

OVERVIEW OF INTEGRATED VEGETATION MANAGEMENT APPROACH

Principals of Integrated Pest Management

Under the IVM approach, Caltrans districts will conduct vegetation control in conformance with the principles of integrated pest management (IPM). All vegetation control methods will be available to control undesirable vegetation. Long-term vegetation objectives will be determined for each potential treatment site, and the control method used will be based on an explicit decision-making and documentation process (Appendix G of the draft EIR).

IPM is the selection, integration, and implementation of pest management methods based on predicting economic, ecological, and sociological consequences. Under IPM, Caltrans will evaluate consequences of using various methods or combinations of methods, or of opting for no management, from a long-term, ecosystem perspective. A cohesive vegetation strategy will then be identified for each treatment site that is as self-sustaining as possible over the long term; control actions will be selected for the near term that will reduce dependence on long-term, periodic intervention. Naturally occurring controls on pests will be considered initially and used where feasible. Artificial methods will be used only as specific problems arise that necessitate their use.

Caltrans' IVM Approach

Caltrans' IVM approach will entail the following steps for each potential treatment site (e.g., pavement, clearstrip, landscaping, or outer ROW) of each distinct highway segment potentially requiring vegetation control:

1. Identify specific needs (e.g., visibility, clearance, drainage, pavement integrity, fire hazard prevention, noxious weed suppression, landscaping protection, and erosion control).
2. Examine possible structural improvements to eliminate the need for vegetation control.
3. Identify vegetation objective (i.e., desirability of establishing or encouraging certain plant species or of maintaining no vegetation).
4. Determine undesired vegetation at the site and the threshold above which undesired vegetation is unacceptable.
5. Determine vegetation control methods available to suppress undesired vegetation below the identified threshold and enhance desired vegetation.

6. Examine human use and environmental conditions onsite and in adjacent areas.
7. Reject or modify potential vegetation control methods that pose unacceptable risks to people or the environment according to protection measures and mitigation measures described in subsequent sections of this chapter.
8. From the remaining acceptable vegetation control methods, select the method or combination of methods expected to be most cost-effective over the long term.
9. Implement the selected method or methods.
10. Monitor results and adjust successive treatments to achieve the vegetation objective for the site.
11. Define a new objective if it is determined that the selected vegetation objective cannot be achieved.

The IVM approach, to be developed both at the state and district levels, will be implemented at the district level. Districts will begin to implement the IVM approach as soon as adequate training can be provided (see "Implementation Milestones" below).

Methods Available under Caltrans' IVM Approach

Chapter 4 of the draft EIR describes alternative vegetation control methods that will be available in the IVM program. These methods include mechanical, manual, thermal, cultural (organic mulch), biological, and chemical methods.

Under the IVM program, Caltrans will pursue plant competition as a biological control method. To facilitate this, an in-house RVMC will be formed at the state level to recommend and oversee research in identification of desirable species for ROW treatment sites in different ecoprovinces and districts, techniques to encourage existing species or to establish new species, and longer term management practices.

Development of these methods will entail grants and contracts to research and resource management organizations working cooperatively with maintenance district staffs. Test zones will be established in ROW within appropriate districts to evaluate the desirability and feasibility of establishing locally identified candidate plant species meeting ROW site criteria (Table 4-1 of the draft EIR). Native, introduced, naturalized, and "weedy" species will be considered, and performance will be controlled by a variety of methods as warranted. Feasibility and relative cost-effectiveness will be examined and use of favorable species will be expanded to larger ROW areas as soon as possible.

REDUCING THE NEED FOR VEGETATION CONTROL

Changes in Structural Design Standards

Caltrans will reduce the need for periodic vegetation control by using structural improvements where feasible. These improvements may be used to eliminate substrate conditions favorable to invasion by undesired vegetation, prevent contact of burning objects or hot engine exhaust with dry vegetation, and reduce invasion of paved areas by vegetation. Structural improvements to consider will include crack and joint fill; widened paved or rock shoulders; replacement of continuous clearstrips with discrete, discontinuous clearstrips; topographic or drainage reconfiguration to change soil moisture regimes affecting plant growth; retaining walls or asphalt berms or curbs at the bottoms of cut slopes; and other potential improvements.

