WORK STUDY REPORT

ON

REVIEW OF TRACKMAINTAINER STAFF

WORKING UNDER SSE/P WAY

CONTROLLED BY SR.DEN-I & II

OVER

DELHI DIVISION (PART-I)

2019-20

WORK STUDY TEAM

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No. 16-CP/30/WS/2019-20

Central Planning Cell,
Northern Railway,
Headquarters Office,
Baroda House, New Delhi.

EXECUTIVE SUMMARY

This study was allotted to Central Planning Cell, HQ Office on the directives of SDGM/NR on "Review of track maintainer staff working under SSE 'P' way controlled by Sr. DEN-I & II over Delhi Division" Part-I with a view to achieve economy and manpower productivity.

STAFF POSITION

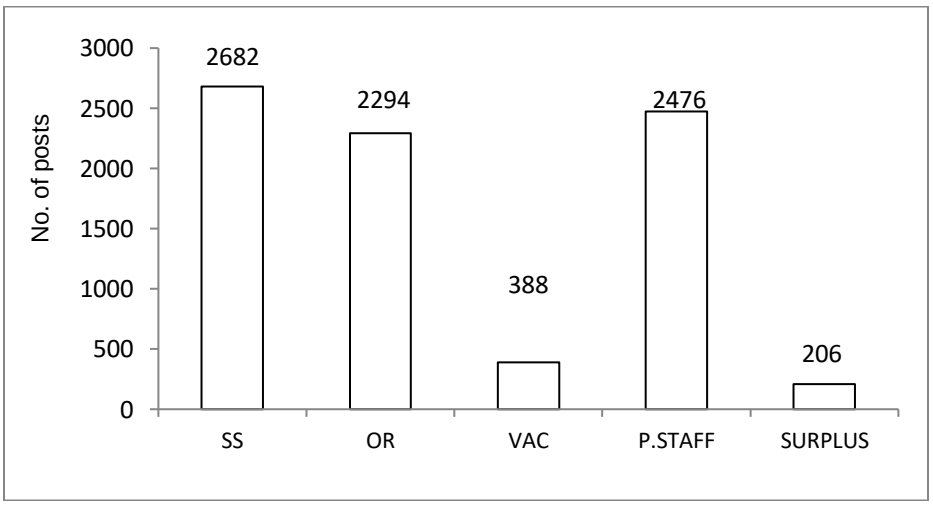
The sanctioned and on roll strength of Trackmaintainer staff under SSE P Way controlled by Sr. DEN-I & II over Delhi Division is as under:-

S.N.	Category	S/S	O/R	Var.
1	Trackmaintainer	2682	2294	388
Total		2682	2294	388

No. of posts identified as surplus and recommended for surrender: -
Gr. 'C' = Nil
Gr. 'D' = 206 posts
Total = 206 posts

FINANCIAL IMPLICATIONS

Anticipated recurring savings = ₹ 1083.15 lakh per annum.
Capital saving = Nil
Total = ₹ 1083.15 lakh per annum



I N D E X

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SYNOPSIS

Permanent way is the backbone of any railway. Indian Railway spread over the nation from North to South and East to West. A huge manpower is deployed to maintain the track within the prescribed tolerances so as to enable the trains to run at an optimum level of safety, security, reliability and punctuality.

It has become inevitable to run heavier trains at high speeds, which has necessarily to introduce modernized track structure and its improvised maintenance system. Even after the introduction of improvised track and machine maintenance, the Trackmaintainer staff is still being deployed on conventional pattern. Taking into consideration the activities based upon improvised track, outsourcing and mechanized *Maintenance as Per Manpower & Cost Norms for Track maintenance* (MCNTM) work study has been conducted by the Central Planning Cell, HQ Office.

The team collected the SSE 'P' way wise staff position and activity wise workload being maintained by the Trackmaintainer staff. The team critically analyzed the data supplied and the activities being performed by the trackman staff and assessed the requirement of Trackmaintainer staff accordingly.

The requirement of Trackmaintainer staff comes to 2476 posts against the sanctioned strength of 2682 posts under the jurisdiction of Sr DEN I & II of DLI division. Hence 206 posts of Trackmaintainer staff are identified as surplus and recommended for surrender.

The zealous acceptance and implementation of the recommendations contained therein the work study report will result in recurring saving worth ₹ 1083.15 lakh per annum to the administration.

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SUMMARY OF RECOMMENDATIONS

S. N.	Recommendations	Refer para No.	Accepting/ implementing authority.
1	It is proposed that 206 posts of trackmaintainer staff Gr. ₹ 5200-20200-1800 under the control of Sr. DEN-I & II over Delhi Division identified as surplus and recommended for surrender.	2.5.13	ADRM/Admin/NDLS Sr.DEN/C/NDLS Sr.DPO/C/NDLS

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ACKNOWLEDGEMENT

The work study team is highly grateful to Shri Vikas Purwar, ADRM/Admin/NDLS, Sh. Manoj Sharma, Sr.DEN/C/NDLS and Sh. Devender Kumar, Sr.DPO/C/NDLS for their valuable guidance. The work study team is also thankful to other functionaries for extending full cooperation in providing requisite data/informations, during the conduct of study.

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1.0.0 INTRODUCTION

1.1.0 Indian Railways runs around 11,000 trains every day of which 7000 are Passenger trains over 86526 TKM of Broad Gauge (BG) track. Moreover, technology advancement of track structure has necessitated switching over from manual maintenance to mechanized maintenance. The track structure has become sturdier and less amenable for manual maintenance due to continuous developments in various track components namely rails, sleepers, fastenings, points and crossings etc.

1.2.0 The Permanent way is the backbone of any railway system. The safety and comfort of rail users depend upon the proper maintenance of permanent way. The permanent way is maintained by Civil Engineering Department by deploying huge manpower. Mechanized maintenance staff have already been introduced to cope with heavier and faster traffic and introduction of heavy and modernized track structure. By virtue of heavy/modernized track structure and mechanized maintenance the workload/burden on track maintenance staff has eased to some extent

1.3.0 In view of above, SDGM/NR directed to conduct "Review of track maintainer staff working under SSE/P Way of Engg Deptt over Delhi Division" with a view to effect optimum utilization of manpower by avoiding wastages due to modernization and system development.

1.4.0 TERMS OF REFERENCE:

The following terms of reference were adopted for conducting the study:-

1. Review of staff strength vis-à-vis existing workload.
2. Suggest ways and means to identify redundant/unproductive activities to eliminate wastages.
3. Suggest ways and means to improve the standard the system economically in view of modernization and system development.

1.5.0 METHODOLOGY ADOPTED

The following method study and work measurement techniques of work study were applied for conducting the review:-

1. Data collection and its critical analysis to assess the factual status of the system in operation.
2 To access the staff as per yard sticks in vogue, if any
3 Held discussions at various levels.

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2.0.0 BRIEF DESCRIPTION, STAFF POSITION, WORKLOAD, CRITICAL ANALYSIS, PROPOSED STAFF AND RECOMMENDATIONS.

2.1.0 BRIEF DESCRIPTION

2.1.1 Delhi Division is an important Division of Northern Railway. It is a strategic division with trains' operations point of view. It is spread over the states of Uttar Pradesh, Delhi, Haryana and Punjab.

2.1.2 Permanent Way or track is the real head upon which the trains run. Track, the backbone of any railway system, is maintained effectively by track engineers and track maintainer staff within the prescribed tolerances.

