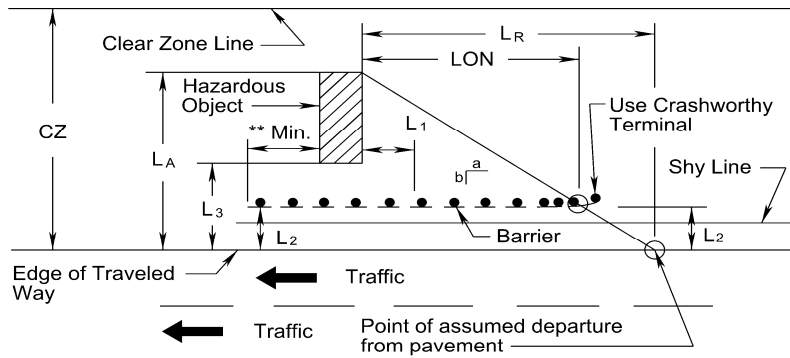


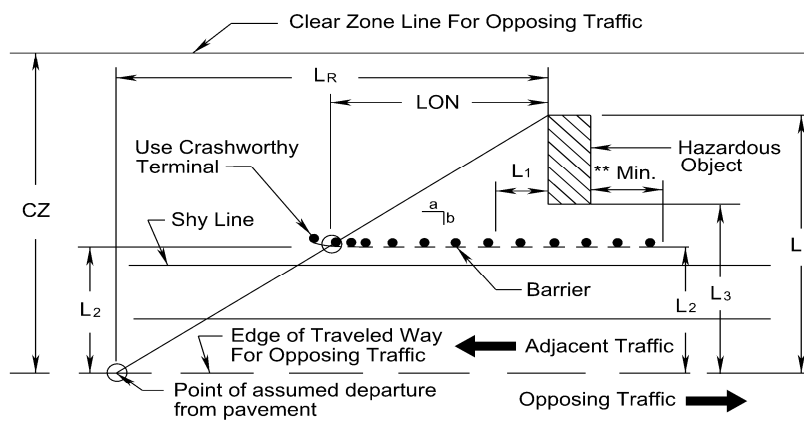
### DETERMINING LOCATION OF THE ENDS OF GUARDRAIL

Figure A-3-1 and Table A-3-3 give a method to determine the location of the end of guardrail systems. Appropriate terminals shall be placed at this point.

Condition showing hazard for adjacent traffic



Condition showing hazard for opposing traffic



**FIGURE A-3-1 - BARRIER LENGTH OF NEED DETERMINATION\***

- LON = Length of Need
- Cz = Clear Zone Width
- LA = Distance to back of hazard, Max. = CZ
- LR = Runout length
- L1 = Upstream length of Guardrail prior to flare
- L2 = Distance to Face of Guardrail
- L3 = Distance to front of hazard
- a:b = Flare Rate of Guardrail (if applicable)

- \*\* = 25' for GR-2
- = 12.5' for GR-2A
- = 25' plus a Type II for GR-8
- = 1' for MB-7C

$$LON = \frac{LA + (b/a)(L1) - L2}{(b/a) + (LA/LR)}$$

$$LON \text{ (No Flare)} = \frac{LA - L2}{LA / LR}$$

\* Rev. 7/11