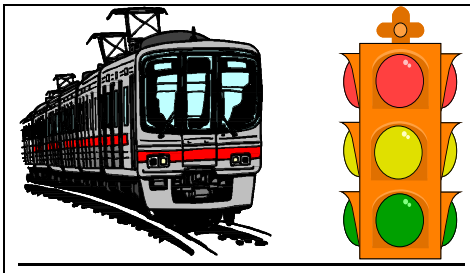


WORK STUDY TO REVIEW THE STAFF STRENGTH AT SSE/SIGNAL/QLN OF TIRUVANANDAPURAM DIVISION

G.275/WSSR – 381819/2019-20

SOUTHERN RAILWAY

PLANNING BRANCH

G. 275 / WSSR- 381819/2019-20

WORK STUDY TO REVIEW THE STAFF STRENGTH AT SSE/SIGNAL/QLN OF TIRUVANANDAPURAM DIVISION

STUDIED BY

WORK STUDY TEAM
OF
PLANNING BRANCH

AUGUST 2019

I N D E X

(i)

ACKNOWLEDGEMENT

The work study team conveys its sincere thanks to DRM/TVC, ADRM/TVC, Sr.DSTE/TVC, DSTE/TVC, ADSTE/TVC, & SSE/SIG/QLN and all other Section staff of S&T Branch, Trivandrum Division for their valuable guidance and co-operation in completing the study .

(ii)

AUTHORITY

Annual Programme of work studies approved for the year 2018-19.

(iii)

TERMS OF REFERENCE

Work study to review the staff strength at SSE/SIG/QLN – TVC Division.

(iv)

METHODOLOGY

1) Collection of Data
2) Discussion with Officers, Supervisors and staff
3) Interaction with field officials.
4) Working out the requirement of staff by applying Bench Marking Ratio.

(v)

SUMMARY OF RECOMMENDATIONS

Revised Recommendation 1

One post of Sr.Technician is found surplus and lying vacant may be surrendered and credited into the vacancy bank.

(1 Post)

Revised Recommendation 2

one posts of Technician-I are found surplus and lying vacant may be surrendered and credited into the vacancy bank.

(1 Post)