2.1.3 Modernization in Railway system has become necessity of today so as to haul heavier and longer trains at faster speeds safely and conveniently to achieve better productivity and render better consumer service to Rail users. Modernization of track involves use of heavier track structure, long welded rails, modern mechanized methods of track maintenance and quick renewals of track structure etc.

2.1.4 The Indian Railway track is mainly maintained by permanent way gangs of 10/20 men each having a beat of about 6 to 10 km. Depending upon various local/tropical/working conditions, the gangs normally carry out through packing of the section every year and deep screening once in five years and miscellaneous and specific also. Besides, trackmaintainer staff, mates, Keyman, blacksmiths and welders are also utilized for track maintenance.

2.1.5 Activities carried out by departmental staff and norms.

The activities performed by departmental staff and norms as per MCNTM formula is tabulated as under:-

	Activities	Norms
T	**Activities 'T' affected by Traffic Density**	
T.1	Slack attention to	
a.	Bad spots	12 sleepers/head, 1/4 length
b.	Low joints (F for welded) Glued joints	10 GJs attended 4 times/year
c.	SEJ (1 no. per km)	6 times/year, 8SL/SEJ, 12 SL/Head.
d.	Minor curve realignment	As required 10% of gang length.
T.2	For tie tamper work	
a.	Pretamping operations	(2 years cycle) 20 men/km
b.	Alongwith tamper	10 men for week/gang length of 10 km.
c.	Post tamping operations	28 men/km (includes boxing needed).

T.3	Casual renewal of	
a.	Rails	60 mandays/gang length of 10 km.
b.	Track sleepers	60 mandays/gang length of 10 km.
c.	Fasteners (alongwith re-gauging)	100 mandays/gang length of 10 km.
T-4	Repair Welding	12 men/failure/year
R	**ACTIVITIES 'R' UNAFFECTED BY TRAFFIC DENSITY**	
R.1	Lubrication of ERCs	Keyman duty
R.2	Shallow screening (1/5 length)	6 SL/Head
R.3	Loading, leading, unloading	Inferred from field data anlaysis.
R.4	Overhauling of level crossing	1 LC per 1.5 km, 20 men/LC
R.5	Watching caution spots and misc.	Inferred from field data analysis.
R.6	Tree cutting for visibility	-do-
R.7	Lubrication of rails in curves	-do-
R.8	Accident relief & carcass removal in run over case.	-do-
R.9	Bridge sleeper attention and renewal.	-do-
R.10	Pre monsoon attention, such as cleaning of drains and water ways, cess repairs, deweeding of track and attention to cuttings and trolley refuges.	Referred from field data analysis.
R.11	Creep pulling (approaches of bridge turnout)	-do-
R.12	Rectifying damage to L/C posts and gates.	-do-
M	**ACTIVITIES 'M'**	
M.1	Monsoon patrolling	Total no. of patrol man in 24 hrs * D. No. of days for which patrolling is required.
M.2	Hot weather patrolling	No. of stations/men * no. of days 30*length of LWR in km on S/2 basis
M.3	Cold weather patrolling	12 * length of LWR
M.4	Vulnerable locations	Total no. of stationery watchman no. of days for which locations is watched.
M.5	Waterman duty	No. of beatx1 man/ beat*294
M.6	Site store chowkidar	No. of site store * shifts * 365
M.7	Rest Givers to gate keepers (No. of manned level xing.	L Xing*2*365- S/S of gate keeper * 294
S	**ACTIVITIES 'S' SITE SPECIFIC**	
S1	Tunnel maintenance = length of tunnel in km * no. of line in tunnel)*1.2 * 294	
S2	Bridge structure maintenance =(length of bridge in km. * no. of line on bridge) 1.1 * 294	
S3	Long girder bridge maintenance = 6x4*4/56=0.64xtotal water linear water in mtr.	
S4	Extra for very sharp curve= (Length of track in km * 1 * 294)	
S5	Extra for very bad formation =(Length of bad formation meter * 10 * 4 * 3/200)	
S6	Look out man duty= length of poor visibility/length of gang length * 294	
S7	Fog signal man duty Ist year IInd Year IIIrd year Avg.	
S8	Filth removal= 1 man /beat	
S9	Security patrolling Ist Year IInd Year IIIrd Year Avg.	

2.1.6 Activities that can be outsourced:

During the conduct of study, the activities which can be outsourced on contract basis was discussed at various levels. The work done on contractual basis is economical and better in quality when compared with departmental staff. Indian Railway has already out sourced certain activities in some departments like cleaning of coaches, cleaning of drains, platform surface cleaning, washing line cleaning, picking up slag/rag/poly bag from railway lines, cleaning work in Medical Department, box porter work in mechanical/operational departments etc. Some activities in P.Way can be outsourced which will not only improve economy but also increase productivity and standard of work. The activities which can be outsourced are listed below:-

1. Lubrication of elastic rail clips (ERCs)
2. Shallow screening.
3. Loading, leading and unloading of material
4. Cleaning of drains and waterways.
5. Heavy cess repair and attention to cuttings and trolley refuges.
6. Rectifying damage of L/C posts and gates.
7. Painting of weld collars and rails.
8. Destressing LWR when planned with track renewal.
9. USFD testing.
10. Creep pulling and overhauling of turn outs.
11. Reconditioning of tongue rails and crossings.
12. Unloading ballast.
13. Muck removal from yard.

2.1.7 This study is limited to review the trackmaintainer staff working under SSE (P.Way) controlled by Sr. DEN-I & II of Delhi Division. The head quarters station of SSE (P.Way) under their respective ADENs is given below:-

S N	Sr.DEN/ DEN	ADEN	SSE/SE (P.Way)
1	Sr.DEN/I	Panipat (PNP)	Sonipat (SNP)
			Panipat (PNP)
			Safidon (SFDE)
		Karnal (KUN)	Kurukshetra (KKDE)
			Kaithal (KLE)
			Karnal (KUN)
2	Sr. DEN-II	Ghaziabad (GZB)	Ghaziabad (GZB-I)
			Ghaziabad (GZB-II)
		Meerut Cantt (MUT)	Meerut City (MTC)
			Muzzaffar Nagar (MOZ)
		Shamli (SQML)	Baraut (BTU)
			Shamli (SQML)

2.2.0 STAFF POSITION

During the course of study, the team collected the staff position from Divisional Headquarters office as well as from ADEN offices. The work study team has been provided, the trackman, Keyman, mate, gateman, trolleyman chowkidar and supporting khallasi as trackmaintainer staff. The detailed staff position is depicted as annexure No.II in the report and the summarized position of the trackmaintainer staff is tabulated below:-

S. No.	ADEN	SSE/P.Way	Sanctioned Strength	On Roll	Vacancy
1	Panipat (PNP)	Sonipat (SNP)	249	229	20
		Panipat (PNP)	216	170	46
		Safidon (SFDE)	168	111	57
	Karnal (KUN)	Kurukshetra (KKDE)	268	218	50
		Kaithal (KLE)	197	175	22
		Karnal (KUN)	241	229	12
2	Ghaziabad (GZB)	Ghaziabad (GZB-I)	192	164	28
		Ghaziabad (GZB-II)	195	155	40
	Meerut Cantt (MUT)	Meerut City (MTC)	258	231	27
		Muzzaffar Nagar (MOZ)	258	257	01
	Shamli (SQML)	Baraut (BTU)	248	198	50
		Shamli (SQML)	192	157	35
Total			2682	2294	388

The above table reveals that the on roll strength is 2294 posts against the sanctioned strength of 2682 posts and 388 posts of trackmaintainer staff are lying vacant under Sr. DEN-I & II over Delhi Division.

