The Right Way to Vegetation Management

An updated review of selected pest management policies and programs for rights-of-way

By Matthew Porter

Every year, millions of miles of roads, utility lines, railroad corridors and other types of rights-of-way (ROWs) are treated with herbicides to control the growth of unwanted plants. However, public concern over the use of dangerous and inadequately tested pesticides has resulted in an increasing effort over the last decade to pass state laws and local policies requiring notification of pesticide use, restrictions on application types and implementation of least-toxic and organic approaches to vegetation management.

This report highlights vegetation management on ROWs in select states, and is an update of the original version published 1999 in *Pesticides and You.* This summary is supplemented by a more extensive and fully cited version available at www.beyondpesticides.org. Examples are given of five states –two provide right-to-know provisions regarding ROW herbicide applications– and all five incorporate the principles of integrated pest management (IPM) into their ROW management. However, under the variety of IPM definitions, cultural, mechanical, and biological management practices are utilized, and chemicals are typically a part of state ROW management programs. This review of policy does not evaluate the degree to which these policies are currently being enforced.

ROW management is governed by many different levels of government, including state laws or administrative procedures, state subdivisions' or local government entities' policies, and voluntary agreements. As a result, inconsistencies exist in overall protection from pesticide exposure. Many states have separate policies for the different types of ROWs. Utility ROW requirements may be mandated by a state's department of agriculture, environment or other pesticide lead agency, while requirements for roadside management are under the review of the state's department of transportation. As a result, the level of protection varies considerably, but they all tend to be deficient in protecting the public from the potential exposure to pesticide applications along ROWs.

The Case for Notification

Chemical control of ROWs pose hazards to human health and the environment. Although a number of chemicals are registered for use on ROWs to control grasses, brush and trees, picloram (Tordon™), 2,4-D (Weedone™), dicamba (Banvel™), trichlopyr (Garlon™), glyphosate (Roundup™), fosamine ammonium (Krenite™), hexazinone (Velpar™) and diuron (Karmex™) are among the most commonly used. These herbicides as a group are known to cause cancer, birth defects, reproductive effects, neurotoxicity, kidney/liver damage and are toxic to wildlife. (See Table 1) New studies are continually finding serious problems associated with exposure to commonly used pesticides.

Many states have addressed the issue of ROW herbicide applications by notifying the public of the application, enabling people to attempt to avoid pesticide exposure. Prior notification is commonly provided through newspapers and/or radio. However, the notification announcements tend to be in the newspaper's legal section and do not appear or are not heard frequently enough to alert large numbers of people. Broadcast notification through such news media is intended to either notify the public of the application(s) or of a hearing on a proposed ROW application. Targeted prior notification, although less common, is provided in some states, like Connecticut, Iowa, Maine and New Hampshire, to every property that is abutting or within a specific distance to the treated ROW property. Other states provide prior notification if a property owner or resident has requested to be placed on a notification registry of ROW applications, including Maine, New Hampshire, Pennsylvania, Vermont, Washington and West Virginia. Some states require the

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Table 1: Adverse Health and Environmental Effects of Commonly Used Herbicides on Rights-of-Way

Herbicides	Cancer	Birth Defects	Reproductive Effects	Neurotoxic	Kidney or Liver Damage	Sensitizer or Irritant	Detected in Groundwater	Potential to Leach	Toxic to Birds	Toxic to Fish	Toxic to Bees
2,4-D	•	•	•	•	•	•	•	•	•	•	•
Dicamba	•	•	•	•	•	•	•	•	•	•	
Diuron	•	•		•	•	•	•		•	•	
Fosamine Amonium	•				•	•		•	•	•	
Glyphosate	•		•		•	•	•	•	•	•	
Hexazinone	•	•	•		•	•	•	•		•	
Picloram			•		•	•	•	•		•	
Triclopyr	•	•	•		•	•	•	•	•	•	

Source: Environmental Protection Agency, National Cancer Institute, California Department of Pesticide Regulation and Extension Toxicology Network and www.scorecard.org.

posting of signs to notify the public at all entrances to the ROW. *Prior notification should be given to all property owners and tenants within one mile of the ROW application and should be complemented with the posting of signs. Posting of signs will provide notice to the general public that enters a treated ROW.*

No-Spray Agreements

No-spray agreements are offered by many states. These agreements between the ROW managing entity and the landowner require that the landowners maintain the ROW that is adjacent to their property or the managing entity will agree to maintain the ROW without using herbicides, sometimes at the landowner's expense. Maine, North Carolina and Oregon are examples of states that have no-spray agreements. A voluntary program of utilities in North Carolina allows residents to establish no-spray agreements between utility companies and landowners without the force of law.

Integrated Roadside Vegetation Management

Some states have addressed the risk of using herbicides along ROWs by developing an IPM program for ROWs, or Integrated Roadside Vegetation Management Plans (IRVM), restricting when and where pesticides can be applied on ROWs and integrating the planting of native vegetation in the planning process of road construction. With the potential for contamination, a strong IRVM plan allows for only least-toxic chemical use as a last resort if all other means, including the use of mechanical, biological and cultural methods, of managing ROWs have been exhausted.

