



Project Summary Report O-4548-S

Project O-4548: Minimizing Impacts to Existing Vegetation
and Sensitive Landforms during Roadway Construction

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Protecting Trees and Sensitive Landscape Features

Preserving or protecting existing vegetation and landforms appears to offer benefits to the community in aesthetic value and to the Texas Department of Transportation (TxDOT) in construction and maintenance costs.

Tree protection procedures both in cities and in departments of transportation rely heavily on guidelines and information from state county extension agencies, forestry departments at universities, and federal

agencies such as the Natural Resource Conservation Service and the U.S. Forestry Service. The Tree Care Industry Association and the International Society of Arboriculture, two dominant private organizations, provide a

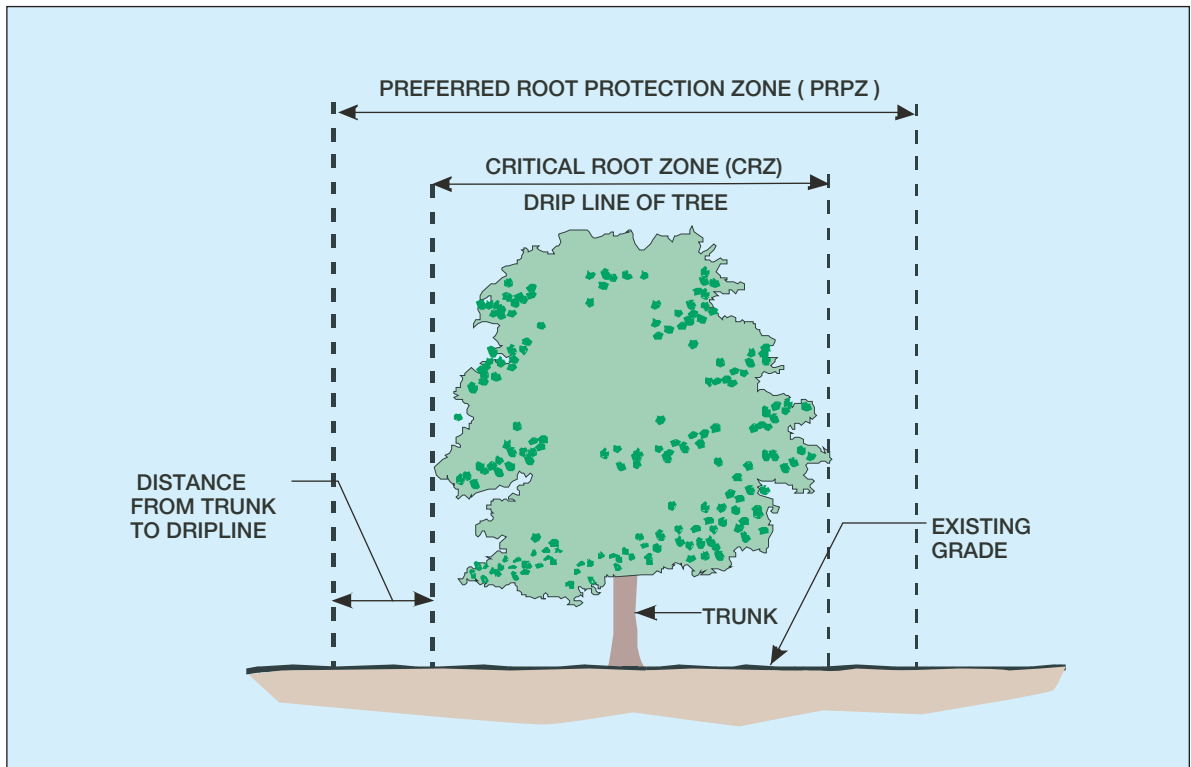


Figure 1. Proposed New Protected Root Zone Standard.



wide array of consumer and construction trade information.

Many of TxDOT's standards for tree and special landform protection were adapted from tree care industry standards, some of which are no longer considered valid. This project developed guidelines for determining what vegetation can be saved and why, associated costs, and safety and social concerns affecting protection/preservation decisions.

What We Did...

The research team canvassed state departments of transportation to determine types of standards currently in use. The team reviewed current

standards from the tree care industry and tree protection or preservation ordinances from all major cities in Texas. The project goal also included considering other landscape features or landforms that might have environmental or aesthetic importance. Using the information gathered from agencies and research literature, the team developed a set of recommended standards for use by TxDOT, including the recommendations for a new specification and standard detail sheet and notes. To facilitate the use of these recommendations, a set of guidelines and presentation materials were prepared.

What We Found...

