

## ROAD SAFETY INITIATIVE OF KERALA

“The first two letters of SAFETY always starts with ME”

*- Er.G.Manikandan, AE(H), ICERS Cell,O/o the DG/HD*



The Government of Tamil Nadu is initiating several steps to stop and reverse the road accident rates. As a part of which, it has been planned to bring-in the best practices in the field and improve the road safety situation of the State. Accordingly a team comprising of officials from Highways, School Education and Transport visited Kerala on 24.02.2017 & 25.02.2017 to study their Road Safety initiatives

The team headed by Thiru.A.R.Rahul Nadh, I.A.S, Deputy Secretary to Government, School Education Department., comprised of Dr.Sakthi, Professor, SCERT, Mr. Jose Partris DD, IRT., Er.G.Manikandan, A.E, Highways Department.

The team met Mr.Rishi Raj Singh, IPS, DGP, Mr.Manoj Abraham, IPS, ADGP, Mr.Arul R.B Krishna, IPS, DCP, Mr.Mohan Kumar, IAS,DPI, Mr.Chandra Kumar, ASI, Mr.Anil Karatte, Script Writer, Pappu Drama Programme during their visit and were elaborated on the Initiative on Road Safety at Kerala.

The Smart Traffic Class Room, Mobile Traffic Electronic Park and Traffic Park in Thiruvanthapuram were all visited and following are the initiatives/ best practices being followed;

### Subayathra:

In Kerala, nearly 4000 people get killed and around 35,000 get injured every year due to road accidents. Kerala Government through Kerala police with an objective of reducing accidents on the road and to build a safer driving culture, has launched a multi-sectoral action oriented programme named “Subhayathra”. The programme integrates diverse elements viz. conducting various traffic awareness programme, efficient enforcement, regulations with the aid of most modern digital equipment.

“Subhayatra” programme have been formulated with the following sub components,  
1. Strict Digital Enforcement of Traffic Rules (Speed Camera to catch the over speeding vehicle and automatic fine generation sent to the corresponding address, Payment of fines through Banks, Debit/credit cards) 2. Virtual Mechanisms for Effective Traffic Management (Traffic Help line number, Whatsapp number and facebook page) 3. Educational Mechanisms for Effective Traffic Management (Traffic Park, Mobile Traffic Electronic Park), 4. Executional Mechanisms for Effective Traffic Management (SOFT programme), 5. General Campaign Activity Mechanisms for Effective Traffic Management (World's Largest Painting by Children, Exhibition on Road Safety)

## Mobile Traffic Electronic Park:

Mobile Digital Traffic Safety Parks introduced by the Police Department are set up in all districts, which are made by remodeling the old police buses. Posters highlighting Traffic accidents and their causative factors are pasted on the wall of the Mobile parks, which are driven to schools and Public places for demonstration and display comic books depicting traffic rules are distributed to children.



## Traffic Park:

Awareness and Education on Traffic Rules and regulations are brought about in the above parks. Mini vehicles are provided in the park which are driven by children on their own, following Traffic rules displayed in boards, pictures and also one traffic police person allotted to manage the Traffic park etc



Apart from this, touch screen kiosks, science exhibition chamber are available. Children amusement and play things are also provided in the park, which encourages both relaxation and learning.

## Pappu Zebra Drama programme:

An initiative rolled out, few years back in Kerala to create road safety awareness, is very popular with students and young children. To strengthen the next generation, this initiatives focus on change comes from the student and within the 10-15 years these students become the user with safety concern.

The drama art is performed by a team of 10 police personnel, with the ‘PAPPU’ – the mascot of road safety of Kerala, being in the centre stage.

The performance includes Seminars, Quiz, Magic shows to attract children, is played at all schools and colleges. Plays are afoot to stage play all over the state.



