



INDIA CHAPTER

International Road Federation
Fédération Routière Internationale
Federación Internacional de Caminos

अंतरराष्ट्रीय सड़क संघ

NEWSLETTER

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NEWS IN BRIEF

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IRF Mission

To promote the development of roads and road networks that enable sustainable access and mobility for all

IRF Vision

A world of safe, sustainable, and efficient roads and road networks

IRF Values

Commitment to safe, smart & sustainable roads

EDITORIAL BOARD

Chief Executive Officer
Veena Nabar

FROM THE CHAIRMAN'S DESK



Dear Members,

Season's Greetings from International Road Federation – India Chapter (IRF – IC)!

I hope this finds you and your families well & safe. Although the longstanding lockdown has been gradually lifted to a great extent, the conditions around us do not warrant a feeling of re-assurance that all is well. We need to seriously continue following the various measures that have been followed over the last few months to ensure that we keep ourselves safe and see that no large spike of

cases takes place in the city.

At IRF - IC, we have managed to undertake a few activities during this period including a Webinar that we organised jointly with one of our members, Avery Dennison. We are happy that the webinar was well attended and generated a lot of interest. We are similarly gearing up to have other webinars & online talks and would be in touch with you regarding the same.

We have also completed a report on *Jindal Stainless Foundation (JSF) Project 'Stain-less Roads'* and our *Enhanced First Aid Training (eFD) initiative for bystanders on the Delhi - Meerut stretch, NH-58*. The projects have been widely appreciated and we were left with a huge unmet demand for more such courses. We hope that we shall be able to take up more such training of bystanders as soon as conditions improve to allow our physical presence on roads.

IRF – IC also participated in a Webinar on '*Towards Sustainability in Road Construction*' on World Environment Day organised by our member, BitChem. I took this opportunity of elaborating on the use of our Changer software. We carry a small report regarding this Webinar in the current Issue.

IRF – IC has been struggling to keep itself up against all odds that have affected its activities and health. Although we are aware that the whole economy, not excluding our members has been hugely negatively impacted by the COVID -19 pandemic and its lockdown aftermath, we look to our members for support in a continued manner, even if limited in magnitude, by way of membership fees. Since CSR spends are mandatory for the corporate sector, it would be a great help if these could be focused on road safety activities, through IRF – IC. I have been in the past requesting your beneficence for CSR support for our activities. However we have had very little response from most members. A pioneer in road safety activities in the country, IRF – IC is greatly threatened in the present circumstances and we look to our members more than ever for necessary support. If a majority of you contribute to some extent, this can vastly help in keeping the organisation active in its mission for Safer and Smarter Roads & Mobility. I do hope that you will heed this urgent call of your own organisation, which requires your gentle push.

We would also welcome your ideas & suggestions on activities & efforts that IRF – IC needs to make, in keeping with demands of the present times, which are fraught with so much economic uncertainty. While the pandemic numbers are continuously on the increase, the dangers of the roads are also competing as a first ranked public health safety disease. As economic activity picks up and roads begin to see a greater movement of vehicular traffic, the need for road safety awareness building and training will proportionately increase.

I shall end by wishing you all a safe ride through the difficult days ahead, when we shall have to start building up economic activities gradually.

We look forward to your ideas & support and wish you & your families a safe stay.

Best Wishes

G. Sharan

ENHANCING TRAFFIC SIGN PERFORMANCE THROUGH DIGITAL PRINTING



Joint Webinar of IRF -IC & Avery Dennison

International Road Federation - India Chapter (IRF-IC) and Avery Dennison organized a virtual informative session on 'Enhancing Traffic Sign Performance through Digital Printing' on June 17, 2020. The session was organized to discuss the revolutionary digital printing system technology that is changing the landscape of how traffic signage are being made across the globe.

Both organizations have assiduously been striving to make the roads safer by adopting and promoting new technologies. The IRF-IC and CRRI have been aggressively involved in the development of design standards with detailed specifications for traffic signage and Avery Dennison has been the pioneer in implementing these standards through their technological advances and their quality products.

