WEST CENTRAL RAILWAY

WORK STUDY REPORT

ON

"*Review of staff strength of Track Maintainer cadre of Engg. Deptt. of JBP division*"

STUDY PERSONNELS

Tulsi Singh
Astt. Work Study Officer

Rajesh Kumar
Chief Work Study Inspector

WORK STUDY ORGANISATION - JABALPUR

INDEX

Sr. No.	Description	Page No.
1.	Synopsis	1
2.	Introduction	2-3
3.	Staff Strength	4-11
4.	Financial Implications	12

SYNOPSIS

Indian Railway is one of the biggest transportation organizations among all other transport organizations in the country. In fact, Railway is backbone of the country's transport systems. In the recent time, Railway is facing tremendous competition from road and air. In the time of competition transport system should not only the agile, prompt and amenable but also financially viable. In order to bring economy in expenditure the optimum utilization of man, machine and material will have to be ensured.

In Railways, the process of absorption of modernization has been started and still in progress in every sphere of the system. As a result of which certain activities have become fully redundant/ obsolete from existing system. These technological up gradations have shown the considerable improvement in the efficiency and manpower productivity in Railways.

Keeping in view, all these constraints, Work Study Cell is assigned to conduct work study **of '*Review of staff strength of Track Maintainer cadre of Engg. Deptt. of JBP division'*** with a view to assess the staff 1requirement as per the existing workload after technological up gradation and outsourcing. To arrive at the actual requirement of staff, the team held discussions with officers and supervisors of this division.

****

CHAPTER-I

1. INTRODUCTION

Work study on "Review of staff strength of Track Maintainer cadre of Engg. Deptt. of JBP division" has been taken as a "Crash Work Study" for the year 2019-20.

The maintenance of track is responsibility of Engineering department. The maintenance of track is a vital activity in the train operation in relation to safety & punctuality. It is the duty of engineering department to up keep the standard of track using engineering parameters for the safe running of trains.

1.1 As per Railway Board's letter No. 2006/CE-I/Misc./2(RUBs) of dt 25.03.2007, manned and unmanned level crossing gate of all railways may be closed by construction of Limited Height Subways. Railway Board also provides funds for this LHS work.

1.2 Duties of Gangman

The Gangmen perform the following regular duties of permanent way gangs:

1.	Through packing.
2.	Shallow screening
3.	Picking up slacks.
4.	Lubrication of rail joints
5.	Minor attention to cess.
6.	Clearing catch-water drains, side-drains and water ways of bridges.
7.	Casual renewal of rails.
8.	Casual renewal of sleepers
9.	Adjustment of creep over short length.
10.	Opening, examination and overhauling of level crossings.
11.	Attention to points and crossings etc.

The following items of work are carried out by the Gangmen not as a regular measure but whenever there is demand for such works which may be termed as sporadic in nature.

1.	Loading and unloading of materials.
2.	Lorrying out materials for other than casual renewals.

3.	Repairs to bridges.
4.	Painting of rails on station yards and bridges.
5.	Renewal and resurfacing of points and crossings
6.	Complete realignment of curves.

1.3 Duties of Key Man:- The prime duties of Key man are-

1.	His entire beat to be inspected by foot once a day for track as well as bridges and return along the opposite rail. While inspecting, he should carry with him all necessary tools & equipment as prescribed.
2.	While walking over his section, he should look for loose spikes, keys, chairs, fish bolts, fittings on grinder bridges/culverts, broken/burnt sleepers, broken plates/tie bars etc. and attend them as necessary.
3.	At unmanned level crossings he should maintain the flange ways between the check and the running rails clear of obstruction.
4.	If any unsafe condition of track is noticed such as broken rails, wash away of ballast, he should at once protect the line as per rules and immediately report to Mate, ASM, SE etc.

1.4 Duties of Mate:- The main duties of Mate are-

1.	He shall inspect the whole gang length once in a week for on the spot supervision regarding track condition. He should ensure the tools & equipment as prescribed are available at site of work.
2.	He shall see that the prescribed system of track maintenance is adhered to and the task allotted to him either verbally or through gang chart/diary are carried out efficiently.
3.	The Mate shall see that the whole of his gang length is kept neat and tidy and all loose materials are removed from the track.
4.	He should see that his length of line is kept safe for the passage of trains and any unsafe condition is reported immediately.
5.	In the event of train accident in between section, Mate should render assistance to Guard & Driver of the train for the protection.

