

Economy in Road Planning and  
Road Construction –

Government of Maharashtra  
Public Works Department,  
Mantralaya, Bombay – 32  
Circular No.BDM 1082 /CR 2457/Desk-11.

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**CIRCULAR**

Plan allocations for construction of roads and bridges in the State are quite inadequate compared to the actual needs. For achieving the targets envisaged in the 1961-81 Road Development Plan, large number of works such as construction of new roads, black-topping of roads, construction of C.D.works and minor and major bridges, are yet to be taken up. With a view to utilising the Plan allocations in the best possible way and for maximising the physical achievements, it is necessary to adopt economy measures during planning and construction of roads and bridges. Keeping techno-economic aspects in view, following instructions are issued for the guidance of field officers:

**2. Preparation of road and bridge projects –**

- (i) **Category of roads –** In respect of estimates for new road construction the State Highways should be planned to MDR Standard and MDRs should be planned to ODR standard.
- (ii) **Provision of C.D.works –** It is observed that provision for C.D. works (H.P. drains, slab drains and minor bridges) is made in the road projects of other district roads and village roads, presuming that the concept of all-weather roads necessarily requires all these provisions at all crossings. Government in its letter No. PLN 2079/(1284)/Desk-34, dated 21/1/79 had indicated that all-weather roads mean metal roads with C.D. works upto 6 M linear waterway and vented causeways or paved dips on major streams. Since C.D. works cost quite a great deal, it is felt necessary change this concept of all weather road. C.D. works need to be constructed only at essential crossings and on other crossings paved dips be provided with due regard to permissible interruptions. Generally, in areas having annual rainfall of 1000 mm or less, it may be adequate to provide metalled dips with regular road crust and protective arrangements in nalla beds in lieu of H.P. drain or Slab drain and still the road could considered as all-weather, since S.T. vehicles would be in a position to cross the nallas within the limitations of permissible interruptions. Hard passages when provided should be for full formation width of the road suitably tapered to the carriageway width on either side. Approaches of such paved dips should have easy gradients. The type of drain to be provided viz. Hard passage or hume pipe of slab drain has to be decided on merits in each individual case. In respect of roads under EGS, it is difficult to accommodate the costs of H.P. culverts and slab drains within 40% component meant for all works other than labour. Moreover

providing hard passages and metalled-dips is a labour-intensive work. It will, therefore, be all the more necessary to construct hard passages and metalled dips at such nallas on EGS roads and the provision of H.P. drains should be kept to the barest minimum requirement.

- (iii) **Pipe culverts** – In respect of H.P. culverts on S.H.s., pipes of NP-II category should be provided hereafter in lieu of NP-III IRS pipes from the consideration of economy. Proper cover of selected material should, however be ensured.
- (iv) **Bridges** – Instructions have been issued by P.W.D. Circular No. BRG 1078/CR 781/Desk-II, dated 21-11-79 that provision of submersible bridges should be considered in respect of all categories of roads including S.H.s (but excluding NHs) after considering suitability thereof with reference to site conditions and with due regards to permissible interruptions. The field officers and S.E.Designs Circle shall hereafter invariably consider provision of submersible bridges from consideration of economy, unless a high level bridge is economical than a submersible bridges for a given situation. It may not be necessary to provide black-topped road surface to the full width in case of submersible approaches. In the first phase it should suffice to provide WBM road construction of adequate thickness but for the full-width. On certain MDRs and ODRs, it may be sufficient to provide causeways instead of submersible bridges especially in areas where irrigation dams exist on the up-stream side.

At location where construction of high level bridges is inescapable from various consideration ,if volume of traffic is not heavy ,single lane bridges may be planned for linear waterway up to 60 M.

- (v) **Provision of black – topped surface :-** In super –session of instructions issued in Government Circular No. PLN 1071/135440/P-I(c), dated 13/1/75, projects of black-topping should provide for premix carpet in lieu of full grout in areas of heavy rainfall. Thickness of premix carpet could be from 20mm to 40mm on the consideration of traffic intensity and rainfall. For low rainfall areas and for low trafficked roads, only 2 coat surface dressing be provided.
- (vi) **Improvements to roads** – Following economy measures should invariably be considered while preparing projects for improvements to roads.
  - (a) **Land Acquisition** – Cases where existing land width does not pose any problem in improvements to existing roads, the projects should not provide for additional land acquisition even if the existing land width is not to the required standard for a particular category of road.
  - (b) **Geometrical improvements** – Considering the constraints on resources, the project of improvements to roads should not normally provide for geometrical improvements either horizontal or vertical except in respect of accident prone locations.

- (c) **Minimum provisions to be made in the project of improvements to roads** – Generally, projects, of improvements to roads should include :-
- (i) Strengthening of existing road crust by additional W.B.M layers
  - (ii) Provision of CD works should be made judiciously with an eye on economy as described in earlier paras.
  - (iii) Geometrical improvements only a accident prone locations.

The instructions given in this Circular in respect of planning of new road projects should also be made applicable wherever possible and feasible, during execution in respect of works in progress by making suitable modifications in the scope of work. However, such modifications should be done with the prior approval of the authority in whose competency the technical sanction lies. Further it should be ensured that such modifications will not involve any contractual complications/claims.

The above orders should come in force with immediate effect and should be followed scrupulously hereafter.

Deputy Secretary to Government