WORK STUDY TO REVIEW THE STAFF STRENGTH OF SSE/P.WAY/E/KRR SALEM DIVISION SOUTHERN RAILWAY

SOUTHERN RAILWAY

PLANNING BRANCH

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STUDIED BY

WORK STUDY TEAM
OF
PLANNING BRANCH

MAY 2019

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(i)
ACKNOWLEDGEMENT

The work study team acknowledges its gratitude to Sr.DEN/Co-Ord/SA, ADEN/SW/SA (Co-ordinating Officer), SSE/P.WAY/E/KRR (Co-ordinating Supervisor) and all the staff working under SSE/P.WAY/E/KRR for their valuable inputs and guidance in conducting and completing the study in time.

(ii)
AUTHORITY

Annual programme of work studies, approved by SDGM for the year 2018-19.

(iii)
TERMS OF REFERENCE

To review the staff strength of SSE/P.WAY/E/KRR -Salem Division.

(iv)
METHODOLOGY

The following methodology has been adopted while conducting the study:

1) Collection of data
2) Discussion and interaction with officers of the Division and supervisors and staff of the unit.
3) Observation at Field Unit.
4) Applying MCNTM formulae (TRMS Data).
5) Applying CTE Circular for Artisans assessment and allowing other staff on need basis.

(V)

SUMMARY OF RECOMMENDATIONS

REVISED RECOMMENDATIONS:

The following 31 posts (Vacant Posts) were found excess to the requirement and the same may be surrendered and credited to the vacancy bank.

Sl.No	Category	GP (Rs)	No of Posts
1	Track Maintainer Gr.I	2800	2
2	Track Maintainer Gr.II	2400	2
3	Track Maintainer Gr.III	1900	7
4	Track Maintainer Gr.IV	1800	20
	Total		**31**

Total No. of Posts: 31 Posts.

CHAPTER I

1.0 INTRODUCTION

1.1 Indian Railways is a transport & freight handling Organization, with social and welfare obligation. Thus, safe transport of men and material are top priority for our Organization.

1.2 Indian Railways is one of the longest rail networks in the world. It is transporting 20 million passengers and 2 million tons of freight daily over its 17 zones, which are subdivided into 67 divisions. Approximately 63,320 kms length of rail and 6909 railway stations are maintained over Indian Railways.

1.3 Among the 17 zones of Indian Railways, Southern Railway was formed on 14th April, 1957 by amalgamation of South India Railway, Madras; Southern Maratha Railway and Mysore State Railway. It covers over Tamilnadu, Kerala, Karnataka and Puducherry to the route kilometrage of 5081.

1.4 The Operating Ratio of Southern Railway for the year 2017-18 is at 161.14% showing an increase of 13.31% compared to the figure of 147.83% - Operating Ratio for the year 2016-17. The total staff strength of Southern Railways, as on 01.04.2018, was 87,643.

1.5 The Indian Railways Statistical Publication 2015-16 denotes that the percentage of expenditure for staff cost was 30% in total and 18% for pension fund.

1.6 The committee on restructuring railways had observed that the expenditure on staff is extremely high and unmanageable. This expense is not under the control of Railway and keeps increasing. It has also been observed that the employee cost is the major key component that reduces the Railways ability to generate surplus.

1.7 This study is pertaining to SSE/P.WAY/E/KRR Unit in Salem Division.

1.8 The optimum man power utilization is an important factor for enhancing the productivity / operation ratio. RITES is also emphasised to conduct regular work studies to right size the man power and to justify the available Man Power on Zero base budgeting.

1.9 Keeping the above aspects in view, the work study team has made an attempt to study the present system of working at SSE/P.WAY/E/KRR Unit, through means of reducing cost and right sizing the work force. and further growth of Technology, the work load vs requirement of staff is critically examined in the ensuing chapters.

CHAPTER II

2.0 PRESENT SCENARIO

2.1 Southern Railway has six (6) Divisions namely MAS, MDU, TPJ, PGT, TVC & SA. P.Way under Engineering Department of SA Division is functioning under the overall control of Sr.DEN/SA, assisted by DENs, ADENs, SSEs and Supervisors in extending Co-operation for smooth and efficient functioning of the Department with sub Division/units/sections.

SSE/P.WAY/E/KRR is In-charge SSE for this section.

2.2 LOCATION OF THE OFFICE OF SSE/P.WAY/E/KRR:

Office of the **SSE/P.WAY/E/KRR** is located on the east side of the Karur Railway Station.

2.3 JURISDICTION OF THE SSE/P.WAY/E/KRR SECTION:

Jurisdiction of SSE/P.WAY/E/KRR is from KRR to DG (Excl.) stations.

2.4 STAFF STRENGTH:

The details of the Sanction, Actual, Vacancy and Excess are given in **Annexure – I.** The total sanction is shown as 178 including SSEs and JE. Actual is 96 & net vacant is 89 as per DPO/SA's list and according to list of staff position issued by SSE/P.WAY/E/KRR dated 24.08.2018.

2.5 TOTAL MAN-DAYS SERVICE BY A STAFF IN A YEAR:

No. of days per year			=	365
Less Deduction				
CL	=	10		
National Holidays	=	9		
Rest/Sundays	=	52		
Sub-Total			=	**71**
Net Man days available per year			**=**	**294 Working Days**

2.6 ORGNISATIONAL SETUP:

Sr.DEN/Co-Ord./SA
DEN/SA

ADEN/KRR
SSE/P.WAY/E/KRR
JE/P.WAY/KRR
Min.Staff, Mates, Keyman, Track Maintainers, GKs, Ancl.Techs.

2.7 **ROUTE KILOMETRES OF THE UNIT:**

This Unit covers total route kilometres of 69.525. Section wise route kms is as shown below:

S.No.	*Section*	*Km.*		*Total Kms*
		From	*To*	
1	KRR-VEI	1/100	15/500	14.400
2	VEI-PALM	15/500	29/500	14.000
3	PALM-EDU	29/500	53/500	24.000
4	EDU-DG	53/500	70/625	17.125
			Total Kms.	**69.525**

2.8 The entire length of this section is a absolute block system, single line operating system. The track structure is 52 KG 72 UTS; 60 KG 90 UTS and M+7 Sleepers Density.

2.9 **UTILISATION OF THE SECTION:**

According to Salem Division Working Time Table No.9 dated 01.10.2016, utilization of line capacity for the year 2015-16 in this Section is 82 %.

2.10 **TRAFFIC DENSITY:**

Traffic Density of this section is 8.87 GMT.

2.11 **MAXIMUM SPEED OF THE SECTION:**

Maximum speed in this section, 100 Kmph for Passenger Trains, 75 Kmph for Goods Trains and 60 Kmph for CC6/8+2t loaded goods trains.

2.12 **CAUTION ORDER NOTICE STATIONS:** KRR and DG (Excl.) are Caution order issuing stations in this section.

