

Compendium of Circulars

(GatiShakti Directorate)

Railway Board

Introduction

Indian Railway plays a stellar role in meeting the logistics needs of the country and provides seamless connectivity throughout the country with its network of more than 68,000 Km and growing.

'The life line of the nation' carried a record 1418 Million Tons of Cargo in the Year 2021-22. As per Niti Aayog Vision 2030 Document, Railways need to carry 40% to 45% of total freight in contrast to 27% to 28% presently. Accordingly, a Mission 3000 MT has been envisaged by Ministry of Railways wherein by the Year 2027 Railway must carry 3000 MT Cargo annually. In order to achieve this target, an aggressive expansion of Network and up-gradation of existing infrastructure is required. In the current Financial Year (2022-23), Railway Board has sanctioned more than 400 Surveys. The Detailed Project Reports of these Projects are being prepared by Zonal Railways. To streamline the process of Surveying, Execution of works, DPR preparation and Project Appraisal, Railway Board has issued several Guidelines/Policy Circulars. A need was felt to consolidate all the relevant circulars in the form of a compendium which can prove to be one stop solution for all.

The compendium includes Circulars issued by various Directorates such as Works Directorate, Finance Directorate, Electrical Engineering Directorate, Signal & Telecom Directorate, Planning Directorate and GatiShakti Directorate. The Index of the compendium acts as a guide for the booklet, where hyperlinks for various circulars have been provided. Users can directly click on the hyperlink and browse the circular. The compendium is an ongoing exercise and feedback of Zonal Railways for their further improvement in content, references and user experience is most welcome.

Disclaimer: The compendium does not include all instructions on the subject. Due diligence is expected from the user based on the issue in context.

2023

File No.	Subject	Date
GATISHAKTI DIRECTORATE CIRCULARS		
No.2023/GS/SIG/Typical Abstract Estimate (C No.-3417115)	Preliminary cost estimation for preparation of DPR for Signaling works.	01.05.2023
No.2022/CE-1/CT/GCC-2022/Policy	Indian Railway Standard General Condition of Contract, April 2022 (Advanced Correction slip No. 3)	26.04.2023
2022/F(X)II/PW/1	Delegation of Powers to CAO/Con for construction projects.	10.04.2023
No.2021/w-1/Genl./Gati Shakti pt	Corrigendum to Operationalization of Gati Shakti Units in the Divisions Board's letter of even number dated 20.02.2023.	29.03.2023
No.2022/Gatishakti/TF/01	Financial Appraisal framework for evaluation of Railway Project	20.03.2023
No.2023/w-1/Genl./CAO/C/Conference.Pt.7	Fast tracking the execution of Projects.	16.03.2023
No.2021/w-1/Genl./Gati Shakti pt (e-3397961)	Operationalization of Gati Shakti Units in the Divisions.	20.02.2023

2021/W-I/Genl./Gatishakti	Fast tracking the sanction & execution of Projects.	28.10.2022
2021/W-I/Genl./Gatishakti	PM GatiShakti State Master Plan - Submission of Projects to Technical Support Unit/DPIIT	14.10.2022
2022/W-I/Genl/DPR Proforma (E-off: 3404238)	Proforma for preparation and submission of Detailed Project Report for New Line/ Doubling/ Multi Tracking/ Gauge Conversion.	02.09.2022
No. 2021/SIG/Estimates/DPR (E File 3363771)	Checklist and appraisal performa for S&T sub estimates.	25.08.2022
No. 2021/RE/161/20 Misc.	Format for Salient Features of Electrical (TRD) and Electrical (G) estimate for submission of DPRs to Board office.	23.08.2022
No. 2022/Gatishakti/EU/49	Economic Appraisal Framework for evaluation of Railway Project.	19.08.2022
No.2021/W-I/Genl./Gatishakti	Setting up of Gati Shakti Units in Divisions	27.07.2022
2022/W-I/Genl./Gatishakti	Submission of document for projects costing more than Rs. 500 crore each.	27.07.2022
2022/CE-II/Board Meeting	Faster execution of capacity enhancement/asset maintenance works.	10.06.2022
WORKS DIRECTORATE CIRCULARS		
2021/W-I/Genl./POLICY (E-Offc-3360817)	Comprehensive Project Appraisal System for sanctioning new projects by factoring in the "Network Effect".	06.06.2022

2022/W-I/Genl./infrastructure projects	Faster implementation of infrastructure projects.	06.05.2022
2021/W-I/Genl./POLICY (E-Offc-3360817)	Detailed Project Report (DPR) for projects	06.05.2022
2021/W-I/Genl./POLICY (E-Offc-3360817)	Revision in Cost & Quality of works in various projects.	25.03.2022
2019/W-I/Genl./Policy Pt. 1 (E-offc-3289535)	Provision of Ballastless track (BLT) in tunnels.	11.03.2022
2015/W-I/Genl./CORR.GM/Pt. III (E-offc-3149695)	EPC Tender	04.03.2022
2021/ED(ProjM)/Misc/Committee	Construction of new Bridge during Doubling.	12.11.2021
2021/W-I/Genl./Policy	Provision of Facilities for Track Machine Staff	27.10.2021
2018/W-I/Genl./Policy	Adoption of modern methods for construction of tunnels	10.09.2021
2018/W-I/Genl./MoSPI	Updation of data on Portals	05.07.2021
2020/W-I/Genl./Survey Rates	Revision of Rates and scope of Final Location Survey (FLS)	30.06.2021
2020/W-I/Genl./Survey Rates	Revision of Rates for Final Location Survey (FLS)	16.06.2021

2020/W-I/Genl./Vision 2024	Nomination of HAG Officers for monitoring of Priority Projects of Vision 2024 Dated 20.01.2021	20.01.2021
2020/W-I/Genl./Survey Report	Use of Modern Survey Technologies for Survey of New Line, Gauge Conversion & Doubling Projects.	06.01.2021
2015/W-1/Genl./Corr.GM/Part-2	Carrying out FLS and submission of DPRs by Zonal Railways.	07.10.2020
98/W-1/Genl./O/30 Pt.	Maintenance of newly commissioned New Line/Doubling/Gauge Conversion sections.	14.09.2020
2013/W-I/Genl/O/30/Pt.II	Preparation of estimates and Excess Expenditure incurred by Railway over and sanctioned detailed estimates during the course of execution of projects.	11.05.2020
98/W-I/Genl/O/30-Pt.	General Instructions regarding surveys of railway projects.	18.02.2020
2013/W-I/Genl/O/30 Pt.II	Platform length at Railway Stations for new line, gauge conversion & doubling projects	25.02.2020
2018/E-1/Genl/Land Acquisition	Execution of new line projects-Policy regarding.	05.02.2020
2017/W-I/Genl./Safety/Policy	Platform level for new Construction/Platform raising works.	31.01.2020
2013/W-I/Genl/O/30/Pt.II	Construction of formation for Doubling on DFC feeder routes.	18.12.2019

2013/W-I/Genl/0/30 Pt.II	Elimination of level crossings in Doubling Projects.	10.10.2019
2019/W-I/Genl./land-LC	Level Crossing on new line projects.	10.06.2019
2015/W-I/Genl/CORR.GM/P.III	Execution of New Line, guage Conversion and Doubling Projects.	25.02.2019
2015/W-1/Genl./Corr.GM/Pt.II	Approval and Execution of projects of New Line, Gauge Coverion and Doubling included in Budget 2018-19 and later subject to requisite approvals appearing with # mark in Pink Book.	30.01.2019
2015/W-I/Genl./Corr.GM/Pt.	Speed Policy framework for Indian Railways.	06.12.2018
2017/W-I/Genl/Policy	Execution of Works under various Plan Head costing more than Rs. 3 Crores.	05.12.2018
2015/W-I/Genl./CORR.GM/Pt.III	EPC Tender.	30.11.2018
2018/W-I/Genl./Policy	Policy Guidelines on Loop line and Siding.	07.09.2018
2018/W-I/Genl/Land Acquisition/Pt I (e Off-3265888)	Land acquisition for Railway Projects in tunneling portion.	06.09.2018
2018/W-I/Genl./Policy	Policy guidelines - Execution and algnment of 3rd Line Projects.	04.09.2018
2013/PL/19/1 (Policy)	Policy Guidelines - Execution and alignment of 3rd Line	05.07.2018

	Projects.	
2017//W-I/Genl./Misc.	Execution of New Line Projects Policy	29.06.2018
2013/W-I/Genl/0/30 Pt.-II	Degree of curvature for new projects of New Line, Gauge Conversion and Doubling and Level crossing in New Line.	28.05.2018
2013/W-I/Genl/0/30 Pt.II	Degree of curvature for new projects of New Line, Gauge Conversion and Doubling.	04.05.2018
2017/W-I/Genl./Policy	Flash Butt welding of Rails.	18.12.2017
2017/W-I/Genl./Misc.	Execution of New Line Projects - Land Issues with State Govts.	06.12.2017
2015/W-I/Genl./Corr.GM/Pt.	Policy regarding Construction of 3rd and 4th line.	29.11.2017
2017/W-I/Genl./Monthly Achievement	Details to be included in Monthly PCDO.	27.11.2017
2015/W-I/Genl./Corr.GM/Pt.II	Approvals and execution of 54 NL, GC DL projects included in Budget 2017-18.	16.11.2017
2013/W-I/Genl./0/30 Pt.II	Platform level for new construction- Platform raising work.	02.11.2017
2017/W-I/Genl./Policy	Execution of New Line projects.	30.10.2017

2014/W-I/Genl./Group of Infra	Clarification of MoEF&CC with respect of Gauge Conversion works.	27.09.2017
2016/W-I/Genl./Budget (RE & BE)	Booking Head for Expenditure on land acquisition provided free of cost by State Governments.	15.09.2017
2017/SIG/WP/Double Dist.	Provision of Second Distant Signal on 'B' Route and doubling/tripling projects.	22.08.2017
2017/W-I/Genl./Policy/1	Execution of Yard Remodelling works in all New Line, Gauge Conversion and Doubling projects.	11.08.2017
2015/W-I/Genl./Corr.GM/Pt.	Project implementation and Monitoring.	25.07.2017
2017/W-I/Genl./Policy/1	Inclusion of TRD Estimate in NL,GC & DL proposals in already electrified/under electrification territory	05.07.2017
2017/W-I/Genl./Survey/1	Delegation of powers to CAO(C)s for Tender to Survey.	22.05.2017
2013/W-I/Genl./O/30 Pt.II	Provision of fixed structure in New Line and Gauge Conversions and setting of Gate Lodges, Station Building etc. alongside the existing track.	12.05.2017
2013/W-I/Genl./O/30 Pt.II	Provision of transition curve in New Line & Gauge Conversion	12.05.2017
2016/W-II/ECOR/Misc/24	Revision in OHE parameters.	31.01.2017

2016/W-I/Genl./NL-RE	OHE Layout Planning in RE Works on Single Line	27.01.2017
2016/W-I/Genl./Corr.	Reporting of New Line, Gauge Conversion and Doubling in monthly PCDO.	09.01.2017
ELECTRICAL ENGINEERING DIRECTORATE CIRCULARS		
No.2022/RE/161/4	Upgradation of Electrical traction System	27.05.2022
S & T DIRECTORATE CIRCULARS		
No.2021/SIG/Estimates/DPR (efile-3363771)	Standard Format for DPR for S&T works	24.02.2023
No.2021/SIG/WP/Targets	Automatic signalling works on Indian Railways	15.07.2022
No.2021/SIG/WP/Action Plan	Guidelines for provision of Automatic Signalling on Indian Railways	14.06.2022
FINANCE DIRECTORATE CIRCULARS		
2022/F(X)II/PW/6	Delegations of Powers to DRM's for sanction of works under umbrella works.	01.03.2023
No.2022/F(X)-II/PW/3	Delegations of Powers to field units for construction projects	08.02.2023

No.F(X)-II/2022/PD/1	Productivity test	08.02.2023
No.2022/F(X)-II/PW/3	Delegations of Powers to field units for construction projects	20.07.2022
No.2022/F(X)-II/PW/1	Delegations of Powers to COA/Con for construction projects	10.05.2022
No. F(X)-II/2022/10/9	Works being Charged to EBR/IF	21.03.2022
No.2021/F(X)-II/Allocation/1	Amendment in scope of Railway Safety Fund	11.01.2022
No.2021/F(X)-II/PW/3	Delegation of powers to General Managers-Revision of Annexure-II to chapter V, Indian Railway Financial Code, Vol.I	21.09.2021
No. F(X)-II/2019/WP/4/2	Proposal's seeking Board approval for sub-umbrella works	13.08.2019
No.2018/F(X)-II/10/34	Railway Board's letter issued without concurrence of Finance Directorate of Ministry of Railway	05.12.2018
No.2016/F(X)-II/10/27	Delegation of powers to General Managers to sanction Cash imprests.	13.03.2018
No.2017/Trans/01/Policy	Process reforms-Engagement of Consultants	27.11.2017

No.2017/F(X)-II/3/1	Preparation of Estimates	20.10.2017
No.2016/F(X)-II/10/27	Delegation of powers to General Managers to sanction Cash imprests.	10.04.2017

(भारत सरकार) GOVERNMENT OF INDIA
(रेल मंत्रालय) MINISTRY OF RAILWAYS
(रेलवे बोर्ड) RAILWAY BOARD

2023/GS/SIG./Typical Abstract Estimate
(C.No- 3417115)

New Delhi, Dtd.01.05.2023.

**General Manager,
Indian Railways.**

Subject: Preliminary cost estimation for preparation of DPR for Signaling works.

S&T estimates in DPRs indicate wide variation in cost estimation of S&T projects between Zones and occasionally within Zone. This results in non-homogenous proposal for same type of work and also delays the appraisal process.

2. Accordingly, to streamline the estimation of S&T works in DPR preparation, approximate cost for signalling works are as under:

S. No.	Type of Signaling Work	Key Elements include (list is not exhaustive)	Approximate Cost in Rs
1	Provision of Double Distant	Signaling Cable, Alteration in EI/ PI/RRI, Earthing, Signal unit assembly.	65.0 Lacs per station
2	Interlocking of Mid Section LC Gate	Building, AT, IPS, Signaling Cable, ELB with Sliding Boom, RCC Duct, Fuse Auto Changeover System, Data logger/RTU, Signal unit assembly, ELD, Earthing, Alteration in EI/ PI/RRI.	1.27 Cr per gate
3	Provision of Automatic Block Signaling (ABS)	Building, AT, IPS, Digital Axle counter with design redundancy, Signaling Cable, Quad, OFC with path redundancy, ELB with Sliding Boom, RCC Duct, Fire detection system, Fuse Auto Changeover System, Data logger/RTU, VDUs, Alteration in EI/PI/RRI, Signal Unit assembly, ELD, Earthing.	1.31 Cr/Rkm
4	Provision of Intermediate Block Signaling (IBS)	Building, AT, BPAC, IPS, Digital Axle counter with design redundancy, Signaling Cable, Quad, OFC, One ELB with Sliding Boom, RCC Duct, Fire detection system, Fuse Auto Changeover System, Data logger/RTU, Signal Unit, assembly, ELD, Alteration in EI/PI/RRI, Earthing.	4.26 Cr per IBS
5	Provision of EI on 2 Road Stn. Single Line	Building, AT, Electronic Interlocking, BPAC with design redundancy, IPS, Digital Axle counter in parallel with DC	8.83 Cr per station

6	Provision of EI on 3 Road Stn. on Single Line	track Circuit, Signaling Cable, Quad, OFC, One ELB with Sliding Boom, RCC Duct, Fire detection system, Fuse Auto Changeover System, Remote Diagnostic & Predictive Maintenance System, Data logger, ELD, Earthing.	9.85 Cr per station
7	Provision of EI on 4 Road Stn. on Double Line		11.35 Cr per station
8	Provision of EI on 5 Road Stn. On Double Line.		12.58 Cr per station

Note:

- i. Above cost estimates are inclusive of extant taxes and Dept. charges.
- ii. Schematic of Signaling works shall be finalised by Zones in accordance with site requirements and extant guidelines.

3. The above rates are approximate and should be adopted only for preparation and appraisal of DPRs/abstract estimates and not for any other purpose. In other cases, actual cost should be taken into consideration.

This issues with the concurrence of Associate Finance and approval of Board (MI).

Brijender
Mani Tripathi

Digitally signed by
Brijender Mani Tripathi
Date: 2023.05.01
12:26:19 +05'30'

(B. M. Tripathi)
DIR/GS/S&T
Railway Board

Copy to:

1. PCSTE, All Indian Railways for information & N/A.
2. PFA and FA & CAO/C, All Indian Railways for information & N/A.
3. CAO/C, All Indian Railways for information & N/A.

KRISHNA V R

Digitally signed by KRISHNA V R
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For Associate Finance/ Railway Board



भारत सरकार Government of India
रेल मंत्रालय Ministry of Railways
(रेलवे बोर्ड Railway Board)



No. 2022/CE-I/CT/GCC-2022/Policy

New Delhi, Dated 26.04.2023

To,
As per list attached

**Sub: Indian Railways Standard General Conditions of Contract, April 2022
(Advance Correction Slip No. 3)**

1. Enclosed herewith please find **Advance Correction Slip No. 3** to Indian Railways Standard General Conditions of Contract, April-2022.
2. This shall be applicable to Works Contract of Indian Railways with prospective effect.
3. This issues with concurrence of the Finance Directorate of the Ministry of Railways.

DA: As above.


(गौरव)

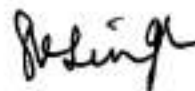
निदेशक सिविल इंजी.(जी)/रेलवे बोर्ड
[Rly No. 030-47598, MTNL No. 011-23047598]
e-mail address: dceg@rb.railnet.gov.in

No. 2022/CE-I/CT/GCC-2022/Policy

New Delhi, Dated 26.04.2023

Copy forwarded for information to:

- (i) The PFAs, All Indian Railways.
- (ii) Dy. Comptroller and Auditor General of India (Railways), Room No. 224, Rail Bhawan, New Delhi.



For Member Finance

LIST FOR DISTRIBUTION (Letter 2022/CE-I/CT/GCC-2022/Policy, Dated 26.04.2023)

1. General Managers, All Indian Railways & Production Units
2. General Manager (Con), N.F. Railway, Guwahati
3. General Manager /CORE, Allahabad.
4. Chief Administrative Officers (Con), All Indian Railways (Except N.F. Railway)
5. Principal Chief Engineers, All Indian Railways

(A)

1. CAO, COFMOW, Tilak Bridge, New Delhi
2. Principal CAO, Diesel Loco Modernization Works, Patiala (Punjab)
3. CAO (Workshop Projects), Chamber Bhawan, Judge's Court Road, Anta Ghat, Patna-800001, Bihar

(B)

1. Director General, RDSO, Manak Nagar, Lucknow
2. Director General, NAIR, Vadodara
3. Director, IRICEN, Pune - 411 001 (Maharashtra)
4. Director, IRIEEN, PB No.-233, Nasik Road-422101 (Maharashtra)
5. Director, IRISER, Taa Naka Road, Lalla Guda, Secunderabad-500017
6. Director, IRIMEE, Jamalpur Distt-Jamalpur, PIN-811214 (Bihar).
7. Director, IRITM, Sarswati Residential Estate, IRITM Campus, Manak Nagar, Lucknow

(C)

1. MD, CONCOR, Concor Bhawan, C-3, Mathura Road, Opp. Apollo Hospital, New Delhi- 110076.
2. IRCON International Limited, C-4, District Centre, Saket, New Delhi- 110017
3. MD, RITES Ltd., RITES Bhawan, Plot No.1, Sector-29, Gurgaon.
4. CMD, RVNL, August Kranti Bhawan, Plot No.25, 1st Floor, Bhikaji Cama Place, New Delhi.
5. MD, MRVC Ltd., Churchgate Station Bldg, Mumbai- 400020.
6. CMD, KONKAN Railway Corporation Ltd, Rail Bhawan, New Delhi-110001.
7. MD, DFCCIL, 5th Floor, Pragati Maidan Metro Station Building Complex, New Delhi-110001
8. MD, RLDA, Near Safdarjung Railway Station, Moti Bagh, Phase-I, New Delhi- 110021
9. MD, CRIS, Chanakyapur, New Delhi.
10. CMD, RailTel Corporation of India Ltd, Plot No. 143, Institutional Area, Sector-44, Gurgaon - 122003.
11. CME, IROAF, 12th Floor, Core-1, Scope Minar, Distt. Centre, Laxmi Nagar, Delhi- 110092
12. Managing Director, IRFC Limited, UG Floor, East Tower, NBCC Place, Bhisham Pitamah Marg, Lodhi Road, Pragati Vihar, New Delhi.
13. CMD, IRCTC Ltd., B-148, 11th Floor, Statesman House, Barakhamba Road, New Delhi 110001
14. CMD, Braithwaite & Co. limited, 5 Hide Road Kolkata 700043.

Copy to:

(A)

1. General Secretary, IRCA, DRM Office, New Delhi.
2. General Secretary, AIRF, Rail Bhawan, New Delhi
3. General Secretary, NFIR, Rail Bhawan, New Delhi
4. General Secretary, IRPOF, Rail Bhawan, New Delhi
5. General Secretary, FROA, Rail Bhawan, New Delhi
6. General Secretary, AIRPA, Rail Bhawan, New Delhi
7. General Secretary, AISC & STREA, Rail Bhawan, New Delhi
8. The Secretary, RBSS, Group (A) Offices Association, Rail Bhawan
9. The Secretary, RBSS, Group (B) Offices Association, Rail Bhawan
10. General Secretary, RBSSS Association, Rail Bhawan
11. The Secretary, RBMSA, Rail Bhawan
12. The Secretary, Railway, Group (D) Employees Association, Rail Bhawan

(B)

1. Concerned PSO for kind information of Chairman cum CEO, M/Infra, M/T&RS M/O&BD, M/Finance, Railway Board
2. Adv./MR, EDPG/MR, OSD/MR, OSR(Co-ord)/MR
3. Chief Vigilance Officers, All Indian Railways.
4. DG(RHS), DG(RPF), AM(CE), AM(Works), AM(B), AM(Elec.), AM(RS), AM(ME), AM(Tele), AM/C&IS, AM/Sig., AM(Plg.), PED(B&S), PED(Vigilance), PEDCE(P), EDCE(G), EDTK(M&MC), EDCE(B&S), EDF(X)-I, EDF(X)-II, ED(Works), EDW(Plg.), ED/Project(Mon.), ED(L&A), ED(PSU), EDVE, ED(Safety), ED(Sig. Dev.), ED(Tele), EDRS(G), EDRE, EDEE(G), EDFE, EDE(N), ED(Accounts), ED/T&MPP, EDME(Chg.), EDME(Frt.), ED/Plg., JS(conf), JS(P), JS(G), JS(D), Vigilance-III, Vig(Conf) of Railway Board.

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**Advance Correction Slip No. 3 to Indian Railways Standard General Conditions of
Contract, April 2022**

A. Para 11(vi) (a) & 11(vi) (b) Part I of GCC shall be read as under:

vi. (a) In case of any information submitted by tenderer is found to be false, forged or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the tender Bid Security besides banning of business for a period of upto two years.

(b) In case of any information submitted by tenderer is found to be false, forged or incorrect after the award of contract, the contract shall be terminated. Bid Security, Performance Guarantee and Security Deposit available with the railway shall be forfeited. In addition, other dues of the contractor, if any, under this contract shall be forfeited and agency shall be banned for doing business for a period of upto two years.

B. Para 15 Part I of GCC shall be read as under:

15. The tenderer whether sole proprietor / a company or a partnership firm / registered society / registered trust / HUF / LLP etc if they want to act through agent or individual partner(s), should submit along with the tender, a copy of power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person, specifically authorizing him/them to sign the tender, submit the tender and further to deal with the Tender/ Contract up to the stage of signing the agreement except in case where such specific person is authorized for above purposes through a provision made in the partnership deed / Memorandum of Understanding / Article of Association / Board resolution, failing which tender shall be summarily rejected.

A separate power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person, shall be submitted after award of work, specifically authorizing him/them to deal with all other contractual activities subsequent to signing of agreement, if required.

Note: A Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Apostille certificate.

Pr Singh

26.04.23

C. Para 17.12, Part I of GCC shall be read as under:

17.12 Authorized Member - Joint Venture members in the JV MoU shall authorize Lead member on behalf of the Joint Venture to deal with the Contract, sign the agreement or enter into contract in respect of the said tender, to receive payment, to witness joint measurement of work done, to sign measurement books and similar such action in respect of the said tender/contract. All notices/correspondences with respect to the contract would be sent only to this authorized member of the JV.

D. New Para 17.14.7, Part I of GCC shall be read as under:

17.14.7 A Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Apostille certificate.

E. Item No-8 & No-9 of Annexure-V, Part I of GCC shall be read as under:

8. I/we understand that if the contents of the **certificate** submitted by us are found to be forged/false or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the Bid Security besides banning of business for a period of upto two. Further, I/we (insert name of the tenderer) ** _____ and all my/our constituents understand that my/our offer shall be summarily rejected.
9. I/we also understand that if the contents of the **certificate** submitted by us are found to be false/forged or incorrect at any time after the award of the contract, it will lead to termination of the contract, along with forfeiture of Bid Security/Security Deposit and Performance guarantee besides any other action provided in the contract including banning of business for a period of upto two year.

Pr Singh

26.07.23

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No.2022/F(X)II/PW/1

New Delhi, dated 10/04/2023

The General Managers, Indian Railways.
The Director General, RDSO, Lucknow.
The General Manager, CORE, Allahabad.
CAOs (Const).
CAO, MTP/Mumbai.
CAO/DMW.

Sub: Delegation of Powers to CAO/Con for construction projects.

Ref: i) Model Schedule of Powers, 2018

ii) Board's letter No. 2022/F(X)II/PW/1 dated 10.05.2022

iii) Board's letter No. 2022/F(X)II/PW/3 dated 20.07.2022

The proposal for delegation/enhancement of powers to CAO/C organization on certain items for execution of projects was under consideration of Board. In order to fast pace the completion of the projects to reap the intended benefits and to empower the Construction Organization to take expeditious decisions, Board (MF) has approved further delegation to CAO/C as enclosed in annexure.

2. Some items of existing SOP have been modified whereas some new items have been introduced as indicated below:

Part	Item no.	Nature of change
PART-A. Works matters	Works matters: 2 A (i), 2 A (iv), 3 A (i), 5 F (ii),	Updated
PART-A. Works matters	2 A (v), 5 A (ii) (a), 5 A (ii) (b), 5 B (2) (iii), 5 B (2) (iv), 49,50,51,52,53,54	New items
PART-C: Miscellaneous Matters	47 H	Updated

3. The powers delegated to CAO/Cs have to be exercised by CAO/Cs personally and are not to be further delegated to the subordinate officers, as the delegation to subordinate officers have also been indicated where necessary.

4. While exercising these powers, concurrence of the associate finance would be required unless stated otherwise specifically.

Enclosure: Annexure (Pages 1-10)


(Ajeet Kumar Srivastava)
Executive Director Finance (Exp.)
Railway Board.

No.2022/F(X)II/PW/1

New Delhi, dated 10/04/2023

Copy to:

- i) Dy. Comptroller & Auditor General of India (Railways), Room No. 224, Rail Bhawan, New Delhi.
- ii) PFAs, All Indian Railways.
- iii) FA & CAO(C)s, All Indian Railways.


(Ajeet Kumar Srivastava)
Executive Director Finance (Expenditure)
(Railway Board)

No.2022/F(X)II/PW/1

New Delhi, dated 10/04/2023

Copy for information to:

The Director General, National Academy of Indian Railways, Vadodara
The Director General, Indian Railway Institute of Financial Management, Secunderabad.
The Director General, Indian Railway Institute of Transport Management, Lucknow.
The Director General, Indian Railway Institute of Civil Engineering, Pune
The Director General, Indian Railway Institute of Mechanical and Electrical Engineering, Jamalpur

The Director General, Indian Railway Institute of Signal Engineering and Telecommunications, Secunderabad.

The Director General, Indian Railway Institute of Electrical Engineering, Nasik.

The Executive Director, Indian Railways Centre for Advanced Maintenance Technology, Gwalior.

The Registrar, Railway Claims Tribunal, Delhi

The Chief Commissioner of Railway Safety, Lucknow

The Secretary, Railway Rates Tribunal, Chennai.

The Chairman, Railway Recruitment Board, Ahmedabad, Ajmer, Allahabad, Bangalore, Bhopal, Bhubaneswar, Chandigarh, Chennai, Gorakhpur, Guwahati, Jammu & Srinagar, Kolkata, Malda, Mumbai, Muzaffarpur, Patna, Ranchi, Secunderabad and Trivandrum.

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10/4/23

(Ajeet Kumar Srivastava)

Executive Director Finance(Expenditure)

(Railway Board)

Copy to: OSD/MR, OSD/Co-ord/MR, Additional PS/MR, Advisor/MR, Sr. PPSs/PPSs/PSs to Board Members, Secretary, DG/RHS, DG/RPF, ADG/DS, Additional Members, OSDs, Advisors and Executive Directors, EDCE(G), DCE(G), DIP, Editor/Indian Railways, Editor/Bhartiya Rail and O&M Branch of Board's office.

Annexure to Board's letter No.2022/F(X)II/PW/1 dated 10/04/2023

PART-A – Works Matters

Nature of change	S. No. of SOP	Nature of Powers	PHOD/CHOD /HOD	DRM/ADRM/ SAG	Divisional Officers, Extra Divisional Officers & Officers in Headquarters	REMARKS
	1	2	3	4	5	6
Updated	2 A	Technical sanction to sub estimate/detailed estimates/ revised estimates for all the works including those sanctioned by higher authorities (GM /Railway Board etc.) Works itemized in the works programme/RSP/M&P / LAW/LSWP/ Mini Law/Deposit /Composite Works (chargeable to both Railways and party)				
		(i) All works in (A) above except RSP and M&P items and chargeable to Capital, Capital Fund, RRSK, Depreciation Reserve Fund, Development Fund, and Open Line Works Revenue	CAO (C) in HAG Full powers AGM Up to Rs.500 Cr. PHODs / CHODs Up to Rs.100 Cr. SAG Up to Rs. 50 Cr.	DRM – Up to Rs.75 Cr. ADRM Up to Rs.50 Cr. CWM in SAG Up to Rs. 75 Cr.	SG/JAG Up to Rs. 25 Cr.	Authority: 1. Para-703 of Engg. Code. 2. Board's Lr No.2018/TF/Civil/Works dtd.12/06/2018 3. Item No. B(II) of GM's delegation vide Rly. Board's letter No. 2021/F(X)II/PW/3 dated 21.09.2021.
		For any Deposit Work: Administrative approval is required as per item 1 (C) above before any survey, planning/execution of the work. Regarding Composite works (involving Railway and Deposit works both), the administrative approval of the Railway portion of the work is limited up to the values specified in Item 1(A) above.				
Updated		Note for item 2(A)-(i): 1. Associate Finance vetting is necessary. 2. Excess over the abstract cost for works shall be governed by item 3 of SOP (Works matters) 3. Detailed estimate may be prepared in the initial stage by taking services of a consultant wherever required. Change in scope may be done only on account of change of technology or change in local conditions but not due to change in planning/layout. All the existing provisions will be retained [Authority: RB Ltr. No. 2017/Trans/01/Policy dt. 18.10.2017]. 4. Deposit works are defined in accordance with para 1843 of IR Code of Engineering Department. The method of execution is also defined therein. The limit of variation by 20% due to reasons other than escalation etc may not be applicable for Deposit Works. Sanction, execution and variations in these Deposit works shall be made by the Railway administration in consultation with the sponsoring authority bearing the cost of the deposit works, within the broad guidelines provided in IR Code of Engineering Department and Model SOP. Revised detailed estimate should however be within the powers of the sanctioning authority (Authority: RB Ltr. No 2017/Trans/01/Policy dated: 08 - 02-2018)				

Nature of change	S. No. of SOP	Nature of Powers	PHOD/CHOD/HOD	DRM/ADRM/SAG	Divisional Officers, Extra Divisional Officers & Officers in Headquarters	REMARKS
Updated	2 A	(iv) Survey estimates	<u>PHOD/CAO/C</u> Full Powers within the yard stick prescribed in respect of plan heads: new lines, gauge conversion, doubling, for surveys included in the sanctioned budget or sanctioned separately. <u>PHOD/CAO/C</u> Up to Rs.5 lakhs in respect of all other plan heads for surveys included in the sanctioned budget or sanctioned separately.	Nil	Nil	<i>Authority:</i> 1. As per the yardsticks laid down by Board's letter No. 2012/W-1/Genl./Survey/Budget dtd 18.11.2016 2. Board's Letter No. 2007/CE-I/CT/18 dated 07.03.2008. 3. Item No. B(II)(4) & (6) of GM's delegation vide Rly. Board's letter No. 2021/F(X)II/PW/3 dated 21.09.2021,—subject to Board's orders and Yardsticks issued from time to time. 4. RB's L.No. 2021/F(X)II/PW/4 25.08.2021.
Updated		Notes for item (iv) (Survey) above: 1. Finance vetting is necessary. 2. These powers also cover sanction of part estimates costing up to 5% of the work as originally sanctioned in the budget. 3. Part estimate may be sanctioned towards incurring expenses for preliminary activities like Final Location Survey, Geo-technical studies, designs, preparation of plans and drawings, shifting of utilities etc., which will help in preparation of detailed estimates. 4. The detailed estimate can be prepared and got sanctioned only after these preliminary activities are completed. 5. These preliminary activities should be executed on Works Contract basis.				

Nature of change	S. No. of SOP	Nature of Powers	PHOD/CHOD/HOD	DRM/ADRM/SAG	Divisional Officers, Extra Divisional Officers & Officers in Headquarters	REMARKS
New item	2 A	(v) Engagement of individuals for specialized studies without calling of tender/ quotation.	CAO/C 5 lakh			1.Before according such administrative approval and finance concurrence, the competent authority shall satisfy himself that the individual so engaged is of proven experience and possesses specialized knowledge related to the assignment 2. This power is to be used in the cases where some specialized study is required to be undertaken by engaging experts in the field not having any firm associated with them; eg: slope stability, review of drawings, structural audit, visit of experts for their opinion on complicated technical matters etc.
Updated	3	Sanction to excess over estimates (Including those sanctioned by higher authority at the time of preparing revised/ completion estimates.) (A) For Itemized works, and LAW/Mini law items Other than M&P and surveys (i) Increase in cost due to price escalation				Authority: Item No. B (II) of GM's delegation vide Rly. Board's letter No. 2021/F(X)II/PW/3 dated 21.09.2021.
			PHOD/ CHOD up to 100% of the original estimate. CAO/C in HAG Full powers for estimates up to the limit as per current powers of sanction	DRM/ADRM/SAG up to 100% of the original estimate. SAG/C Full powers for estimates up to the limit as per current powers of sanction	SG/JAG up to 100% of the original estimate. SG/JAG in construction Full powers for estimates up to the limit as per current powers of sanction	

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10/4/23

Nature of change	S. No. of SOP	Nature of Powers	PHOD/CHOD/HOD	DRM/ADRM/SAG	Divisional Officers, Extra Divisional Officers & Officers in Headquarters	REMARKS
New Item	5 A	(ii) (a) Limited Tenders from approved list for Works Contracts	CAO/C Full powers	SAG/C More than Rs.50 lakhs and Up to Rs.1.50Cr.	SG/JAG in construction Up to Rs. 50 lakhs	
Updated		Notes for Item 5(A)-(ii) and (ii) (a): 1) Pre-vetting of tender schedules is not necessary except in the rare urgent cases where tenders are called without sanction of detailed estimate. Pre-vetting is also not necessary in case of zonal works and revenue works in Open Line up to Rs.5 lakhs for which detailed estimates need not be framed. It shall be ensured that the tender schedules are prepared based on the rates/quantities/scope of the work as included in the sanctioned estimates. 2) For formulating approved list of contractors and invitation of Limited Tenders, the norms specified in the Board's letter No.94/CE-I/CT/4 dt.17.10-02, 12/16-5-06 and No. 2007/CE/ I/CT/18 dt. 28-9-2007 and subsequent revisions on the subject shall be followed. 3) At least 10 names should be on the approved list of contractors. 4) Tender Notice period should not be less than 14 days.				
New item	5 A	(ii) (b) Approval/ shortlisting of agencies for limited tenders for construction	CAO/C Full powers			
New item	5B (2)	(iii) Consultancy Services for design of bridges & structures on single tender	CAO/C 4 Cr			This power is to be used for design of complicated bridges and structures for which only few agencies are available, which can be engaged by resorting through a single tender.
New item	5B (2)	(iv) Consultancy Services other than design of bridges & structures on single tender	CAO/C 2 Cr			This power to be used in complicated designs of tunnels, protection works, hydraulic studies, slope stabilities etc for which only few agencies are available which can be engaged by resorting through single tender

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10/4/23

Nature of change	S. No. of SOP	Nature of Powers	PHOD/CHOD /HOD	DRM/ADRM/ SAG	Divisional Officers, Extra Divisional Officers & Officers in Headquarters	REMARKS
Updated		Note for Item No. 5(B)(ii),(iii),(iv): 1. Associate Finance concurrence is necessary. 2. Instructions contained in Rly. Bd's letter No. 2022/F(X)/PW/1 dated 10.5.2022 are to be followed. 3. All IITs, IIMs, IISc/Bengaluru, NITs, School of Planning and Architecture/Delhi, JJ College of Architecture /Mumbai shall be exempt from deposition of Earnest Money (EMD) and Security Deposit (SD) for award of work to them.				
No Change	5 F	(i) To dispense with calling of tenders for works which are urgent in nature and to accept offers received in response to quotations.	Up to Rs. 10 Lakhs per case for all works including works directly related to safe running of trains with annual limit of Rs.1.2 Cr.	Up to Rs. 10 Lakhs per case for all works including works directly related to safe running of trains with annual limit of Rs.1.2 Cr.	<u>JAG/SG & SS officers (Independent charge)</u> (i) Works directly related to safe running of trains: Up to and including Rs.2 lakhs per case without finance concurrence subject to annual ceiling limit of Rs. 10 Lakhs. (ii) All other works including works directly related to safe running of trains: Up to Rs.5 lakhs per case with annual limit of Rs.60 lakhs (including (i) above).SG and in JAG	Authority: Board's Letters Nos. 1. 2007/CE-1/CT/18/Pt. 05.03.2009. dt 2. 2007/CE-1/CT/18 dt.06.09.10. Pt.13 3. 2007CE-1/CT/18/Pt.13 dt.11.09.17

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10/4/23

Nature of change	S. No. of SOP	Nature of Powers	PHOD/CHOD/HOD	DRM/ADRM/SAG	Divisional Officers, Extra Divisional Officers & Officers in Headquarters	REMARKS
					workshop- same as above	
No Change		Notes for Item 5 F(i) (Quotations): 1. Finance concurrence is necessary except for delegation under col. 5(i) for which certification by accepting Authority that the work is of urgent nature and directly related to safe running of trains in his jurisdiction is required to be recorded. 2. The powers shall be exercised by the officers with their own administrative approval and no separate administrative approval is necessary. 3. The powers should be exercised sparingly. The circumstances under which quotations have to be called should be spelt out. 4. The powers are also subject to the availability of provision in sanctioned estimate or preparation/ sanction to the detailed estimates wherever necessary. 5. The work should not be split up for the purpose of bringing it within the ambit of this dispensation 6. The reasonableness of rates should be gone into objectively and in detail by the accepting authority. 7. Quotations should not be for fancy (expensive but of low utility) items. 8. Quotations should only be for works which are urgent in nature. 9. Quotations should normally be invited from at least three well experienced contractors/ agencies not necessarily borne on the approved list. 10. Accepting Authority must take precautions to see that the quotations are from genuine firms (and not from fictitious firms). 11. A Register showing the full particulars of works authorized through quotations shall be maintained by the officer having powers to dispense with calling of tenders. The register shall be sent to associate finance while seeking their concurrence. 12. The powers delegated are specific to the department/division concerned. 13. Cross utilization of powers of equivalent officers in a division/single administrative unit shall not be allowed. Notice period of at least 7 days from the date of NIQ (Notice inviting Quotation) shall be maintained. In case of emergency, the period can be reduced with approval of the authority accepting quotation				
Updated	5 F	(ii) To dispense with calling of tenders for works which are urgent in nature and to accept offers received in response to quotations.	<u>CAO/C</u> Rs. 4 Cr. per case for construction projects with annual limit of Rs. 25 Cr	<u>SAG/C:</u> Up to Rs. 15 Lakh per case with annual limit of Rs. 1.5 Cr	<u>Authority:</u> Board's Letters Nos. 1. 2007/CE-I/CT/18/Pt. dt 05.03.2009. 2. 2007/CE-I/CT/18 dt.06.09.10. Pt.13 3. 2007CE-I/CT/18/Pt.13 dt.11.09.17 4. 2022/F(X)II/PW/1 dated 10.5.2022 5. 2022/F(X)II/PW/3 dated 20.07.2022	

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10/4/23

Nature of change	S. No. of SOP	Nature of Powers	PHOD/CHOD /HOD	DRM/ADRM/ SAG	Divisional Officers, Extra Divisional Officers & Officers in Headquarters	REMARKS
Updated		Notes for Item 5 F(ii): 1. The power given in 5(F)(ii) is to be used for last mile connectivity of projects, unforeseen/leftover works directly required for completion of projects. 2. Finance concurrence is necessary. 3. The powers should be exercised sparingly. The circumstances under which quotations have to be called should be spelt out. 4. The powers are also subject to the availability of provision in sanctioned estimate or preparation/ sanction to the detailed estimates wherever necessary. 5. The work should not be split up for the purpose of bringing it within the ambit of this dispensation. 6. The reasonableness of rates should be gone into objectively and in detail by the accepting authority. 7. Quotations should not be for fancy (expensive but of low utility) items. 8. Quotations should only be for works which are urgent in nature. 9. Quotations should normally be invited from at least three well experienced contractors/ agencies not necessarily borne on the approved list. 10. Accepting Authority must take precautions to see that the quotations are from genuine firms (and not from fictitious firms). 11. A Register showing the full particulars of works authorized through quotations shall be maintained by the officer having powers to dispense with calling of tenders. The register shall be sent to associate finance while seeking their concurrence. 12. Notice period of at least 7 days from the date of NIQ (Notice inviting Quotation) shall be maintained. In case of emergency, the period can be reduced with approval of the authority accepting quotation. 13. The notice inviting quotations should be given wide publicity. 14. Instructions contained in Rly. Bd's letter No. 2022/F(X)II/PW/1 dated 10.5.2022 and letter No. 2022/F(X)II/PW/3 dated 20.07.2022 are to be followed.				
New item	49	Spot Purchase of items for new assets being constructed by Construction organisation.	CAO/C 1 Cr			i) This power to be used only if it is not possible to procure through normal competitive bidding ii) The level of SPC should be based on the level already decided by Zonal Railways
New item	50	Expenditure on Inspection of CRS of Zonal Railway	CAO/C Full powers	SAG/C 10 lakh		These powers to be used to cater for food, tentage, accommodation, vehicles for Rly staff & visiting/inspecting officers, transportation of misc. items etc on the day of CRS

Nature of change	S. No. of SOP	Nature of Powers	PHOD/CHOD /HOD	DRM/ADRM/ SAG	Divisional Officers, Extra Divisional Officers & Officers in Headquarters	REMARKS
						inspection in connection with commissioning of new line, gauge conversion or doubling projects.
New item	51	Expenditure on food, tentage & lighting etc. at site during NI working	CAO/C Full powers	SAG/C 10 lakh		These powers to be used to cater for food, tentage, accommodation, vehicles for rly staff & visiting/inspecting officers, transportation of misc. items, lighting arrangements etc during NI working in connection with commissioning of new line, gauge conversion or doubling projects
New item	52	Sanction for hiring of Legal/Statutory services by firms	CAO/C Full powers	SAG/C 1 lakh		1. Subject to finance concurrence for value more than Rs. 50,000 in each case. 2. This will be exercised after concurrence by the DGM(LAW) 3. This is for Hiring of legal firms for contractual matters which are pending in courts/arbitrations where financial implication is very high and where internal in-house capability of legal cell of Zonal railway to defend railway's interest is not adequate.
New item	53	Payments/Advances to Government Departments/ PSUs/ Public Utility Companies for Provision / Modification of Services/Rental for Services Required for Execution of Projects	CAO/C Full powers	SAG/C 1 Cr		i)Powers to be exercised if provision exists in the sanctioned estimate. ii)Prior finance concurrence will be required.