Nonchemical pest management methods are utilized in controlling unwanted vegetation on ROWs and are used around the country. Programs that adopt the principles of IRVM can be carefully designed for the specific vegetation management needs for each ROW situation and must include pest identification, population monitoring, determination of injury and action levels, and selection of the most appropriate control tactics. A long-term perspective is critical when developing a pest management strategy for ROW. Ideally, an ecologically stable plant community that persists in a state that does not reach injury levels should be the goal for all ROWs. Intervention, when necessary to remove unwanted vegetation, should be highly selective and non-disruptive to other life forms of the community. ROW management can become worse if competitors and natural enemies of pest vegetation are inadvertently killed by herbicide applications.

In 1997, the National Roadside Vegetation Management Association and the Integrated Roadside Vegetation Management Program Task Force produced a manual, *How to Develop and Implement An Integrated Roadside Vegetation Management Program*,[1] which many states have used in their plan for roadside management. This program serves a variety of purposes, including erosion control, wildlife habitat, scenic qualities, weed control, utility easements, and recreation uses. It incorporates integrated management practices, like burning, seeding, mowing, but also typically incorporates spraying in the control of weeds, damaging insects and invader plant species.

The adoption of IRVM plans began in some states after President Bill Clinton's Invasive Species Executive Order in 1999 as it encouraged integrated management of road side weeds before and-after projects and use of environmental beneficial landscaping practices.[2] The National Cooperative Highway Research Program published in 2005 *Integrated Roadside Vegetation Management: A Synthesis of Highway Practices,* which outlined several state IRVMs. The survey found that, out of the 21 states responding to their survey, 10 had a state policy that requires a defined IRVM strategy. Ten other states address vegetation management in road construction projects. Florida, Illinois, Maryland, Minnesota, Montana, Nebraska, Ohio, and Washington all have policy or state law that requires the use of native plant species when constructing or restoring roadside vegetation. The survey also found that mechanical controls are the most commonly used management technique for states that had an IRVM policy. Alaska, Arkansas, Connecticut, Illinois, Indiana, Maryland, Montana, New York, and West Virginia identified 90% to 100% of their rights-of-way being mowed.

Other states, including California, Iowa, North Carolina, Utah, and Wisconsin, that did not respond to this report's survey also have IRVM policy. County level governments have also established IRVM

polices in Kansas and the Roadside Office of the University of Northern Iowa Roadside Office[3] was established to increase county participation in the state IRVM program.

The Case for Alternatives

Notification and IRVM programs cannot curb all the potential impacts of ROW herbicides on wildlife, given their potential to contaminate wells, drainage ditches, lakes, and air miles from the pesticide-treated area. Additionally, it couldn't alone insure that habitat is maintained for beneficial organisms. Pesticide labels with instructions, such as Tordon's "Do not apply directly to water," are not strong enough given the proximity of many ROW spray routes to water and the potential for ground or aerial drift or runoff. Instructions, such as "Do not contaminate food or feed" or "Avoid drift," are commonly ignored by applicators spraying in high winds, which carry the spray past the intended application area. The most effective way to eliminate the potential harm caused by pesticide use is to use alternative organic management practices.

Planting native vegetation, using mechanical, biological and nontoxic vegetation control methods are effective nontoxic solutions. Creating and encouraging stable, low-maintenance vegetation is a more permanent vegetation management strategy. The establishment of desirable plant species that can out-compete undesirable species requires little maintenance and meets the requirements for ROW management. Although native vegetation may take more time to establish itself, native flower and grass species are better adapted to local climate and stress than those introduced from Europe and Asia. Native plant species are especially effective in providing increased erosion control, aesthetics, wildlife habitat, and biodiversity. Numerous states have established roadside wildflower programs for these reasons.

Planting native wildflowers along ROWs are often described as beautification projects. However, native wildflowers can also help create habitat for stressed pollinator populations.[6] Native flower projects along highways and roadways create a network of habitats that link natural resources throughout a state. Roadside commonly

Goats and Biological Controls

Goats have begun to receive wider recognition as an effective form of biological weed control on ROWs. The utility company Pacific Gas and Electric (PG&E) in 2013 used over 900 goats to clear weeds and brush over 100 acres and along roadways. The project reduced the standard cost of the ROW maintenance by half, and was so successful that, according to the project director, Jack Harvey, they will bring the program back the next year. In 2008, the Maryland Department of Transportation's State Highway Administration (SHA) utilized 40 goats to maintain eight acres of meadows and bogs, which are inhabited by the threatened Bog Turtle. Using traditional mowing methods would have disrupted habitat or killed the threatened turtles.