2.3.0 WORKLOAD

During the course of study, the team collected the workload in terms of track kilometer being maintained by track maintainer staff, GMT, mandays of miscellaneous and site specific as per MCNTM norms. The effective working days in one year are taken as **294** days.

The SSE/P Way wise workload in terms of GMT and track kilometer is depicted as Annexure III in the report and the summarized position of the same is tabulated below:-

S No	SSE/SE (P.Way)	Track kilometer			Annual Average GMT*	No of Engg LC
		LWR on PRC sleeper in TKM	Other lay outs in TKM.	Total		
1	SNP	100.280	24.373	124.653	77.00	13
2	PNP	78.00 (30 & 48)	42.60	120.60	(80.5 & 67.5)	03
3	SFDE	65.26 (52.5 & 12.76)	8.87	74.130	7.68 S/L* 7.68 D/L*	20
4	KKDE	124.529	34.845	159.374	64.40	12
5	KLE	80.60	9.697	90.297	5.03 S/L*	28
6	KUN	90.22	24.211	114.431	66.64	14
7	GZB-I	47.310	49.934	97.244	50.88	02
8	GZB-II	57.081	91.256	148.337	20.38	07
9	MTC	105.80	60.40	166.20	13.90	15
10	MOZ	107.404	29.731	137.135	15.66	20
11	BTU	72.00	22.90	94.90	12.50 S/L*	15
12	SQML	74.00 (11.0 & 63.0)	19.00	93.00	12.50 S/L* 10.74 S/L*	12
Total		1002.484	417.287	1420.301	426.19	

*Gross million tonnes
*S/L single line
*D/L Double line

2.4.0 CRITICAL ANALYSIS

The modernization of track has resulted in introduction of modern infrastructure, equipments and devices etc. Modernization involves heavy costs in commissioning. On the other hand more deployment of manpower i.e. track maintainer inspite of modernization is still persisting. In this dynamic age, the track maintenance by modern infrastructure, equipments and devices not only minimize the working expenses but also improve safety standards. It has resulted in reduction of workload of track maintainer staff as well as saving of manpower.

In the era of modernization some of the track maintenance activities like thorough packing, deep screening, screening of ballast, tempting and lining work of track, spot tempting of concrete sleeper, tempting of newly laid turn outs, special SEJ, Glued joints, level crossing and curves etc; being maintained by track machines which was previously being done by trackmaintainer staff. Use of track machines has reduced the workload of track maintainer staff to great extent.

Some of the track maintenance activities are being carried out on contract basis for which ₹ 24.76 crores is being paid for running contracts on regular basis. Detail of running contracts have been shown vide para no.2.6.1 in the work study report, which also has reduced the work load of track maintainer staff significantly.

In view of above to economize the track maintenance system due to effect of various modernizations of tracks to assess requirement of trackman has become imperative.

2.5.0 REQUIREMENT OF TRACKMAN STAFF

The team collected the workload in terms of track kilometers, GMT and mandays for miscellaneous and site specific activities from respective SSE/P way offices working under Sr. DEN-I & II over Delhi Division. The work study team has considered the GMT, Track kilometers, other layout and MCNTM committee formula while calculating the manpower.

The activities 'T' for machine maintenance track kilometers

'T' =80 x 2.3 GMT mandays/km/year
R =159 mandays/km/year

The activities T & R for manual track taken as
T = 223+8.24 GMT mandays/km/year
R =169 mandays/km/year
The activities 'M':
Monsoon patrolling: No of days* No of beats* No of 2men* No of shifts
Hot weather patrolling: 30* length of LWR
Cold weather patrolling: 12* length of LWR
Site store chowkidar: No of stores*2*365 days
Rest giver gate keepers: No of LC*2*365-SSo of GK*294
The activities 'S':
Long girder bridge: 0.64*water ways in mtrs*no of bridge

The activities R for running yard line and non running yard line
R for mechanized and running yard line=177 mandays/km/yr
R for non running yard line= 297 mandays/km/yr. As per MCNTM formula.

The SSE/P.Way wise requirement of trackman is calculated as :-

2.5.1 SSE/P.Way/Sonipat:

Gang strength as per MCNTM formula:-			GMT	Track in km
Annual Avg.GMT			77	
Track on PRC sleeper (mechanized LWR) in km				100.280
Track on other layout including Running yard line etc. in km				24.373
Total track in kilometer				124.653
Mandays/km/yr. for mechanized track				
For activity 'T'				
80+2.3*GMT= 80+2.3x77			257.10 mandays/km/yr	
257.10 x100.280			**25781.988** mandays/yr	
For activity 'R'	**159***Track on PRC (Mech)			
	159x100.280	15944.52 for 100.280 track km Mandays/yr.		
Other Layout and running yard lines		**177***24.373=4922.37 mandays/yr		
Total activity 'R' for mechanized track		15944.52 + 4922.37 = **20866.89** mandays/yr		

Activity miscellaneous 'M'

				Mandays/ yr
Length of LWR		100.280 KM		
i	Monsoon patrolling	30 days*9 beats*2men*2shifts		1080
ii	Hot weather patrolling	30x100.28		3008.4
iii	Cold weather patrolling	12x100.28		1203.36
iv	Vulnerable locations	--		--
v	Site store chowkidar	1x2x365		730
vi	Rest giver gate keepers	(LC*2*365-SS*294)	13*2*365-26*294=	1846
	Total M			**7867.76**

Activity site specific 'S':-

i	Tunnel maintenance		--
ii	Bridge structure maintenance		--
iii	Long Girder Bridge maintenance	0.64*water ways in mtrs*no of bridge	--
iv	Extra for every sharp curve		--
v	Extra for bad formation		120
vi	Look out man duty		240
vii	Fog signal men duty		--
viii	Filth removal		--
ix	Security patrolling		--
	Total S		**360**

T	R	M	S	Total mandays/yr (T+R+M+S)	Calculated Gang Strength (Total mandays/yr/294)
25781.988	20866.89	7867.67	360.00	54876.55	186.65

Requirement of Total Staff	186.65	
Gateman @ 2men/LC	26.00	
A gang for misc work	6.00	
Total	218.65	
LR @ 12.5%	27.33	
Proposed staff	245.98	Say 246
Sanctioned strength	249	
Surplus Posts	249-246	**3**

2.5.2 SSE/P.Way/Panipat:

Gang strength as per MCNTM formula:-		GMT	Track in km	
Annual Avg.GMT for Section 85/15 to 99/1		80.50	30.00	Length of LWR
Annual Avg.GMT for Section 85/15 to 62/00		67.50	48.00	Length of LWR
Track on other layout including Running yard line etc. in km			42.60	
			120.6	
Total track in kilometer			0	

Mandays/km/yr. for mechanized track

For activity 'T'

i) For Section 85/15 to 99/11= 30.00 km Av GMT 80.5

80+2.3*GMT= 80+2.3x80.5 — 265.15 mandays/km/yr

265.15 x30.00 — **7954.5** mandays/yr

For activity 'R' — **159***Track on PRC (Mech) — 159x30.00 — **4770** for 30.00 track km Mandays/yr.

ii) For Section 85/15 to 62/00= 48.00 km Av GMT 67.5

80+2.3*GMT= 80+2.3x67.5 — 235.25 mandays/km/yr

265.25 x48.00 — **11292** mandays/yr

For activity 'R' — **159***Track on PRC (Mech) — 159x48.00 — **7632** for 48.00 track km Mandays/yr.