**PAPPU Zebra mascot**

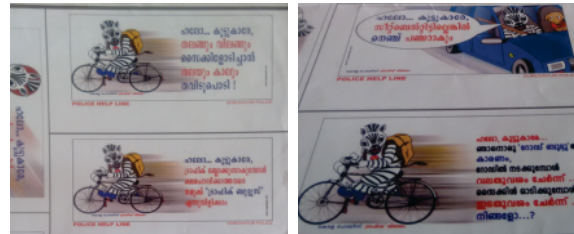
### **Smart Traffic Class Room:**

A new initiative by the State of Kerala, the smart class room on Road Safety is being established at the rate of at least one class room for a district.

Smart Traffic Classroom enable students to quickly learn and be aware on Road Safety Rules etc., Working to point that, first Smart Traffic Classroom was established by the famous Malayalam star Mohanlal.



Team visited the Traffic Smart Class Room



Road Safety awareness Sticker

### **SOFT (Save Our Fellow Traveler):**

Immediate attention given to the road accident victims increases the chances of survival manifold and reduces the severity of injuries. With this intention, the Kerala Government launched SOFT (Save Our Fellow Traveler) by January 2017, to provide quicker shifting of accident victims and providing them with immediate relief.

Through this initiative, the trained volunteers provide immediate first aid medical care and support in moving the victim to trauma care centres. About 1200 volunteers in 26 circles throughout the state, have so far registered as volunteers who come from streams of profession including, Auto/ Taxi drivers, Government servants, Business people etc., It has been planned to extend this model throughout all the districts of Kerala.

### **Road Safety Club:**

Formed as a group in schools near places where accidents frequently occur, “Highway Suraksha Jagratha Samithi” acts with an objective of initiating steps to reduce accidents, educating/ creating awareness to road users, helping to rush victims to care centre etc.,

### **School Road Safety Cell:**

This is formed in each school, is led by a teacher, specifically imparted training on Road Safety. About 2400 – odd teachers had been trained in 2015 &16 by the school education Department.

The trained teachers, plays three important roles & tasks;

- a) Teach Road Safety in Schools,
- b) Lead team of students in promoting Road Safety Programmes and
- c) Assist Traffic Police personnel in reducing the accidents.

Some of these ideas can be taken forward and attempted in realizing improved road safety situation of the State.

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## Two day Workshop on Indo-HCM at CSIR-CRRI, New Delhi – a premier



- Er.D.Aravindan, AD, O/o the DG/HD &  
- Er.S.Satheesh, DD/Traffic, O/o the Director, HRS



The Road network is formed primarily to cater to the need of flow of traffic. Augmenting the existing resources and creating new road infrastructure is purely based on the volume of vehicular movement along particular network.

Till now, the standards in our country including IRC have adopted versions from the United States Highways Capacity Manual (USHCM), which had been modified six times and the latest was during the year 2016. Countries such as US, Finland and Norway and other South Asian countries like Indonesia, China, Malaysia etc., have developed their own Highway Capacity Manual suiting their conditions.

Sensing this drawback, the Council for Scientific and Industrial Research (CSIR) had initiated the formulation of Capacity Manual for India, exactly suiting all variable conditions within the entire country.

This task was entrusted to CSIR-CRRI, New Delhi, way back in April 2012. CSIR-CRRI had coordinated with IIT-R, IIT-B, IIT-G, SPA-D, SVPNIT, BESU, IIST and AU-Chennai etc. Institutes in bringing out the Capacity Manual.

The mammoth task nearing completion and the document is about to be published shortly. The CSIR-CRRI organized two day workshop at CSIR-IGIB Seminar hall, CSIR-CRRI Campus, New Delhi during February 20th and 21st, 2017.

The dissemination workshop was inaugurated on 20th February, 2017, by the Chief Guest Shri.R.K.Pandey, Member, NHAI, New Delhi, the Director, CSIR-CRRI, Prof. Satish Chandra, presided over. Dr.S.Velmurugan, Senior Principal Scientist, CSIR-CRRI and champion, INDO –HCM, welcomed the gathering. The session was inaugurated with lighting of traditional ‘Kuthuvilakku’. A galaxy of participants from varied professional stream – academicians, Researchers, Consultants, Practicing Engineers, Student Scholars had gathered to witness the proceedings.



