

# भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(पोत परिवहन, सड़क परिवहन और राजमार्ग मंत्रालय)

## National Highways Authority of India

(Ministry of Shipping, Road Transport and Highways)

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No.: 11041/21/2002-Admn.

July 15, 2005

### **POLICY MATTERS: TECHNICAL (55/2005)**

[Decision taken on CM Division's note dt. 01.07.2005]

#### **Sub- Arrangement for Traffic and Safety during construction**

Your attention is drawn to the following circulars issued on the subject wherein the various requirements to ensure safety during construction has been emphasized :-

<b>Ref. of Circular</b>	<b>Main Contents</b>
Circular dated 4 <sup>th</sup> July, 2002	Attention drawn to para 112 of MoRT&H specifications and guidance on safety as per IRC:SP:55:2001.
Circular dated 5 <sup>th</sup> May, 2004	Guidelines contained under clause 112 of MoRT&H specifications to be followed strictly.
Circular dated 12 <sup>th</sup> May, 2004	Supervision Consultant to enforce the requirement of safety.
Circular dated 13 <sup>th</sup> July, 2004	PDs advised to ensure that Contractor and Supervision Consultant fulfil their obligation and wherever the safety and maintenance requirements are not complied with, a certain amount should be withheld from each IPC payment or monthly invoice of the consultants to enforce safety and maintenance requirements.


cont...2

In spite of the various circulars issued from time to time, no significant improvement regarding safety measures during construction and maintenance of road has been observed during inspection and complaints are being received from various road users and NGOs regarding inadequate measures taken for safety during construction stage.

All Project Directors are again directed to ensure that all contractual provisions and requirements for road safety during construction are complied with and the consultant should be advised to enforce such provisions meticulously. A separate section should be included in the monthly progress report indicating the action taken regarding safety measures during construction including the lapses noticed and corrective action taken.

Further, all Project Directors will maintain a record of performance of the contractor and the consultant who are not implementing contractual requirements for safety during construction and send a half-yearly performance report of each contractor and consultant to the concerned Technical Division at HQs so that performance of defaulting contractors/ consultants can be reviewed periodically..

This issues with the approval of Chairman.

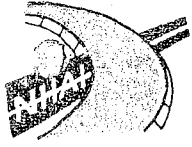
  
[GP Chand]  
General Manager (Admn.)

Copy to :

1. All officers at Headquarters.
2. All Project Directors of PIUs/CMUs/SPVs

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No.NHAI/Dir(CM/(1/2002

July 04, 2002

**CIRCULAR**

**Sub: Arrangements for Traffic and safety during constructions.**

It was brought out during the last meeting of Advisory Group of External Stakeholders of NHAI that necessary safety precautions are not being observed at various construction sites of NHAI projects.

It needs no emphasis that during the construction period the safety of construction workers and the moving traffic is of vital importance and needs to be ensured. Your attention is also drawn to para 112 of the MOST specifications relating to the arrangements for traffic during construction, a copy of which is also being enclosed for ready reference. (Annexure I). MOST specifications are part of most of the contract documents and these also specify the level of safety precautions that need to be ensured during the construction.

I also enclose extracts from deliberations from the guidelines on safety in road construction zones (IRC :SP:55:2001) for awareness and application at the construction sites(Annexure II & III).

Suitable arrangements for ensuring above safety provisions may please be made by the contractors. Supervision Consultants are also requested to ensure the same.

(Praveen Singh)  
Director (CM)

4.7.02

To:

All Supervision Consultants & Contractors of NHAI

Copy to:

1. PS to Chairman
2. All Members/CGMs,
3. All GMs/DGMs/Managers
4. All PDs of PIUs

## 112. ARRANGEMENT FOR TRAFFIC DURING CONSTRUCTION

Annexure I

### 112.1. General

The Contractor shall at all times carry out work on the highway in a manner creating least interference to the flow of traffic while consistent with the satisfactory execution of the same. For all works involving improvements to the existing highway, the Contractor shall, in accordance with the directives of the Engineer, provide and maintain, during execution of the work, a passage for traffic either along a part of the existing carriageway under improvement, or along a temporary diversion constructed close to the highway. The Contractor shall take prior approval of the Engineer regarding traffic arrangements during construction.

