



**RW/NH-36098/17/2022-S&R(B)**  
**Government of India**  
**Ministry of Road Transport & Highways**  
**Zone-S&R (P&B)**  
**Transport Bhawan, 1 Parliament Street, New Delhi-110001**

Dated: 02.01.2023

To

1. The Chief Secretaries of all the State Governments/ UTs
2. The Principal Secretaries/ Secretaries of all States/ UTs Public Works Department/ Road Construction Department/ Highways Department (dealing with National Highways and other centrally sponsored schemes).
3. All Engineer-in-Chief and Chief Engineers of Public Works Department of States/ UTs dealing with National Highways and other centrally sponsored schemes,
4. The Chairperson, National Highways Authority of India, G-5 U 6, Sector-10, Dwarka, New Delhi-110 075.
5. The Managing Director, NHIDCL, PTI Building, New Delhi-110001.
6. The Director General (Border Roads), Seema Sadak Bhawan, Ring Road, New Delhi- 110 010.

**Subject: Provisions of crash barriers in existing bridges**

Madam/Sir,

As per typical cross sections of the bridges given in IRC SP 73, IRC SP 84 & IRC SP 87 (2/4/6 laning manual), crash barrier is to be provided on all new bridges with /without footpath. As per 2 laning manual wherever the existing bridges are to be retained with/without widening, crash barriers in the inside and pedestrian railings on outer side of the footpath shall be provided unless otherwise provided in Schedule D. It is specified in the 4/6 laning manual that the railings of existing bridges shall be replaced by crash barriers where specified in Schedule B. It is also specified in 2/4/6 laning manual that parapet/railings of the existing bridges to be repaired/replaced shall be mentioned in Scheduled B.

2. It is seen that in case of existing bridges retained without widening, existing railing is usually not replaced by crash barrier. The provision of crash barrier is essentially required for safety of vehicular traffic but there are apprehension about structural suitability of replacing railing of existing bridges by crash barrier.

3. The matter has been carefully examined, and it may be mentioned that in case of existing bridges retained without widening, existing railings may be replaced by crash barriers, if the same does not exist, as per details given below:

3.1 In all existing bridges retained without widening and having no crash barrier, existing railing shall be replaced by RCC crash barrier, except in situation where the deck slab is incapable of taking the additional load of RCC Crash barrier including the impact load due to collision of vehicle, in which case the metallic crash barrier with double W-Beam shall be provided. Before deciding whether RCC Crash barrier can be provided on an existing bridge in replacement of railing, a detailed study shall be done which should invariably include history of the structure, its performance in the past, its design and structural adequacy to take additional loads due to proposed modification, availability of the space to accommodate proposed changes and expected improvement in performance in terms of safety. Quality of concrete in deck slab shall be ascertained by non-destructive as part of the study.



3.2 The type design for the crash barriers may be adopted as per IRC:5. The design loads for the crash barriers shall be as per IRC :6.

3.3 Methodology for replacement of existing railing / kerb with crash barrier will vary on case to case basis depending upon the available width of kerb, depth of deck slab, structural condition of the supporting element. Methodology of rehabilitation for some typical cases are listed below. However, decision has to be taken on case to case basis depending upon site conditions.

3.3.1 In case width existing kerb is 450 mm or more, depth of the deck slab is minimum 200 mm at its tip and the reinforcement of the kerb projecting out of deck slab is of Fe 415 grade or higher, the vertical reinforcement of crash barrier on its traffic face can be connected to kerb reinforcement and other reinforcement of crash barrier laid in position before casting of crash barrier. The exposed horizontal face of kerb and old reinforcement shall be thoroughly cleaned and suitable bonding coat provided before connection of reinforcement and casting of crash barrier.

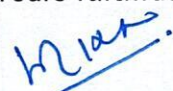
3.3.2 In case reinforcement of kerb is of Fe 250 grade, adequacy of same shall be checked with respect to design loads.

3.3.3 If kerb reinforcement are in bad condition or missing and if depth of slab is 400mm or more, crash barrier vertical reinforcement on traffic face shall be connected with deck slab by rebaring (chemical connection) and all other reinforcement of crash barrier laid in position before casting of crash barrier.

4. Feedback is solicited from the stakeholders as and when such replacement work is undertaken on an existing bridge.

5. This issues with the approval of Competent Authority.

Yours faithfully,



(Jitendra Kumar)  
SE, S&R (Bridge)

For Director General (Road Development) & SS

**Copy to:**

1. All Technical Officers in the Ministry of Road Transport & Highways.
2. All Joint Secretaries in the Ministry of Road Transport & Highways.
3. All ROs & ELOs of the Ministry of Road Transport & Highways.
4. The Secretary General, Indian Roads Congress with a request to incorporate the contents of this circular in the revised Ministry's Specifications for Road and Bridge Works.
5. The Director, IAHE.
6. Technical circular file of S, R&T (B) Section.
7. NIC for uploading on Ministry's website under "what's new".

**Copy for kind information to:**

1. PS to Hon'ble Minister (RT&H) / PS to Hon'ble MOS (RT&H).
2. Sr. PPS to Secretary (RT&H).
3. PPS to DG (RD) & SS.
4. PPS to AS & FA
5. PPS to ADG

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