During the workshop

The Indian Highway Capacity Manual (Indo- HCM) had been structured under the following ten chapters:

1. Basic Concepts
2. Two lane, Intermediate and Single lane Roads
3. Multi-lane Inter- Urban Highways
4. Inter-Urban and Urban Expressways
5. Urban Roads
6. Signal controlled Intersections
7. Roundabouts
8. Uncontrolled Intersections
9. Pedestrian facility
10. Reliability as a Performance measure for Inter-Urban and Urban arterials.



A Section of the audience

The report on above was discussed in four sessions which dealt with,

- 1) Basic Concepts
- 2) Uninterrupted flow
- 3) Interrupted flow
- 4) Pedestrian facility, Travel time reliability and concluding session.

Extensive data and detailed analysis had been carried out at unique sample stretches in different parts of the country for realistic representation.

Based on the above, Capacity values fundamental equations, empirical values have been derived by the researching teams to define the capacity, flow, design service volume and other important parameters relevant to the study.

All terrain conditions had been included in this study. Once the Indo-HCM is finalized and document released (by April 2017), it would be a boon to the entire highway engineering community of the country for easy adoption. If applied, realistic capacity estimation of highway infrastructure is expected to happen, which shall enhance the value for investments made and thereby pave for optimal budgetary utilization in infrastructural development in R&B sector.

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The ideal engineer is a composite... He is not a scientist, he is not a mathematician, he is not a sociologist or a writer, but he may use the knowledge and techniques of any or all of these disciplines in solving Engineering problems.

- NW Dougherty

## Tease your Brain – CW-9

-Er.S.Satheesh DD/Tr.Lab, HRS

1 <b>C</b>	2	3	4 <b>P</b>	5	6	7 <b>T</b>	8 <b>C</b>
9 <b>O</b>	<b>D</b>						16 <b>R</b>
17		<b>U</b>	20 <b>G</b>			23 <b>H</b>	24
25	<b>M</b>						32
33 <b>I</b>		35 <b>C</b>	36	37 <b>S</b>			40 <b>T</b>
41	42 <b>T</b>					47 <b>G</b>	
49 <b>O</b>	<b>E</b>	51	<b>S</b>	53	<b>E</b>	55	56 <b>R</b>
57 <b>R</b>		59 <b>I</b>		<b>H</b>		<b>P</b>	

**Across:**

1. Exert force on to make more dense; to compress; to press to evacuate air within a soil mixture, in a layer of road pavement (7)
9. An instrument to measure distance by a wheeled vehicle (8)
17. Texture of a road top surface; opposite of smooth... (5)
23. NOT 'She'; a Masculine gender, a man may be... (2)
25. Prestigious Software system in IT sector of the Department, which stores, retrieves and analyses 'Road Condition Data' for prioritization is abbreviated as ... (4)
33. The important code for Importer & Exporter, Shortly known as.. (3)
37. A narrow cut or opening (4)

42. Making an attempt or effort to do something (6)
49. Unit of auxillary magnetic field strength, in CGS (7)
57. Wing under State Highways Department, enormously contributing to Rural Development is N&\_\_\_ (2)
59. An exclusive training institute for Highway Engineers in Noida, U.P., is called as .... (4)

