

Landscape Maintenance Zone, Distances and Heights



In this Chapter

- ▶ **What is the Landscape Maintenance Zone (LMZ)?**
- ▶ **What are vegetation standards (heights and widths) in the LMZ?**
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Roadside vegetation maintenance provides a safe driving experience. Sight distances must be maintained for important signs and intersections. Roadsides may provide a recovery area that allows drivers to pull off the road when necessary. You will have a role in managing hazardous vegetation.

Different factors may affect maintenance decisions, such as an urban versus rural landscape, property ownership boundaries or community expectations. If you think your activities may cause a negative change in road safety or community concerns, discuss this with the Engineer.

Standards and guidelines for the Landscape Maintenance Zone's common road features contribute to a safe driving experience in Hawaii, efficient use of available limited resources, and adoption of consistent standards in maintaining roadside vegetation.



What is the Landscape Maintenance Zone (LMZ)?



JARGON

The Landscape Maintenance Zone (LMZ): The area along the roadsides. It extends from the edge of the road (usually the white line) into surrounding land (right-of-way).

Right-of-way: Land owned or managed by the State for transportation purposes. Typically a narrow strip of land along both sides of a road, it may be a few feet or hundreds of yards wide. This is usually defined by a fence at the property line.

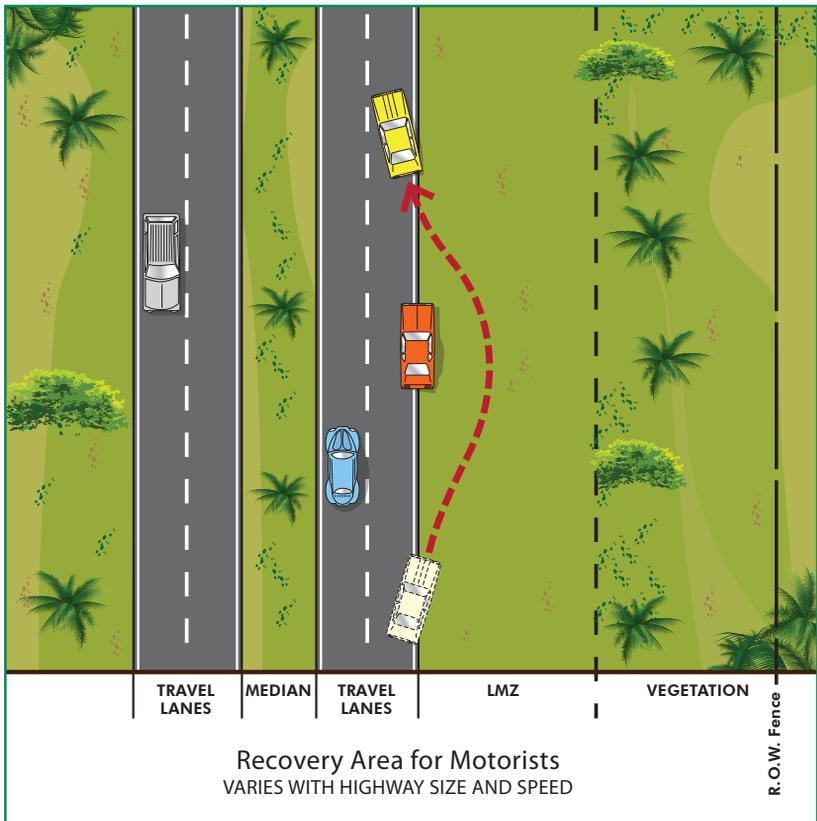
Question: Where should landscape maintenance occur?

Answer: In the Landscape Maintenance Zone (LMZ).

This zone is the main focus of vegetation maintenance activities. It extends from the edge of the traveled lane to the first obstacle on the shoulder or to a recommended lateral clearance distance.

Lateral clearances

The **lateral distance or width of the Landscape Maintenance Zone** stems from a safety perspective and is intended to create and maintain a **recovery area for motorists**. The recommended width of the Landscape Maintenance Zone depends on the **posted speed**.





