	RVM, Asst., Crews	August, 1989 - May, 1990	

INTERSEEDING AND CONTROLLED BURNING			
ACTION	WHO	WHEN	ACCOMPLISHED
Identify and evaluate ditches showing appreciable prairie indicators	RVM, Asst., Crews	July, 1989 - June, 1990	
Identify and evaluate ditches needing reseeding	RVM, Asst., Crews	July, 1989 - June, 1990	

****NOTE: This page has been updated as of 02/07/2005****

APPENDIX 7 – State DOT and Federal Contacts for Roadside Programs

State Department of Transportation (DOT) contacts are found in environmental, landscape, erosion, and maintenance units.

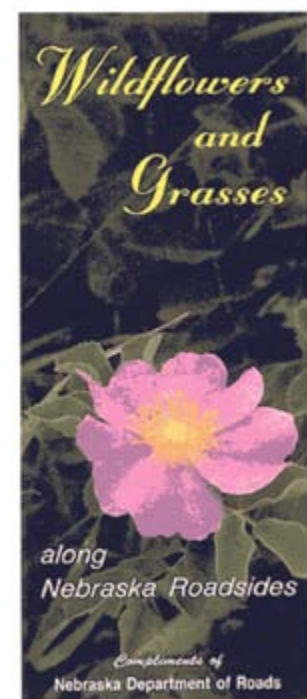
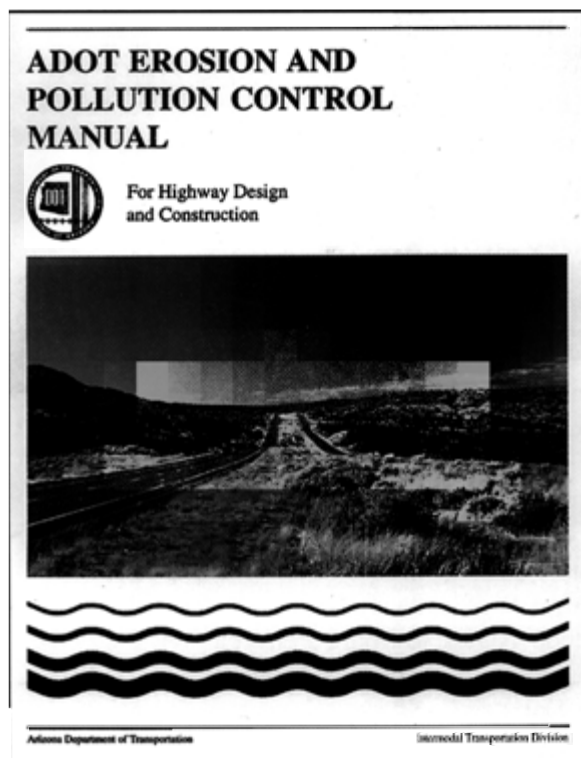
Listed also are contacts in the State offices of the FHWA known as Divisions*. They are often environmental specialists. (2004)

STATE DOTs AND FHWA DIVISIONS*:

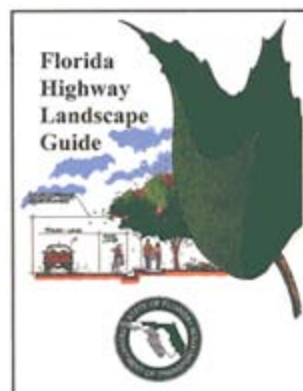
AL - Keith Sowell, 334-242-6169
John Lorentson, 334-242-6272
***Bill Van Luchene**, 334-223-7379
AK – Diane Regan, 907-465-6975
Jeffery Ottesen, 907-465-6971
***Tim Haugh**, 907-586-7430
AR - Phillip Moore, 501-569-2281
Charles Flowers, 501-569-2624
***Randal Looney**, 501-324-6430
AZ - Leroy Brady, 602-255-7357
Bruce Eilerts, 602-712-7398
***Steve Thomas**, 602-379-3915
CA – Sheree Edwards, 916-654-5784
Jack Broadbent, 916-654-4693
John Hayes, 916-653-8077
Greg Erickson, 916-_____
***Maryann Rondinella**, 498-5040
CO – Cathy Curtis, 303-757-9174
Ed Fink, 303-273-1840
Mike Banovich, 303-757-9174
***Mike Vanderhoof**, 720-963-3013
CT – Bruce Villwock, 860-594-2612
Delois Barnes, 860-594-3307
Kimberly Lesay, 860-594-2933
***Robert W. Turner**, 860-659-6703
DE – Chip Rosan, 302-760-2181
***Bob Kleinburd**, 302-734-2966
District – Mark Buscainoil,
Bill Beck, 202-698-8361
***Michael Hicks**, 202-219-3513
FL – Jeff Caster, 850-414-5267
Tim Allen, 850-410-5757
***George Hadley**, 850-488-4562
GA - Ray Dorsey, 404-656-5314
Abbe Hocter, 404-635-8194
***Katie Allen**, 404-562-3657
HI - Richard Dapololu, 808-587-2189
George Tonaki, 808-587-2189
***Jodi Chew**, 808-541-2700
IA - Mark Masteller, 515-239-1424
Steve Holland, 515-239-1768
***Janice Thompson**, 515-233-7324
ID – Cathy Ford, 208-334-8416
***Brent Inghram**, 208-334-9180
IL – Rick Nowak, 217-782-2943
***J. D. Stevenson**, 217-492-4638
IN - Rick Phillabaum, 317-233-5151
Dave Lamb, 317-232-5509
***Joyce Newland**, 317-226-7492
KS - Fred Markham, 785-296-0853
***Patrick Arno**, 785-267-7281
KT - Michael Clarke, 502-564-4556
David Cornett, 502-564-4556
Bill Green, 502-564-3280

***Anthony Goodman**, 502-223-6743
LA – Clay Swift, 225-379-1938
***Robert Mahoney**, 225-757-7624
MA - George Batchelor, 617-973-7738
***Rick Marquis**, 617-494-3275
MD - Ken Oldham, 410-545-8586
Charlie Adams, 410-545-8640
***Dan Johnson**, 410-779-7154
ME – Bob LaRoche, 207-624-3100
Sylvia Michaud, 207-287-5735
***Mark Hasselman**, 207-622-8350
MI - Bob Zelski, 517-373-0041
Mark Pearson, 517-335-1909
***Abdelmoez Abdalla**, 517-702-1820
MN - Bob Jacobson, 651-284-3767
Scott Bradley, 651-284-3758
Bob Wryk, 651-582-1438
***Cheryl Martin**, 651-291-6120
MO - Stacy Armstrong, 573-751-8647
Rand Swanigan, 573-751-2855
***Peggy Casey**, 573-636-7104
MS - Robert Moseley, 601-965-1145
Jim Vinson, 601-359-1411
***Cecil Vick**, 601-965-4217
MT - Phil Johnson, 406-444-7657
Dan Williams, 406-444-7604
***Carl James**, 406-449-5302x238
NC – Don Lee, _____
Charlie Tomlinson _____
Derek Smith, _____
***Michael Dawson**, 919-856-4330
ND – Annette Lalka, 701-328-4445
Jerry Horner, 701-328-4443
***Calvin Larson**, 701-250-4341
NE - Art Thompson, 402-479-4839
Richard Gray, 402-479-4537
***Edward Kosola**, 402-437-5973
NH – Guy Giunta, 603-271-6476
Mike Pillsbury _____
William Hauser _____
***Bill O'Donnell**, 603-228-3057
NJ - David Byers, 609-503-5670
Henry Renelli, 609-530-5671
***Jeanette Mar**, 609-637-4238
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***Greg Heitmann**, 505-820-2027
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Kyle Williams, 518-457-5566
Rick McKeon, 518-457-6912
***Bill Gates**, 518-431-4125
NV - Dennis Covell, 775-687-5565
Frank G. Taylor, 775-687-5565
Don Payne, 775-888-7535
***Ted Bendure**, 775-687-5322
OH - Barney Howard, 614-644-7159