**Down:**

1. A continuous stretch of considerable length in a highway network; a long passage from which, doors lead into rooms (8)
2. Same as '9' across (8)
3. An agreement; an understanding to plan /work / execute together between two or more parties/organization, abbreviated as ... (3)
4. A project providing rural connectivity captioned 'Pradhan Mantri ...' shortly known as... (5)
5. The Assistant Engineer in Highways Department... (3)
6. The Computer Tomography Scan is best tool for medical investigation (2)
7. One of the highest Earth-fill dam in the world and in India, across River Bhagirathi in Uttarakhand State (5)
8. An originator; one who creates; Philosophically referred to Almighty (7)
35. Premier research organization in Country's Capital, dedicated to Roads & Bridges under CSIR Chain, which is in joint agreement with HRS is... (4)
37. 'Do not Stand'; to rest by one's bottom on a chair or floor (3)
47. One of the primary indicators used to gauge the health of a country's economy (3)

### **43<sup>RD</sup> INDIA TOURIST AND INDUSTRIAL FAIR 2017**

Tamil Nadu Tourism Development Corporation had conducted the 43rd India Tourist and Industrial Fair 2017 from 26th January, 2017 at Island grounds, Chennai. In the fair, Highways and Minor Ports Department had erected pavilions in an attractive manner with working models to inform the public about the welfare measures and development programmes undertaken by the State Government in Highways and Minor Ports Department.



*(Source: O/o the DG/HD)*

## 'Cracks in Concrete' – "Why?"



- Er.P.Elango, AD/Conc, O/o the Director, HRS

Concrete has been extensively used in pioneering architectural feats for millennia. The first concrete-like structures were built in the regions of southern Syria around 6500 BC. It is estimated that the consumption of concrete in the world presently is of the order of 12 billion tons a year. No other material, except water, is consumed in such huge quantities. Recently few space agencies have begun to study on how to make concrete using materials that are widely available in Mars. Though present day advanced technology enables to study the macro concrete material at a nano – level, providing crack free concrete at a hardened stage, is a challenging task.



Cracking is common in concrete. There are number of reasons for the formation of cracks. Concrete cracks even before hardening. In freshly prepared concrete, the space between the solid particles (cement and aggregates) is filled with water. When the fresh concrete is placed in the form work, the solid particles start to settle and water rises to the top surface. The water layer on the surface evaporates due to sun light and wind. When the rate of evaporation exceeds the rate of water rising to the surface, the concrete mixture will begin to shrink and cracks on the surface. Rapid drying of concrete will significantly increase the

possibility of cracking.

Plastic shrinkage cracks are not merely surface cracks, but can be very deep. The width of these cracks range from 0.1 to 0.3 mm and the length can be quite short or even as long as 1 m. Once developed, they are difficult to close permanently. Plastic shrinkage cracking is a serious problem for large flat concrete structures such as Bridges and Pavements.

Complete prevention of evaporation of surface water immediately after leveling the fresh concrete eliminates plastic shrinkage cracks. The effective means of preventing such cracks is by keeping down the rate of evaporation of water from the surface of concrete. It is therefore, best to protect the concrete from sun and wind, to place and finish fast and to start curing very soon in hot weather.

Great care is required throughout the entire process of making concrete structures. Any negligence during the process may lead to premature distress in concrete structures. It is very difficult to repair a hardened concrete and hence due care during concrete construction is very much essential.

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## **TRAINING PROGRAMME ON ROAD SAFETY AUDIT**

**(Under MoU with CSIR-CRRI, New Delhi and HRS, Chennai)**

Training Programme on 'Road Safety Audit' conducted by the Expert Scientists from CSIR-CRRI, New Delhi, from 06/03/2017 to 10/03/2017 at HRS. The training was facilitated through the Memorandum of Understanding between HRS and CSIR-CRRI, New Delhi. The training was funded through the ICEP of World Bank funded TNRSP-II.

