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**MANUAL OF SPECIFICATIONS AND
STANDARDS FOR TWO LANING OF
HIGHWAYS WITH PAVED SHOULDER**

(Second Revision)

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SECTION - 2**GEOMETRIC DESIGN AND GENERAL FEATURES****2.1 General**

- i) This Section lays down the standards for geometric design and general features for upgrading the existing highways to two-lane. Emphasis, focus objective shall be on improvement and development of highway to NH standards and to ensure that no stretch remains with deficient geometrics so that eventually hierarchical function of the highway is facilitated.
- ii) Stretches where 4/6-laning is to be provided, shall be indicated in **Schedule 'B'** of the Concession Agreement and respective Manual of 4/6 laning shall be applicable.
- iii) Where there are constraints of existing ROW width or difficulty in acquiring land along the existing alignment in built up areas, the Authority may decide for construction of a bypass. The alignment of the bypass shall be given in **Schedule 'B'** and placed eccentrically with respect to the ROW to facilitate proper widening to four lanes in future (**Fig. 2.3**).
- iv) The geometric design of the Project Highway shall conform to the standards set out in this Section as a minimum. The Concessionaire shall ensure with the consent of Engineer that liberal geometric standards are followed to the extent feasible within the given Right of Way and consistent with safety.
- v) As far as possible, uniformity of design standards shall be maintained throughout the length. In case of any change, it shall be effected in a gradual manner.
- vi) Where the existing road geometrics are deficient with respect to minimum requirements and its improvement to the prescribed standards is not feasible due to any constraint in acquisition of additional land, such stretches shall be as specified in **Schedule 'B'** of the Concession Agreement.
- vii) Existing horizontal curves, which are found deficient in radius, layout, transition lengths or super elevation shall be corrected to the standards specified in this section.
- viii) Any deficiencies in the vertical profile in respect of grades, layout of vertical curves and sight distance shall be corrected to meet the minimum requirements in this section.

2.2 Design Speed

2.2.1 The design speeds given in **Table 2.1** shall be adopted for various terrain classifications (Terrain is classified by the general slope of the ground across the highway alignment).