The initiative of the session was taken to create awareness and introduce the technology of digital printing system which would help increase the performance of the traffic signage and make the road safer for the road users.

The session received a great response from the road safety connoisseurs with around 300 registrations for the conference including road contractors, consultants, sign fabricating converters, industry members and other road stakeholders.

The panel of experts addressing the session included Dr. P.K. Sikdar, President and HOD at Intercontinental Consultants and Technocrats Pvt. Ltd, Dr. Velmurugan S., Senior Principal Scientist and Head, Central Road Research Institute and Mr. Viorel Bogdan, Marketing Segment Manager-Traffic and Safety from Avery Dennison.

The discussion began with the panel members presenting the significance and role of traffic signage to fight against the fatal road accidents and focused upon how the adoption of new technology can change the face of traffic signage around the world. With the topic of the innovations in the field of traffic signage, the panelists introduced the revolutionary technology of digital printing- TrafficJet print system by Avery Dennison, an IRC accredited one stop solution for printing high quality traffic signage warranted up to 15 years that eliminates the cost and mess of screen printing and hassle related to management of hazardous solvent waste. A few of the advantages of this technology are the inclusion of multi-colored visuals to help drivers track their places of interest, QR codes to help track the maintenance and details of each board and graffiti protection with the use of right overlay. The digital print system is also economically viable with the increase in printing speed and the reduction in requirement of labor leading to increasing productivity.

The session concluded with the panelists addressing various queries from the participants around digital printing for making signs. The collaboration between IRF-IC and Avery Dennison turned out to be a great success with an overwhelming response and encouraging feedback from the participants.

Panel discussion on “Towards Sustainability in Roads Construction” on World Environment Day - IRF - IC Participates

Mr. G Sharan, Chairman, IRF - IC participated in a Panel discussion on “Towards Sustainability in Roads Construction” on World Environment Day on 5 June 2020 organised by Bitchem.



Other members on the panel were Dr. Satish Chandra – Director –CRRI, who was honored as the Chief Guest, Dr. I.K. Pateriya – Director P-II, NRRDA, Mr. R.S. Sisodia – Strategic Adviser – BitChem, ex- Executive Director – IOCL and Dr. UC Sahoo – Assistant Professor – IIT Bhubaneswar.

The talk was initiated emphasizing on the environment challenges in roads construction and the need to include sustainability in the domain. While discussing the same, several environment friendly and clean technologies and materials were discussed. The clean technologies included ColdMix, Soil stabilization, recycling of pavement, waste material including fly ash, slag, waste plastic, rubber, construction and demolition debris and new pavement technologies included long lasting, perpetual pavement, low cost durable pavement and geo-synthetic pavement was discussed. Further, opportunities in Bitumen Emulsion market for India was also highlighted. Furthermore, need for environment clearance in road projects was also emphasized by one of the panelists. Lastly, perspective from department and industry was shared on challenges in achieving sustainability during construction.

The discussion highlighted several regulatory, R&D, data documentation and advocacy needs, which are listed below :

- Need for central level policy action to promote green technologies in road sector including inclusion in DPR and upgradation of the policy guidelines on timely basis
- Capacity building of the engineers to implement the technology;
- Advocacy of the technologies to all the stakeholders and incentivizing the use
- Deeper coordination among the stakeholders on timely basis and
- Research & Development expenditure to be increased
- Need for carbon credit data collection and analysis.

Mr. G. Sharan addressed the Session on “EIA (Environment Impact Assessment) in Roads Sector” highlighting the following topics:

- Focus areas for any road construction - Impact on Environment and durability
- 5% of the emission happens while construction and remaining happens due to the vehicle emission etc.
- EIA is needed to understand environment impact followed by Environment Mitigation plan and many other during execution.
- EIA is needed for both Green field and brown field projects
- EIA is to have a checklist

As a conclusion he emphasised on the following measures:

- Monitoring structure is important to understand if it is sustainable.
- Soil erosion becomes important too
- Increase in noise level should also be factored in EIA
- Should be considered at DPR stage.
- Durability design life for maintenance free structures should be focused– reconstruction causes double emission.
- New Green technology is available, but it isn't being implemented well.
- Climatic zonal map should be created – impact on environment should be focus.
- Specifications on Road and Bridge work is under renewal-feedbacks from the webinar should be shared.
- Changer – to evaluate Green House Emission