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10/6/23

Nature of change	S. No. of SOP	Nature of Powers	PHOD/CHOD /HOD	DRM/ADRM/ SAG	Divisional Officers, Extra Divisional Officers & Officers in Headquarters	REMARKS
						iii) These powers to be used for circumstances when some services are required from the Government Departments/ PSUs/ Public Utility Companies in connection with execution of projects in the interest of the railway. Many a times it is in the interest of Railways to get the works executed through other Government/ semi Government agencies, which are better equipped to take up such works, rather than doing these works by Railways.
New item	54	Hiring of CA	CAO/C Full powers			It should be done through competitive bidding only.

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10/01/23

PART-C – Miscellaneous Matters

Nature of change	S.No. of SOP	Nature of Powers	PHOD/HOD	DRM/ADRM/CWM/SAG Officers in Field Units	Divisional Officers, Extra Divisional Officers & Officers in Headquarters	REMARKS
	1	2	3	4	5	6
Updated	47 H	Air travel on duty.	<u>GMs</u> Full powers up to Senior Supervisor level with finance concurrence subject to note (i),(iv) and (v) below.	<u>CAO/C, DRM for Gati Shakti works</u> Officers and senior supervisors (Finance concurrence not mandatory) subject to note below		1. These are discretionary powers to be exercised with personal approval of competent authority. <i>Authority:</i> 1. RB Ltr. No. 2017/Trans/01/Policy dt. 18.10.2017 2. F(E)I/2017/AL-28/41 dt.24.04.2018 & 08.05.2018
		Note: i) Conditions being fulfilled as prescribed in letter No F (E)I/2021/AL-28/47 dated-13-08-2021. ii) The request for air travel is to be processed in E-office only. iii) The air travel of CAO/C and DRM/Gati Shakti office will be post audited by associate Finance and reported through MCDO to HQ and Board as the case may be. iv) The approving authority needs to make sure that the flight with lowest air fare is taken. v) Suitable check list duly filled in at the time of approval is necessary.				

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10/4/23

भारत सरकार (GOVERNMENT OF INDIA)
रेल मंत्रालय (MINISTRY OF RAILWAYS)
रेलवे बोर्ड (RAILWAY BOARD)

No.2021/W-I/GenL/Gati Shakti pt

New Delhi, dated: 29.03.2023

The General Managers
All Indian Railways/PUs, NFR(Con), CORE
DG/RDSO/Lucknow, DG/NAIR/Vadodara

Sub: Corrigendum to Operationalization of Gati Shakti Units in the Divisions Board's letter of even number dated 20.02.2023.

- Ref:- 1. Board's letter no.2021/W-I/GenL./GatiShakti dtd. 27.07.2022
2. Board's Letter No.2021/W-I/GenL./Gati Shakti pt (e-3397961) dated 20.02.2023.

In reference to Board's letter of even number dated 27.07.2022, para-3.2 states that "Gati Shakti unit of Division can hire retired railway supervisors below the age of 65 years with the approval of DRMs within the overall provision in the estimates of the projects being executed by the GSUs" whereas the recent letter dated 20.02.2023 states that "The Division Gati Shakti Units have already been permitted to engage retired senior supervisors below age 65 years with approval of GMs".

In view of above, it is clarified that para-3(ii) of letter dated 20.02.2023 may be read same as in letter dated 27.07.2022 para-3.2 i.e. **"Gati Shakti unit of Division can hire retired railway supervisors below the age of 65 years with the approval of DRMs"**.

This issues with approval of Board (MI, MF, MO&BD and CRB & CEO).


(Mohit Kumar) 29.03.23

Director/Gati Shakti(Civil)-III
Railway Board

Copy to:

1. He PFAs, All Indian Railways & Production Units.
2. All CAO/C of Indian Railways.
3. All DRMs of Indian Railways.
4. Dy.Comptroller and Auditor General of India (Railways), Room No.224, Rail Bhawan, New Delhi.



(For Member Finance)

Copy to:

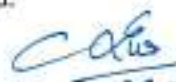
1. The ADAI (Railways), New Delhi
2. The Director of Audit, All Indian Railways
3. The Director, Indian Railway Institute of Civil Engineering, Pune.
4. The Director, Indian Railway Institute of Mechanical and Electrical Engineering, Jamalpur.
5. The Director, Indian Railway Institute of Signal Engineering and Telecommunications, Secunderabad.
6. The Director, Indian Railway Institute of Electrical Engineering, Nasik.
7. The Executive Director, Indian Railways Centre for Advanced Maintenance Technology, Gwalior.
8. The Director, Indian Railway Institute of Transport Management, Lucknow.
9. The Registrar, Railway Claims Tribunal, Delhi.
10. The Chief Commissioner of Railway Safety, Lucknow.
11. The Secretary, Railway Rates Tribunal, Chennai.
12. The Chairman, Railway Recruitment Board, Ahmedabad, Ajmer, Allahabad, Bangalore, Bhopal, Bhubaneswar, Chandigarh, Chennai, Gorakhpur, Guwahati, Jammu & Srinagar, Kolkata, Malda, Mumbai, Muzaffarpur, Patna, Ranchi, Secunderabad and Trivandrum.
13. Managing Director, CRIS, Chanakyapuri, New Delhi

Copy to:

1. The Genl. Secy., AIRF, Room No. 248 & NFIR Room No. 256-C, Rail Bhavan
2. The Secy. Genl., IRPOF, Room No. 268, FROA, Room No. 256-D & AIRPFA, Room No. 256-D Rail Bhavan

Copy to:

1. Advisor to MR, EDPG to MR, OSD to MR, EDPG to MOS(D), EDPG to MOS(J)
2. PSO/Sr. PPS CRB, Member (Finance), Member (Infra), Member (TRS), Member(O&BD), Secy, DG (RHS), DG (RPF)
3. All AMs, Principal Executive Director & Executive Directors of Railway Board.


29.03.23
(Mohit Kumar)

Director/Gati Shakti (Civil)-III

Railway Board



भारत सरकार/ Government of India
रेल मंत्रालय/ Ministry of Railways
(रेलवे बोर्ड/ Railway Board)



No.2022/Gatishakti/TF/01

New Delhi, Date: 20th Mar'23

The General Managers
All Indian Railways/Pus, NF(Con), CORE
DG/RDSO/Lucknow, DG/NAIR/Vadodara

Subject: Financial Appraisal framework for evaluation of Railway Project

In order to streamline and standardize calculation of FIRR across Indian Railways, an approach paper has been developed. The methodology explained in the approach paper is based on the Finance Code issued by Indian Railways and best practices being followed by Zonal Railways. The approach paper is attached herewith.

The methodology in the approach paper should be adopted while calculating Financial Rate of Return (FIRR) for the projects at the time of preparation of the Detailed Project Reports for New Line, Doubling, Gauge Conversion and Traffic facilities.

Associate Finance will ensure that the guidelines set out in this model are scrupulously followed and the concurrence note to the proposal should state as much.

This will be applicable with effect from 1st April'2023.

This issues with the approval of Board (M/Infra, M/O&BD, MF and CRB & CEO).


(Purushottam Kumar)
DD GS Traffic
Railway Board

1. The PFAs, All Indian Railways & Production Units
2. Dy. Comptroller and Auditor General of India (Railways), Room No.224, Rail Bhavan, New Delhi.


20/3/23
For Member Finance
Railway Board

Copy to:

1. Advisor to MR, EDPG to MR, OSD to MR, EDPG to MOS(D), EDPG to MOS(J)
2. Chief Administrative Officer/Construction of all Indian Railways.
3. CMD/RVNL, CMD/IRCON, CMD/IRCON, CMD/KRCL, CMD/RITES & CMD/DFCCIL.



APPROACH PAPER ON FINANCIAL APPRAISAL FRAMEWORK FOR RAILWAY PROJECTS



Ministry of Railways

I. Background

Indian Railways Finance Code Volume 1 Chapter 2 provides for 3 methods of financial appraisal of projects, i.e. 1. Accounting Rate of Return Method 2. Payback Period Method and 3. Discounted Cash Flow Method. On Indian Railways, as a matter of practice the Discounted Cash Flow Method is being followed.

As per Para 201 of Finance Code Volume 1, expenditure other than that wholly chargeable to Ordinary Revenue should be financially justified.

However, no financial justification as such needs be given in the following cases:

- a) when the expenditure is incurred on a statutory obligation;
- b) when the expenditure is unavoidable on considerations of safety;
- c) when the expenditure is incurred on customer amenity works; and
- d) when the expenditure is incurred on labour welfare works except residential buildings for which special rules are applicable.

Proposals are financially appraised at DPR stage by the Zonal Railways. Financial Internal Rate of Return is calculated by the Zonal Railways and vetted by the FA&CAO of the Zone.

At Board, the DPRs of the proposals forwarded by the Zones are reviewed by the EDs' Committee.

During such reviews it was observed that different zones have calculated FIRR based on different assumptions and methodology. This inhibited a meaningful and uniform appraisal of the DPRs submitted by the Zonal Railways. Also, constant clarification had to be given to NITI AYOOG regarding the different methodologies and assumptions made by the Zonal Railways.

II. Review of practices followed by different zonal railways in preparation of financial IRR:

DPRs of 15 Zonal Railways were reviewed and a brief compilation of differences in assumptions/practices observed are given below:

1. **Earning Growth factors:** Some zones take YoY growth whereas some consider growth factor every 5th year. Some zones consider no growth beyond 10th year whereas some zones consider growth over life cycle of the project.
2. **Expense growth factors:** Zones consider between 2 to 5 Percent annual growth in expense and hence there is no uniformity.
3. **Interest during construction (IDC):** In case of IDC very few railway zones consider it as part of project cost.
4. **Project cost:** Some of the railway zones add escalation factor in the range of 5% to take care of inflation during the construction period. The final cost so arrived is termed as completion cost. However, it has also been seen that the final cost which is arrived is not considered for the purpose of IRR calculation.

5. **Replacement cost:** Replacement cost has been considered by some zones and not by others.
6. **Detention saving:** It is observed that some zones are considering capital cost of rolling stock in addition to annual saving in detention time of wagon and engines. Also, some of the zones are considering detention saving on account of passenger trains whereas some are not.
7. **Terminal value** – Terminal value/residual value of the assets have been calculated differently. Some zones calculate terminal value as a % of the asset value whereas some of the zones calculate terminal value based on residual life of the asset.

A summary of the practice followed by various zones is captured in **Annexure-1**.

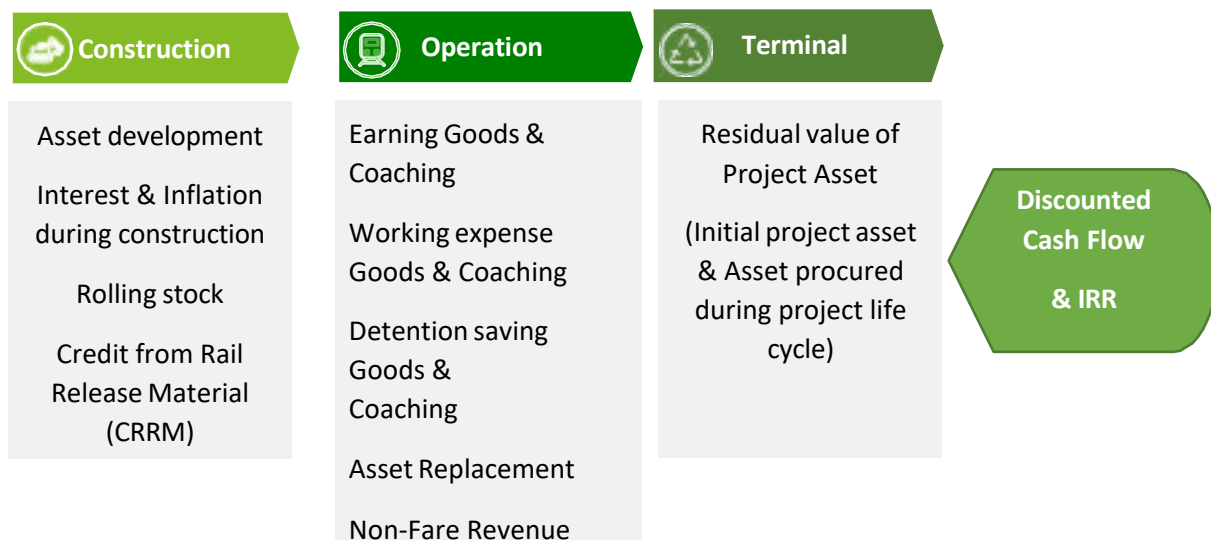
FIRR calculated based on arbitrary assumptions/ incorrect reference points, etc cannot be the basis on which investment decisions can be made. And hence, the necessity to streamline underlying assumptions which will lead to a standard methodology for calculating FIRR across railway projects.

This approach paper provides standardized methodology and assumption basis to arrive at FIRR. Further this methodology is applicable to linear project such as New Line, Doubling, Gauge Conversion, Traffic Facility

In order to streamline the FIRR process an approach paper has been developed. The methodology explained in the approach paper is based on the Finance Code issued by Indian Railways and best practices followed by zonal railways.

III. Approach Paper

Financial appraisal of a railway project consists following phases and inputs:



A. Construction Phase

- i. **Asset development-** The project estimate should be as economical as possible. The estimate should be approved by the General Manager of the zone and vetted by the Associate Finance. The project cost should consider all incidental cost, inflation/escalation and interest, if any, as on the date of commissioning of the project. Project cost should be broadly classified in to following blocks:

Land	Civil- Building & Electrical
Preliminary	Civil-Pway & Others Mechanical
Formation	S&T Rolling stock

- ii. **Inflation:** The project cost is generally arrived at the prevailing cost indices whereas the construction period lasts for longer period. Accordingly, inflation has to be factored in for the construction period. The WPI of a country captures overall inflationary impact and hence it is assumed that the project cost with WPI will give fair estimation. As a reference we have considered the Report on Benchmarking for Cost Estimation of Metro Rail Projects, February 2019 published by Ministry of Housing and Urban Affairs. An escalation of 5% annually during the construction is recommended in the report. Accordingly, for the projects being appraised presently the inflation rate is to be considered as 5%.

Inflation should be considered from the second year onwards. An illustration is given below to explain the procedure for calculating escalation in cost due to inflation.

Illustration:

Assuming the cost of the Project A Rs. 1000 Cr. basis prevailing rates as on project inception date. Construction period is of 3 years. Project completion is 20%, 40% and 40% for first, second and third year respectively. Inflation rate- 5%.

The project cost with inflation to be considered for FIRR purpose should be:

$$\text{Project Cost} = \text{CWIP} * \text{project progress} * (1 + \text{WPI})^n$$

Where:

CWIP = Capital work in progress (**Expenditure Incurred but asset not put to use yet**)

n = construction year

Project cost 1000
Inflation 5%

Year (n)		Progress	CWIP	CWIP+Inflation
Year	1	20%	200	200.00
Year	2	40%	400	420.00
Year	3	40%	400	441.00
Total				1061.00

- iii. **Interest during construction** – Project period generally spreads over 2-6 years. As per note 1 of Para 204 of Finance Code prescribed the requirement of IDC in a project cost Note- (1) Interest during construction should be added to the cost (excluding that chargeable to Revenue) of the projects, the construction of which is likely to last for more than one year.

IDC can be calculated on following basis:

Year 1

	Addition to CWIP	XX
-	Capitalization if any	XX
	Closing CWIP	XX
	Average CWIP (Opening+Closing)/2	XX
	Interest = Average CWIP * Cost of debt	XX

Year 2 onward

	Opening CWIP	XX

+	Addition to CWIP	XX
-	Capitalization if any	XX
	Closing CWIP	XX
	Average CWIP (Opening+Closing)/2	XX
	Interest = Average CWIP * Cost of debt	XX

Note:

CWIP- Capital work in progress [Work completed on the assets but not yet Capitalised]

Capitalisation – Value of assets which are put to use/operations.

Opening CWIP - Closing CWIP of previous year

[illustration]

Assume a project is worth of Rs 1000 Cr. and construction period will last for 3 years. Estimated project progress for three years is 30%, 40% and 30% based on cash flow. 30% of project asset put to use in second year and 70% in third year. Cost of debt is 7%. What will be interest during construction?

<i>Particular</i>	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>
Opening CWIP - A	NIL	300	400
Addition to CWIP – B	300	400	300
Capitalization if any – C	-	300	700
Closing CWIP D= (A+B-C)	300	400	-
Average CWIP E = (A+D)/2	150	350	200
Interest @ 7% on E	10.5	24.5	14

- iv. **Rolling stock** – In accordance with the Para 208 Finance Code Volume 1 if the line capacity work is undertaken on account of increase in traffic and in case there is a construction of new line then in such scenarios the project cost should invariably include cost of rolling stock. Procurement of initial rolling stock should be considered in the year of completion of the project. Requirement of rolling stock should be aligned to traffic projections. The project should also consider additional rolling stock as and when required to support projected traffic. The cost of rolling stock should be based on latest accepted rates (LAR).
- v. **Credit from Rail Released Material-** In case of Railway projects which are brownfield in nature there are released material which lead to cash inflow to the projects. Same should be considered as credit to the project. CRRM should be shown separately while determining FIRR and should be considered in the year of realization of money. The CRRM should be estimated by the respective project team on best estimate basis.

B. Operation phase

i. Earning Goods & Coaching

In case of the projects which results into additional revenue from goods/coaching the same should be calculated based on traffic projections. The revenue for the first year of commissioning of the project should be calculated as per **Form 1a of Annexure 2** in case of goods and **Form 1b of Annexure 2** in case of coaching. Para 244 of the Indian Railway Finance Code (IRFC) also prescribes the need of assessment of traffic prospect in 6th and 11th year. The impact of such traffic assessment should also be considered in earning estimation. The earning in following years should be calculated by applying 5% YoY growth plus traffic trigger if any in 6th and 11th year. The growth factor is arrived based on last 30-year CAGR (2020-1990). The CAGR of average earning from passenger and freight per KM comes to 5.63%. Considering future outlook and long-term projection, 5% YoY growth has been considered for projection purpose.

ii. Expense Goods & Coaching

The working expense related to goods and coaching are calculated on the basis of the benchmark rates published by the statistic department of Railway Board as part of latest available Annual statistical statement (ASS). These expenses should be calculated as per **Form 2a of Annexure 2** in case of goods and **Form 2b of Annexure 2** in case of coaching. The expenses in following years should be calculated by applying 5% YoY growth plus traffic triggers as assessed by the team in accordance with para 244 of IRFC. The inflation target agreed between GoI and RBI is 4% with a tolerance of +/- 2%. Considering the same, inflation range is targeted between 2% and 6%. Considering inflation on conservative side a 5% growth factor to account for inflation in expenses has been considered.

iii. Detention saving

The projects related to line capacity work leads to savings in detention time of rolling stock. This saves cost of procurement of additional rolling stock. Accordingly, these savings should be accounted for while appraising the project. Saving should be calculated based on latest available Annual statistical statement (ASS) as published by statistics department of Railway Board from time to time. The calculation methodology as provided in **Form 3a of Annexure 2** should be followed while calculating detention saving in case of Wagon and **Form 3b of Annexure 2** in case of coaching. Saving should be kept static for the life cycle of the project.

iv. Asset replacement

The assets deployed during the project have certain useful life. These assets are

expected to last for the stated useful life. Accordingly, the replacement of any asset should be considered only on expiry of its useful life. For the purpose of FIRR the average useful life of asset has been provided at **Form 4 of Annexure 2**. In case, where the traffic is expected to increase to the level which cannot be handled with existing assets then in such scenario procurement of additional asset can be considered. However, this should be well justified and documented by Zonal Railway in accordance with Para 236 and Para 237 of the Indian Railway Finance Code.

V. Non Fare Revenue

Indian Railways is exploring options to increase Non Fare Revenue. There are various non-fare revenues which will also accrue due to new development in the form of advertisement, rental income, retails etc. Estimation of potential for Non Fare Revenue should be a part of the DPR submitted by Zonal Railways.

C. Terminal phase

- i. Project life should be considered as 30 years from the date of Commissioning as per Para 345 of Indian Railways Engineering Code.
- ii. At the end of the project life cycle project cash flow considers the residual value of the assets. The residual value of the asset should be the balance useful life of the assets *if available*. Useful life of asset should be in accordance with useful life of the asset provided in **Form 4 of Annexure 2**. Following is the basis of calculation of residual value:

Residual value of asset

$$= \text{Original cost of asset} * \frac{(\text{Useful life of asset} - \text{Asset in use})}{\text{Useful life of asset}}$$

[Illustration]

A bridge with steel work is worth of Rs 150 Cr. As per finance code the useful life of the bridge is 60 years. We need to evaluate the residual value of the bridge for the project life of 30 years.

$$\text{Residual value of asset} = 150 * \frac{(60 - 30)}{60}$$

$$\text{Residual value of asset} = 150 * 1/2 = \text{Rs. 75 Cr.}$$

IV. Conclusion

Following standard assumptions may be taken while calculating financial IRR. A Model FIRR model in excel format is also shared along with this document.

1. **Growth Factor:** The YoY Growth factor for earning is considered 5% based on 30 year historical CAGR of average earning from passenger and freight per KM. The growth factor for expenditure purpose is 5%.

2. **Interest During Construction:** The Cost of debt for the purpose of IDC should be based on the 10-Year G-Sec rate¹ (as published by RBI) prevailing as on 1st April of the financial year in which the detailed project report is being prepared. Interest has to be calculated only for projects funded through EBR/IF.
3. **Project cost:** The cash outgo for the project should factor in inflation, escalation, interest etc. up to the date of completion. For the purpose of financial appraisal, the Date of completion of the project should be 31st March of the financial year in which the project is completed.

For example: if the project expected to complete on 30th Nov'2025 then date of completion will be 31st March 2026 for the purpose of FIRR calculations.

4. **Replacement cost:** The assets should be replaced post completion of useful life and the replacement cost should consider inflationary impact of the asset value if any.
5. **Depreciation** – Some of the DPR consider depreciation as cash outgo while computing IRR. Depreciation is a non-cash item and should not be considered while arriving discounted cash flow and IRR.
6. **Detention saving:** the detention saving needs to be calculated on account of goods as well as passenger trains. The annual saving considers interest, repair & maintenance and depreciation of the asset. Some of the DPR considers one-time capital cost of wagon & engine. Since the annual saving considers the carrying cost of capital and depreciation which replenish the asset, one-time cost saving should not be considered.
7. **Non-Fare revenue-** Currently there is no non-fare revenues considered by zones while computing IRR for the projects. There are various non-fare revenues which will also accrue due to new development in the form of advertisement, rental income, retails etc. The cash inflows due to Non Fare Revenue should be factored at the time of preparation of DPR.
8. **Time series:** FIRR calculation should consider the cash flow for the period of construction and 30 years of operations. The operation period of 30 years should commence from 1st April of the year immediately after the financial year in which construction is completed.

[illustration]

One of the projects expected to start in Jul'23 having three year of construction period. Following will be the time series for FIRR calculation:

Year	Financial Year	Cash flow
1	2024	(-) Project Cost + CRRM if realized
2	2025	(-) Project Cost + CRRM if realized

¹ https://www.rbi.org.in/Scripts/BS_NSDPDisplay.aspx?param=4

3	2026	<i>(-) Project Cost + CRRM if realized</i>
4	2027	<i>+ Earnings/savings + CRRM if realized – working expenses</i>
5	2028	<i>+ Earnings/savings + CRRM if realized – working expenses</i>
6	2029	<i>+ Earnings/savings + CRRM if realized – working expenses</i>
...	..	..
33	2056	<i>Earning/saving – working expenses + Terminal value</i>

Note: Above table is for illustrative purpose only

9. **Terminal value:** Terminal value other than land, preliminary and earthwork/formation should be based on useful life of assets and terminal value of land, preliminary and earthwork/formation should be the actual cost incurred on these items. Terminal value of replacement capex should also be considered while calculating FIRR based on residual life. Useful life of assets for the purpose of FIRR can be considered as provided at **Form-4 of Annexure 2**.
10. **Reference rates:** The calculation under FIRR calculation considers rates and references from standard like Annual Statistical Statement (ASS), End result for Freight, End result for coaching and All India Engine Hour Cost. The present model is based on Statistical Data for the year 20-21. **Same will require to be updated time to time depending upon latest available Statistics published by the Board.** For the particular item, All India Average Figure should be considered and not the Zone Wise figure.

ANNEXURE – 1

Table 1.1

Zone	WR	SCR	SR	ER	NWR	ECR	SECR	NWR	NER	NR
Station/Line	Gandhidham-Samkhiyali	Guntur-Bibinagar	Turavur-Ambalapuzha	Junagar Nabranghpur	Sawai Madhopur	Patherdih-Bhojudih	Shahdol-Singhpur	Manheru-Bhiwani	Kanpur Anwarganj-Mandhana	Haridwar Raiwala
Work	Quadruppling of line	Doubling of lines	Doubling	Network augmentation	By pass line	Doubling of lines	New 4th Line	Doubling	Elevated track	Doubling
Earning Growth	20% in every 5th year (6 th & 11 th year) + ~70% each in 6 th & 11th year on account of additional traffic.	Coaching - 2% YoY Goods – 5% increase up to 11 th Year.	Coaching - 2% YoY Goods – 5% increase up to 11 th Year.	Goods – 2-3% YoY Growth upto 11th year	Only detention saving with no future growth	2%-3% YoY Growth up to 11 th year	Only detention saving with no future growth	Only detention saving with no future growth	Only detention saving with no future growth	5% YoY Growth upto 10 th year
Expense Growth		Coaching - 2% YoY Goods – 5% increase up to 11 th Year.	Coaching - 2% YoY Goods – 5% increase up to 11 th Year.	Goods – 2-3% YoY Growth upto 11th year	No expense	5% YoY Goods 2% YoY Coaching upto 11 th yr	No expense	No Growth considered for future expense	No expense	5% YoY Growth upto 10 th year
IDC	No	No	NA	5% compound interest	No	Yes @ 8.5%	No	No	No	No
Inflation in capex	No	No	No	Initial – N Future – Y (RS)	No	No	No	No	Initial - 5% escalation	No
Detention Saving-Wagon	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes		No
Detention saving-Coaching	No	Yes	Yes	No	No	No	No	No	No	No
Detention - One time capital cost	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	No
Replacement Cost	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No

Terminal Value	Balance useful life	10%, 80% for asset procured in 26 th Year	Balance useful life	10% of the Asset	Balance useful life	10% of the Asset	20% of the Assets	18% of the Assets	Almost 33% of project cost	No
Terminal Value – Land	Balance useful life	NA		10% of the original cost	Yes, Acquisition cost	10% of the original cost	NA	NA	NA	No

Table:1.2

Zone	CR	NCR	NR	SWR	NFR	SER	ECR (Coastal)
Station/Line	Jalna to Jalgaon	Billi-Chunar	Una-Kunna	Mysuru	Guwahati	Rourkela-Bondamunda	Bhadrak-Vijaynagar
Work	New Line	Doubling	New Line	Development of Railway station	Yard construction	New line	New 3rd line
Earning Growth	Considered for first 10 year in 3%-4% range	Goods -Around 12% growth in 5 th year and 10% in 10 th year Coaching- No growth	Goods -Around 19% growth in 5 th year and 15% in 10 th year Coaching- 10% in 5 th and 10 th year	NA	15% in 5 th Year and 10 th year	296% growth in 5 th year and 66% growth in 11 th year	No growth considered
Expense Growth	Considered for first 10 year in 3%-4% range	Goods - Around 12% growth in 5 th year and 10% in 10 th year Coaching – No growth	Goods -Around 19% growth in 5 th year and 15% in 10 th year Coaching- 10% in 5 th and 10 th year	No Growth considered	5% in 5 th Year and 10 th year	338% growth in 5 th year and 70% growth in 11 th year	No Growth considered
IDC	NA	NA	NA	NA	NA	NA	NA
Inflation in capex	5% escalation considered	5% escalation considered	NA	NA	NA	NA	NA
Detention Saving- Wagon	Yes	Yes	NA	Yes	NA	No	No
Detention Saving- Coaching	No	No	No	No	No	No	No
One time capital cost	Yes	No	NA	NA	NA	No	No

Replacement Cost	Yes	No	NA	No	Yes	Yes	Power pack cost
Terminal Value	Useful life of assets	TV comes to 43% of total cost of asset	10% of asset value	10% of asset value	TV comes to 43% of total cost of asset	TV comes to 17% of total cost of asset	50% of value of rail, 10% of engineering assets & 10% of Rolling stock
Terminal Value – Land	Original Value considered	NA	NA	NA	NA	NA	Original value

Annexure- 2

Form 1a

Estimation of revenue from Wagon:

S. No.	Com pany	Comm odity	From	To	Existing Route KM (A)	Projected Route Km (B)	Total KM C = A+B	Weight in Tonnes D	Class	Rate/ Tonne E	Gross earning in lakhs F= D*E	Project Route earning in Rs/lakh G = (F/C)*B

Form 1b**Estimation of revenue from Coaching:**

S. No.	Train No.	From	To	Type of coach	No. of Coaches (A)	Capacity (B)	Pax/day/way $C=A*B$	Pax/day/both ways $D=C*2$	Passenger per annum $E = D*365$	Projected route distance (F)	Earning per passenger (G)	Total earning per annum $H=G*E$

Form 2a:

Calculation of working expenses for Goods:

S. No.	Particular	Unit	Basis	No s	Rs/Lakh
A	Wagon for additional route	Nos./p.a.	Wagon proportionate to KM		
B	Wagon KM	KM/p.a.	(No. of Wagon*Additional KM)		
C	Avg. Wagon KM per wagon day	KM/p.a./Wagon	(As per ASS 20-21 Col 16/pg281)		
D	Wagon days	Day/annum	(B/C)		
E	Loaded Wagon GTKM	In (000) p.a.	(Additional KM*Gross TKM*No. of wagon)		
F	Empty Wagon GTKM	In (000) p.a.	(Additional KM*Tare wght*No. of wagon*Empty Wgn Factor)		
G	Total Wagon GTKM	In (000) p.a.	(E+F)		
i	Wagon maintenance Cost	Rs/lakh/p.a.	(D*Rate as per End result freight 20-21 Table 6/page 13)		
ii	Line haul maintenance cost	Rs/lakh/p.a.	(G*Rate as per End result freight 20-21 Table 8,10,12,14/Pg. 14-17))		
iii	Terminal Charges	Rs/lakh/p.a.	(A*(Rate as per end result freight 20-21 Table 3/Pg. 11))		
iv	Cost of Marshalling	Rs/lakh/p.a.	(A*(Rate as per end result freight 20-21 table 5/pg.12)		
v	Cost of Documentation	Rs/lakh/p.a.	(A/10*Rate as per end result freight 20-21 table 1/pg 10)		
	Direct Expense	Rs/lakh/p.a.			
i	Indirect Expense	Rs/lakh/p.a.	Rate as per end result freight table 20-21 15/pg 18		
ii	Central Charges	Rs/lakh/p.a.	Rate as per end result freight table 20-21 16/pg 18		
	Total Expense	Rs/lakh/p.a.			
	Grand Total Expense				

S. No.	Commodity	Company	From	To	Existing Route (KM) (A)	Additional KM to be added (KM) (B)	Additional Projected traffic (Tonnes) (C)	PCC* (Tonnes) (D)	Tare weight of wagon (Tonnes) (E)	Total Weight F = (D+E)	No. of Wagon G = (C/D)	Wagon KM each way	Loaded Wagon GTKM in (000) H=G*B*F	Empty Wagon GTKM with 25% factor (In 000) (I)= G*E*B*25%	No. of Wagon proportionate KM J=G*{B/(A+B)}
Total															
*Permissible Carrying Capacity of wagon															

Form 2b:**Calculation of working expense for Coaching**

S.No.	Particular	Unit	Basis	No. of	Rs/Lakh
A	Total Passenger	Passenger/annum	(No. of Coach*capacity)		
B	GTKM-Up & down	KM/p.a.	(Gross weight * Projected route KM)		
C	Engine KM	KM/p.a.	(No. of Engine * Projected route KM)		
D	Vehicle KM	KM/annum	(No. of Trains * Projected route KM)		
E	Vehicle KM in use per day	KM	(As per ASS 20-21 Col 9/Pg280)		
F	Vehicle days	days	(Additional KM*Tare wght*No. of wagon)		
i	Provision & Maint. per day	Rs/vehicle day	(F*End result Coaching 20-21 Col18/Pg57)		
ii	Traction cost	Rs/lakh/p.a.	(B/1000* End result Coaching 20-21 Col13/Pg52)		
iii	Provision & Maint of track	Rs/lakh/p.a.	(B/1000* End result Coaching 20-21 Col16/Pg55)		
iv	Provision & Maint of signalling	Rs/lakh/p.a.	(C* End result Coaching 20-21 Col17/Pg56)		
	Direct Expense	Rs/lakh/p.a.			
i	General Overhead	Rs/lakh/p.a.	As per End result Coaching 20-21 Col47/Pg72		
ii	Central Charges	Rs/lakh/p.a.	As per End result Coaching 20-21 Col48/Pg72		
	Total Expense	Rs/lakh/p.a.			
	Grand Total Expense				

Calculation of passengers:

S. No.	Coach	No. of Coaches (A)	Tare Weight (B)	Total Tare Weight (C)	Static value of passenger (D)	Carrying Capacity (E)	Total Passenger weight F = D*E*A	Gross weight G= C+F	Projected Route Km (H)	GTKM p.a. (Up& down) I= G*H*365*2	No. of Engine (J)	Engine KM p.a. (up & down) K= H*J*365*2	Passenger p.a. (up & down) L= A*E*365*2

Calculation of Passenger KM

S.No.	Train NO.	From	To	Projected Route KM (A)	No. of Train each way (B)	Total Coach/Vehicles E = (C+D) *B	Motor Coach (C)	Trailer Coach (D)	Vehicle KM (Up & Down) F= A*E*2	Vehicle KM per annum (Up & Down) G=F*365

Form 3a**Calculation of detention saving in case of wagons**

Particular		UoM	Goods	
			Up	Down
A	Train detained per day			
B	Avg. detention time	In hours		
C	Avg. load per train	No. of Wagons		
D	Wagon hours saved (A*B*C)	Wagon hours/day		
E	R&M days saved (D*ASS 20-21 26A/pg293/col 56&58)	Wagon hours/day		
F	No of Wagon saved incl. R&M (D+E)	Wagon hours/annum		
G	No of days (F/365/24)			
H	Cost of Wagon			
I	Interest as per approach paper	H*Rate		
J	R&M Charges	ASS 20-21 /Stmnt 26B/Pg 305		
K	Depreciation - G * Index			
L	Total Saving per day (I+J+K)/365			
M	Gross Saving = G*L*365	In Rs/lakh p.a.		