General

Section 100

### 112.2. Passage of Traffic along a part of the Existing Carriageway under Improvement

For widening/strengthening existing carriageway where part width of the existing carriageway is proposed to be used for passage of traffic, treated shoulders shall be provided on the side on which work is not in progress. The treatment to the shoulder shall consist of providing atleast 150 mm thick granular base course covered with bituminous surface dressing in a width of atleast 1.5 m and the surface shall be maintained throughout the period during which traffic uses the same to the satisfaction of the Engineer. The continuous length in which such work shall be carried out, would be limited normally to 500 m at a place. However, where work is allowed by the Engineer in longer stretches passing places atleast 20 m long with additional paved width of 2.5 m shall be provided at every 0.5 km interval.

In case of widening existing two-lane to four-lane, the additional two lanes would be constructed first and the traffic diverted to it and only thereafter the required treatment to the existing carriageway would be carried out. However, in case where on the request of the Contractor, work on existing two-lane carriageway is allowed by the Engineer with traffic using part of the existing carriageway, stipulations as in para above shall apply.

After obtaining permission of the Engineer, the treated shoulder shall be dismantled, the debris disposed of and the area cleared as per the direction of the Engineer.

### 112.3. Passage of Traffic along a Temporary Diversion

In stretches where it is not possible to pass the traffic on part width of the carriageway, a temporary diversion shall be constructed with 7 m carriageway and 2.5 m earthen shoulders on each side (total width of roadway 12 m) with the following provision for road crust in the 7 m width:

- (i) 200 mm (compacted) granular subbase;
- (ii) 225 mm (compacted) granular base course; and
- (iii) Premix carpet with Seal Coat/Mix Seal Surfacing.

The alignment and longitudinal section of diversion including junctions and temporary cross drainage provision shall be as approved by the Engineer.

#### 112.4. Traffic Safety and Control

The Contractor shall take all necessary measures for the safety of traffic during construction and provide, erect and maintain such barricades, including signs, markings, flags, lights and flagmen as may be required by the Engineer for the information and protection of traffic approaching or passing through the section of the highway under improvement. Before taking up any construction, an agreed phased programme for the diversion of traffic on the highway shall be drawn up in consultation with the Engineer.

The barricades erected on either side of the carriageway/portion of the carriageway closed to traffic, shall be of strong design to resist violation, and painted with alternate black and white stripes. Red lanterns or warning lights of similar type shall be mounted on the barricades at night and kept lit throughout from sunset to sunrise.

At the points where traffic is to deviate from its normal path (whether on temporary diversion or part width of the carriageway) the channel for traffic shall be clearly marked with the aid of pavement markings, painted drums or a similar device to the directions of the Engineer. At night, the passage shall be delineated with lanterns or other suitable light source.

One-way traffic operation shall be established whenever the traffic is to be passed over part of the carriageway inadequate for two-lane traffic. This shall be done with the help of temporary traffic signals or flagmen kept positioned on opposite sides during all hours. For regulation of traffic, the flagmen shall be equipped with red and green flags and lanterns/lights.

On both sides, suitable regulatory/warning signs as approved by the Engineer shall be installed for the guidance of road users. On each approach, at least two signs shall be put up, one close to the point where transition of carriageway begins and the other 120 m away. The signs shall be of approved design and of reflectory type, if so directed by the Engineer.

#### 112.5. Maintenance of Diversions and Traffic Control Devices

Signs, lights, barriers and other traffic control devices, as well as the riding surface of diversions shall be maintained in a satisfactory condition till such time they are required as directed by the Engineer. The temporary travelled way shall be kept free of dust by frequent applications of water, if necessary.