### ***Inaugural session***

The session was presided over and Inaugurated by the Additional Chief Secretary to Government, Highways and Minor Ports Department, in the presence of the Director, CSIR-CRRI, New Delhi. The Director, HRS welcomed the gathering. The overview on Training Activities was presented by Deputy Director-IV, Training Co-ordinator, HRS. Dr.S.Velmurugan, Sr. Principal Scientist of CRRI presented the course overview. The inaugural address was delivered by the Director, CRRI. In his address, he outlined the need for increased awareness on road



safety. The Additional Chief Secretary delivered the Presidential address, in which the accident scenario globally and nationally was highlighted. The Institutional arrangements in tackling the issue and proposals of Engineering improvements were all highlighted. The need for understanding and adhering the Road rules, which is primary in the cause and prevention of accidents and the community involvement was stressed in the Presidential address. Training which aims at knowledge augmentation is an important activity in accident prevention, it was remarked.





**Training:** Following team of experts from the Traffic Engineering & Safety Division, CRRI led by **Dr.S.Velmurugan, Sr. Principal Scientist**, conducted RSA training ;

**Dr.Kayitha Ravinder** - Principal Scientist, TP, CSIR-CRRI

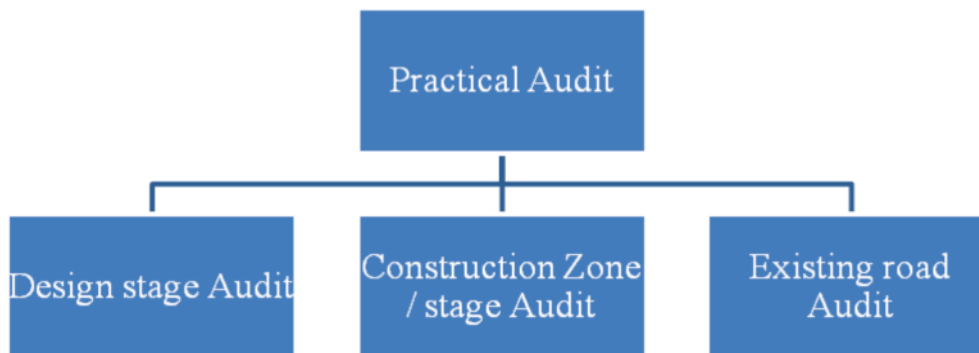
**Shri. Subhash Chand** - Principal Scientist, TES, CSIR-CRRI

**Dr.A.Mohan Rao** - Principal Scientist, TES, CSIR-CRRI

**Dr.J.Nataraju** - Principal Scientist, TES, CSIR-CRRI

**Shri.Ashutosh Arun** - Scientist, TES, CSIR-CRRI

The Training programme had two components viz., Lecture/Theory & Practical Session;  
The Practical Audit comprised of the following components;



For the Practical audit the participants were divided into 6 teams, from team 'A' to 'F', (with 7 to 9 trainees in each team), headed by a mentor from CRRI. The stretches of roads in ECR, OMR and Vandalur-Wallajah road were visited by the trainees on 08/03/2017, from 7.00 am to 2.00 pm. Soon after the field session, the findings of the Audit were tabulated and discussed at HRS, under the guidance of the Experts.

#### **Test:**

On the final day of the training, the trainees attended a test on the Road Safety Audit, based on the lecture presentations. The trainees were evaluated with detailed discussions by the Experts.

#### **Presentations of Audit Findings by Trainees:**

All the team of participants presented their findings based on the Road Safety Audit conducted at the field on Design Drawings, Construction Zone and Existing Road. The power-point presentations were presented before the mentors from CRRI and the presentations were reviewed by Dr.S.Velmurugan, Chief Scientist, CRRI and Dr.Kayetha Ravinder, Principal Scientist, CRRI. The Expert comments were made at the end of each presentation. All the members in each team, made presentation on rotational basis.

#### **Feed-back:**

An exhaustive feed-back response was collected from all the participants on various items of Training. The Feed back were analysed and discussed with the trainees.

#### **Valedictory Session:**

The Valedictory session was chaired by the Director, HRS and the Chief Guest Mr.P.Aravindhan, IPS, Deputy Commissioner of Police, Traffic, Chennai South.

