

ROADSIDE VEGETATION MANAGEMENT PLAN JUNE 2003

INTRODUCTION

In 1998, the Department of Transportation and Sanitation (DOTS) was instructed by the Board of Supervisors to find alternatives to spraying herbicides along Nevada County roadsides. Using “California Roadsides: A New Perspective”, a study prepared for CalTrans, DOTS tried several alternatives to herbicides with varying degrees of success. Some methods were complete failures while others were highly effective. The staff incorporated the best methods into the Roadside Vegetation Management Plan and reduced the use of herbicides by over 60 percent.

By 2003, it was apparent that the Department was no longer able to maintain the roadside vegetation as effectively as needed and to the best of our abilities and resources. The Road Maintenance Division staff was assigned to review the experience of the last three years, research the new technology available and prepare a revised Roadside Vegetation Management Plan. This new plan is to include the safe and effective use of herbicides where needed while incorporating alternative methods to achieve a well-balanced and effective program.

The Plan components are:

- The Plan Goals
- A Review of Roadside Management Techniques
- Management Zones and Management by Zones

THE PLAN GOALS

The goal of this Plan is to create a well-balanced and effective means to properly maintain and manage roadside vegetation and remain consistent with the 1998 goal of reducing herbicide use. The climate and vegetation in Nevada County are so diverse that a “one size fits all” approach to weed and grass control does not work. The best form of management in the southern portion of the County is not the best method in the eastern portion. Each method of vegetation control will be used in the proper location of the County to maximize its efficiency in ways that are compatible with the environment and the general public. This revised Plan will result in road shoulders that are safer for motorists, promote longer pavement life and provide a minor firebreak along County roadsides consistent with good fire-safe practices.

VEGETATION MANAGEMENT TECHNIQUES

Mowing and Brushing

Mowing works well and the results are attractive. In the 1998 Plan, the Department made a serious commitment to use this method as the main replacement for herbicides. At that time, it was expected that the major drawback to mowing would be the stalks and roots left in the ditch line. They would collect leaves and silt and would eventually fill the ditches with debris.

In 2002, a new mower was purchased and the old brushing machine was converted into a mower. The crew was expanded with additional personnel to concentrate on cutting grasses and weeds. Unfortunately, high temperatures and low humidity percentages (90 degrees or 20 percent humidity) shut down the mowing for a substantial portion of the summer. Under these conditions and even with a water truck following the mower, the risk of starting a fire is too great to continue the operation. In addition, it was not possible to keep up with the growth along the road shoulders. In the lower elevations, the grass needed to be cut three to four times per season. This did not allow us to keep the mowers in higher elevations where growth is considerably slower and the mowers effect is maximized. These experiences confirmed that it is not possible to achieve the Program goals by relying on mowing as the primary method of weed control.

Brushing involves removing heavy brush and trees to open sight distances, improve road width and allow pedestrian use of the shoulders. DOTS employees as well as California Youth Authority (CYA) and County inmates do the work. Professional tree fallers and other specialized personnel are contracted with whenever their services are needed. Arborists, professional forester, archeologists, forest service personnel and environmentalists are, also, called upon when working around sensitive areas.

Registered Herbicides

Following the 1998 Board directive, the Department reduced the use of herbicides by over 60 percent. This was accomplished by retaining approximately 25 percent of the herbicides strictly for controlling noxious weeds and drainage areas not accessible by heavy equipment. Fifteen percent was retained for 70 miles of road determined to be too dangerous to mow. These roads have the highest traffic volumes, rate of speed, and potential for accidental fires in the County.

Basically, the 60 percent reduction was achieved by removing shoulder miles from the spray program. This method was good for reducing the use of herbicides, but counter-productive for maintaining shoulders, protecting the paved surface and enhancing fire safety.

Recent technology will enable us to return many miles of road shoulders to the spray program and still maintain the lower level of herbicide use. New equipment can now pinpoint exactly where to spray so the weed is targeted and only the weed receives the treatment, not any of the area that surrounds it. This is accomplished by sensors that detect the infrared reflection from the chlorophyll in plants. These sensors turn on a nozzle as it passes over a plant, then turns it off again once it has passed over it. By using this equipment and technology, the Department anticipates that in three years it will exceed the 60 percent reduction in herbicides and achieve the Program goals.

Recycled Asphalt

A new practice that has become available to the Department is applying recycled asphalt. This is old asphalt ground up to the consistency of gravel during highway reconstruction. It has been a significant by-product of rehabilitation work CalTrans has been doing. CalTrans has made it available to the County at no charge.

It has been used as shoulder-backing material on recent County overlay projects and works very well for that purpose. With proper compaction the Department's experience is that it works better than gravel for keeping weeds and grasses down.

Alternative Labor

California Youth Authority and County inmates are used to supplement County staff on brush cutting operations. They are used in project areas as often as fire season permits and the Department schedule allows. County inmates may, also, use weed-eaters or other hand tools in areas where mowing is not practical, such as drainage easements and around obstacles (e.g. signposts and guardrails).

Alternative and/or Preferred Vegetation:

Roadside Shoulders - Alternative and/or preferred vegetation were planted on sections of shoulders where this method was feasible (e.g. a shoulder existed, avoiding the ditches). This method was combined with a one-foot clear strip to keep weed growth away from the pavement edge. Ron Ettlin and Ron Zinke developed the seed mixture needed for different conditions, then the Department applied it to the designated areas. This method seemed to work well in early spring and appeared to be very effective. However, by June the shoulder was over taken by native grasses and the one-foot clear strip was completely gone.