#### 112.6. Measurements for Payment and Rate

All arrangements for traffic during construction including provision of temporary cross drainage structures, if required, and treated shoulder as described in Clause 112.2 including their maintenance, dismantling and clearing debris, where necessary, shall be considered as incidental to the works and shall be the Contractor's responsibility.

The construction of temporary diversion including temporary cross drainage structures as described in Clause 112.3, shall be measured in linear metre and the unit contract rate shall be inclusive of full compensation for construction (including supply of material, labour, tools etc.), maintenance, final dismantling and disposal.

## 1.8. Guiding Principles

Annexure II

1.8.1. The construction zone creates an environment where the road user is faced with a series of unusual hazards in the form of unfamiliar routes, substandard horizontal and vertical alignment, adverse cambers construction equipment etc. The road user also has to watch for traffic control devices apart from performing normal driving functions of vehicle control and responding to other traffic and hazards. These factors increase the strain on driver performance and lead to accidents. The safety practices in construction zones should, therefore, be orientated towards reducing conditions which lead to such hazards and consequent stress whereby risk of accidents is increased. The guiding principles for safety in road construction zones are to:

- (i) warn the road user clearly and sufficiently in advance;
- (ii) provide safe and clearly marked lanes for guiding road users;
- (iii) provide safe and clearly marked buffer and work zones; and
- (iv) provide adequate measures that control driver behaviour through construction zones.

IRC:SP:55-2001

1.8.2. Roads with construction sites have higher accident rates, when compared with similar sections of road without construction sites. This is due to several factors, such as, long driving hours, road users social habits, attitudes and motivation, are outside the control of those undertaking the works. However, the authority planning and undertaking the maintenance/improvement works of the road can reduce the increased risk to road users and site workers by considering foreseeable risks, so that they may be avoided or their impact reduced.

1.8.3. Though each situation would be unique but there could be a number of common factors. These guidelines cover most of the commonly occurring situations. It should be noted that the design and implementation of temporary schemes should be undertaken with as much care as if it were a permanent scheme, and that it may sometimes be necessary to vary the scheme during the period of the construction phase.

The following defined precautions shall apply to all the work sites:

- (i) All the signs and delineators shall be maintained in a clean and brightly painted condition at all times. There should be a penalty clause in the contract when the contractor does not achieve agreed levels of maintenance and cleanliness of signs, markings, delineators, etc.;
- (ii) Adequate lighting arrangements shall be made for proper visibility during the negotiation of the work area; and
- (iii) Adequate arrangements like frequent sprinkling of water shall be made to keep the area dust free.

For high traffic density roads, the following further precautions must be taken:

- (a) **For safety of workmen**
  - (i) Workmen must be trained in use of tools and plant;
  - (ii) Gum boots, tarring outfits spectacles, etc. must be given to persons handling bitumen, Their use should be mandatory;
  - (iii) First aid training be provided to all workmen and enough safety kits should be available at the site;
  - (iv) Workers required on site during night hours must be provided with fluorescent yellow jackets with reflective tapes;
  - (v) Safety helmet must be given to all workmen at site and ;
  - (vi) First aid posts should also be set up at important sites;
- (b) **For Safety of Road User**
  - (i) As far as possible, the material, equipment and machinery should be installed/parked in places sufficiently away from the berms in the available road land. Only in the unavoidable cases, the same shall be allowed to be collected/installed/parked near the edge of the berms. In any case, no material should be collected nor any equipment/machinery installed/parked on berms near and on the curves;
  - (ii) Machinery should be parked at appropriate places with red flags and red lights on; and
  - (iii) Minimum quantity of material required for one operation should be collected.



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No.11041/21/2002-Admn.