Researchers found that none of the departments of transportation canvassed have any extensive standards for tree protection — although most have some basic standards and details, which appear to simply designate a protected area around trees. TxDOT's own standards show a wide variation of standards used in 15 special specifications.

Researchers found two instances of specific treatment of special landforms or sensitive areas on highways: one in South Australia and the other in the United Kingdom. None were found in the United States. These programs each focus on

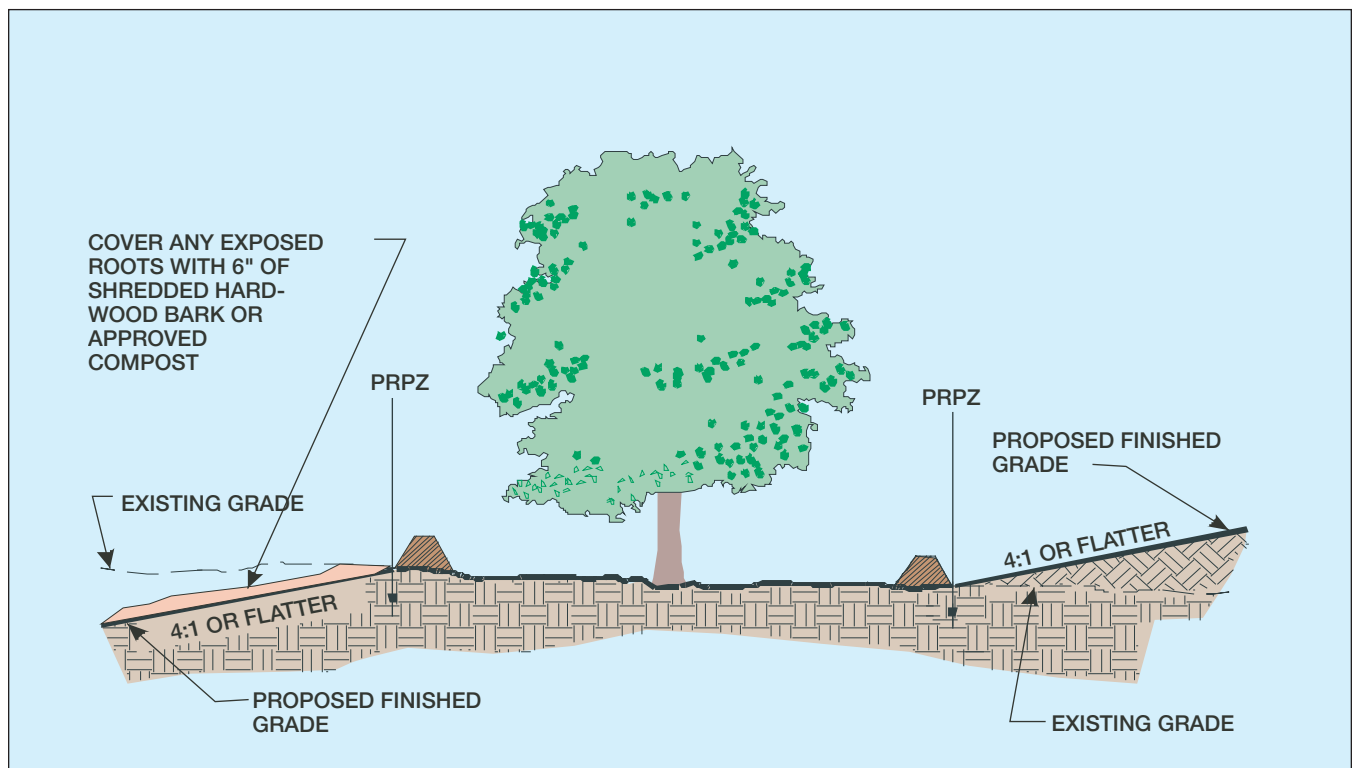


Figure 2. New Details Address Multiple Situations.



remnant vegetation associated with the roadway, isolated vegetation stands, and (in the United Kingdom) hedgerows. These programs are developed using a vegetation-centered approach and do not specifically address other natural features.

The Researchers Recommend...

To accomplish the key issue of implementing good practices at a time best suited to success, researchers recommend a new special provision (SP) that would make it easier to protect trees and sensitive areas (Figure 1). This provision is appended to TxDOT's Item 100, Preparing Right-of-Way, since the

construction activities of Item 100 take place at the start of all projects. The provision provides specific language regarding tree and landform protection, a method of measurement, and a payment procedure. A standard detail sheet provides specific construction procedures and includes extensive general notes. These sheets make it easy to accommodate slight modifications for unique site features without creating conflicts within the Item 100 pay item.