The Director, HRS in his valedictory address, gave useful tips and suggestions for upkeep of the road stretches, through proper maintenance which would help in reducing accidents. The need for better co-ordination amongst stake holders was also emphasized. The Chief Guest of the session, the Senior Police Officer, outlined the measures of enforcement taken up to reduce accidents. He called for better co-ordination and active sharing of knowledge between organizations such as HRS and Traffic Police wing. The Scientists from CRRI expressed satisfaction over the conduct of the training and lauded the arrangements @ HRS. The Trainees were requested to practice Road Safety at their field level and also to propagate the training principles to other trainees.

### FELICITATION OF SCIENTISTS FROM CRRI



**FELICITATION**



**LECTURE SESSIONS**



**FIELD VISIT**



## TEAM DISCUSSIONS & PRESENTATION



## GROUP PHOTO



## VALEDICTORY



*(Source: Training Wing)*

## Women's day Celebration

In December 2016, Cyclone Vardah hit Chennai and uprooted most of the trees. As a result, Chennai lost nearly one fourth of her green cover. To compensate and as a step towards greenery, saplings plantations was carried out at Highways Research Station. On the event of International Women's day 2017, as a part of celebration of women's day at HRS, tree saplings were planted within HRS Campus on 17.03.2017 which was presided by the Director, HRS. In this remarkable event, Joint Director, Deputy Directors, Engineers and Staff of Highways Research Station participated and planted Saplings as a token of gratitude to Mother Nature.



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### ANSWERS TO CROSS WORD

Across: 1.Compaction; 9.Odometer; 17.Rough; 23.He; 25.RMMS; 33.IEC; 37.Slit; 42.Trying;  
49.Oersted; 57.RR; 59. IAHE

Down: 1.Corridor; 2.Odometer; 3.MoU; 4.PMGSY; 5.AE(H); 6.CT; 7.Tehri; 8.Creator;  
35.CRRI; 37.Sit; 47.GDP

## Engineers Retired from service by Super-annuation

S.No.	Name	Designation
<b>Retirement on 31.01.2017</b>		
1	<b>Er.M.Muthuraj</b>	<b>Superintending Engineer (H), N&amp;RR, Tirunelveli</b>
2	<b>Er.R.Kumar</b>	<b>Superintending Engineer (H), N&amp;RR, Salem</b>
<b>Retirement on 28.02.2017</b>		
1	<b>Er.S.Venkatakrishnan</b>	<b>Chief Engineer (H), Projects</b>
2	<b>Er.K.Veerapandiyan</b>	<b>Deputy Superintending Engineer (H), Projects, Thanjavur.</b>
<b>Retirement on 31.03.2017</b>		
1	<b>Er.S.P.Palanivelu</b>	<b>Chief Engineer (H), Planning, Design &amp; Investigation</b>
2	<b>Er.K.Palanichamy</b>	<b>Special Chief Engineer(H), C&amp;M, Chennai.</b>
3	<b>Er.G.Premnath</b>	<b>Special Chief Engineer(H), QC, O/o the DG/HD</b>

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## 24<sup>th</sup> Ramasamy Reddy Memorial Endowment Lecture

In recognition of exemplary contributions of Er.K.Ramasamy Reddy, the Founder-Director of Highways Research Station, an Endowment, “Ramasamy Reddy Memorial Endowment” was instituted under the orders of the Government of Tamil Nadu and with the corpus contributed by the Engineers of the Highways Department, in the year 1988. A technical lecture is arranged every year under the auspices of the Endowment.



The 24<sup>th</sup> Ramasamy Reddy Memorial Endowment Lecture was conducted on 02.02.2017 in the august presence of the Additional Chief Secretary to Government, Highways and Minor Ports Department. Retired Engineers of Highways Department and Staff of HRS were honoured on the occasion for their meritorious service.

A Special Endowment lecture on the topic of “Geopolymer – an eco friendly substitute for Portland cement” was delivered by the Chief Guest Dr.N.P.Rajamane. The interesting presentation dealt in detail about the manufacturing process of Geo Polymers and their application in concrete structural members.