Saving on detention – Engine/Loco

Particular			Goods	
			Up	Down
A	Train detained per day			
B	Average detention time			
C	Avg. detention hour per day	A*B		
D	R&M Hours as % of item C	% as per ASS 20-21 26A/Pg. 290		
E	Diesel engine hours detained per day	C+D		
F	Cost of Engine per hr rate as per ASS	E * Rate as per AIEHC#		
G	Saving per annum	F*365		

#Latest available All India Engine Hour Cost data published by railway board currently we have considered data issued vide. letter dtd. 17/6/20

Form 3b
Saving on Detention - Coaching

Particular		UoM		Passenger	
				Up	Down
A	Avg. nos. of trains detained per day	Nos.			
B	Avg. detention time per Coaching/day	In Hours			
C	No. of Coaching stock detained per day	No. of Coaching stock			
D	Coaching detention per day	Coaching Hr/day	D=A*B*C		
E	R&M day saved D*ASS 20-21 26A/Page 291/col 28	Coaching Hr/day	D*Rate		
F	No of Coach saved incl. R&M	Coaching Hr/annum	F=(D+E)*365		
G	No of Coaching days	Days	G=F/24/365		
H	Cost of Coaching				
I	Interest @	As per Approach Paper			
J	R&M Charges				
K	Depreciation - H * Index				
L	Total Saving per day (I+J+K)/365				
M	Gross Saving = G*L*365	In Rs/lakh p.a.		0	0

Saving on Detention - Engine/Loco

Particular				Coaching stock	
				Up	Down
A	Train detained per day			0.00	0.00
B	Average detention time	In Hours		0.00	0.00
C	Avg. detention hour per day	In Hours		0.00	0.00
D	R&M Hours	% as per ASS 20-21 26A/Pg. 290		0.00	0.00
E	Diesel engine hours detained per day			0.00	0.00
F	Cost of Engine per hr	E * Rate as per AIEHC#		0.00	0.00
G	Saving per annum	Rs. In lakh		0.00	0.00

#Latest available All India Engine Hour Cost data published by railway board currently we have considered data issued vide. letter dtd. 17/6/20

Form 4

Residual value of the Asset

<u>Asset</u>	<u>Useful life of asset in years</u>
Civil-Land	Non depreciable
Civil-Preliminary	Non depreciable
Civil-Formation	Non depreciable
Civil - Bridges & Buildings	60
Civil - Pway & others	20
S&T	20
Electrical (G)	30
Electrical (TRD)	30
Mechanical other than Rolling stock	30

Rolling stock

<u>Asset</u>	<u>Useful life of asset in years</u>
BCNA	40
BOX'N'	35
BTPN	45
BVG	35
ENGINE ELECTRIC	36
MEMU MOTOR COACH	25
MEMU TRAILER COACH	25

Note: The useful life and the cost of rolling stock mentioned above as well as of those rolling stock which are not covered above, shall be updated based on the latest circular issued by Railway Board.

Abstract of Sample Excel FIRR Model

Year		Capital Cost (A)	Rolling Stock (B)	Replacement Cost (C)	CRRM (D)	Total Capital Cost E= A+B+C+D	Terminal Value (F)	Working Expense -		Earning-			Net Earning L= (I+J+K)- (G+H)	Saving (Detention)		Total Earning O=(L+M+N)	Other Funding Source if any (P)	Net Cash Flow Q = (E+F+O+P)
								Goods (G)	Passenger (H)	Goods (I)	Passenger (J)	Non-Fare Revenue (K)		Goods (M)	Passenger (N)			
1	2024	(0.17)	0.00	0.00	0	-0.17	0	0.00	0.00	0	0	0	-	0.00	0.00	0	0	0
2	2025	(0.19)	0.00	0.00	0	-0.19	0	0.00	0.00	0	0	0	-	0.00	0.00	0	0	0
3	2026	(0.26)	0.00	0.00	0	-0.26	0	0.00	0.00	0	0	0	-	0.00	0.00	0	0	0
4	2027	(0.48)	0.00	0.00	0	-0.48	0	0.00	0.00	0	0	0	-	0.00	0.00	0	0	0
5	2028	-	0.00	0.00	0	0.00	0	0.02	0.23	0	0	0	(0.23)	0.00	0.00	0	0	0
6	2029	-	0.00	0.00	0	0.00	0	0.02	0.24	0	0	0	(0.24)	0.00	0.00	0	0	0
7	2030	-	0.00	0.00	0	0.00	0	0.02	0.25	0	0	0	(0.25)	0.00	0.00	0	0	0
8	2031	-	0.00	0.00	0	0.00	0	0.02	0.26	0	0	0	(0.26)	0.00	0.00	0	0	0
9	2032	-	0.00	0.00	0	0.00	0	0.02	0.28	0	0	0	(0.28)	0.00	0.00	0	0	0
10	2033	-	0.00	0.00	0	0.00	0	0.05	0.29	0	0	0	(0.31)	0.00	0.00	0	0	0
11	2034	-	0.00	0.00	0	0.00	0	0.05	0.31	0	0	0	(0.33)	0.00	0.00	0	0	0
12	2035	-	0.00	0.00	0	0.00	0	0.05	0.32	0	0	0	(0.35)	0.00	0.00	0	0	0
13	2036	-	0.00	0.00	0	0.00	0	0.05	0.34	0	0	0	(0.36)	0.00	0.00	0	0	0
14	2037	-	0.00	0.00	0	0.00	0	0.06	0.35	0	0	0	(0.38)	0.00	0.00	0	0	0
15	2038	-	0.00	0.00	0	0.00	0	0.09	0.37	0	0	0	(0.43)	0.00	0.00	0	0	0
16	2039	-	0.00	0.00	0	0.00	0	0.09	0.39	0	0	0	(0.45)	0.00	0.00	0	0	0
17	2040	-	0.00	0.00	0	0.00	0	0.10	0.41	0	0	0	(0.47)	0.00	0.00	0	0	0
18	2041	-	0.00	0.00	0	0.00	0	0.10	0.43	0	0	0	(0.50)	0.00	0.00	0	0	0
19	2042	-	0.00	0.00	0	0.00	0	0.11	0.45	0	0	0	(0.52)	0.00	0.00	-1	0	-1
20	2043	-	0.00	0.00	0	0.00	0	0.11	0.48	0	0	0	(0.55)	0.00	0.00	-1	0	-1
21	2044	-	0.00	0.00	0	0.00	0	0.12	0.50	0	0	0	(0.57)	0.00	0.00	-1	0	-1
22	2045	-	0.00	0.00	0	0.00	0	0.12	0.52	0	0	0	(0.60)	0.00	0.00	-1	0	-1
23	2046	-	0.00	0.00	0	0.00	0	0.13	0.55	0	0	0	(0.63)	0.00	0.00	-1	0	-1
24	2047	-	0.00	0.00	0	0.00	0	0.14	0.58	0	0	0	(0.66)	0.00	0.00	-1	0	-1
25	2048	-	0.00	0.00	0	0.00	0	0.14	0.61	0	0	0	(0.70)	0.00	0.00	-1	0	-1
26	2049	-	0.00	0.00	0	0.00	0	0.15	0.64	0	0	0	(0.73)	0.00	0.00	-1	0	-1
27	2050	-	0.00	0.00	0	0.00	0	0.16	0.67	0	0	0	(0.77)	0.00	0.00	-1	0	-1
28	2051	-	0.00	0.00	0	0.00	0	0.17	0.70	0	0	0	(0.81)	0.00	0.00	-1	0	-1
29	2052	-	0.00	0.00	0	0.00	0	0.17	0.74	0	0	0	(0.85)	0.00	0.00	-1	0	-1
30	2053	-	0.00	0.00	0	0.00	0	0.18	0.77	0	0	0	(0.89)	0.00	0.00	-1	0	-1
31	2054	-	0.00	0.00	0	0.00	0	0.19	0.81	0	0	0	(0.94)	0.00	0.00	-1	0	-1
32	2055	-	0.00	0.00	0	0.00	0	0.20	0.85	0	0	0	(0.98)	0.00	0.00	-1	0	-1
33	2056	-	0.00	0.00	0	0.00	0	0.21	0.90	0	0	0	(1.03)	0.00	0.00	-1	0	-1
34	2057	-	0.00	0.00	0	0.00	0.5	0.22	0.94	0	0	0	(1.08)	0.00	0.00	-1	0	-1
35	End	-	0.00	0.00	0	0.00	0	0.00	0.00	0	0	0	-	0.00	0.00	0	0	0
36	End	-	0.00	0.00	0	0.00	0	0.00	0.00	0	0	0	-	0.00	0.00	0	0	0
37	End	-	0.00	0.00	0	0.00	0	0.00	0.00	0	0	0	-	0.00	0.00	0	0	0
38	End	-	0.00	0.00	0	0.00	0	0.00	0.00	0	0	0	-	0.00	0.00	0	0	0
39	End	-	0.00	0.00	0	0.00	0	0.00	0.00	0	0	0	-	0.00	0.00	0	0	0
Total		-1.10	0.00	0.00	0.00	-1.10	0.50											

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Project Code					Assumption not to be changed
Project Detail	ABC				Hardcoded inputs
Project Type	New Line				Formula based numbers not to change
Zone	ABC		FIRR ->	0.00%	



Indian Railways
Lifeline to the nation...

Origin		XXX
Destination		YYY
Length	In KM	1

Timeline			
Year of Award	FY	2024	
Construction Period	In months	48	
Year of Commissioning	FY	2028	
Period of financial evaluation	In years	30	
Terminal Year	FY	2057	

Common Assumptions			
Currency	Rs/lakh	100000	
Source of funding	GBS	No	IDC
Cost of debt	10 year G-Sec Rat: As on 1st April	6.86%	

YoY Growth					
Type			Working Expense	Earning	
Wagon/Freight			5.00%	5.00%	
Coach/Passengers			5.00%	5.00%	
Inflation for capital expenditure			5.00%		
Traffic Triggers	Year		Wagon	Coach	Non-Fare
--->	6	2033	100.00%	0.07%	0.00%
--->	11	2038	50.00%	0.07%	0.00%

Capital Cost (Estimated)

Asset Schedule other than Rolling stock					
Asset Class	Gross value (Rs/lakh)	GST Credit (If any)	Net Cost	Avg. Asset Life	Residual value
Civil-Land	0		0.00	Non depreciable	0
Civil-Preliminary	0		0.00	Non depreciable	0
Civil-Formation	0		0.00	Non depreciable	0
Civil - Bridges & Buildings	1.00		1.00	60	1
Civil - Pway & others	0.00		0.00	20	0
S&T	0.00		0.00	20	0
Electrical (G)	0.00		0.00	30	0
Electrical (TRD)	0.00		0.00	30	0
Mechanical other than Rolling stock	0.00		0.00	30	0
Total Cost	1.00	0.00	1.00		1

Replacement of Asset							
Rep. Year	Asset	Year of Replacement	Useful life	Amount	Year utilised	Residual value	Remarks
0	Civil - Bridges & Buildings	0	60	0	30	-	
20	Civil - Pway & others	2047	20	0	10	-	
20	S&T	2047	20	0	10	-	
0	Electrical (G)	0	30	0	30	-	
0	Electrical (TRD)	0	30	0	30	-	
0	Mechanical other than Ro	0	30	0	30	-	

Inflation & IDC										
Construction Year	For year	Capitalised	CWIP	CWIP with Inflation	Capitalised	Closing CWIP	Average CWIP	Interest	Project cash outgo	
Year 1 2024	16.55%	0%	0.17	0.17	0	0.17	0.08	-	(0.17)	
Year 2 2025	18.27%	0%	0.18	0.19	0	0.36	0.26	-	(0.19)	
Year 3 2026	23.45%	0%	0.23	0.26	-	0.62	0.49	-	(0.26)	
Year 4 2027	41.73%	100%	0.42	0.48	1.10	-	0.31	-	(0.48)	
Year 5 2028	0.00%	0%	-	-	0.00	-	-	-	-	
Year 6 2029	0.00%	0%	-	-	0.00	-	-	-	-	
Year 7 2030	0.00%	0%	-	-	0.00	-	-	-	-	
Year 8 2031	0.00%	0%	-	-	0.00	-	-	-	-	
	0.00%	0%	-	-	0.00	-	-	-	-	
	100.00%			1.10	1.10			-	(1.10)	

CRRM		
Timeline	Year	Value
Yr	2027	0
Yr	2028	0
Yr	2029	0

Rolling Stock									
Category	Useful life	No. of Stock	Rate in lakh	0	Year	6	Year	11	(Rs/lakh)
		Unit	Rate	Amount	Unit	Amount	Unit	Amount	Residual Value
BCNA	40	0.00	29.774	0.00	0.00	0.00	0.00	0.00	0.00
BOX'N'	35	0.00	26.074	0.00	0.00	0.00	0.00	0.00	0.00
BTPN	45	0.00	27.774	0.00	0.00	0.00	0.00	0.00	0.00
BVG	35	0.00	16.074	0.00	0.00	0.00	0.00	0.00	0.00
ENGINE ELECTRIC	36	0.00	700	0.00	0.00	0.00	0.00	0.00	0.00
MEMU MOTOR COACH	25	0.00	347	0.00	0.00	0.00	0.00	0.00	0.00
MEMU TRAILER COACH	25	0.00	81	0.00	0.00	0.00	0.00	0.00	0.00
WAG7		0.00	733.19	0.00	0.00	0.00	0.00	0.00	0.00

Total	0.00	0.00	0.00	0.00

Earnings

A	Detention saving	Document Ref.	Sub-Ref.	Wagon	Coach
	No. of trains detained per day	Up		0	0
		Down		0	0
	Avg. detention time in Minute	Up		0	0
		Down		0	0
	Avg. load per train in terms of wagons			0	0
	Repair & Maintenace Hours Wagon/Coach	ASS 2020-21/Strmnt 26A/Pg.293	Column 56&58 fr Pg. 291/Column 28 for Coach	4.52%	6.17%
	Repair & Maintenace Hours Loco-Diesel Electric Cost of Wagon	ASS 2020-21/Strmnt 26A/Pg.290	Column 4+ Column 6	9.77%	9.77%
				2,977,400	34700000
	R&M Charges Wagon	ASS 2020-21/Strmnt 26B/305	Column 13 for wagon Column 7 For coach	105,829	503,903
	R&M Charges Loco	AIIEHC letter dtd. 17/6/20		14990	14990
	Depreciation index			0.0143	0.0143

B Passenger Earning			
Passenger capacity			
Motor			0
Trailer			0
Earning per passenger in Rs.	As per All class average as per Statement 12/ASS-2020-21 pg.117/Col.26		0.66

Working Expense

Assumptions and inputs for working expenses
Goods

Particular	Document	Standard Sub-Ref	Page	Volume/Rate
Avg. Wagon KM per wagon day	ASS 2020-21	Col.16	281	181.5
Maintenace cost per wagon	End result 20-21 Freight	Table 6	13	990.77
Line haul maintenance cost per (000) GTKM				
Electric Traction	End result 20-21 Freight	Table 8	14	148.47
Train passing staff	End result 20-21 Freight	Table 10	15	66.32
Track	End result 20-21 Freight	Table 12	16	82.41
Signalling	End result 20-21 Freight	Table 14	17	15.56
Other Terminal Charges per Wagon	End result 20-21 Freight	Table 3	11	2312.48
Marshalling Charges per wagon/yard	End result 20-21 Freight	Table 5	12	51.56
Documentation charges per 10 wagon	End result 20-21 Freight	Table 1	10	482.18
Indirect Expense	End result 20-21 Freight	Table 15	18	53.04%
Central Charges	End result 20-21 Freight	Table 16	18	0.76%
Coach				
Vehicle KM per vehicle day in use	ASS 20-21	Col.9	280	185.00
Maintenance cost per vehicle day	End result 20-21 Coach-Ordinary	Table 18	57	4,304.97
Traction cost per day per 1000 GTKM	End result 20-21 Coach-Ordinary	Table 13	52	240.40
Prov. & Maint. Of track per 1000 GTKM	End result 20-21 Coach-Ordinary	Table 16	55	99.08
Signalling cost per engine KMs	End result 20-21 Coach-Ordinary	Table 17	56	20.49
General Overhead	End result 20-21 Coach-Ordinary	Table 47	72	48.91%
Central Charges	End result 20-21 Coach-Ordinary	Table 48	72	1.12%

Funding

State Grant

0%

Project Code	-
Project Detail	ABC
Project Type	New Line
Zone	ABC

- Hardcoded inputs
- Formula based numbers not to change



Projection of working expense for first year - GOODS

S.No.	Particular	Unit	Basis	Nos	Rs/Lakh
A	Wagon for additional route	Nos./p.a.	Wagon proportionate to KM	1	
B	Wagon KM	KM/p.a.	(No. of Wagon*Additional KM)	1	
C	Avg. Wagon KM per wagon day	KM/p.a./Wagon	(As per latest ASS)	182	
D	Wagon days	Day/annum	(B/C)	0	
E	Loaded Wagon GTKM	In (000) p.a.	(Additional KM*Gross TKM*No. of wagon)	0	
F	Empty Wagon GTKM	In (000) p.a.	(Additional KM*Tare wght*No. of wagon*Empty Wgn Factor)	0	
G	Total Wagon GTKM	In (000) p.a.	(E+F)	0	
i	Wagon maintenance Cost	Rs/lakh/p.a.	(D*Rate)		0.00
ii	Line haul maintenace cost	Rs/lakh/p.a.	(G*Rate)		0.00
iii	Terminal Charges	Rs/lakh/p.a.	(A*Rate)		0.01
iv	Cost of Marshalling	Rs/lakh/p.a.	(A*Rate)		0.00
v	Cost of Documentation	Rs/lakh/p.a.	(A/10*Rate)		0.00
	Direct Expense	Rs/lakh/p.a.			0
i	Indirect Expense	Rs/lakh/p.a.			0
ii	Central Charges	Rs/lakh/p.a.			0
	Total Expense	Rs/lakh/p.a.			0
	Grand Total Expense				0

S.No.		Commodity	Company	From	To	Existing Route (KM) (A)	Additional KM to be added (KM) (B)	Additional Projected traffic (Tonnes) (C)	PCC* (Tonnes) (D)	Tare weight of wagon (Tonnes) (E)	Total Weight F = (D+E)	No. of Wagon G = (C/D)	Wagon KM each way	Loaded Wagon GTKM in (000) H=G*B*F	Empty Wagon GTKM with 25% factor (In 000) (I)= G*E*B*25%	No. of Wagon proportionate KM J = G * {B/(A+B)}
						1	1.00	1	1.00	1.00	2.00	1	1.00	0.00	0.00	0.50
Total																
											2	1.00	1.00	0.00	0.00	0.50

*Permissible carrying capacity of wagon

	Hardcoded inputs
	Formula based numbers not to change



Indian Railways

S.No.	Particular	Unit	Basis	Nos	Rs/Lakh
A	Total Passenger	Passenger/annum	(No.of Coach*capacity)	730	
B	GTKM-Up&down	KM/p.a.	(Gross weight * Projected route KM)	782	
C	Engine KM	KM/p.a.	(No. of Engine * Projected route KM)	730	
D	Vehicle KM	KM/annum	(No. of Trains * Projected route KM)	0	
E	Vehicle KM in use per day	KM	Standards	185	
F	Vehicle days	days	(Additional KM*Tare wght*No. of wagon)	0	
i	Provision & Maint per day	Rs/lakh/p.a.	(F*Rate)		0.00
ii	Traction cost	Rs/lakh/p.a.	(B/1000*Rate)		0.00
iii	Provision & Maint of track	Rs/lakh/p.a.	(B/1000*Rate)		0.00
iv	Provision & Maint of signalling	Rs/lakh/p.a.	(C*Rate)		0.15
	Direct Expense	Rs/lakh/p.a.			0.15
i	General Overhead	Rs/lakh/p.a.			0.07
ii	Central Charges	Rs/lakh/p.a.			0.00
	Total Expense	Rs/lakh/p.a.			0
	Grand Total Expense				0

S.No.		Coach	No. of Coaches (A)	Tare Weight (B)	Total Tare Weight (C)	Static value of passenger (D)	Carrying Capacity (E)	Total Passenger weight F = D*E*A	Gross weight G= C+F	Projected Route Km (H)	GTKM p.a. (Up& down) I= G*H*365*2	No. of Engine (J)	Engine KM p.a. (up & down) K= H*J*365*2	Passenger p.a. (up & down) L= A*E*365*2
			1	1	1	0.071	1	0	1.07	1.00	782	1	730.00	730.00
Total											781.83		730.00	730.00

S.No.	Train NO.	From	To	Projected Route KM (A)	No. of Train each way (B)	Total Coach/Vehicles E = (C+D)*B	Motor Coach (C)	Trailer Coach (D)	Vehicle KM (Up&Down) F= A*E*2	Vehicle KM per annum (Up&Down) G=F*365
					1	0.00	1	1.00	0.00	0.00
Total										0

Project Code
Project Detail
Project Type
Zone

ABC
New Line
ABC

Hardcoded inputs
Formula based numbers not to change



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Calculation of saving on account of detention

Saving on Detention - Wagon

Particular			Goods	
		UoM	Up	Down
A	Train detained per day		0.00	0.00
B	Avg. detention time	In hours	0.00	0.00
C	Avg. load per train	No. of Wagons	0.00	0.00
D	Wagon hours saved (A*B*C)	Wagon hours/day	0.00	0.00
E	R&M days saved	Wagon hours/day	0.00	0.00
F	No of Wagon saved incl. R&M - (D+E)*365	Wagon hours/annum	0.00	0.00
G	No of days- F/24/365		0.00	0.00
H	Cost of Wagon		2977400	2977400
I	Interest @	6.86%	204250	204250
J	R&M Charges		105829	105829
K	Depreciation - H * Index		42577	42577
L	Total Saving per day (I+J+K)/365		966	966
M	Gross Saving = G*L*365	In Rs/lakh p.a.	0	0

Saving on Detention - Engine/Loco

Particular			Goods	
			Up	Down
A	Train detained per day		0.00	0.00
B	Average detention time		0.00	0.00
C	Avg. detention hour per day		0.00	0.00
D	R&M Hours	9.77%	0.00	0.00
E	Diesel engine hours detained per day		0.00	0.00
F	Cost of Engine per hr	14990	0.00	0.00
G	Saving per annum	Rs. In lakh	0.00	0.00

Saving on Detention - Coaching

Particular		UoM		Passenger	
				Up	Down
A	Avg. nos. of trains detained per day	Nos.		0	0.00
B	Avg. detention time per coach/day	In Hours		0	0.00
C	No. of Coaches detained per day	No. of Coach		0	0.00
D	Coach detention per day	CoachHr/day	D=A*B*C	0	0.00
E	R&M day saved	CoachHr/day	D*Rate	0	0.00
F	No of Coaches saved incl. R&M	CoachHr/annum	F=(D+E)*365	0	0.00
G	No of Coach days	Days	G=F/24/365	0	0.00
H	Cost of Coach			34700000	34700000
I	Interest @	6.86%		2380420	2380420
J	R&M Charges			503903	503903
K	Depreciation - H * Index			496210	496210
L	Total Saving per day (I+J+K)/365			9262	9262
M	Gross Saving = G*L*365	In Rs/lakh p.a.		0	0

Saving on Detention - Engine/Loco

Particular				Coach	
				Up	Down
A	Train detained per day			0.00	0.00
B	Average detention time	In Hours		0.00	0.00
C	Avg. detention hour per day	In Hours		0.00	0.00
D	R&M Hours	9.77%		0.00	0.00
E	Diesel engine hours detained per day			0.00	0.00
F	Cost of Engine per hr	14990		0.00	0.00
G	Saving per annum	Rs. In lakh		0.00	0.00

Calculation of Earnings

ABC
New Line
ABC

- Hardcoded inputs
- Formula based numbers not to change



Earning from Goods

S.No.	Company	Commodity	From	To	Existing Route KM (A)	Projected Route Km (B)	Total KM C = A+B	Weight in Tonnes D	Class	Rate/Tonne E	Gross earning in lakhs F= D*E	Project Route earning in Rs/lakh G = (F/C)*B	Additional traffic in 6th Year-Tonnage	Additional traffic in 11th Year-Tonnage
					1	1	2	1	145A	1	0.00001	0.00	1.00	1.00
					1	1	2	1	120	1	0.00001	0.00	1.00	1.00
					1	1	2	1	120A	1	0.00001	0.00	1.00	1.00
								3.00				0.00	3.00	3.00

Earning from Passenger

S.No.	Train No.	From	To	Type of coach	No. of coaches (A)	Capacity (B)	Pax/day/w ay $C=A*B$	Pax/day/b o th ways $D=C*2$	Passenger per annum $E = D*365$	Projected route distance (F)	Earning per passenger (G)	Total earning per annum $H=E*F*G$	Additional traffic in 6th Year- Passengers	Additional traffic in 11th Year- Passengers
					1	1	1	2	730	1	0.66	481.8	1.00	1.00
					1	1	1	2	730	1	0.66	481.8	1.00	1.00
					1	1	1	2	730	1	0.66	481.8	0.00	0.00
					1	1	1	2	730	1	0.66	481.8	0.00	0.00
Total									2920			1927.2	2	2
												0.019272		

भारत सरकार (GOVERNMENT OF INDIA)
रेल मंत्रालय (MINISTRY OF RAILWAYS)
रेलवे बोर्ड (RAILWAY BOARD)

No. 2023/W-I/Genl./CAO/C/Conference.Pt.7 New Delhi, dated: 16.03.2023

The General Managers

All Indian Railways/PUs, NFR(Con), CORE
DG/RDSO/Lucknow, DG/NAIR/Vadodara

Sub: - Fast tracking the execution of projects

Ref: - 1. CAO(C) conference on 04.02.2023 at IRICEN
2. This office letter No.2021/W-I/Genl/Gati Shakti dated 28.10.2022

Railway Board has prepared mission 3,000 MT Master Plan to enhance the existing carrying capacity of about 1,400 MT to 3,000 MT by 2030. The CAPEX for the current year has also increased accordingly in the Budget. This requires planning, sanction and consequent execution of a large number of capacity enhancement works like Doubling/Multi-tracking/Traffic facility works/yard re-modeling/Chord lines/bye pass lines/ Rail over Rail flyovers as well as setting of new lines. To achieve the required pace of work the existing systems need to be re-engineered to enable fast tracking of Project Delivery.

CAO/C's conference was held at IRICEN, Pune on 04.02.2023 for capacity building of CAO (Construction) Organization units for enhancing projects deliveries to double-triple in line with the demand and CAPEX allotted. The meeting was also attended by CRB, MI and other Board officials. Based on the suggestions of CAO/Cs and recommendations of conference, the following is decided for capacity building in construction organizations of Zonal Railways for further necessary action and implementation:

1. Posting of Officers:

- i. Number of posts in open line and construction in zonal railways need to be rationalized for ensuring required Officer/Supervisors availability for increased construction activities.
- ii. To the extent possible, officials may be posted for the entire project duration and normally retained till completion of that project.
- iii. CAO/C is competent for distribution of works among SAG/JAG officers.
- iv. Transfer and posting of officers from/to construction may be done in consultation with the CAO/C.
- v. Wherever possible, Field Construction teams away from CAO/C headquarter should be led by CPM/Cs and should have multidisciplinary team under CPM/C.

2. Engagement of JTAs/STAs

- i. Number of JTAs/STAs for all the departments shall be as per actual requirement for the project unit involved in planning, design and execution of the projects as per the estimate provisions and shall not be linked to vacancies.
- ii. The present system of engaging JTAs/STAs may be continued till the system of Project Supervision Services Agency (PSSA) is properly established. Upon stabilization of PSSA system, engagement of JTAs/STAs may be kept as a back-up option in case of failure of PSSA contract.
- iii. Expenditure on JTAs/STAs should be charged to departmental provision available in the projects.

3. Strengthening of Construction Organization.

- i. Vacant ministerial and non safety posts in various departments in open line may be transferred to construction organization as per the requirement in construction organization.
- ii. A Committee PCPO, CAO(C) and PFA should be constituted for this purpose to prepare the proposal and submit its recommendation to GM in 15 days time for implementation by the Zonal Railways.

4. Shortage of Officers

- i. Instructions for re-engagement of JTS/SS/JAG/SG retired officers based on requirement of workload in the project unit are already issued vide letter no. 2021/W-I/Genl./Gati Shakti/ Pt. dated 20.02.2023.
- ii. Specialized consultants for long duration may be engaged for Design, Safety, Quality, Instrumentation & Monitoring and Supervision etc. Multiple projects may be grouped for convenience of working and engaging good consultants.
- iii. The design office of CAO/C should be strengthened by departmental supervisors and long duration DDC, Proof checking consultants etc.
- iv. Funds may be given to CBE office, if required, for engaging consultants to help in faster checking and approvals of drawings.
- v. Standing legal consultants may be engaged wherever required to deal with legal issues of EPC contracts etc. in CAO/C units.

5. Quality

Running contracts with reputed agency for third party quality audit and safety audit shall be kept with CAO/C units to ensure regular and independent quality checks for projects. Contracts may be awarded by grouping multiple projects for convenience and to get quality agencies. System of Metros may be followed.

6. Preparatory Works

- i. Running Contract to deal with multiple projects and longer duration may be entered into for 2 to 3 years for getting resourceful consultants for preparatory works of repetitive nature like FLS, Preparation of DPR, and DDC, proof checking LDC (Lead Design Checker), quality control and other project management services.
- ii. Service agencies may be appointed to assist in land acquisition and forestry clearances. Multiple projects to be grouped for convenience and resourceful agency.
- iii. Retired Revenue/Forest officers to be engaged wherever required for coordination of land acquisition, forest clearance and wild life clearance.
- iv. Pre-investment activities for project preparation including shifting of Utilities may be done by executing agency as part of project preparatory works by preparing and sanctioning of part detailed estimate in line with Finance Ministry instructions vide letter no.24(35)/PF-II/2012 dated 05.08.2016. Alternatively, where appropriate, utility shifting may be incorporated as part of scope of EPC contract where consent of utility owning agency for the relocation is available along with approval on its GAD and site.

7. Contractual Issues

- i. EPC Contract of proper size and packaging should be entered into.
- ii. Works of utility shifting specially transmission lines etc. may be executed by Railways under supervision of utility owner.

8. NI working

- i. One of the ADRMs and concerned Open Line team of Divisional Officers and Supervisors should be nominated during NI working to ensure proper coordination and timely completion of NI.
- ii. System of using 'Calling-on Signal' should be adopted in yard remodeling works to reduce NI duration and requirement of blocks.
- iii. Standard circuits upto 100 routes shall be used to fast track signaling works.
- iv. Adequate S&T staff in Construction Units to be ensured to achieve targets.
- v. Signaling design office should be strengthened in each CAO/C office.

9. SOP Issues

- i. Instructions regarding single stage vetting of proposal are issued vide letter no.-2022/FX(II)/PW/3 dated 08.02.2023.
- ii. In order to ensure cash flow in works, the powers for work wise distribution for all Plan heads has been delegated to Zonal Railways vide letter No. 2011-B-174 dated 26-08-21. Funds should not be a constraint and any additional funds required should immediately be brought to the notice of Board.

10. Technical Suggestions

- i. Minor correction in ESP or SIP should be done at HQ itself without referring back to field units/divisions.
- ii. Adoption of Ultra High Performance Concrete (UHPC) may be considered judiciously.
- iii. Connectivity in 3rd & 4th line projects is to be kept at every 30 - 40 km only.
- iv. Number of signatories on GADs/ ESPs etc. should be kept as low as possible.
- v. There are abnormal delays in approval of GADs, ESPs, SIPs etc. ADRMs in Divisions and AGMs in zonal headquarters should monitor this subject every week.
- vi. More and more pre-fabricated/precast structures should be used for subways, cable ducts, drains, PF walls, coping etc. for faster and quality construction.
- vii. Proper quality pre-fabricated/precast cable ducts should be used to avoid cable cuts in future.

11. Booking of Expenditure:

- i. In case of contracts catering to multiple projects, as provided in preceding paras (4, 5, 6) the expenditure should be allocated and charged to respective projects.
- ii. All units need to implement IR-WCMS modules including e-MB and Contractor e_MB completely wherever applicable.

Zonal railways are advised to immediately implement the above to scale up the delivery of projects.

GMs should monitor implementation of these instructions.

This issue with the approval of Board (MI, MF and CRB & CEO)

**MOHIT
KUMAR**

(MOHIT KUMAR)
Director/Gati Shakti (Civil)-III
Railway Board

New Delhi dt. 16.03.2023

No.2023/W-1/Genl./CAO/C/Conference.Pt.7

1. The PFAs, All Indian Railways & Production Units,
2. Dy. Comptroller and Auditor General of India (Railways), Room No.224, Rail Bhavan, New Delhi.

For Member (Finance) Railway Board

Copy to: As per list enclosed.

Copy to:

1. The ADAI (Railways), New Delhi.
2. The Director of Audit, All Indian Railways
3. The Director, Indian Railway Institute of Civil Engineering, Pune.
4. The Director, Indian Railway Institute of Mechanical and Electrical Engineering, Jamaipur.
5. The Director, Indian Railway Institute of Signal Engineering and Telecommunication, Secunderabad.
6. The Director, Indian Railway Institute of Electrical Engineering, Nasik.
7. The Executive Director, Indian Railways Centre for Advanced Maintenance Technology, Gwalior.
8. The Director, Indian Railway Institute of Transport Management, Lucknow.
9. The Registrar, Railway Claims Tribunal, Delhi.
10. The Chief Commissioner of Railway Safety, Lucknow.
11. The Secretary, Railway Rates Tribunal, Chennai.
12. The Chairman, Railway Recruitment Board, Ahmedabad, Ajmer, Allahabad, Bangalore, Bhopal, Bhubaneswar, Chandigarh, Chennai, Gorakhpur, Guwahati, Jammu & Srinagar, Kolkata, Malda, Mumbai, Muzaffarpur, Patna, Ranchi, Secunderabad and Trivandrum.
13. Managing Director, CRIS, Chanakyapuri, New Delhi.

Copy to:

1. The General Secretary, AIRF, Room No.248, & NFIR Room No.256-C., Rail Bhavan, New Delhi.
2. The Secretary General, IRPOF, Room No.268, FROA, Room No.256-D & AIRPFA Room No.256-D, Rail Bhavan.

Copy to:

1. Adviser to MR, EDPG to MR, OSD to MR, EDPG to MOSR(D), EDPG to MOS(J).
2. PSO/Sr PPS CRB, Member (Finance), Member (Infra), Member (TRS), Member (O&BD), Secy. DG(RHS), DG(RPF).
3. All AMs, Principal Executive Director & Executive Directors of Railway Board.

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RAILWAY BOARD**

No.2021/W-I/Genl./Gati Shakti pt (e-3397961)

New Delhi, Dated 20.02.2023

The General Managers
All Indian Railways/PUs, NF(Con), CORE

DG/RDSO/Lucknow, DG/NAIR/Vadodara

Sub.: Operationalization of Gati Shakti Units in the Divisions.

Ref: 1. Board's letter no. 2021/W-I/Genl./Gati Shakti dtd 27.07.2022.
2. Board's letter no. 2017/W-I/Genl./Board Meeting dtd 16.05.2022.

On the subject above, series of review meeting with the Gati Shakti Units were held to ascertain the status of works being undertaken by the Gati Shakti Units consequent to the instructions issued dated 27.07.2022. In the course of review a number of issues were discussed and clarified. The following may accordingly be ensured by the GM/DRMs.

Nodal officers of Gati Shakti Units in Zonal HQ are different in different Railways. It is decided that AGM should be uniformly nominated as Zonal coordinator [to be assisted by CPD/CE(SD)] for the Divisional Gati Shakti Units in the respective Zones.

1. Some of the units raised the issue that PMS & PSSA are not permitted for Divisional Gati Shakti Units. It is clarified that the Para 3.1 of Railway Board letter dated 27.07.2022 clearly indicates and addresses the issue.
2. In terms of Para 7.0 of the letter in ref (1) above, house retention is allowed at the previous place of posting for one year or scholastic year whichever is earlier. It is further clarified that "CPM/GS will be eligible for house retention at previous place of posting". Outstation CPM/C posted in field under CAO/C will also be eligible for house retention at previous place of posting on similar basis.
3. Most of the CAO/C and Divisional Gati Shakti Units have represented issues in office management and shortage of staff & officers. Following provision are provided for smooth functioning of these units to mitigate shortage of skilled manpower:
 - i. The CPM/GS and CAO/C units may engage project office support service agency / General Consultants for technical support/assistance in office management. This provision is in addition to PSSA (provision for works on BOQ basis) and PMS (provision for EPC contracts). The project office support service agency / General Consultants being deployed for office work also will assist the officers of Gati Shakti Units in coordination with the project specific PSSA/PMS within estimate provisions.
 - ii. The Division Gati Shakti Units have already been permitted to engage retired Senior Supervisors belowage of 65 years with approval of GMs.
 - iii. In majority of Gati Shakti Units, the posting of Junior/Senior scale officers is still awaited. GM/DRMs to ensure posting of JS/SS officer by suitably redistributing the work among officers of HQ, Divisions, Extra Divisional units and releasing surplus officer for posting in Gati Shakti Units. Care, however, has to be taken that officers and staffs in construction organizations who are executing major infrastructure projects are not depleted. Wherever there is still shortage, retired JS/SS/JAG officers of age below 65 years can be engaged in Gati shakti units and construction organization with approval of GMs. However, the number of such retired re-engaged officers can be limited to 2 (two) for each Gati Shakti Units and 5 (five) for each CAO/C Unit.

- iv. Fresh candidates from RRB have already been allotted to Zonal Railways. Board has also advised to GMs vide letter No. E(NG)/I/2022/TR/32 dated 24.08.2022 to depute adequate number of SSE/JE to CPM/GS and CAO/C Units. GMs office to distribute these supervisors by name to CAO/C and CPM/GS of Divisions duly taking into account their requirements, in order to ensure that there is no delay in allocating this manpower for execution of projects.
4. It was noted that in a number of the Divisions, the CPM/GS and Dy. CPMs are yet to be posted. Most of the Electrical and S&T officers are posted on looking after basis. This will hamper the works assigned to divisional Gati Shakti Units. GMs may ensure posting of required officers in place duly redistributing the workload among available officers.
 5. It was noted that in most of the Gati Shakti Units, DFM/ADFM have been detailed for Gati Shakti Unit on additional charge basis which may hamper the Gati Shakti Units functioning. Exclusive JS/SS officer and section officer of Finance department may be posted to the extent possible in the Gati Shakti Unit. His/Her overall supervision will continue to be with Sr.DFM as per Para 1.7 of the letter dated 27.07.2022.
 6. Some of the GMs have sought powers similar to CPM/GS for CPM/Const. The provisions in Para 1, 2 and 3 above and powers given in letter dated 27.07.2022 can accordingly be utilized for CPM/Const. posted in field.
 7. Some of the DRMs have raised the issue of non-uniform constitution of T.C. in all Divisions. It was clarified that as per extant Model Schedule of Powers- 2018 (MSOP-2018), the constitution of Tender Committees falls under the purview of Zonal Railway. For uniformity among all Gati Shakti Unit of Divisions, GM may nominate SAG level T.C. for works cost above 20 crore & up to Rs.50 crore. Whenever SAG finance officer is not available locally, local JAG/SG finance officer may be nominated as per similar provision in para 3.1 of Model SOP, Part - D & Rly Bd. letter no 85/F(S) I/PW/7/I of 27-05-1987.
 8. Network Planning Group (NPG) should be formed at Zonal HQ & Division level as advised vide letter no 2021/W-1/Genl./Gati Shakti dated 28.10.2022 to have synergy and integrated projects planning.
 9. The transfer of works to Gati Shakti Units should be done judiciously by GMs keeping in view relative capacity of GSU and construction organization to execute the concerned work, to avoid delays in completion/targets. However, **Amrit Bharat Station** works which do not involve large scale upgradation, will be generally assigned to Gati Shakti Units of Division in view of day to day coordination with divisional officers during execution of such brown field works.

This issues with approval of Board (MI, MF, MO&BD and CRB & CEO)


(Mohit Kumar)
20.02.23
Director Gati Shakti (Civil)-III
Railway Board

Copy to:

1. The PFAs, All Indian Railways & Production Units.
2. All CAO/C of Indian Railways.
3. All DRMs of Indian Railways.
4. Dy. Comptroller and Auditor General of India (Railways), Room No. 224, Rail Bhawan, New Delhi.


20/02/23
(For Member Finance)

No.2021/W-I/Genl./Gati Shakti

New Delhi, dated: 28.10.2022

The General Managers

All Indian Railways/PUs, NFR(Con), CORE

DG/RDSO/Lucknow, DG/NAIR/Vadodara

Sub.: Fast tracking the sanction & execution of Projects.

Ref.: Office Order No.37 of 2022 dated 26/05/2022 - Creation of Gati Shakti Directorate.