The major problem with this method is the fact that there is not enough room along the roads for seed to compete with native grasses and weeds. The right-of-way along County roads is so narrow (one to four feet being the average width) that the planted seeds are easily overtaken by the surrounding acres of native growth.

This method was, also, tried at some higher elevations. As was anticipated, the snow and ice removal operations destroyed the planted areas.

Cut Banks and Slopes - Alternative and preferred vegetation works very well on cut banks and slopes. In these areas of 10 to 12 feet average width, the alternative and preferred vegetation can secure a better foothold. Along with planting short low growing grasses, wildflower seeds are added to the mixture. The Department has received many favorable compliments on this from the public. Different blends of seeds will continue to be tried in an effort to combat native grasses and weeds and stay within our goals of short, low growing vegetation along the roadside.

Inorganic Mulches (Crushed Rock and Gravel)

This process involves placing crushed rock and gravel at the edge of the roadway. Placing gravel at the edge of asphalt after an overlay not only deters weed growth, but also provides a safe recovery area for motorists who inadvertently leave the pavement. However, weeds and grasses soon infest the area requiring mowing or some other management technique.

Asphalt Concrete

Of all the alternatives tried, the most permanent method for controlling weeds is to pave the shoulders. Where erosion is also a concern, dikes and berms can be added to help mitigate this problem. This method is very expensive and, therefore, cannot be used routinely. However, it can be done in conjunction with construction projects and overlays.

MANAGEMENT ZONES

To effectively manage roadside vegetation in Nevada County, this revised Plan provides that the County be divided into separate management zones. Each zone will be managed according to the different types of weed and grasses, rate of weed growth, climate, public input and other factors to produce a successful vegetation management program. All the various methods of vegetation management outlined in this Plan will be used as a system. The techniques will be integrated so that each system produces the most effective and cost efficient means of vegetation control for the Management Zone.

MANAGEMENT BY ZONES

The County has been divided into five separate Vegetation Management Zones. Each zone is large enough to consider a climate range, agriculture conditions, type and variety of weeds and grasses and their growth patterns, population density, etc., and yet is small enough to apply the most effective methods to control the vegetation. Each zone will use a primary method of vegetation control along with all other methods that are appropriate.

Each zone could utilize any or all of the vegetation control methods that are found to be the most effective in that particular zone. For example, the south portion of the County has fast growing grasses with a longer, warmer growing season. Mowing as the primary means of control is not the best approach there. However, a combination of shoulders maintained with herbicides and by mowing, asphalt concrete ditches and alternative vegetation would make a very effective system.

The northern and eastern portions of the County have a cooler climate with slower growing weeds and grasses. Here, herbicides are not warranted and mowing as the primary means of control is effective. Combined with alternative labor, inorganic mulches or other methods as needed, these zones can be maintained quite well. By not requiring the mowers to stay in the southern portions of the County for most of a growing season, they spend more of their time in zones where their efforts are longer lasting and more effective.

Zone 1 follows Highway 49 from the Bear River North to Newtown Road. It then runs along Newtown to Empress Road, onto Bitney Springs Road, from Bitney Springs Road it goes to Pleasant Valley Road and then south to Mooney Flat Road, down Mooney Flat Road to Highway 20.

This area includes the Wolf Road, Garden Bar area, Rough and Ready, Penn Valley and Bitney Springs and the Newtown Road area.

The Zone covers approximately 158 miles of road.

The primary method of vegetation control will be herbicides.

Zone 2 Follows Highway 49 North from the Bear River to Brunswick Road, then East to Highway 174 at the Bear River, following the Bear River South to Dog Bar Road, from Dog Bar to Magnolia Road, then Magnolia Road West to Highway 49.

This district includes the Dog Bar Road, Rattlesnake Road, Mt. Olive, Alta Sierra and Lower Colfax areas.

The Zone includes approximately 130 miles of road.

The primary means of vegetation control will be herbicides.

Zone 3 starts at Highway 49 at Brunswick Road and follows Highway 49 to the South Fork of the Yuba River. It follows the Yuba River East to Bowman Lake Road, then over to the Bear River, following it south to Highway 174.

This district includes North Bloomfield Road, Cement Hill area, along with Washington Road, Banner Mountain area, Cascade Shores, Greenhorn and Orchards Springs.

The Zone district includes approximately 145 miles.

The primary means of vegetation control will be herbicides in the lower elevations where the grasses still grow fairly fast, then switching to mowers as the elevation climbs and the growth slows.

Zone 4 covers the area along Highway 49, North of the South Fork of the Yuba River following Tyler-Foote Road to Moores Flat Road. It also includes Pleasant Valley Road from Highway 49 to Bitney Springs Road.

This area includes North San Juan, Oak Tree Road, Murphy Road and the Purdon area. It also includes Columbia Hill, Grizzly Hill and the Bloomfield area North of the Yuba River.

The Zone covers approximately 85 miles of road.

The primary method of vegetation control will be mowing.

Zone 5 is entirely in the high country and in the eastern portion of the County. It starts at Snow Tent Springs at Moores Flat Road and goes through Graniteville to the Sierra County Line. It follows the Placer County line from Eagle Lakes Road to the Nevada State Line. This area includes the Graniteville/Bowman Lake area, Hobart Mills, Prosser Lake and Truckee areas and also includes Soda Springs.

This Zone covers approximately 67 miles.

Brushing will be the primary means of vegetation control.

CONCLUSION

The Department has developed this Revised Roadside Vegetation Management Plan using the experiences of the last three years, new technology and equipment and the concept of management zones. The Plan will meet the goals of creating a well-balanced and effective means to properly maintain and manage roadside vegetation for the safety of those using the roads, protecting the roadway and reducing fire danger while reducing the amount of herbicides used