Other Layout and running yard lines — **177**x42.60=**7540.20** mandays/yr

Total Activity 'T' : 7954.5+11292=**1946.50** — 7954.5+11292=**19246.5**

Total activity 'R' for mechanized — 4770+7632+7540.20 = **19942.20** mandays/yr

Activity miscellaneous 'M'

Length of LWR — 78.00 KM

i	Monsoon patrolling	30 days*6beats*2men*2shifts		720
ii	Hot weather patrolling	30x78		2340
iii	Cold weather patrolling	12x78		936
iv	Vulnerable locations	--		--
v	Site store chowkidar	2x2x365		1460
vi	Rest giver gate keepres	(LC*2*365-SS*294)	3*2*365-6*294=	426
	Total M			**5882**

Activity site specific 'S':-

i	Tunnel maintenance			--
ii	Bridge structure maintenance			--
iii	Long Girder Bridge maintenance	0.64*water ways in mtrs*no of bridge	0.64*150*2	192
iv	Extra for every sharp curve			--
v	Extra for bad formation			--
vi	Look out man duty			--

vii	Fog signal men duty	--
viii	Filth removal	--
ix	Security patrolling	12
	Total S	**204**

T	R	M	S	Total (T+R+M+S)	Calculated Gang Strength
19246.5	19942.2	5882.00	204.00	45274.70	154.00

Total	154.0 0	
Gateman	6.00	
A gang for misc work	6.00	
Total	166.0 0	
LR @ 12.5%	20.75	
Proposed staff	186.7 5	Say 187
Sanctioned strength	216	
Suplus Posts	216-187	**29**

2.5.3 SSE/P.Way/Safidon:

Gang strength as per MCNTM formula:-	GMT	Track in km	
Annual Avg.GMT for Section 10.500 to 63.00	7.68	52.50	S/L Length of LWR
Annual Avg.GMT for Section 63.00 to 69.380	7.68	12.76	D/L Length of LWR
Track on other layout including Running yard line etc. in km		8.87	
Total track kilometer		74.13	

Mandays/km/yr. for mechanized track

For activity 'T'

i) for Section 10.500 to 63.00 = 52.500 km Av GMT 15.36 GMT is taken as double in S/L section

80+2.3*GMT= 80+2.3x15.36 115.328 mandays/km/yr

115.328 x52.50 **6054.72** mandays/yr

For activity 'R' **159***Track on PRC (Mech) 159x52.50.00 **8347.5** for 52.50 track km Mandays/yr.

ii) for Section 63.00 to 69.380 = 12.76 km Av GMT 7.68

80+2.3*GMT= 80+2.3x7.68 97.664 mandays/km/yr

97.664 x12.76 **1246.193** mandays/yr

For activity 'R' **159***Track on PRC (Mech) 159x12.76 **2028.84** for 12.76 track km Mandays/yr.

Other Layout and running yard lines **177**x8.87=**1569.99** mandays/yr

Total Activity 'T' : 7954.5+11292=**1946.50** 6054.72+1246.193= **7300.913**

Total activity 'R' for mechanized 8347.5+2028.84+1569.99 = **11946.33** mandays/yr

Activity miscellaneous 'M'

Length of LWR		65.26 KM		
i	Monsoon patrolling	30 days*3beats*2men*2shifts		360.00
ii	Hot weather patrolling	30*65.26		1957.80
iii	Cold weather patrolling	12*65.26		783.12
iv	Vulnerable locations	--		--
v	Site store chowkidar	1*2*365		730.00
vi	Rest giver gate keepres	(LC*2*365-SS*294)	20*2*365-40*294=	2840.00
	Total M			**6670.92**

Activity site specific 'S':-

i	Tunnel maintenance			--
ii	Bridge structure maintenance			--
iii	Long Girder Bridge maintenance	0.64*water ways in mtrs*no of bridg	0.64*150*2	192
iv	Extra for every sharp curve			--
v	Extra for bad formation			--
vi	Look out man duty			--
vii	Fog signal men duty			--
viii	Filth removal			--
ix	Security patrolling			60
	Total S			**252**

T	R	M	S	Total (T+R+M+S)	Calculated Gang Strength
7300.913	11946.33	6670.92	252.00	26170.16	89.01

Total	89.01	
Gateman	40.00	
A gang for misc work	6.00	
Total	135.01	
LR @ 12.5%	16.88	
Proposed staff	151.89	Say 152
Sanctioned strength	168	
Suplus Posts	168-152	**16**

2.5.4 SSE/P.Way/Kurukshetra:

Gang strength as per MCNTM formula:-	GMT	Track in km
Annual Avg.GMT	64.4	
		124.5
Track on PRC sleeper (mechanized LWR) in km		29
Track on other layout including Running yard line etc.in		34.84

km				5	
				159.3	
Total track kilometer				74	
Mandays/km/yr. for mechanized track					
For activity 'T'					
80+2.3*GMT= 80+2.3*64.4				228.12 mandays/km/yr	
228.12 x124.529				**28407.555** mandays/yr	
For activity 'R'	**159***Track on PRC (Mech)				
	159x124.529			**19800.111** for 124.529 track km Mandays/yr.	
Other Layout and running yard lines				**177***24.373=**6167.565** mandays/yr	
Total activity 'R' for mechanized				19800.111+6167.565 = **25967.676** mandays/yr	
Activity miscellaneous 'M'					
Length of LWR				114.93 KM	
i	Monsoon patrolling			30 days*3 beats*2men*2shifts	360
ii	Hot weather patrolling			30x114.93	3447.9
iii	Cold weather patrolling			12x114.93	1379.16
iv	Vulnerable locations			--	--
v	Site store chowkidar			2x2x365	1460
vi	Rest giver gate keepres			(LC*2*365-SS*294)	12*2*365-24*294= 1704
		Total M			**8351.06**
Activity site specific 'S':-					
i	Tunnel maintenance				--
ii	Bridge structure maintenance				--
iii	Long Girder Bridge maintenance			0.64*water ways in mtrs*no of bridge	0.64*150*4 384
iv	Extra for every sharp curve				--
v	Extra for bad formation				--
vi	Look out man duty				--
vii	Fog signal men duty				--
viii	Filth removal				600
ix	Security patrolling				280
		Total S			**880**

T	R	M	S	Total (T+R+M+S)	Calculated Gang Strength
28407.555	25967.676	8351.06	880.00	63606.29	216.35

Rquirement of Total Staff	216.35	
Gateman	24.00	
A gang for misc work	6.00	
Total	246.35	
LR @ 12.5%	30.79	
Proposed staff	277.14	Say 277
Sanctioned strength	268	
Suplus Posts	268-	**-9**