Railway Board has prepared mission 3,000 MT master plan to enhance the existing carrying capacity of about 1,400 MT to 3,000 MT within next 5-7 years. This requires planning, sanction and consequent execution of a large number of capacity enhancement works like Doubling/Multi-tracking/Traffic facility works/ Yard re-modeling as well as setting up of new lines. To achieve the required pace of work the existing systems need to be re-engineered to enable fast tracking of Project Delivery. Accordingly the following has been decided for fast tracking sanction & execution of projects:

1. The RET/PET surveys will be called as **feasibility studies** from now onwards. Necessary correction in Engineering Code in this regard is being processed separately.
2. DRMs/GMs are empowered to sanction feasibility studies for required projects in their Division/Zonal Railway considering coal, port connectivity, revenue potential for cargo loading, etc. subject to availability of funds. The proposal of conducting feasibility studies shall be put up for DRMs/GMs approval through Divisional/Zonal Finance, as the case may be.
3. Feasibility study of projects shall be carried out by Gati Shakti units of Divisions in the Division and CAO/C for inter Division and inter Zonal Railway projects (for NL, Doubling, GC, etc.) as per coverage of length and jurisdiction using resources & capability available on the "PM Gati Shakti" portal, designed/hosted by BISAG-N, and engagement of expert agency.
4. Each Division and Zonal Railway Headquarter will have a Network Planning Group (NPG) for selecting feasible projects for the preparation of DPR to improve mobility, throughput/loading in the Railway. The constitution of NPG will be as given below:
 - 4.1. **Zonal Level:** Under PCOM/CTPM of Railway (PCOM/CTPM & SAG officers of Engineering, Electrical, S&T & Finance) as approved by GM.
 - 4.2. **Division Level:** Under CPM/GS (Dy. CPM/GS/T or equivalent with SG/JAG officers of Engineering, Electrical, S&T, Operating, Mechanical & Finance) as approved by DRM.

- 4.3. The feasibility study for projects lying exclusively within the Division can be approved by DRM.
- 4.4. Similarly, feasibility study of inter-divisional projects within the Zonal railways jurisdiction can be approved by General Manager.
- 4.5. Feasibility study of Inter Railway projects will continue to be approved by the Board as at present.
5. Approval of the DRM/GM will be obtained for preparation of DPR for feasible projects required to be executed by Zonal Railway for improving mobility, throughput, and loading in the Railway. DRMs/GMs are empowered to sanction works for preparation of DPRs for such projects (whose feasibility study was approved by them) that are found feasible.
6. The details of all feasibility studies & DPR sanctions shall be advised to ED/GS (Civil)-I, Railway Board as and when sanctioned for records.
7. DPR will be prepared by Gati Shakti unit of Division for Divisional projects and CAO (for NL, Doubling, GC etc.) projects in Zonal Railway for inter Division/inter Zonal Railway projects after approval of the proposal for DPR by the DRM/General Manager as per the standard template laid down by Gatishakti directorate of Railway Board. DPR should be prepared by executing agency of the project as decided by GM and guidelines issued from time to time.
8. The rates for feasibility study and preparation of DPR shall be as per prevailing rates and guidelines communicated by Railway Board from time to time. The current guideline is issued vide letter no.-2020/W-1/Genl./Survey Rates (E-3334464) dated 16.06.2021. Rates for feasibility study are ₹ 50,000/Km, DPR preparation are ₹2.5 lakh/Km for NL & ₹2.0 lakh/Km for DL and multi-track).

The cost of preparation of DPR can be increased (wherever required) with the personal approval of GM depending upon the type of terrain within the limits as mentioned in the circular No 2020/W-1/Genl./Survey Rates (E-3334464) dated 16.06.2021, to make the project ready at the time of sanction.

9. DPRs will be submitted by DRM to Gati Shakti Directorate of Railway Board with finance concurrence of Divisional Gati Shakti Unit through PCOM/NPG and approval of GM.
10. DPRs of inter-division/inter Zonal Railway works will be submitted to GS Directorate of Railway Board by CAO/C with the concurrence of FA&CAO/C through PCOM and approval of GM.
11. Budget Provision: The expenditure limit for each Zonal Railway for feasibility study/DPR will be authorized by Railway Board at the beginning of the financial year. The Budgeting and account of feasibility studies and DPRs shall be as under:

Once work to undertake feasibility study/DPR is approved, Railways will project the requirements under Revised Estimates for the current year and Budget Estimates for next year

under MH 3001 Minor Head 005 Surveys (erstwhile Demand No 2). Expenditure will be incurred by Zonal Railways against the budget provision. Zonal Railways are authorized to re-distribute funds among sanctioned feasibility study / DPR works. If the construction of a project is undertaken, the expenditure on the Survey is transferred to Capital or other appropriate heads by Credits to Revenue, irrespective of the year in which the expenditure was originally incurred (Para 634 IREC).

12. Notification in the local Government gazette should be given before DPR works are taken up as per Indian Railways Code for the Engineering Department para E-253 before field survey and site investigations are taken up.
Consultation with Irrigation department, Civil authorities, Military authority etc to be done as per Indian Railways Code for the Engineering Department para E-254 to E-266 before final DPR is cleared by NPG of Division/Zonal Railway. This should be part of DPR preparation.
13. Help of "PM Gati Shakti – National Master Plan" (BISAG-N portal) should be taken for feasibility study to fix alignment duly avoiding wildlife sanctuaries, water bodies etc. depending on topography of terrain or geographical features.
14. Guidelines for the preparation of a Detailed Project Report (DPR) including detailed estimates are given in Indian Railways Code for the Engineering Department. DPR should cover all items given in Indian Railways Code for the Engineering Department and should additionally include project-specific items depending upon nature of project as per standard format circulated vide letter dt 02.09.2022 by Railway Board.
15. DPRs will be submitted by Division/Zonal Railway to Gati Shakti Directorate of Railway Board along with all check lists/proforma etc and a copy of power point presentation for NPG/EBR.
16. Standard yard layouts and standard SIPs issued by Board may be adopted in DPRs, to the extent feasible. Any deviation from Standard layouts may be brought out with proper justification as to why it was unavoidable. Any item processed through RSP should not be part of the DPR Estimate. 2x25KV OHE system should be part of electrical estimate, as conveyed by Railway Board vide letter 2022/RE/161/4 dtd. 27/05/2022.
17. The traffic survey details with calculation of FIRR and EIRR considering all social & economic development in the area and network effect should be submitted as per Indian Railways Finance code Volume-I, Chapter-II. The guidelines for calculation of EIRR for Railway projects have been issued vide letter dtd 19.08.2022.
18. To enhance accuracy, reduce time & cost, Surveys and alignment fixing should be done using latest survey technologies/tools available such as satellite images, drone Photogrammetry, LiDAR and "PM Gati Shakti- National Master Plan portal" created by BISAG.
19. The following activities shall be carried out at the time of preparation of DPR:

- 19.1. Identification of Govt. land, Private land, Forest land, wild life or any other category of land and process for obtaining NOC/clearances of authorities as required.
- 19.2. Topographical survey, Preparation of Longitudinal section and Plan, Survey for trees, soil investigation, etc.
- 19.3. Hydrological survey and waterway calculation for the design of bridges wherever required.
- 19.4. Indicative type and span arrangements of bridges & tunnel details wherever needed.
- 19.5. Field, Traffic, and other surveys are required for the calculation of Financial IRR and Economic IRR (including Network Effect).
20. Evaluation of DPRs in Boards office shall be done by the NPG/ nominated EDs committee of Railway Board in a time bound manner, normally within 10 days of DPR receipt (normally on alternate Tuesday/Wednesday). Zonal Railway or CPM/GS of Divisions will make a presentation through VC or in person along with their team to the NPG/Committee.
21. Minor corrections pointed out by the NPG/Committee/Railway Board are to be done immediately by the field team & DPR is to be resubmitted within 3 days.
If major corrections are to be done in DPR by Division/Zonal Railway, CPM/GS of Division or Zonal Railway to carry out corrections and corrected DPR to be submitted within 20 days to Railway Board.
22. Where DPR is accepted by NPG/committee/Railway Board, minutes will be drawn on the same day, and then after firming up the RoR of the Project, necessary In-Principle Approval (IPA) of MF shall be processed.
23. For the Projects with FIRR more than prevailing hurdle rate or as decided by competent authority, as pre construction activities, following items shall be taken up by railways once IPA is granted by the competent authority to avoid/minimize delay in commencement of main construction work once project is sanctioned:
 - 23.1. Preparation of all Revenue & Forest land plans, submission to authorities, uploading of Forest clearance documents on PARIVESH portal, field verification of land & forest plan with revenue & forest official during Joint Measurement Survey (JMS). Field verification by forest officials may be combined with Revenue verifications in JMS to avoid repetition & loss of time. However, payment should be made only after sanction of the project by the competent authority.
 - 23.2. Preparation of GAD/Plans for shifting of utilities like HT line crossing, sewage line, etc., and necessary application to authorities for shifting/clearances. However, payment should be made only after sanction of the project by the competent authority.
 - 23.3. Preparation of GAD of bridges/ROBs/RUBs/Tunnels, station building plans, ESPs, SIP etc and obtaining approval of Competent Authority.

- 23.4. Detailed Geotechnical investigations at all critical locations such as formations, Bridges, ROBs, Tunnels etc.
- 23.5. Packaging and preparation of draft EPC Bid documents. A separate package may be planned for works on Govt. land and for long lead items.
- 23.6. EPC bids may be invited with approved ESP/SIP as attached document as per powers delegated under SOP and bids can also be opened, however, finalization and LOA shall not be issued until the project is sanctioned by the competent authority. Bids should be called for on the basis of Detailed Estimate (DE) or on the basis of Abstract Estimate (AE) if DE is same as AE. LoA may be issued when competent authority DRM/CAO is of the opinion that work can be taken up without any break. No change shall be allowed in approved ESP/SIP after invitation of tender.
24. After obtaining IPA, the project shall be further processed for approval of competent Authority after appraisal by Board/NITI Aayog/EBR depending upon the cost of the project as per the prevailing delegation of powers.

This is issued with the approval of Board (CRB & CEO, MF, MoBD and MI).

Encl.: As above.


Joint Director/GS(Civil)-II

No.2021/W-I/GenL/Gati Shakti

New Delhi dt. 28.10.2022

1. The PFAs, All Indian Railways & Production Units.
2. Dy. Comptroller and Auditor General of India (Railways), Room No.224, Rail Bhavan, New Delhi.


(For Member Finance)

Copy to: As per list enclosed

No.2021/W-I/GenL/Gati Shakti

New Delhi dt. 28.10.2022

Copy to:

1. The ADAI (Railways), New Delhi
2. The Director of Audit, All Indian Railways
3. The Director, Indian Railway Institute of Civil Engineering, Pune.
4. The Director, Indian Railway Institute of Mechanical and Electrical Engineering, Jamalpur.
5. The Director, Indian Railway Institute of Signal Engineering and Telecommunications, Secunderabad.
6. The Director, Indian Railway Institute of Electrical Engineering, Nasik.

7. The Executive Director, Indian Railways Centre for Advanced Maintenance Technology, Gwalior.
8. The Director, Indian Railway Institute of Transport Management, Lucknow.
9. The Registrar, Railway Claims Tribunal, Delhi.
10. The Chief Commissioner of Railway Safety, Lucknow.
11. The Secretary, Railway Rates Tribunal, Chennai.
12. The Chairman, Railway Recruitment Board, Ahmedabad, Ajmer, Allahabad, Bangalore, Bhopal, Bhubaneswar, Chandigarh, Chennai, Gorakhpur, Guwahati, Jammu & Srinagar, Kolkata, Malda, Mumbai, Muzaffarpur, Patna, Ranchi, Secunderabad and Trivandrum.
13. Managing Director, CRIS, Chanakyapuri, New Delhi

Copy to:

1. The Genl. Secy., AIRF, Room No. 248, & NFIR Room No. 256-C, Rail Bhavan
2. The Secy. Genl., IRPOF, Room No. 268, FROA, Room No. 256-D & AIRPFA, Room No. 256-D Rail Bhavan

Copy to:

1. Advisor to MR, EDPG to MR, OSD to MR, EDPG to MOS(D), EDPG to MOS(J)
2. PSO/ Sr PPS CRB, Member (Finance), Member (Infra), Member (TRS), Member (O&BD), Secy, DG (RHS), DG (RPF)
3. All AMs, Principal Executive Director & Executive Directors of Railway Board


28/10/22
Joint Director/GS(Civil)-II

भारत सरकार / Government of India
रेल मंत्रालय / Ministry of Railways
(रेलवे बोर्ड / Railway Board)

No: 2021/W-I/GenL/Gatishakti

New Delhi, Dated: 14.10.2022

The General Managers,
All Indian Railways/PUs, NF(Con),CORE
CMD/RVNL, CMD/IRCON, CMD/KRCL, CMD/RITES, CMD/MRVC

Sub:- PM Gatishakti State Master Plan - Submission of Projects to Technical Support Unit/DPIIT.

Ref:- Railway Board letter No 2021/W-I/ GenL/Gatishakti Dt. 27.07.2022

Please find enclosed DPIIT's OM dated 06.10.2022 wherein it has been desired that Revised Web Form (Version-2) should be filled up for Project evaluation to facilitate Technical Support Unit (TSU) to give more comprehensive recommendations. The Revised Web form should also be accompanied by an executive summary with a techno financial assessment by the consultant or the concerned Nodal officer of the Ministry/ Department.

DA :- As above.


(Abhishek Jagawat)
Joint Director/GS(Civil)-II
Railway Board.

No. National Master Plan/ Logistics/ 2021 (E-64693)
Government of India
Ministry of Commerce & Industry
Department for Promotion of Industry and Internal Trade
(Logistics Division)

Udyog Bhawan, New Delhi.
Dated the 6th October 2022

OFFICE MEMORANDUM

Subject:- PM Gatishakti State Master Plan - Submission of Projects to TSU

The undersigned is directed to state that the Technical Support Unit (TSU) has started operating in DPIIT recommendations of which are being assessed and reviewed in the NPG meetings held since 26th July 2022. Upon on-boarding of Directors and Subject Matter Experts in the TSU, on the basis of evaluations done till now, it has been felt that the format which is available as web form in the NMP need to be modified. Accordingly, a revised web form as version-2, is attached which may be filled and send henceforth for project evaluation.

2. To facilitate the TSU, to give more comprehensive recommendation, it has also been felt that the above web form is also accompanied by an executive summary with a techno financial assessment by the consultant or the concerned Nodal officer of the Ministry/ Department.

3. Accordingly to make NPG recommendation more focused and value additive, all the Nodal officers of NPG are requested to engage with respective Directors in the TSU/Project Proponents while sending proposals to the ministry and suggest the impact, if any, of the projects to your Ministry/Department.

4. This issues with the approval of competent authority.



(Pramod Kumar Verma)
Under Secretary to the Govt. of India
Email: pramod.verma@nic.in

Encl: As above.

To,

- (i) NPG Nodal officers of all the Ministries/Departments.
- (ii) BISAG-N, with the request to upload the revised form in the portal for accessibility.

Copy for information to:-

- (i) All Directors, TSU, Logistics Division, DPIIT
- (ii) PPS to SS(Logistics), DPIIT
- (iii) PS to JS(Logistics), DPIIT

625403/2022/O/O DS(JJG)-DPIIT

Format for submission of project information for consideration by NPG

PROJECT BRIEF				
Name of the Sponsoring Ministry				
Project Title				
Location (State and District)				
Project Proponent				
Implementing Agency				
STATUS OF PROJECT				
DPR Status				
Land Acquisition Status				
Anticipated/Total Project Cost				
Land Acquisition Cost				
Expected project completion timeline				
Land Acquisition Timeline				
Has Project been mapped on NMP Portal? (Annex Schematic diagram)				
Project classification				
Salient features of the Project				
In bullet points, 500 words				
Alignment with Gati Shakti Principles				
Information Required	Yes	No	Other/ NA	Remarks
If the project is < 500 Cr., does the project align with the principles of PM Gati Shakti?				
Does the project provide intermodal/ transition infrastructure? (Peripheral infrastructure build up for providing transport connectivity to other modes)				
Does the project directly facilitate multi-modal infrastructure?				
Expected impact of the project on Logistics efficiency				
Information Required	Yes	No	Other/ NA	Remarks

625403/2022/O/O DS(JJG)-DPIIT

Is this project expected to lower the current logistics cost? Please quantify the financial benefit				
Has the shortest path along with multimodal impact taken into consideration?				
Integrated Planning Approach				
Information Required	Yes	No	Other/ NA	Remarks
Does the project positively impact any other infrastructure sectors (rail, roads, telecom, power etc.)? If so How				
Has the alignment been done with the data layers of other ministries on NMP? E.g.: Forest, Economic Zones, Telecom Networks, Water Bodies etc				
Are all the approvals required been identified and listed?				
Expected Utility of the project for Economic Clusters				
Information Required	Yes	No	Other/ NA	Remarks
What are the Go/No-Go areas considered while doing the alignment?				
Does the project positively impact existing economic clusters? If so, give brief				
Financial Model & Implementation Framework				
Information Required	Yes	No	Other/ NA	Remarks
What is the mode of implementation of this project?	PPP	EPC	Any other	
What is the structure of finance chosen for this project? (Capital structure, debt/equity/subsidy etc.)				
What is the IRR expected from this project?				
Whether the project is under the Annexure 1 of the CCEA note				
Note in Annexure - I for coordination to facilitate integrated planning, synchronized implementation and details of clearances expected.				
Expected Impact of the project on Logistics efficiency				
In bullet points, 500 words				
Summary of Impact Assessment (refer Annexure II)				
In bullet points, 500 words				

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Annexure –I

Proposed intervention required from other ministries/departments for integrated planning, synchronized implementation and expected clearances

S. No	Name of Ministry	Proposed activity for integrated planning	Proposed activity for enhanced optimization (through modification, expansion, new components)	Expected Clearances required	Remarks
1.	MoRTH				
2.	MoR				
3.	MoCA				
4.	MoPSW				
5.	MoPNG				
6.	DoT				
7.	Min of Power				
8.	MNRE				
9.	MOEFCC				
10	Others				

Annexure – II

Multimodal Connectivity		
Distance to nearest (in km)		Is there existing connectivity to nearest mode or being planned?
Airport		
Sea Port		
Inland Waterways		
Railway Station		
Metro Station (If applicable)		
Bus Stand		
Nearest National Highway		
Nearest State Highway		

Impact Assessment of the Project

Environment Impact	
Usage of Non-Conventional Energy	
Fuel Usage Reduction	
Carbon Footprint	
Rain water Harvesting	
Solid Waste Disposal	
Effluents Disposal	
Use of sustainable methods during planning and construction	

Economic Impact	
Increase in freight volume (metric tons etc.)	
Increase in traffic	
Saving in time	
Reduction in travel distance (km)	
Increase in efficiency	

625403/2022/O/O DS(JJG)-DPIIT

Social Impact	
Access to Health Infrastructure	
Access to Educational infrastructure	
Access to employment centre	
*Reduction in travel time to health, education and employment centres	

Employment Impact	
Expected Tourist Inflow	
Direct employment generation (no. of ppl employed)	
Indirect employment generation (no. of ppl employed)	
Expected generation of Business opportunities	



भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड RAILWAY BOARD)



No. 2022/W-I/Gen /DPR proforma (E-off: 3404238)

New Delhi, DL 02.09.2022

The General Managers,
All Indian Railways.
CMD/RVNL, IRCON, RITES, MRVC, KRCL

Sub: Proforma for preparation and submission of Detailed Project Report for New Line / Doubling /Multi Tracking/ Gauge Conversion.

As per existing instructions, Detailed Project Reports (DPRs) containing Detailed Estimates are required to be prepared for all works costing above Rs. 50 Crore. DPRs are sent by Zonal Railways/PSUs to Railway Board for appraisal and obtaining sanction of the competent authority as per the prevailing delegation of powers. As per Mission 3000 MT plan, large no of capacity enhancement works are required to be sanctioned in near future for which DPRs are being prepared and sent by zonal railways to Railway Board.

2.0 On perusal of DPRs of the various projects received in Board, it has been observed that there is no uniformity in submission of DPRs and sometimes important aspects are also not covered in DPR, resulting in difficulty in the appraisal of DPRs. Therefore, in order to bring uniformity in DPR preparation and to effectively appraise the DPR, Standard Format for preparation of DPR has been prepared. The DPR to be prepared in two volumes as under.

- (i) **DPR (Vol-I):** The Volume I of DPR should contain Executive summary and chapters on various components as per the Format attached as Annexure-A.
- (ii) **DPR (Vol-II):** The Volume-II of DPR should contain Detailed Estimate of the Project as per Engineering code.

2.1 The DPR to be submitted through a Covering letter signed by officer not below SAG level officer. The covering letter should contain following:

- Brief details and justification of project,
- Pink Book reference (if included in Pink Book)/ FLS reference,
- Table showing Total cost and Dept wise cost,
- Basis of rates and certification about estimated cost at current price level,
- Validation of alignment on BISAG
- Completion period.
- Summary of Projected Freight and Passenger traffic, projected earnings FIRR & EROR.
- Mention about finance concurrence and approval of GM

Documents related to internal correspondence and vetting of Associate finance of Zonal Railways need not to be incorporated in DPR. One PPT is required to be submitted with DPR.

2.2 Final DPR to be submitted after it is cleared by EDs' committee. Documents such as NPG format, draft EBR memo etc as mentioned in Railway Board's letter no 2021/W-I/Genl/Gatishakti dtd 27.07.22 to be submitted alongwith Final DPR

DA: As above


(Vikas Kumar Jain)
Executive Director/GS(Civil)-I
Railway Board

Copy to :- CAO(Con)s. All Indian Railways.

Annexure-A

DETAILED PROJECT REPORT: VOLUME I	
CHAPTER -1 : EXECUTIVE SUMMARY	
1.1	Introduction
1.2	Project Overview and justification
1.3	Methodology of preparation of DPR / Feasibility Report
1.4	Criteria for alignment finalization for New Lines (Traffic survey, obligatory points, BISAG verification, site constraints, techno economic factors, Protected monuments, wildlife sanctuaries, interaction with various stake holders etc.)
1.5	Traffic survey and Traffic forecast (including existing and projected line capacity utilization, anticipated additional Goods traffic etc). Anticipated additional Goods traffic (both incoming & outgoing), expected passenger traffic. Names of Seaports, SEZ, Logistic Parks, and Industrial corridors, Airports, Tourists place & pilgrimage centre to be connected.
1.6	Alignment of proposed New Line / Doubling etc. along with station names and key plan (Colour) showing surrounding Railway Network also
1.7	Alignment parameters (Horizontal Curves, Vertical Curves, Ruling Gradient etc., turnouts etc.)
1.8	Brief description about alignment and Terrain characteristics (Length, states/districts covered giving brief reference to Aspirational districts covered, stations / tunnels (if any) / major rivers / canals / nallahs / important bridges / major bridges / crossing of National Highway / State Highway / major District Roads / Towns / ROBs / Power Crossings / Climate characteristics etc.)
1.9	Topographical survey and soil investigation
1.10	Design standards (speed potential / formation / track structure / tunnel cross section / bridge loading standard / interlocking standards / electrification / Telecom / building standards etc.)
1.11	Land requirement (brief details of Private, Government & Forest Land) and brief methodology for calculation of the same.
1.12	Permanent way (Route length/total track length/No of loop lines/ Turnout details/Ballasted deck/Ballastless track/LWR / Loop speed etc.)
1.13	Major civil Engineering features (Brief details of bridges, spans of Major & important bridges, Tunnels, ROBs, RuBs/I.H.S, Level crossings, RoRs etc)

1.14	Railway stations & yards (list of stations and brief details of facilities being proposed in each station e.g. station building area, m & length of loop lines, Platforms, FoBs, CoPs. etc)
1.14	Offices and Other service buildings (Panel building, workshops, sheds etc)
1.15	Residential Buildings (staff quarters, Rest houses, Running rooms etc)
1.16	Shifting of Utilities (I.T/IT lines, Telecom, Sewers, cables etc)
1.17	Electrical (General) (brief details being proposed in every station, buildings etc. source of Power supply. etc)
1.18	Electrical (Traction) (Type, source, TSS etc)
1.19	Signaling (Brief of Signaling system at each station, Type of Block working, Standards of Interlocking, Telecom facilities etc)
1.20	Telecomm (Control communication, PA system, coach guidance, display boards etc)
1.21	Statutory clearances required (From NMA, wildlife , FCA etc)
1.22	Environment and Social Impact Assessment
1.23	Salient Features of Project (in prescribed format as per Annexure- I)
1.24	Summary of Cost estimate(In prescribed format as per Annexure-II)
1.25	Traffic projection and Earnings
1.26	Non Fare revenue
1.27	Source of Funding, Financial Rate of Return and Economic Rate of Return
1.28	Phasing and Construction time lines
1.29	Annual Fund requirement
1.30	Conclusion & Recommendations

CHAPTER-2 : Traffic Survey

	It should include objective of Traffic Survey, Analysis of existing capacity and line capacity utilization . Analysis of alternatives, Origin – Destination survey, stations Traffic characteristics and composition, Travel / transport pattern, Regional distribution, Passenger traffic estimation and forecast, Facilitation provided by this project to passengers of nearby Airport, Tourist hub, Pilgrimage centre, Goods traffic projection . Facilitation to freight traffic by its connection with any existing or upcoming Seaport, SEZ, Logistic Park, Industrial hub, Airport. Anticipated passenger & freight traffic shift from other modes of transport (roadways, airways, inland & coastal shipping) to railways, Expected decongestion of roads, Goods and

	coaching earnings, Assessment of working expenses. Goods traffic projection. Goods and coaching earnings, Assessment of working expenses etc. (All data sources and methodology to be followed in accordance with extant policy guidelines and rural provisions. Confirmation to same shall be part of traffic checklist).							
CHAPTER -3 : Engineering Survey								
3.1	Methodology of Topographical Survey (Survey of India Maps, DGPS Survey, permanent and temporary bench marks, Aerial Photogrammetry by Drones, LIDAR Survey, Total Stations etc.). List of bench marks along with their coordinates.							
3.2	Alternative alignments and route selection. Verification / validation of alignment in consultation with BISAG							
3.3	Description of alignment. Station location and criteria for choosing them.							
3.4	Geometric design of alignment (Chainage wise list of Horizontal Curves, Vertical Curves, Gradients). List of longitudinal section and plan of the alignment							
3.5	Details of soil investigation and type of strata along the alignment							
Chapter-4: Land requirement								
4.1	Criteria for requirement of land for track, stations, bridges etc.							
4.2	Break up of land requirement state-wise and district wise for Private land, Government land and Forest land							
4.3	Details of land requirement in the following format:							
	SN.	Chainage (M)		Length (Cum)	Width of land (M)	Area of land (Sq.m)	Private/ Govt/ Forest	Purpose for which land required
		From	To					
Chapter-5: Permanent Way								
5.1	Details of total track length including loop line etc.							
5.2	Design speed for Main line and Loop Line							
5.3	Cant excess and deficiency							
5.4	Track structure (Rail, Sleepers, Fixings, Ballast cushion etc.) for Main line and Loop Line							
5.5	Turnouts, SEJs, Glued joint etc.							
Chapter-6: Formation, Tunnels & Bridges								
6.1	List of important, major and minor bridges incorporating liner waterway in metre, chainage of bridge, span arrangement, river name, type of bridge etc. in the following format:							

	SN.	Bridge Nos	Chainage (M)	Waterway (M)	Span arrangement	Type of Bridge	River name
6.2	Details and list of road crossing works such as ROBs, RLs / LHS and Level Crossings.						
6.3	List of Rail Over Rail Flyovers, if any.						
6.4	Tunnel details and type of strata. Typical Cross Section of Tunnel. List of Tunnels in the following format:						
	SN.	Tunnel No	Length (RM)	Chainage (From)	Chainage (To)	Cross section area of Tunnel (Sqm)	Maximum over burden over Tunnel (M)
6.5	Earth work in embankment and cutting.						
	List of embankment in the following format:						
	SN.	Length (M)	Height of embankment (M)	Chainage (From)	Chainage (To)	Quantity of earth work (Cum)	
	List of cutting in the following format:						
	SN.	Length (M)	Depth of cutting (M)	Chainage (From)	Chainage (To)	Quantity of earth work (Cum)	
Chapter-7: Stations & Yards							
7.1	Stations and their Demographic details, MSL, Climate etc.						
7.2	Facilities proposed at each station (station building area, FOB details, platform details, platform shelter details, circulating area. Standard of construction for station buildings						
7.3	No. of loop lines and their length at each station. Turnout details at each station						
7.4	Conceptual Yard Plan of each station						
Chapter-8: Service buildings (including offices, workshops, shed etc.							
8.1	List of all service building station-wise along with plinth area and justification						
8.2	Standard of construction for the service buildings						
Chapter-9: Residential buildings (staff quarters, running rooms, rest houses, RPF barracks etc.)							
9.1	Details of type wise and station wise residential quarters proposed and the basis of same						
9.2	Details of station wise running rooms / rest houses / RPF barracks etc. if proposed						

	along with justification
9.3	Standard of construction
Chapter-10: Shifting of utilities	
10.1	Transmission Line Modification payment to SLBs Voltage Level-wise (11KV/33KV/110KV/220KV/400KV/765KV) including numbers, unit cost and total cost of each voltage level line requiring modification
10.1	Details of Telecom Lines required to be shifted
10.2	Details of civil utilities (sewer line / water pipe line / drains etc) required to be shifted.
Chapter-11: Electrical Traction & General	
11.1 Electrical Traction	
a.	Type of OHE system & design speed
b.	Pegging plan
c.	Traction power supply system (TSS,SP,SSP location & spacings)
d.	Modifications in existing OHE system
e.	Requirement of communication channel for SCADA
f.	Details of feasibility of EHV power supply at nearest GSS for feeding to proposed TSS. Alignment & expected ROW.
g.	Provision of fire suppression system in transformer
11.2 Electric General	
a)	Details of 11kv & 33 kv power supply points
b)	Electrification of Tunnels/service building etc.details
c)	Ventilation of tunnels details
Chapter-12: Signal & Telecommunication	
12.1	Details of Signaling Arrangement (type of signaling, block working, standard of interlocking etc)
12.2	Details of survey regarding type of soil for cable laying, cable route, track crossing, approach/location of S&T installations, infringements, RSSI etc
12.3	Requirements of S&T service building along with electrical requirements including power budget etc.
12.4	Utility/ cable shifting for S&T works.

12.5	Alterations in existing Signaling systems.
12.6	Specifications and testing procedure of S&T equipments.
12.7	Provision of CI, ABS, ATP, CTC, LTC etc as per extant guidelines
12.8	Details of Telecommunication arrangement for operations and passenger amenities.
12.9	Standard Checklist and Performa for Signaling & Telecom items
12.10	Mandatory clearances required (ISA, WPC, RDSO approvals etc)
12.11	Testing and training required before commissioning.
CHAPTER-13: Environmental Assessment and Social Impact Assessment (if applicable)	
13.1	Introduction
13.2	Existing Scenario: water bodies, noise level, land environment, biological environment, socio economic survey, archaeological sites etc
13.3	Environmental Policy Framework
13.4	Detailed Environmental Impact assessment due to project location, design and construction including the impact of operation and maintenance facilities.
13.6	Environment Management Plan
13.7	Environmental Monitoring Plan including for Pre Construction, construction phase, Operations Phase. Implementation of environmental Management Plan and setting up an Environment management System.
13.8	Social Impact Assessment including resettlement/rehabilitation alternatives, public consultation, resettlement assistance plan, cost monitoring and evaluation.
13.9	Analysis of Alternatives
13.10	Summary of Costs
Chapter-14: Statutory clearances	
	List of Forest/Wildlife sanctuaries through which proposed project is passing. Details of clearances required such as ASI/NMA, Wild Life, Forests under FCA act, Tree cutting permission etc.
Chapter-15: Cost Estimates	
15.1	Basis of rates for working out, cost of land, civil engineering structures, P-way, Electrical, S&T, Utility shifting etc.
15.2	Summary of the cost estimates (detailed estimate to be attached as Vol-II of DPR)
Chapter-16: Traffic earning projections	
16.1	Details of anticipated goods traffic (both incoming & outgoing) and goods earning
16.2	Details of passenger traffic projection and earnings
16.3	Savings due to avoidance of detention of trains

Chapter-17: Non fare revenue	
17.1	Various existing & anticipated sources of NFR, Details of projected non-fare earnings
CHAPTER 18 : FINANCIAL ANALYSIS	
18.1	Estimation and Phasing of Investment
18.2	Estimation of operations and maintenance cost, overheads
18.3	Earning potential of the Project : Fare Revenue as well as non fare revenue
18.4	Terminal Value Estimation
18.5	Calculation of Project IRR(Details as per Annexure-III A & B)
18.6	Sensitivity Analysis with respect to Expected Traffic (range of +/- 20%), Cost Escalation (+/- 20%) and Time Overrun (1/-20%)
18.7	Assumptions with respect to both cash inflows and outflows
18.8	Analysis and Results
CHAPTER 19: ECONOMIC ANALYSIS	
19.1	Basic Approach of Economic Analysis
19.2	Demand Assessment Methodology.
19.3	Quantification of Economic Costs and Economic Benefits.
19.4	Checklist for Economic Cash flows. (refer Annexure III of Railway Project Economic Appraisal Framework Note for checklist, circulated vide letter no.2022/ Gati Shakti/EU/49 dated 19/08/2022.)
19.5	Cash flows of Economic Internal Rate of Return (EIRR)
19.6	Sensitivity Analysis for critical factors in the range of 5% to 20% on EIRR: a. Cost overruns due to delay or other factors b. Increase in Operations and Maintenance Cost c. Reduction in passenger traffic d. Reduction in economic benefits e. Combination of reduction in benefits and increase in cost.
19.7	Details of Network effect alongwith map.
19.8	Model Input data used along with sources. (refer Annexure II of Railway Project Economic Appraisal Framework Note for list of data sources, circulated vide letter No.2022/ Gati Shakti/EU/49 dated 19/08/2022.)
CHAPTER 20 : RISK ANALYSIS	
20.1	Cost Risk
20.2	Schedule Risk
20.3	Operational Risk
20.4	Market Risk
20.5	Risk Mitigation Measures

Annexure- 1 (To Annexure-A)

Salient Features of Project		
Name of Project (NL/DL/GC):		
SN	Item	Details
1	Route length (Km)	
(i)	State-wise and District wise breakup of route length	
2	Current Estimated cost (In crores of Rs.)	
2(i).	Estimated Completion cost (In crores of Rs.) (taking into account 5% escalation every year)	
3	Completion period (years)	
4	RoR : (i) EIRR	
	(ii) EIRR (As per guidelines issued by Board and including network effect)	
5	Land requirement (Ha) (Statewise and Districtwise)	
(i)	Private	
(ii)	Government	
(iii)	Forest	
6	Total Track Km (incl loops/siding etc.) (Km)	
7	Maximum permissible speed (Kmph)	
8	Maximum Degree of Curvature	
8(i)	Curve Track (% of total length)	
9	Ruling Gradient	
9(i)	% length on Ruling Gradient	
10	No. of PSRs	
11	Earthwork in embankment (Cum)	
11(i)	Maximum Bank Height (m)	
12	Earthwork in Cutting (Cum)	
(i)	Maximum Cutting Depth (m)	
13	Total no. Tunnels (nos.)	
(i)	Total Tunneling length (Km)	
(ii)	Longest Tunnel (m)	
14	Total Adits/Shfts and their length	
15	Total Linear waterway (m)	
(i)	Important bridges (nos.)	
(ii)	Major bridges (nos.)	
(iii)	Minor bridges (nos.)	
16	Loading standards	
17	Total stations (including Originating and Destination stations, junction stns. crossing stations, halts) (nos.) (statewise)	

(i)	Junction stations (nos.) (including Originating and Destination stations if they are junctions) (nos.) (statewise)	
(ii)	Crossing stations (nos.) (including junction stations, Originating and Destination stations if they are crossing stations)	
(iii)	Halts (nos.)	
18	Total loop lines (nos.)	
(i)	loop line length (CSR) (m)	
19	RoBs (nos.)	
(i)	RuBs/LHs (nos.)	
(ii)	Level crossings (nos.)	
20	Rail over Rail flyover (RoRs)	
21	Track structure (Both for Main lines and Loop lines separately)	
22	Track centre (m)	
23	Signalling system (MACLS std. II/III etc.)	
24	Traction	
25	Projected Passenger traffic (Lakh passengers/annum)	
25 (i)	Projected Coaching trains in case of NL (pairs of trains per day)	
26	Projected Freight traffic/Additional freight traffic (MTPA)	
26 (i)	Projected goods train/additional goods train per day	
27	Existing line capacity utilisation incase of Doubling etc. without maintenance Block and with maintenance Block at current year level	
28	Projected gross earning and net earning per annum (In Crs of rs)	
CPM/GS or CAO or CE/Construction		

Summary of Main items of DPR/ Detailed Estimate for New Projects

Name of Project (NL/DL/GC):

SN	Item	Unit	Quantity	Unit cost (Rs in Crores/ laks)	Amount (Rs in crores)	Remarks
1	Route length	Km		Total estimated cost/ Route length		
(i)	Total Track Km (incl loops/siding etc)	Km		Total estimated cost/ Total track length		
Civil Engg Items						
2	Preliminary expenses					
3	Total Land requirement	Ha				
(i)	Pvt land	Ha				
(ii)	Govt land	Ha				
(iii)	Forest land	Ha				
4	Earthwork in Embankment	Cum				
(i)	Upto 5 m high	Km				
(ii)	5-10 m high	Km				
(iii)	More than 10 m high	Km				
(iv)	Maximum Bank height	m				
4(a)	Blanketing quantity	Cum				
5	Earthwork in cutting	Cum				
(i)	Upto 5 m depth	Km				
(ii)	5-10 m depth	Km				
(iii)	More than 10 m depth	Km				
(iv)	Maximum Cutting depth	m				
6	Main Tunnels(cross sectional area of tunnel)	nos				
(i)	Total Main Tunnel length	Km				
(ii)	Maximum length of Tunnel	Km				
(iii)	Tunnels more than 2 Km long	Nos				
7	Adit/ shafts/cross passages length and cross sectional area of Adit/cross passage etc)	Km				

8	Walling length	Km				
9	Drain length	Km				
10	Rails and fastenings	Km				
11	Sleepers and fastenings	Km				
12	Ballast	Km				
13	Points and crossings	Nos				
(i)	1 in 16	nos				
(ii)	1 in 12	Nos				
(iii)	1 in 8.5	Nos				
(iii)	Others (DS etc.)	Nos				
14	Ballastless Track (wherever required)	Km				
15	Fencing (stations/T.C. etc.)	m				
16	RoBs	Nos				
17	RTB/LHS (new/extension)	Nos				
18	Level crossings (new/extension)	Nos				
19	Rail over rail flyovers (RoRs)	Nos				
20	Linear waterway	m				
(i)	Important bridge	Nos				
(ii)	Major bridge	Nos				
(iii)	Minor bridge	Nos				
21	Total no. of stations (incl originating and destination station)	Nos				
(i)	No. of junction stations	Nos				
(ii)	No. of Crossing stations (excluding junction station)	Nos				
(iii)	No. of Halts	Nos				
22	Total no. of loop lines/sidings	Nos				
(i)	Total length of loop lines/sidings	Km				
23	Station buildings	Sqm				
24	Office buildings	Sqm				
25	Workshops and sheds	Sqm				
26	Other service buildings	Sqm				
27	Total H/L Platform length	m				

Cash Out Flows:

A. Construction Cost

1. Whether cost of land acquisition has been incorporated?
2. Whether state's share of project cost has been excluded?
3. Whether construction cost of each department has been incorporated?
4. Whether the cost of construction has been projected year-wise as per the schedule of Construction?
5. Whether CRRM is incorporated as per Para 233 of IRFC Vol I?

B. Working Expenses:

6. Whether maintenance cost of each department has been incorporated as per extant maintenance schedules?
7. Whether the repair cost of each department has been considered?
8. Whether the cost of replacement of assets as per the latest available policy instructions has been factored in?
9. Whether it is verified that depreciation and interest has not been considered as per Para 215 of IRFC Vol I?
10. Whether operational expense is considered based on the latest traffic costing/Statistical data?

Cash Inflows:

A. Traffic earnings:

11. Whether both outward and inward traffic data is considered?
12. Whether savings in engine days or wagon days or both is worked out as per Para 202 of IRFC Vol I?
13. Whether reduction in revenue of other lines/ railways due to diversion has been considered?
14. Whether any non-fare revenue is considered?
15. Whether the latest available Statistical data has been used?