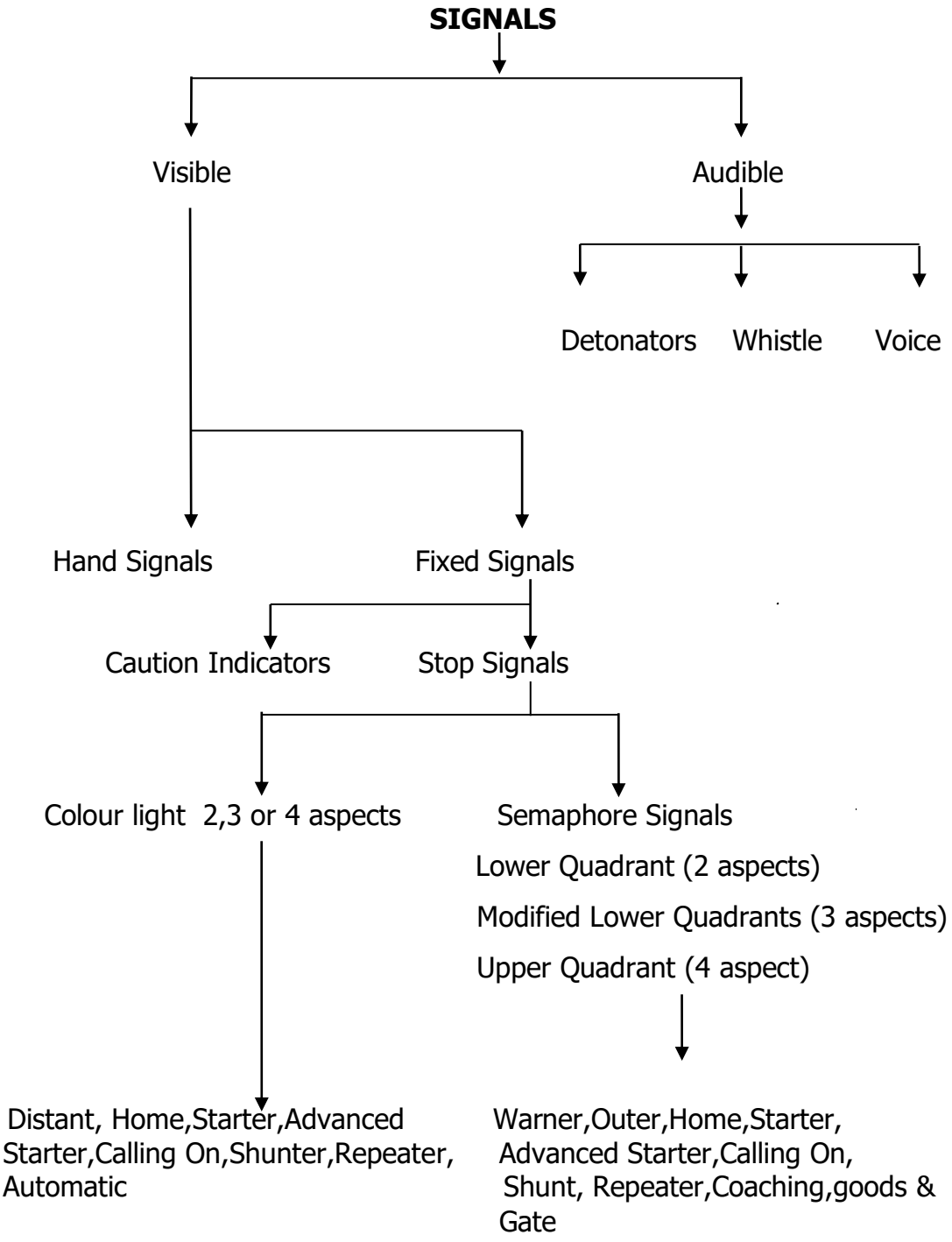
Total : 2 Posts

CHAPTER – I

1.0 INTRODUCTION

1.1 Signal:

Signal is a medium to convey particular pre-determined meanings in non-verbal form. Various methods are used to convey the meaning by "Signals" in a non-verbal form as used by Scouts, Policemen, Road Signals, Navy and Air traffic Control, etc. which convey a definite information. The chart below gives the various forms that could be adopted in Indian Railways.



1.2 The efficient upkeep of Signal & Telecommunication assets of the Railways is the responsibility of the open line organization of the Signal & Telecommunication Engineering Department. The major construction activities of the Railways may be under the administrative control of the Chief Signal & Telecommunication Engineer (Construction) reporting directly to the General Manager of an open line or under the independent administrative control of a Chief Administrative Officer (Construction) or General Manager (Construction) reporting directly to this Railway Board. In Indian Railways, Signal & Telecommunication Department plays a vital role in the operation of train with speed and safety. The Signal Branch is responsible for the signal network of entire Indian Railways, which is committed to provide safe and efficient transportation system. Signaling systems promotes safety, enhance line capacity and improve flexibility of the operation.

1.3 Signals are the silent sentinels providing safety in train operations. Procedures and practices in their maintenance and operation are therefore vital for providing the safety as desired. The signaling system are being continuously updated on the Indian Railways to meet the growing needs of traffic and hence new procedures are being evolved and implemented by supplementary instructions, corrections and modifications to the signal engineering, as signaling system has undergone a drastic advancement in technology.

1.4 Signaling is an important requirement for the safe and punctual running of trains. It also helps to increase speed, line capacity and frequency of operation and to reduce failure in human operations. The signaling system in Railways has undergone tremendous progress from the very old semaphore signals with kerosene lamps etc. to the fully automatic block system, data logger, BPAC, Audio frequently track circuiting, intermediate block signals, train actuated warning system, Anti collision Device etc. The most important terms in the terminology of S&T is "Interlocking" between signals, points, track, Block instruments, level crossings Gates which will facilitates their

operation in a prescribed sequence to ensure safety. The Monitoring system like Data Logger, BPAC, Computerized on line panel testing etc. have made the maintenance and inspections more efficient and foolproof. Anti collision Device, integrated power supply, LED lamps, PA/Coach guidance/train display boards, integrated surveillance system etc. have big role in enhancing safety, security and customer help.

1.5 The signal department is headed by PCSTE in the Zone and Member / Electrical in Railway Board. In addition, there are separate wings for constructing and project for S&T Department. The Telecommunication wing is also separated in sections. The OFC wing and the Railtel are also involved in the installation activities. The Signal Manual, General Rules, Block Working Manual etc. are the governing rules and many joint inspections with Operating, Engineering and Electrical Departments and maintenance works are to be carried out in liaison with these departments.

1.6 The term Bench Mark originates from the chiseled horizontal marks that surveyors made into which an angle iron could be placed to bracket ("Bench") and leveling rod, thus ensuring that the leveling rod can be repositioned in exactly the same location in future. Bench marking is also a point of reference for a measurement. It is the process used in management in which organization evaluates various aspects of their process in relation to the best practice usually within their own sector.

1.7 An analysis is made to study the present system of working of SSE/Signal/QLN, section of TVC Division through Bench Marking as a means of cutting cost and improving productivity. It is the process of comparing the performance with the most successful competitor who is performing optimum productivity level with the enhanced signaling units, DESUs and further scope of growing technology, the workload vs. requirement of the man power is critically examined in the subsequent chapters.

CHAPTER – II

2.0 PRESENT SCENARIO

2.1 Southern Railway has six Divisions namely MAS, MDU, TPJ, PGT, TVC & SA. Signalling Department plays a vital part in the Railway working system by handling passenger traffic and freight movements and keeping the aim of Railways - Safety, Security and Punctuality. Among the six Divisions, Trivandrum Division comes under the category of holding less than 1,20,000 (DISTUs) Divisional Integrated Signalling & Telecom Units.