277

2.5.5 SSE/P.Way/Kaithal:

Gang strength as per MCNTM formula:-				
Annual Avg.GMT		5.03	S/L	
Track on PRC sleeper (mechanized) in km		80.60		
Track on other layout including Running yard line etc.		9.697		
Total track kilometer		90.297		
Mandays/km/yr. for mechanized track				
For activity 'T'				
80+2.3*GMT= 80+2.3*5.03		91.569 mandays/km/yr		
91.569 x 80.60		**7380.461** mandays/yr		
For activity 'R'	**159***Track on PRC (Mech)			
	159x80.60	**12815.4** for 80.60 track km Mandays/yr.		
Other Layout and running yard lines		**177***9.697=**1716.369** mandays/yr		
Total activity 'R' for mechanized		12815.4+1716.369 = **14531.769** mandays/yr		
Activity miscellaneous 'M'				
Length of LWR		33.40 KM		
i	Monsoon patrolling	30 days*13 beats*2men*2shifts		1560.00
ii	Hot weather patrolling	30*33.4		1002.00
iii	Cold weather patrolling	12x33.4		400.80
iv	Vulnerable locations	--		840.00
v	Site store chowkidar	3x2x365		2190.00
vi	Rest giver gate keepres	(LC*2*365-SS*294)	28*2*365-56*294=	3976.00
	Total M			**9968.80**
Activity site specific 'S':-				
i	Tunnel maintenance			--
ii	Bridge structure maintenance			--
iii	Long Girder Bridge maintenance	0.64*water ways in mtrs*no of bridge	0.64*150*4	384
iv	Extra for every sharp curve			365
v	Extra for bad formation			--
vi	Look out man duty			365
vii	Fog signal men duty			--
viii	Filth removal			1460
ix	Security patrolling			--

Total S **1825**

T	R	M	S	Total (T+R+M+S)	Calculated Gang Strength
7380.461	14531.769	9968.00	1825.00	33705.23	114.64

Rquirement of Total Staff	114.64	
Gateman	56.00	
A gang for misc work	6.00	
Total	176.64	
LR @ 12.5%	22.08	
Proposed staff	198.72	Say 199
Sanctioned strength	197	
Suplus Posts	197-199	**-2**

2.5.6 SSE/P.Way/Karnal:

Gang strength as per MCNTM formula:-

Annual Avg.GMT		66.64
Track on PRC sleeper (mechanized)		90.22
Track on other layout including Running yard line etc.		24.211
Total track kilometer		114.431
Mandays/km/yr. for mechanized track		
For activity 'T'		
80+2.3*GMT= 80+2.3*66.64		233.273 mandays/km/yr
233.273 x90.22		**21045.799** mandays/yr
For activity 'R'	**159***Track on PRC (Mech)	
	159x90.22	**14344.98** for 90.22 track km Mandays/yr.
Other Layout and running yard lines		**177***24.211=**4285.347** mandays/yr
Total activity 'R' for mechanized		14344.98+4285.347 = **18630.327** mandays/yr
Activity miscellaneous 'M'		
Length of LWR		82.716 KM

i	Monsoon patrolling	30 days*5 beats*2men*2shifts	600
ii	Hot weather patrolling	30x82.716	2481.48
iii	Cold weather patrolling	12x82.716	992.592
iv	Vulnerable locations	--	--

v	Site store chowkidar	2x2x365		1460
vi	Rest giver gate keepres	(LC*2*365-SS*294)	14*2*365-28*294=	1988
	Total M			**7522.07**

Activity site specific 'S':-

i	Tunnel maintenance			--
ii	Bridge structure maintenance			--
iii	Long Girder Bridge maintenance	0.64*water ways in mtrs*no of bridge	0.64*150*12	1152
iv	Extra for every sharp curve			2555
v	Extra for bad formation			--
vi	Look out man duty			730
vii	Fog signal men duty			--
viii	Filth removal			730
ix	Security patrolling			--
	Total S			**1460**

T	R	M	S	Total (T+R+M+S)	Calculated Gang Strength
21045.799	18630.327	7522.07	1460.00	48658.20	165.50

Rquirement of Total Staff	165.50		
Gateman	28.00		
A gang for misc work	6.00		
Total	199.50		
LR @ 12.5%	24.94		
Proposed staff	224.44	Say 224	
Sanctioned strength	241		
Suplus Posts	241-224	**17**	

2.5.7 SSE/P.Way/Ghaziabad-I:

Gang strength as per MCNTM formula:-

Annual Avg.GMT		50.88
Track on PRC sleeper (mechanized) in km	47.31	
Track on other layout including Running yard line etc.	49.934	
Total track kilometer	97.244	

Mandays/km/yr. for mechanized track

For activity 'T'

80+2.3*GMT= 80+2.3*50.88 — 197.024 mandays/km/yr

197.024 x47.31 — **9321.205** mandays/yr

For activity 'R' **159***Track on PRC (Mech)

159x47.31 — **4927** for 47.31 track km Mandays/yr.

Other Layout and running yard lines — **177***49.934= mandays/yr

Total activity 'R' for mechanized — 14344.98+4285.347 = **18630.327** mandays/yr

Activity miscellaneous 'M'

Length of LWR — 47.31 KM

i	Monsoon patrolling	30 days*6 beats*2men*2shifts		720
ii	Hot weather patrolling	30x47.31		1419.3
iii	Cold weather patrolling	12*47.31		567.72
iv	Vulnerable locations	2*2*60		240
v	Site store chowkidar	3x2x365		2190
vi	Rest giver gate keepres	(LC*2*365-SS*294)	2*2*365-04*294=	404
	Total M			**5541.02**

Activity site specific 'S':-

i	Tunnel maintenance			--
ii	Bridge structure maintenance			6205
iii	Long Girder Bridge maintenance	0.64*water ways in mtrs*no of bridge	--	--
iv	Extra for every sharp curve			365
v	Extra for bad formation			--
vi	Look out man duty			--
vii	Fog signal men duty			150
viii	Filth removal			730
ix	Security patrolling			--
	Total S			**7450**

T	R	M	S	Total (T+R+M+S)	Calculated Gang Strength
9321.205	18630.327	5541.02	7450.00	40942.55	139.26

Rquirement of Total Staff	139.26	
Gateman	4.00	
A gang for misc work	6.00	
Total	149.26	
LR @ 12.5%	18.66	
Proposed staff	167.92	Say 168
Sanctioned strength	192	
Suplus Posts	192-168	**24**

2.5.8 SSE/P.Way/Ghaziabad-II:

Gang strength as per MCNTM formula:-

Annual Avg.GMT	20.38	
Track on PRC sleeper (mechanized) in km	57.081	
Track on other layout including Running yard line etc.	91.356	
Total track kilometer	148.437	

Mandays/km/yr. for mechanized track

For activity 'T'

80+2.3*GMT= 80+2.3*20.38 — 126.874 mandays/km/yr

126.874 x57.081 — **7242.094** mandays/yr

For activity 'R' **159***Track on PRC (Mech)

159x57.081 — **9075.879** for 57.081 track km Mandays/yr.

