No. NHVI-86(29)/85

Dated the 21st February, 1986

To,

All Chief Engineers of States & UT dealing with National Highways

Subject : Widening and/or strengthening of existing pavements on National Highways - Design period therefore

Whereas the IRC : 37 - 1984, Guidelines for the design of flexible pavements, envisages a design life of 10-15 years for roads in rural areas (para 3.2.2 of the IRC Code), no uniform procedure is being followed in respect of widening and/or strengthening of existing pavements on National Highways. In view of financial constraints, generally the design period, for projection of commercial vehicle traffic, is taken as 5 years, from the anticipated date of completion of the work, on the understanding that large lengths could be covered within the specified amount compared to the initial provision for a 10-years design period. Apparently, it is appealing, but on analysis it has been found that the total cost of construction in this type of stage construction invariably increases in case the various related factors are duly accounted for.

2. In light of what is stated above, it is considered desirable that the proposal for widening and/or strengthening of existing pavements should be based on a design period of 10 years, for projection of commercial vehicle traffic, from the anticipated date of completion of work realistically. In case where it is considered absolutely essential to restrict the design period to 5 years, the pavement design shall, however, provide for a 10-year period and the splitting of the proposed pavement layers of overlay shall be done horizontally, the lower specification layers being provided at the first stage of construction, ensuring that they cater for a minimum design period of 5 years, and the balance upper layers with relatively superior specifications provided at the second stage of construction. In such a case, only a thin bituminous wearing course shall be provided at the top of the base course of the first stage construction.

3. The type of overlay construction depends on several factors, such as, the depth of existing bituminous construction, traffic carried by the road and construction convenience, and relative economics of various alternative compositions of overlay. These factors shall have to be evaluated in each individual case and investment decisions made after indepth study of each situation.

4. The proposals for widening and/or strengthening of existing pavements on National Highways should not be considered in isolation. An over-view shall be taken simultaneously of the major factors influencing the design of pavements, such as, road geometrics, traffic pattern and its characteristics, drainage of the pavement layers the road surface and the road land, condition of the existing road, balancing and matching of the new pavement in the widened portion with the existing pavement structure, etc. Caution is called for in cases where the road pavement has failed needing major reconstruction. Reasons of failure should be investigated and appropriate remedial measures undertaken. No failed pavement layers should be allowed to remain in place and any malfunctioning layer should be devalued and attributed lower functions according to its present functional capacity.