2.2 The Signal Department of Trivandrum Division is within the overall control of Sr.DSTE/TVC and DSTE/TVC, ADSTE's, Supervisors of the concerned sections and staff are extending cordial co-operation for smooth functioning of the Department.

2.3 The SSE/Sig/QLN section is functioning with the incharge of SSE's along with JE's and other Technical staffs. The detail sanction, Actual, Vacancy and Excess statement of SSE/Sig/QLN section is placed as Annexure – I.

2.4 The jurisdiction covered by the SSE/SIG/QLN section is under

Jurisdiction – LC No. 68 (between STKT-PRND) to LC No.572 (between MQU-KZK)

Sub sections (ESM HQs): I. KVU, II. VAK, III. PVU, IV. QLN, V.PRND

.5 System of working

- The stations of SSE/Sig/QLN section is categorised on "B" route.
- This section is Electrified, Track circuited, and Broad Gauge, Double line working.
- Working under the system of Absolute Block System.
- Interlocked between MACL signals, Points, Track, Level crossing Gates and Block Instruments.
- The operating maximum sectional speed for coaching is 100 kmph and 75 kmph for goods.

2.6 Functions of S&T maintenance wing

- Installation of new signalling equipments.
- Maintenance of installed equipments.
- Periodical Inspection and lubrication of existing equipments.
- Monitoring of faults and attending failures using appropriate techniques.
- Improvements / modification of Signalling equipments.
- Management of Inventory
- Supervision of man power
- Upkeeping of records.

2.7 Supervisory Duties

- SSE/Sig/QLN is responsible for the maintenance as well as smooth/ correct functioning of the installations under their charge and they are directly reporting to ADSTE / TVC for all the technical staff matters.
- In addition they have to carry out day to-day works / attend complaints and special works in emergency.
- They have to carry out testing, overhauling and carrying out alterations to the existing signals and interlocking installation in accordance with appropriate plans and instructions.
- Monthly inspections,
- Quarterly inspections,
- Joint inspection with P. Way and O.H.E
- Footplate inspection
- Annual cable meggering
- Accompanying with officer for Inspection with tools, plans and manuals.
- In addition to the above technical works, they are responsible for Preparation of PCDO statement, Estimates schedules for periodical inspection of cable installations, earth resistance etc. Co-ordinating with Divisional / HQ officers, maintenance of Stores, T&P items, material planning and preparation of Indents, controlling of staff and welfare and establishment matters.

2.8 **Duties of Technicians**

- Maintenance of Signals
- Maintenance of point machines.
- Maintenance of Batteries
- Maintenance of Interlocked L.C. gates.
- Maintenance of Track circuit equipments.
- Maintenance of EI, BPAC, IPS and Panels
- Maintenance of failures / complaints attending
- Attending of special works
- Attending of Direct / Preventive maintenance

2.9 **Maintenance Responsibilities of S & T**

Though the maintenance staff is responsible for the maintenance of all the signalling assets which involves in the S&T system, some of the most important assets are listed below:

- ✓ Multi Aspect colour light signals (MACLS)
- ✓ Shunt signals
- ✓ Signals provided with LED aspects
- ✓ Track circuits
- ✓ Points
- ✓ Block instruments
- ✓ Relays
- ✓ BPACs
- ✓ Interlocked L.C. gates
- ✓ Electronics Interlocking system
- ✓ Integrated Power supply arrangements
- ✓ Data logger
- ✓ Generator sets
- ✓ Batteries
- ✓ Communication arrangements.

2.10 For maintenance convenient, **SSE/Signal/QLN section** is divided into**,**

1. JE/SIG/VAK
2. JE/SIG/QLN

1**. JE/SIG/VAK**

In this section, kadakkavur (KVU), Varkala Sivagiri (VAK), & Paravur (PVU) are the ESM head quarters section.

JE/SSE	ESM /HQ	No.Of Technician	Station/Block & BPAC	Traffic LC gates	Engg.LC	IB
JE/S/VAK	KVU	Sr.Tch.-01 Tech.II-02 TOTAL=03	KVU Station MQU Station	3 Nos LC 563,564 & 572	5Nos LC566,567, 569,570& 572A	1 No (CRY)
	VAK	Sr.Tech-01 Tech-I-01 Tech-II-01 Total=03	PVU (VAK side) VAK side KVU Block (VAK side)	2 Nos LC 558,559	3 Nos LC555,556, 557	1 No (KFI)
	PVU	Tech-I-01 Tech-II-01 Tech-III-01 Total=03	PVU Station MYY Station	3 Nos LC 551,552, 554	4 Nos 546,547, 549	Nil