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### **EDITORIAL COMMITTEE**

**Chairman : Er.B.R.Kumar, Joint Director, HRS**

S.No.	Name of the Member	Designation / Wing
1.	<b>Er.R.Geetha</b>	Joint Director, Admin, O/o The DG/HD, Chennai
2.	<b>Er.S.Satheesh</b>	Deputy Director, Traffic Lab., HRS
3.	<b>Er.R.Selvadurai</b>	Divisional Engineer (H), Division-II, CMDP, Chennai
4.	<b>Er.S.Devairakkam</b>	Divisional Engineer (H), TNRSP, Chennai
5.	<b>Er.K.Vanathi</b>	Divisional Engineer, TNRIDC, Chennai.
6.	<b>Er.P.Tamilarasi</b>	Deputy Chief Engineer (H), O/o The CE(H) Projects, Chennai
7.	<b>Er.K.Hemalatha</b>	Assistant Director, Planning, O/o The DG/HD, Chennai
8.	<b>Er.K.S.Sadanandham</b>	Assistant Chief Engineer (H), Roads, O/o The CE(H), C&M, Chennai

### **TEAM ASSISTING IN PUBLICATION**

S.No.	Name	Designation
1	<b>Er.P.Elango</b>	Assistant Director, Concrete Lab, HRS
2	<b>Er.V.Dinesh Kumar</b>	Assistant Engineer, Traffic Lab, HRS
3	<b>Er.P.Santhiya</b>	Assistant Engineer, Traffic Lab, HRS

***Strive for perfection in everything you do. Take the best that exist and make it better.  
When it does not exist, design it.***

**- Sir Henry Royce**

# Congratulations!

**Promoted from the post of Assistant Divisional Engineer to Divisional Engineer  
(G.O.(D) No.2, Highways & Minor Ports (HK1) Department, Dt. 04.01.2017)**

S.No.	Name	Elevated to
1	Er.M.R.Kendradevi	Divisional Engineer(H), N&RR, Thirunelveli
2	Er.M.Muruga Boopathy	Divisional Engineer(H), Projects, Coimbatore
3	Er.D.Aruna	Divisional Engineer(H), TNRSP, Kancheepuram
4	Er.P.Geetha	Divisional Engineer(H), TNRSP, Tuticorin
5	Er.V.Samuthiragani	Divisional Engineer(H), QC, Madurai
6	Er.R.Sudha	Divisional Engineer(H), Design Division-4, Chennai
7	Er.J.Kumaresan @ Ramesh Kanna	Divisional Engineer(H), C&M, Cuddalore
8	Er.N.Prabhakaran	Deputy Superintending Engineer (H), C&M, Tirupur Circle
9	Er.A.Gnanamurthy	Divisional Engineer(H), C&M, Virudhunagar
10	Er.T.Nabisa Beevi	Divisional Engineer(H), N&RR, Coimbatore
11	Er.T.Selvan	Divisional Engineer(NH), Chennai
12	Er.K.Uthandi	Divisional Engineer(H), C&M, Krishnagiri
13	Er.P.Dhanaseelan	Divisional Engineer(H), CMDP -3, Chennai
14	Er.A.R.Revathy	Deputy Superintending Engineer (H), C&M, Chennai Circle
15	Er.S.Ramalingam	Divisional Engineer(H), N&RR, Thiruchirapalli

## An Appeal . .

The readers are requested to contribute their articles on recent activities, news of technical significance, and latest innovation in the field of Highway Engineering, to be published in the news letter. The authors are requested to send scanned copy / image of pass-port size photograph, with their name & designation. The contribution may be mailed to [tntedhrs@gmail.com](mailto:tntedhrs@gmail.com), [tnhighwaysnewsletter@gmail.com](mailto:tnhighwaysnewsletter@gmail.com)