This project developed guidelines that introduce the issues involved in tree protection (Figure 1) and discuss at length

the types of sites (Figure 2) that may be encountered and steps that may be, or must be, considered (see Report 0-4548-1). The guidelines discuss the advantages to roadside management of preserving plant communities (Figure 3) and the connection to the larger environment surrounding the roadway.

This research provides a more comprehensive approach to looking at the environmental relationships of the roadway and provides better tools for TxDOT designers and managers to identify and protect trees and landscape features from damage during construction.

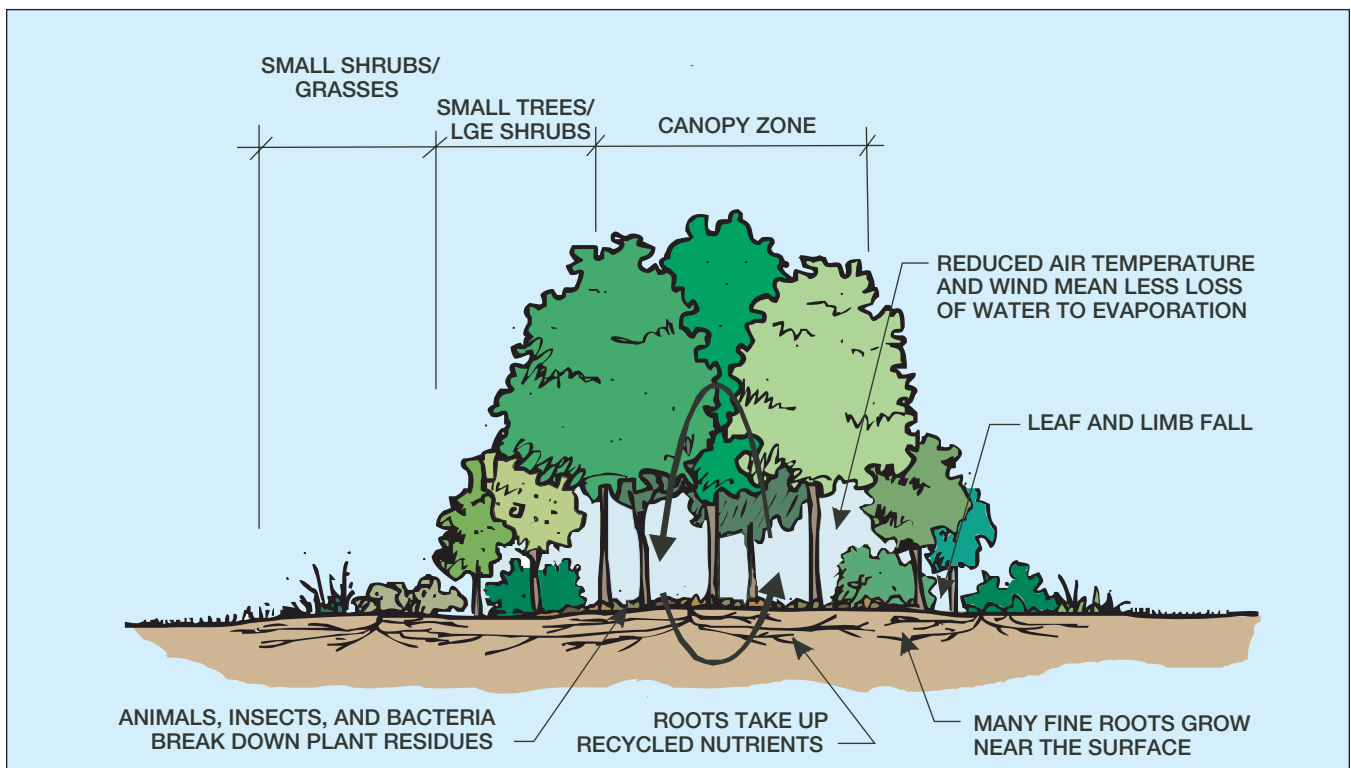


Figure 3. Native Communities Are Self-Maintaining and Provide Habitat Value.



For More Details. . .

The research is documented in [Report 0-4548-1, Recommendations, Procedures, and Guidelines for the Protection of Trees and Sensitive Landforms](#).

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The research resulted in a new special provision to Item 100 that makes it easier to protect trees and sensitive areas. The specification is tied to construction right-of-way preparation activities to ensure timely application. This research developed a better way for TxDOT designers and managers to identify and protect trees and landscape features and protect them from damage during construction.

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