****

CHAPTER-II

Staff Strength

2 JBP division spread over from ET–JBP, JBP-STA, STA-MKP, STA-REWA, KTE-SGRL and KTE-BINA section details of these sections is as following.

Section	KMs	Line
ET-JBP	245.155	Double Line
JBP-STA	188.990	Double Line
STA-MKP	77.449	Double Line
KTE-SGRL	260.052	Single Line
KTE-BINA	262.810	Double Line
STA-REWA	48.550	Single Line
JKE-KYCE	21.250	Single Line

To maintain the above length of track, following staff are deployed.

2.1 Sanctioned strength position of Track Maintainer staff of JBP is as under:-

Category	Grade Pay	SS	MOR	Vac.
Track Maintainer-I	(5200+20200) + GP 2800	343	137	206
Track Maintainer -II	(5200+20200) + GP 2400	685	592	93
Track Maintainer -III	(5200+20200) + GP 1900	1256	1285	+29
Track Maintainer -IV	(5200+20200) + GP 1800	3279	1831	1448
Total		5563	3945	1618

It may be seen from the above table, 5563 posts have sanctioned, 3945 posts are MOR and 1618 posts are vacant.

2.2 Workload:

2.2.1 Track maintenance system:

1. Systematic Track Maintenance activities:

a. Repairs maintain and renew of track components.

b. Improve track geometry.

2. Classification of Works:

Annual maintenance activities are classified-

a. Emergency works
b. Routine track maintenance
c. Major track maintenance.

2.2.2 The P-way staff perform the following regular duties of permanent way gangs:

1.	Through packing.
2.	Shallow screening
3.	Picking up slacks.
4.	Lubrication of rail joints
5.	Minor attention to cess.
6.	Clearing catch-water drains, side-drains and water ways of bridges.
7.	Casual renewal of rails.
8.	Casual renewal of sleepers
9.	Adjustment of creep over short length.
10.	Opening, examination and overhauling of level crossings.
11.	Attention to points and crossings etc.
12	Arranging staff for engineering gate
13	Lifting of track
14	Lowering of track
15	Distances pieces to platform lines
16	Deep screening of ballast
17	Lubrication of rail joints
18	Adjustment of creep
19	Buckling of track
20	Maintenance of track in track circulated areas
21	Curved track and realignment of curves
22	Laying and maintenance of short welded rails, long welded rails and continuous welded rails
23	Action during accidents including breaches and pre-monsoon, precautionary measures.
24	Engineering restrictions and indicators and use of detonators and flare signals
25	Level crossing and gateman
26	Motor trolley/lorry working
27	Working in material trains and track machine
28	Laying and maintenance of concrete sleeper

2.2.3 Engineering gates of JBP division are as under:

SN	Gate No.	Between	Kms
1	226	ET-GRO	750/7-8
2	230	BGTA-GMD	782/7-8
3	231	GMD-SGP	790/9-10
4	234	SGP-PPI	805/3-4
5	235		809/0-1
6	237	PPI-BKH	817/7-8
7	238		820/0-1
8	239		823/1-2
9	241		827/9-10
10	243	BKH-SCKR	832/6-7
11	244		834/3-4
12	245		836/7-8
13	246		838/8-9
14	249		844/5-6
15	250		846/6-7
16	252	SCKR-GAR	850/6-7
17	253		851/7-8
18	254		853/1-2
19	256		856/9-10
20	257		858/0-1
21	260	GAR-BNE	865/8-9
22	261		868/6-7
23	262		871/7-8
24	264	BNE-KY	877/3-4
25	265		878/9-10
26	266		879/9-10
27	267		881/1-2
28	268		882/7-8
29	269		884/7-8
30	270		885/7-8
31	273	KY-NU	892/3-4
32	275		901/7-8
33	276		904/3-4
34	279	NU-GGC	908/2-3
35	286	BELD-KKB	923/7-8
36	287	KKB-SRID	925/6-5
37	288		927/7-8
38	289		930/4-5