Mr. Sharan took the opportunity to elaborate on the use of IRF - IC Changer software, which has been adapted for Indian conditions and which will definitely be a game changer if utilized in taking decisions about materials & technologies for construction of roads and other infrastructure. The details of the Changer is as follows:

While driving avoid phone or else your family will be left alone

4

Completion of Project 'Stain-less Roads'

A joint initiative of International Road Federation – India Chapter (IRF – IC) and Jindal Stainless Foundation (JSF) Project 'Stain-less Roads' has been closed.

The Project has resulted in educating, awareness building, conspicuity giving & lifesaving skill building for

- 3409 school children, parents and teachers and 484 support staff including school transport team belonging to 22 schools in Delhi
- 1008 bicyclists in 5 locations of the city
- 49 commercial drivers in one location as against the 150 targeted in 5 locations.



The qualitative aspects of the imparting of training were also largely appreciated by the target groups.

Most importantly, the Project has made a beginning in training and awareness building of important stakeholders; the young, investing in whom results in dividends for a lifetime and the multiplier effect of which is great; the vulnerable, a large number of whom die daily on roads, resulting in emotional and financial trauma for their families; and the life givers, training of whom can save valuable lives by their having received the flavor of basic lifesaving skills.

Completion of First Responder Enhanced First Aid (eFD) Training on NH-24 Delhi-Meerut Stretch – MoRT&H Supported Project

The Ministry of Road Transport & Highways had sanctioned a Project “Enhanced First Aid (eFD) Training of Bystanders and Personnel manning Local Amenities on National Highway 24 Delhi-Meerut Stretch” to International Road Federation – India Chapter (IRF IC) during the 30th Road Safety Week 2019.

The project as conceived by IRF IC was to be carried out in two stages: (a) Pre-survey for meeting with District officials and Heads of Institutions, identifying training locations and enrolling participants and (b) Training of the identified participants.

The project was initiated and the Pre-survey was carried out between 13th to 15th February 2019. However, due to various unavoidable circumstances, the project could only be finally taken up in December 2019. The pre-survey, including meetings with District Magistrates of Ghaziabad and Meerut and Police officials had to be repeated due to changes of concerned district officials and was undertaken between 26th November 2019 to 21st January 2020.

The training was conducted from 22nd January 2020 to 13th February 2020 at 7 locations; Duhai, Rajnagar Extn., Morta, Muradnagar, Mohiuddinpur, Bhadbhual, Subharti College, Bypass Road Meerut and Surajmal College, Sakhoti Tiraha Bypass. The resulting training of 330 trainees as against the targeted 245 trainees under the project has resulted in incremental safety on the National Highway 24 Delhi-Meerut Highway stretch through creating a pool of 330 trained First Responders.

Feedback of 90% of the trainees was that the training was good and useful in all respects.

Road safety is a state of mind, accident is an absence of mind.

Some Glimpses of the Training Conducted





CSIR-Central Road Research Institute

Commuting in Urban Area During Covid-19 Pandemic

- Prof. Satish Chandra

Public transport, which includes buses and metro plays major role in mobility in urban and rural areas of India. Currently there are 13 operational Metro Systems in India with a total length of 678.52 Km and 540 stations (as on August 2019), 639 Trains (more than 3200 coaches) and Ridership of 4.4 million/day. Out of 1.6 million registered buses, public bus sector operates 170,000 buses carrying about 70 million people per day. However, only about 30,000 buses are serving the city areas and 8 metropolitan cities have the fleet of over 24,000 with ridership of about 50 millions/day. During the present prevailing COVID-19 pandemic situation, there may be high risk for commuters travelling by metro and bus and chances of spreading of virus are also very high. The World Health Organization (WHO) and the Ministry of Health, Government of India have recommended a social distance of 6 feet to control the spread of the virus through person-to-person. It's always been a challenge to manage the gap between demand and supply of commuting and this gap is going to be further widened due to COVID-19 pandemic requiring the social distancing practices.