Local communities often strongly support the use of goats to manage weeds. This past September activist on Cape Cod protested NStar's plan to resume spraying herbicides on ROWs by putting on a goat grazing event. The event showcased four goats along road clearing weeds.[4]

Goats and other grazing animals are not the only form of biological control. A number of plant pests can be controlled with the introduction of natural insect enemies. In 2001, researchers at North Dakota State found that a mix population of two types of flea beetles, *A. czwalinae* and *A. lacertosa*, were able to reduce the density of leafy spurge by 95% within four years along a train ROW in North Dakota. The study also found that this form of biological control was less expensive than the use of herbicides.[5]

Table 2: Summary of Selected Pest Management Policies and Programs for Rights-of-Way (ROW)

State	Prior Notification	Posting	Pesticide Alternatives/Restriction
Alaska	State ROWs that require a permit, 2 notices in local newspapers and "in any other media the central office considers appropriate." The Department of Environmental Conservation will hold a public hearing on a permit application for a right-of-way spraying if, within 30 days after the second publication of notice under 18 AAC 15.050(c), a hearing is requested by 50 residents of the affected area.		In 2006, several jurisdictions passed resolutions opposing the spraying of pesticides by the Alaska Railroad in their districts, including the Denali, Kenai Peninsula and Matanuska-Susitna boroughs; the Municipality of Anchorage, the City of Seward, the Native Village of Eklutna; and the citizens advisory board for Matanuska-Susitna Valley state parks. The Alaskan Supreme Court also halted plans for the use of glyphosate to kill weeds along Alaskan Railroad track in 2010.
California		Public ROW where public exposure is foreseeable, pesticides with worker reentry interval of at least 24 hours, post sign or create barrier.	CalTrans pledged not apply pesticides within 100 feet of school bus stops and use IPM; established reduced herbicide management plans. CalTrans District 1 local governments can opt for no herbicide spraying.
Connecticut	Electric, telephone or telecommunication company provides 48-hour prior notification to all abutting property.	Electric, telephone or telecommunication company, application to pole, post sign on each pole treated.	Prohibition of aerial broad-spectrum pesticide applications for non-agriculture purposes. Public highway, prohibition of aerial pesticidal dust applications within 100 feet.
Florida			Florida Department of Transportation (FDOT) adopted a roadway and roadside maintenance rule that requires each district to prepare a plan that addresses soil testing, seeding, soil amendments, aeration, and herbicides.
Iowa		Highways, roads, streets, alleys, sidewalks and recreational trails within corporate limits of municipalities, post at each end of treated area.	IA DOT required to control invasive weeds along roadsides with herbicides only if mowing or other control not practical. 50 out of 99 counties participate in IRVM program.
Maine	Within 500 feet of application area, notice provided between 3 and 60 days prior to treatment through regular newspapers; if no such newspaper exists, all landowners within 500 feet of application area are directly notified. Individual occupants of "sensitive areas" can contact ROW entity to be notified of any application within 500 feet. Notification registry, 6 hrs to 14 days prior notice for application made within 250 feet of property.	Sign posted prior to application, remain posted for 48 hours at point of entrance to area.	Utility and DOT offer "no spray agreements" for individual or municipality to adopt.
Massachusetts	Roadway, railroad, power lines, conduits, channels or communication lines, public meetings and 45-day comment period on 5-year Vegetation Management Plan and the annual Yearly Operational Plan (YOP) ROW proposal. Plans must look at alternative approaches.		Roadway, railroad, power lines, conduits, channels or communication lines, prohibition on aerial application to ROWs. Prohibition on handling, mixing or loading herbicide concentrate within 100 feet of sensitive area. Restrictions on pesticide applications with regard to distance to water supplies, surface water, wetlands, inhabited and agriculture areas. YOP must include IPM in the plan.
Michigan	Commercial applicators conducting broadcast or foliar ROW applications provide prior notice through personal contact or through local newspaper to residents of property within target area.		
Minnesota			State required to use IPM in management of roadside plans. IRVM program have been adopted by seven out of eight counties.
Montana	The Department of Transportation must submit a statement or summary of all invasive weed actions to the state weed coordinator and shall post a copy of the statement or summary on a state electronic access system.		The board must manage invasive weeds on all land or rights-of-way owned by a county or municipality within the district. While managing the invasive weeds, they are directed to preserve beneficial vegetation and wildlife habitat. When possible, management must include cultural, and biological methods.