2.13 The following stations are coming under the jurisdiction of SSE/P.WAY/E/KRR are:

1. Karur(excl) - KRR @ 1.100 Km
2. Velliyani - VEI @ 15.630 Km
3. Palaiyam - PALM @ 29.490 Km
4. Eriodu - EDU @ 53.600 Km

2.14 **RUNNING LINES IN THIS SECTION:**

There are Seven Running Lines as below:

S.No.	**Station**	**Running Line**		**Total**
		Main	**Loop**	
1	VEI	1	1	2
2	PALM	1	2	3
3	EDU	1	1	2
			Total	**7**

2.15 **DETAILS OF THE GANGS IN THIS SECTION:**

The entire of stretch of 69.525 kms is being maintained by 10 Gangs. Details of the gangs and its jurisdiction is enlisted as below:

Gang.No.	**@Station /Place**	**Jurisdiction (Km)**			**Gang Tool Box Location@Km**
		From	**To**	**Gang Beat**	
1	KRR	1.100	8.000	6.900	1/500-600
2	VEI	8.000	15.000	7.000	15/400-600
3	VEI	15.000	22.000	7.000	15/400-600
4	PALM	22.000	29.000	7.000	29/400-600

5	PALM	29.000	36.000	7.000	29/400-600
6	PALM	36.000	42.500	6.500	34/500-600
7	VBU	42.500	49.600	7.100	44/200-300
8	EDU	49.600	56.700	7.100	53/500-600
9	KUTR	56.700	63.800	7.100	63/800-900
10	KUTR	63.800	70.625	6.825	63/800-900
			Total	**69.525 Kms.**	

2.16 **DETAILS OF WELDING IN THIS SECTION:**

AT Welding Techniques are being used in this section.

2.17 Track maintainers are utilised as Gang Mate, Key Man, Gang Man, Gate Keeper, Trolley Man and Store Watch Man.

2.18 There are no colony Gang Man in this section.

2.19 **CURVE DETAILS OF THE SECTION:**

There are 12 number of curves are available in this section as mentioned below. The degree of curve varies from 0.21° to 2.56° on both RH & LH arrangements.

Curve no.	***Station***		***Location***		***Length of curve***	***Degree of Curve***	***Radious of Curve***	***LH /RH***
	From	***To***	***From***	***To***				
1	*KRR*	*VEI*	*1.099*	*1.259*	*160*	*1.05*	*1667*	*RH*
2	*KRR*	*VEI*	*1.312*	*1.442*	*130*	*1.12*	*1563*	*LH*
3	*KRR*	*VEI*	*1.796*	*2.886*	*1090*	*2.56*	*684*	*RH*
4	*KRR*	*VEI*	*4.742*	*4.902*	*160*	*0.21*	*8333*	*RH*
5	*VEI*	*PALM*	*21.408*	*21.88*	*470*	*1.05*	*1667*	*LH*

6	*VEI*	*PALM*	*27.728*	*28.98*	*1250*	*1.61*	*1087*	*RH*
7	*PALM*	*EDU*	*31.633*	*32.25*	*620*	*1.37*	*1277*	*LH*
8	*PALM*	*EDU*	*43.663*	*44.28*	*620*	*1.02*	*1716*	*LH*
9	*PALM*	*EDU*	*52.026*	*52.94*	*910*	*1.12*	*1563*	*RH*
10	*EDU*	*DG*	*61.166*	*61.67*	*500*	*1.05*	*1667*	*LH*
11	*EDU*	*DG*	*66.145*	*67.37*	*1220*	*1.34*	*1306*	*LH*
12	*EDU*	*DG*	*67.640*	*68.610*	*970*	*1.3*	*1346*	*RH*

2.20 Ruling Gradient in this section is 1 in 200.

2.21 **DETAILS OF POINTS AND CROSSINGS:**

There are 21 Points and Crossings as enlisted below in this section.

Details of POINTS AND CROSSING								
SL NO	**STATION**	**POINT NO**	**LOCATION**	**LAYOUT**	**LH/RH**	**LAYOUT**	**SLEEPER TYPE**	**LAYING MONTH & YEAR**
1	VEI	1A	16/029	F S	LH	Trap	PSC	04/2009
2		1B	16/120	F S	RH	1 in 12	PSC	06/2005
3		2A	15/304	F S	RH	Trap	PSC	04/2009
4		2B	15/204	F S	LH	1 in 12	PSC	06/2005
5	PALM	2A	29/082	F S	LH	1 in 8.5	PSC	03/2006
6		2B	29/001	F S	LH	1 in 12	PSC	01/2005
7		4A	29/158	F S	RH	1 in 8.5	PSC	10/2002
8		4B	29/051	F S	RH	1 in 12	PSC	10/2002
9		1A	29/868	F S	LH	1 in 8.5	PSC	05/2005
10		1B	29/951	F S	RH	1 in 12	PSC	01/2005
11		3A	29/895	F S	LH	1 in 12	PSC	10/2002
12		3B	30/001	F S	LH	1 in 12	PSC	10/2002
13		7A	30/014	F S	RH	1 in 8.5	PSC	10/2002
14		7B	30/091	F S	RH	1 in 8.5	PSC	10/2002
15		100	29/096	F S	LH	1 in 8.5	PSC	01/2006
16		101	29/176	F S	RH	Trap	PSC	08/2008
17		16	30/194	-	RH	1 in 8.5	PSC	10/2002
18	EDU	1A	54/024	F S	RH	1 in 8.5	PSC	02/2006
19		1B	54/170	F S	RH	1 IN 12	PSC	07/2005
20		2A	53/328	F S	LH	1 in 8.5	PSC	01/2006
21		2B	53/196	F S	LH	1 in 12	PSC	07/2005

2.22 **DETAILS OF LONG WELD RAILS:**

There are 7 LWRs in this section as tabled below:

LWR No.	***KM***		***Length of LWR***
	From	***To***	
1/E/KRR	*1.290*	*15.114*	*13.82*
2/E/KRR	*15.348*	*16.005*	*0.657*
3/E/KRR	*16.247*	*28.943*	*12.696*
4/E/KRR	*29.139*	*29.844*	*0.705*
5/E/KRR	*30.080*	*53.035*	*22.955*
6/E/KRR	*53.263*	*54.016*	*0.753*
7/E/KRR	*54.186*	*70.626*	*16.44*
		TOTAL	***68.03***

2.23 There are 144 number of Major/Minor Bridges in this Section.

2.24 There are 9 ROBs and 22 RUBs in this section.

2.25 **DETAILS OF VULNERABLE LOCATIONS**: NIL

2.26 **LEVEL CROSSING DETAILS OF THIS SECTION:**

There are 16 number of Level Crossings in this section, of these Seven are manned by Engineering staff. LC details enlisted as below:

LEVEL CROSSING DETAILS IN SSE/PW/E/KRR SECTION AS ON 02.08.2018					
Sl. No.	**Section**	**Engineering /Traffic**	***Level Crossing No.***	***Location***	**Remarks**
1	*KRR-DG*	*Engineering*	***2/E/KRR***	*5km 51m*	MANNED LC
2	*KRR-DG*	*Engineering*	***3/E/KRR***	*7km 145m*	MANNED LC
3	*KRR-DG*	*Engineering*	***4/E/KRR***	*7km 850m*	MANNED LC
4	*KRR-DG*	*Traffic*	*6/E/KRR*	*16km 203m*	MANNED LC
5	*KRR-DG*	*Engineering*	***12/E/KRR***	*34km 589m*	MANNED LC
6	*KRR-DG*	*Engineering*	*14/E/KRR*	*38km 851m*	LUS COMMENCED
7	*KRR-DG*	*Engineering*	*15/E/KRR*	*40km 221m*	LUS WORK IN PROGRESS

8	*KRR-DG*	*Engineering*	*16/E/KRR*	*42km 101m*	LUS WORK IN PROGRESS
9	*KRR-DG*	*Engineering*	*17/E/KRR*	*43km 116m*	LUS WORK IN PROGRESS
10	*KRR-DG*	*Engineering*	***18/E/KRR***	*44km 226m*	MANNED LC
11	*KRR-DG*	*Engineering*	***20/E/KRR***	*46km 860m*	MANNED LC
12	*KRR-DG*	*Engineering*	*21/E/KRR*	*51km 363m*	LUS WORK IN PROGRESS
13	*KRR-DG*	*Engineering*	***22/E/KRR***	*52km 118m*	MANNED LC
14	*KRR-DG*	*Traffic*	*23/E/KRR*	*53km 150m*	LUS COMMENCED
15	*KRR-DG*	*Engineering*	*24/E/KRR*	*59km 454m*	LUS WORK IN PROGRESS
16	*KRR-DG*	*Engineering*	*26/E/KRR*	*65km 427m*	LUS WORK IN PROGRESS

2.27 **TROLLEY MOVEMENT:**

There are 5 number of Trolleys under this section as below:

Sl.No.	**SSE/Location**	**No.of Trolleys**
1	SSE/P.WAY/E/KRR	3 (1 Motor Trolley)
2	SSE/P.WAY/PALM	1
3	SSE/P.WAY/EDU	1
	TOTAL	**5**

Trolley for this section from 01.01.2018 to 27.07.2018 (i.e.7 months) is as below:

S.No.	**Month**	**No. of Trolley Movements**
1	January	4
2	February	4

3	March	4
4	April	3
5	May	3
6	June	5
7	July	2
	Total	**25**

2.28 **TEMPERATURE RECORDED IN THE SECTION AREA:**

S.No.	Year	Min Temp ° c	Max Temp ° c
1	2016	22	52
2	2017	19	56
3	2018	18	56
			Total

Note: The actual de-stressed executed temperature of track is about 36 ° c to 43 ° c. (for Zone III suggested is 40 ° c).

2.29 **PRESENT STAFF DEPLOYMENT IN THIS SECTION:**

The total sanctioned strength of this Unit is 178 as on 24.08.2018, actual being 96 and net vacant is 82. (The Scale Check Statement is placed as **Annexure I**).

S.No.	Category	Actual
1	SSE	3
2	Artizan Staff	6
3	Track Maintainers (Track Mate, Key Man, Trolley Man, Gate Keepers, Store Watchman, Office Assistant & Maintainers)	86
4	Ministerial Staff	1
	Total	**96**

2.30 THE DUTIES OF SUPERVISORS AND TECHNICAL STAFF IN P.WAY SECTION:

2.30.1 Duties of SSE/P.Way (as prescribed in para 118-135 of Part-B of IRPWM)

- Maintenance and inspection of track in a satisfactory and safe condition for traffic.
- Efficient execution of all works incidental to track maintenance including track relaying works.
- Accountal and periodical verification of stores and tools in his charge.
- Maintenance of land boundaries between stations and at unimportant stations as may be specified by the administration.
- Every Permanent Way Inspector shall have in his possession up-to-date copies of the following codes and manuals with all correction slips up-to-date.
- Co-ordination with the Works, Bridge, Signalling and Electrical Staff, when they are required to work jointly.
- The Permanent Way Inspector shall see to the security of rails, chairs, sleepers and other materials in his charge and ensure that unused materials are stacked properly clear of the line, so as not to interfere with the safe running of trains.
- When PWI accompanies a periodical or special inspection by the higher officials he should have registers and documents pertaining to his section.
- Testing of Running qualities of track.
- Inspection of Gangs, Level Crossings, Points and X-ings, Curve Inspection.
- Foot Plate Inspection, Rear vehicle Inspection, Foot Inspection.
- Accompanying OMS/TRC (RDSO) Inspection.
- Check on patrolling.
- Maintenance of station yards.
- Witnessing payment to staff.
- Maintenance of records.

- Custodian of stores etc.
- Apart from above P.Way maintenance activities Staff Welfare viz. promotion, claiming of salary, supply of equipment and uniform, procurement of materials, issuing of materials scrap delivery (DS8).

2.30.2 Duties of JE/P.Way (as prescribed in para 136-145 of Part-B of IRPWM)

- Inspection and maintenance of track in a safe and satisfactory condition for traffic, including execution of all works, incidental to track maintenance.
- Execution of special works, such as a) Renewal, Directed Track maintenance curve re-alignment, deep screening etc.
- To assist the SSE/P.way.
- Co-ordination with Works, Bridge and staff of other departments.
- Inspection of Gangs, Level crossings, Points and X-ings, Curves, foot plate inspection, rear vehicle inspection and foot inspection.

2.30.3 Duties of P.Way Mistry/ Track Mate (as prescribed in para 146-166 of Part-B of IRPWM)

- Knowledge of Rules and Signal.
- Safety of the Track.
- Equipments at site of work.
- Muster and Gang Charts/Diary Book.
- Observance of sleepers packing during passage of train.
- Precaution when view is obstructed.
- Tidiness of section and Safe custody of tools..
- Action when line is unsafe or in the event of accident.
- Patrolling during abnormal Rainfall.
- Commencing work affecting safety of train.
- Weekly inspection of Gang length by mate.
- Preventing Tress pass and theft of P.way fittings.

- Relief arrangements in emergencies.
- Assistance to P&T staff.
- Assistance in protection of train and Assistance in placing fog signals.
- Responsibilities of the mate in LWR track.

2.30.4 *Duties of Key man (as prescribed in para 167-170 of Part-B of IRPWM)*

- Key-man's daily inspection..Equipment of key-man.
- Rectifying the defects whichever possible by him.
- Reporting to Mate and PWI about the defects which require assistance for attending.
- In case of serious defects protection of Track & informing as per rules.
- Work at unmanned level crossings.
- Assisting mate after completing his routine inspection.
- Any materials found fallen safe custody and disposal.
- Apart from daily inspection, he should ensure tightness of fittings in systematic manner.

2.31 **TRACK MAINTENANCE METHODS:**

2.32.1 The para 228 of IRPWM prescribes the system of maintenance for concrete sleeper track as given below. The following *3-tier system of track maintenance* shall be adopted on sections nominated for mechanized maintenance.