2. **JE/SIG/QLN**

JE/SSE	ESM Hd.Quarters	No.of Technician	Station/ Block & BPAC	Traffic LC gates	Engg.LC	IB
JE/S/QLN	QLN	Sr.Tch.-01 Tech-I-01 Tech.II-02 TOTAL=04	QLN Station	1 No LC 540	3 Nos LC 543,544, 545	Nil
	PRND	Sr.Tech-01 Tech-I-01 Tech-III-01 Total=03	PRND Station QLN Block (PRND side)	Nil	7 Nos LC 68,70, 73,74,75, 77 & 78	1 No (Kallum thazham)
	SSE Control	Tech-II-04 Tech-III-01 Total=05	-NA-			

2.11 SECTION –QLN (KOLLAM JUNCTION)

Jurisdiction – LC No. 68 between STKT-PRND to LC No.572 (between MQU-KZK)

2.11.1 **Sub sections** (ESM HQs): I. KVU, II. VAK, III. PVU, IV. QLN, V.PRND

I. KVU (KADAKKAVUR)

CATEGORY	SAN	ACT	VAC	EXCESS
Sr.TECH	1	1	0	0
TECH GrI	1	0	1	0
TECH Gr.II	1	2	0	1
HELPER	1	0	1	0
TOTAL	**4**	**3**	**2**	**1**

MQU, KVU Stations are far away from QLN HQ, it is very difficult to reach these locations during signal failures at night time. Night time failures in these areas causes more train detention since night duty staff is only available at QLN.

II. VAK (VARKALA)

CATEGORY	SAN	ACT	VAC	EXCESS
Sr.TECH	1	1	0	0
TECH Gr.I	1	1	0	0
TECH Gr.II	0	1	0	1
TECH Gr.III	1	0	1	0
TOTAL	**3**	**3**	**1**	**1**

VAK Section is maintaining comparatively more no of lever units and several special works are also going on there such as defective cable replacement, point machine replacement and other engineering works etc.

III. **PVU (PARAVUR)**

PARAVUR ESM HQ consists of two no. of stations and 7 nos. of LC gates. Total no. of lever units is 1590, going to be increased, since new IB installation work under progress in between QLN and MYY and all the LC gates are going to be provided with new integrated power supply arrangements etc.

CATEGORY	SAN	ACT	VAC	EXCESS
Sr.TECH	1	0	1	0
TECH Gr.I	1	1	0	0
TECH Gr.II	1	1	0	0
TECH Gr.III	0	1	0	1
TOTAL	**3**	**3**	**1**	**1**

IV. **QLN KOLLAM/RRI YARD**

CATEGORY	SAN	ACT	VAC	EXCESS
Sr.TECH	2	1	1	0
TECH Gr.I	4	1	3	0
TECH Gr.II	1	2	0	1
HELPER	1	0	1	0
TOTAL	**8**	**4**	**5**	**1**

V. **SSE/SIG/QLN Control**

CATEGORY	SAN	ACT	VAC	EXCESS
Sr.TECH	2	1	1	0
TECH Gr.I	4	1	3	0
TECH Gr.II	2	2	0	0
HELPER	3	0	3	0
Sr.TECH B/SMITH	1	0	1	0
TOTAL	**12**	**4**	**8**	**0**

2.12 Working Hours

The staff of SSE/Sig/QLN are working in 08.00 hrs duty.

Day (General)	-	08.00 to 12.00 hrs.
	-	14.00 to 17.00 hrs.
Night shift (Call duty)	-	18.00 to 6.00 hrs.

2.13 Signal failures

The following are the various classifications of Signal failures which affect the train operation and attended by the maintenance staff on day to-day maintenance.

1. Block failure
2. L.C. failure
3. Point failure
4. Signal failure
5. Track failure

The above failures may be due to the following causes / reasons:

1. S&T failures
2. Operating failures
3. OHE failures
4. Engineering failures
5. Misc failures

From the above failure analysis, it is observed that the rate of failure attention is very meagre and does not provide any guidance for arriving man power requirement. Since the Signal maintaining staff has to perform the routine directive / preventive maintenance apart from attending failures.

2.14 Signal units & DESUs of QLN Section

The signalling units of the section is arrived based on the signalling assets/equipments installed in the section. Based on the signalling units, the Divisional Equated Signal Units (DESUs) of the section is derived.

(1) DESU Calculation of TVC division

The total signalling units of Trivandrum Division : 66677 units.

Calculation of TVC division DESU :

a) A1= (Total signal units of TVC division) : 66677 units

b) A2 = 23548.411

c) A3 = 0.000

d) A4 = A1 x Z x 0.94/100,=66677 X 17.63 X 0.94/100 =11049.84

e) A5 – 1.67 x G = 1.67 x 620 = 1035.4

Total DESU = A1+A2+A3+A4+A5

Total DESU = 66677+23548+0.000+11049+1035

The total DESU of TVC Division = 102309

(ii) DESU calculation of QLN section :

TOTAL DESU OF TVC DIVISION/TOTAL NO.OF SIGNAL UNITS IN TVC DIVISION = MULTIPLICATION FACTOR

102309/66677 = **1.534**

DESU OF QLN section = SIGNAL UNITS OF QLN X MULTIPLICATION FACTOR

= 8426 X 1.534

DESU OF QLN section **=12925.48 say 12926**

CHAPTER - III

3.0 CRITICAL ANALYSIS

In Order to maintain the financial viability of the Indian Railway Organisation, it is to be ensured that its existing resources especially its Man power is to be utilized at optimum level. Since the man power is the largest and most important component of the expenditure of Indian Railways, the rightsizing of man power is the best way to reduce unit cost which is an effective way to increase efficiency, safety as well as the economy of Indian Railways.