Caltrans will convene an in-house task force to consider such improvements and identify practical and effective changes to Caltrans' highway design standards for this purpose. These standards will subsequently be adhered to during new construction and rehabilitation projects. The latter will result in retrofitting the entire highway system with the selected structural improvements over the next few decades.

This task force will also consider the need for continuing control of vegetation in pavement cracks and joints and at the pavement edge to protect pavement integrity, pursuant to comment response A-2 in Chapter 4 of this document.

Changes in Vegetation Control Standards

Caltrans' RVMC will also consider changes to previous vegetation control standards that will reduce the need for vegetation control in general and the use of herbicides in particular. The committee will also evaluate variations in control standards that may be appropriate between districts or different ecoprovinces. For example, the RVMC will consider the need for and appropriateness of clearstrips of different widths in four-lane ROW medians. Also, clearstrips at the pavement edge may not be required in areas of lower fire hazard.

PROTECTING SPECIAL-STATUS VEGETATION AND WILDLIFE HABITAT

Within 10 years, Caltrans will identify and initiate protection of special-status plant populations, habitat of special-status fish and wildlife species, and significant natural communities, including riparian communities bordering surface waters, in or immediately

adjacent to state highway ROW. The RVMC will be responsible for carrying out this program element through the following steps:

- Develop and implement a plan for determining the locations of populations of special-status plants, significant habitat for populations of special-status fish and wildlife, and significant natural communities, including riparian communities bordering surface waters, in or abutting the ROW. This plan will include developing a working definition of "significant habitat" and "significant natural communities" for each district and a procedure to determine known and potential distributions of these resources.
- For areas with a moderately high potential for occurrences of these resources, employ qualified botanists and wildlife biologists to conduct field surveys of ROW to locate the resources.
- For each established occurrence of these resources, develop site-specific vegetation control methods to preserve and enhance the vegetation and habitat and establish appropriate buffer zones to protect it from damaging control activities.
- Update these resource inventories on a regular basis.

This program element is needed to avoid a significant potential impact identified in the draft EIR.

USE OF CHEMICAL METHODS

Allowable Chemicals

Caltrans will use only chemicals registered with and approved by CalEPA that have been evaluated through Caltrans' risk assessment methodology (draft EIR, Appendix I). Currently, 25 herbicides and nine adjuvants identified in Table 2-1 are approved for use, but other chemicals may be approved if they meet the above two criteria and associated health and environmental risks do not exceed risk thresholds established in the draft EIR. Mitigation measures may be required allowing the use of certain chemicals where risks can be reduced below the significance thresholds.

Variation in Use

Caltrans will vary the chemicals selected for use at each treatment site from time to time to avoid the development of herbicide resistance in target vegetation. For use of

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bromacil, chlorsulfuron, diquat, diuron, oryzalin, oxyfluorfen, tebuthiuron, and trifluralin, district personnel will employ the following principles:

- Use the same chemical no more than once every 2-3 years, unless no other chemical or control method can provide adequate vegetation control.
- Reduce chemical application rates until the minimum rates providing adequate vegetation control are identified.
- Alternate use of chemical and mechanical methods where only one chemical can provide adequate vegetation control.

Reduction in Use

Over the long term, chemical methods will remain important components of the IVM program and will be used where no vegetation is desired, to reduce plant competition with desired vegetation or to control aggressiveness of desired vegetation. Caltrans is committed, however, to reducing its use of chemical methods of vegetation control and will act to gradually but substantially reduce chemical use.

A reduction in chemical use will begin by reducing control areas and substituting control methods as identified in the districts' annual plans. More substantial reductions will result from the structural changes that eliminate the need for vegetation control or from the successful establishment of low-maintenance desirable vegetation to occupy growing space. These changes will occur over a relatively long period. Given these factors, Caltrans has established the following goals for reducing use of nonselective herbicides compared to current use levels:

| <u>Year</u> | <u>Percent Reduction</u> |
|-------------|--------------------------|
| 2000 | 50 |
| 2012 | 80 |

(These reductions refer to weight or volume of chemical concentrate applied statewide.)

Reductions in chemical use will be sought in all districts, but these targets may not be applied uniformly to each district to allow for variations in need for chemical use among the them.

Although every effort will be made to meet these targets, it is possible that they may not be met. If a shortfall occurs but measures described below are adhered to during all chemical use, the shortfall will not pose a significant impact on human or environmental health, according to the risk assessment.