1. On track machines (OMU).
2. Mobile Maintenance unit (MMU).
3. Sectional gangs.

2.32.2 The para 228 of IRPWM prescribes the system of maintenance for concrete sleeper track as given below. The following 3-tier system of track maintenance shall be adopted on sections nominated for mechanized maintenance. *mobile maintenance units* shall comprise of two groups:-

MMU-1:- One for each PWI section

MMU-2:- One for each Sub-division

MMU-1 shall be a Rail cum road vehicle with a PWI in-charge with a jurisdiction of 40-50Km. double line and 90-100Km for single line for various works including need based spot tamping and in situ rail welding.

MMU-2 shall be a road vehicle based unit with each sub-division for reconditioning of turnout and minor repairs to the equipments of MMU.

2.32.3 **EXISTING MAINTENANCE PRACTICES ON IR:**

As on date, the practice of maintenance can be briefly summarized as follows;

(a) In sections where relaying with PSC sleepers has been done,

i. Tamping with machines as and when machines are available, plus

ii. Conventional system of maintenance

(b) In sections where relaying has not been done,

i. Only conventional system of maintenance is being used.

2.32.4 **ANNUAL PROGRAMMED REGULAR TRACK MAINTENANCE:**

Sl. No.	Period	Work
1.	Post monsoon attention for about six months	Attention to run down stretches, one round of through packing.
2.	Pre-monsoon attention for about two months	Clearing of drains
3.	Attention during monsoon for about four months.	Attention to track as required.

2.32.5 The role of open line organization of Engineering Department in IR mainly Meant for maintenance/strengthening/modification of existing infrastructure i.e. track for permitting higher speeds and heavier Loads.

2.32.6 The manual maintenance of the track has given way to highly mechanized Maintenance practices that has become inevitable for the following reasons

a) The high safety standards that can be achieved

b) The capability for higher axle load, speed etc.,

c) The overall economy in cost of maintenance

d) The accuracy in testing, checking and inspections that can be achieved through mechanization.

e) The necessity to avoid harsh physical work under inclement Weather and isolated locations
f) The speed of maintenance

The need to carry out the maintenance works within the constraints of time for line block etc.,

2.32.7 **THE PROVISIONS OF "SMALL TRACK MACHINES MANUAL":**

The para1.3.2 says that the "Requirement of Manpower doesn't includes Leave Reserve" Further, the para1.3.3 stipulates that the Creation of posts for Operation and maintenance of small track machines should be done by Surrender of equivalent money value of live revenue charged posts of Gangman /other category involved in the track maintenance. The component of unskilled staff being created should be barest minimum. The proportion of skilled personnel should form at least 75% of the total posts to be created.

2.32.8 **VARIOUS TRACK MACHINES AND THEIR PERIODICITY OF WORKING IS DETAILED BELOW**:

Sl. No.	Name of the Machine	Work Done	Frequency
1	BCM- Ballast Cleaning Machine	Deep Screening of Track	Once in 10 years
2	DUOMAT/CSM- Continuous Action Tamper	Tie Tamping LWR Work	Once in 2 years
3	DGS- Dynamic Track Stabiliser	For consolidating track after works affects core stability	Once in 10 years along with BCM
4	UNIMAT/MPT	Tamping points & crossings	Once in 2 years
5	BRM- Ballast Regulating Machine	Boxing of track	
6	UTV- Utility Track Vehicle	Loading & Stacking materials	As per need
7	T-28- T28 Cranes- One job crane (PRC laying Machine)	For re-laying of Points & Crossings	As per requirement

8	PQRS	For re-laying track	-do-
9	TRT	For CTR of track	-do-

2.32 ACTUAL GANG PERFORMANCE:

The various gangs daily performance diaries were observed and noticed the following works are repeatedly allotted by the Supervisor and carried out by the Gangs are;

1. De-weeding
2. Weld collar painting
3. Cleaning
4. Boxing ballast working
5. ERC renewal / greasing.
6. Changing Rubber pad
7. Changing liners
8. Assisting various track machine activities.
9. Packing – manual at points, SEJ and other required areas.
10. Collecting store items.
11. Steel sleepers, chair plates changing.

2.34 MAN POWER CALCULATION FOR TRACK MAINTENANCE A BRIEF HISTORY:

Permanent way gang strength was calculated by various methods right from 1931 through maflin formula. Over the years there has been lot of changes in Track maintenance practice, according to the timely changes the man power requirements also varied.

IR adopted various efforts to standardize in the past.

1	Maflin formula	1931
2	Lobo committee or modified Maflin formula	1959
3	Modified Maflin formula freezed	1965
4	Committee Report I	1971

5	Committee Report II No action taken on (4) & (5)	1972
6	Appointment of special committee	1976
7	Submission of Report by Spl. Committee Though Rly. Board did not give any direct clearance for this formula of 1979; it was implemented with a 5% reduction in many Zones.	1979
8	Committee for machine and manpower Deployment for Track Maintenance appointed (Not accepted by Rly.Board)	1989
9	(CMMDTM) Report submitted	1995
10	Kapoor committee appointed	05.01.1996
11	Reconstituted committee	12.11.1997
12	Renamed as CMCNTM – Committee for Man power and Cost Norms for Track Maintenance	13.08.199
13	Finalization of the Report	May 2000
14	Acceptance of the Report by Rly. Board	March 2006
The committee of "**Man power and Cost Norms for Track Maintenance** (MCNTM) is the latest which covers all the Track parameters which arrives to calculate the required Gang strength.		

2.35 **Evaluation of Man power through MCNTM formulae:**

The man power requirements of Gangs (Trackman, Gatekeeper, Store watchman) are regularly calculated by division level through TRMS activities. IRICEN will be the custodian of the software for calculating man power. The whole activities connected to Track Maintenance are clubbed under four main categories under MCNTM studies.

They are:

Activity 'T' - Affected by Traffic Density
Activity 'R' - Not affected by Traffic Density } Primary activities

Activity 'M' - Miscellaneous
Activity 'S' - Site specific } Auxiliary activities

2.35.1 **ACTIVITY 'T' (AFFECTED BY TRAFFIC DENSITY):**

T_1 - Slack attention to
- a) Bad spots
- b) Low joints (FP, welded, glued joints)
- c) SEJ (1 No. / km)
- d) Minor curve alignment

T_2 - For Tie tamper Working
- a) Pre tamping operations
- b) Along with tamper
- c) Post tamping operations

T_3 - Casual Renewal of a) Rails
b) Sleepers
c) Fasteners along with re-gauging

T_4 - Repair Welding

2.35.2 **Activity 'R' (Un-affected by Traffic Density)**

R_1 - Lubrication of ERCs
R_2 - Shallow screening
R_3 - Loading, Leading, Unloading
R_4 - Overhauling of LC gates
R_5 - Watching of caution spots & misc.
R_6 - Tree cutting for visibility
R_7 - Lubrication of Rails in Curves
R_8 - Accident Relief and carcass renewal in run over cases
R_9 - Bridge, Sleeper attention & Renewal
R_{10} - Pre-monsoon attention such as clearing of drains and Waterways, cess repair, de-weeding of track and Attention to cuttings & Trolley refuges
R_{11} - Creep pulling approaches to bridges, turnout
R_{12} - Rectifying damage to LC posts and gates.