39	290		931/4-5
40	292		934/7-8
41	293		935/8-9
42	294	SRID-BMR	938/3-4
43	295		942/3-4
44	296		945/0-1
45	297		9476-7
46	299		954/0-1
47	300	BMR-BHTN	956/0-1
48	303	BHTN-BRGT	962/7-8
49	304		963/6-7
50	305		965/4-5
51	307		968/3-4
52	308		971/9-10
53	310	BRGT-KEQ	974/9-10
54	311		976/8-9
55	312		787/5-4
56	320	ADTL-DOE	1000/6-7
57	323		1004/2-3
58	324		1005/6-7
59	326	DOE-GSPR	1009/1-2
60	327		1010/6-7
61	328		1013/9-10
62	329		1015/3-4
63	331	GSPR-SHR	1019/2-3
64	332		1022/SHR
65	338	SHR-DDCE	1035/1-2
66	339		1037/6-7
67	340		1041/4-5
68	342	DDCE-SBD	1047/9-10
69	343		1050/8-9
70	345	SBD-NWR	1054/7-8
71	346		1057/8-9
72	347		1060/0-1
73	350	NWR-KTE	1071/2-3
74	351		1072/7-8
75	353		1075/7-8
76	354		1077/4-5
77	357	KTE-PTWA	1087/7-8
78	358	PTWA-JKE	1091/4-5
79	362	JKE-PKRD	1100/5-6
80	368	PKRD-UDR	1115/5-6
81	370	UDR-BUU	1120/6-7
82	372		1124/6-7

83	373		1127/3-4
84	375	BUU-MYR	1132/8-9
85	376		1134/8-9
86	377		1139/2-3
87	378		1141/8-9
88	379-A	MYR-UHR	1147/7-8
89	380		1148/7-8
90	381		1155/4-5
91	384	UHR-LGCE	1164/3-4
92	385	LGCE-STA	1172/6-7
93	385-A		1173/9-10
94	388	STA-SGMA	1183/6-7
95	390	SGMA-JTW	1189/6-7
96	391		1191/2-3
97	392		1192/9-10
98	395	SGMA-JTW	1202/2-3
99	399	CTHR-MJG	1230/7-8
100	400	CTHR-TKYR	1235/8-9
101	402-A	BNSP-OHAN	1254/1-2
102	403	MKD-BQF	1254/2-3
103	2	STA-KMA	1190/3-4
104	4	KMA-HNM	1192/0-1
105	6		1193/9-10
106	9	HNM-BGHI	1021/0-1
107	10		1201-8-10
108	11		1203/7-8
109	18	TZR-REWA	1220/8-9
110	19		1222/0-1
111	310-A	MAKR-KOD	980/9-10
112	2	BJQ-YD	984/5-6
113	4	BJQ-KYE	989/7-8
114	5	BJQ-KYE	992/7-8
115	9	KYE-SMRR	1002/7-8
116	11	SMRR-JRK	1011/6-7
117	13	JRK-ISH	1018/2-3
118	14	JRK-ISH	1021/7-8
119	16	ISH-NOI	1028/9-10
120	18	NOI-RTZ	1032/2-3
121	19		1034/5-6
122	20		1036/6-7
123	21	RTZ-SGO	1045/4-5
124	22		1047/6-7
125	26	SGO-MKRN	1050/7-8
126	27		1051/1-2

127	28		1052/6-7
128	29		1054/1-2
129	32	MKRN-LDA	1059/2-3
130	33		1059/8-9
131	34		1061/1-2
132	36	LDA-GW	1069/1-2
133	43	GAJ-PHA	1092/9-10
134	50	PHA-ANA	1109/1-2
135	53	ANA-DMO	1116/1-2
136	55	ANA-DMO	1121/6-7
137	60	DMO-KYX	1128/3-4
138	62		1129/3-4
139	64		1131/9-10
140	66-A	KYX-BNU	1136/1-2
141	67		1136/9-10
142	68		1138/5-6
143	72	BNU-GEA	1143/0-1
144	78	GEA-SAO	1162/2-3
145	94	SYA-BQQ	1096/0-1
146	98	BQQ-REI	1202/4-5
147	100	REI-HDU	1206/2-3
148	102		1210/0-1
149	103		1212/4-5
150	104		1214/0-1
151	1	NKJ-KTKD	1088/9-10
152	39	BEHR-BARD	1199/1-2
153	53	BARD-JOBA	1223/2-3
154	59	JOBA-MWJ	1236/3-4
155	65	MWJ-SKBR	1247/1-2
156	67	SKBR-NWB	1249/6-7
157	76	NWB-BSDL	1262/1-2
158	88	SGAM-GAJB	1287/6-7
159	107-A	BRGW-GND	1328/1-2
160	JK-1	JKE-KYCE	1098/9-10
161	JK-2		1100/5-6
162	JK-3		1101/8-9
163	JK-4		1103/4-5
164	JK-5		1104/9-10
165	JK-6		1106/6-7
166	JK-7		1109/5-6
167	JK-10		1112/5-6
168	JK-11		1113/1-2
169	JK-13		1116/3-4
170	JK-15		1117/5-6

In above mentioned gate, regular staff is used with LR & RG.