Rightsizing of man power in Indian Railways is a continuous and comprehensive evaluation and it is being done by the process of comparing man power with the actual work load by Norm / Yardstick and Bench Marking. Norms issued by Railway Board and it is being updated / revised by every month. But along with the rightsizing and restriction of intake it will be necessary and very much essential to utilize the existing man power to the optimum level.

3.1 Work force of SSE/ Signal /QLN section as on 28.02.2019

There are 21 Technicians, 1 SSE, 2 JEs, 1 OS and 1 CTPO totally 26, working in SSE/Sig/QLN section as against the sanctioned strength of 35.

3.2. Man power requirement as per Bench Marking

Total Signal Units of TVC Division	=	66677
Total DESU of TVC Division	=	102309
Multiplication Factor =DESU/SIGNAL UNITS		=102309/66677
Multiplication Factor		= 1.534

Since TVC Division has 102309 DESU's, as per the Bench Marking Norms, TVC Division comes under the category of less than 1,20,000 DESU.

a) **SSE/SIG/QLN Section**

Total Signalling Units of QLN Section : 8426(Annexure-II)

Total DESU of QLN section :

=Total Signalling Units of QLN Section X Multiplication Factor

=8426 X 1.534

=12926

Actual staff strength : 26

Sanctioned staff strength : 35

Railway Board has insisted to identify the optimum man power in every unit by which the required operating ratio can be achieved. The yardstick prescribed for the Signal Unit based on 1500 DESU=1MSU is deriving more than double the time of man power compared to the existing sanctioned strength over IR. Hence, Railway Board initiated a committee to identify the new yard stick based on the movement of the Traffic which is on anvil. The present operating ratio of Southern Railway is 161.14, hence as per the Zonal directions, the work study team identify the optimum man power by applying various techniques in which utilizing the best Man power ratio of the Zone, can also be utilized for other Divisions. The SA division signal man power ratio is 2.19 as per Bench Marking for the month of April 2019 published by E&R Directorate, applied for the SSE/Sig/QLN section.

As per the **Bench marking,**

Since TVC Division has 102309 DESU's, it comes under the category of less than 1,20,000 DESU, as per the Bench Marking Norms:-

Current Bench Marking is **2.19 men per 1000 DESU** of SALEM Division of Southern Railway(Annexure-III)

According to Bench Marking of SALEM Division /S.RLY,
the man power requirement of SSE/Sig/QLN Section is = $\frac{2.19 \times 12926}{1000}$

Total staffs required as per bench marking =28.3 **say 29 staff**

The Work Study team thoroughly analysed the present working condition of SSE/Sig/QLN Section in TVC Division with data, field study and it could be understood that the arrived man power of 29 can be very optimum and recommends 6 posts as surplus.

3.4 **Composite Requirement of SSE/SIG/QLN**

Designation	Sanction	Actual	Requirement	Surplus
SSE	03	01	02	01
JE	01	02	01	00
Sr.Tech	06	04	05	01
Tech I	12	04	08	04
Tech II	04	10	04	00
Tech III	02	03	02	00
Helper	06	00	06	00
OS	01	01	01	00
CTPO	00	01	00	00
Grand Total	**35**	**26**	**29**	**06**

3.5 **Sanction Vs Requirement**

Sanction	Requirement	Surplus
35	**29**	**06**

Recommendation 1

One post of SSE is found surplus and lying vacant may be surrendered and credited into the vacancy bank.

Recommendation 2

One post of Sr.Technician is found surplus and lying vacant may be surrendered and credited into the vacancy bank.

Recommendation 3

Four posts of Technician-I are found surplus and lying vacant may be surrendered and credited into the vacancy bank.

3.5 SUMMARY OF RECOMENDATION

Sl.No	Category	Grade Pay (Rs.)	No.of Post
1	SSE	4600	] 1
2	Sr.Technician	4200	1
3	Technician Gr-I	2800	4
Total			6

CHAPTER – IV

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

The detailed remarks of the Co-ordinating officer is placed in Annexure IV– and the important points are considered and the necessary remarks of the planning branch is detailed below.