2.35.3 **Activity 'M' (Miscellaneous)**

M_1 - Monsoon patrolling
M_2 - Hot weather patrolling
M_3 - Cold weather patrolling
M_4 - Watching vulnerable locations
M_5 - Gate keeping of LC gates
M_6 - Rest giving for key man
M_7 - Water man duty
M_8 - Store watch man duty

2.35.4 **Activity 'S'** (**Site Specific)**

S_1 - Tunnel Maintenance
S_2 - Bridge substructure maintenance
S_3 - Long girder maintenance
S_4 - Extra maintenance due to very steep curves, Deep cutting, steep gradient
S_5 - Maintenance of track on extremely bad formation
S_6 - Look out man duty
S_7 - Fog signal man duty
S_8 - Filth removal from track
S_9 - Security patrolling
S_{10} - Watching of water level in suburban section

2.36 ACTIVITIES RECOMMENDED FOR OUTSOURCING BY RATIONAL FORMULA:

1. Formation of treatment Works.
2. Collection of ballast, training out ballast by material train leading ballast from stack to track, insertion of ballast in track.
3. Deep screening of the ballast in track, carried out manually oh by deploying BCM in which case man power is provided by the contractor.
4. Introduction of sub ballast and ballast layers. Heavy repairs to track, including lifting.
5. Complete realignment of curved track. Through renewal of rails, Sleepers and fosterers.
6. Complete renewal of points and crossings, SEJs, traps etc.
7. Resurfacing of crossings and switch rails.
8. Loading and unloading of P-Way materials is bulk.
9. Loading out of P-Way materials for other than casual renewal.
10. Security of materials kin a depot which is closed and locked. Painting of Rails and weld collars.
11. Painting of bridge girders.
12. Heavy repairs(Measurable) to formation cutting bides drains and catch water
13. Heavy repairs (measurable)to bridges, bridge protection works, river training works and tunnels.
14. Providing (Repairing road surface at level crossings including speed, breakers.
15. Removal of major sand breaches.
16. Works arising due to restoration following breach or accident.
17. Clearing of rank vegetation in platforms and in the insanity of tracks in coaching and goods yards, repair depots and workshops or Engineering/Mechanical/Electrical and S & T departments.

CHAPTER III

3.0 CRITICAL ANALYSIS

GENERAL ANALYSIS:

Rightsizing of Man Power in Railways is an ongoing process and it is being done after assessment by Planning Branches of concerned Divisions, Departments and by the specialized common branch under SDGM. Railway Board is fixing the annual target for surrender of posts for every zone. Technological improvements, computerization, investments in modernization, improved skills and training and even certain external factors like availability of competitive and quality products from outside, improvement and economy in outsourcing, transport etc help to achieve a better man power ratio. The productivity per employee calls for a work force which is optimum for the requirement. The ground realities are given due consideration during the review of staff strength.

In respect of Track maintenance, Railway Board stipulated the yard stick and guideline for manpower assessment in the form of MCNTM formula through software. This formula will ensure Zero base review as per the actual traffic and other related conditions to arrive at the optimum staff requirement. The committee has also recommended certain activities for outsourcing.

3.1 The Data applied for 'MCNTM' formula:

Sl. No.	Detail	Division Data	Corrected Data with Remarks
1	Total Track KMs	69.525	-
2	Total Track KMs – (Incl. P&C Others)	71.39	-
3	Line segment Kms	1.100/70.625	-
4	GMT	8.87	8.90
5	Rain fall (Cms)-as TRMS	56.2	-
6	Length required for Hot patrolling	0	-
7	Length required for Cold patrolling	0	-
8	No. of EQ turn-outs in mainline	18.60	-
9	No. of EQ turn-outs on PRC Sleepers	17.60	-
10	Running yard line – machine packed	3.09	-
11	Running yard line – manually packed	0	-

12	Running yard line – on PRC sleeper	3.09	-
13	Non-Running yard line manually packed	0.40	-
14	Non-Running yard line on PRC sleeper	0.40	-
15	No. of EQ turn-outs in RYL	17.40	-
16	No. of EQ turn-outs in NRYL	1.20	-
17	No. Gangs	10	-
18	Beat length of the gangs in KMs	69.525	-
19	No. mates	10	-
20	No. Key men	10	-
21	Man days Required for **RG** to key man	710.00	-
22	Man days Required for look out	145.61	Nil. As per SSE Data
23	Man days Required for Waterman	2940.00	Nil
24	Filth affected gangs	0	-
25	Man days Required for filth removal	0	-
26	No. Curve	12	-
27	LC Gates	7	-
28	No. of shifts	3 shift	-
29	Gatemen Sanction	21	Nil. Clubbed with TM.
30	No. of Track on LC	1	-
31	Man-days for Gate keeping	7665.00	-
32	No. of Bridges	144	-
33	No. of steel girder Bridges	2	-
34	Man days Required for Substructure	343.31	Nil. As per SSE Data
35	No. of Tunnel	Nil	-
36	No. of Extremely bad formation	1	Nil. As per SSE Data
37	Length of bad formation in Mts	1200	
38	Man days for Extremely bad formation	720.00	
39	No. of beats in Monsoon patrolling	9	-
40	No. of shifts	2	-
41	Beat infested with wild animals	No	-
42	Monsoon Patrolling days	76	-
43	Man days for beat patrolling	1368.00	-

44	Vulnerable locations	4	Nil. As per SSE Data
45	Vulnerable Patrolling days	76	
46	Man days Vulnerable locations	912.00	
47	No. of shifts	3	
48	Maintenance type	Mechanized	-
49	No. of Gate	7	-
50	Man days Required for Gateman	7665.00	-
51	No. of site stores	1	-
52	Man days Required for (**Stores Watchman)**	1095	-
53	Fog signal man	No	-
54	Man days for Security patrolling- Man days	240	-
55	Long girder Bridge maintenance	No	-
56	Gang Strength	145	-

3.2 **The following output obtained through MCNTM formulae:**

3.2.1 **Activity 'T' – affected by the Traffic Density:**

*T = (80 + 2.3 * GMT) (1+A+B+C) L*

GMT : 8.87

Track Km. : 71.385

Composite Factor : 1.0100

Mandays : 7238.47

T= Excluding correction of shallow screening : **7238.47** Man days per year.

3.2.2 **Activity 'R' Un affected by the Traffic Density:**

The total manpower required to carryout the 12 types of 'R' activities is 159 mandays per km per annum and mandays required for Non Running Yard Lines & Turnouts.

159 x 71.385 = 11350.22

+ mandays required for

Non Running Yard Lines & Turnouts = 957.714

Total 12307.93

Total Man days requirement for R activities- 12307.93 Man days/Year.