What are vegetation standards (heights and widths) in the LMZ?

The Engineer may change LMZ widths in any given situation, but these guidelines should be considered as the starting point. **Unless they are self-evident, non-standard site-specific requirements should be specified in contracts or work plans.**

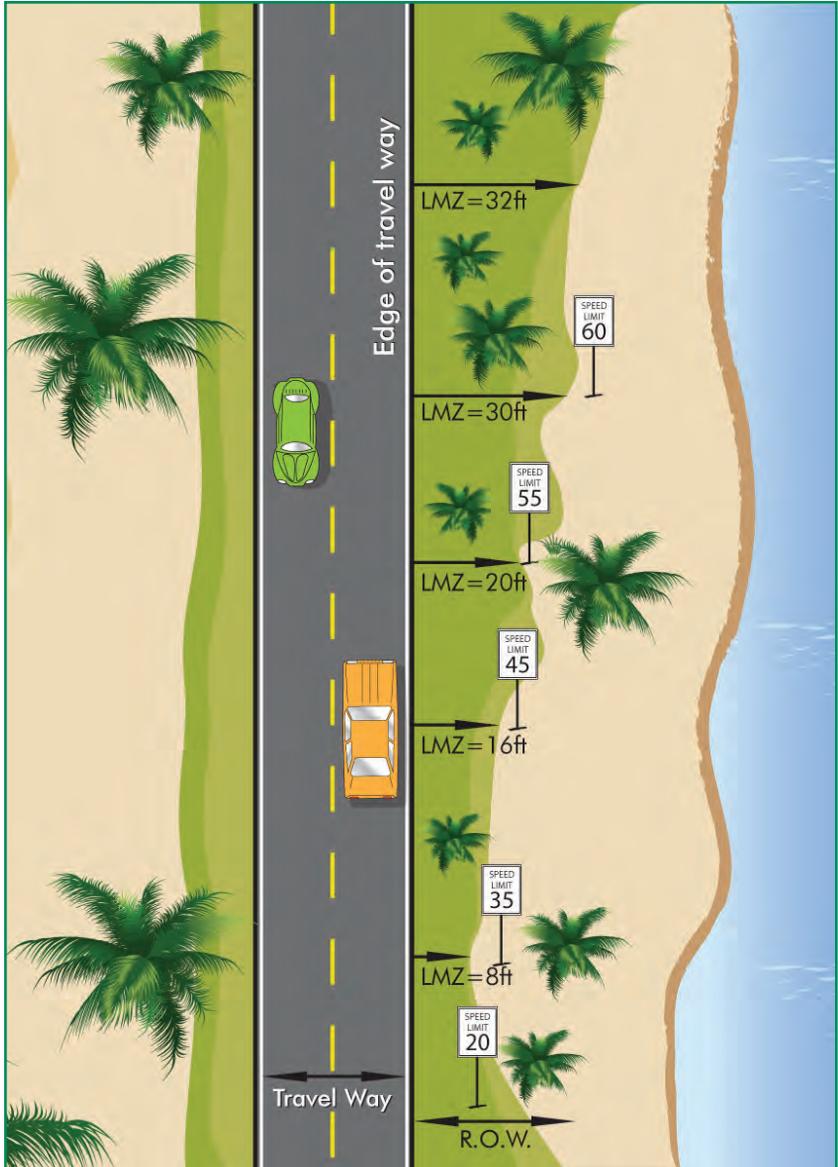
The Engineer should ensure that the standard widths are followed in the Landscape Maintenance Zone, but other appropriate standards may be determined by the Engineer.

In certain situations, the boundaries of the rights-of-way, the presence of structures, desirable trees or other roadside features may affect implementation of the standards.

Urban LMZ is typically the entire right-of-way unless directed by the Engineer.

Posted speed (mph)	Rural Landscape Maintenance Zone: recommended distance away from the travel way (ft)
minimum	8
20	16
25	16
30	16
35	16
40	20
45	20
50	30
55	30
60	32

Recommended widths of the Landscape Maintenance Zone (LMZ) depend on the posted speed limits but may be changed by the Engineer.