B. Residual value:

16. Whether Residual value of assets at the end of project period is considered as per Para 233 of IRFC Vol I?
17. Whether Land has been factored in as per Book Value?
18. Whether Second hand value of assets has been calculated as per Para 241, IRFC Vol I?

ANNEXURE III B

Checklist for Detailed Financial Cash Flow in DPR for Estimating FIRR

Name of Project (NL/DL/GC):		Railway:
SN	Item	Description
1	Total capital cost (states's share to be excluded, if any)	
2	Total land to be acquired and cost	
3	Total capital cost of the project, with department wise (Civil, mechanical, electrical and S&T) phasing of costs for each year of construction	
4	Cost of rolling stock in year zero, and additional rolling stock cost in subsequent years, if applicable	
5	Renewal & replacement cost	
6	Gross coaching working expenses for 1st/6th/11th year of the project (Cr.)	
7	Gross coaching earnings for 1st/6th/11th year of the project (Cr.)	
8	Gross goods earning for 1st/6th/11th year of the project (Cr.)	
9	Gross goods working expenses for 1st/6th/11th year of the project (Cr.)	
10	(i) Have savings due to avoidance of detention to rolling stock (both, one time capital and recurring operational), wherever applicable, been duly accepted/vetted by the associated finance. (ii) Passenger and goods savings to be stated separately. In case of doubling, tripling, etc. project only goods savings to be taken into account.	
11	CRRM if accounted for gauge conversion/doubling etc., project to be indicated.	
12	Rate of return (use excel formula).	
13	FIRR of the project	
Encl. : FIRR calculation sheet		
Note: Excel Sheet to be shared by Zonal railway.		

By CPM/GS/Traffic or CTPM/PCOM, Zonal Railway

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No.2021/SIG/Estimates/DPR (e file-3363771)

Dated 25.08.2022

**General Manager
All Zonal Railway.**

Sub: Checklist & Appraisal Performa for S&T sub estimates.

Ref: Boards Letter of even no dated 01.08.22.

In continuation to above referred letter, following documents of S&T (copy enclosed) shall be submitted along with DPR for Board approval.

- i. Checklist for signaling sub-estimate.
- ii. Checklist for Telecom sub-estimate.
- iii. Project Appraisal Performa (PAF).

Further, Revised Estimate Appraisal Performa (copy enclosed) shall be attached in all Revised Estimates pertaining to S&T which are sent for Board's sanction.

This issues with approval of AM (Signal) & AM (Tele).

DA: As above

**Brijender
Mani Tripathi**  Digitally signed by
Brijender Mani Tripathi
Date: 2022.08.25
18:53:05 +05'30'
**(B M Tripathi)
Director/Gati Shakti (S&T)
Railway Board**

Copy to:

- i) CAO/C, All Zonal Railway, for kind information & n/a.
- ii) PCSTE, All Zonal Railway, for kind information & n/a.
- iii) CMD, DFCCIL, IRCON, RCIL, RVNL & RITES for kind information pls.
- iv) Dir/GS/Civil-I for kind Information.

Checklist for Signaling Sub-estimates submitted with DPRs

SN	Items	Policy/Guidelines	Yes/No
1	Provision of PI/EI/RRI	As per Railway Board's policy, provision of EI should be made in all estimates. Railway Board's letter No. 2003//Sig/G/5 dated 28.04.2016 (SN-33 to 34). Centralized/Distributed EI up to 100 routes based on physical layout of yard, complexity involved, maintainability aspect etc. (letter No. 2021/Sig/25-Conf/5/SSC dated 26.02.21 (SN-31 to 32) of Special SSC)	
2	Point Machine	Non-Trailable Electric Point Machines 143-mm throw with internal locking and non-trailable electric point machines 220 mm. (IRS - S 24-2002)	
3	LED Signal	Procurement of Main Signals and subsidiary signals should be as per RDSO specification i.e. RDSO/SPN/199/2010 Rev 1.0 and of RDSO/SPN/153/2011 ver. 4.1 respectively.	
4	Cable	Usage of cable as per policy (85th SSC) (a) 6 core X 1.5 sq. mm. Copper conductor cable. (b) 12 core X 1.5 sq. mm. Copper conductor cable. (c) 24 core X 1.5 sq. mm. Copper conductor cable. (d) 2 core X 2.5 sq. mm. Copper conductor cable. (e) 2 core X 25 sq. mm. Aluminum conductor power cable. (f) 2 core X 70 sq mm power cable. (g) 6 Quad cable. (h) OFC.	
5	Power Supply (IPS)	There should be provision of IPS.	
6	BPAC	Dual detection should be there. JPO issued by Board (ML & MT) vide letter No. 2015/Sig/PLN/Pt. dated 02.11.2005 (SN-28 to 30)	
7	MSDAC	Dual detection should be there depending on local conditions. MSDAC type complete equipment with minimum 5DP and 4 track section	
8	HASSDAC	As per RDSO specification No. RDSO/SPN/177/2012 (Ver 3.0) or latest	
9	Provision of Automatic signaling.	To be provided as per policy issued vide L No ABS No 2021/Sig/WP/Action Plan dated 14.06.2022.	

10	Double line Block instrument	Double line Block instrument complete with block bell equipment, HMT set with induction coil & condenser, 3-position polarised relay, filter unit etc for working in RE area as per RDSO specification.	
11	Datalogger	Data Logger for Relay Hut, Front end processor, RTU (64DI & 16 DI), station monitoring panels, High end data base server.	
12	Double Distant	As per Railway Board's latest policy dated 29.08.2017 (SN-27), provision of double distant shall be made on Doubling/Tripling works on A & B routes	
13	Fire alarm and smoke detector system	To protect from fire the panel interlocking equipment, indication cum operating panel, S&T equipments in Panel room, Relay room, power supply room, battery room, diagnostic panel room and OFC room.	
14	Automatic Fire Detection & Suppression system	As per Rly. Board's policy letter no. 2013/Sig/Specifications dated 22.06.2015, firefighting equipment shall be kept in the power supply equipment room. Automatic fire suppression system along with Automatic fire detection & alarm system may be provided at stations with more than 400 routes. (Sub-Para 21.18.2 Correction Slip No. 10)	
15	Interlocking of LC Gates	There should not be provision of LC Gate on GQ & GD Routes. Instead of LC Gate, provision of RUB/ROB be made in the estimate. Provision of Emergency Sliding Boom should be made in the estimate.	
16	Standard of Interlocking	As per Rly Board's letter No.2020/Sig/35-Policy/4/Interlocking dated 20.10.2020 (SN-9 to 25), all new stations being opened under gauge conversion/new lines shall be provided with Standard-II(R) Interlocking and Colour Light Signalling.	
17	Cable laying & Trunking	Laying of cable should be with trunking and there should be path protection of cable. Provision of Horizontal Directional Drilling (HDD) for cable laying work may be done as per site feasibility	
18	D&G Charges	As per Rly. Board's latest policy dated 04.03.2020 (a) 16.33% for projects requiring Traffic Blocks (b) 12.19% for projects not requiring Traffic Blocks	

To Be Signed By Concerned CSTE/C or CSTE/Project.

Checklist for Telecom Sub-estimates submitted with DPRs

SN	Items	Policy/Guidelines	Yes/No
1	IP-MPLS, IP-Exchange and Data Network for PRS, UTS, FOIS and SCADA	To be followed Railway Board's policy vide letter no. 2011/Tele/9(2)/1 dated 25.02.2020 as Telecom Circular no.4/2020 and Technical Advisory Note issued by RDSO vide letter No RDSO-TELEOLKO(TECH)/8/2020-Telecom Directorate/ RDSO dtd 16.12.2020	-
1a	Provision of IP-MPLS System at stations	All future works/replacement of SDH/PDH works, including works where tender is yet to be floated shall be with IP-MPLS standards.	
1b	Provision of IP Exchange	All future exchange works/replacement shall be done with IP exchanges. All exchanges can be integrated into one at the Divisional level, where feasible, with provision of suitable bandwidth and ring connectivity/protection. In addition to that, for IP-Exchange, telecom Circular 04/2022 should be followed.	
1c	Provision of Data network	The telecom backbone of all future works/replacement of Data networks such as PRS/UTS/FOIS/SCADA shall be with IP-MPLS equipment by providing separate VPN network, if required	
2	Provision of VOIP based TCCS at station	As Para 5.4 of Telecom manual, VoIP Based TCCS among the various control communication systems to be used in Indian Railways as per RDSO specification.	
3	LC gate communication	Phone communication to all manned level crossing gates controlled from the station preferably with voice logging facility.	
4	25 W VHF set and 5W VHF sets	25W VHF sets with proper standby power supply at each station and 5 W warlike-Talkie set as per requirement.	
5	Provision of LTE in section where Kavach is provided	Vide Board Letter No 2020/Tele Dev/Umbrella works dtd 21.10.2021, Provision of LTE in section where Kavach is provided/being provided.	

6	Cable	Usage of cable as per Telecom manual 6 Quad cable (Quad Cable 0.9 or 1.4 mm conductor dia. as per IRS specification No. IRS:TC 30/05. 1.4 mm conductor dia cable is used for longer block sections longer than 12 kms.) Multi pair (from 10 pairs to 200) Multi Dia (0.5mm/0.63mm/0.9mm) PIJF (Polythene insulated Jelly Filled) Cable as per IRS specification No. IRS:TC 41/97 used for exchange subscriber lines or branch cables branching off from the main Quad cable Twisted Pair Switch Board Cable of sizes 0.5 mm /0.6mm copper conductor dia. as per IRS/TEC specification used for indoor applications such as distribution to various telephone subscribers in a building, MDF to exchange wiring etc OFC (24/48 Fibres Optical Fibre Cable as per latest RDSO specification) to be laid in HDPE pipe.	
7	Power Supply (IPS)	All Telecom Equipments shall be provided with a reliable Power Supply	
8	IP based Video Surveillance System	CCTV system at stations - As per RDSO spec (Spec no RDSO/SPN/TC/65 /2021 Rev 6.0 issued by Tele Dte/RDSO or latest). CCTV at non critical locations- To be procured either RDSO spec or Rly's own specifications with approval of GM as per RB letter No 2017/Tele/3(8)/1 dtd 28.11.2017. CCTV system in Divisional & Zonal Hospitals- Type of system and its specifications to be decided by Zonal Rlys as per RB Letter No 2018/Trans Cell/Health/MR Review dtd 14.09.2018. CCTV at Railway offices- Type of system and its specifications to be decided by Zonal Rlys as per RB letter No 2018/Tele/6(4)/1 dtd 16.01.2020 CCTV system in relay rooms- an extension of the existing/proposed CCTV system at stations as RB Letter No 2017/Tele/3(8)/1 Pt-1 dtd 20.04.2020 CCTV at RPF Thana/Posts- an extension of the existing/proposed CCTV system at stations as RB Letter No 2020/Sec(CCB)/210/CCTV dtd 23.11.2021.	

9	Passenger Information System at station	Followed Comprehensive instructions for provision of Passenger Amenities and user facilities at Stations issued vide Lt.No.2018/LM(PA)/03/06 Dtd. 09.04.2018	
10	Fire Alarm system at Telecom Installations	As per Rly Board's policy letter no 2019/Tele Dev/ Fire Alarm dtd 27.07.2019, Automatic Fire Detection & Alarm System is to be provided as per RDSO specification No. RDSO/SPN/217/2018 ver 2.0 or latest at Telecom installations like major Exchanges, Test Room/Telecom Control Room, Data Centre locations, CCTV Control & Equipment Rooms, Main Switching Centre (MSC) & Base Station Controller (BSC) of MTRC, main QFC centres /Quad repeater stations, Satellite Hubs, etc	
11	Tunnel communication	In Section where Tunnel exist, Tunnel communication is to be provided as per RDSO spec (Spec no RDSO/SPN/TC/109 /2019 Rev 0.0 issued by Tele Dte/RDSO or latest).	
12	Utility shifting of Telecom assets	Like in doubling, Gauge conversion project, existing utility pertaining to telecom cables and other accessories have to be shifted, Hence, its shifting provisions should be ensured	
13	Remote diagnostic & predictive maintenance tool for Telecom assets.	To ensure uninterrupted communication services, 24x 7 working of Telecom assets has to be ensured. Hence, Provision of Remote diagnostic & predictive maintenance tool for Telecom assets should be ensured.	
14	D&G Charges	As per Rly. Board's latest policy dated 04.03.2020 16.33% for projects requiring Traffic Blocks. 12.19% for projects not requiring Traffic Blocks.	

Signature of SAG officer In-charge

Project Appraisal Format
(To be submitted along with checklist)

1. Name of Project & Plan head :
2. Total Cost of Project and allocation :
3. ROR (if allocation is Capital or EBR) :
4. Brief Scope of Signalling & Telecom Work:
5. Cost of Signaling Work:
6. Cost of Telecom Work:
7. Total cost of S&T Work:
8. No of stations :
9. No of Engg LC gates :
10. Length of Section :
11. Whether part of HDN/HUN/3000MT routes :
12. Details of Stations.

S. No.	Type	No of Stations	No Running Lines	Architecture of EI	Cost Signaling Work/Station	Rate reference	Total cost
a	Up to 100 Routes						
b	100 to 200 Routes						
c	200 to 500						

	routes						
d	More Than 500 Routes						
e	Alterations in existing stations						

13. Details of Stations/Section.

S. No.	Type	No of stations	Architecture of Telecom setup at station and in block section	Rate reference	Cost of Telecom Work/Station & per Km
a	Up to 100 Kms				
b	100 to 200 Kms				
c	200 to 500 Kms				
d	More Than 500 Kms				

14. Details of Interlocked LC Gates.

S. No.	Type	Nos.	Cost of Signaling Work/LC Gate	Cost of Telecom Work/LC Gate	Rate reference	Total cost
a	Traffic LC Gate					
b	Engg LC Gate					

15. Details of IBH :

S. No.	Nos.	Cost of Signaling Work per IBH	Rate reference	Total cost

16. Type of Block Working :

17. Track Circuiting in the Yard (DC Track/ MSDAC):

18. Detail of High Value Signaling items in the Estimate.

S No	Item	Qty.	Unit Cost	Rate reference	Total cost
a	Signaling Cable				
b	Power cable				
c	Quad cable				
d	EI				
e	Indoor relays				
f	Maint. Free earth				
g	BPAC S/L or D/L with UFSBI				
h	SSDAC/HASSDAC				
i	MSDAC (Per DP cost)				
j	IPS				
k	Datalogger				

19. Detail of High Value Telecom items in the Estimate

S No	Item	Qty.	Unit Cost	Rate reference	Total cost
a	Quad Cable (Tele)				
b	OFC (Tele)				
c	EPC, e-Node B and other items in LTE System				
d	LER and LSR in IP-MPLS System				
e	Communication server and other items in VOIP based TCCS				
f	Passenger Amenity item				
g	IP-Exchange				
h	others				

20 a) Provision of ABS (Yes/No):

b) Cost of ABS/Km:

21 a) Provision of Kavach (Yes/No):
b) Cost of Kavach/Km:

22 a) Provision of CTC (Yes/No):
b) Cost of CTC/Km:

23 a) Provision of IP-MPLS (Yes/No):
b) Cost of IP-MPLS System/Stn:

24. a) Provision of LTE (Yes/No):
b) Cost of LTE/Km:

(Signature of in charge SAG officer)

Station wise summarized position

S No	Name of Station (no of routes)	Total Cost of Signalling at Station	EI/EI modification		Sig. Cable		Quad Cable		MSDAC		Other high value items like BPAC, MF Earth, IPS		Total cost of high value item	Remark
			Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost		
1														Remarks to clearly mention reason for higher cost at given station.
2														
3 etc														
	Total													

S No	Name of station/Section	Total telecomm Cost at station/Section	OFC with HDPE		Quad Cable(Tele)		IP-MPLS		MF Earth(Tele)		Passenger Amenity		Total cost of high value item	Remark
			Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost		

(Signature of in charge SAG officer)

Revised Estimates Appraisal Performa (S&T)

1. Name of Project:
2. Brief Scope of Signalling & Telecom Work:
3. Cost of Project :
4. Cost of S&T component :
5. Cost of Signalling component :
6. Cost of Telecomm component :
7. Number of Stations:
8. Length of section :
9. Whether part of HDN/HUN/3000MT routes: Yes/No
10. No of Engg LC gates :
11. Type of block working :
12. Whether ESP/SIP/Roll diagram approved :
13. Current status of project (physical and financial progress) :
14. Current status of S&T works (physical and financial progress) :
15. Target date of completion :

16. Details of Work.

S. No.	Item	Date of sanction	Cost of Signaling Work	Cost of Telecom Work	Rate reference	Total cost	% Variation due to Price Escalation	% Variation due to other than Price Escalation
a	AE							
b	DE							
c	RE							

17. Reason for revision of estimate:

18. Status of work with TDC:

19. Comparison of High Value Signaling items in the Estimate.

S No	Item	Qty. in DE	Unit Cost in DE	Rate Reference	Total cost in DE	Qty. in RE	Unit Cost in RE	Rate Reference	Total cost in RE	Reason for Variation
1.	Signalling Cost per station									
2.	Signalling Cost per Engg LC									
3a	Signaling Cable									
b	Power cable									
c	Quad cable									
4.	EI									
5.	Maint. Free earth									

6.	BPAC with UFSBI									
7.	SSDAC/HASSDAC									
8.	MSDAC									
9.	Relays									
10.	Lifting barriers									

20. Comparison of High Value Telecom items in the Estimate

S No	Item	Qty. in DE	Unit Cost in DE	Rate Reference	Total cost in DE	Qty. in RE	Unit Cost in RE	Rate Reference	Total cost in RE	Reason for variation
1.	Quad Cable (Tele)									
2.	OFC (Tele)									
3.	EPC, e-Node B and other items in LTE System									
4.	LER and LSR in IP-MPLS System									
5.	Communication server and other items in VOIP based TCCS									
6.	Passenger Amenity item									
7.	IP-Exchange									
8.	Others (Specify)									

- 21 a) Cost of ABS/Km in AE:
b) Cost of ABS/Km in RE:
c) Reason for variation:

- 22 a) Cost of Kavach/Km in AE:
b) Cost of Kavach/Km in RE:

- c) Reason for variation:
- 23 a) Cost of CTC/Km in AE:
b) Cost of CTC/Km in RE:
c) Reason for variation:
- 24 a) Provision of IP-MPLS (Yes/No):
b) Cost of IP-MPLS System/Stn:
c) Reason for variation:
- 25. a) Provision of LTE (Yes/No):
b) Cost of LTE/Km:
c) Reason for variation:

(Signature of in charge SAG Officer)

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No. 2021/RC/164/20 Misc.

New Delhi, dated: 23.08.2022

**General Managers
All Zonal Railways.**

**Sub: Format for Salient Features Of Electrical (TRD) & Electrical (G)
Estimate for submission of DPRs to Board office.**

Meetings of Project Evaluation Committee are regularly convened to discuss the DPRs of the New Line, GC & DL/TL/Multiple lines. GSI/Elect Dle has prepared the list of the main items to be checked in DPR in a standard format attached as Annexure-I & II, for the convenience and fast disposal of the DPRs which can be send to the Railways.

Zonal Railways are therefore requested to furnish the details of the DPRs in annexure-I and II attached herewith.

S. P. Gautam
23/08/2022
(S. P. Gautam)

Director/Gati Shakti (Elect)

DA: As above

M
24/08/22



SALIENT FEATURES OF ELECTRICAL ESTIMATE**Electrical TRD:**

1. Name of Section:
2. RKM:
3. TKM:

SN	Name of item	Unit	Qty	Unit Rate	Cost
1	OHE	TKM			
2	TSS	Nos.			
3	POCE/Shunt Capacitor	Nos.			
4	SP	Nos.			
5	SSP	Nos.			
6	SCADA RCG cost	Nos.			
(a)					
7	SCADA RTU cost	Nos.			
(b)					
8	Bay charges to SEBs				
9	Transmission line (SEB)	km			
10	Cables (Size)	km			
11	Construction of siding if any	km			
12	MSP	Nos.			
13	OHF depot	Nos.			
14	PSI depot	Nos.			
15	Contingencies	@ 1%			
16	D&G charges as per Bd's letter no. 2017/E&R/3(2)/2 dt 20.02.2019	@ 9.364%			

Electrical General:

SN	Name of item	Unit	Qty	Unit Rate	Cost
1	Modification in power line crossings payment to SEBs (LT/11KV/33KV/110KV/220KV/400KV/765KV)	Nos.			
2	Tunnels:				
	a. Cost of lighting (Wallage-wise and Nos. of lighting fixtures of each wallage)	No.			
	b. Ventilation (Spec. of fans & No. of each specification)	No.			
	c. Power supply (No. of transformers, panels, ckt breakers, isolators, size of cables & their qty)	No.			
	d. Fire fighting system (Major items)	No.			
	e. SCADA	No.			
3	Electrification of staff qtrs (Type wise)	No.			
4	Electrification of service buildings (Stn bldg, platform, offices etc. separately)	No.			
11	Gysers (no. of each rating)	Nos.			
12	Air conditioners with spec. (window, split)	Nos.			
13	Air conditioner centralised with spec.	Tonnage			
14	DG set with spec.	Nos.			
15	Lifts/escalators	Nos.			
16	Contingencies				
17	D&G charges as per Bd's letter no. 2017/E&R/3(2)/2 dt 20.02.2019	@ 9.364%			



भारत सरकार/ Government of India
रेल मंत्रालय/ Ministry of Railways
(रेलवे बोर्ड/ Railway Board)



No. 2022/Gatishakti/EU/49

New Delhi, dated: 19.08.2022

The General Managers

All Indian Railways/PUs, NF(Con), CORE

DG/RDSO/Lucknow, DG/NAIR/Vadodara

Sub: Economic Appraisal framework for evaluation of Railway Project.

Ref: AM's Multi- disciplinary Committee Report dated 31.05.2022 on comprehensive project appraisal system for sanctioning new projects by factoring in "Network Effect".

Vide reference above, AM's Committee had suggested that the Economic Appraisal Framework being used by Indian Railways needs to be modified to factor in network effect. Additionally, it was felt that as per the extant evaluation, the Economic IRR do not fully capture the socio-economic impact of railway project as envisaged in Finance Code.

2.0 Accordingly, with the approval of Board (M/Infra, M/O&BD, MF and CRB & CEO), framework has been finalized detailing the methodology to be followed for calculating the Economic IRR giving due weightage to the network effect and other determinants that enable calculating economic cost and benefits (copy enclosed).

3.0 Zonal Railways are advised to undertake pilot for evaluation of EIRR of one project of New line/Doubling/Multi-Tracking/GC as per the guidelines enclosed and submit the same to Board within one month. Also, this revised framework of EIRR may be followed till issuance of any further directions/guidelines in this regard.


(Kusum Mishra)
Economic Advisor
Railway Board

No. 2022/Gatishakti/EU/49

New Delhi, dated: 19.08.2022

1. The PFAs, All Indian Railways & Production Units.
2. Dy. Comptroller and Auditor General of India (Railways), Room No.224, Rail Bhavan, New Delhi.

KRISHNA V
R

Digitally signed by KRISHNA V
(DN: cn=KRISHNA V, o=Ministry of Railways, ou=Ministry of Railways, email=krishnav@railways.gov.in, c=IN)
Date: 2023.08.18 10:00:00 +05'30'

(For Member Finance)

Copy to:

1. Advisor to MR, EDPG to MR, OSD to MR, EDPG to MOS(D), EDPG to MOS(J)
2. Chief Administrative Officer/Construction of all Indian Railways.
3. CMD/RVNL, CMD/IRCON, CMD/IRCON, CMD/KRCL, CMD/RITES & CMD/DFCCIL.

Railway Project Economic Appraisal Framework Note

Ministry of Railways

1. Comprehensive Economic IRR approach factoring Network effect

Project economic analysis aims at ensuring efficient allocation of scarce resources and raising the welfare of its citizens, so that it benefits the country as a whole. All resource investments have an opportunity cost because, if the resource is not allocated to the project, it will create value elsewhere in the economy.

The Philosophy of economic valuation of railway investments is indicated in the Annexure "F" of Chapter II, Indian Railway Financial Code (Vol-1). Some of the fundamental principles on which economic evaluation of Railway investments should be carried out are as follows:

- Economic benefits attributable to a particular investment can, for a number of reasons, exceed the revenues directly accruing to the Railways in the form of fare and freight receipts.
- Rail transportation can make a substantial indirect contribution as well to general wellbeing by facilitating economic expansion. A new line, in a backward region not well endowed with alternative modes of transportation, stimulates the growth of output and employment by widening the market for local products as well as by creating a market for some hitherto unexploited natural resource. The quantification of such indirect benefits can at best be approximative.
- Great care should be taken in estimating social benefits for the purpose of economic appraisal of railway investments. Such benefits should, to the extent possible, be quantified with a reasonable degree of accuracy. Thorough investigations at the traffic survey stage would help in identifying the "developmental effects" and in estimating broadly the magnitude the complementary investments that may be required.
- The expenditure flows associated with Railway projects can, to varying extents, diverge from the cost to the economy of acquiring resources needed for their implementation and operation. The prices at which certain inputs and resources are made available to the Railways, for instance, may understate or exaggerate their real cost to the economy.

It is, however, noticed that different methods are being used for the economic valuation of railway investments. With a view to standardise the procedure, and bring clarity, a comprehensive approach for economic IRR analysis of Indian Railway Line Projects is indicated below.

It is pertinent to highlight that as prescribed in above code viz. *"Thorough investigations at the traffic survey stage would help in identifying the 'developmental effects'"*, it is critical that traffic studies are based on required primary and secondary data. A brief guidance on traffic demand assessment based on various primary and secondary data is appended as Annexure IV of this note.

It is clarified that this note is applicable only for mainline projects viz. new line or multi-tracking projects.

1.1. Basis adopted for EIRR Analysis

For the appraisal of a Railway project proposal, the economic IRR analysis should be done based on various parameters such as the project's economic benefits, economic costs, and sensitivity analysis (against variation in key project parameters) to assess economic rationale and economic viability on the basis of project life cycle costs. The approach, prescribed herein, takes into account a number of direct and indirect benefits to be accounted for in the economic cost benefit analysis, in line with national and global relevant best practices (MoUHA, MoRTH and ADB). The proposed approach also considers the recommendations from the report

prepared by Multi-disciplinary Committee of Additional Members on Comprehensive Project Appraisal System for sanctioning new projects by factoring in the "Network Effect". The framework takes certain assumptions from the MoUHA guidelines, and these guidelines are taken as a base as it is updated from time to time and accepted across national infrastructure projects. This note aims at providing a comprehensive approach to analyse economic IRR of Indian Railway Line Projects.

1.2. Proposed Economic IRR analysis framework

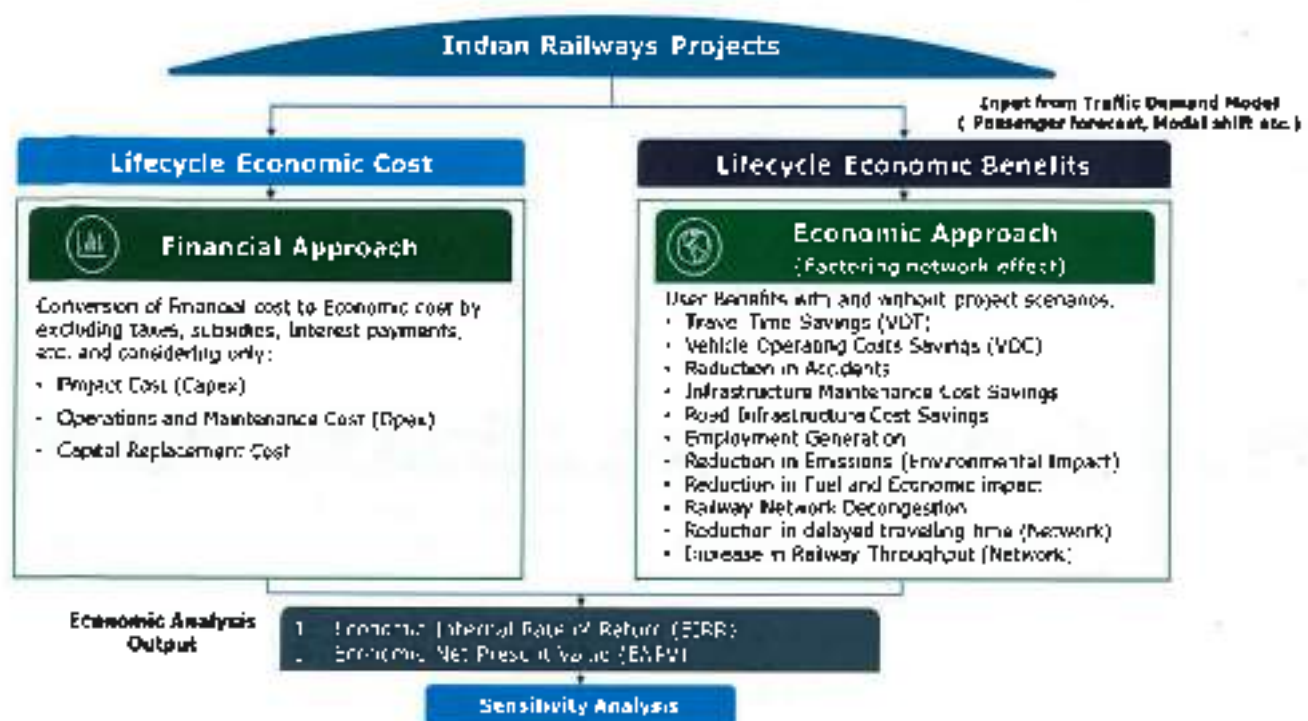


Figure 1 Proposed Economic IRR analysis framework

Railway projects provide larger economic and social benefits to the society in terms of reduction in cost and time of travel, a substantial reduction in emissions reducing chronic diseases, reduction in road accidents, etc. A railway project improves mobility of people and efficiency of commodity flow by providing seamless connectivity with the rest of network. In addition, new railway projects can also influence the existing rail network and create benefits outside the local area of the project depending upon the scale and size of the project. This can be referred to as "Network effects".

The proposed economic IRR analysis framework incorporates Direct and Indirect benefits of the project, factoring network effects. The methodology and source list for the proposed economic analysis framework is summarized and attached as Annexure-I and Annexure- II.

Annexure I

Steps for Calculating Economic IRR factoring Network effect

The steps in economic analysis are as described below:

Step 1: Define Project Horizon

The project horizon comprises of construction and operation period of the Railway project. During the project horizon, the cost and benefits associated with the project should be estimated. The horizon period for the purpose of economic analysis may be taken as 30 years in line with codal life of track assets as per para 219, Chapter 2, Volume 1 of Indian Railway Finance Code.

Step 2: Develop Alternative Scenarios

This step involves development of alternative project scenarios to which a comparison with the project case that is undertaken is to be made. For example, economic cost and benefits of undertaking a Railway project ("With Project") are to be compared with the base case i.e. "Without Project" or "Do Nothing" scenario or any other alternative project in order to arrive at incremental costs and benefits.

Step 3: Determine Economic Cost of the Project

The steps involved in determining the Economic Cost of the project are specified below:

Table 1 Steps for estimating Economic Cost of Project

Steps	Methodology
Project Cost^{1,2}	The Project cost covers both the implementation period of major investments and operating years, known as the project operating life. Costs are measured in constant prices of a base year. The Project Cost includes: 1. Capital Cost 2. Operations and Maintenance Cost
Project Economic Cost	The economic costs of the capital works and annual operation and maintenance costs are calculated from the financial cost estimates using economic conversion factors given in table 1 to exclude the impact of: 1. Price contingencies/price escalations 2. Import duties and taxes 3. Sunk costs 4. Interest payment, principal payment and interest during the construction period.

Source: MoHUA Appraisal Guidelines for Metro Rail Project Proposals

Step 4: Estimation of Economic Benefits of the Project

Year wise project benefits should be estimated during the project operation period. The "With project" scenario should be compared with the option of "Without project" scenario to determine the incremental economic benefits. The economic benefits of the projects should capture the economic and social network impact on any railway project.

¹ Capital replacement cost has not been assumed in the project cost during the Economic IRR calculation. In case it is assumed, the project horizon period needs to be extended accordingly to account for benefits over replaced asset's life horizon. Accordingly, it is recommended that the project horizon should be equal to the prescribed life of asset as per the applicable IR code.

² Rolling stock cost is not assumed in the project cost during the Economic IRR calculation, given that the rolling stock is not dedicated to the project.

The following quantifiable benefits are accrued to the society owing to implementation of the Railway project.

Direct and Indirect Benefits	Network Benefits
Travel Time Savings (VOT)	Reduction in Emissions (Environmental impact)
Vehicle Operating Costs Savings (VOC)	Reduction in Fuel and Economic impact
Reduction in Accidents	Railway Network Decongestion
Infrastructure Maintenance Cost Savings	Reduction in delayed travelling time (Network)
Road Infrastructure Cost Savings	Increase in Railway Throughput (Network)
Employment Generation	

a) Direct and Indirect benefits

The railway investments provide substantial direct and indirect benefits to the economy. The components and steps involved in determining the direct and indirect economic benefits are:

i) Travel Time Savings (VOT)

Railway projects significantly contribute to modal shift owing to higher speeds and comfort to passengers. This leads to travel time savings for passengers travelling on rail system over the existing transport modes because of faster speed of Railway.

The formula for calculation of travel time savings is presented below.

Travel Time Savings (VOT)	=	Passenger Time Savings (Hour)	X	Value of Passenger time (INR per Hour)
Source		(Traffic demand studies/surveys)		(Estimate based on per capita income of the region on new railway line corridor; concerned State Economic Survey documents, take weighted average based on OD patterns of traffic and passenger profile (basis traffic surveys) in case of multiple states involved)

The formula for calculation of Freight time savings is presented below.

Freight Time Savings	=	Difference in the freight time savings between rail and the next dominant mode (hour)	X	Volume of Freight that derives benefit over next predominant mode (ton) ³	X	Value of Freight time (INR per ton hour) ⁴
Source		(Estimate based on freight demand studies/surveys)		(Freight demand studies/surveys)		(Weighted Average commodity price ⁵ X MIBOR Rate per annum ⁶ X Economic price Conversion factor (0.85)) 365 X 24

ii) Vehicle Operating Cost Savings (VOC)

¹ In case the next pre-dominant mode is Railway itself, for eg. in case of coal lines, then entire projected freight on new line shall benefit from improved speed and hence included. In case road is the pre-dominant mode for a commodity, then only the incremental traffic shifted from road to rail shall benefit and accordingly taken as much.

² Inputs in different currency shall be converted in INR.

³ Weighted Average Commodity Price: $\sum (\text{share of commodity in total volumes (\%)} \times \text{Average value of commodity per ton})$ For eg. If total traffic volumes is 10 tonn comprising Coal (20%, average value INR 4000 per ton), Steel (70%, average value INR 35000 per ton) and Cement (10%, average value INR 7000 per ton), then weighted average commodity price is = $(0.2 \times 4000) + (0.7 \times 35000) + 0.1 \times 7000 = \text{INR } 26000$

⁴ Average 3 month Mibor Rate or short term interest rate for the year, sourced from Financial Benchmarks of India Ltd sourced from <https://www.fimmda.org/modules/securitiesApproval/securitiesApproval.aspx?op=mibor>

Vehicle operating costs (VOCs) are the cost to the owner of operating a motor vehicle. Savings in vehicle operating costs of different modes arise due to a decrease in the number of vehicle trips on the roads. The VOC cost varies based on vehicle type (2-wheelers, 3-wheelers, cars, buses or any other prevalent mode) and is calculated using the equations and guidelines given in the "Manual on Economic Evaluation of Highway Projects in India, 2019" by the Indian Road Congress (IRC).

The formula for calculation of travel time savings is presented below.

Vehicle Operating Cost (VOC)	=	No of trips (Difference between with & without scenario)	x	Average Lead (Km)	x	Vehicle Operating Cost (INR per Km)
Source		(Traffic demand studies/surveys)		(Estimate based on Traffic demand studies/surveys)		Manual on Economic Evaluation of Highway Projects in India, 2019 ⁷

iii) Reduction in Accidents

The reduction in traffic volumes on roads due to the modal shift to rail is expected to reduce road accidents on the project corridor. Reduction in accidents will lead to saving of lives, reduction in damages to vehicles and savings towards medical, insurance expenses, administrative expenses on police and the intangible psychosomatic cost of pain to people involved in the accidents and their families.

The economic benefits due to the reduction in accidents are calculated as follows:

Accident Costs	=	Vehicle Km (Difference between with & without scenario)	x	Accident rate (per vehicle Km)	x	Accident Cost (INR)
Source		(Traffic demand studies/surveys)		Collection of past accident data along the project corridor; MoRTH report on Road accidents in India ⁸		Toolkit on Finance and Financial Analysis, 2013 by MoUHA ⁹

iv) Infrastructure Maintenance Cost Savings

Infrastructure Maintenance Cost Savings will arise due to reduced need for maintenance of the existing road infrastructure owing to reduced traffic on account of modal shift. The benefits can be calculated using the reduction in vehicle kilometres due to modal shift and the road infrastructure maintenance cost per km.

Infrastructure Maintenance Cost Savings	=	Reduction in vehicle km due to modal transfer (km)	x	Infrastructure maintenance cost (INR/Vehicle km)
Source		(Estimate based on traffic demand studies/surveys)		(MoRTH Annual Report ¹⁰ ; Estimate based on published values on annual expenditure on roads and traffic and annual vehicle km)

v) Road Infrastructure Cost Savings

Additional road infrastructure or upgrading the existing road infrastructure will be required to solve the congestion problem and accommodate growth in traffic in case the railway line is not

⁷ <https://www.scribd.com/document/522057946/IRC-SP-30-2019-Manual-on-Economic-Evaluation-of-Highways-in-India>

⁸ https://morth.nic.in/sites/default/files/RA_2020.pdf

⁹ https://smartnet.niua.org/sites/default/files/resources/finance_and_financial_assessment_toolkit.pdf

¹⁰ <https://morth.nic.in/annual-report>

introduced. The new railway line will bring savings in investment in road infrastructure due to shifting of passengers to Rail and withdrawal of vehicles in the project corridor.

The road infrastructure savings will be calculated using the below formula.

Road Infrastructure savings	=	Additional express highway lanes required in without Project situation (km)	X	Cost of road construction (INR per km)
Source		(Estimate based on traffic demand (Number of PCU trips saved /road PCU capacity, ideally 1600 Passenger Car Unit (PCU) per hour))		(Normative Cost Norms for the National Highways by MoRTH)

vi) Employment Generation

During the period of construction, manpower will be needed for various project activities. In post-construction phase, manpower will be employed for the operation and maintenance of the system. Thus, the project would provide substantial direct employment. In addition to these, more people would be indirectly employed in allied activities.

Employment benefits	=	Capex (INR)	X	Employment cost as a % of Project Cost (INR)	X	Share of Skilled vs Unskilled employment	X	Direct/Indirect employment multiplier
Source		(Project DPR Cost chapter)		(Project DPR Cost chapter)		(20:80 ratio assumption; to be adjusted based on project requirement)		ADB guidelines for the economic analysis of projects ¹¹

b) Network Benefits

Railway investments can influence the entire railway network and generates Network benefits in terms of reduction in environmental impact due to a decrease in emissions, reduction in railway network congestion and improvement in travel time reliability etc. The components and steps involved in determining the economic benefits factoring network effects are:

i) Reduction in Emissions

Railway projects significantly contribute to pollution reduction, and these should be considered in economic analysis. The significant environmental savings come from decrease in air pollution associated with existing non-railway traffic due to the modal shift from the existing modes of transport to rail.

The reduction in emissions will be calculated based on the decrease in vehicle kilometres, volume of pollutants emitted from different modes and the cost of treatment per ton.