CO-Ordinating Officer's Views

1. Signal Department has to maintain the signaling assets as per the SEM part I & II at all stations, IBS and LC gates, signaling gears such as Points, Track Circuits, Signals, Block Instrument, Axle Counter equipments, Power supply units etc constitute the signaling Interlocking System which ensures the safe running of trains. Points, Track circuits, signals etc are installed in the yard based on the approved signaling plan in accordance with P.Way lay out. These gears connected to the centralized Interlocking System in the relay room at station building through underground cables which are terminated in the location boxes at field. All these signaling gadgets at field and relay interlocking system are working on different voltages as specified in the SEM Part-II. Signalling staff are deputed for carrying out the periodic maintenance (Fortnight maintenance) which is carried out by Tech/Signalling staff. Also, monthly and quarterly inspections, joint inspections with other departments and attend all safety inspection were done on these assets for ensuring the safe working of the signaling interlocking.

Planning branch's Remarks

1. The process of conducting work study is to identify the right quantum of work force and recommend the surplus posts by which the staff cost may be reduced.
2. Right sizing the man power is the primary work of work study wing / HQ which is applying all the possible tools like Yardstick, Benchmarking, IR average and Need Base.
3. The details of maintenance described in various lines of the Co-ordinating officer's views are the regular maintenance / prescribed schedule / preventive maintenance which is being carried out in all the signal maintenance units in Indian Railways.

CO-Ordinating Officer's Views

II.The total DESU of the entire signaling assets of Trivandrum Division is 102309 and the same is divided into nine sections under the control of SSE/Signal. Each SSE/Signal section are again sub divided into subsections SSE/JE sections for the effective maintenance as per the yardstick norms on signaling assets, letter No.2007/sig/non Gaz./1/Norms dt.16.08.2010 issued by Railway Board. QLN section comes under D route with 07 stations, 22 midsection LC gates, 09 station yard LC gates and 3 IBSs. Out of these QLN yard is a major yard, where lots of shunting are performing daily. Modern signaling equipments like IPS, Data logger, Axle counter equipments etc are used in the signal interlocking system in all stations in QLN section. SSE/Sig/QLN section is having DESU of 12926 and the entire assets were sub divided into SSE/Sig/VAK and SSE/Sig/QLN lines section.

In view of the above, three SSE/Signals are posted at QLN section for the effective maintenance on signaling assets. Further the entire assets of SSE/Sig/QLN section are sub-divided into 05 Technician/Signal HQ. The organizational set up of SSE/Sig/QLN is as follows:

SSE/Sig/QLN (8426)					
SSE/Sig/VAK (4284)		**SSE/Sig/Lines/QLN (4142)**			**SSE/Sig/ Control staff**
KVU	**VAK**	**PVU**	**QLN**	**PRND**	
Tech:3 Helper:1	Tech:2 Helper:1	Tech:3 Helper:1	Tech:7 Helper:1	Tech:2 Helper:1	Tech:6 Helper:3 BS : 1

Planning branch's Remarks

DESU of division and SSE/Sig/QLN is considered and the proportionate Manpower is arrived as per Bench marking.

CO-Ordinating Officer's Views

III.The work study team did not quantify the work load on the signaling staff based on the time wise analysis on the maintenance of signaling gears.

Hence the time study on each gear as per the maintenance scheme prescribed in the SEM Part-II is furnished for reviewing the recommendations,

Maintenance has to be carried out in all signaling gears once in15 days as per the schedule described under para No.12.192 Annexure – 7 in SEM Part-II. Minimum 03 signalling staff are required for maintenance of outdoor signaling gears such points, track circuits, signals, axle counter equipments, various earths provided in the outdoor. One staff will be deputed for operating from the panel and for co-ordinating with traffic department and rest of them will carry out the maintenance.

Time wise analysis on maintenance on signaling gears at a typical 04 road station, LC gate & IBS.

Sl. No.	Activity on Maintenance	No.of days consumed	No. of staff required
01	Outdoor maintenance (Points, Signals, Track Circuits, Axle counter, Location boxes, LC gates etc)	06	Tech:2 Helper:1
02	Indoor maintenance at SM room equipments. (Block instruments, SM panels, Crank handle, Axle counter reset, IPS monitoring panel etc)	01	Tech:2 Helper:1
03	Relay room and earthing	01	Tech:2 Helper:1
04	Power supply equipment and battery	01	Tech:2 Helper:1
05	Interlocked LC gates	01	Tech:2 Helper:1
06	IBS	01	Tech:2 Helper:1

In addition to the above, Technician/signal will have to carry out the preventive maintenance such as directed maintenance, periodical replacement of various signaling equipments such as Block instruments, point machines, batteries, chargers, LED units, RKTs, E type locks etc. since there is no separate sanction on heavy repair and cable resting, same maintenance staff are utilized for these works which adversely affected the section maintenance and failures in QLN section were drastically increased.

Also periodical meggering on underground signaling and telecom cables has to be done by section staff and with staff under control of SSE.

There are three IBS and 07 BPAC sections were introduced in SSE/Sig/QLN section and no post for maintenance staff were created on this account, hence the regular maintenance staff are compelled to carry out maintenance on the additional assets. Several special works and other reliability improvement works such as preventive maintenance, directed maintenance, overhauling of mechanical signaling gadgets, renewal of over aged signaling gears etc are long pending in the section due to non availability of sufficient staff strength. The section is not able to timely fulfill the periodical safety drives announced by HQs such as monsoon precautions, summer precautions, LC gate safety check, earth value improvement, cable route/spare conductors mapping etc. Hence the signal gadget failure in the section has been tremendously increased.