State	Prior Notification	Posting	Pesticide Alternatives/Restriction
New Hampshire	Applicators to power transmission and distribution lines, gas pipelines, railroads, public road ROW, between June and October 15, notify directly to residences within 200 feet 10 days prior to treatment. Notification in newspapers once for 2 weeks at least 45 days prior to treatment and includes cut out coupon for all abutting owners to receive notice 30 days prior to treatment.		
New York	The Rochester region of New York provides public notice of scheduled herbicide applications on the NYSDOT website.		Department of Transportation (DOT) uses an IVRM plan to control vegetation along state highways with most vegetation management accomplished by mowing. The NYSDOT started a project to develop a strategic plan for IVRM and test non-herbicide alternatives for managing ROWs.
North Carolina	Utilities provide prior notice of ROW herbicide applications in inserts of customer bills, adopted by private agreement between state utilities and landowners.		Prohibition on aerial application to public road ROW or within 25 feet of road. NC DOT internally adopted IPM program. Private, no-spray agreement available between landowner and utility company.
Oregon			State agencies required to use IPM. OR DOT district IPM plans available to public for review. OR DOT can provide no spray agreement.
Pennsylvania	Commercial or public applicators conducting restricted use pesticide ground applications to ROW publish notices in 2 newspapers or oral or certified mail notice to all abutting residences. Abutting residence can request additional information regarding application. 12 to 72 hour prior notification to anyone that works or lives within 500 feet of treatment site and on the medically verified hypersensitive registry.		
Vermont	Owner of property within 1,000 feet of electric utility ROW can request to be notified 30 to 60 days prior to treatment. Newspaper notification once a week for 4 weeks, include cut out coupon to be listed on notification registry. Any person making a pesticide application to ROW, 25 to 60 days prior to treatment, must print notice in 2 newspapers, once a week for 2 weeks, notice also by either radio, mail to abutting residents 2 weeks prior or personally delivered 10 days prior to treatment.		If ROW traverses private property, can request electric utility not use any herbicides, such request costs $30 to the Dept of Public Services for administrative costs.
Washington	Certified applicator treating ROW, notice at least 2 hours prior, to abutting residents on the medically verified pesticide hypersensitive registry.	Certified applicator treating ROW, post notice on each "power application apparatus."	State agencies required to use IPM. DOT offers no spray agreements.
West Virginia	Utility ROW provides notice 60 to 120 days prior to treatment to all news media, to all persons on the hypersensitive registry and abutting residents who have made a written request to be notified.		Prohibition on aerial application of picloram and dicamba and all other herbicides within specific distance to recreation areas, residential structures and roads.
Wisconsin	Railroads must notify employees no less than 48 hours before applying a pesticide to a right-of-way that a railroad owns or maintains at a central location accessible to employees of the railroad. The railroad has to make available on its website the public can receive information of pesticide used by the railroad on ROWs. If aerial application occurs on a ROW adjacent to a property owner's house, the property shall be notified of the application at least 24 hours in a advance of the aerial application.		Wisconsin's DOT have managed highways landscapes to utilize native and naturalized species and intentionally leave some areas un-mowed to create wildlife habitat. This strategy of natural landscape planting is designed to require minimal maintenance.

border or bisect commercial agricultural areas, which bees and other pollinators often help pollinate. Rachel Carson, in her seminal work *Silent Spring*, expressed concern over the habitat destruction pesticide use can have on ROW's. "Many roadsides are merely one example…of the senseless destruction that is going on in the name of roadside brush control throughout the Nation… Such vegetation is also the habitat of wild bees and other pollinating insects."

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Cutting, girdling, and mowing are successful mechanical means to eradicate unwanted vegetation on various ROWs. Mowing can be useful under certain circumstances, such as when the ROW must be maintained as turf or low vegetation. The schedule for mowing, if done, must adjust to plant life cycles in order for maximum effectiveness. The uses of fabric material and mulch under roadside signs and guardrails and on the edge of the shoulder are effective in suppressing weeds. Other control methods include the use of corn-gluten and steam treatments.

State Review

Alaska– Administrative Code, chapter 18 sections 90.500 and 90.520, require two notices to be published in a local newspaper "and in other media the central office considers appropriate" (18 AK ADMIN. CODE 90.50 (a) (1998)) for all applications made by a government employee using funds, materials or equipment of that government entity on a state-owned ROW. The department will also hold a public hearing on a permit application for a right of way spraying if, within 30 days after the second publication of notice under 18 AAC 15.050(c), a hearing is requested by 50 residents of the affected area.

California– Food and Agricultural Code, section 12978, requires signs to be posted when a pesticide with a worker reentry interval of at least 24 hours is applied on school grounds, parks, or "other public rights-of-way where public exposure is foreseeable" (CA FOOD & AGRIC. CODE § 12978 (1998)). Barriers may be used instead of the warning signs. Applications made by the Department of Transportation (CalTrans) on public highway ROWs are exempt from the posting requirements.

CalTrans established an internal policy to develop strategies to reduce and eliminate the use of pesticides along roadsides through a roadside vegetation environmental impact report in 1992 which stated that CalTrans is to decrease herbicide use by 50% by the year 2000, which was met, and 80% by the year 2012. This report also pledged to not apply chemicals within 100 feet of school bus stops. In response to local organizing by community activists, CalTrans adopted a policy to halt herbicide spraying on highways in District 1, northwest California where local governments request it in 1997. Del Norte, Humbodlt, and Mendocino counties have voted for the elimination of all herbicides on roadsides. For further information on CalTrans policies and lack of implementation, see excerpt from the California for Alternatives to Toxics report, *The Poisoning of Public Thoroughfares*, on page 20.

