## **PCB DEFLECTION PROGRAM**

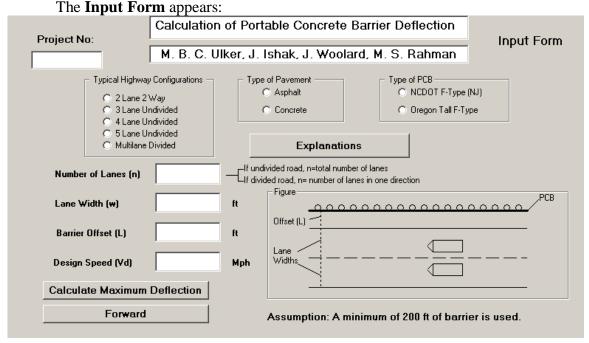
## **Purpose:**

The purpose of the PCB Deflection Program is to determine the maximum deflection of the portable concrete barrier (PCB) that occurs when a vehicle impacts a barrier. Barrier deflection is the distance barrier moves (displacement) during an impact. When a vehicle impacts a barrier, a certain amount of force is exerted on the barrier. This force is called the *Impact Severity* and is dependent on the *vehicle mass*, *speed*, and *impact angle*.

As a general rule, if the expected deflection exceeds the available allowable room for deflection then the barrier should either be anchored, or moved to where the expected deflection is equal to or less than the available allowable deflection, or another type of barrier be selected that provides an acceptable deflection.

## **Instructions:**

• Open the *PCB Deflection Program*.



- In the *Project No.* box, input the T.I.P. project #.
- Select *Typical Highway Configuration*.

  Note: Refer to Roadway Plans and the Planning Documents for information.
- Select *Type of Pavement*.

  Note: Refer to Roadway Plans and the Planning Documents (existing/proposed pavement).

• Select *Type of PCB*.

Note: The selected type of barrier will depend on foremost deflection, lateral offset, surface conditions, and terrain effects.

• In the *Number of Lanes* box, input a total number of lanes.

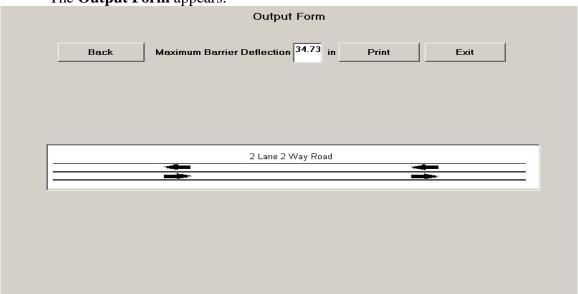
Note: For undivided roadways (including center turn lane sections) use total number of lanes in both directions. For divided facilities use total number of lanes only in the direction the barrier is located.

- In the *Lane Width* box, input the width of a one travel lane (ft).

  Note: Refer to Roadway Plans and the Planning Documents for information.
- In the *Barrier Offset* box, input the distance between an edge of travel lane and PCB (ft).

Note: A minimum offset of 2 ft from the edge of travel lane to PCB is desirable. PCB may be placed on the existing shoulder offset 2 ft from a travel lane which would place it on an unpaved portion. Barrier should not to be placed on any surface other than asphalt or concrete. (NOTE: When using temporary pavement for PCB placement, make sure to contact NCDOT Pavement Management Unit for applicable pavement design).

- In the *Design Speed* box, input the design speed limit (Mph). *Note: Refer to Roadway Title Sheet for information.*
- Click Calculate Maximum Deflection button. The Output Form appears:



Note: Use **Back** button, to return to the Input Form screen.

Use **Forward** button, to return to the Output Form screen.

• Click **Print** button to print out a copy for the project file.