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REVIEW ARTICLE

DEFICIENCIES IN ROAD SAFETY DURING CONSTRUCTION

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Deficiencies in Road Safety during Construction

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Road safety is the integral part of any highway construction/ upgrading. But it is usually felt that concessionaires I contractors don't give due attention to the road safety aspect during construction phase of the highway improvement/ upgrading. It is usual practice that concessionaires save the money by avoiding some of the features of road/traffic safety. The reason may also be attributed to the fact that the road safety work undertaken during construction is not visible and cannot be observed once the construction phase is over and road is opened to the traffic, though, all of us know that traffic safety is a sensitive, engineering as well as social work. If even a single person dies in a road accident, whole family suffers for years to bear that loss.

So the Traffic Management in construction zones should be oriented towards reducing the conditions that leads to different road accidents. The guiding principles for management in road construction zones are to:

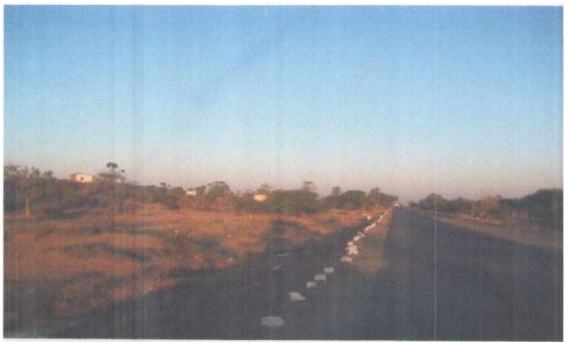
- Warn the road user clearly and sufficiently in advance.
- Provide safe and clearly marked lanes for guiding road users.
- Provide safe and clearly marked buffer and work zones; and
- Provide adequate measures that control driver behaviour through construction zones.

But the situation on the ground is entirely different and can be easily observed on various construction sites.

Write up and photographs given below present some of the general cases / deficiencies in the road safety during construction.

CASE 1: EMBANKMENT & EARTHEN SHOULDER CONSTRUCTION REASONS FOR CONCERN:

Picture show the embankment and shoulder constructions. It may be noted that attempts are made to improve the situation with painted stones all along the embankment; however these measures are quite inadequate for night time traffic.



Deficiency observed and recommendations

- An approaching vehicle should be warned in advance regarding the hazard and the work site to help him to take action in advance.

- Apply all measures for warning zone as given in IRC: SP: 55 .

CASE 2: LATERAL WIDENING FOR MAIN CARRIAGEWAY AND PAVED SHOULDER 1

REASONS FOR CONCERN:

Photos present lateral widening for main carriageway and paved shoulder. It must be appreciated that painted stones are placed to delineate the traffic, but considering the mix of traffic plying on the road and that too considerable commercial traffic at night time, it must be realized that in the absence of proper barricading between fast moving traffic and the deep excavated trench, it would be hazardous.

RECOMMENDATIONS

The work site should be properly barricaded and delineated with traffic cones with retro reflective sheeting pasted therein. Provide adequate longitudinal and lateral buffer zone to clearly demarcate and separate the work site from moving stream of traffic. The traffic cones should be connected with reflective tape all along the work site.

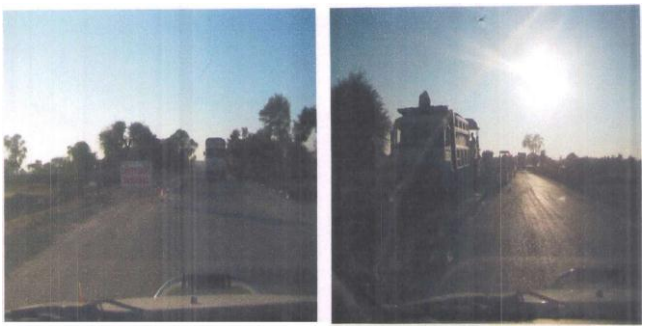
CASE 3: STAGE CONSTRUCTION- SHIFT OF TRAFFIC FROM ONE CARRIAGEWAY TO THE OTHER

REASONS FOR CONCERN:

As part of the stage construction, half roadway would be blocked where the two -directional traffic will be allowed to pass through the other half. Subsequently once the work is completed in the first half, the traffic will be allowed to ply through it and other half will be taken up for construction. This is a common scenario throughout the reach

Any shift of traffic from one carriageway to other carriageway should be carried as per]RC:SP-55. First they shall be warned with adequately warning signs in the advance warning zone, and allow them to shift the pathway through approach transition zone. It should be ensured that work sites are properly separated.

Approach transition zone is missing



Non-retro-reflective signs would be inadequate for a Moving traffic is not protected from heavy machineries traffic approaching at high speed especially at night

RECOMMENDATIONS

• The moving traffic should be segregated from heavy construction machineries with proper barricading as the national highway carry high traffic volume and as part of stage construction they are generally shifted from one carriageway to the other.

■ Properly guide through transition zone clearly set out with retro reflective cones and Type-1 barricading.

■ Provide reflective for traffic cones all along the work site.

CASE 4: IMPROPER TRAFFIC CONTROL DEVICES

REASONS FOR CONCERN:

If the traffic control devices and sign are not retro-reflective, it will not serve the very purpose.

RECOMMENDATIONS

■ Since the national highway carries heavy night traffic, all traffic control devices should be retro-reflective i.e. reflect back to the source. Mere reflectivity will not serve the purpose to guide the driver. The retro reflective sheering Type-Ill conforming ASTM standard can be used for better night performance .

■ It should be placed in such way that an approaching driver can see clearly and can take appropriate action after the reaction time.

■ Ensure that all traffic control devices and its positioning are proper for an approaching traffic in night at the design speed.

Traffic control devices are not as per standards and are not retro reflective. Refer the traffic control devices and follow the colour pattern provided therein and also in IRC :SP-55-2001

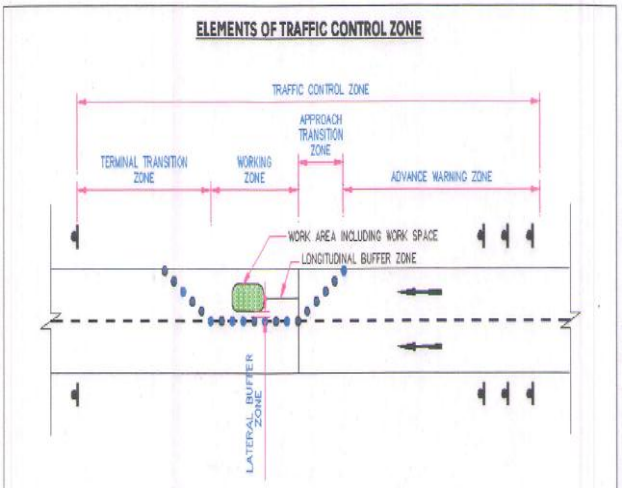
SOLUTION OF THE PROBLEMS RELATED TO THE ROAD SAFETY

- Strict Enforcement as per IRC :SP: 5 5-2001;
- Heavy Penalty;
- Stoppage of work; and
- Black listing of Parties Concerned.

GUIDELINES ON SAFETY IN ROAD CONSTRUCTION ZONES (IRC:SP:55)

The following figure depicts the layouts of traffic control zones and length of each zone. It is recommended to rearrange various traffic control zones for approach speed 51-80 kmph

Basic layouts for Traffic Control Zones



Average Approach Speed	Length of Advance Warning Zone	Length of Approch Transition Zone	Length of Working Zone	Minimum Longitudinal Buffer Zone	Minimum Lateral Buffer Zone
50	100	50	Varies	5.0	0.5
51–80	100–300	50–100	Varies	15	0.5
81–100	300–500	100–200	Varies	30	1.2
Above 100	500–1000	200–300	Varies	100	1.2