In view of this, CSIR-CRRI, New Delhi has come out with a document on "Guidelines for

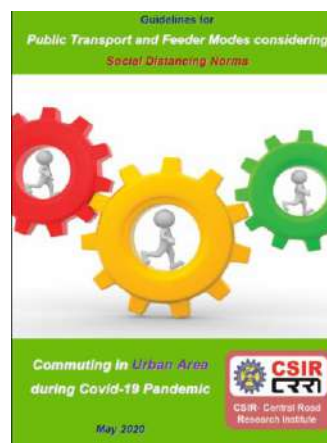


Public Transport and Feeder Modes considering Social Distancing Norms" subsequently released by Hon'ble Minister Dr. Harsh Vardhan, MoHFW along with Dr. Sekhar C Mande, DG, CSIR and Prof. Satish Chandra, Director, CSIR-

CRRI on May 04, 2020. The document mentions a systematic and strategic approach to be adopted to move

ahead during the COVID-19 pandemic. Multi dimensional approach is recommended at every stage of public transport commuting like walking from home to bus stop/ metro station, using feeder modes like cycle rickshaw, electric rickshaw, shared auto rickshaw etc., area of bus stop and metro stations and while travelling inside the bus and metro to reach destination. Taking into the account of total leg of the trip from origin to destination, following two approaches are suggested for possible implementation considering social distancing:

- ❖ Redesigning the facilities suiting to social distancing
- *Pedestrians*: Marking s on Foot Paths and Widened Zebra Crossings at Intersections
- *Metro, Metro Station and Surrounding Area*: Boarding/ alighting times, Feeder bus services, Subway/ Lift/ Escalator, Double the dwell times, Information on vacant Seats in a coach, Queuing by commuters on platform and ticket counters, Baggage Scanner/



Life doesn't have Reset button. Drive safe.

Security Checkup, Card scanning, Markings/ procedure to follow from entry gate to platform, inside the train and before alighting, Online ticketing and use of Arogya Sethu

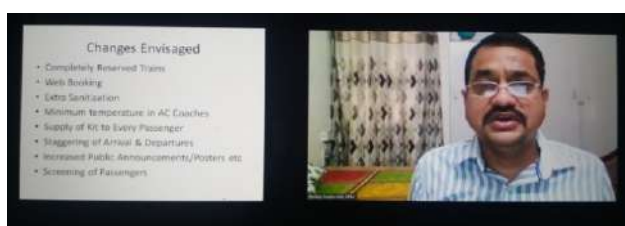
- **Bus and Bus Stop:** Rear door boarding and alighting, Increasing of Dwell Time, Staggered bus seating arrangements, Limiting Access to Bus Drivers Area, Limiting seating at Bus Stops/ Stations, Cleaning of Common Areas and Automated Fare Collection System
- **E-Rickshaws, Autos and Taxis:** One Commuter, Usage of Apps for booking and payment in digital mode, Partition between driver and commuter as well as within commuters, Parking places, Self driving car rentals
- ❖ **Reducing the demand and Capacity Enhancement**
 - **Demand Reduction:** Encourage Short length trips by intermediate public transport modes (rickshaws, autos, etc.), Easy access for IPT vehicles near entry gates of metro and bus stops, Dedicated path/ lane to IPT and PT, Staggered days and/or hours for offices/ schools/ markets/ shopping area can be adopted.
 - **Capacity Enhancement and Management:** Changes in Timetable, Providing dedicated services to healthcare personnel, patients and any other category of the work force falling under essential services, Readjust routes and frequencies, Policy towards different time schedule of economic and social activities, Attractive or targeted offers to encourage the use of public transport, Induction of school buses, chartered buses, tourist buses, other mini tourist buses/ vans incase increased demands, exceptional measures, prioritize political and financial support from Government.