2.3 As per Railway Board's letter No. 2006/CE-I/Misc./2(RUBs) of dt 25.03.2007, manned and unmanned level crossing gate of all railways may be closed by construction of Limited Height Subways. Railway Board also provides funds for this LHS work. As per Railway board's instruction all engineering gate should be replaced by LHS.

2.4 As per MCNTM (The committee on Manpower and Cost Norms for Track Maintenance) formula, requirements of Gange strength as under:

SN	Unit name	Total Track KM	Total man days T+R+M+S	Calculating G/strength	Sanctioned strength	Excess/shortage
1	BGTA	75.58	43436.45	222.46	201	-15
2	SGP	76.00	39635.31	209.54	190	-19
3	GAR	75.60	33652.91	208.65	200	-8
4	NU	86.40	60704.51	306.54	232	-74
5	SRID	75.80	44661.84	234.77	204	-30
6	JBP(S)	82.40	57781.31	291.35	210	-81
7	JBP YD	0.00	22984.63	126.58	124	2
8	JBP(N)	57.45	52985.68	247.13	212	-25
9	SHR	87.20	57528.98	301.76	244	-57
10	KTE S	82.30	48657.39	258.81	239	-19
11	KMZ	76.20	36834.83	211.82	211	0
12	NKJ	36.81	52223.67	245.96	237	-8
13	KTE N	60.80	44981.74	250.75	231	-19
14	MYR	73.00	39558.44	214.62	209	5
15	STA S	64.20	32798.34	176.25	161	-15
16	STA N	82.92	59758.56	285.29	257	-18
17	REWA	52.76	36530.54	190.29	165	-25
18	MKP	85.37	47309.82	227.28	200	-27
19	KYE	72.37	48148.15	230.24	201	-29
20	SGO W	74.40	43728.85	224.20	199	-25
21	SGO E	76.60	50051.83	254.52	237	-17
22	DMO W	75.40	53092.80	263.04	203	-60
23	DMO E	79.80	57109.15	290.78	257	-33

24	SYA	73.80	43499.95	219.33	197	-22
25	KHBJ	78.45	48129.54	242.67	227	-15
26	BEHR	90.80	57748.69	285.73	265	-20
27	SGAM	85.17	50316	260.04	253	7
	TOTAL			6480.4	5766	-714

As per formula for requirement of Gange staff, sanctioned strength of Gangeman is far behind from calculated Gange strength.

But practically, it is not possible to deploy the employees with addition to existing staff because staff crisis problems at all points of Engineering department there. Always technical up gradation is going on as new version of track machine.

2.5 Outsourcing in engineering deptt. of JBP division: (some areas are as under)

1. Track Renewal work
2. Maintenance work of Track as Cleaning of grass, carting of materials) etc.
3. Formation treatment work
4. Collection of ballast, training out ballast by materials trains, leading ballast from stack to track, insertion of ballast in track and profiling.
5. Deep screening of the ballast in track, carried out manually or by deploying ballast cleaning, machine in which case manpower support is provided by the contractor.
6. Introduction of sub ballast and ballast layers
7. Heavy repairs to track, including lifting
8. Complete realignment of curved track
9. Through renewal of rails, sleepers and fasteners
10. Complete renewal of points and crossings, SEJs, traps etc.
11. Loading /Unloading of P-way materials for other than casual renewal
12. Security of materials in a depot which is closed and locked
13. Painting of rails and weld collars
14. Painting of bridge girders
15. Heavy repairs(measurable) to formation, cutting, side drains and catch-water drains
16. Heavy repairs(measurable) to bridges, bridge protection works, river training works and tunnels
17. Providing/repairing road surface at level crossings, including speed breakers
18. Removal of major sand breaches
19. Works arising due to restoration, following breach or accident
20. Clearing of rank vegetation in platforms and in the vicinity of tracks; in coaching and goods yards, repairs depots and workshops of Engineering Mechanical, Electrical and S&T departments.