Emission Costs	=	Vehicle Km (Difference between with & without scenario)	X	Volume of Pollutant released per Km (grams per km)	X	Treatment cost/ton (INR)
Source		(Traffic demand studies/surveys)		(Source Profiling for vehicular Emissions Report by CPCB ¹²)		(MoHUA Appraisal Guidelines for Metro Rail Project Proposals ¹³)

ii) Reduction in Fuel and economic impact

¹¹ <https://www.adb.org/sites/default/files/institutional-document/32256/economic-analysis-projects.pdf>

¹² <https://cprt.nic.in/displaypdf.php?id=U291cmNIX1Byb2Z2ptGVVYmVnaWNsZXNucG9m>

¹³ <https://mohua.gov.in/upload/whatsnew/5%201852a4874Appraisal%20Framework%20Sept%202017.pdf>

Reduction in the number of vehicles on the roads and decongestion effect with the construction of new railway line gives benefits to the economy in terms of reduction in fuel consumption. A decrease in fuel consumption will result in a reduction in the import of crude oil.

Fuel and economic savings impact	=	Vehicle Km (Difference between with & without scenario)	X	Fuel economy (Average mileage of each mode)	X	Avg fuel cost (INR per liter)
Source		(Traffic demand studies/surveys)		Bureau of Energy Efficiency ¹⁴		Petroleum Planning & Analysis Cell ¹⁵

iii) Railway Network Decongestion

Construction of a new railway line will reduce congestion on the existing line or section of the rail network and will help in improving line capacity of the section. This will also reduce the lead time of trains moving via new railway line instead of moving via existing rail route. The savings due to the railway network decongestion can be calculated using the below formula.

Railway Network Decongestion	=	Increase in average speed on the section or adjacent network	X	Average Lead on network (Km)	X	Value of Passenger Time	=	Value of Time Travel Savings estimated in ₹)
Source		(To be estimated by Project Team using Rail network data)		(To be estimated by Project Team)		(Estimate based on per capita income on railway network)		Travel Time Savings on proposed rail corridor

iv) Reduction in delayed travelling time (Travel Time Reliability)

Travel time reliability refers to reaching the destination in a consistent journey time. Construction of a new railway line will result in an improvement in travel time reliability due to the reduction in rail congestion and predictability of travel time. The value of travel time reliability is estimated from the reduced travel time variability and associated buffer time that passengers have allowed before making trips. The savings due to the travel time reliability or reduction in delayed travel time will be calculated using the below formula.

Improvements in Travel Time – Reliability	=	No of Trips (Difference between with & without scenario)	X	Reduction in Buffer time per trip	X	Reliability Ratio	X	Value of Passenger time (INR per Hour)
Source		(Traffic demand studies/surveys)		(Traffic demand studies/surveys)		(80%, Project team assumptions)		Estimate based on per capita income on railway network)

v) Increase in Railway Throughput

Construction of a new railway line will result in additional passenger traffic on the rail network due to a reduction in travel time and an increase in the number of choices for a passenger. The economic benefit due to the increase in the railway throughput can be calculated using increase in passenger traffic and average revenue generated per passenger.

Increase in Railway Throughput	=	Increase in passenger and Freight traffic due to modal shift	X	Average revenue per passenger and Freight Ton km (INR)
Source		(Traffic demand		Indian Railways Annual Report

¹⁴ <https://beeindia.gov.in/content/fuel-efficiency>

¹⁵ https://www.ppic.gov.in/content/L49_1_Prices/Petroleum.aspx

Step 5: Economic conversion factors

The financial cost and benefits of the railway project are converted to economic cost and benefits using economic conversion factor. Economic conversion factors are used to adjust for taxes, subsidies, inefficient land or wage markets, and other transfer payments, before performing the economic analysis. The conversion factors for different categories are given in Table 1.

Table 2 Economic Conversion Factor

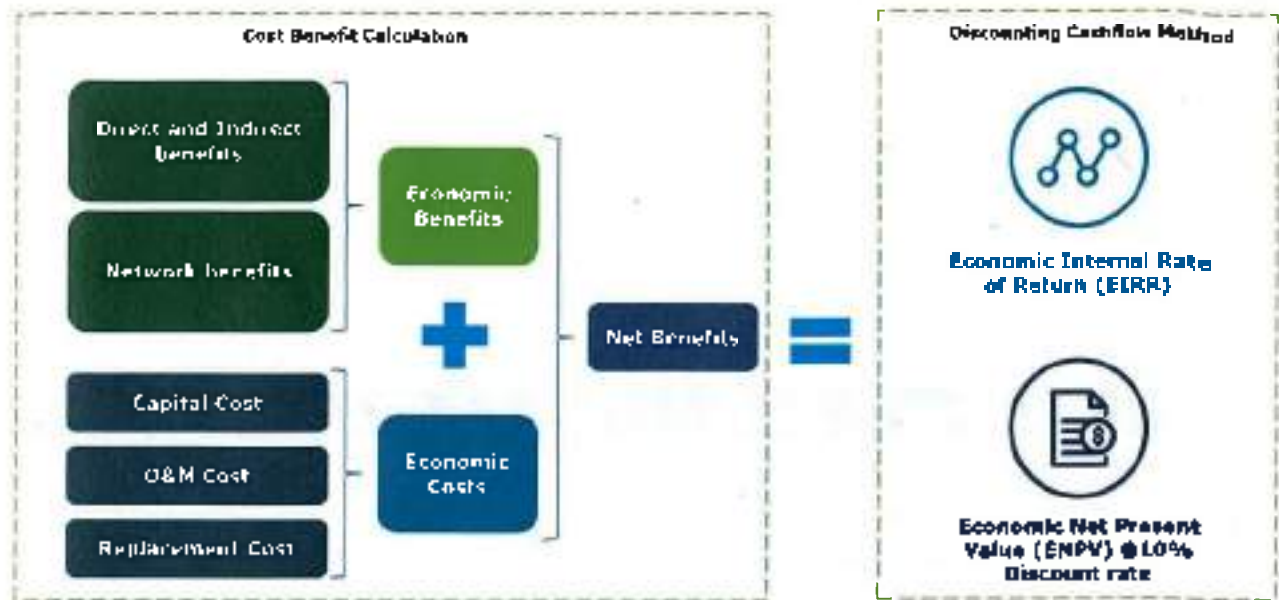
Type	Components	Economic factor
Economic Cost	Capital Cost	0.83
	Operations and Maintenance Cost	0.87
	Capital Replacement Costs	0.87
Economic Benefits (factoring network effect)	Travel Time Savings (VOT)	1.00
	Economic Price conversion coefficient	0.85
	Vehicle Operating Costs Savings (VOC)	0.90
	Accident Costs	0.90
	Infrastructure Maintenance Cost Savings	0.87
	Road Infrastructure Cost Savings	0.80
	Employment Generation	1.00
	Emission Costs	1.00
	Reduction in Fuel and Economic impact	0.80
	Railway Network Decongestion	1.00
	Reduction in delayed travelling time (Travel Time Reliability)	1.00
	Increase in Railway Throughput	1.00

Source: MoHUA Appraisal Guidelines for Metro Rail Project Proposals

Step 6: Economic Analysis Output

The outputs of economic analysis are calculated using two parameters.

1. Economic Net Present Value (ENPV)– ENPV is the sum of differences between the discounted benefits and cost flows.
2. Economic Internal Rate of Return (EIRR)– EIRR is the discount rate at which the ENPV becomes zero.



Step 7: Sensitivity Analysis

The range of sensitivity can be carried out to see the impact of change in critical parameters in the range of 5% to 20% on EIRR. The critical factors such as

1. Cost overruns due to delay or other factors
2. Increase in Operations and Maintenance Cost
3. Reduction in passenger traffic
4. Reduction in economic benefits
5. Combination of reduction in benefits and increase in cost.

Annexure II

List of Data sources

Parameter	Items	Source
Economic Costs		
Capital Cost		Project DPR
Operations and Maintenance Costs		Project DPR
Capital Replacement Costs		Project DPR
Economic Benefits		
Travel Time Savings (VOT)	Passenger Time Savings	Traffic demand studies/surveys
	Value of Passenger Time	To be estimated based on per capita income on new railway line corridor; State Economic Survey document. Weighted average based on OD patterns of traffic and passenger profile (basis traffic surveys) to be adopted in case of multiple states involved
	Difference in the freight time between rail and the next fastest mode (hour)	To be estimated by Project Team based on freight demand studies/surveys
	Volume of Freight (ton)	Freight demand studies/surveys
Freight Time Savings		$= \frac{(\text{Weighted Average commodity price (basis stakeholder consultation and traffic study)} \times \text{MTRR Rate per annum} \times \text{Economic price Conversion factor (0.85)})}{365 \times 24}$
		- Weighted Average Commodity Price: $\sum (\text{share of commodity in total volumes (\%)} \times \text{Average value of commodity per ton})$ - For eg. If total traffic volumes is 10 ton comprising Coal (20%, average value INR 4000 per ton), Steel (70%, average value INR 35000 per ton) and Cement (10%, average value INR 7000 per ton), then weighted average commodity price is = $(0.2 \times 4000) + (0.7 \times 35000) + 0.1 \times 7000 = \text{INR } 26000$ - Average 3 month Mibor Rate or short term interest rate for the year, sourced from Financial Benchmarks of India Ltd¹⁶
	No of Trips	Traffic demand studies/surveys
	Average Lead (Km)	Traffic demand studies/surveys
Vehicle Operating Cost (VOC)		

¹⁶ <https://www.fimmda.org/mod/jlcs/securitiesApp/ova/securitiesApp/val.aspx?op=mihur>

	Vehicle Operating Cost	Manual on Economic Evaluation of Highway Project ¹⁷
	Vehicle Km	Traffic demand studies/surveys
Reduction in Accidents	Accident rate	Road Accidents in India, MoRTH ¹⁸ ; Collection of past accident data along the project corridor
	Accident Cost	Toolkit on Finance and Financial Analysis, 2013 by MoHUA ¹⁹
Infrastructure Maintenance Cost Savings	Vehicle Km	Traffic demand studies/surveys
	Infrastructure maintenance cost	Ministry of Road Transport and Highways ²⁰
Road Infrastructure Cost savings	Length of Road	To be estimated based on Demand estimation (Number of PCU trips saved / road PCU capacity, ideally 1600 PCU per hour)
	Road construction cost	Ministry of Road Transport and Highways ²¹
	Capex	Project DPR (Cost Chapter)
Employment benefits	Employment cost as a % of Project Cost	Project DPR (Cost Chapter)
	Share of Skilled vs Unskilled employment	20:80
	Direct employment multiplier	ADB guidelines ²²
Reduction in Emissions	Vehicle Km	Traffic demand studies/surveys
	Volume of Pollutant	CPCB Source Profiling for vehicular Emissions Report ²³
	Treatment cost/ton	MoHUA Appraisal Guidelines for Metro Rail Project Proposals ²⁴
Fuel and economic Savings impact	Vehicle Km	Traffic demand studies/surveys
	Fuel economy	Bureau of Energy Efficiency ²⁵
	Fuel Price	Petroleum Planning & Analysis Cell ²⁶
Decongestion of Railway Network	Increase in average speed on the section or adjacent network	To be estimated by Project Team using Rail network data
	Average Lead (km)	To be estimated by Project Team using Rail network data
	Passenger throughput on Network	To be estimated based on per capita income on railway network

¹⁷ <https://www.scibd.com/document/522057946/JRC-SP-30-2019-Manual-on-Economic-Evaluation-of-Highways-in-India>

¹⁸ https://m-c-rh.nic.in/sites/default/files/RA_2020.pdf

¹⁹ https://smartnet.niuo.org/sites/default/files/resources/finance_and_financial_assessment_toolkit...xif

²⁰ <https://m-o-rh.nic.in/annual-report>

²¹ https://m-o-rh.nic.in/sites/default/files/circulars_document/Revision_of_Normative_Cost_Norms_for_National_Highways.pdf

²² <https://www.adb.org/sites/default/files/institutional-document/32256/education-eras-projects.pdf>

²³ <https://aprb.nic.in/displaypdf.php?rid=U791cmMIX1ByB22ptGvfmV03WNSZKMcGRm>

²⁴ <https://mohua.gov.in/upload/whatsnew/59c21852d48744pturnsal%20Framework%20USOpt%202017.pdf>

²⁵ <https://beeindia.gov.in/content/fuel-efficiency>

²⁶ https://www.ppac.gov.in/content/149_1_PricesPetroleum.aspx

	Value of Passenger time	Traffic demand studies/surveys
Improvements in Reduction in delayed travelling time (Travel Time Reliability)	No of trips	Traffic demand studies/surveys
	Buffer time	80%;
	Reliability Ratio	To be estimated based on per capita income on rail network
	Value of Travel time	Traffic demand studies/surveys
	Passenger traffic	To be estimated by Project Team using Rail network data
Increase in Railway Throughput	Average revenue per passenger	Indian Railways Annual Report and Accounts²⁷
	Freight Traffic	Traffic demand studies/surveys
	Average revenue per Freight ton	Indian Railways Freight Tariff schedule X length of line
Economic conversion factors		MoHUA Appraisal Guidelines²⁸ ; Assumptions

²⁷ https://indianrailways.gov.in/railwayboard/uploads/mre/structure/staff_enr/Annual-Reports-2020-2021/Annual-Report-English.pdf

²⁸ <https://mohua.gov.in/upload/whatsnew/59c21852a15744Appraisal%20-annework%20Sept%202017.pdf>

Annexure III - Data to be filled by Project team to calculate Financial and Economic IRR of Railway Projects

DATA FOR FIRR, EIRR, NETWORK EFFECT & COMMON USER FACILITY					
SN	Item	Name of Project (NL/DL/GC):		Description	
1	FIRR:				
a	Data for calculation of FIRR and FIRR values				
b	FIRR of the project				
2	EIRR:				
a	Field data for calculation of EIRR, including network effect				
Sr No	Parameter	Items	Passenger	Freight	Description* Whether filled or not*
1	Travel Time Savings (VOT)	Passenger Time Savings by each mode Value of Passenger time Value of freight time savings Difference in the freight time between rail and the next fastest mode (hour) Volume of Freight: (ton) Value of Freight time: (INR per ton hour) No of trips (Difference between with & without scenario) by each mode			
2	Freight Time Savings				
3	Vehicle Operating Cost (VOC)	Average load (Km) Vehicle Operating Cost by each mode Vehicle Km (Difference between with & without scenario) Road accident rate Accident Cost (Fatal vs non-fatal accident) Vehicle Km (Difference between with & without scenario) Infrastructure maintenance cost per km			
4	Reduction in Accidents				
5	Infrastructure Maintenance Cost Savings				
6	Road Infrastructure Cost savings	Additional express highway lanes required in w/o this Project situation Road construction cost per km			

7	Employment benefits	Protect Capex Employment cost as a % of Project Cost Share of Skilled vs Unskilled employment Vehicle Km (Difference between with & without scenario) Volume of Pollutant-CO2 by each mode Volume of Pollutant Others by each mode Treatment cost/ton - CO2 Treatment cost/ton- Others Vehicle Km (Difference between with & without scenario) Fuel economy by each mode Fuel Price No of trips Average Lead (Km) Value of Passenger time No of Trips (Difference between with & without scenario) Reduction in Buffer time (Difference between with & without scenario) per trip Reliability Ratio Value of Passenger time Increase in passenger and Freight traffic (Difference between with & without scenario) Average revenue per passenger and per 1 ton-km for freight			
8	Reduction in Emissions				
9	Fuel and economic Savings Impact				
10	Decongestion of Railway Network				
11	Improvements in Reduction in delayed travelling time (Travel Time Reliability)				
12	Increase in Railway Throughput				
3	Network effect of the Project (paragraph)				
4	The work is a common user facility essentially required to improve mobility movement of passengers and goods for improving loading to achieve mission 3,000 MT				

DY.COM/GS or CTPM or PCOM

* If the data is not filled, please provide the appropriate explanation and approval from designated authority.
*Inputs in different currency shall be converted in INR assuming the exchange rate on the day of analysis.

Annexure IV

Demand assessment methodology

Demand assessment for Railway traffic requires a combination of activities such as hinterland demarcation, extensive field surveys, primary interactions with the stakeholders and other required research towards developing a base year demand matrix and undertaking demand projections. The methodology for the demand assessment is given below:

Task 1: Delineation of project influence area/ hinterland

The first task would be to identify influence areas/hinterland for the planned railway line, as well as accompanying port and industrial clusters. The influence zone within all states through which the proposed corridor would pass needs to be evaluated for the purpose of identifying the hinterland.

Based on extensive review of assessing passenger and freight movement on rail corridors, the hinterland/catchment area of rail corridors can typically be categorized into:

- a) Primary hinterland: which includes end to end network of the proposed corridor including originating point, terminating point, all key regions falling along the corridor, or within a 150 km range from the corridor
- b) Secondary hinterland: which includes regions from which cargo is either originating or terminating on the corridor, and
- c) Tertiary hinterland: which includes region from which cargo is neither originating nor terminating on the proposed corridor but passing through the significant part of the corridor. It may be noted that only such regions will be considered under tertiary hinterland, wherein significant amount of cargo is currently moving from/to.

While identifying the hinterland, the study team should also consider main feeder lines connecting to the proposed corridor alignment. Further, in case, proposed corridor is expected to connect to ports, hinterland of identified ports should also be considered.

Task 2: Assessment of Base year demand

The next task would be to assess the base year traffic in the project hinterland. For this, traffic moving across different modes (road, railways and IWT) needs to be assessed. A robust data collection strategy combining primary and secondary surveys should be used to carve out the base year demand.

Traffic Surveys

a) Primary surveys

Name of Survey	Purpose	Method/ location	Duration of survey
Road Side Origin and Destination (OD) survey (sample survey)	To capture key flow attributes including: • vehicle origin, destination, • commodity (for freight), number of passengers (for passenger vehicles) • trip distance, • Travel time, and cost • frequency, • vehicle type (car, bus container, axles etc.)	Interview with drivers/ passengers at survey points on NHs and SHs. Toll locations are preferable.	At least 3 days (2 weekdays and 1 weekend) 16-24 hrs

Classified Volume count survey for roads *	To expand the Road O-D volumes for arriving at 24-hour traffic volume.	Traffic counts at the OD locations.	At least 7 days. 24 hrs.
Passenger Survey at Intercity Bus Terminal	To assess the demand for long distance passenger demand in the catchment. The following data should be captured during the survey: • Passenger boarding and alighting • Passenger OD • Frequency of travel • Fare • Travel time	Interview with passengers at the bus terminal and Ticket data from the operator (if available).	8-16 hours (depending upon the timetables)
Operator/industry survey (for freight)	To capture the time/ cost in each segment of supply chain. To understand various issues that an operator faces during transport movement.	Interview with Vehicle operators, Drivers, transport agencies.	
Stated preference survey for passengers and major cargo players	To capture the potential shift of passenger, cargo from other modes to Railways based on: • time and cost savings across ODs • Special value added services etc.	Interview with shippers, industries etc.	

* This survey is undertaken by NHAI and same can be sourced from the regional offices of NHAI wherever available.

b) Secondary data collection:

Data points	Purpose	Source
Railway ODs for passenger and freight	To capture the existing railway traffic (if any) in the primary, secondary and tertiary catchment.	Indian Railways FOIS data and PRS data
Petrol sales data	To assess the periodicity of road transport demand. Also, the data is a key input in expanding daily traffic to average annual daily Traffic (AADT).	Petrol Pump operators
Reports/ studies/ guidelines published by IWAI, NHAI and any other government and multilateral agencies for assessing financial and economic costs.		

Transport demand projections

Demand for transport is a derived demand, and therefore, it depends on how the transport-requiring industry grows over time. A top-down assessment needs to be undertaken for projecting transport demand. It will start with a compilation of existing transport demand, which will be informed by section 1.2. The transport demand must be projected based on appropriate macroeconomic indicators, past trends and econometric models to arrive at projected transport demand for a period upto 20-30 years from the baseline year. Along with this there needs to be

a holistic review of industry plans, upcoming SEZs and other proposed traffic intensive activities in the catchment. All such inputs must factor in during transport projections.

Rail transport demand is a subset of the transport demand projections. Hence, rail modal share for future years can be estimated based on mode choice models (based on time and cost analysis) and outputs from stated preference surveys in section 1.2.1.



भारतसरकार / Government of India
रेलमंत्रालय / Ministry of Railways
(रेलवेबोर्ड / Railway Board)



No.2021/W-I/Genl./Gati Shakti

New Delhi, dated: 27.07.2022

The General Managers
All Indian Railways/PUs, NF(Con), CORE
DG/RDSO/Lucknow, DG/NAIR/Vadodara

Sub: Setting up of Gati Shakti Units in Divisions.

The Railway Board had approved setting up of Gati Shakti Units (GSUs) in Khurda Road, Bilaspur, Delhi, Bengaluru and Agra divisions to fast track the construction works required to remove bottlenecks in operations and improve mobility that would lead to increased cargo loading.

This decision was communicated vide Railway Board's letter No.17/W-I/Genl./Board Meetings dated 16.05.2022 and 09.06.2022. It was also decided that GSUs will be set up in all other divisions of Indian Railways in a phased manner.

In view of the above and Hon'ble PM's vision of Gati Shakti for creation of infrastructure in the country, it has been decided to start GSUs in all the remaining divisions of IR. The organizational structure of the GSUs will be as follows.

1.0 Organization of the divisional Gati Shakti Units:

- 1.1 GSU in the division shall be headed by a CPM/Gati Shakti (GS) under the administrative control of DRM. Post of CPM/GS will be open to all cadres (except IRPFS). CPM/GS will be selected based on his capabilities (knowledge & skills) and experience. GM will post suitable officers including CPM/GS in the GSUs of the divisions.
- 1.2 If divisions are having more than two ADRMs, the post of one ADRM will be re-designated as CPM/Gati Shakti of that division.
- 1.3 In case there are two or less ADRMs in the division, CPM/GS will be posted by making suitable adjustment in the cadre in accordance with the post codes mentioned in **Annexure 'A'** (at present) to fast track the execution of infrastructure works. However, in future, these post codes may be changed, if required by the GM.
- 1.4 Establishment expenditure of the Gati Shakti units including

Phil

CAJ

that of CPM/GS shall be charged to the projects.

1.5 SG/JAG/SS/JS officers of Engineering, S&T, Electrical and Finance will be posted for major infrastructure development works such as station re-development, major yard remodeling, coal connectivity, port connectivity, traffic facilities works and ROB/RUB works. The post codes of these disciplines are mentioned in **Annexure 'A'**. GMs may however augment the GSUs by providing additional officers and staff, and provide further delegation of power based on regular reviews of progress of GSUs.

1.6 GM's in consultation with PCOM may decide about the traffic officer to be associated with CPM/GS. In case, a need is felt to augment the traffic establishment of the division, separate JAG/SG officers may be posted under the administrative control of CPM/GS.

1.7 Sr. DFM of the Division will be the associate Finance for the Gati Shakti Unit and establishment expenditure will continue to be charged to Revenue.

One Sr. Scale/Jr. Scale (DFM/ADFM) officer of Accounts Department along with Section Officer and other staff will be posted exclusively for Gati Shakti Unit in Division to exclusively work as the Associated Finance of GSU. They will work under the functional control of Sr DFM but administrative control of CPM /GSU for Gati Shakti Units.

1.8 Existing Branch officers of Engineering, S&T and Electrical discipline of the division will continue to do the works of Track Renewals (PH-31), Bridge (PH-32), Staff Welfare (PH-51), Station Building Maintenance, Signal & Telecom, as being done presently under the administrative control of DRMs.

1.9 The RET/PET surveys will henceforth be called Feasibility Study. The Gati Shakti Unit will also undertake Feasibility Study & preparation of DPR for projects keeping in view the vision of Railways. Necessary corrections in the Engineering Code are being processed separately. Division's Gati Shakti Unit may undertake feasibility study of projects required for the division at the rates communicated by Railway Board from time to time, with the finance concurrence of GS Unit, and with the approval of DRM. This expenditure will continue to be charged to Demand No 2. The proposals for undertaking feasibility study will be processed on IRPSM, and all such proposals would be monitored by PED/GS Railway Board.

1.10 The feasibility study report will be examined by the Network Planning Group (NPG-Division) of the division.

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Dy.COM/Planning/HQ may be co-opted in NPG of the division for deciding the feasibility of the project. DRM will approve the feasibility study based on the recommendations of the division's NPG.

- 1.11 GMs are empowered to sanction works for the preparation of DPRs for such projects that are found feasible. Approval of the GM will be obtained by the division/Gati Shakti Unit for preparation of DPRs. DPRs will be prepared by Division's Gati Shakti Unit.

The DPRs duly approved by GM along with the Finance Concurrence of the division's Gati Shakti Unit shall be submitted to Gati Shakti Directorate of Railway Board. Finance concurrence of the Head Quarter will not be required.

2.0 Technical, Administrative and Financial Powers of GSUs of the Divisions:

- 2.1 CPM/Gati Shakti will have technical, administrative and financial powers analogous to the officers of construction organization for the projects executed by the division.
- 2.2 DRMs will exercise the powers of CAO/Construction for works of Gati Shakti Unit in the division.
- 2.3 Gati Shakti Units shall be facilitated to utilize the existing clerical, technical, drawing & design staff of the division for day to day works. DRMs will ensure this aspect.
- 2.4 Proposal requiring sanction of Railway Board will be sent directly to the GSU of Railway Board with concurrence of the associate finance of the GSU of the division, and with the administrative approval of the GM.
- 2.5 For design assistance from industry, design checking, testing of materials, site tests and surveys, the CPM/GS shall have powers of SAG officer of the construction unit.

Existing divisional units dealing with ESPs, SWRs, SIPs, and LOPs shall also assist the GSU. Further assistance, if required, may be arranged through outsourcing.

3.0 Field Supervision and Execution of works:

- 3.1 Gati Shakti Unit of division can use PSSA (Project Supervisors Services Agencies) and PMS as per the need of the project.
- 3.2 Gati Shakti unit of Division can hire retired railway supervisors below the age of 65 years with the approval of DRMs within the



overall provisions in the estimates of the projects being executed by the GSUs.

- 4.0 Gati Shakti Unit will monitor approvals of all Plans, L-Sections, ESPs, SIPs, LOPs, GADs, Yard plans, Blocks and PNIs/NIs of all the works executed by the GSU.
 - 5.0 Officers/Sr. Supervisors in GSU may be permitted to travel by air in connection with Gati Shakti works, outside the Zonal Railways with the approval of DRM without finance concurrence.
 - 6.0 Vehicles for field officers and supervisors shall be provided within the overall provisions in the estimate, to facilitate faster execution and supervision of works.
 - 7.0 In case of shortage of accommodations in division/sub-division, leased accommodation nearest to the place of the works may be provided to officers and supervisors as per railway's extent rules with the approval of DRM.
- House retention is also allowed at previous place of posting upto one year or scholastic year whichever is earlier.
- 8.0 GMs will nominate one SAG/ HAG Officer as zonal co-coordinator for the divisional Gati Shakti Units in respective zones.
 - 9.0 The works to be executed by Gati Shakti Units of Divisions are given in **Annexure 'B'**.
 - 10.0 This issues with the approval of Board (M/Infra, M/TRS, M/O&BD, MF and CRB&CEO).


27.07.24
(Mohit Kumar)
**Director/Gati Shakti (Civil) III
Railway Board**

1. The PFAs, All Indian Railways & Production Units.
2. Dy. Comptroller and Auditor General of India (Railways), Room No.224, Rail Bhavan, NewDelhi.


(For Member Finance)

Copy to: As per list enclosed

No.2021/W-I/Genl./Gati Shakti

New Delhi dt. .07.2022

Copy to:

1. The ADAI (Railways), New Delhi
2. The Director of Audit, All Indian Railways
3. The Director, Indian Railway Institute of Civil Engineering, Pune.
4. The Director, Indian Railway Institute of Mechanical and Electrical Engineering, Jamalpur.
5. The Director, Indian Railway Institute of Signal Engineering and Telecommunications, Secunderabad.
6. The Director, Indian Railway Institute of Electrical Engineering, Nasik.
7. The Executive Director, Indian Railways Centre for Advanced Maintenance Technology, Gwalior.
8. The Director, Indian Railway Institute of Transport Management, Lucknow.
9. The Registrar, Railway Claims Tribunal, Delhi.
10. The Chief Commissioner of Railway Safety, Lucknow.
11. The Secretary, Railway Rates Tribunal, Chennai.
12. The Chairman, Railway Recruitment Board, Ahmedabad, Ajmer, Allahabad, Bangalore, Bhopal, Bhubaneswar, Chandigarh, Chennai, Gorakhpur, Guwahati, Jammu & Srinagar, Kolkata, Malda, Mumbai, Muzaffarpur, Patna, Ranchi, Secunderabad and Trivandrum.
13. Managing Director, CRIS, Chanakyapuri, New Delhi

Copy to:

1. The Genl. Secy., AIRF, Room No. 248, & NFIR Room No. 256-C, Rail Bhavan
2. The Secy. Genl., IRPOF, Room No. 268, FROA, Room No. 256-D & AIRPFA, Room No. 256-D Rail Bhavan

Copy to:

1. Advisor to MR, EDPG to MR, OSD to MR, EDPG to MOS(D), EDPG to MOS(J)
2. PSO/ Sr PPS CRB, Member (Finance), Member (Infra), Member (TRS), Member (O&BD), Secy, DG (RHS), DG (RPF)
3. All AMs, Principal Executive Director & Executive Directors of Railway Board


27.07.22

(Mohit Kumar)

**Director/Gati Shakti (Civil) III
Railway Board**



Post Codes for Divisional Gati Shakti Units

SN	Railway	No of Division	Post Code CPM/GS	Post Code CE SG/JAG	DFM & SO/ Fin (each)	Post Code Signalling SG/JAG	Post Code Electrical SG/ JAG	Remarks regarding Electrical	TKM
1	CR	BSL	03CR4P014	03CR5P034	1	10CR5P006	04CR5P006		2180
2	CR	CSTM	03RC4P002	03CR5P035	1	10CR5P016	04CR5P004		2046
3	CR	NGP	03CR4P016	03CR5P036	1	10CR5P017	04CR5P027		2217
4	CR	PUNE	10CR4P006	03RC5P037	1	10CR5P015	04CR5P021	Sr. DEE/TRD will look after the work of GatiShakti	1052
5	CR	SUR	05MC4P006	03CR5P038	1	10CR5P019	04CR5P034		1608
6	ER	ASN	04ER4P002	03ER5P049	1	10ER5P011	04ER5P017		2123
7	ER	HWH	03ER4P010	03ER5P050	1	10ER5P008	04ER5P004		2223
8	ER	MLDT	10ER4P008	03ER5P051	1	10ER5P014	04ER5P019		1207
9	ER	SDAH	03ER4P006	03ER5P052	1	10ER5P013	04ER5P027		1775
10	ECR	DDU	03EC4P020	03EC5P060	1	10EC5P001	04EC5P012		1381
11	ECR	DHN	04EC4P007	03EC5P061	1	10EC5P011	04EC5P008		2958
12	ECR	DNR	03EC4P021	03EC5P062	1	10EC5P016	WC/CON-01		1757
13	ECR	SEE	05EC4P007	03EC5P063	1	10EC5P018	04EC6P004		1202
14	ECR	SPJ	10EC4P006	03EC5P059	1	10EC5P020	04EC5P023		1215
15	ECoR	KUR		Available	1	10CO5P011	04CO5W019		2200
16	ECoR	SBP	03CO4P013	03CO5P038	1	10CO5P003	04CO5P015	Sr. DEE/TRD will look after the work of Gati Shakti	1594
17	ECoR	WAT	03RB4P015	03CO5P039	1	10CO5P009	04CO5P017		2353
18	NR	DLI		Available	1	10NR5P016	04NR5P029		3246
19	NR	FZR	03NR4P006	03NR5P081	1	10NR5P012	04NR5P002	Senior Scale	2857
20	NR	LKO	05SE4P008	03NR5P082	1	10NR5P015	04NR5P015		2672
21	NR	MB	10NR4P005	03NR5P083	1	10NR5P007	04NR5P028	Sr. DEE/TRD will look after the work of GatiShakti	2571
22	NR	UMB	04RC4P002	03NR5P084	1	10NR5P027	04NR5P005	Sr. DEE/TRD will look after the work of GatiShakti	2216
23	NCR	AGC		Available	1	10NC5P017	04RE5P005		1478
24	NCR	JHS	10NC4P005	03NC5P039	1	10NC5P013	04RE5P010		2417
25	NCR	PRYJ	04RE4P003	03NC5P040	1	10NC5P010	04RE5P002		2606
26	NER	BSB	04CO4P006	03NE5P034	1	10NE5P006	04NE5P007		1638
27	NER	IZN	03NE4P008	03NE5P035	1	10NE5P011	04NE5P006		1018
28	NER	LJN	04NW4P007	03NE5P036	1	10NE5P003	04NE5P008		1393
29	NFR	APDJ	10NE4P003	03NF5P068	1	10CN5P006	04NF5P004	Sr. DEE/TRD will look after the	1144

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SN	Railway	No of Division	Post Code CPM/GS	Post Code CE SG/JAG	DFM & SO/ Fin (each)	Post Code Signalling SG/JAG	Post Code Electrical SG/ JAG	Remarks regarding Electrical	TKM
								work of Gati Shakti	
30	NFR	KIR	03NF4P015	03NF5P069	1	10CN5P005	04NF5P001	Sr. DEE/TRD will look after the work of Gati Shakti	1526
31	NFR	LMG	03NF4P019	03NF5P070	1	10CN5P004	04NF5P012	Sr. DEE/TRD will look after the work of Gati Shakti	1873
32	NFR	RNY	05NW4P008	03NF5P071	1	10CN5P008	04NF5P006	Sr. DEE/TRD will look after the work of Gati Shakti	1234
33	NFR	TSK	03NF4P021	03NF5P072	1	10CN5P007	04NF5P010	Sr. DEE/TSK will look after the work of Gati Shakti	767
34	NWR	ALL	10NW4P003	03NW5P51	1	10NW5P012	04NW5P008	Sr. DEE/TRD will look after the work of Gati Shakti	1986
35	NWR	BKN	03SR4P014	03NW5P52	1	10NW5P014	04NW5P009	Sr. DEE/TRD will look after the work of Gati Shakti	2313
36	NWR	JP	04NW4P003	03NW5P53	1	10NW5P015	04NW5P010	Sr. DEE/TRD will look after the work of Gati Shakti	1725
37	NWR	JU	03SR4P005	03NW5P54	1	10NW5P016	04NW5P004	Sr. DEE/TRD will look after the work of Gati Shakti	2073
38	SR	MAS	03SR4P009	03SR5P047	1	10SR5P014	04SR5P004	Sr. DEE/TRD will look after the work of Gati Shakti	1577
39	SR	MDU	10RE4P003	03SR5P048	1	10SR5P019	04SR5P014	Sr. DEE/TRD will look after the work of Gati Shakti	1571
40	SR	PGT	05SE4P007	03SR5P049	1	10SR5P016	04SR5P017	Sr. DEE/TRD will look after the work of Gati Shakti	1004
41	SR	SA	04SR4P002	03SR5P050	1	10SR5P021	04SR5P010	Sr. DEE/G will look after the work of Gati Shakti	1177
42	SR	TPJ	03SR4P015	03SR5P051	1	10SR5P015	04SR5P025		1259
43	SR	TVC	03SR4P008	03SR5P052	1	10SR5P020	04SR5P020		962
44	SCR	BZA	03SC4P019	03SC5P048	1	10SC5P014	04SC6P002		1908
45	SCR	GNT	10SC4P005	03SC5P049	1	10SC5P013	04SC5P026	Sr. DEE/TRD will look after the work of Gati Shakti	773
46	SCR	GTL	03SC4P015	03SC5P050	1	10SC5P015	04SC5P023	Sr. DEE/TRD will look after the work of Gati Shakti	2233
47	SCR	HYB	04WC4P007	03SC5P047	1	10SC5P008	04SC5P001		779
48	SCR	NED	03SC4P020	03SC5P052	1	10SC5P002	04SC6P007	Sr. DEE/TRD will look after the work of Gati Shakti	1068
49	SCR	SC	03SC4P005	03SC5P051	1	10SC5P017	04SC5P003		2406
50	SER	ADRA	03SE4P015	03SE5P033	1	10SE5P003	04SE5P021	Sr. DEE/TRD will look after the work of Gati Shakti	1464
51	SER	CKP	03SE4P012	03SE5P034	1	10SE5P008	04SE5P003		2227
52	SER	KGP	04SE4P001	03SE5P035	1	10SE5P012	04SE5P012		2224

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SN	Railway	No of Division	Post Code CPM/GS	Post Code CE SG/JAG	DFM & SO/ Fin (each)	Post Code Signalling SG/JAG	Post Code Electrical SG/ JAG	Remarks regarding Electrical	TKM
53	SER	RNC	10SE4P006	03SE5P036	1	10SE5P014	04SE5P022	Sr. DEE/TRD will look after the work of Gati Shakti	764
54	SECR	BSP		Available	1	10RC5P013	04RC5P008		2173
55	SECR	NGP	10RC4P004	03RC5P029	1	10RC5P016	04RC5P015		1850
56	SECR	R	03RC4P010	03RC5P030	1	10RC5P010	04RC5P002		735
57	SWR	MYS	04SW4P001	03SW5P37	1	10SW5P001	04SW5P012	Sr. DEE/G will look after the work of Gati Shakti	1420
58	SWR	SBC		Available	1	10SW5P009	04SW5P011		1582
59	SWR	UBL	03SW4P009	03SW5P38	1	10SW5P005	04SW5P004		1849
60	WR	ADI	03WR4P011	03WR5P045	1	10WR5P021	JA07CORE002	Sr. DEE/TRD will look after the work of Gati Shakti	1967
61	WR	BRC	03WRP006	03WR5P046	1	10WR5P015	04WR5P004		1678
62	WR	BVP	03WR4P010	03WR5P047	1	10WR5P022	04WR5P029		1331
63	WR	MCT	10EC4P004	03WR5P048	1	10WR5P011	04WR5P028		1383
64	WR	RJT	03WR4P013	03WR5P049	1	10WR5P020	JA07CORE006	Sr. DEE/TRD will look after the work of Gati Shakti	670
65	WR	RTM	04WR4P003	03WR5P050	1	10WR5P017	04WR5P020		1591
66	WCR	BPL	03WC4P007	03WC5P025	1	10WC5P008	04WC5P010		2051
67	WCR	JBP	03WC4P011	03WC5P026	1	10WC5P004	04WC5P003		2461
68	WCR	KTT	03WC4P005	03WC5P027	1	10WC5P011	04WC5P002		2074

Note:

1. Zonal Railway with the personal approval of GM may decide to replace/post officers of different disciplines with different post codes, within the Zonal Railways.
2. One of the Traffic Officer of Division may be designated to look after duties of GSU in addition to their own work.

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WORKS TO BE UNDERTAKEN BY GATI SHAKTI UNIT

Divisional Gati Shakti Unit shall be responsible for planning and execution of following works

1. Carry out feasibility study followed by preparation of Detailed Project Report for further consideration of Railway Board.
2. Station Re-development.
3. Plan Head 53: Passengers Amenities.
4. Plan Head 16: Traffic Facilities
5. Plan Head 29: Road Safety and level crossing.
6. Plan Head 30: Road Under Bridge (RUB) and Road Over Bridge (ROB).
7. Plan Head 33: Signal and Telecommunication such as EI, RRI including in private siding.
8. Plan Head 36: Provision of Escalator and lifts.
9. Plan Head 42: Work shop including production unit work.
10. All siding works and deposit work.
11. Electrification of sidings, workshops & small left over RE patches.
12. All coal connectivity projects/port connectivity works under different Plan Head (confined within the divisional boundary).

Note: GM may however decide the executing agency of the works based on urgency, need and peculiarity of the individual project for faster execution and delivery of the project without affecting the targets fixed for the current year.







भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड RAILWAY BOARD)



No. 2021/W-1/ Genl./Gatishakti

New Delhi, Dated 27.07.2022

**The General Managers,
All Indian Railways.**

Sub: Submission of document for projects costing more than Rs. 500 crore each.