In order to discuss further to implement such norms in Indian cities, an International Webinar on *Social Distancing Norms for Transportation in COVID-19 - Need and Challenges* has been organized by CSIR-Central Road Research Institute (CRRI), New Delhi for two days inviting experts and professionals in this area from May 15-16, 2020. This Webinar addressed most of the core issues such social distancing norms, coping with transportation issues in pandemic situations, lessons from other countries, challenges and suggestions for Indian conditions. Eminent speakers / experts from various organizations namely Ahmedabad Traffic Police,



Massey University, Auckland, New Zealand, CSIR-CRRI, New Delhi, AIIMS, New Delhi, CIA G.Local.com, BRTS Bhopal, DTC, New Delhi, Indian Railway and Electro Motion Mechtronic Pvt. Ltd. have participated in the Webinar.



Riding without a helmet is not safe at all. You have to think what if you slip and fall.

Technology Enabling Safer Roads with Wet Reflective Optics

Introduction

A major cause of accidents on highways and expressways is not maintaining lane discipline due to the poor visibility of pavement markings, particularly at night time and during rain fall. Studies have shown older drivers over 60 years age require approximately two times higher pavement marking brightness than younger drivers in their twenties in order to recognize the markings. Controlled studies have found increasing the initial marking reflectivity by 16% to 67% and increasing the interventional levels by 0.75X to 1.5X resulted in 15% to 28% crash reductions. Further, by adding wet reflectivity performance to expressway and undivided multi-lane highways resulted in crash reductions of between 14% and 25%.

The evidence is overwhelming that driving at night and in rainy conditions poses significant higher risk of crashes, injuries and fatalities than in good weather and day time. Numerous studies documents that the visibility of road markings at night is controlled by the retroreflective efficiency of the pavement marking system and hence when a specific pavement marking system is being chosen, it is important to understand the underlying technology that makes it effective. The visibility properties of any marking system are the result of a combination of three basic components: the optics, the structure, and the binder. All three components must be designed to work together to create an effective marking.

Advanced pavement marking systems having high index optical elements as the critical material for both liquid pavement marking solutions and pre-fabricated pavement marking tapes are commercial available. The article describes the science and technology behind high index optical elements and their impact on retro reflection in dry and wet conditions. The initial data on coefficient of retro reflected luminance (R) indicate superior performance of the advanced marking systems over the benchmark system under both dry and wet weather conditions.

Design of Pavement Markings

The retro reflective properties of conventional markings are achieved by glass beads partially exposed to vehicle headlights while partially embedded into the markings for durability. Typically, the beads are dropped onto a white or yellow binder right after the binder is applied onto the roadway surface. The design of markings regardless of the binder type, factory pre-fabricated or formed on the road surface, can be categorized as follows, also illustrated in Figure 1:

- A) Conventional liquid marking commonly enhanced with glass beads of 1.5 refractive index,
- B) Highly efficient dry-condition markings enhanced with approx. 1.9 refractive index ceramic beads and,
- C) True-wet reflective markings that function in continuous rain or water immersion having approx. 2.4 refractive index ceramic beads.

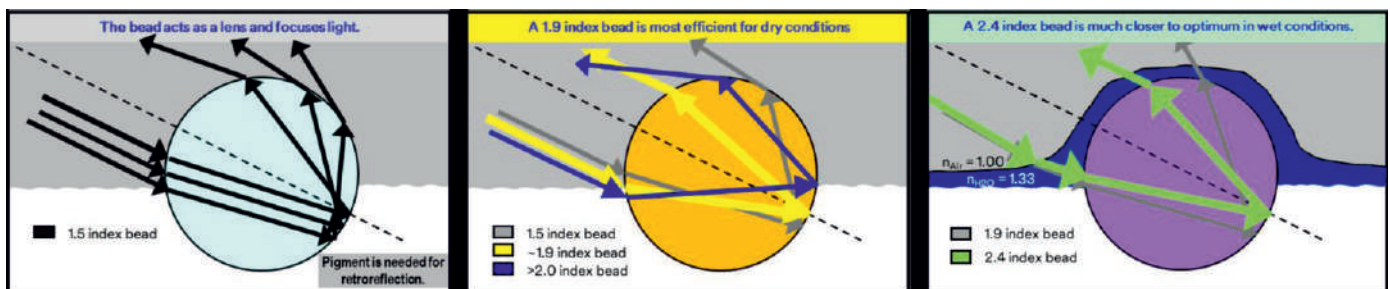


Figure 1 (a-left) Conventional 1.5 refractive index glass beads; (b-middle) High efficiency dry-condition 1.9 refractive index ceramic beads; and (c-right) True-wet condition 2.4 refractive index ceramic beads in pavement marking lines interacting with vehicle headlights.