3.2.3 **Activity 'M' – Miscellaneous:**

Total man days required for 'M' activities -**13778.00** man days/year.

3.2.4 **Activity 'S' – Site Specific:**

Total man days required for 'S' activities - **583.31** man days/year.

3.2.5 **TOTAL MAN DAYS CALCULATED/YEAR:**

Activity	Man days/Year
T	7238.47
R	12307.93
M	13778.00
S	583.31
Total	**33907.71**

(Updated Calculation sheet abstract of TRMS is Annexxure- II)

3.2.6 **DISALLOWED MAN DAYS:**

All TRMS activities listed are included in MCNTM formula. The Division has calculated the total man-days requirement as 32247.06 (excluded of 21 Gatemen). Work study team has evaluated TRMS data as 33907.71 mandays/year inclusive of Gate Keepers with Track Maintainers. Based upon the field inspection and study, it is understood that some of the activities are not being done regularly by the Gang staff and some of the works are dealt through contracts. Hence, such activities are considered to the extent of actual staff deployment while evaluating the man power by scoring out, according to the work load.

The following activities are altered to suit the present level of requirement.

DISALLOWED MAN DAYS		
Activity	**Man Days Proportion**	**Disallowed Man Days**
T1-d : Minor Curve Alignment (NIL- as per SSE data)	10/126 th part of T (7238.47)	574.48
R2: Shallow Screening (Not required for Machine Maintenance)	55/159 th part of R (12307.93)	4257.46
R4: Overhauling of Level Crossing. (NIL- as per SSE data & on Contract)	13/159 th part of R (12307.93)	1006.31
R8: Accident relief & carcass removal in run over case. (NIL- as per SSE data)	10/159 th part of R (12307.93)	774.08
R9: Bridge sleeper attention and renewal. (NIL- as per SSE data)	10/159 th part of R (12307.93)	774.08
R11: Creep Pulling (LWR not required)	5/159 th part of R (12307.93)	387.04
R12: Rectifying damage to L/C Posts & Gates. (NIL- as per SSE data)	2/159 th part of R (12307.93)	154.82
M7: Water Man Duty. (Not required for the present situation)		2940.00

S2: Bridge Substructure Maintenance. (NIL- as per SSE data)	-	343.31
Total evaluated Man days to be scored out		**11211.58**

3.3 **GANG STRENGTH REQUIREMENT:**

3.3.1 **THE ACTUAL EVALUATED TRMS CALCUATION FOR MAN POWER CALCUATION:**

A	**The Total Evaluated TRMS**	**33907.71**
B	**The Total Evaluated Disallowed Man Days to be scored out**	**11211.58**
The Actual Evaluated TRMS for Man Days= (A-B) **(33907.71-11211.58)= 22696.13 Mandays**		

3.3.2 **GANG STRENGTH:**

Gang Strength is calculated as below

Gang Strength = The Actual Evaluated TRMS for Man Days/ 294

22696.13/294= 77.19 Men

Say **77** Men

Allowing for maintaining 'approach of level crossing' = **2** Men

Total Gang Staff (Track Maintainer

+ Gate Keeper + Store Watchman) = **79 Men**

3.3.3 GANG MATE AND KEY MAN:

There are 10 Gangs. One Gang Mate and One Key Man are required for a gang.

Gang Mate and Key Man required = 20 Men

3.3.4 REQUIREMENT OF TROLLEY MEN:

There are four Push type & one Motor type Trolleys are available in SSE/P.Way/E/KRR section for the scheduled and other inspections.

The total running kilometer of this section is 69.53, which are manned by 3 supervisors.

TROLLEY INSPECTION SCHEDULE :

SSE/P.Way (in charge) – once in a month (CS No.132 Para 124(a), Dt.: 08.04.2013)

SSE/JE (section in charge) – once in a fortnight (CS No.132 Para 139, Dt.: 08.04.2012)

The section supervisor normally took two days to inspect the section in trolleys in the fortnight period. For the movements of a pushing trolley two person are required in which, two will physically push the trolley and the other two is sitting and watching back side of the movement on safety view. For Push Trolley Batch four persons are required.

For the movement of Motor Trolley One person is required to operate the trolley and One more to assist him. For Motor Trolley Batch two persons are required.

On need basis **2 Batches for Push trolley and 1 Batch for Motor Trolley** will meet the requirement.

The total required no. of Trolley men = 10 men.

3.3.5 TOTAL TRACK MAN REQUIREMENT:

Category	No. of Men Required
Gang Staff (Track Maintainer, GK & Store Watchman)	79
Gang Mate & Key Man	20
Trolley man	10
TOTAL TRACK MAN REQUIRED	**109 Men**

3.4 REQUIREMENT OF ARTIZAN STAFF:

Sl. No.	Category	Requirement	Remarks
1	Blacksmith	2	As per the yardstick for 10 LC, 2 Black 'Smith required
2	Blacksmith Helper	2	
3	Painter	1	
4	Welder (AT)	1	One per section supervisor
5	Helper welder	1	
6	Sr.Tech (MV Driver)	1	as per the present practice one post is allowed to continue.
Total		**9 Men**	

On need basis, work study allows the Artizan staff -9 Men.

3.5 REQUIREMENT OF SUPERVISORS:

SSE/In charge : 1

SSE/JE Sub-Section I/c : 3

Total : 4

On need basis, Work study teams allows the current sanctioned strength of SSEs/JEs - 4 Men.

3.6 MINISTERIAL STAFF:

At present, there are two ministerial staff are looking after the staff personal matters and other allied issues, this work study allows the already sanctioned strength to continue, on need basis.

No. of Ministerial staff required - 2 Men.

3.7 TOTAL COMPOSITE STAFF REQUIREMENT OF SSE/P.WAY/E/KRR:

Categories	Reference Paragragh	Staff
Track Maintainers	(3.3.2)	79
Gang Mate & Key Man	(3.3.3)	20
Trolley Man	(3.3.4)	10
	Sub Total	109
	LR @12.5% for 109 Men	14
Artizans	(3.4)	9
Ministerial Staff	(3.6)	2
Supervisors	(3.5)	4
	Total	**138**

TOTAL STAFF REQUIREMENT IS 138.