Connecticut– General Statutes, section 22a-66k as amended by Public Act No. 98-229, requires that any electric, telephone or telecommunication company that provides for the application of pesticides within a ROW maintained by such company must notify owners, occupants or tenants of buildings or dwellings abutting the ROW at least 48 hours in advance. If the company provides for the application of pesticides to any utility pole, after it has been installed, it is required to post a notification sign on each pole. If the company provides for the application of pesticides in connection with tree or brush removal from private property, the company must get consent from the occupant before proceeding. State, municipality, pesticide application business, public service company or railroad company ROW applications are exempt from the notification requirements. Section 22a-66-7 of the General Statutes prohibits the aerial application of pesticidal dusts within 100 feet of a public highway. And section 22a-54-1 prohibits the aerial application of broad-spectrum chemical pesticides for nonagricultural purposes however, exceptions can be made for mosquitos or other pests that carry human diseases.

Florida– Highway Landscape Guide states, "There are two basic methods of weed control: cultural and chemical. Cultural methods should first be employed; and only when they fail should chemical methods be employed."[7] In 2009, Florida DOT (FDOT) adopted a Roadway and Roadside Maintenance rule that requires each district to prepare a comprehensive and balanced roadside vegetation management plan. The plan must address soil testing, seeding, soil amendments, aeration, and herbicides. According to the rule, herbicides should only be considered for use on vegetation cannot be controlled by mechanical methods and the DOT may not use restricted use herbicides on roadsides.[8]

In 2011, FDOT set up a study to investigate how roadside vegetation management helps support and benefit pollinator populations.[9] According to the study, "Roadsides support a wide variety of pollen and nectar resources; and unlike agricultural landscapes, remain unplowed and therefore can provide potential nesting sites for ground nesting bees."

Iowa– Administrative Code, section 21-45.50(4), requires posting notification signs when a pesticide is applied to a public highway, road, street, alley, sidewalk or recreational trail ROW within the corporate limits of municipalities "in a manner that provides reasonable notice to the occupants of properties immediately adjacent to the area being treated" (IAC 21-45.50(4) (1998)). Signs are to be posted at the end of each area treated. If the area is within a developed residential zone, signs are to be posted at both ends of

each block. Public ROW enclosed by a chain link fence, noise wall or other structures that eliminate pedestrian access are exempt. The public may request the pesticide application schedules and other right-to-know information from the licensed applicator.

Iowa Code, section 317.11, states that the county boards of supervisors and the state department of transportation are required to control noxious weeds along roadsides under their jurisdiction. The spraying of pesticides to control noxious weeds is only allowed "when it is not practical to mow or otherwise control noxious weeds."

Iowa Code, section 314.21, establishes a state fund that helps counties in the state use and develop an Integrated Roadside Vegetation Management (IRVM) program. Iowa Code, section 314.22, establishes the development of an IRVM program for areas on or adjacent to roads, streets and highway ROWs through the state department of transportation. The program is available for any county to adopt and implement. fifty out of ninety-nine counties are currently participating in the IRVM program across the state.

Maine– Board of Pesticides Control Regulations, section 01-026-51(IV), requires the licensed applicator to provide information regarding a planned aerial pesticide ROW application to the contracting entity. The contracting entity then prints the information in local newspapers. An "article/advertisement" of the ROW application must be published in a newspaper of general circulation between three and 60 days prior to the application. If there is no newspaper of regular circulation in the area, individual notices to all landowners within 500 feet of the application site is given instead. Notice, whether in newspaper or individual notices, must include a description of the target area, how to contact the contracting entity, the intended purpose of the application, pesticide(s) to be used, date(s) of application, emergency telephone numbers and any public precautions that appear on the pesticide label. Maine also requires posting notification signs at any point where the public can enter the treated area. The signs are to remain posted for at least 48 hours. The signs must state similar information as required for written notification in English and French.

Maine Board of Pesticides Control Regulations, section 01-026-22(5), states that an occupant of a sensitive area can request to be notified of any pesticide application occurring within 500 feet of that sensitive area. Sensitive areas include public and private drinking water sources and all water bodies as well as areas within 100 feet of residential, school, commercial or developed recreational properties that are not the intended target. The individual wanting prior notification must contact the person responsible for the management of the land on which a pesticide application will take place. Notification can be given "in any fashion, provided that it is effective in informing the person" requesting such notification at least one day before the application commences. If the requesting individual is not satisfied with notification provided, a complaint may be filed with the Board which will then help resolve the agreement between the two parties. Maine Board of Pesticide Control recently adopted a new chapter to its regulations, chapter 28, which establishes a pesticide notification registry. Notification is given to any resident, upon request, by telephone, personal contact or mail six hours to 14 days prior to an application made within 250 feet of the registrant's property.