Ref: (i) Ministry of Finance/Department of Expenditure's OM No. 01(03)/PFC-I/2022 dtd. 28.04.2022. (copy enclosed)

(ii) Ministry of Commerce & Industry (DPIIT) 's OM No. DSJJ/Log/EGoS/2022 dtd. 24.05.2022. (copy enclosed)

The railway projects costing above Rs. 500 crore each are sanctioned by Hon'ble MR/CCEA depending upon the value of the work after appraisal by NITI Aayog and Expanded Board for Railways (EBR).

2.0 Vide OM at ref (i) above, MoF has advised that all projects more than Rs. 500 crore each are required to be examined by Network Planning Group (NPG) for unified planning and integration of the proposals and issued revised format of PIB/EBR memorandum for appraisal of projects duly incorporating the recommendations of NPG. Further, vide ref (ii) above, DPIIT has issued format for submitting details of project to NPG.

3.0 In regard to above, following action need to be taken by Railways for the projects costing more than Rs. 500 crore each at the time of submission of Final DPR (after clearance of DPR by EDs' committee) :

- (i) To prepare and submit the details of the project in NPG format (as per ref ii above) and to upload the alignment of New line /Doubling/Multi tracking etc. on PM Gatishakti Portal.
- (ii) To prepare and submit the draft EBR/PIB Memo (as per revised format) as per ref. (i) above.
- (iii) To prepare and submit draft Executive Summary of the project in the format enclosed as Annexure-III.
- (iv) To prepare and submit draft OM as per the format enclosed as Annexure-IV.

The above details/information in soft (editable) copy as well as hard copy may be sent by email to edprojm@gmail.com, dir.w2rb@gmail.com & dirgs2rb@gmail.com.

DA : As above.

Vikas
27/7/22
(Vikas Kumar Jain)
Executive Director/GS(Civil)-I
Railway Board
Tele: 011-47845476

Copy to: Chief Administrative Officers(Con.)/All Indian Railways for kind information and necessary action.

Annexure-I

F. No. 01(03)/PFC-I/2022
Government of India
Ministry of Finance
Department of Expenditure

North Block, New Delhi,
Dated: 28.04.2022

OFFICE MEMORANDUM

Subject: Appraisal and Approval of Public Funded Schemes and Projects (except matters required to be placed before Cabinet Committee on Security).

Reference is invited to this Department's OM No. 24(35)/PF-II/2012 dated 4th August, 2020 regarding the guidelines for formulation, appraisal and approval of Public Funded schemes and projects.

2. CCEA in its meeting on 21.10.2021 approved the Development of 'PM GatiShakti National Master Plan (NMP) for providing multimodal connectivity infrastructure to various Economic Zones. The PM GatiShakti NMP is an integrated plan depicting the Economic Zones and the multimodal connectivity infrastructure with an objective to holistically integrate the interventions of various Ministries / Departments and address missing gaps to ensure seamless movement of people, goods & services.

3. As per the CCEA approval, an Integrated Infrastructure Network Planning Group (NPG) will be constituted with representation from various connectivity infrastructure Ministries / Departments involving their heads of Network Planning Division for unified planning and integration of the proposals and assist the Empowered Group of Secretaries (EGoS) in respects of the ToRs.

4. The ToRs of the Integrated Infrastructure Network Planning Group (NPG) include the following:

1. The group will be responsible for sharing their specific Action Plans for 2020-21 to 2024-25 with each other for facilitating integration of networks, enhance optimization through modification/expansion/new network creation to avoid

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duplication of works for holistic development of any region as well as reducing logistics costs through micro-plan detailing.

- II. This group shall after examining all the interventions proposed to be taken by various Ministries will delineate all projects where synchronization of efforts are required and propose any changes in the PM GatiShakti NMP for consideration and approval of the EGoS.
 - III. The Network Planning Group will also examine the following proposals which are not forming part of the Master Plan currently:
 - a) Projects of infrastructure connectivity Ministries which are costing more than Rs. 500 crore included under multimodal infrastructure classification, where DPRs have either been completed or in advanced stage;
 - b) All major new connectivity / network proposals of infrastructure connectivity Ministries involving cost of more than Rs 500 crore or those that are vital or critical from multimodal connectivity point of view to be so determined by the Logistics Division/NPG;
 - c) Further, NPG may also recommend critical multimodal connectivity project proposals which are even not recommended by any line Ministry to ensure proper integration and may also examine projects with reference to tourism development.
5. In view of above, PIB/DIB project proposals may be sent in the revised format as per Annexure for appraisal. The following points may be included at Sl. No. 1.12 of the revised format:
- a) *Whether the project has components of logistics or infrastructure connectivity?*
 - b) *If yes, whether the project proposal has been examined by Network Planning Group (NPG) for convergence and integration at the conceptualisation or feasibility study stage.*

appraisal

c) If yes, recommendations of NPG along with action taken by the Ministry may be annexed as part of PIB/DIB note and confirmation that the project has been reflected on the PM Gati Shakti platform.

6. The revised format of the PIB/DIB Memorandum is enclosed as Annexure. This will apply to all the PIB/DIB proposals for new projects submitted on or after 28.04.2022.

7. This issues with the approval of FS & Secretary (Expenditure).

H. Jaiswal
28/04/2022

(Hema Jaiswal)
Director [PFC-II & Policy]
Tel. No. 2309-2578
Email: hema.jais@nic.in

All Secretaries to the Government of India
All Financial Advisers to the Ministries/Departments
Prime Minister's Office
Cabinet Secretariat
NITI Aayog, Rail Board, Internal Circulation
DoE's Website

REVISED FORMAT FOR PIB/DIB MEMORANDUM FOR APPRAISAL OF PROJECTS

1. **Project Outline**
 - 1.1 Title of the Scheme.
 - 1.2 Sponsoring Agency (Ministry/ Department/ Autonomous Body or Undertaking)
 - 1.3 Proposed Cost of the Project
 - 1.4 Proposed timelines for the Project
 - 1.5 Whether Project will be implemented as part of a scheme or on stand-alone basis?
 - 1.6 Whether financial resources required for the Project have been tied up? If yes, details?
 - 1.7 Whether Feasibility report and/or Detailed Project Report has been prepared?
 - 1.8 Whether the proposal is an Original Cost Estimate or a Revised Cost Estimate?
 - 1.9 In case of Revised Cost Estimated, whether the meeting of Revised Cost Committee has been held and its recommendations suitable addressed?
 - 1.10 Whether any land acquisition or pre-investment activity was under-taken or is contemplated for this Project? Whether the cost of such intervention has been included in the Project Proposal?
 - 1.11 Whether the proposal is secured against natural / man-made disasters like floods, cyclones, earthquakes, tsunamis, etc. If the proposal involves creation /modification of structural and engineering assets or change in land use plans, disaster management concern should be assessed, and specifically commented upon.
 - 1.12 (a) Whether the project has components of logistics or infrastructure connectivity?

H. J. Jaiswal

(b) If yes, whether the project proposal has been examined by Network Planning Group (NPG) for convergence and integration at the conceptualisation or feasibility study stage.

(c) Recommendations of NPG along with action taken by the Ministry may be annexed as part of PIB/DIB note and confirmation that the project has been reflected on the PM Gati Shakti platform.

2. Outcomes and Deliverables

2.1 Stated aims and objectives of the Scheme

2.2 Indicate year-wise outputs/deliverables for the project in a tabular form.

Activities	Year 1		Year 2 & So on		Total	
	Physical	Financial	Physical	Financial	Physical	Financial
1,2,3 & so on						

2.3 Indicate final Outcomes for the Project in the form of measurable indicators which can be used for impact assessment/evaluation after the project is complete. Baseline data or survey against which such outcomes would be benchmarked should also be mentioned.

3. Project Cost

3.1 Cost estimates for the project along with the scheduled duration (both year and activity-wise). Also the basis for these cost estimates along with the reference dates for normative costing (it should preferably not be more than a year old)

3.2 In case land is to be acquired, the details of land cost, including cost of rehabilitation/ resettlement needs to be provided.

3.3 In case pre-investment activities are required, how much is proposed to be spent on these, with details activity-wise?

3.4 Whether price escalation during the project time cycle has been included in the cost estimated and at what rates?

3.5 Whether the Project involves any foreign exchange element, the provision made or likely impact of exchange rate risks?

3.6 In case of the Revised Cost Estimated, a variation analysis along with the Report of the Revised Cost Committee needs to be attached.

S. Jaiswal

4. Project Finance

- 4.1 Indicate the sources of project finance: budgetary support, internal and extra-budgetary sources, external aid, etc.
- 4.2 Indicate the cost components, if any, that will be shared by the state governments, local bodies, user beneficiaries or private parties?
- 4.3 In case of funding from internal and extra-budgetary resources, availability of internal resources may be supported by projections and their deployment on other projects?
- 4.4 Please indicate funding tie-ups for the loan components, if any, both domestic and foreign, along-with terms and conditions of loan based on consent/comfort letters.
- 4.5 If government support/loan is intended, it may be indicated whether such funds have been tied up?
- 4.6 Please provide the leveraging details, including debt-equity and interest coverage ratios, along with justification for the same.
- 4.7 Mention the legacy arrangements after the project is complete, in particular, arrangements for the maintenance and upkeep of assets that will be created?

5. Project Viability

- 5.1 For projects which have identifiable stream of financial returns, the financial internal rate of return may be calculated. The hurdle rate will be considered at 10 percent.
- 5.2 In case of projects with identifiable economic return, the economic rate of return may be calculated. In such cases project viability will be determined by taking both financial and economic returns together.
- 5.3 In case of proposal where both financial and economic returns are not readily quantifiable, the measurable benefits/ outcomes simply may be indicated.

Note: It may kindly be noted that all projects, irrespective of whether financial and/ or economic returns can be quantified or not, should be presented for PIB/DIB appraisal.

Signature

6. Approvals and Clearances

Requirement of mandatory approvals/ clearances of various local, state and national bodies and their availability may be indicated in a tabular form (land acquisition, environment, forestry, wildlife, etc.) In case land is required, it may be clearly mentioned whether the land is in the possession of the agency free from encumbrances or encroached or stuck in legal processes?

S. No.	Approvals/ Clearances	Agency Concerned	Availability (Y/ N)

7. Human Resources

- 7.1 Indicate the administrative structure for implementing the Project. Usually creation of new structures, entities, etc, should be avoided.
- 7.2 Manpower requirement, if any. In case posts (permanent or temporary) are intended to be created, a separate proposal may be sent on file to Pers. Division of Department of Expenditure. Such proposals may be sent only after the main proposal is recommended by the appraisal body.
- 7.3 In case outsourcing of services or hiring of consultants is intended, brief details of the same may be provided.

8. Monitoring and Evaluation

- 8.1 Indicate the Project Management / Implementing Agency(s). What agency charges are payable, if any?
- 8.2 Mode of implementation of individual works: Department / Item-rate / Turnkey / EPC/ Public-Private Partnership, etc.
- 8.3 Please indicate the timelines of the activities in PERT/ Bar Chart along with critical milestones.
- 8.4 Please indicate the monitoring framework, including MIS, and the arrangements for internal/ statutory audit.
- 8.5 Please indicate what arrangements have been made for impact assessment after the project is complete?

Signature

9. Comments

- 9.1 Comments of the Financial Advisor, NITI Aayog, Department of Expenditure and other Ministries/ Departments may be summarized in tabular form along with how they are being internalized and used to improve this proposal.

10. Approval Sought:

(_____)
Joint Secretary to the Government of India

Tel. No. _____

Fax No. _____

E-mail _____

Please attach an Executive Summary along with the Feasibility Report/ Detailed Project Report prepared for the Project.

Signature
8

DSJJ/Log/EGoS/0222
Government of India
Ministry of Commerce & Industry
Department of Promotion of Industry and Internal Trade

Udyog Bhawan, New Delhi
Dated: 24th May, 2022

OFFICE MEMORANDUM

Subject: Format for submission of project information for consideration by NPG
in terms DOE circular 01(03)/PFC-I/2022 dated 28.04.2022

All EGoS members are requested to consider the attached form, for submission
of project information for consideration by NPG in terms of DoE circular 01(03)/PFC-
I/2022 dated 28.04.2022.


(Dr. (Mrs.) Jivisha Joshi Gangopadhyay)
Dy. Secretary to the Govt. of India

To, All EGoS Members as per list attached.

Copy to:

Shri K. Jayaraman, US

List for email:

S. No	Name of Person	Designation	Department	Ministry
1	Sh. Amitabh Kant	CEO		NITI Aayog
2	Sh. Suneet Sharma	Chairman	-	Ministry of Railways
3	Dr. Sanjeev Ranjan	Secretary	-	Ministry of Ports, Shipping and Waterways
4	Sh. Pankaj Jain	Secretary	-	Ministry of Petroleum and Natural Gas
5	Sh. Alok Kumar	Secretary	-	Ministry of Power
6	Sh. Aravind Singh	Secretary	-	Ministry of Tourism
7	Sh. Giridhar Aramane	Secretary	-	Ministry of Road Transport and Highways
8	Sh. Jatindra Nath Swain	Secretary	Department of Fisheries	Ministry of Fisheries, Animal Husbandry and Dairying
9	Sh. Rajiv Bansal	Secretary	-	Ministry of Civil Aviation
10	Sh. Rajaraman	Secretary	Department of Telecommunication	Ministry of Communications
11	Dr. Anil Kumar Jain	Secretary		Ministry of Coal
12	Ms. Arti Ahuja	Secretary		Ministry of Mines
13	Sh. Yogendra Tripathi	Secretary	Department of Chemicals and Petro-Chemicals	Ministry of Chemicals & Fertilizers
14	Sh. Rajesh Kumar Chaturvedi	Secretary	Department of Fertilizers	Ministry of Chemicals & Fertilizers
15	Sh. Sanjay Kumar Singh	Secretary		Ministry of Steel
16	Dr. T. V. Somanathan	F.S and Secretary	Department of Expenditure	Ministry of Finance
17	Sh. Anurag Jain	Secretary	Department for Promotion of Industry and Internal Trade	Ministry of Commerce and Industry
18	Sh. Sudhanshu Pandey	Secretary	Department of Food and Public Distribution	Ministry of Consumer Affairs, Food and Public Distribution
19	Sh. Manoj Ahuja	Secretary	Department of Agriculture and Farmers Welfare	Ministry of Agriculture and Farmers Welfare
20	Sh. Anrit Lal Meena	Special Secretary, Logistics	Department for Promotion of Industry and Internal Trade	Ministry of Commerce and Industry

**Format for submission of project information for consideration by NPG in
terms of DOE circular 01(03)/PFC-I/2022 dated 28.04.2022**

PROJECT BRIEF	
Name of the Sponsoring Ministry	
Project Title	
Location (State and District)	
Project Proponent	
Implementing Agency	
STATUS OF PROJECT	
DPR Status	
Land Acquisition Status	
Anticipated/Total Project Cost	
Expected project completion timeline	
Has Project been mapped on NMP Portal? (Annex Schematic diagram)	Yes/No
Project classification	Brownfield/ Greenfield
Salient features of the Project	
In bullet points, 500 words	
Expected Impact of the project on Logistics efficiency	
In bullet points, 500 words	
Whether the project is under the Annexure 1 of the CCEA note	Yes/ No
Note in Annexure - I for coordination to facilitate integrated planning, synchronized implementation and details of clearances expected.	

Annexure -I

Proposed intervention required from other ministries/departments for integrated planning, synchronized implementation and expected clearances

S. No	Name of Ministry	Proposed activity for integrated planning	Proposed activity for enhanced optimization (through modification, expansion, new components)	Expected Clearances required	Remarks
1.	MoRTH				
2.	MoR				
3.	MoCA				
4.	MoPSW				
5.	MoPNG				
6.	DoT				
7.	Min of Power				
8.	MNRE				
9.	MOEFCC				
10	Others				

EXECUTIVE SUMMARY AND DETAILS OF PROJECT**1. INTRODUCTION**

The project of -----line (54 km.) has been included in Budget ----- subject to requisite approvals under plan head New Lines/DL.

2. PROJECT DESCRIPTION & JUSTIFICATION**3. DESCRIPTION OF PROPOSED ALIGNMENT**

The project line passes through the districts ----- of ----- State.

4. COST OF THE PROJECT

The estimated cost of the project is Rs. -----crore. Project is on cost sharing pattern with Government of Himachal Pradesh. Cost Sharing is 75% by Ministry of Railways and 25% by State Govt (If applicable) . The average cost of the project is Rs. -----Crore/km.

5. PERIOD OF COMPLETION

An investment period of ----- years has been proposed for construction of ----- line depending upon availability of funds.

6. RATE OF RETURN (ROR) OF PROJECT

FIRR of this line has been worked out as ----- %.
EROR of this line has been works out as----- %.

7. ENGINEERING FEATURES**(a) LAND**

Land width is varying as per the height of embankment and has been considered as per code for the Engineering Department. About ----- Hectares of land is required for the project.

(b) PERMANENT WAY (TRACK)

Main line is proposed to be provided with 60 Kg (90 UTS) new rail on PSC sleepers with 1660 sleeper density. The loop and siding lines are proposed to be laid with 60 kg /52 Kg (SH) rails on PSC sleepers with 1540 sleeper density.

8. ESTIMATED COST

8 (a) CIVIL ENGINEERING

The estimated cost of civil engineering works is ----- Crore. This has provision of land, Formation, P.Way, Bridges, Tunnels, Station Buildings, RUBs & provision of equipment and machinery etc.

8(b)ELECTRICAL

----- New line would be electrified section. Therefore, provision of Electrification of line has been considered. The Electrical Estimate cost is amounting to Rs.----- (including Rs.----- Cr for TRD).

8 (c)SIGNALLING & TELECOMMUNICATION

The estimate for S&T portion is amounting ----- Crore. It covers signaling arrangements with MACLS, Std----- interlocking, signaling cable, telecom cables, indoor cable/wiring at stations etc.

9. STANDARD OF CONSTRUCTION

(A) CIVIL ENGINEERING

SN	Description	Provision
1	Category of Line	Group " "
2	Axle Load	25T Loading-2008
3	Gauge	1676 mm (BG)
4	Traction	Electric Traction (2 x 25 KV)
5	Track structure	
	a) Rails	60kg/90UTS(New) for LWR/SWR section and 60 kg/90UTS SH for non-LWR section and other sidings.
	b) Sleepers	60 kg PSC sleepers with 1660 sleepers per Km
	c) Ballast Cushion	350 mm for main line and 250 mm for loop line.
	d) Welding of rails	LWR on Main line
	e) Points & Crossings	All points and crossings to be negotiated by passenger trains are proposed to be laid with 1 in 12 crossings of 60kg/m new rails with concrete turnout sleepers. The remaining points and crossings have been proposed with 1 in 8.5 crossings. of 60 kg/m rails laid on concrete sleepers.
6	Obligatory Points	
7	Whether provision made for further electrification	
8	Max permissible speed in	Kmph

	section	
9	Maximum degree of curvature	
10	Ruling Gradient	
11	Gradient in Yards	As per SOD
12	Length of loops/sidings	Km
13	Track Centre	5.3 m (Minimum)
14	Level Crossing	
15	Type of loading of bridge	25t Loading-2008
16	Tunnels	Km
17	Side slopes in cutting	
18	Width of formation	
	i. Bank	
	ii. Cutting	
19	Blanketing	As per latest RDSO Guide Lines
20	Berm	As per RDSO Guide Line at locations with bank height more than 6.0m

(B) SIGNAL & TELECOM

I. SIGNAL

SN	Description	Provision
1	Type of Signalling	MACL signalling with Std ----- interlocking (S&T)
2	Operation of signalling	Centralized operation of points & signals
3	Type of Interlocking	Electronic Interlocking
4	Power Supply	IPS with LM batteries at station.
5	SEB supply to be strengthened	Three independent sources of power supply to provide at all stations.
6	DG Sets	DG sets to be provided at stations.
7	Signal	MACLS LED signal lamps at stations.
8	Points	Motorized operation with independent detection and operation circuit and cable.
9	Track circuits	DC Track circuits with QTA ₂ type relays with QSPA ₁ relays
10	Block- Double line	Single Line UFSBI with HASSDAC.
11	Use of type of cables - signalling	Following type of cables have been standardized by Railway Board vide letter No. 2001/SIG/specn/1 dt 24.12.2002 • 30 Core • 19 Core • 12 Core • 6 Core of 1.5 sq mm
12	Use of type of cables - Telecom	Axle conter-6 quad cable jelly filled as per latest RDSO specifications.

13	Data logger	• Networked Data logger to be provided at both stations. Data connectivity requirements and associated hardware, software, infrastructure and facilities. Minimum, capacity of date logger is as under. • In PI-1024 inputs • All data loggers to be networked with divisional and zonal HQ and integrated with MIS.
14	Cable laying and protection	• Line wise and function wise cabling. • As per cable laying practice prevailing in NR
15	Aids and Alarms	• Fire alarm system at S&T building
16	Furniture	• For ASM/Operating Staff • For Maintenance staff
17	Tools for Maintenance	• Tool Kit • VHF communication • Test and measuring instruments

II. TELECOM

Telecom equipment will be provided as per the existing Telecom policy/circulars.

(C) ELECTRICAL

I. ELECTRICAL TRACTION	
1	Provision of electrification of New Line by 2 x 25 KV Single Phase AC Supply of new line has been made.

II. ELECTRICAL GENERAL SERVICES	
1	Existing electrical supply arrangement and electrification of station buildings. Other service buildings will be augmented.
2	Provision of lighting arrangement of Platforms.
3	Extension of power supply line from State Electricity Board & general arrangements as per site requirement.
4	Provision of electrical pump for water supply arrangement.

(D) OPERATING & COMMERCIAL

1	Traffic Projections	The details of passenger and goods traffic are available for the section and the same has been used for calculating the ROR. The line will be opened for both goods and passenger traffic after commissioning.

10.0 SALIENT FEATURES

SN	Description	Provision
1	Gauge	1676 mm (BG)
2	Classification of line	Group

3	Rails	60 kg/90 UTS (New) LWR/SWR section formation line and 60 kg/90UTS SH for loop line and other siding non-LWR section and other sidings.
4	Welding of rails	Long welding rails (LWR) on main line
5	Sleeper	60kg PSC sleepers with 1660 sleeper density for Main and 1540 for Loop line.
6	Points & Crossings	All points and crossings to be negotiated by passenger trains are proposed to be laid with 1 in 12 crossings of 60kg/m new rails with concrete turnout sleepers. The remaining points and crossings have been proposed with 1 in 8.5 crossings of 60 kg/m rails laid on concrete sleepers.
7	Ballast Cushion	350 mm cushion on main lines and ballasted deck bridges and 250 mm cushion on loop line.
8	Ruling gradient	
9	Maximum degree of curvature	
10	Length of loop line/siding	Km
11	Type of loading of bridges	25T- 2008 loading
12	Tunnels	No of Tunnels Total length Longest tunnel length
12	Level Crossing	
13	Important Bridges	Nos and span arrangement of each bridge
14	Major Bridges nos.	
15	Minor Bridges nos	
16	Track Centre	5.3 m (Minimum)
17	Formation	7.85m on straight and 150 mm extra provision for curves.
18	Formation width on curves	Width of bank & cutting shall be suitably increased on curves based on extra clearances required on curves.
19	Side slope of embankment	2:1
20	Side slope of cutting	1:1
21	Berm	3 m wide after 6.0 m height of bank
22	Traction	Electric traction.
23	Nos of stations	
24	Cost of construction	
25	Cost of construction per km.	



भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड RAILWAY BOARD)



No.

New Delhi, dated:

OFFICE MEMORANDUM

Sub:**1. The Proposal:**

The Project has been included in Budget 20 - 20 under Plan Head New Lines/DLGC. Map showing the proposal is enclosed as Annexure-I. Executive Summary of the project is enclosed as Annexure-II.

2. Justification:

3. The ROR of the project as per DPR is %. However, after firming up the cost and other factors, the FIRR of the project as calculated by Economic Directorate of Railway Board is %.

4. Scope of Work:**4.1**

S. No.	Work	Estimated Cost (Rs. in crore)
1.	Estimated cost of the project (2022-23)	
2.	Completion cost of the project	
3.	Financial Rate of Return (FIRR)	
4.	Economic Rate of Return (EROR)	

* Completion cost has been worked out with escalation @ 5% per annum.

5. Cost:

5.1 The ROR of the project as per Detailed Project Report (DPR) is % as per investment schedule given below:

Year	Civil Engg Cost (₹ in Crore)	S&T Engg Cost (₹ in Crore)	Electrical Engg Cost including TRD (₹ in Crore)	Total Cost (₹ in Crore)	Completion Cost (₹ in Crore)
1 st					
2 nd					
3 rd					
4 th					
5 th					
Total					

* Completion cost has been worked out with escalation @ 5% per annum.

6. The proposal for -----is being forwarded to NITI Aayog for appraisal. Accordingly, copies of Detailed Project Report (DPR) of this proposal are enclosed herewith.

7. The proposal has been examined and vetted by Railway Board's Planning and Finance Directorates and In Principle Approval has been accorded by Member/Finance, Railway Board.

भारत सरकार (GOVERNMENT OF INDIA)
रेल मंत्रालय (MINISTRY OF RAILWAYS)
रेलवे बोर्ड (RAILWAY BOARD)

No. 2022/CE-II/Board Meeting

New Delhi, date 10.06.2022

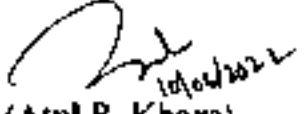
General Manager
All Zonal Railways

Sub: Faster execution of capacity enhancement/asset maintenance works.
Ref: Board meeting on 03.06.2022.

In order to expedite the execution of capacity enhancement works and ensure timely maintenance of assets, it was decided by full Board to delegate power as under.

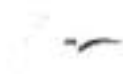
- (a) GMs already have powers to grant traffic blocks upto 04 hrs and they can delegate it to the DRMs. GMs will coordinate among their Divisions in this regard.
- (b) GMs can sanction NI upto 03 days (excluding PNI period) duly factoring in and coordinating with the adjoining zones for inter-zonal repercussions, if any. In case such repercussions are expected to be very substantial involving cancellation of inter-zonal M/E trains and drop in loading, the approval of Railway Board may be obtained.
- (c) GMs are authorized to provide ETA required for construction and CTR works
 - (i) By utilizing traffic recovery time.
 - (ii) By reducing watering time.
- (d) ETA @ 08 per minute per 100 kms shall be provided in sections having speed of 130 kmph or above.
- (e) ETA @ 6 per minute per 100 kms shall be provided in sections having speed less than 130 kmph.
- (f) In addition to the above, 50% of the time saved due to removal of PSRs will be added to ETA of the sections. Accordingly, 50% of the saving achieved in the past one year on account of PSR removal, may be utilized for enhancing ETAs in respective sections, on need basis.

Necessary action may be taken by the Zonal Railways in this regard.


(Atul B. Khare)
Principal Executive Director
Civil Engineering(P)
Railway Board



भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड RAILWAY BOARD)



No. 2021/W-I/Genl./Policy

New Delhi, Dated 06.06.2022

**The General Manager,
All Indian Railways.**

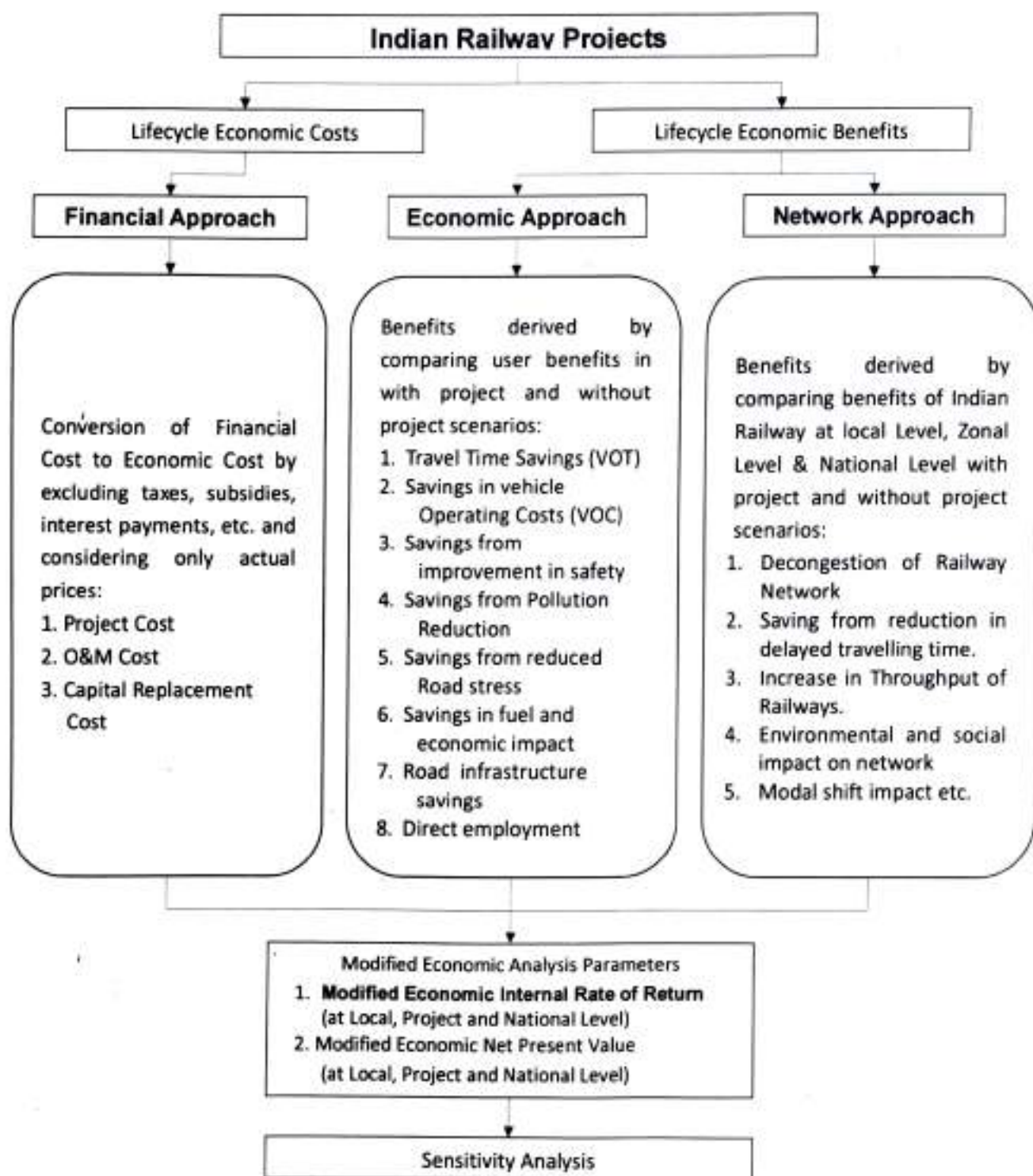
Sub: Comprehensive Project Appraisal System for sanctioning new projects by factoring in the "Network Effect".

A Multi-disciplinary Committee was constituted on the above subject. The Committee has since submitted its report which has been accepted by Board. As per the accepted report, the project appraisal will be done as under:

IR will shift from existing Economic Internal Rate of Return (EIRR) based project assessment method to a more comprehensive method i.e. Modified Economic Internal Rate of Return (MEIRR) to capture the economic & social and network impact of any project interventions comprehensively. MEIRR can be worked at the project, zonal and national level depending on the impact it creates at different levels. MEIRR at different levels will be compared and examined before reaching at any investment decision. Broad frame work of this revised model is summarized and attached as Annexure-I.

A toolkit will be got developed in consultation with subject experts to work out MEIRR to take into account the social and network effects.

(Brijesh Kumar)
Additional Member/Works
Railway Board
Tele: 011-23387963



भारत सरकार / Government of India
रेल मंत्रालय / Ministry of Railways
(रेलवे बोर्ड / Railway Board)

No.2022/W-I/Genl./Infrastructure projects

New Delhi, dated: 06 .05.2022

All General Managers
Indian Railways

Sub : Faster implementation of infrastructure projects.

It has been decided that all the works now will be executed by EPC mode of tendering. Presently, integration/coordination of all concerned departments of Construction in Zonal Railway is at the level of CAO(C) who is in-charge of large all infrastructure projects of the Zonal Railways. The present system is not conducive to resolve interdepartmental issues on real time basis and in turn affects process and delivery of the project.

In order to overcome the present system of integration at CAO(C) level, It has been decided to adopt the system of having Chief Project Managers for major projects who will be stationed nearer to the major project sites and assigned functions/coordination of all concerned departments viz S&T, Electrical & Finance. For design support and proof checking from IITs/NIT etc ample powers have been delegated. The above system of project wise CPMs will strengthen field units considerably and will ensure prompt resolving integration and other project issues.

The CPMs will be responsible for complete project and officials of all departments will report to CPMs. The above system will also be conducive for EPC contracting system where there will be only one contractor and one Authority Engineer from for all the functions of the project. The role of headquarter will be to provide timely technical expertise and support.

All the Zonal Railways should therefore adopt the above system of CPMs for various projects with immediate effect.


Brijesh Kumar
Additional Member(Works)
Railway Board

Copy to:-All CAO/Cs, Indian Railways.



भारत सरकार **GOVERNMENT OF INDIA**
रेल मंत्रालय **MINISTRY OF RAILWAYS**
(रेलवे बोर्ड **RAILWAY BOARD**)



No. 2021/W-I/Genl./Policy

New Delhi, Dated 06.05.2022

**The General Managers,
All Zonal Railways.**

Sub: Detailed Project Report (DPR) for Projects.

As per the existing instructions, Detailed Project Reports (DPRs) containing detailed estimates are prepared by Zonal Railways for all works costing above Rs. 50 crores before sanction of work by the competent authority. The DPR contains detailed scope of work along-with detailed estimated cost of project, the same stands sanctioned as and when the Project is sanctioned by the competent authority.

2.0 Instructions have been issued by Railway Board from time to time that all works/projects should be executed as per the scope contained in DPR at the time of sanction. However, it is observed that after sanction of work, scope of work is changed / increased beyond the sanctioned DPR/detailed estimate by railway resulting in cost, time overrun and their timelines which defeats the whole purpose of preparation of DPRs.

3.0 In view of above, it is therefore advised that Detailed Project Reports (DPRs) containing detailed scope of work and detailed estimate need to be prepared with due diligence, so as to avoid/minimize any chance of variation at the time of execution. It is even more important in case of EPC tenders. Normally, there should be no reason to execute the work beyond sanctioned scope of work. However, in cases where it is unavoidable to modify the sanctioned scope of work, the same should be done only in exceptional circumstances with the approval of General Manager within the powers delegated to GMs.

(Brijesh Kumar)
Additional Member/Works
Railway Board
Tele : 011-23387963

Copy to: CAO/Con., All Indian Zonal Railways.

विनय कुमार त्रिपाठी
VINAY KUMAR TRIPATHI



75
Azadi Ka
Annit Mahotsav

अध्यक्ष एवं मुख्य कार्यकारी अधिकारी,
रेलवे बोर्ड
पदेन प्रमुख सचिव, भारत सरकार
रेल मंत्रालय

**CHAIRMAN & CHIEF EXECUTIVE OFFICER,
RAILWAY BOARD
EX OFFICIO PRINCIPAL SECRETARY
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS**

Dated: 25.03.2022

D.O. No. 2021/W-I/Genl/Policy

My dear General Manager,

Sub:- Revision in Cost & Quality of works in various projects.

It is envisaged that the projects are commissioned on time with optimum cost and quality.

Instruction have been issued by Railway Board from time to time that all works/projects should be executed as per their scope contained at the time of sanction. In this regard, sufficient powers have already been delegated to General Managers regarding sanction of estimates (Board's letter No. 2021/F(X)II/PW/3 dated 21.09.2021). However, it is being noted that cost and target of many works/projects have exceeded much beyond the abstract estimates and their timelines. Moreover, Detailed Project Reports (DPR), wherever applicable and their Detailed Estimates need to be prepared with due diligence, so that any chance of variation at the time of execution does not occur.

Detailed/Revised Estimates, especially those above ₹10 Cr need to be critically reviewed by Zonal Railways/Pus/Other Units, for reducing unnecessary/avoidable expenditure (excess of the requirements and not related to project) and fringe items ensuring optimum cost of projects. Also, Zonal Railways/Pus must critically examine the cost estimates prepared by PSUs for projects being executed for them. The review done may be shared in the format annexed.

Quality also needs to be ensured in execution of the projects. Poor quality work should not be accepted and tolerated. A culture of quality in the construction work should be inculcated in the organization. For this, special training sessions may be organized and the worksites should be regularly visited at appropriate level at various stages of the work with special emphasis on quality of materials and work.

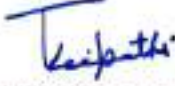
Railways are, therefore, advised to review all the projects in their jurisdiction, with respect to scope, cost, timeline & quality and take appropriate action. An action plan may also be shared on the above items by 25.04.2022.

I would like you to personally monitor the entire exercise of review of cost and ensure that quality of work, optimum cost & timely execution of projects are made part of the organizational culture of the Railway.

With best wishes,

DA: As above.

Yours sincerely,


(V.K. Tripathi)

General Manager
All Zonal Railways & PUs

Rail Bhawan, Raisina Road, New Delhi-110 001.

Tel.: 011-23384010, Fax : 011-23381453, Email : crb@rb.railnet.gov.in

Summary of Review of Plan Head wise Works (> Rs 10 Cr)

Zonal Rly/ PU	Plan Head	Total No of Works in Plan Head > 10 cr	No of Works Reviewed	Total Cost of Works before Review	Balance Total Cost after Review	Remarks

Format for Project Wise Revision of Estimates (> Rs 10 Cr)

Zonal Rly/ PU	Division / Unit	Plan Head	Name of Project	Abstract Estimate	Last Sanctioned Estimate	Cost after Review	Remarks

Summary of Review of Works being done by PSUs

Zonal Rly/ PU	Plan Head	PSU	Name of Project	Abstract Estimate	Last Sanctioned Estimate	Cost after Review

भारत सरकार / Government of India
रेल मंत्रालय / Ministry of Railways
(रेलवे बोर्ड / Railway Board)

No. 2019/W-1/Genl./Policy Pt. 1

New Delhi, Dated: 09.03.2022

The General Managers,
All Indian Railways

The CAO (C)s,
All Indian Railways

Sub.: Provision of Ballastless track (BLT) in tunnels.

Ref.: (i) Chief Commissioner of Railway Safety's letter No. M.15013/01/2017-18-T.W. dated 28.01.2022;
(ii) GM/NFR's letter No. W/247/CON/J-1 dated 08.02.2022.

The issues raised in the above referred letter of Chief Commissioner of Railway Safety have been deliberated and it has been decided that without exception track inside tunnel should be 'Ballastless Track' (BLT) on safety, maintenance and life cycle cost considerations.

This has the approval of Board(Member/Infrastructure).


(Dhananjaya Singh)
Executive Director (Works)
Railway Board

Copy to:
Member/Finance; 
Chief Commissioner of Railway Safety
CMDs- RVNL, IRCON, KRCL & RITES.

O/C



भारत सरकार / Government of India
रेल मंत्रालय / Ministry of Railways
(रेलवे बोर्ड / Railway Board)

No. 2015/W-I/Genl./ CORR.GM/Pt.III

New Delhi, Dt. 04.03.2022

The General Managers,
All Indian Railways.

Sub: EPC Tender.

**Ref: (i) Railway Board's letter No. 2015/W-I/Genl./ CORR.GM/Pt.III
dated 04.05.2016 & 30.11.2018;**

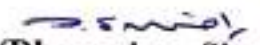
**(ii) Railway Board's letter No. 2018/CE-I/CT/36-EPC Contract Policy
Pt.-1 dated 15.11.2021.**

Instructions on EPC tenders have been issued vide Board's letter of even number dated 04.05.2016 & 30.11.2018 under reference.

2. Instructions issued vide para 2 of letter dated 30.11.2018 states that EPC tender should be called for value of more than Rs. 100 crores. This para of the above mentioned letter (dated 30.11.2018) now stands withdrawn and modified.

3. Zonal Railways may go for EPC tender irrespective of value of tender. This is with an aim to switch over to EPC contracts completely in the coming years. Further, scope of work/items should be carefully decided and detailed DPR after proper survey should be prepared before invitation as detailed in letters under reference.

This has the approval of Board (Member/Infrastructure).