3.8 TOTAL STAFF SANCTION VS REQUIREMENT OF SSE/P.WAY/E/KRR:

COMPOSITE SANCION VS REQUIREMENT						
Category	**Level**	**GP (Rs.)**	**Sanction**	**Actual**	**Reqd.**	**Surplus**
SSE	7	4600	1	3	1	0
JE	6	4200	3	0	3	0
Chief OS/WB	7	4600	1	1	1	0
Chief OS/PB	7	4600	1	0	1	0
Sr.Tech (MV Driver)	6	4200	1	1	1	0
Blacksmith- HS I	5	2800	1	0	1	0

Blacksmith-Tech Gr. III	2	1900	0	1	1	-1*
Blacksmith-Helper	1	1800	2	0	2	0
Painter- HS I	5	2800	1	0	1	0
Painter- Helper	1	1800	1	0	1	0
Welder-Tech Gr.I	5	2800	1	1	1	0
Welder-Helper	1	1800	0	1	0	0
STM/Helper	1	1800	0	2	0	0
Track Maintainer Gr.I	5	2800	11	2	9	2
Track Maintainer Gr.II	4	2400	22	19	20	2
Track Maintainer Gr.III	3	2000	39	32	32	7
Track Maintainer Gr.IV	1	1800	93	32	63	30
SNP Staff	1	1800	0	1	0	0
Trainee Track Maintainer-1s	1	1800	0	0	0	0
		Total	**178**	**96**	**138**	**41**
***Division may initiate to create one post of Black Smith.**						

Summary of Sanction Vs Requirement:

Sanction	Actual	Requirement	Surplus
178	**96**	**138 (137+1 Creation)**	**41**

3.9 **RECOMMENDATIONS:**

The following 41 posts (Vacant Posts) were found excess to the requirement and the same may be surrendered and credited to the vacancy bank.

Sl.No	Category	GP (Rs)	No of Posts
1	Track Maintainer Gr.I	2800	2
2	Track Maintainer Gr.II	2400	2
3	Track Maintainer Gr.III	1900	7
4	Track Maintainer Gr.IV	1800	30
	Total		**41**

Total No. of Posts: 41 Posts.

CHAPTER IV

4.0 PLANNING BRANCH's REMARKS ON CO-ORDINATING OFFICER's VIEWS

4.1 The Division has furnished the views on draft work study report vide letter ADEN/KRR/S.8 dated 01.04.2019.

The copy of the letter is placed as Annexure III.

CO-ORDINATING OFFICER'S VIEWS:

1. In the data applied for MCNTM formula, mandays for monsoon patrolling is taken as 1368. Actually as per revised issued by the Division, 28 men are required per day for the period of 3 months (for 90 days)- 28*90=2520.

   Adding 1/3rd for RG and LR = 840

   3360.

PLANNING BRANCH REMARKS:

Agreed to. As per the draft report the mandays allowed for patrolling was 1368 and the Division views of 2520 is agreed based upon the revised Patrolling chart. The additional manpower requirement of (2520-1368) 1152 mandays is added in the revised calculation further.

CO-ORDINATING OFFICER'S VIEWS:

2. O&E of level crossings, Bridge Structure maintenance and Rectifying damaged LC post and gates have been included in Disallowed man days i.e. 1006+154+343=1503 days have been scored out but in reality these activities are done by Track Maintainers.

   Hence this work study is not accepted to, and the actual requirements vide above correction may kindly be incorporated please.

PLANNING BRANCH REMARKS:

Agreed to. The Division requirement for the above mentioned activities of (1006.31+154.82+343.31) 1504 mandays is allowed.

- Revised Monsoon Patrolling-additional requirement : 1152 mandays
- O&E of level crossings : 1006.31 mandays
- Bridge Structure maintenance : 343.31 mandays
- Rectifying damaged LC post and gates : 154.82 mandays

TOTAL MANDAYS ADITTIONALLY ALLOWED : 2656.44 mandays.

Total Men additionally allowed : 2656.44/294=9.03

SAY 9 Men.

REVISED STAFF REQUIREMENT OF SSE/P.WAY/E/KRR:

Categories	**Reference Paragragh**	**Staff**	**Revised Staff as per Division Remarks**
Track Maintainers	(3.3.2)	79	79+9=**88**
Gang Mate & Key Man	(3.3.3)	20	20
Trolley Man	(3.3.4)	10	10
	Sub Total	109	118
	LR @12.5% for 109 Men	14	**15**
Artizans	(3.4)	9	9
Ministerial Staff	(3.6)	2	2
Supervisors	(3.5)	4	4
	Total	138	**148**

TOTAL STAFF REVISED REQUIREMENT IS 148.

TOTAL STAFF SANCTION VS REVISED REQUIREMENT OF SSE/P.WAY/E/KRR:

COMPOSITE SANCION VS REQUIREMENT						
Category	**Level**	**GP (Rs.)**	**Sanction**	**Actual**	**Reqd.**	**Surplus**
SSE	7	4600	1	3	1	0
JE	6	4200	3	0	3	0
Chief OS/WB	7	4600	1	1	1	0
Chief OS/PB	7	4600	1	0	1	0
Sr.Tech (MV Driver)	6	4200	1	1	1	0
Blacksmith- HS I	5	2800	1	0	1	0
Blacksmith-Tech Gr. III	2	1900	0	1	1	-1*
Blacksmith-Helper	1	1800	2	0	2	0
Painter- HS I	5	2800	1	0	1	0
Painter- Helper	1	1800	1	0	1	0
Welder-Tech Gr.I	5	2800	1	1	1	0
Welder-Helper	1	1800	0	1	0	0
STM/Helper	1	1800	0	2	0	0
Track Maintainer Gr.I	5	2800	11	2	9	2
Track Maintainer Gr.II	4	2400	22	19	20	2
Track Maintainer Gr.III	3	2000	39	32	32	7
Track Maintainer Gr.IV	1	1800	93	32	73	20

SNP Staff	1	1800	0	1	0	0
Trainee Track Maintainer-1s	1	1800	0	0	0	0
		Total	**178**	**96**	**148**	**31**
***Division may initiate to create one post of Black Smith.**						

Sanction Vs Revised Requirement:

Sanction	Actual	Requirement	Surplus
178	**96**	**148 (147+1 Creation)**	**31**

REVISED RECOMMENDATIONS:

The following 31 posts (Vacant Posts) were found excess to the requirement and the same may be surrendered and credited to the vacancy bank.

Sl.No	Category	GP (Rs)	No of Posts
1	Track Maintainer Gr.I	2800	2
2	Track Maintainer Gr.II	2400	2
3	Track Maintainer Gr.III	1900	7
4	Track Maintainer Gr.IV	1800	20
	Total		**31**

Total No. of Posts: 31 Posts

CHAPTER V

5.0 FINANCIAL SAVINGS:

If the recommendations made in the study report are implemented, Then the annual recurring financial savings will be as under:

S.No	Category	Level	Grade pay (Rs.)	No. of posts	Mean Pay (Rs.)	Annual Financial savings (Rs.)
1	Track Maintainer Gr.I	5	2800	2	66218	15,89,232
	Track Maintainer Gr.II	4	2400	2	58097	13,94,328
2	Track Maintainer Gr.III	3	2000	7	45290	38,04,360
3	Track Maintainer Gr.IV	1	1800	20	40821	97,97,040
			Total	**31**		**1,65,84,960**

