Government of India
Ministry of Surface Transport (Roads wing)

Transport Bhavan,
No.1, Parliament Street,
New Delhi.

No. RW/NH-33054/20/88-DOII **Dt. 10.5.1999.**

To,

The Chief Engineers of States and Union Territories
dealing with National Highways and other Centrally
Financed Schemes.

Subject :- Provision of paved shoulders on National Highways.
Guidelines regarding -

Sir,

Road shoulders, properly built and well maintained, not only lend structural support to various layers of pavement, but also provide addtional space for overtaking manocuvers, parking of disabled vehicles and movement of slow moving vehicles such as scooters, two/three wheelers and bicycle. In this manner, shoulders help to reduce accidents and increase road safety. On the other side, shoulders in poor shape i.e. those having deep ruts or deformed profile, constitute a traffic hazard besides affecting pavement performance to an appreciable degree, thereby increasing the total transportation cost.

2. Criteria for paved shoulders.

2.1 To get capacity benefit from shoulders, especially under mixed traffic conditions, it has been decided that subject to availability of funds, 1.5 metre wide paved shoulders may be provided on either side of two lane National Highways in plain / rolling terrain in a selective manner. As regards four lane sections, it is already in policy of the Ministry to construct paved shoulders in conjunction with the four laning.

2.2 While initiating proposals for paved shoulders on two lane sections, the following should be kept in view :

i) The present traffic on National Highway should be generally around 10,000 PCUs. Or more.
ii) The traffic should consist of sizeable percentage of slow moving vehicles.

2.3 Apart from above, provision of paved shoulder could also be considered when :

i) The concerned section is located in or hear an urbanised area with considerable local.
ii) A. stretch is particularly accident prone mainly due to lack of paved width for overtaking and passing manoeuvres.

2.4 Final selection of lengths would be according to priority given to each section on the basis of traffic intensity and / or safety considerations and overall availability of funds.

3. Thickness of Paved shoulders.

3.1 As far as precticable, paved shoulders, when constructed simultaneously with the central pavement , should have the same thickness as pavement of the main carriageway (see Fig. A.) . In the case of old National Highways where the crust composition and thickness is variable and not well defined, shoulder thickness could be fixed in an adhoc manner (see Fig. B) Otherwise it would be as in Fig. A. Tupical design of a paved shoulder will thus consist of :

i) A. suitable thickness of granular sub-base with the bottom 150mm portion preferably extended over the full formation width to ensure efficient drainage.
ii) A. base course of water bound macadam (W.B.M.) or wet mix macadam (W.M.M.) in three layers of 75mm each. With the top layer being premed and
iii) A. bituminous wearing course consisting of two coats of surface dressing, premix carpet, concrete mix seal or semi-dense bituminous concrete carpet. The texture of the shoulder wearing surface should be different from the main carriageway to ensure clear contrast between them.

4. Shoulder cross section.

4.1 Typical cross sections of a National Highway with paved shoulders are shown in the enclosed sketches (Figs. A. & B.)

4.2 The paved shoulders should invariably flanked by one matter wide earth beams. When feasible , the beams may be made of granular materials.

5. General Considerations.

5.1 Paved shoulders should not be provided in a piecemeal manner without giving due consideration to other improvements on the road section in question in the near furute. Desirably, the construction of shoulders should be taken up in homogenous sections and preferably together with strengthening of the main pavement.

5.2 Simultaneous with the provision of paved shoulders narrow cross drainage structures in the concerned section must also be widened to full formation width.

5.3 The carriageway and paved shoulders must be distinguished from each other by continuous yellow edge line marking.

6. Construction sequences.

6.1 Where the paved shoulders is to be provided by the side of an existing carriageway, the sequence of construction shall be

i) Strengthening of the pavement if envisaged
ii) Construction of shoulder on one side, if the carriageway including earthen link and
iii) construction of shoulder on the opposite side.

Step (iii) will be proceeded with only after step (ii) is completed.

6.2 In the case of new road construction, pavement and paved shoulders on both sides of carriageway should be constructed simultaneously in corresponding layers.

7. It is requested that the contents of this Circular may please be brought to the notice of all concerned for compliance. The feedback on the experience with paved shoulder will be welcome.

Yours faithfully,
Sd/-
(R. K. Saxena)
Chief Engineer (Roads) S & R,
for Director General
(Road Development).