Impatient on Road, Patient in Hospital.

Studies have taught us that there is no one refractive index system for the surface drop optics that will work optimally for dry and true-wet conditions. When the markings are wet, a portion of the headlight skips forward with the water film acting as a partial mirror and rather than being returned to the same vehicle, it causes glare to the oncoming vehicles. The portion of headlight that is refracted into the surface dropped optic is retroreflected. However, the wafer film causes an effective index change (by the water refractive index 1.33) such that the bending power of the 1.5 optic is insufficient to direct the return light towards the driver. With the ceramic platform, the refractive index of microcrystalline ceramic beads can be synthesized appropriately to hit the 2.4-2.6 sweet spot in the true-wet condition (2.5 index modified by 1.33 water index gives an effective index of 1.9). Having two constituent components – all-dry 1.9 index and all-wet 2.4 index microcrystalline ceramic beads, the commercial solution merely requires mixing of the appropriate dry vs. wet element ratio to yield the required dry weather and wet weather (i.e., all-weather conditions) performance specifications in a single marking. This is illustrated in Figure 2(a) and (b) for all-weather optical elements in liquid pavement marking and structured pavement marking tapes, respectively.

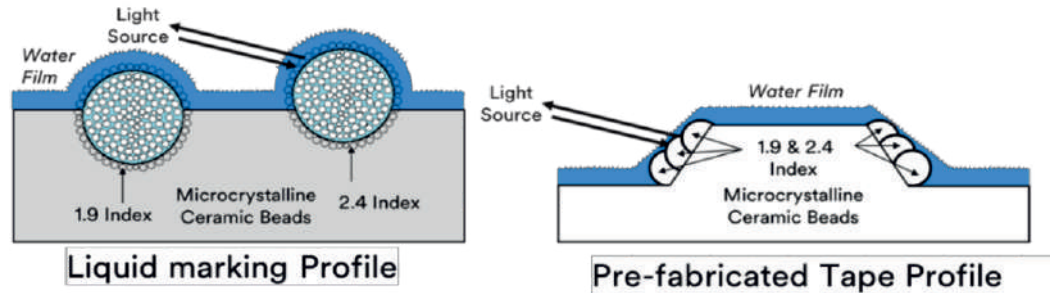


Figure 2 (a-left) All-weather optical elements dropped into liquid PM binders and (b-right) Structured All-weather PM Tape Profiles.

In this paper, the authors share the results of road trials carried out with dual-optic drop-on elements system and pre-fabricated pavement marking tape designs on Indian roads with local traffic and driving characteristics.

Field Study of Advanced Marking Systems

A study has been carried out to establish the performance and relationships between the optics, and structure of pavement marking systems and their retroreflective efficiency under nighttime driving conditions. Five different pavement marking systems, four prototypes and one commercially available marking system, were tested (Table 1). The prototypes consisted of hot-applied thermoplastic coupled with dual-optic drop-on elements system, a unique technology that provides high retroreflectivity in both dry and wet weather conditions, and a pre-fabricated structured tape of two different designs. Benchmark is a standard commercial marking that consisted of hot-applied thermoplastic paint with AASHTO M247 Type 2 surface-drop glass beads. The markings were 4-inch-wide non-continuous lines for center lines and 6-inch-wide continuous lines for edge lines. The markings were white-colored and applied at about 2.5mm thickness.