John Baird, 614-466-1913
Christine Hunt, 614-752-6404
***David Snyder**, 614-280-6852
Ok - Joanne Orr, 405-521-4037
Laurie Stillings Effinger
***Shannon Dumolt**, 405-605-6040
OR – Will Lackey, 503-986-3010
Bill Jablonski, 503-986-3550
***Elton Chang**, 503-587-4710
PA - Joe Demko, 717-783-9453
John Whaley, 717-783-5036
***Karyn Vandervoort**, 717-221-2276
Puerto Rico – Flores, 787-726-1988
***Jose Luis Torres**, 787-766-5600
RI - Barbara Petrarca, 401-277-2023
Sheleen Clarke, 401-222-6765
***Michael Butler**, 401-528-4564
SC - Timothy Edwards, 803-737-1949
Kelly Jo Swygert, 803-737-1290
***Shane Belcher**, 803-253-3187
SD - Sharon Kayser, 605-773-3525
***Ginger Massie**, 605-224-7326
TN - Pat Thurman, 615-741-0802
Beverly Wilson, 615-532-3488
***Leigh Ann Tribble**, 615-781-5760
TX - Mark Mathews, 512-416-3095
Dennis Markwardt, 512-416-3093
***Sandy Allen**, 512-536-5944
UT - Ira Bickford, 801-965-4119
Terry Johnson, 801-965-4893
***Greg Punske**, 801-963-0078
VA - Ken Oristaglio, 804-371-6825
Brian Waymack, 804-371-6801
***Ed Sundra**, 804-775-3337
Vt - Craig Dusablon, 802-527-5448
Chris Slesar, 802-828-5743
***Ken Sikora**, 802-828-4433
WA - Mark Mauer, 360-705-7242
Ray Willard, 360-705-7865
***Sharon Love**, 360-753-9558
WI - Leif Hubbard, 608-267-6884
Richard Stark, 608-266-3943
***Jacki Lawton**, 608-829-7517
WV - Norse Angus, 304-558-3236
Jim Riggs, 304-558-2901
***Jeannie Simms**, 304-347-5931
WY - John Samson, 307-777-4416
Kevin Powell, 307-777-3997
***Rodney Vaughn**, 307-772-2004
FEDERAL LANDS DIVISIONS:
Western – Terri Thomas, 360-619-7967
Central – Rick Cushing, 720-963-3683
Eastern – Jack VanDop, 703-404-6282
WWW.FHWA.DOT.GOV/roadsides



These brochures, posters and manuals are examples of educational materials available for public and agency use in promoting Integrated Roadside Vegetation Management practices.





National Roadside Vegetation Management Association

Purpose

The Association is established to bring together those persons interested in roadside vegetation management through employment, research, education, regulation, contracting, manufacturing, or merchandising. The purposes of the Association are (1) to exchange ideas, opinions, experiences, and information, (2) to discuss vegetation management activities regarding safety, functional and operational characteristics, economy, roadside beautification and aesthetics, and ecological soundness, (3) to promote more and better coordinated efforts among those interested and engaged in roadside vegetation management, (4) to establish and administer standards of recognition and implementation of the practices of roadside management and its component skills, and (5) to afford the manufacturers of materials and equipment an opportunity to introduce and demonstrate their products.

No part of the earnings of the Association shall be used to the benefit of or be distributable to its members, directors, officers, or other private persons, except that the Association shall be authorized and empowered to pay reasonable compensation for services rendered.





"Beautiful Roadsides - The Key To A Beautiful America"



For More Information Contact:
Turney Hernandez
National Roadside Vegetation
Management Association
218 Rhett Drive Adams Run
Newark, Delaware 19702