Maine Pesticides Control Act, title 7 section 625 of the Maine Revised Statutes Annotated, states that any public utility or Department of Transportation ROW can offer a no-spray agreement for the municipality or individual to consider. Maine utility companies inform their customers of the no-spray agreement in bill-mailings. The Department of Transportation (DOT) provides signs to those that are adjacent to DOT ROWs requesting that the applicators do not spray the property adjacent to their property.

Massachusetts– Code of Regulations, section 11, prohibits the handling, mixing or loading of herbicide concentrate on a ROW within 100 feet of a sensitive area and the application of herbicides by aircraft for the purpose of clearing or maintaining a ROW. Sensitive areas within a ROW area "in which public health, environmental or agricultural concerns warrant special protection to further minimize risks of unreasonable adverse effects" (333 CMR § 11.02 (1996)) and include an area within the primary recharge of a public well, within 400 feet of any surface public water supply, and areas within

100 feet of a private water well, standing or flowing water, wetland or any agricultural or inhabited area. Section 11.03(9) requires the department to maintain a mailing list of individuals and groups who want to receive notice "on various aspects of the Program." A Vegetation Management Plan (VMP) is required of all applicants before treating ROWs. The VMP describes the intended program for vegetation control over a five-year period and must include "a description of Integrated Pest Management Programs or other techniques/programs to minimize the amount and frequency of herbicide application. Description of alternative land use provisions or agreements that may be established with individuals, state, federal or municipal agencies that would minimize the need for herbicide" (333 CMR § 11.05(h), (i) (1996)). The department, once the VMP is received, will schedule and hold regional public hearings for all interested parties to comment on the proposed plan. Notice of the hearing is printed in regional newspapers and the *Environmental Monitor* and includes where a copy of the VMP can be reviewed. There is a 45-day comment period starting when notice of the proposed plan is published. A Yearly Operational Plan (YOP) describes the detailed vegetation management operation for the year and is consistent with the terms of the VMP. A YOP notice is published in the *Environmental Monitor* and is distributed "to the appropriate mailing list." The YOP also has a 45-day comment period. ROWs include "any roadway, or thoroughfare on which public passage is made and any corridor of land over which facilities such as railroads, power lines, pipelines, conduits, channels or communication lines are located" (333 CMR § 11.02 (1996)).

After four years of relying on non-toxic mechanical controls to clear weeds on rights-of-way across Cape Cod, the Massachusetts-based power company NStar announced that it would begin using herbicides again in 2013. All 15 Cape Cod towns have signed a no-spray resolution in 2011 and 2013, requesting NStar to use non-chemical means to defoliate transmission line easements, citing concerns for pesticide drift into the ground and surface water. Yet, despite extensive local opposition to the spraying, and evidence of the efficacy of organic land management to control weeds, NStar has refused to seriously consider alternative methods to spraying toxic herbicides.

Photo of Right-of-Way adjacent to child's play structure in Cape Cod, Massachusetts. Photo courtesy: Sue Phelan, GreenCAPE.

Michigan– Pesticide Use Regulation No. 637, section 285.637.11(5) of the Michigan Administrative Code, requires the commercial applicator making a broadcast or foliar application to ROWs to provide prior notification to occupants of property within the application target area. Property owners, their agents, or persons residing within the application area are notified either by personal contact, through an advertisement in the legal section of at least one local, general circulation newspaper or prior written notification. Written notification includes detailed information on the application with supplemental information available upon request.

Minnesota– Statute, section 18B.063, requires the state to "use integrated pest management techniques in its management of public lands, including roadside rights-of-way, parks, and forests; and shall use planting regimes that minimize the need for pesticides and added nutrients" (MINN. STAT. § 18B.063 (1998)). Department of Transportation (Mn/DOT) has developed an "Integrated Roadside Vegetation Management Program" (IRVM) which fosters the development of local IRVM programs and annual plans at the local, district or maintenance area level within Mn/DOT. 7/8 districts have developed IRVM strategies.

Montana– Annotated Code 7-22-2151 states that a state agency that controls land within a district, including the department of transportation, shall enter into written agreement with the [pesticide] board. The agreement must include an integrated noxious weed management plan, which must be updated biennially. The Department of transportation must also submit a statement or summary of all noxious weed actions to the state weed coordinator and shall post a copy of the statement or summary on a state electronic access system. According to 7-21-2121 Weed management programs, the board shall provide for the management of noxious weeds on all land or right-of-way owned by a county or municipality within the district. It shall take particular precautions while managing the noxious weeds to preserve beneficial vegetation and wildlife habitat. When possible, management must include cultural, chemical, and biological methods.[10]

