MaineDOT

ENGINEERING INSTRUCTION

Title: Clear Zone Number: C2.1

Discipline: General Engineering

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Chief Engineer

Background:

The clear zone is an unobstructed, traversable area provided beyond the edge of the traveled way for the recovery of errant vehicles. Clear zone widths are most affected by the traffic's speed, volume, and alignment along with the slope of the area adjacent to the travel way. Clear zone distances should not be defined solely by roadway classification or scope of work to be performed. Even the most basic levels of pavement treatment should consider the potential risk to the traveling public to determine the application of appropriate clear zones.

There are four methods of providing a clear zone. In order of preference:

1. Remove the obstacle
2. Redesign the obstacle so it can be safely traversed (this may include using breakaway devices)
3. Relocate the obstacle to reduce the likelihood of being struck
4. Reduce impact severity by using an appropriate longitudinal barrier or impact attenuator

Policy:

Consistent application along a corridor is critical. The tables below represent a starting point for any work contemplated. Clear zones are one of MaineDOT's controlling criteria requiring a design exception when there are variations from the guidance. It is imperative that any variations be discussed and approved.

All Interstate roadways shall have a 30’ minimum clear zone

Corridor Priority 1
New Construction/Reconstruction/Rehabilitation

Speed	25-30 #	35-40 #	45-50	55+
Side slope	4:1- Flatter*	4:1-Flatter*	4:1	4:1
AADT 0-4000	12’	14’	20’	20’
4000-6000	12’	14’	22’	24’
>6000	12’	16’	26’	30’

Corridor Priority 2
New Construction/Reconstruction/Rehabilitation

Speed	25-30 #	35-40 #	45-50	55+
Side slope	3:1-Flatter*	3:1-Flatter*	4:1**	4:1**
AADT 0-4000	10’	10’	12’	15’
4000-6000	10’	12’	15’	20’
>6000	10’	14’	20’	24’

Corridor Priority 3
New Construction/Reconstruction/Rehabilitation

Speed	25-30 #	35-40 #	45-50	55+
Side slope	3:1-Flatter*	3:1-Flatter*	3:1	3:1
AADT 0-4000	10’	10’	10	15’
4000-6000	10’	10’	10’	15’
>6000	10’	12’	15’	15’

Corridor Priority 4-6
New Construction/Reconstruction/Rehabilitation

Speed	25-30 #	35-40 #	45-50	55+
Side slope	3:1-Flatter*	3:1-Flatter*	3:1	3:1
AADT 0-4000	10’	10’	10	10’
4000-6000	10’	10’	10’	10’
>6000	10’	10’	10’	10’

 # If the clear zone obstruction was in place prior to January 1, 2015, the clear zone may be reduced to 50% of the value in the 25-30 mph column and 75% of the value in the 35-40 mph column. Obstructions authorized to remain via design exception shall be granted licenses if they are within the Right of Way. No new obstructions (those installed after January 1, 2015) will be allowed or licensed within the full clear zones prescribed above.

Restoration-Resurfacing - All Corridor Priorities
Clear zones are beneficial but are to be considered only when practicable.
For sideslopes of 3:1 or flatter

- 10' Clear Zone desirable
- Follow Utility Accommodation Policy

* In Urban Areas/ Residential Areas- Curb and flatter slopes shall be considered where appropriate – see also the AASHTO Roadside Design Guide, chapter 10 for further guidance
** At speeds of 45 mph or greater 3:1 side slopes may be considered when volumes are 6,000 AADT or less

USER NOTES:

1. Determine Corridor Priority and identify appropriate Clear Zone Table
2. Determine Design Speed and AADT and proceed into Table
3. Identify the Clear Zone for the Corridor
4. Determine Clear Run-out Area

Specific locations may warrant individual analysis for Clear Zone determination.

Consideration shall be given to Environmental and R/W impacts in determining the clear run out area for 3:1 slopes.

Evaluate any significant corridor or spot safety issues to determine if clear zone offset addresses needs.

Utilities shall follow the most current Utility Accommodation Rule.

DEFINITIONS:

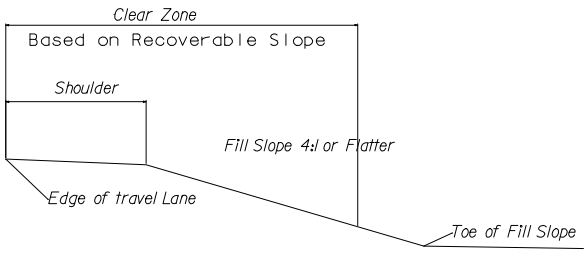
Lateral Offset - as the distance from the edge of traveled way, shoulder, or other designated point to a vertical roadside element.

Recoverable Slope – slope on which a motorist may, to a greater or lesser extent, retain or regain control of an errant vehicle by slowing or stopping. Typically 4:1 or flatter.

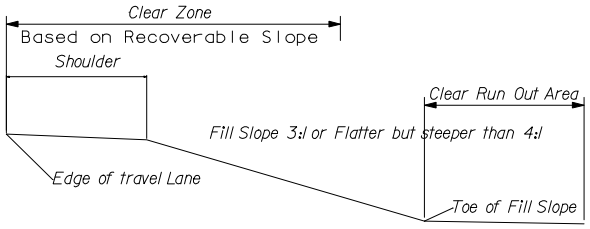
Non-recoverable Slope – slope which is considered traversable but on which an errant vehicle will continue to the bottom. Typically between 4:1 and 3:1.

Clear Run-out Area – area free of hazards at the toe of a non-recoverable slope for use by an errant vehicle.

CLEAR ZONE FIGURES

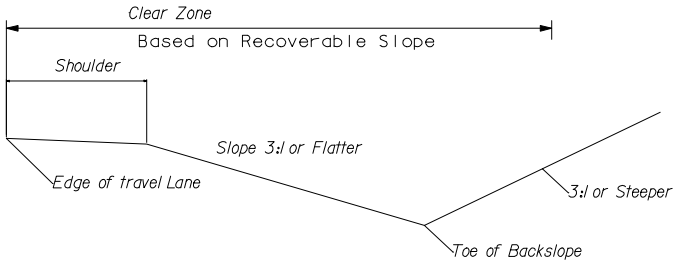


RECOVERABLE PARALLEL SLOPE



The width of the clear run out area is equal to that portion of the clear zone distance that is located on the non- recoverable slope. For speeds < 45 this distance will be a maximum of 10', for speeds ≥ 45 this distance will be 10'.

NON-RECOVERABLE PARALLEL SLOPE- FILL



If the toe of the backslope is within the clear zone, based on a 3:1 or flatter slope, a clear zone should be provided on the back slope. For back slopes of 3:1 or steeper, the clear zone on the backslope will be the lesser of either the remaining clear zone distance or the following; V ≥ 45 mph the clear zone will be 10' beyond the toe, V < 45 mph the clear zone will be 5' beyond the toe.

NON-RECOVERABLE PARALLEL SLOPE- CUT