TABLE 1 Description of Pavement marking systems used in Field Study

Marking	Marking System	Optics
Prototype A	Hot-applied Thermoplastic	Dual-optic drop-on Elements System (2.4/1.9 index (ratio 1) elements + 1.5 index glass AASHTO M247 Type III)
Prototype B	Hot-applied Thermoplastic	Dual-optic drop-on Elements System (1.9/2.4 index (ratio 2) elements + 1.5 index glass AASHTO M247 Type III)
Prototype C	Pre-fabricated structured tape Type I	Specially designed optics built in a self-adhesive tape
Prototype D	Pre-fabricated structured tape Type II	Specially designed optics built in a self-adhesive tape
Benchmark	Hot-applied Thermoplastic	AASHTO M247 Type 1 drop-on 1.5 index glass beads

Note: Only one commercially available brand of AASHTO M247 Type 2 glass bead was used, and it was assumed that all commercially available beads of this types would perform in similar manner.

Following variables were considered in the field study:

- Pavement Surfaces – Asphalt and Cement-concrete
- Pavement Marking Configurations – Side/Edge lines and Center/Skip lines
- Traffic Conditions – Low to High ADT (Average Daily Traffic)
- Vehicle Type – Passenger and commercial vehicles

The coefficients of retroreflected luminance (RL) at standard CEN 30-meter geometry were measured according to ASTM E1710 under dry conditions (RL-dry) using internal beam retro reflectometer and according to ASTM E2177 under wet-recovery conditions (RL-wet Rec) using external beam retroreflectometer. The coefficients of retroreflected luminance (RL) under rainy conditions (RL-wet Cont) were measured according to EN 1436 using a rain simulator set-up generating artificial rainfall at an average intensity of 20mm per hour. The RL values reported in Table 2 are an average of about 20 measurements, each measured at about 25 meter distance.

Results

Table 2 summarizes the initial coefficient of retroreflected luminance (RL) for all the five pavement marking systems. All prototypes have 2.5 to 5 times higher RL-dry values compared to benchmark system. RL values for both wet recovery and wet continuous conditions are significantly higher by more than 10 times for prototype A, B and C compared to benchmark marking system. Nighttime visibility under dry and wet weather conditions after 3 months are captured in the photographs 1 -6.

TABLE 2 Initial coefficient of retroreflected luminance (RL)

Marking	R _L CEN 30-m Geometry (mcd / m ² / lx)		
	Dry	Wet Recovery	Wet Continuous
Prototype A	767	582	441
Prototype B	985	442	326
Prototype C	846	391	340
Prototype D	521	44	42
Benchmark	184	36	17



Photograph 1 -Nighttime visibility under wet weather condition – Prototype A



Photograph 2 -Nighttime visibility under dry weather condition – Prototype B

Over speed is a knife that cuts short life.



Photograph 3 -Nighttime visibility under wet weather condition – Prototype C



Photograph 4 -Nighttime visibility under wet weather condition – Prototype D



Photograph 5 -Nighttime visibility under dry weather condition – Benchmark



Photograph 6 -Nighttime visibility under wet weather condition – Benchmark

Summary and Conclusions

Though the performance of prototypes over longer period is subject to further monitoring, on average, prototype marking systems have relatively high level of initial retro reflectivity under both dry and wet weather conditions and much brighter nighttime visibility.

The nighttime visibility of a pavement marking system is a function of many factors like driver's age and eyesight, headlamp intensity, windshield quality and cleanliness and retro reflective efficiency of pavement marking system. Of these factors, the only factor road agency can control or maintain is the retro reflectivity of the pavement marking system. Having field trials conducted in India allows the road agency to witness enhanced performance of advanced marking systems versus conventional pavement markings and helps in making the right choice that best serves the purpose of on-road safety by means of enhanced nighttime visibility under all-weather conditions.



Achieving Sustainability in Roads Construction

Ms. Shivi Vijayvergiya

The unprecedented crisis that COVID'19 has posed, has reignited debates on the need for emergency preparedness in every domain. The transport infrastructure particularly roads, which constitutes the backbone of economic development for every country, has started demanding not only for inclusion but mainstreaming green technologies and building climate resilient infrastructure.