In addition to the regular maintenance, daily 3-4 signalling staff are spared for various engineering works such as TRR, TRT, Crossing renewals, packing renewal, BCM etc since there is no sanction for Heavy Repair gang, maintenance staff are spared for these works. The work study team has not covered this area. The details of staff daily spared for these activities are enclosed as Annexure.

Further, periodicity of Joint Inspection of Points and Crossings are revised and fixed as once in three months instead of once in six months. The section Technical Signal has to attend the Joint Inspection along with incharge SSE/Signal & P.Way official and then the section technicians have to attend the Engineering defects along with P.Way staff on further days.

Since the maintenance staff are compelled to work for Heavy Repair, Annual Cable Meggering and above said Engineering Works many station inspection and maintenance could not be carried out as scheduled which is resulting into failures.

Planning branch's Remarks

The details of maintenance described in various lines of the Co-ordinating officer's views are the regular maintenance / prescribed schedule /

preventive maintenance which is being carried out in all the signal maintenance units in Indian Railways.

The study was conducted as per the Railway board E&R Directorate Bench marking wherein the man power ratio of SA Division is 2.19 is applied. It is also a regular approach and an approved tool for arriving manpower.

CO-Ordinating Officer's Views

IV.The failure statistics of SSE/Sig/QLN Section for the past three years are as follows:

2016-17	2017-18	2018-19
247	196	203

Planning branch's Remarks.

From the failure statistics furnished by the explanatory is understood that an average of 0.6 failure per day occurred.(Less than one).It is also the part work of regular maintenance staff. Hence, no more additional staff is required on this head.

However, Since it is reiterated by Co-ordinating officer one staff is additionally allowed for attending unforeseen activities.

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CO-Ordinating Officer's Views

V.Since, there is no sanction on SSE/Sig/Special works, SSE/Sig/QLN lines post was transferred to Divisional HQ and operated as SSE/Sig/Special Works/TVC for execute all the special works under various contract agreements in NCJ, TVC, QLN & KYJ Section.

Planning branch's Remarks.

Agreed to

CO-Ordinating Officer's Views

VI.Four proposals on creation of post on various categories under increased assets (including increased assets of QLN section) vide RB letter No.E(MPP)2018/1/1 dated 04.04.2018 were pending at HQ. The findings of work study team are vague and they are not gone through the above said area and actual man power requirements on maintenance.

Details of proposals:

Proposal for the creation of 89 signal staff and 42 telecom staff against the newly created assets were submitted to PCPO/SR. sanction is yet to receive from HQ.

Proposal for the creation of 29 signal staff against the newly created assets due to doubling between KRPP-CGV was submitted to PCPO/SR. sanction is yet to receive from HQ.

Proposal for the creation of 18 signal staff against the newly created assets due to doubling between HAD-AMPA was submitted to PCPO/SR. sanction is yet to receive from HQ

Planning branch's Remarks.

The work study is confined to the SSE / Sig / QLN section only, hence the sanctioned strength is compared to the calculated man power as per the DESU and Bench marking only. The total vacancy in the division is not applicable to SSE/Sig/QLN. Separate sanction is available for each unit in the division.

The percentage of employees in various categories as per recent restructuring is not dealt in this study which may be arranged by the division.

CO-Ordinating Officer's Views

VII.The work study team is taken the MPR (Man Power Ratio) for the month of April of SA division as bench mark for calculating the man power but it is not correct since the MPR of SA was fluctuating in the past six months. MPR is depends upon the actual strength and assets ie MPR will decrease when the asset is added without creation of post or the retirement is happened, also the vacancies are not filled in time. Details for the past 6 months are as follows:

Criteria	Month	Nov	Dec	Jan	Feb	Mar	Apr	May
DESU > 120000	MPR AGC	0.58	0.58	0.58	0.58	0.58	0.58	0.52
	Avg of IR	2.88	2.87	2.87	2.86	2.83	2.83	2.81

DESU < 120000	MPR of SA	2.38	2.38	2.19	2.19	2.19	2.19	2.2
	Avg of IR	3.8	3.8	3.74	3.74	3.57	3.57	3.55

While reviewing the Bench Marking (BM) report of Feb.2018, it had observed that GNT division of SCR is taken as BM(2.44) with an IR average of 3.92. but it was observed that the MPR of GNT division of SCR is 3.16 in the Bench marking report for the month of May 2019 which is close to the average of IR.

The strength of SSE/Sig./QLN section is 35 with a DESU of 12926

Present MPR = 35 *1000/12926 = 2.7

Hence the MPR of QLN section is PAR to average of IR ie., 2.91 (as per the MPR of May 2019) and as per the MPR average of IR, sanctioned strength of SSE/Sig/QLN section should be 36. The work study team has submitted the report without gone through the actual vacancy position of the division (copy enclosed). Further they were not examined the reason laying 46 Tech-I/Signal post vacant.