Other Layout and running yard lines — **177***91.356= 16170.012 mandays/yr

Total activity 'R' for mechanized — 9075.879+16170.012 = **25245.891** mandays/yr

Activity miscellaneous 'M'

Length of LWR — 46.50 KM

i	Monsoon patrolling	30 days*4 beats*2men*2shifts		480
ii	Hot weather patrolling	30x46.50		1365
iii	Cold weather patrolling	12*46.50		558
iv	Vulnerable locations	--		--
v	Site store chowkidar	2x2x365		1460
vi	Rest giver gate keepres	(LC*2*365-SS*294)	7*2*365-14*294=	1414
	Total M			**5277**

Activity site specific 'S':-

i	Tunnel maintenance			--
ii	Bridge structure maintenance			6205
iii	Long Girder Bridge maintenance	0.64*water ways in mtrs*no of bridge	0.64*150*4	384
iv	Extra for every sharp curve			365
v	Extra for bad formation	01 curve		--
vi	Look out man duty			--
vii	Fog signal men duty			150
viii	Filth removal			--
ix	Security patrolling			128
	Total S			**7232**

T	R	M	S	Total (T+R+M+S)	Calculated Gang Strength
7242.094	25245.891	5277.00	7232.00	44996.99	153.05

Rquirement of Total Staff — 153.05

Gateman	14.00		
A gang for misc work	6.00		
	173.0		
Total	5		
LR @ 12.5%	21.63		
	194.6		
Proposed staff	8	Say 195	
Sanctioned strength	195		
	195-		
Suplus Posts	195	--	

2.5.9 SSE/P.Way/Meerut City:

Gang strength as per MCNTM formula:-

Annual Avg.GMT		13.90	
			105.8
Track on PRC sleeper (mechanized) in km			00
			60.40
Track on other layout including Running yard line etc.			0
			166.2
Total track kilometer			00

Mandays/km/yr. for mechanized track

For activity 'T'

80+2.3*GMT= 80+2.3*13.90 — 111.97 mandays/km/yr

111.97 x105.80 — **11846.426** mandays/yr

For activity 'R' **159***Track on PRC (Mech)

159x105.80 — **16822.2** for105.80 track km Mandays/yr.

Other Layout and running yard lines — **177***60.40= 10690.8 mandays/yr

Total activity 'R' for mechanized — 9075.879+16170.012 = **27513** mandays/yr

Activity miscellaneous 'M'

Length of LWR — 105.8 KM

i	Monsoon patrolling	30 days*8 beats*2men*2shifts		960
ii	Hot weather patrolling	30*105.8		3174
iii	Cold weather patrolling	12*105.8		1269.6
iv	Vulnerable locations	--		--
v	Site store chowkidar	2x2x365		1460
vi	Rest giver gate keepres	(LC*2*365-SS*294)	15*2*365-30*294=	2130
	Total M			**8993.6**

Activity site specific 'S':-

i	Tunnel maintenance	--
ii	Bridge structure maintenance	360

iii	Long Girder Bridge maintenance	0.64*water ways in mtrs*no of bridge	0.64*150*2	192
iv	Extra for every sharp curve			--
v	Extra for bad formation			--
vi	Look out man duty			--
vii	Fog signal men duty			--
viii	Filth removal			--
ix	Security patrolling			--
	Total S			**552**

T	R	M	S	Total (T+R+M+S)	Calculated Gang Strength
11846.426	27513	8993.60	552.00	48905.03	166.34

Rquirement of Total Staff	166.34	
Gateman	30.00	
A gang for misc work	6.00	
Total	202.34	
LR @ 12.5%	25.29	
Proposed staff	227.63	Say 228
Sanctioned strength	258	
Suplus Posts	258-228	**30**

2.5.10 SSE/P.Way/Mujaffarnagar:

Gang strength as per MCNTM formula:-

Annual Avg.GMT	15.66	
Track on PRC sleeper (mechanized) in km		107.404
Track on other layout including Running yard line etc.		29.731
Total track kilometer		137.135

Mandays/km/yr. for mechanized track

For activity 'T'

80+2.3*GMT= 80+2.3*15.66 116.018 mandays/km/yr

116.018 x107.404 **12460.797** mandays/yr

For activity 'R' **159***Track on PRC (Mech)

159x107.404 **17077.236** for 107.4040 track km Mandays/yr.

2.5.13 ADEN/wise and SSE/P.Way wise summarized position of existing sanctioned strength, proposed staff and surplus posts of trackmaintainer under the administrative control of Sr. DEN-I & II of Delhi Division is tabulated as under:-

ADEN	SSE/P Way	S/S	Proposed	Surplus
Panipat (PNP)	Sonipat (SNP)	249	246	3
	Panipat (PNP)	216	187	29
	Safidon (SFDE)	168	152	16
Karnal (KUN)	Kurukshetra (KKDE)	268	277	-9
	Kaithal (KLE)	197	199	-2
	Karnal (KUN)	241	224	17
Ghaziabad (GZB)	Ghaziabad (GZB-I)	192	168	24
	Ghaziabad (GZB-II)	195	195	0
Meerut Cantt (MUT)	Meerut City (MTC)	258	228	30
	Muzzaffar Nagar (MOZ)	258	257	1
Shamli (SMQL)	Baraut (BTU)	248	175	73
	Shamli (SMQL)	192	168	24
Total		2682	2476	206

The above table reveals that the proposed requirement of trackmaintainer staff comes to 2476 against the sanctioned strength of 2682 posts and 206 posts are identified as surplus and recommended for surrender. It will certainly improve economy and manpower productivity.

RECOMMENDATION NO.1

It is proposed that **206** posts of trackmaintainer staff Gr. Rs. 5200-20200+1800 identified as surplus working under SSE/P way under the administrative control of Sr. DEN-I and II over Delhi Division and recommended for surrender.

2.6.0 DETAIL OF RUNNING CONTRACTS:

During the course of study, the team was apprised that certain P.Way works are being carried out on contractual basis like leading/loading/unloading of P.Way material, hiring of truck/multi utility vehicles, complete track renewal (CTR), complete renewal of points and crossings, shallow screening of track, over hauling of level crossings, annual zone contract for maintenance of track and level crossings, pre-post attention with BCM, painting of rails, deep screening of bridge approaches, remodeling of yards, welding of rails, Cess repair, provide ballast retaining walls, rag picking etc. for which ₹ 24.76 crores are being paid for running contracts on regular basis..

2.6.1 During the course of study, the team collected the details of P.Way Works carried out on contract basis under Sr DEN-I & II of Engineering Department over the Division which is tabulated below:-

S N	ADEN	Description of work	Amount of contract in ₹	Contract period
1	PNP	Hiring of truck and multi utility vehicles for leading of p way material and machinery from station to station and other misc. work for day to day maintenance of track and other works in the section of ADEN/PNP for 18.6.2018-17.06.2020	13869262.27	18.6.2018-17.06.2020
		CTR (P) 7.509 km and TRR (P) 10.72 km on JHI-PNP under ADEN PNP for 12.09.2018 to 30.09.2019	16848024.13	12.09.2018-30.09.2019
		Provision of gateman ex serviceman on Rly l-Xing over DLI division in the section of Sr DEN-I w.e.f	57534048	W.e.f. 27.09.2019 for 01 yr
		Annual Zone for maintenance of track work under SSE/P way, SNP,PNP & SFDE	11701128.73	25.07.2019-25.07.2020
		Through Rail renewal flash but welding in 60 kg/52kg Rail at site using Rail cum rail mobile /stationary FBW plant 10375 joints (9435) Nos. w.e.f 22.06.2018	100885606	w.e.f 22.06.2018
		Total	200838069.13	
2	KUN	Re-conditioning of worn out CMS Xing tongue in the section of ADEN KUN & PNP for 02.08.2016.to 30.11.2019	9822134.00	02.08.2016-30.11.2019
		Thermit welding of Rail joint of 50/60kg of Rails New/SH single Rail/ 10 panel/20panel any length with short per heated process for 18.08.2017 to 31.12.2019	15403474.00	18.08.2017-31.12.2019
		Repair and replacement of steel channel sleeper and fitting of girder bridges in the section Sr DEN-I for 15.02.2018 to 30.09.2019	10657425.72	15.02.2018-30.09.2019
		Leading of P/way material from different locations to the jurisdiction of ADEN/KUN for 14.03.2018 to30.09.2019	9329804.07	14.03.2018-30.09.2019
		Hiring of trucks & multi utility vehicle for leading of P Way material and machinery from station to station in Delhi division and other stations out of Delhi division and	19957648.78	17.07.2018-16.07.2020