ANNEXURE – I

SAVE' STATEMENT of SSE/P.WAY/E/KRR as on 24.08.2018						
Category	Level	GP (Rs.)	Sanction	Actual	Vacancy	Excess
SSE	7	4600	1	3	0	2
JE	6	4200	3	0	3	0
Chief OS/WB	7	4600	1	1	0	0
Chief OS/PB	7	4600	1	0	1	0
Sr.Tech (MV Driver)	6	4200	1	1	0	0
Blacksmith- HS I	5	2800	1	0	1	0
Blacksmith-Tech Gr. III	2	1900	0	1	0	1
Blacksmith-Helper	1	1800	2	0	2	0
Painter- HS I	5	2800	1	0	1	0
Painter- Helper	1	1800	1	0	1	0
Welder-Tech Gr.I	5	2800	1	1	0	0
Welder-Helper	1	1800	0	1	0	1
STM/Helper	1	1800	0	2	0	2
Track Maintainer Gr.I	5	2800	11	2	9	0
Track Maintainer Gr.II	4	2400	22	19	3	0
Track Maintainer Gr.III	3	2000	39	32	7	0
Track Maintainer Gr.IV	1	1800	93	32	61	0
SNP Staff	1	1800	0	1	0	1
Trainee Track Maintainer-1s	1	1800	0	0	0	0
		Total	**178**	**96**	**89**	**7**

MANDAYS T,R

DIV : SALEM — AS ON: 01-Apr-18

Senior Section Engineer Unit : EKRR

Segment No.	Gauge	Segment Name	GMT	Maintenance Type	Track km of Segment	Length of LWR in the Segment	Composite Factor 1+A+B+C	Mandays Required for T Activities	Mandays Required for R Activities	Mandays for T+R
A	B	C	D	E	F	G	H	I	J	K
1	BG	SL	8.9	MECHANISED	71.39	67.40	1.0100	7238.47	11350.22	18588.69
2	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
3	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
4		0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
5		0	0.0	0	0.00		1.0000	0.00	0.00	0.00
6	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
7	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
8	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
9	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
10	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
11	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
12	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
13	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
14	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
15	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
16		0	0.0	0	0.00		1.0000	0.00	0.00	0.00
17		0	0.0	0	0.00		1.0000	0.00	0.00	0.00
18		0	0.0	0	0.00		1.0000	0.00	0.00	0.00
19		0	0.0	0	0.00		1.0000	0.00	0.00	0.00
20		0	0.0	0	0.00		1.0000	0.00	0.00	0.00
Total					71.385	67.40		7238.47	12307.93	19546.40

Summary Mandays T,R	Activity T	Activity R	Total Mandays
BG	9233.75 Mandays*	12307.93 Mandays	21541.68
MG	0.00 Mandays	0.00 Mandays	0.00
NG	0.00 Mandays	0.00 Mandays	0.00
Total	9233.75 Mandays	12307.93 Mandays	21541.68

v2006.jun

* Including Correction for Shallow Screening

MANDAYS M

DIV : SALEM

AS ON: 01-Apr-18

Senior Section Engineer Unit Name : EKRR

Gauge	Monsoon Patrolling		Hot/Cold Weather Patrolling of LWR					Vulnerable Locations		Gate Keeping			Rest Giver for Keymen		Waterman		Store Watchman		Total
	No. of Beats	Mandays Required	Total Length of LWR	Length of LWR Requiring Hot Weather Patrolling	Length of LWR Requiring Cold Weather Patrolling	Mandays Required for Hot Weather Patrolling	Mandays Required for Cold Weather Patrolling	No of Locations	Mandays	No of Engg Manned Gate	Sanctioned Cadre of Gatemen	Mandays Required	No of Keymen	Mandays Required	No of Gangs	Mandays Required	No of Site Stores	Mandays Required	Mandays Required For M Activities
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
BG	9	1368.00	67.40	0.00	0.00	0.00	0.00	0	0.00	7	0	7665.00	10	710.00	10	2940.00	1	1095.00	13778.00
MG	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0		0.00	0	0.00	0	0.00		0.00	0.00
NG	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0		0.00	0	0.00	0	0.00		0.00	0.00
TOTAL	9	1368.00	67.40	0.00	0.00	0.00	0.00	0	0.00	7	0	7665.00	10	710.00	10	2940.00	1	1095.00	13778.00

MANDAYS S

DIV: SALEM

AS ON: 01-Apr-18

Senior Section Engineer Unit Name : EKRR

Sr. No.	Gauge	Tunnel Maintenance		Bridge Substructure Maintenance			Long Girder Bridge Maintenance			Extra for very Sharp Curves		Extremely Bad Formation		Lookout Man Mandays Required	Fog Signal Man				Filth Removal		Security Patrolling				Mandays Required For 'S' Activities
		Total Length in km	Mandays Required	No. of Bridges	Lineal Water Way in meters	Mandays Required	No. of Long Girder Bridges	Lineal Water Way of Long Girder Bridges	Mandays Required	Track Km on > 3deg(BG) >6deg(MG)	Mandays Required	Length of Bad Formation	Mandays Required		No of Mandays Required Yr(-3)	No of Mandays Required Yr(-2)	No of Mandays Required Yr(-1)	Mandays Required	No of Gangs working in Affected Area	Mandays Required	No of Mandays Required Yr(-3)	No of Mandays Required Yr(-2)	No of Mandays Required Yr(-1)	Mandays Required	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	BG	0.00	0.00	144	1054.77	343.31	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0.00	240	240	240	240.00	583.31
2	MG	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00	0	0.00				0.00	0.00
3	NG	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00	0	0.00				0.00	0.00
Total		0.00	0.00	144	1054.77	343.31	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0	0.00	240	240	240	240.00	583.31

v2006.jun

ANNEXURE III

CO-ORDINATING OFFICER's VIEWS:

SOUTHERN RAILWAY

सं./No : ADEN/KRR/S.8

O/o ASSISTANT DIVISIONAL ENGINEER
दक्षिनरेलवे/ SOUTHERN RAILWAY
करूर जंक्शन/ KARUR JUNCTION
दिनांक / Date : 01.04.2019

Dy.CPO/MAS

Sub: Work Study to review the staff strength at SSE/PW/E/KRR Section-Reg

Ref: Dy.CPO's Ltr.No. G.275/WSSR-491819/2018-19 dt. 13.02.2019.

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On going through the work draft study report, the following anomalies were noticed.

1. In the data applied for MCNTM formula, mandays for monsoon patrolling is taken as 1368.

Actually, as per revised patrolling chart issued by division, 28 men are required per day for the period of 3 months (for 90 days): 28×90 = 2520.

Adding 1/3rd for RG and LR = 840.

3360

2. O&E of Level crossings, Bridge substructure maintenance and rectifying damaged LC post and gates have been included in disallowed mandays ie., 1006 + 154 + 343 = 1503 days have been scored out but in reality these activities are done by Track Maintainers.

Hence this work study is not accepted to, and the actual requirements vide above correction may kindly be incorporated please.

1/4/19

ADEN/KRR
सहायक मंडल इंजीनियर/दक्षिण रेल
Assistant Divisional Engineer, S. Rly
करूर उप-मंडल, करूर,
Karur Sub Division,
KARUR.