Planning branch's Remarks.

The work study is confined to the SSE / Sig / QLN section only, hence the sanctioned strength is compared to the calculated man power as per the DESU and Bench marking only. The vacancy in the division is not applicable to SSE/Sig/QLN. Since separate sanction is available for each unit in the division.
The study was conducted as per the Railway board E&R Directorate Bench marking wherein the man power ratio of SA Division is 2.19 is applied. It is also a regular approach and an approved tool for arriving manpower.
The Bench marking of Southern Railway (SA Division) is applied and arrived staff strength.

CO-Ordinating Officer's Views

VIII. All the vacant post of Sr.Tech/Sig and Tech-I/Sig are downgraded and operated for Tech/II/Sig and Tech.III/Sig.

Planning branch's Remarks.

Downgrading of post against the higher grade is not applicable for manpower requirement. Work study team arrived the requirement of manpower is not based on the grades. If the division agrees to fill the higher grade post, the surplus post may be surrendered in lower grade.

CO-Ordinating Officer's Views

IX.Remarks on the Recommendation

Sl. No.	Recommendation	Remarks
1	One post of SSE/Sig lying vacant may be surrendered and credited in the vacancy bank.	SSE/Sig/Line/QLN post was temporarily transferred and posted as SSE/Sig,/SW/TVC for carried out the special in TVC, QLN, KYJ, NCJ sections so that the additional workload of section SSE/Sig could be reduced. The post of SSE/Sig/Lines/QLN is not laying vacant, hence recommendation on surrendering the post is not acceptable.

Planning branch's Remarks.

Agreed to.

CO-Ordinating Officer's Views

X.

2	One post of Sr.Tech./Sig lying vacant may be surrendered and credited into the vacancy bank.	Sr.Tech/Signal post is not lying vacant. Since no eligible employee (minimum 2 years completed) is available for promoting from Tech-I to Sr.Tech. the vacant post of Sr.Tech/Sig is downgraded and operated for Tech-II/Sig and Tech.III/Sig.

3	Four posts of Tech-I are surplus and lying vacant may be surrendered and credited into the vacancy bank.	Tech-II signal posts are not laying vacant since no eligible employee (minimum 2 years completed) is available for promoting from Tech.II to Tech.I. Lower grade posts are operated against the Tech-I vacancies (Updated vacancy position is enclosed).

Hence the recommendation of work study on surrendering of 6 posts of Signal maintenance staff on the basis of bench mark is not acceptable.

Planning branch's Remarks.

Total number of staff available in SSE/SIGNAL/QLN is (21staff+3 supervisors+1 OS)=25 only. But, Work study team made a field visit and kept in mind all the workload, failures, forthcoming actions etc.. it is arrived to 29 posts against actual 25 which is in the work study draft report.
However, as reiterated by Co-ordinating officer, the following staff are allowed on need base.
1. For maintaining new assets in SSE/SIGNAL/QLN ,one staff is additionally allowed.
2. For assisting Engineering works and accompany with Track machine working ,one staff is additionally allowed.
3. From the failure statistics furnished by the explanatory is understood that an average of 0.6 failure per day occurred.(Less than one).It is also the part work of regular maintenance staff. Hence, no more additional staff is required on this head. However,It is reiterated by Co-ordinating officer one staff is additionally allowed for attending unforeseen activities.
4. One SSE post of QLN is temporarily transferred to SW/TVC is a common process of division which may be created or spared by division office. Eventhough, as per Co-ordinating officer's explanation in the remarks, SSE post SW/TVC is allowed to continue.

3.4 **Revised Requirement of SSE/SIG/QLN Unit.**

Designation	Sanction	Actual	Requirement	Surplus
SSE	03	01	03	00
JE	01	02	01	00

Sr.Tech	06	04	05	01
Tech I	12	04	11	01
Tech II	04	10	04	00
Tech III	02	03	02	00
Helper	06	00	06	00
OS	01	01	01	00
CTPO	00	01	00	00
Grand Total	**35**	**26**	**33**	**02**

3.5 **Sanction Vs Revised Requirement**

Sanction	Requirement	Surplus
35	33	02

Revised Recommendation

(1) One posts of Sr.Technician GP-4200 is found surplus and the same may be surrendered and credited into the vacancy bank.

(1 post)

(2) One posts of Technician Gr-I GP-2800 is found surplus and the same may be surrendered and credited into the vacancy bank.

(1 post)

(Total 2 posts)

CHAPTER – V

5.0 **FINANCIAL SAVINGS**

Sl. No.	Category	Grade Pay	No. of post	Money Value (Rs)	Annual Financial Savings (Rs.)
1	Sr.TECH	4200	1	82768	993216
2	TECH.Gr.I	2800	1	68040	816480
Total			**2**		**1809696**