Horizontal or lateral distances of the Landscape Maintenance Zone (LMZ) vary with posted speed limits and the slope. The LMZ shown is for rural flat roadsides with no slope. Several factors not illustrated in the diagram above, such as the width and degree of slope of the right-of-way, could make the Engineer change the otherwise recommended lateral widths of the LMZ.



What should I do in the LMZ to maintain safety?

The LMZ is intended to create a recovery area for motorists and should be as free as possible of hazardous vegetation.

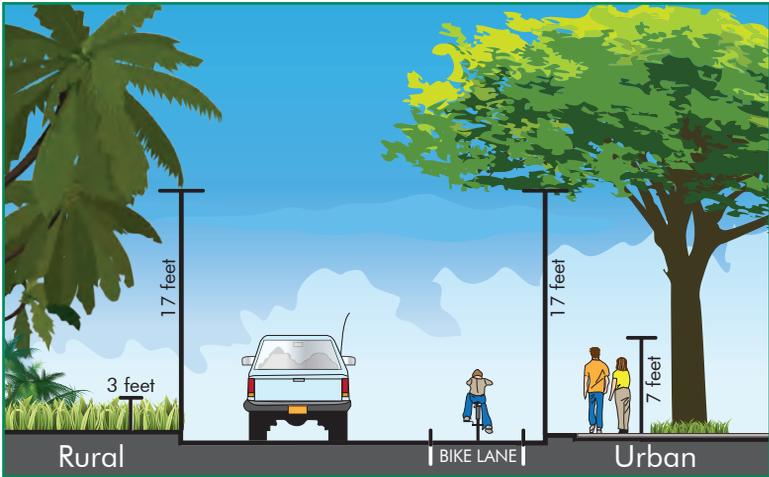
You should:

- ▶ **Maintain rural vegetation to 3 ft. tall or less within the rural LMZ and mowing heights indicated in Ch. 5** – In intersections, vegetation 2 ft. tall or less is acceptable (see “Intersections” section in this chapter).
- ▶ **Ensure that vegetation does not create a significant impact hazard** or otherwise affect road safety, visibility or hinder drainage systems.
- ▶ **Maintain sight distances** for passing, signs, stopping and at intersections (see “Intersections” and “Signs” in this chapter).
- ▶ **A minimum urban horizontal clearance or operational clearance** of 18 inches shall be provided between the face of the curb and any obstructions, including trees or shrubs.



In urban areas a minimum horizontal clearance of 18 inches should be maintained between the face of the curb and any obstruction, such as a tree or shrub.

Vertical clearance for any overhanging vegetation, such as branches coming into the LMZ, should be 17 ft. above the ground level within 2 ft. of the travelway. Vertical clearance above sidewalks should be 7 ft.



Vertical Clearance

Recommended vertical height of vegetation in the Landscape Maintenance Zone: 3 ft. for ground vegetation, 17 ft. for overhanging vegetation, such as a branch of a shrub or tree, and 7 ft. canopy clearance above the sidewalk.

Trees

LMZ – Rural versus Urban

In urban areas planted trees may be allowed to grow within 18 inches of the road and are an important feature of Hawaii’s most pleasant urban communities. Meanwhile, in rural areas trees contribute to a pleasing landscape but special attention should be given to trees that are frequently involved in accidents, or that are in dangerous locations. You will be involved in making recommendations for removal or preventing the establishment of unwanted trees.

Weedy and dangerous trees, pleasant shade and community favorites

Tree species with a trunk or stems over 4 inches diameter at breast height (4.5 ft.) should not be allowed to establish in the Landscape Maintenance Zone unless they are determined to be desirable. You may have to treat stumps to prevent regrowth. Do not allow trees to establish in areas where they can become a hazard.

Unless you have specific instructions from the Engineer to do so, do not cut down large trees in the LMZ.