New Hampshire– Code of Administrative Rules, section 505.06, require applicators making a herbicide application to ROWs for power

transmission and distribution lines, gas pipelines, railroads and public roads applied between June and October 15 to give prior notification to the public. Notification is in newspapers and given directly to residences within 200 feet of the ROW. Notification in newspapers must be once a week for two weeks in one newspaper of statewide circulation and in all local circulation papers. The second or last notice must be at least 45 days before the application begins. Notice includes information on the proposed application as well as how to receive more information. The newspaper notice must also include a cutout coupon for all abutting property owners to mail in to receive an individual written notice 30 days before the treatment is to begin. These companies will compile a permanent list for prior notification, to be maintained by the utilities. Mail-in coupon notification requests must be received 35 days prior to the application, otherwise it become effective the following year. Direct notification of the residences within 200 feet of the right-of way treatment area is by certified mail or personally delivered and made at least 10 days before the application begins. Applications made to control poison ivy, in conjunction with landscape plantings on roadsides, upon roadway pavement, curbing and guardrails are exempt from the above requirements.

New York– State Department of Transportation (DOT) uses an IVRM plan to control vegetation along state highways with most vegetation management accomplished by mowing. The New York State Department of Transpiration (NYSDOT) has partnered with Cornell and the State University of New York College of Environmental Science and Forestry (SUNY-ESF) to release studies on the use of native grasses and alternatives to herbicide use. In 2008, the NYSDOT started a project to develop a strategic plan for IVRM and test non-herbicide alternatives for managing ROWs. The Rochester region of New York provides public notice of scheduled herbicide applications on the NYSDOT website.

North Carolina– Administrative Code, title 2, subchapter 9L, section .1005, states that no pesticides can be applied by aircraft to public road ROW or within 25 feet of the road. The state Department of Transportation, although not legislated to do so, has developed an IPM policy which the department recommends to people across the state for roadside pest management

In a private agreement, North Carolina utility companies, including Duke Power, Carolina Power & Light, North Carolina Power, and Nantahala Power, agreed to provide private landowners the right to be informed about pesticides used on their ROWs, opt out of the spray program and flag their property as a no-spray area. However, as energy companies have conglomerated in North Carolina activists power companies have been less willing to honor these agreements.

Oregon– *State Pesticide Control Act*, section 634.655 of the Oregon Revised Statutes, requires state agencies that have pest control responsibilities to follow the principles of IPM, including the State Department of Agriculture, State Department of Fish and Wildlife, Department of Transportation, State Parks and Recreation Department, State Forestry Department, Department of Corrections, Oregon Division of Administrative Services and each Oregon institution of higher education, for the institution's own building and grounds maintenance. A person is designated from each agency to coordinate the IPM program for that agency. Each person responsible for pest management in each agency is trained in IPM. The Department of Transportation district IPM plans are open to the public for review. The Department of Transportation also provides no-spray agreements to landowners that are adjacent to the road ROW.

Pennsylvania– Pesticides Rules and Regulations, title 7 section 128.81 of the Pennsylvania Code, require prior notification for restricted use, ground pesticide applications to ROWs. Notice must be published in two local newspapers of general circulation. An alternate to newspaper notices, the commercial or public applicator may give notice orally or by certified mail to all abutting residents. An abutting resident may request, at least seven days before the application is to begin, additional information, such as date and time of application, pesticide(s) to be applied and a copy of the label(s), which will be provided at least 12 hours before the application. Internal injections to utility poles and trees and ground line applications to utility poles are exempt from the notification requirement.

Pennsylvania Pesticides Rules and Regulations, title 7 subchapter F, provide a registry for people who have medical proof of their sensitivity to pesticides. People listed on the registry are notified between 12 and 72 hours before any application within 500 feet of their residence, place of employment, or school.

Vermont– Regulations for Control of Pesticides, section IV(4), requires any person applying a pesticide to a ROW to obtain a permit from the department and provide notification to the public. Twenty-five to 60 days prior to the application, information regarding the application must be printed once a week for two consecutive weeks in two local newspapers. Notice must also be made by one of the following: a) three spot messages per day on two radio stations in the area for two consecutive days during the two week period prior to the application; b) mail notification to abutting residents at least two weeks prior to application; or c) personally delivered notification at least ten days prior to application. All permits require buffer zones around the waters of the state, each distance determined on a case by case basis. ROW includes property owned or leased by utilities for the purpose of carrying, transmitting or transporting liquids, gases, electricity, communications, vehicles or people.

Vermont Public Service Board Rules, sections 3.620 to 3.641, state the notification requirements for electric utility ROW's pesticide applications and alternatives to such applications. An owner or occupant within 1,000 feet of a utility ROW can request to be notified by mail between 30 and 60 days before the commencement of the application. To do so, the owner or occupant must contact the utility company in writing before May 15 of each year to request to be placed on a notification mailing list. If the utility company chooses, it can place all residents of a town on its mailing list. Section 3.621(F) of the Vermont Public Service Board Rules states that, "inadvertent

failure to comply with [the above stated requirements] shall not raise any presumption of negligence." Every year the Vermont Electric Power Company, Inc (VELCO) is to develop an information sheet stating general information on herbicide spraying of utility ROWs, how to contact utilities for more information and how to be placed on a notification mailing list. These information sheets are then distributed by the utilities to their customers by May 1 of each year. This same information is placed in newspapers once a week for four weeks in April. Both the information sheet mailer and the newspaper advertisement include a cutout coupon for persons to return to the utility requesting prior notification of the ROW application. If a utility ROW crosses a landowner's property, the landowner can send a written request to the utility to not use herbicides to clear the traversed ROW. A $30 administrative fee is charged for such herbicide-free requests.

