

## Length of Need Program

### Form 1:

Form1

Calculation of Length of Barrier Need

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**Input Parameters**

Input

Traffic Volume (ADT)  vpd

Design Speed (Vd)  Mph

Roadside Slope  /  H/V

Transition (L1)  ft

Barrier Offset (L2)  ft

Lane Width (L3)  ft

**Clear Zone Distance (Lc) Calculation**

Slope

☐ ForeSlope ☐ BackSlope

**Highway Properties**

Typical Highway Configurations

☐ 2 Lane 2 Way

☐ Multilane Divided

Shape of Highway

☐ Straight

☐ Curved

**Selection of Flare Rate**

Flare Rate

☐ Anchored Barrier

☐ Unanchored Barrier

☐ No Flare rate

**Calculate Length of Need**

**Forward**

**Layout Variables**

Area of Concern (Obstacle)

Runout Length (LR)

Clear Distance Line

LA

X=Length of Need

L1

L2

L3

Flare Rate

Y=Offset (AT)

Edge of Travelway for Opposing Traffic (OT)

Edge of Travelway for Adjacent Traffic (AT)

#### 1. Fill in all the blanks

- Roadside Slope - the slope of the roadway where the barrier is placed (usually 10:1 or flatter).
- Transition (L1) - this distance is up to the designer. It can be zero (0).

#### 2. Click the "Calculate the Length of Need" button

## Form 2:

Form 2

Calculated Parameters

Output

Flare Rate: 13.24367 / 1

Runout Length (ft): 425

Lateral Extent of Area of Concern (ft):

LA(min) (ft): 26

LA(max) (ft): 28

Length of Need (ft):

Min. Length of Need, Xmin (ft):

Adjacent Traffic: 203

Opposing Traffic: 168

Max. Length of Need, Xmax (ft):

Adjacent Traffic: 211

Opposing Traffic: 176

Explanations

Choose Final Parameters

Input:

LA (ft):

Length of Work Area (ft):

Calculate The Final Length of Need

Back Forward

- This form calculates the length of need based on minimum and maximum clear zone widths (obtained from the Roadside Design Guide).
1. Input your LA distance (the distance from the edge of the travel way to the back of the area of concern) and input the length of the area of concern in the blank boxes under "Choose Final Parameters".
  2. Click the "Calculate the Final Length of Need" button

### **Form 3:**

The screenshot shows a software window titled "Form3". Inside the window, there is a diagram of a roadway configuration. The diagram is labeled "Output" in the top left corner. It features two main sections: "Adjacent Traffic" on the left and "Opposing Traffic" on the right. A central vertical line represents the "Length of Need, X (ft)". Below this line, a blue box contains the text "Length of Barrier Needed (ft)". At the bottom of the diagram, a white box displays the value "422". Below the diagram, there are four buttons: "Sketch Figure", "Back", "Exit", and "Print".

- This is the output screen.
1. Click the "Sketch Figure" button. This is a generic sketch to verify the roadway configuration you picked.
  2. Click the "Print" button to print out a copy for the project file.