The transport sector accounts for nearly 14% of global Greenhouse gases emission (hereinafter referred as GHGs). Of which, approximately 72% is attributed to road construction, rehabilitation, maintenance, service, and usage making the

road sector the highest-level producers. It emits GHGs directly, through fossil energy used in mining, transportation, paving works and indirectly through the emissions coming from vehicles. With the constant increase in the number of vehicles and therefore of the traffic, there is a high risk of substantial increase in pollution in future.

To reduce the indirect emission from road sector, lots of efforts are being taken at policy level such as EV policy at central and state etc. However, such efforts are long term and completely discredit other source of emissions from the road sector. Even though road construction represents only 5-10% of the total emission in the sector, road construction mitigation efforts are relatively less time consuming and has a potential to substantially reduce the emission. Therefore, an effective strategy to reduce emissions would be to target it holistically and focusing on the low hanging fruits that can substantially reduce emission.

With almost 5.89 million kms, India is one of the largest road networks across the world. In the FY 2018, the construction of highway and rural road under PMGSY reached 9829 kms and 47,447 kms, respectively. In India, approximately 165 kms of roads are constructed on daily basis leading to emission of approx. 1500-4000 litres of fuel equivalent to 4000 kg of CO² emission per km. Therefore, it is imperative that the GHGs emission should be evaluated at different stages of project like planning, designing, implementation and lastly during operation along with that alternate construction practices must be evaluated.

BitChem Asphalt Technologies Limited which is India's largest ColdMix Technology company. In 2018, approx. 31.87 kms of highway roads and 134 kms of rural roads were executed in India per day.

In India, the National Rural Road Development Agency and Ministry of Rural Development, recognizing the environment hazards and depleting natural resources, had piloted with several technologies like Cold-Mix Technologies, Jute/Coir Textile, Waste plastic surface etc. In 2013, the agency issued New Technologies Guidelines with a vision to mainstream these technologies and many other in the rural road projects by allowing minimum of 15 % use of these technologies. However, the vision of mainstreaming and "Green Roads" has not been optimized yet.

In order to imbibe the sustainability narrative in the sector, It is utmost crucial that all the stakeholders including Government both at central and state, implementing agencies, contractors, clean technologies firms etc. engage in the dialogue and work collaboratively by prioritizing and committing to climate change. Sustainability can be achieved by investing in innovative green technologies which ensures minimum greenhouse gas emission and on recycling of the resources available as there are limited resources.



Upcoming Events



[2nd IRF – SATC Webinar: The impact of Covid-19 on freight and logistics Sector](#)

August 12 @ 10:00 am - 11:30 am UTC

by Webinar



[UNRSC Webinar: The Ten Step Plan for Safer Road Infrastructure](#)

September 9, 2020 @ 2:00 pm – 3:30 pm CEST

by Webinar



[IRF Special Session at FIDIC Annual Infrastructure Conference](#)

September 14 - September 15
Geneva, Switzerland TBD



[Training on Advanced Road Safety Audits](#) September 30 @ 2:00 pm - 4:00 pm UTC

Doha, Qatar Qatar University



[IRF Young Professionals Summit](#)

September 30 @ 2:00 pm - 4:00 pm UTC

Live Webinar

From the next Issue of Newsletter onwards, we would like to introduce a column “**Suggestions of Members**”. Please send us your suggestions & ideas for improvement in the Newsletter and our activities.

Membership

IRF IC is a membership based organization, representing corporate and institutional players and stakeholders in the road infrastructure sector in the country. Road safety has been at the core of IRF IC's activities, which also promotes “green road” approach. IRF IC invites all stakeholders in the road

sector to join it as members and contribute to the efforts for better road infrastructure and safety.

Kindly note our changed office address, which is reproduced below.

International Road Federation – India Chapter

'CEAI Centre', II Floor, OCF Plot No. 2

Sector B-9, Vasant Kunj , New Delhi-110070

Tel.: +91-11-71862707

Email: india@irfnet.ch, Website: www.indiairf.com

IRF – IC Newsletter has a wide circulation not only in India but also globally. We seek to project & showcase the activities of all our honorable Members worldwide.

Your contributions in the form of brief reports of your activities, events, awards, brief articles and other accomplishments are invited.

ALWAYS KEEP IN MIND THE FOLLOWING