Washington– Revised Code, chapter 17.21, section 400, requires a certified applicator applying a pesticide to a ROW to post notice on each "power application apparatus" and have a copy of the pesticide's MSDS. If the certified applicator receives a written request for information regarding the ROW treatment, the applicator must provide the requestor with the name of the pesticide(s) and the MSDS, or the applicator may provide a department approved fact sheet on the pesticide. Sections 17.21.420 and 17.21.430 establish prior notification to anyone on abutting property who is on the department's pesticide-sensitive registry. Enlistees must have documented medical proof of a person's sensitivity in order to be listed. For highway or road ROWs, this includes "that portion of the property within one-half mile of the principal place of residence" (RCW 17.21.420(2) (1998)). The list expires at the end of every year and thus renewal is necessary annually to be included. Notification to the abutting pesticide-sensitive registers must be made at least 2 hours prior to the application or if for an immediate service call, at the time of the application. Notification can be made by telephone, in writing or in person, with the date and time of the application.

Washington Revised Code, section 17.15, requires state agencies, including the Department of Agriculture, the State Noxious weed Control Board, the Department of Ecology, the Department of Fish and Wildlife, the Department of Transportation, the Parks and Recreation Commission, the Department of Natural Resources, the Department of Corrections, the Department of General Administration, and each state institution of higher education, for the institution's own building and grounds maintenance, to follow the principles of IPM. Each state agency listed is required to have an IPM coordinator. In response to the findings of the state's Environmental Impact Statement for roadside vegetation management in 1993, the Department of Transportation has developed an *Integrated Vegetation Management for Roadside* guidebook which is intended to provide the individual crew maintenance employees with a reference and guidelines for the application of IPM in the day to day work of highway maintenance. The Department of Transportation offers no-spray agreements through their local district offices.

West Virginia– Legislative Rule, title 61 section 12D, requires prior notification for aerial herbicide applications made to utility ROWs. Notification, made in writing between 60 and 120 days prior to the application, is given to "all news media" in the area to be treated, all persons in the spray area on the department's hypersensitivity registry and all property owners and tenants abutting the property who have made a written request to the utility to be notified. Notification includes general information regarding the application. Herbicides containing Picloram or Dicamba must not be applied by aircraft closer than 100 feet of public recreation areas, 150 feet of residential structures, 150 feet of barns and other outbuildings in use and 50 feet of roads. All other herbicides must not be applied closer than 150 feet of public recreation areas, 100 feet of residential structures, 150 feet of barns and other outbuildings in use and 50 feet from roads. Utility ROWs include "those rights-of-way maintained by persons providing public service to the citizens of the state and may include but is not limited to electric companies, gas companies, communication companies and railroads" (WVCSR tit 61 § 12D-2.1 (effective 1992)).

Wisconsin– Passed Act 286[11] in 2009 which requires rail roads to provide pesticide notification no less than 48 hours before applying a pesticide to a right of way that a railroad owns or maintains at a central location accessible to employees of the railroad. The railroad also has to make available on its website how the public can receive information of pesticide used by the railroad on ROWs.[12] If aerial application occurs on a ROW adjacent to a property owner's house, the property shall be notified of the application at least 24 hours in advance of the aerial application. Wisconsin also utilizes an integrated vegetation management system to foster sustainable roadside vegetation.[13] Wisconsin's DOT have managed highways landscapes to utilize native and naturalized species and intentionally leave some areas un-mowed to create wildlife habitat. This strategy of natural landscape planting is designed to require minimal maintenance.

Conclusion

People have a right to be informed and protected from the unnecessary use of herbicides to which they are potentially exposed on nearby rights-of-way. In order to avoid exposure to the herbicides applied on ROWs, policies must require prior notification to nearby property, posting of signs, access to information regarding the herbicides used, and the use of a strong IPM program in the management of ROWs.

This review is intended as an overview of states and localities that are moving forward in their efforts to protect people from unintended exposure. Implementation and enforcement are absolutely critical. Although the many states listed in this review are exemplary in notification or in requiring integrated pest management, the states listed may be ineffective in protecting the people near the ROWs.

For more information on ROW policies and tools on how to organize for the adoption of such policies at the state or local level, please contact Beyond Pesticides. This factsheet is published in Pesticides and You, Vol. 33, No. 3, Fall 2013, and can be found online at www.beyondpesticides.org/weeds.

Endnotes

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