Trees greater than 4 inches diameter at breast height (4.5 ft.), and already established in the LMZ, generally should not be removed unless the Engineer determines they should be removed to address safety concerns. The Engineer will weigh the risks posed by trees against other concerns, such as:

- ▶ Has the tree been hit by a vehicle?
- ▶ Is the tree considered an exceptional tree by the County?
- ▶ Is the tree valued by the community or interest group?
- ▶ Will removing the tree damage infrastructure, cause erosion or pose a safety risk?
- ▶ Can reasonable measures be taken to shield the tree?

Albizia (*Falcataria moluccana*) seedlings should not be allowed to establish anywhere in the right-of-way.



Young trees of albizia (*Falcataria moluccana*) at Waiehu, Maui.



Albizia saplings at Hana Highway, Maui.

Safety!

Fire and driving don't mix!

During the hot season of June through September fire hazards should be managed in the LMZ, especially in high risk areas.

During dry seasons, areas with a history of fires should be mowed once to a height of not less than six (6) inches along a 30-ft.-wide swath from the edge of the asphalt. Burning vegetation within the State right-of-way is not allowed unless directed by the Engineer.

Flammable vegetation should be replaced with low risk vegetation or controlled by mowing, or other means to reduce build up of fuel.



Wayne F. Ching, DOFAW, Hawaii

Clearing and pruning vegetation in the LMZ

Clear trees, brush, downed timber and other vegetation as follows:

- ▶ Cut all trees and branches so they fall within the ROW limits.
- ▶ Cut stumps flush with or below the ground level within the LMZ; grinding is recommended.
- ▶ In areas outside the LMZ, cut stumps to within 6 inches of the ground.
- ▶ Trees should be pruned following standard arboricultural practices (see Chapter 6, "Pruning Trees, Palms, Shrubs and Hedges.")
- ▶ Pruning should not substantially change the form of a tree.
- ▶ Do not prune more than 25% of the canopy at one time.
- ▶ Where possible, trim and remove heavy areas of brush selectively to avoid a straight or carved edge.
- ▶ Encourage a more natural, meandering appearance.



Tip

When should you call the tree experts?

Maintenance personnel and contractors should report overhanging branches of large trees (17 ft. over the road or shoulder) to the Engineer. Trees to be reported for handling by WCISA-certified tree workers are those that:

- ▶ Have large diameters or hang over the center of either lane.
- ▶ Are higher than 10 ft. from the road.
- ▶ Pose a safety risk.
- ▶ Would require lane closures and severe disruption of traffic when workers are trimming.

Utility lines

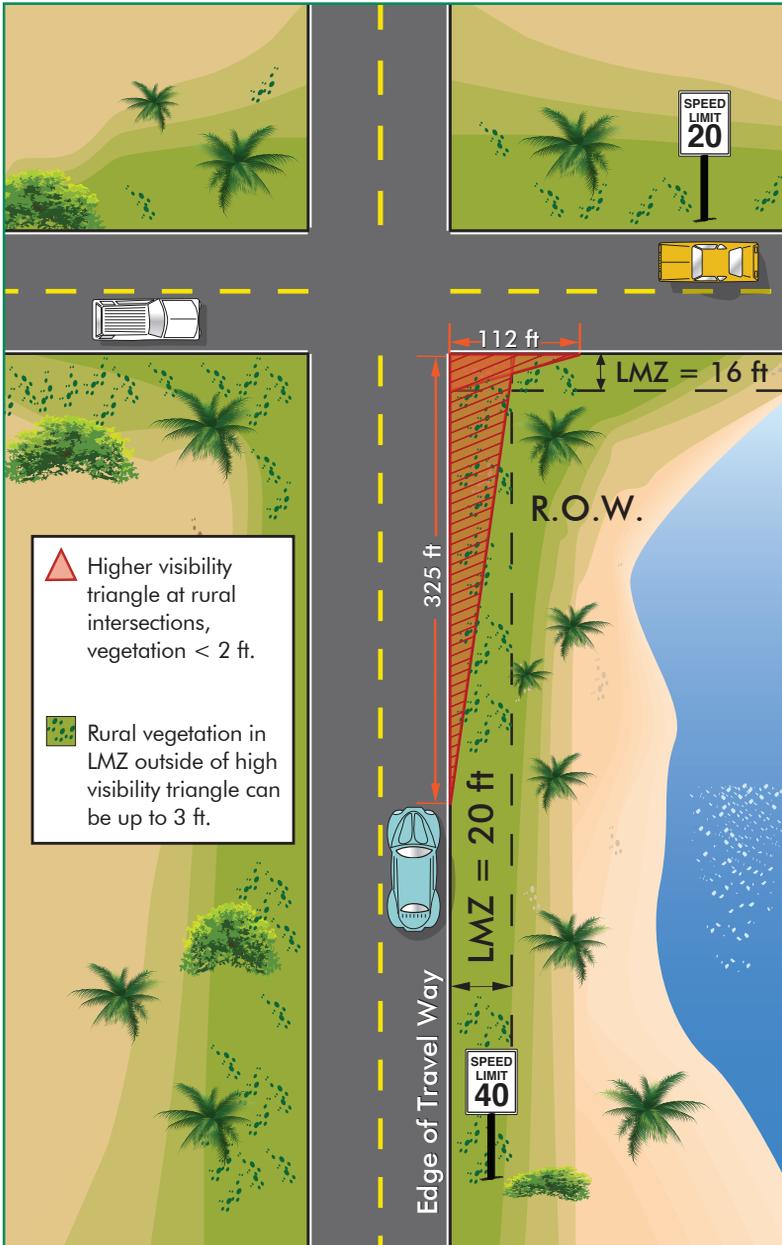
Overhead utility lines must remain free of vegetation to prevent electrical hazards.