		other misc work for day to day maintenance of track for 17.07.2018 to 16.07.2020		
		CTR (P) 1.96 km and TRR (P) 3.53 km on NRW-KKDE section for 06.09.2018 to 31.08.2019	12066324.89	06.09.2018-31.08.2019
		Provision of patrol man companion for inspection and patrolling of track Under Sr DEN-I NDLS for 26.11.2018.to 25.11.2020	8951772.87	26.11.2018-25.11.2020
		Renewal of turn out with thick switches on DUK section under Se DEN-I 29.03.2019 to 28.03.2020	17595240.95	29.03.2019-28.03.2020
		Pre and post attention work for tamping machines in the section of DEN-I DLI for 09.04.2019 to 08.12.2019	6638855.72	09.04.2019-08.12.2019
		Pre and post attention with deep screening by BCM and associated misc activities in the section of DEN-I DLI for 20.07.2019	25593361.67	w.e.f. 20.07.2019 for 01 yr
		TRR (P) 21.00 km on DLI UMB section under Sr DEN-I DLI 27.09.2019	12876791.16	w.e.f. 27.09.2019 for 01 yr
		Total	148892834	
3	GZB	GZB-CTR (P) 10km part of CTR (S) 22.16 km in GZB yard loco shed, EMU car shed in the section of SSE/P way GZB-II under ADEN GZB for 09.05.2018 to 31.08.2020	24430729.00	09.05.2018-31.08.2020
		Replacement of 93 sets of the existing 60/52 kg points and Xing with 60 kg thick web switches and WCMS Xing under SSE/P Way GZB-I & II. CTR 0.079 km (P) & TRR (P) of 2.255 km on TDL-GZB on Dn line and replacement of turnout fittings in GZB sub division under ADEN/GZB and replacement laid on wooden/ST/PRC sleepers with ORC fan shaped turn outs in the section ADEN/GZB ADEN/MUT under Sr DEN –II for 11.10.2017 to31.03.2020,.	14309185.00	11.10.2017-31.03.2020
		Annual zone for maintenance of track in the section ADEN/GZB for 13.12.2018 to 10.12.2019	12090766.00	13.12.2018-10.12.2019
			50830680.00	
4.	MUT	Hiring of trucks & multi utility vehicle for leading of P Way material in section of ADEN MUT and ADEN SMQL for 29.11.2018 to 05.09.2020	6541000.00	29.11.2018-05.09.2020
		Thorough fitting renewal between GZB-SRE-MUT section under ADEN MUT and ADEN GZB 78.3km 27.11.2017	7040000.00	w.e.f. 27.11.2017
		Leading of misc P way material from various location to the sites of work under ADEN/GZB, MUT and SMQL since 21.09.2018	9989000.00	W.e.f. 21.09.2018 still in progress
		Replacement of 93 sets of the existing 60/52 kg points and Xing with 60 kg thick web switches/switches and WCMS Xing under SSE/P way/GZB-I & II,CTR 0.079knm (P) and TRR(P) of 2.255 km on TDL-GZBDN line and replacement of turn out fitting in GZB sub division under ADEN GZB and ADEN MUT since 30.04.2018	14200000.00	W.e.f. 30.04.2018 in progress
		Total	37770000.00	

5.	SMQL	Cess cutting/screened muck removal by BCM and disposing away from the track	918000.00	03.07.2019-02.01.2020
		Thorough packing including giving a general lift as desired to eliminate sag on the day of deep screening	1117000.00	03.07.2019-02.01.2020
		Opening of level Xing upto 50mm below bottom of sleepers and disposing of all malba/ fitting back ballast	48226.00	03.07.2019-02.01.2020
		Casual renewal of U/S sleeper , crossing timber	1684720.00	03.07.2019-02.01.2020
		Cutting or released rails by gas cut on ces	11488.00	03.07.2019-02.01.2020
		Drilling of 28-32mm holes on cess/ in web of rails including proper chamfering	25356.00	03.07.2019-02.01.2020
		De stressing of LWR/CWR track at appropriate temperature	713200.00	03.07.2019-02.01.2020
		Muck removal/malba/garbage from yard including all types of waste material, animal carcus, cow dung, leaves, vegetation, earthen heaps, night soil debris etc.	210678.00	03.07.2019-02.01.2020
		Deep screening of turn outs , stone ballast upto cess level by using 20.mm sq mess sieve etc	338082.24	03.07.2019-02.01.2020
		Deep screening of turn outs , stone ballast upto cess level by using 20.mm sq mess sieve etc	43301.11	03.07.2019-02.01.2020
		Painting of rail with anti corrosive bituminous paint	1540500.00	03.07.2019-02.01.2020
		Opening out, removing deep screening of ballast up to cess level by using 25 mm sq mess sieve	1742670.00	03.07.2019-02.01.2020
		Opening out, removing deep screening of ballast up to cess level by using 25 mm sq mess sieve	645354.00	03.07.2019-02.01.2020
		First thorough packing	563469.42	03.07.2019-02.01.2020
		Second thorough packing including picking of slack for six days to make the track fit for 50 kmph including boxing.	497046.00	03.07.2019-02.01.2020
		Third thorough packing including picking of slack for to make the track fit for 75 kmph including boxing	33144.39	03.07.2019-02.01.2020
Total			10114235.16	
Grand total			247607749.16	

The above table reveals that the expenditure on P.Way works on contractual basis under ADENs- PNP, KUN, GZB, MUT & SMQL under Sr DEN-II & II comes to ₹ 247607749.16/- for running contracts.

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3.0.0 FINANCIAL IMPLICATIONS

After the implementation of the work study recommendations following are the financial implications:

SN	Category	Grade Rs.	Refer Recom. No.	No. of surplus posts	Monthly value per posts in ₹	Anticipated annual recurring saving in ₹
1	Trackmaintainer	5200-20200+ 1800	1	206	43817	108315624/-

No. of posts identified as surplus: -
Group 'C'= NIL posts
Group 'D'= 206 posts
Total = 206 posts

Anticipated recurring saving = ₹ 1083.15 lakh per annum
Capital saving = Nil
Total saving = ₹ 1083.15 lakh per annum

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4.0.0 PRODUCTIVITY

4.1.0 The total annual expenditure on the sanctioned strength of P.Way trackman staff working under SSE/P.Way controlled by Sr. DEN-I & II over Delhi Division is tabulated as under:-

S N	Category	Pay Scale + Grade Pay	Monthly value per posts in ₹	Sanctioned strength	Total annual expenditure in ₹
1	Trackmaintainer-I	5200-20200+2800	71078	132	112587552
2	Trackmaintainer-II	5200-20200+2400	62361	246	184089672
3	Trackmaintainer-III	5200-20200+1900	48614	653	380939304
4	Trackmaintainer-IV	5200-20200+1800	43817	1651	868102404
Total				2682	1545718932