2.6 Outsourcing:

2.6.1 Advantages of Outsourcing Activities:

1	Monetary Saving compared to present system.
2	Availability of physically fit person for the job.
3	No detention to trains due to absenteeism, absconding from duty, incapability of doing the job due to old age etc.
4	Administrative convenience.
5	Less / no union activities therefore better work culture.
6	Enforce conditions as per the requirement and benefits to Railways.
7	Saving of valuable manpower

2.7 In KRC all track works are mechanized, also work exists through Mobile Maintenance Gang.

2.7.1 Advantages of Mobile Maintenance Gang System:

-Maintenance of track in case of emergency
*Faster due to availability of RMVs (Rail Maintenance Van)
-Transportation of small track machine by RMV
-quick transportation of p-way material
-In-situ repair welds quicker as cut rail and welding material with Gang unloaded at site.
-Saving in the establishment cost due to out-sourcing

Manpower required for Mobile Maintenance Gang system is 0.8 Trackman per km as compared to 1.3 Trackman per km of existing system on IR. Track Maintenance cost by Mobile Maintenance Gang will be Rs. 9 to 10 Lakhs per km as compared to Rs. 14 to 15 Lakhs per km of existing system on IR.

2.8 Special Track Maintenance works Contracts:

	Manual Deep Screening (Tunnels & Ballasted Deck bridges)
	Shallow screening
	Destressing
	Overhauling of Turnout
	Overhauling of LC
	USFD (75%)
	Auxiliary works of BCM working
	Ballasting (supply and runout)
	Removal/making of cess.

2.9 In recent year, some LC gates are closed as per following data:

Sr. No.	Year	No. of gates closed
1	2016-17	21
2	2017-18	03
3	2018-19	11
4	2019-20	31 (RB target)

In 2018-19, 11 manned level crossing gates have been closed and 31 gates to be closed in 2019-20. So that nearly 42x4=168 men have become excess in the strength of Track Maintainer IV.

2.10 Critical Analysis:

As per RB letter no. E(MPP)2016/1/59 dtd 10.01.2017, Multi-skilling can be planned from the initial stage itself in new activities in Depot. The new activities even in the older establishments can be encouraged by calling for suggestion from employees and employee Unions. This will lead to huge reduction in costs and increased productivity. Multi skilling should be encouraged for artisans' category. To avoid delays for want of other skilled man, it is necessary that multi skilling for Artisans should be introduced.

As per Railway Board's letter No. 2006/CE-I/Misc./2(RUBs) of dt 25.03.2007, manned and unmanned level crossing gate of all railways may be closed by construction of Limited Height Subways. Railway Board also provides funds for this LHS work. As per Railway board's instruction all engineering gate should be replaced by LHS. A numbers of engineering gates have been closed of JBP division.

For save manpower, implement Mobile Maintenance Gang for Track Maintenance (Para-2.7). Railway Board has directed Zonal Railways to introduce KRCL system of track maintenance having less than 10 GMT with effect from 01.04.2018. At present, it is not possible to manage staff strength as per yard stick which is very old.

The posts involved with Gang, 714 posts are less than the total gang strength. But above mentioned formula is very old, now it is not feasible.

As per para 2.09, In 2018-19, 11 manned level crossing gates have been closed and 31 gates to be closed in 2019-20. So that nearly 42x4=168 men have become excess in the strength of Track Maintainer IV.

2.11 Conclusion:

Modification of engineering depot is required as like as other. Also a numbers of engineering gates are closed due to LHS / under way. So, need to outsource of so many activities as Work Study team observed in table no. 2.5.

2.12 Recommendation:

After closing of Engineering gate, outsourcing activities and track maintenance to be done by Mobile Gang, 168 posts of Track Maintainer staff should be surrendered immediately.

****

CHAPTER-III

3 FINANCIAL IMPLICATION

Financial implication on surrender of 168 vacant posts of Engineering department of JBP division is as under-

Particular	Amount
Mean of grade	37,450
DA@9%	3371
Transportation	1800
Salary Per Month	42621
X 12 = Per annum	5,11,452
X No. of posts (168)	8,59,23,936
Say	8.59 crores

Say Rs. 8.59 Crores Per Annum

****