05<sup>th</sup> May, 2004

**POLICY MATTERS : TECHNICAL (33/2004)**

(Decision taken on CM Divn. L.No. NHAI/13013/3/03-04/CMD-CO)

**Sub.: Arrangement for Traffic and safety during construction.**

Inspite of Circular No. NHAI/Dir(CM)/1/2002 dated 4<sup>th</sup> July, 2002 regarding arrangement for Traffic and safety during construction, no significant improvement has been observed. It is once again reiterated that the diversions on the routes under construction should be rationally planned so that it does not become a problem for user of the road. It is therefore, desired that in future diversions are provided wherever required with proper sign boards, lighting arrangement etc. and the consultant will have a proper traffic management plan prepared for such purposes. Guidelines contained under Clause 112 of MoRTH Specification for arrangement of traffic during construction shall be followed strictly in all cases.

2. This issues with the approval of Chairman.

(S. K. Pandey)  
Manager (Admn.)-III

All officers at Headquarters.

All Project Directors of PIUs/CMUs/SPVs

Copy also to:

Information Officer/Librarian/Hindi Officer





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File No. 13029/8/2003-Vig./

Date 12.5.04

CIRCULAR No. 10/2004

**Sub: Safety Measures during Construction/Maintenance of Road.**

It has come to the notice that there is a glaring omission of traffic safety measures being taken at site during construction / maintenance of road. There is a provision of traffic safety measures in all the running civil works contract. However, in most of the civil works contract, this provision of traffic safety measures is incidental to the work (i.e there is no separate BOQ item for making payment to the contractor for this activity) and hence are not being implemented properly.

Supervision Consultants are requested to enforce this requirement vigorously. Unless this is strictly enforced by supervision consultant, adequate measures are not likely to be taken by contractor.

It is requested that visiting senior officers must take full note of this omission and warn the supervision consultants of adverse consequences of this lapse.

(Anand Bordia)

Member (F) & CVO.

1. All Members
2. CGMs/GMs
3. All Supervision Consultants
4. All PDs





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NHA/VGM(MCIII)/Inspection/2004

July 13, 2004

CIRCULAR

It has been observed that maintenance of the existing road where 4-laning is being carried out by contractors is extremely poor at many places. The existing pavement is full of potholes and cracked. It is the responsibility of the contractor to keep the existing roads in a shape of good repair. It is unfortunate that this is not being properly enforced by the Supervision Consultants.

2. Similarly, road safety is one of the biggest casualties during project implementation. The cautionary signs put up by the contractors, particularly at the places where diversions are provided, are an apology for signs. They neither conform to any standard nor meet the functional requirement of providing sufficient information to the road users. Notwithstanding the fact that there are standards for road signs in general and in construction zones in particular, no one at site seems to be aware of this. In the existing contracts, road signs, including those to be erected during construction, are incidental to the main item of work. The casual approach of the Supervision Consultants in enforcing proper signage in most projects is supervising and regrettable. Wherever the diversion meets the existing/improved main road the transition is invariably bumpy and rough. Where the work is being carried out in high embankment, no safety rails nor any other precautionary measures are being taken by the contractors resulting in vehicles falling off the road.

PDs are, therefore, requested to make it clear to the Contractors and the Supervision Consultants in their respective jurisdiction, that maintenance of the existing road as well as safety during construction has to be maintained with utmost sincerity. Only because some of these items are not part of BOQ but only incidental to the main work, the contractors cannot shirk their responsibilities for maintenance and safety.

It is decided, therefore, that full payment at BOQ rate should not be made to the contractor if he does not ensure these aspects. Supervision Consultants have to satisfy themselves as well as NHA about compliance of the safety and maintenance requirement. In case of non compliance by the Contractor or the Supervision Consultant, a certain amount, to start with say 2%, should be withheld from each IPC payment or monthly invoice of the consultants, as the case may be, to be released only after the measures as per contract provisions are taken.

(Santosh Nautiyal)  
Chairman

please  
23/7