- ▶ Prune trees to ensure that they do not grow closer than 10 ft. from overhead utility lines.
- ▶ Notify the Engineer of trees within 10 ft. of overhead utility lines.
- ▶ Only tree trimmers contracted by the utility company should prune within 10 ft. of utility lines.
- ▶ Trees that upon maturity will conflict with overhead utility lines should not be allowed to grow beneath utility lines, unless in urban main streets.

Intersections

Rural vegetation near intersections should be mowed or cut within the LMZ, and heights should not exceed 2 ft. This requirement for shorter vegetation should be maintained within certain distances from any given intersection (depending on the maximum posted speed within 650 ft. of the intersection):

Posted speed (mph) at intersection	Maintain short 2 ft. vegetation – distance (ft.) from intersection
20	112
25	162
30	225
35	225
40	325
45	375
50	425
55	475
60	650



The requirement for shorter (<2 ft.) rural vegetation to be maintained within certain distances from any given intersection depends on the posted speed.

Guard rails

- ▶ Control vegetation between road and guard rail and up to 2 ft. behind guard rails.
- ▶ The rural vegetation height should not exceed 1 ft. to maintain visibility of the guard rail from the road.
- ▶ If used, chemical treatments should not extend farther than 2 ft. from guard rails.

Signs

- ▶ It is important that signs remain visible to road users at adequate distances to ensure safe driving. **Vegetation should not impair visibility of any signs:**
- ▶ Low stature rural vegetation, less than 3 ft. in height, should be maintained within the distances indicated in the previous table unless the Engineer determines otherwise.
- ▶ In curved sections of road, where site distances may be limited, trim vegetation back only according to LMZ requirements.
- ▶ If used, chemical treatments should not extend more than 2 ft. from signs.

Posted speed (mph)	Distance (ft.) from sign in which vegetation should not obscure visibility on a straight road
20	225
25	325
30	450
35	550
40	650
45	750
50	850
55	950
60	1,100

Reporting & Inspection

Contractors and HDOT maintenance staff must report hazardous vegetation situations to the Engineer. Report them to the Engineer at the end of each month for appropriate action. A rigorous reporting process applies if you are not equipped to safely manage hazardous trees. All LMZ distances and heights will be inspected. See Chapters 14 and 15.



In a Nutshell

1. The standards for heights and distances in the Landscape Maintenance Zone stem from a safety perspective and are meant to provide a hazard-free recovery area for motorists.
2. Follow consistent statewide standards and guidelines.
3. Being a good land steward includes providing a safe driving experience.