The above table reveals that he total annual expenditure on the sanctioned strength of trackmaintainer working under SSE/P.Way controlled by Sr. DEN-I & II over Delhi Division is ₹ 1545718932/-

4.1.2. The annual expenditure on the proposed staff working under SSE/P.Way controlled by Sr. DEN-I & II over Delhi Division is tabulated as under:-

S N	Category	Pay Scale + Grade Pay	Monthly value per posts in ₹	Proposed staff	Total annual expenditure in ₹
1	Trackmaintainer-I	5200-20200+2800	71078	132	112587552
2	Trackmaintainer-II	5200-20200+2400	62361	246	184089672
3	Trackmaintainer-III	5200-20200+1900	48614	653	380939304
4	Trackmaintainer-IV	5200-20200+1800	43817	1445	759786780
Total				2476	1437403308

The above table reveals that he total annual expenditure on the proposed trackmaintainer staff working under SSE/P.Way controlled by Sr. DEN-I & II over Delhi Division is ₹ 1437403308/-. Therefore the expenditure on the proposed staff reduced from ₹ 1545718932/- to ₹ 1437403308/-

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WORK STUDY REPORT DETAILED CHART

Department : - Engineering

Name of study: - Review of P.Way trackman staff working under SSE/P.Way controlled by Sr. DEN-I & II over Delhi Division.

Activity Centre: - SSE/P.Way controlled by Sr. DEN-I & II over Delhi Division.

S N	Sub activity	Actual staff deployed	Work Study recommendation	Brief description of workload
1	SNP, PNP, SFDE, KKDE, KLE, KUN, GZB-I, GZB-II, MTC, MOZ, SQML, BTU.	S/S= 2682 O/R= 2294 Vac= 388	S/S = 2682 Proposed = 2476 Surplus = 206	Maintenance of track through various maintenance practices, security, Hot/Cold patrolling bad spots, activity, 'T' Activity 'R' Misc Activities 'M' & site specific activities 'S'

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LIST OF ANNEXURES

S.N.	Description	Annex. No.
1	Authority Letter to conduct the work study report No. 16-CP/30/WS/2019-20	I
2	Statement showing category wise, the sanctioned strength and on roll position of P.Way staff working under SSE/P.Way controlled by SR. DEN-I & II over Delhi Division.	II
3	Statement showing workload in terms of track kilometers being maintained by the trackman staff working under SSE/P.Way controlled by SR. DEN-I & II over Delhi Division.	III

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Annexure No. I

Annexure No. II

SSE/P Way	Track maintainer-I			Track maintainer-II			Track maintainer-III			Track maintainer-IV			Total		
	SS	OR	V	SS	OR	V	SS	OR	V	SS	OR	V	SS	OR	Vac
PNP	3	3	--	16	16	--	82	60	22	115	91	24	216	170	46
SNP	8	8	--	16	11	5	65	58	7	160	152	8	249	229	20
SFDE	18	16	2	7	6	1	59	42	17	84	47	37	168	111	57
KKDE	16	4	12	32	28	4	59	33	26	161	153	8	268	218	50
KUN	14	1	13	27	8	19	50	47	3	150	173	24	241	229	12
KLE	12	0	12	23	8	15	43	17	26	119	150	31	197	175	22
GZB-I	12	4	8	23	18	5	42	37	5	115	105	10	192	164	28
GZB-II	7	5	2	28	28	--	28	28	--	132	94	38	195	155	40
MTC	14	10	4	30	25	5	52	41	11	162	155	7	258	231	27
MOZ	8	5	3	17	17	--	51	47	4	182	188	6	258	257	1
BTU	9	3	6	4	3	1	80	77	3	155	115	40	248	198	50
SQML	11	4	7	23	7	16	42	42	--	116	104	12	192	157	35
	132	63	69	246	175	71	653	529	124	1651	1527	245	2682	2294	388

Annexure No. III

STATEMENT SHOWING WORKLOAD IN TERMS OF TRACK KILOMETER BEING MAINTAINED BY TRACK MAINTAINER WORKING UNDER SSE/P WAY CONTROLLED BY SR. DEN-I & II OF DELHI DIVISION													
S.N	ADEN	SSE/P. Way	Track on PRC sleeper LWR in KM		Track on PRC SWR in KM		Fish plated	Loop lines	Other lay outs				Total Track in km
			Mech	Con	Mech	Con			Points & Xing	Busy siding	Yard Lines	Ord. Siding	
1	PNP	SNP	94.744	--	5.536	--	24.373	--	--	--	--	--	124.653
		PNP	30.00	--	--	--	3.49		6.80	3.00	9.00	2.00	120.60
			48.00	--	--	--	--	--	3.30	--	--	--	
		SFDE	13.820	--	38.680	--	3.803	--	3.80	0.743	--	0.524	61.37 S/L
			5.51	--	7.25	--	--	--	--	--	--	--	12.76 D/L
2	KUN	KKDE	114.93	--	9.599	--	14.729	--	14.716	5.40	--	--	159.374
		KLE	33.40	--	47.20	--	6.986	--	2.2 nos.	1.436	--	1.275	90.297
		KUN	82.716	--	70504	--	10.30	--	10.00	2.211	--	1.97	114.431
3	GZB	GZB-I	47.310	--	--	--	21.907	6.225	16.3	--	--	5.502	97.244
		GZB-II	46.500	--	10.581	--	--	11.70	25.9	4.180	49.576	--	148.337
4	MUT	MTC	105.0	--	0.800	--	--	16.00	24.40	5.00	3.00	12.00	166.200
		MOZ	107.404	--	--	--	--	13.081	11.70	--	4.950	--	137.135
5	SQML	SQML	11.00	--	--	--	--	11.5	6.20	--	--	1.3	93.00 S/L
			63.00	--	--	--	--	--	--	--	--	--	S/L
		BTU	72.00	--	--	--	--	12.30	6.70	--		3.90	94.90 S/L
Total													1420.301

Salient features of work study report No. 16-CP-32/WS/2019-20

Sub: "Review of track maintainer staff working under SSE 'P' way controlled by Sr. DEN-I & II over Delhi Division" Part-I

Staff Position:

i) Sanctioned strength = 2682
ii) On roll strength = 2294
iii) Vacancy = 388
iv) Proposed staff = 2476
v) Identified as surplus for surrender= 206

i) The work study team has considered the GMT, Track kilometers, other layout and MCNTM committee formula while calculating the manpower.

ii) Some of the track maintenance activities like thorough packing, deep screening, screening of ballast, tempting and lining work of track, spot tempting of concrete sleeper, tempting of newly laid turn outs, special SEJ, Glued joints, level crossing and curves etc; being maintained by track machines which was previously being done by trackmaintainer staff. Use of track machines has reduced the workload of track maintainer staff to great extent.

iii) Some of the track maintenance activities are being carried out on contract basis for which ₹ 24.76 crores is being paid for running contracts on regular basis. Detail of running contracts have been shown vide para no. 2.6.1 in the work study report, which also has reduced the work load of track maintainer staff significantly, however, no staff has been rendered surplus against the contract value.

iv) Extra cushion has been provided for other miscellanies activities like Keyman, mate, trolleyman, gateman etc

Financial implication:

Anticipated recurring saving = ₹ 1083.15 lakh per annum

Capital saving = Nil

Total saving = ₹ 1083.15 lakh per annum