(Dhananjaya Singh)
Executive Director(Works)
Railway Board

Copy to:-

1. CRB & CEO, Member/Finance, Member/Infra.
2. CAO/C, All Indian Railways.



**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No. 2021/ED(ProjM)/Misc/Committee

New Delhi dated: 12.11.2021

**Principal Chief Engineer,
& Chief Administrative Officer (Con.),
All Zonal Railways.**

Sub: Construction of new Bridge during Doubling.

Large numbers of doubling projects are being executed on Railways. It has been noticed that normally single line bridge is constructed for proposed new double line adjacent to existing major bridge which results in reverse curve and extra earth work due to wider track center.

Many a times, it is noticed that the existing bridge is also very old and due for replacement in near future. In such cases, the railway should provide a temporary diversion (fit for 75 Kmph) for the existing bridge. Thereafter, existing single line bridge should be dismantled and new double line bridge should be constructed on existing alignment for latest loading standard. It will give the following benefits:

- i. Cost of new double line bridge is less than two single line bridges, thus there will be substantial cost saving, in cases where existing bridge is old and require major rehabilitation/rebuilding.
- ii. Reverse curve on the approach of bridge will be completely avoided, thus increasing the speed potential of line.
- iii. Existing single line will also be re-constructed for 25 ton axle load.

The matter has been considered and it has been decided that wherever doubling is planned, railway shall consider the condition of existing single line bridge also for replacement in the near future. It has also been decided that few existing major (not important) bridges which have outlived their life may be selected for re-construction with doubling projects to implement this methodology under advice to Board.

(O.N. Sharma)
Director (B&S)

Copy to: Chief Commissioner of Railway Safety, New Delhi for kind information.

15/11/21

No. 2021/W-1/Genl./Policy

New Delhi, dated 27.10.2021

**Principal Chief Engineers,
All Zonal Railways.**

**Chief Administrative Officers/Con.
All Zonal Railways.**

Sub: Provision of Facilities for Track Machine Staff.

Reference has been received from one of the Zonal Railway that open line is not taking over the newly commissioned sections on the pretext that facilities for track machines like rest rooms, platform, cover shed and separate water supply for track machine staff at various stations have not been provided in doubling/3rd line projects chargeable to EBR (IF).

It should be appreciated that these works are chargeable to EBR (IF) as such these need to be commissioned with minimum expenditure. PCE/CAO should ensure that minimum facilities for track machine staff should be part of the DPR at the stage of sanction. However, already sanctioned estimates need not be revised on this pretext and commissioning and taking over should not be delayed on this account.

This has the approval of Board (Member/Infra).


(Pankaj Kumar)
Director/Project Monitoring
Railway Board
Email: pkumar.rb@gov.in



o/c

भारत सरकार / Government of India
रेल मंत्रालय / Ministry of Railways
(रेलवे बोर्ड / Railway Board)

2018/W-I/Genl./Policy Pt.-I (e-3289535)

New Delhi, Dated: 10.09.2021

General Manager
Northeast Frontier Railway
Maligaon, Guwahati

Sub : Adoption of modern methods for construction of tunnels.

Ref : GM/ NFR letter No. Z/Secy/06/Engg/2021 dated 14.07.2021.

This has reference to your above letter dated 14.7.2021 regarding adoption of modern methods for the construction of tunnels.

2. There is no restriction on use of any available modern technologies for tunnelling. The execution agencies, generally, engage Detailed Design Consultants for detailed designing of the tunnels and designers also provide appropriate methods of construction of tunnels while giving designs. Since the method of construction of the tunnel largely depends on the local site conditions, it is considered desirable that the method of construction be decided by the executing agency based on the local conditions and cost considerations.

3. Mechanized tunnelling using TBM in hill projects is specific to each tunnel geology. Use of TBM in hydro projects in the Himalayas has given mixed results. There are some examples where TBM got buried in hydro projects. Thus, the selection of appropriate method for the excavation of tunnel is also based on the field experience apart from calculations of theoretical knowledge, because of variable ground conditions.

4. The selection of each tunnel construction method is done on the basis of their advantages, disadvantages and limitations. For selecting a technically feasible and also economical construction method there are several aspects which are to be taken into consideration. Some of these are reproduced below;

- i. For the design and construction of tunnels (in rock) a thorough study should be carried out with respect to the construction method to be used. Many factors have an influence on choosing a technical feasible and economical construction method i.e. whether TBM or NATM, is technologically and economically more advantageous. A careful preliminary evaluation of construction costs, construction time and technical feasibility (i.e. geotechnical risks, TBM requirements and type of TBM) should be carried out in initial stage.
- ii. Using NATM, the shape of the profile can be adapted to the required profile and space needed for other installations (e.g. tunnel ventilation system, cable ducts, drainage pipes, space for rescue operation & maintenance, OHE etc.). In TBM tunnelling, the excavation profile is circular shaped and therefore, larger compared to NATM tunnelling.

- iii. In general, geological, hydro geological and geotechnical conditions are one of the decisive factors for selecting the construction method. In course of the geotechnical design the technical and economic feasibility of adequate construction methods should be evaluated by a risk analysis.
 - iv. If both construction methods NATM and TBM tunnelling are technically feasible the cost comparison can be the decisive factor. In the cost estimate for each construction method not only the construction costs but also the differences in operation & maintenance costs are considered.
 - v. Detailed Geological and Geotechnical investigations should be done all along the tunnel with proper interpretation. Inappropriate/ wrong TBM selection may not give desired results or expected output.
 - vi. The TBM type and size will decide the component size and component weight which will be transported to site from the manufacturer premises. The logistics of transportation is an important aspect. Specialized hydraulic multi - axle trailers are generally used for transportation of these components, which can negotiate steeper gradients and hair pin bends. Special arrangements for assembly/ disassembling will be required in case the approach road cannot be constructed to portal level.
 - vii. Sufficient space at the portal should be available for operation of TBM and logistics of segment storage, muck dumping etc. Segment casting yards should be nearby or proper logistics of transportation and adequate stacking space should be ensured.
 - viii. Recently, RVNL has planned to use TBM for a 14.5 km long tunnel on Rishikesh-Karnprayag new line project. There are research papers and other documentation available on internet regarding tunnelling in Himalayan Geology. One such paper by Sh. RK Goel, Chief Scientist & In-charge Central Institute of Mining and Fuel Research, Roorkee is also enclosed as it brings out the experience of tunnels where TBM was tried.
5. Railway may decide the construction method based on comprehensive investigations, site conditions, cost and time consideration, availability of resources and feasibility.

(O.P. Singh)

Additional Member/Works
Railway Board

Copy to

GM/Con/NFR
CAO/Cs, All Indian Railways,
CMDs, RVNL, IRCON & RITES.



भारत सरकार / Government of India
रेल मंत्रालय / Ministry of Railways
(रेलवे बोर्ड / Railway Board)

2018/W-I/Genl./MoSPI (e-off. 3265280)

New Delhi, dated: 05.07.2021

**The General Managers,
All Indian Railways.**

Sub: Updation of data on Portals.

- Ref:-** (i) Railway Board's letter No. 2019/W-I/Genl/NIP dated 03.03.2021 (copy enclosed);
(ii) Railway Board's letter No. 2018/W-I/Genl/MoSPI pt.1(e-off-3265280) dated 29.12.2020 (copy enclosed)

All the Zonal Railways have been advised vide letters under reference to regularly update details of projects pertaining to New Line, Gauge Conversion and Doubling works on various portals such as Indian Railways Projects Sanctions & Management (IRPSM), Online Computerised Monitoring System (OCMS) portal of M/o Statistics & Programme Implementation (MoSPI), India Investment Grid portal of M/o Finance by the 5th day of every month.

2. The data/information fed by the Zonal Railways on these portals has been reviewed and it is observed that the information on many data points is found to be incorrect/missing. Moreover, information is also not updated on a regular basis.
3. The data uploaded on the portal is utilised for preparing replies to Cabinet Secretariat, Prime Ministers Office, NITI Aayog and other Ministries and therefore, it must be ensured that the quality of data fed in these portals is done by a responsible officer under direct supervision of the concerned Chief Engineer of the project. In addition, Railways are also required to monitor the data related to projects executed by PSUs such as RITES, IRCON, RVNL and JV companies in their jurisdiction.
4. The CAO/Cs are requested to check the correctness and reasonableness of data which has been entered in the portals and direct the concerned officials to update and confirm the data on these portals by 5th of every month positively.


(Dhnanajaya Singh)
Executive Director (Works)
Railway Board

Copy for information and necessary action:-

CAO/Cs of all Indian Railways.

**GOVERNMENT OF INDIA (BHARAT SARKAR)
MINISTRY OF RAILWAYS (RAIL MANTRALAYA)
(RAILWAY BOARD)**

No. 2019/W-I/Genl./NIP

New Delhi, dated: 03.03.2021

**General Managers
All Indian Railways**

General Manager/NF Construction.

Sub: Updation of NIP database on Indian Investment Grid Portal.

Ministry of Finance had launched the portal [www.https://indiainvestmentgrid.gov.in/](https://indiainvestmentgrid.gov.in/). Presently, 676 Railway projects are listed on this portal. User Id and passwords were created for all CAO/Cs and they were advised to update the projects on the portal. The data uploaded on the portal is extremely important for monitoring the progress of the projects by PMO, Ministry of Finance and Ministry of Railways.

In view of above, all the concerned officers may be advised to update the project details by 5th of every month and the data for the month of February'2021 may be updated immediately.



(Sanjay Rastogi)
Additional Member (Works)
Railway Board
Room No.131
Tele No.011-23387963
E-mail ID: amw@rb.railnet.gov.in

Copy to :- CAO/Cs, All Indian Railways.

CMDs- RVNL, IRCON & RITES.

o/c



96

भारत सरकार / Government of India
रेल मंत्रालय / Ministry of Railways
(रेलवे बोर्ड / Railway Board)

No. 2018/W-1/Genl./MoSPI Pt.1 (e-off-3265280)

New Delhi, Dated: 29.12.2020

Chief Administrative Officer/C.
All Indian Railways.

Chairman Cum Managing Directors,
IRCON, RVNL & RITES.

Sub: Updation of data on OCMS portal.

Ref: (i) MoSPI's DO. No. 12011/02/2018-IPMD Pt-1 dated 18.12.2020.
(ii) MoSPI's DO. No. 12013/01/2016-IPMD dated 27.07.2020.

Zonal Railways and PSUs are updating details of Projects on Online Computerized Monitoring System (OCMS) Portal of MoSPI. On the basis of this data, MoSPI brings out Monthly (Flash Report) as well as Quarterly Project Implementation Status Report (QPISR), which are available on www.cspm.gov.in/publication.

2. MoSPI vide letter under ref (i) has advised that currently there is a time lag of 50 days in bringing out the monthly Flash Reports. The data/information of the projects is uploaded on OCMS by Projects Implementing Agencies in 35 days i.e. data for the particular month is uploaded on OCMS by 5th of successive month.
3. MoSPI has mentioned that instructions have been received from highest level that data for particular months may be uploaded at the earliest by next month for real time monitoring and has requested that all the Implementing Agencies should upload the data of particular months latest by 5th of next month.
4. MoSPI vide letter under ref. (ii) has also stated that there are data gaps in reporting of revised cost estimates and commissioning schedules, time/cost overrun are under reported therefore resulting in incomplete reports.
5. In view of above it is requested that complete data of Railway Projects on OCMS portal i.e. www.cspm.gov.in may be uploaded by Zonal Railways/PSUs by 5th of next month positively.

(Dhananjaya Singh)
Executive Director (Works)
Railway Board

Copy to:

Joint Secretary, Ministry of Statistics & Programme Implementation, Level 6, Block 6, East
Block R.K. Puram, New Delhi-110066.

Su
22/12/20

o/c

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भारतसरकार GOVERNMENT OF INDIA
रेलमंत्रालय MINISTRY OF RAILWAYS
(रेलवेबोर्ड RAILWAY BOARD)

No. 2020/W-I/Genl./Survey Rates (E-3334464)

New Delhi, dated 30.06.2021

The General Managers,
All Indian Railways.

The Chief Administrative Officers (Const.),
All Indian Railways.

Sub: Revision of rates and scope of Final Location Surveys (FLS).

Ref: (i) Board's letter No. 2020/W-I/Genl./Survey Report dated 06.01.2021
(ii) Board's letter No. 2020/W-I/Genl./Survey Rates dated 16.06.2021
(iii) Board's letter No. 2015/W-I/Genl/Corr. GM/Part 2 dated 07.10.2020.

Approval of Board (Member/Infra) on report on use of modern survey technologies for survey of New Line, Gauge Conversion & Doubling projects has been conveyed vide letter under ref (i). It has been advised that all zonal railways should envisage use of modern survey technologies for preparing Survey Reports/Detailed Project Reports for rail projects of New Line, Gauge Conversion and Doubling as per the report.

Subsequently, in order to enable use of modern survey technology in FLS works, yardstick for FLS has been revised vide letter under ref (ii).

In this regard, it needs to be ensured that while carrying out FLS, activities of modern survey techniques such as satellite imagery, drone photogrammetry, LIDAR survey as well as extensive and detailed geo-technical investigation for formation/bridges, preparation of land acquisition plans & proposals, preparation of ESPs, detailed hydrological survey and preparation of GADs of bridges/structures etc should invariably be included in the scope of work. These activities will be in addition to the activities already defined for FLS in Engineering Code. The yardstick has been revised considering inclusion of all these works in scope of FLS.

Instructions have also been issued vide letter under ref (iii) that utmost care should be taken in carrying out FLS and DPRs are prepared and submitted with due care. With the above revision in yardstick for FLS, the above instructions should be strictly adhered to. Further, detailed planning of the project should be done beforehand in order to kick start the project immediately after due sanctions are received.

This has the approval of Additional Member/Works, Railway Board.



o/c


(Pankaj Kumar)
30/6/2021
Dir./Proj. M.
Railway Board
Ph (Rly.) : 030-43574,
P&T : 011-23070944
Mobile : 9910487540

भारत सरकार / Government of India
रेल मंत्रालय / Ministry of Railways
(रेलवे बोर्ड / Railway Board)

No. 2020/W-I/GenL/SurveyRates (E-3334464)

New Delhi, Dt. 16.06.2021

The General Managers,
All Indian Railways.

The Chief Administrative Officers (Const.)
All Indian Railways.

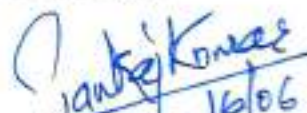
Sub: Revision of Rates for Final Location Surveys (FLS).

Ref: Railway Board's letter no. 2012/W-I/GenL/Survey/Budget dated 18.11.2016.

In partial modification of Railway Board's letter under reference, the revised rates for conducting Final Location Survey (FLS) have been approved by Board (Member/Infra) as indicated below :-

Type of Survey	Rate (Rs. per Km)
FLS for New Line	2,50,000/-
FLS for Doubling	2,00,000/-

2. The yardsticks for conducting other types of surveys will continue to remain the same as indicated in letter under reference.
3. For Final Location Survey (FLS) to be undertaken in hilly terrain and forest areas, enhanced rates upto 20% than the above mentioned rates may be adopted.
4. This issues with the concurrence of the Finance Dte. of the Ministry of Railways.
5. Please acknowledge receipt.


(Pankaj Kumar)
Director/Project (Monitoring)
Railway Board

No. 2020/W-I/GenL/SurveyRates (E-3334464)

New Delhi, Dt. 16.06.2021

Copy to:

- i. PFAs, All Indian Railways.
- ii. Principal Director of Audit, All Indian Railways.
- iii. The Deputy Comptroller & Auditor General of India (Railways), Room No. 324, Rail Bhawan, New Delhi.

Copy to: (i) Sr. PPS/CRB&CEO, Member/Infra, AMW, AMCE, EDW
(ii) F(X)-II, Budget & WDO branches, Railway Board.

For Member(Finance)

0/c

भारत सरकार / Government of India
रेल मंत्रालय / Ministry of Railways
(रेलवे बोर्ड / Railway Board)

2020/W-I/Genl./Vision 2024 (E-off- 3334078)

New Delhi, dated: 20.01.2021

The General Managers,
All Indian Railways.

WLR

Sub.: Nomination of HAG Officers for monitoring of Priority Projects of Vision 2024.

Hon'ble MR has instructed to nominate HAG Officer for monitoring execution of priority Railway Projects of Vision 2024. In this regard, a list of priority projects pertaining to your Railway is enclosed herewith. It is advised that one HAG/NFHAG Officer may be nominated for each project. If need be, the projects can also be assigned to NFHAG officers also. Nominated officers will be responsible for monitoring, resolving hurdles and handicaps and providing support to CAO/C in timely execution of projects. They should keep themselves abreast with field issues on a weekly basis and will be required to respond to queries at various levels as required. List of nominated officers may be advised to Railway Board at the earliest.

(Sanjay Rastogi)
Additional Member/Works
Railway Board.

Copy to:-

Chief Administrative Officer (Const.)
All Indian Railways

o/c

25/01/21

West Central Railway

1. SUPER CRITICAL PROJECTS

S. No.	Executing Agency	Plan Head	Name of Project	Length of Main Project (Km)	Length Commissioned upto Mar 20. (Km)	Balance Length as on 01.04.20 (Km)	Anticipated Cost (Cr.)	Name and designation of nominated HAG Officer
1	RVNL	DL	Bina-Kols	283	96	187	1838	
2	RVNL	DL	Barkhera-Habibganj 3rd line	41.42	0	41	440	
3	WCR	DL	Powarkheda-Juhalpur-Single line flyover in UP direction	16	0	16	373	

2. CRITICAL PROJECTS

4	RVNL	DL	Budhini-Bandhara - 3rd line	26.5	0	27	992	
5	IRCON	DL	Katni-Grade separator / Bypass	35	0	35	1248	
6	IRCON	DL	Katni-Singraul	257	41	217	1763	
7	WCR	DL	Sohna-Rewa	50	10	40	493	

3. BALANCE IMPORTANT SANCTIONED THROUGHPUT ENHANCEMENT PROJECTS ON HDN / HUN ROUTES

8	WCR		Katni - Bina - 3rd line		19	260	2875	
9	WCR		Ruhlyal-Bye Pass line		0	3	48	
10	WCR		Guna- Bye Pass line		0	2	52	

4. ESSENTIAL MULTI-TRACKING PROJECTS

11	3rd line	MP	Malkhed-Mahadachhed		0	8.7	26	

भारत सरकार / Government of India
रेल मंत्रालय / Ministry of Railways
(रेलवे बोर्ड / Railway Board)

2020/W-I/Genl/Vision 2024 (E-off-3334078)

New Delhi, dated: 20.01.2021

✓ The General Managers,
All Indian Railways.

WR

Sub.: Nomination of HAG Officers for monitoring of Priority Projects of Vision 2024.

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(Sanjay Rastogi)
Additional Member/Works
Railway Board.

Copy to:-

Chief Administrative Officer (Const.)
All Indian Railways

o/c

Western Railway

UPPER CRITICAL PROJECTS

S.No.	Executing Agency	Plan Head	Name of Project	Length of Main Project (Km)	Length Commissioned upto Mar 20, (Km)	Balance Length as on 01.04.20 (Km)	Anticipated Cost (Cr.)	Name and designation of nominated HAG Officer
1	WR	DL	Virangan-Samakhiali	182	97	85	1389	

2. CRITICAL PROJECTS

2	RVNL SPV	DL	Palanpur-Samakhiali	248	39	209	2538	
3	WR	DL	Surendranagar-Rajkot	116	14.33	102	1902	
4	WR	DL	Nimach-Chittaurgarh	66	27	29	554	
5	WR	GC	Ahmedabad-Mahesana	69	24	45	521	

3. BALANCE IMPORTANT SANCTIONED THROUGHPUT ENHANCEMENT PROJECTS ON HDN / HUN ROUTES

6	WR		Mahesana-Palanpur	65	0	65	537	
7	WR		Bhildi-Bys Pass line	1	0	1	11	

4. Essential Multi - Tracking Projects

8	WR	DL	Rajkot - Kankrej	111	0	111	1173	

4. GAUGE CONVERSION PROJECTS PLANNED TO BE COMMISSIONED BY 2024

9	RVNL	GC	Dhosa-Jetalsar	194	0	194	873	
10	WR	GC	Ahmedabad-Mahesana	69	24	45	521	
11	G-RIDE	GC	Katowan Rd-Bacharji	29	0	29	375	
12	WR	GC	Myagam-Karjan-Debhri-Samakhiali	96	0	96	844	
13	WR NWR	GC	Ahmedabad-Himmatnagar-Udaipur	294	134	160	2174	

भारत सरकार / Government of India
रेल मंत्रालय / Ministry of Railways
(रेलवे बोर्ड / Railway Board)

2020/W-I/Genl./Vision 2024 (E-off-3334078)

New Delhi, dated: 20.01.2021

✓ The General Managers,
All Indian Railways.

SEB

7/1/21

Sub.: Nomination of HAG Officers for monitoring of Priority Projects of Vision 2024.

Hon'ble MR has instructed to nominate HAG Officer for monitoring execution of priority Railway Projects of Vision 2024. In this regard, a list of priority projects pertaining to your Railway is enclosed herewith. It is advised that one HAG/NFHAG Officer may be nominated for each project. If need be, the projects can ~~also~~ be assigned to NFHAG officers also. Nominated officers will be responsible for monitoring, resolving hurdles and handicaps and providing support to CAO/C in timely execution of projects. They should keep themselves abreast with field issues on a weekly basis and will be required to respond to queries at various levels as required. List of nominated officers may be advised to Railway Board at the earliest.

(Sanjay Rastogi)
Additional Member/Works
Railway Board.

Copy to:-

Chief Administrative Officer (Const.)
All Indian Railways

o/c

South Eastern Railway

1. SUPER CRITICAL PROJECTS								
S.No.	Executing Agency	Plan Head	Name of Project	Length of Main Project (Km)	Length Commissioned upto Mar 20. (Km)	Balance Length as on 01.04.20 (Km)	Anticipated Cost (Cr.)	Name and designation of nominated HAG Officer
1	SER	DL	Manoharpur-Bondamunda 3rd line	30	26	4	350	
2	SER	DL	Kharagpur-Narayangarh 3rd line	24	20	4	270	
2. CRITICAL PROJECTS								
3	SER	DL	Rourkela-Jharsuguda 3rd line	101	0	101	1313	
4	RVNL	DL	Kharagpur-Adityapur 3rd line	132	0	132	1312	
3. ADDITIONAL COAL PROJECTS								
5	SER	DL	Bondamunda-Ranchi	159	0	159	1993	
6	SER	DL	Narayangarh-Bhadrak 3rd line	153	0	153	1866	
7	SER	DL	Damedar-Mohisila	8	0	8	99	
8	SER	DL	Bondamunda-Rourkela 4th line	9	0	9	94	
9	SER	DL	Talgaria - Bokaro N/ Cabin -doubling (38 Km) with two loops at Chas & Japutnagar	32	0	32	512	
4. BALANCE IMPORTANT SANCTIONED THROUGHPUT ENHANCEMENT PROJECTS ON HDN / HUN ROUTES								
10	SER	DL	Dumra-link "C" line , connection with Birsia Station	2	0	2	39	
11	SER	DL	Purulia-Kotshila	39	0	39	394	
5. ESSENTIAL MULTI - TRACKING PROJECTS								
12	SER	DL	Doubling between Bhojpur - Talgaria in connection with permanent diversion of line affected Chabrad - Chandrapura line	12.5	0	12.5	129	

भारत सरकार / Government of India
रेल मंत्रालय / Ministry of Railways
(रेलवे बोर्ड / Railway Board)

2020/W-1/Genl./Vision 2024 (E-off- 3334078)

New Delhi, dated: 20.01.2021

✓ The General Managers,
All Indian Railways.

SLR

8/1/21
25/1/21

Sub.: Nomination of HAG Officers for monitoring of Priority Projects of Vision 2024.

Hon'ble MR has instructed to nominate HAG Officer for monitoring execution of priority Railway Projects of Vision 2024. In this regard, a list of priority projects pertaining to your Railway is enclosed herewith. It is advised that one HAG/NFHAG Officer may be nominated for each project. If need be, the projects can ~~also~~ be assigned to NFHAG officers also. Nominated officers will be responsible for monitoring, resolving hurdles and handicaps and providing support to CAO/C in timely execution of projects. They should keep themselves abreast with field issues on a weekly basis and will be required to respond to queries at various levels as required. List of nominated officers may be advised to Railway Board at the earliest.


(Sanjay Rastogi)
Additional Member/Works
Railway Board.

Copy to:-

Chief Administrative Officer (Const.)
All Indian Railways

©/C

South Western Railway

CRITICAL PROJECTS

S. No	Executing Agency	Plan Head	Name of the Project	Length of Main Project (Km)	Length Commissioned upto Mar 20 (Km)	Balance Length as on 01.04.20 (Km)	Anticipated Cost (Cr.)	Target date of Completion	Name and designation of nominated HAG Officer
1	CR, SWR	DL	Pune-Miraj-Londa	466	53	413	4053	Mar-23	
2	RVNL	DL	Hospet-Hubli-Londa-Tinsaghat-Vasco-da-Gama	322	212	110	4530	Mar-23	
3	SWR	DL	Hubli-Chikajalur	190	50	140	1656	Mar-23	
4	SWR	IL	Arsikere-Tumkur	96	65	31	783	Jun-21	
5	SWR	DL	Yalahanka-Pensikonda	123	37	86	1147	Jun-21	

2. BALANCE IMPORTANT SANCTIONED THROUGHPUT ENHANCEMENT PROJECTS ON HDN / HUN ROUTES

6	SWR	DL	Bangalore-Whitefield-Bangalore City-Krishnarajapuram Quadrupling		0	40	600	Dec-23	
7	K - RIDE	DL	Baijappanahalli to Hosur		0	48	499	Mar-24	
8	K - RIDE	DL	Yeshwantpur to Channasandra		0	22	314	Mar-24	

3. ESSENTIAL MULTI - TRACKING PROJECTS

9	SWR	DL	Hubli-Kudgi-Gadag	284	114	170	1876	Mar - 24	

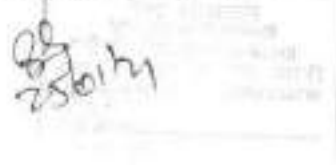
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2620/W-I/Gent./Vision 2024 (E-off- 3334078)

New Delhi, dated: 20.01.2021

✓ The General Managers,
All Indian Railways.

SECD



Sub.: Nomination of HAG Officers for monitoring of Priority Projects of Vision 2024.

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(Sanjay Kastogi)
Additional Member/Works
Railway Board.

Copy to:-

Chief Administrative Officer (Const.)
All Indian Railways

O/C

South East Central Railway

1. JPER CRITICAL PROJECTS

S.No.	Executing Agency	Plan Head	Name of Project	Length of Main Project (Km)	Length Commissioned upto Mar 20. (Km)	Balance Length as on 01.04.20 (Km)	Anticipated Cost (Cr.)	Name and designation of nominated HAG Officer
1	RVNL	DL	Raipur-Titagarh.	203	118	84	1889	
2	SECR & RVNL	DL	Khodri-Anuppur with flyover at Bilaspur	72	62	10	946	

2. CRITICAL PROJECTS

3	SECR	DL	Jharsuguda-Bilaspur 4th line	206	18	188	1974	
4	RITES	DL	Pendra Road-Anuppur - 3rd line	50	0	50	394	
5	SECR	DL	Anuppur-Katni-3rd line	166	0	166	1691	
6	SECR	DL	Rajnandgaon-Nagpur 3rd line	228	0	228	3525	

3. ADDITIONAL COAL PROJECTS

7	CERL-I (IRCON)	NL	Kharsia-Otaram(jaygarh with spur line / Rajgarh (Mand Colliery)-Bhudeopur)	122	43	79	3055	
8	SECR	GC	Jabalpur-Gondia including Balaghat-Katangi	300	261	39	2005	

4. BALANCE IMPORTANT SANCTIONED THROUGHPUT ENHANCEMENT PROJECTS ON HDN / HUN ROUTES

9	SECR	DL	Jharsuguda-Bilaspur - Flyover/ Bye pass		0	10	300	

5. ESSENTIAL MULTI - TRACKING PROJECTS

10	SECR	DL	Doubling of Borkand - Bisham Pur part of Borkand - Ambikapur and Borkand - Chirmiri doubling	98.3	0	98.3	1240	

5. GAUGE CONVERSION PROJECTS PLANNED TO BE COMMISSIONED BY 2024

11	SECR	GC	Chhindwara-Mandla Fort		18	184	1268	
12	SECR	GC	Kendri-Dhambari & Abhanpur-Rajm		0	87	544	
13	JV	GC	Nagbin-Nagpur		0	118	1400	

6. SPV Projects

14	SECR	NL	DallRajahra - Jagdalpur	235	42	193	4160	
15	SECR	NL	Gevra Road - Pendra Road	135	0	135	2220	
16	SECR	NL	Katghora - Dongargarh (Dongargarh - Khargam-Bilaspur)	295	0	295	5950	
17	SECR	NL	Dhamrajgarh - Korba	63	0	63	1685	
18	SECR	DL	Gevra Road Pendra Road	135	0	135	2750	

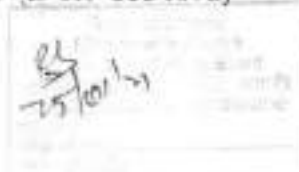
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2020/W-I/Genl./Vision 2024 (E-off- 3334078)

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The General Managers,
All Indian Railways.

SCR



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(Sanjay Rastogi)
Additional Member/Works
Railway Board.

Copy to:-

Chief Administrative Officer (Coast.)
All Indian Railways

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South Central Railway

1. SUPER CRITICAL PROJECTS

S. No.	Executing Agency	Plan Head	Name of Project	Length of Main Project (Km)	Length Commissioned upto Mar 20. (Km)	Balance Length as on 01.04.20 (Km)	Anticipated Cost (Cr.)	Name and designation of nominated HAG Officer
1	RVNL	DL	Vijaywada-Guduvada-Bhimavaram-Narasapur, Guduvada-Machilipatnam & Bhimavaram-Nidadavolu DL	221	57	164	3377	

2. CRITICAL PROJECTS

2	RITES	DL	Gooty-Dhammaram	90	11	79	1053	
3	RVNL	DL	Secunderabad-Mehboobnagar	85	0	85	650	
4	SCR	DL	Vijayawada, Kazipet Bypass line	41	0	41	621	
5	RVNL	DL	Vijaywada-Gudur 3rd line	287	0	287	3549	

3. ADDITIONAL COAL PROJECTS

6	SCR	NL	Bhadrachalam Road-Satupalli	54	0	54	626	
7	SCR	DL	Kazipet-Ballariyah - 3rd line Excl. Mandamari-Raghavapuram	202	0	202	2063	

4. BALANCE IMPORTANT SANCTIONED THROUGHPUT ENHANCEMENT PROJECTS ON HDN / HUN ROUTES

8	SCR	DL	Kazipet-Vijaywada 3rd line with electrification	220	0	220	1953	
9	SCR	DL	Renigunta, Wadi & Gooty Bypass	27	0	27	273	
10	SCR	DL	Guntakal- Guntur	401	51	350	3631	

6. ESSENTIAL MULTI - TRACKING PROJECTS

11	SCR	DL	Doubling of Mudkhed - Secunderabad - Mehboobnagar - Dhone excluding Bolaram - Mehboobnagar including Dhone by pass part of Akola - Dhone via Purna, Mudkhed, Secunderabad, Mehboobnagar excluding Purna - Mudkhed and Bolaram - Mehboobnagar including Dhone by pass	419	0	419	4190	

7. ESSENTIAL NEW LINE PROJECTS

12	SCR	NL	Akkanapet-Medak	17	0	17	211	

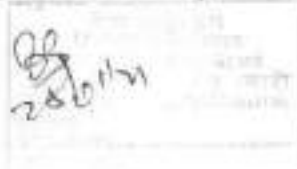
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2626/W-I/Genl/Vision 2024 (E-off- 3334078)

New Delhi, dated: 20.01.2021

The General Managers,
All Indian Railways.

SR



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(Sanjay Rastogi)
Additional Member/Works
Railway Board.

Copy for:-

Chief Administrative Officer (Const.)
All Indian Railways

o/c

Southern Railway

1. SUPER CRITICAL PROJECTS

S. No.	Executing Agency	Plan Head	Name of Project	Length of Main Project (Km)	Length of Commissioned upto Mar 20. (Km)	Balance Length as on 01.04.20 (Km)	Anticipated Cost (Cr.)	Name and designation of nominated HAG Officer
1	SR	DL	Kaikanadi-Pozambur	19	14	5	350	
2	SR	DL	Kuruppurthara-Chingavanam	27	8	19	749	
3	SR	DL	Ambalapuzha-Haripad	18	18	0	346	
4	SR	DL	Omalur-Metturdam Patch Doubling	29	0	29	332	

2. CRITICAL PROJECTS

5	RVNL	DL	Madurai-Maniyachi-Tuticorin	160	0	160	1536	

3. ADDITIONAL COAL PROJECTS

6	SR	NL	Karaikudi-Paniam NL	23	0	23	325	
7	SR	DL	Salem-Magnesia Junction-Omalur	11	0	11	115	

4. BALANCE IMPORTANT SANCTIONED THROUGHPUT ENHANCEMENT PROJECTS ON HDN / HUN ROUTES

8	SR	DL	Ernakulam-Kumbalam	8	0	8	447	
9	SR	DL	Kumbalam-Thuravur Patch doubling (15.58 km)	16	0	16	708	
10	SR	DL	Trivandrum-Kanyakumari	87	0	87	2500	
11	RVNL	DL	Maniyachi-Nagercoil	102	0	102	1004	
12	SR	DL	Netravathi-Mangalore	2	0	2	33	

5. ESSENTIAL MULTI - TRACKING PROJECTS

13	SR	DL	Thuravur - Ambalapuzha	46	0	46	1339	
14	SR	DL	DOubling of Chennai Beach - Chennai Egmore	4.3	0	4.3	280	

6. GAUGE CONVERSION PROJECTS PLANNED TO BE COMMISSIONED BY 2024

15	SR	GC	Tambaram-Chengalpattu	30	0	30	280	
16	SR	GC	Tiruturaipundi-Agasthyampalli	37	0	37	370	
17	SR	GC	Madurai-Bodinayakkanur	90	37	53	601	

7. ESSENTIAL NEW LINE PROJECTS

18	SR	NL	Madurai-Tuticorin via Aruppukottai	18	0	18	360	
19	SR	NL	Rameswaram-Dhanushkodi (Umbrella Work)	18.7	0	18.7	725	
20	SR	NL	Chinnasalem-Kallakurichi New Line MM of Cuddalore-Salem (191 Km)	16	0	16	116.61	

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All Indian Railways.

NWR

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(Sanjay Rastogi)
Additional Member/Works
Railway Board.

Copy to:-

Chief Administrative Officer (Const.)
All Indian Railways

C/C

North Western Railway

1. SUPER CRITICAL PROJECTS

S. No.	Executing Agency	Plan Head	Name of Project	Length of Main Project (Km)	Length Commissioned upto Mar 20. (Km)	Balance Length as on 01.04.20 (Km)	Anticipated Cost (Cr.)	Name and designation of nominated HAG Officer
1	NWR	DL	Ajmer-Bangurgram	48	40	8	375	

2. CRITICAL PROJECTS

2	NWR	DL	Bangurgram-Guriya Patch DL	47	33	14	365	

3. BALANCE IMPORTANT SANCTIONED THROUGHPUT ENHANCEMENT PROJECTS ON HDN / HUN ROUTES

3	NWR	DL	Degana-Rai ka Bagh	146	0	146	809	

4. ESSENTIAL MULTI - TRACKING PROJECTS

4	NWR	DL	Phulera- Digana	160	0	160	702	
5	NWR	DL	Sowamathapur - Jalpur	121	0	121	1121	
6	NWR	DL	Doubling of Luni - Samdhari - Bhildi Part of Bhilinda - Bhildi via Sraus, Hlaar, Rotengach, Degana, Luni, Samdhari excluding Degana - Rai ka Bag doubling Project.	278	0	278	2780	
7	NWR	DL	Doubling of Ajmer - Chittorgarh	136	0	136	1883	

5. GAUGE CONVERSION PROJECTS PLANNED TO BE COMMISSIONED BY 2024

8	NWR		Mavli Jn.-Ban Sadr	62	0	62	480	

6. ESSENTIAL NEW LINE PROJECTS

9	NWR	DL	Dansa-Gangapur City	58	35	23	898	
10	NWR	DL	Gadhe-Thalana Mitni Test Track for RDSO (Impressa Work)	25	6	19	353	

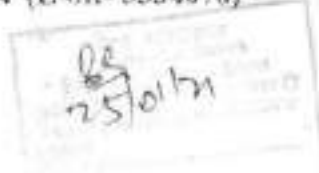
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Additional Member/Works
Railway Board.

Copy to:-

Chief Administrative Officer (Const.)
All Indian Railways

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North East Frontier Railway

1. SUPER CRITICAL PROJECTS

S. No.	Executing Agency	Plan Head	Name of Project	Length of Main Project (Km)	Length Commissioned upto Mar 28. (Km)	Balance Length as on 01.04.20 (Km)	Anticipated Cost (Cr.)	Name and designation of nominated HAG Officer
1	NFR	DL	Ambari Fakirata-New Maynaguri	38	32	6	571	

2. CRITICAL PROJECTS

2	NFR	DL	New Bongaigaon-Aghor via Rangya (New Bongaigaon- Rangya - Kamakhya)	143	0	143	2043	
3	NFR	DL	New Mahaguri- Gumanihat remaining portion	52	5	45	1167	

3. BALANCE IMPORTANT SANCTIONED THROUGHPUT ENHANCEMENT PROJECTS ON HDN / HUN ROUTES

4	NFR	DL	New Bongaigaon- Goalpara-Guwahati (Kamakhya)	176	8.55	167.45	2950	
5	NFR	DL	Digaru-Hojai	102	0	102	1873	

4. ESSENTIAL MULTI - TRACKING PROJECTS

6	NFR	DL	Saraighat Bridge DL	7	0	7	1877	
7	NFR	DL	Doubling of Lumding - Furkating	140	0	140	2360	
8	NFR	DL	Doubling of Kathar - Kunodpur and Kathar - Mulkuri	64.5	0	64.5	645	

4. NATIONAL PROJECTS

9	IRCON	NL	Sivak-Rangpo	44.39	0	44.39	7500	
10	NFR	NL	Tetelia-Bymihat	21.5	10.15	11.35	1044	
11	NFR	NL	Bherahi-Sairang	51	0	51	5621	
12	NFR	NL	Dimapur-Kohima	83	0	83	6911	
13	NFR	NL	Jiribam-Imphal	111	12	99	14000	
14	NFR	NL	Byminah-Shilong	108	0	108	4083	

5. ESSENTIAL NEW LINE PROJECTS

15	NFR	NL	Arana-Gaigeki (Thakurgaon)	111	0	111	2145	
16	NFR	NL	New Moynaguri-Jogghosa NL with GC of New Mal-Moynaguri Road and New Changrabanda-Changrabanda (2 km)	279	231	48	4111	

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The General Managers,
All Indian Railways.

NER

8/5
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Additional Member/Works
Railway Board.

Copy to:-

Chief Administrative Officer (Const.)
All Indian Railways

o/c

North Eastern Railway

1. SUPER CRITICAL PROJECTS

S. No.	Executing Agency	Plan Head	Name of Project	Length of Main Project (Km)	Length Commissioned upto Mar 20, (Km)	Balance Length as on 01.04.20 (Km)	Anticipated Cost (Cr.)	Name and designation of nominated HAG Officer
1	NER	DL	Ghaziipur-Aunihar	40	0	40	348	

2. CRITICAL PROJECTS

2	NR, NER	DL	Rose-Shapur Centt-Burhwal	181	0	181	1538	
3	RVNL	DL	Varanasi-Madhusingh-Alahabad	120	28	92	1030	
4	NER	DL	Dumraighat-Gorakhpur-Gorakhpur Cantt. Kosiuli 3rd running line and Gorakhpur-Nakaha Jungle Doubling (21.15 km)	21	0	21	167	
5	NER	DL	Burhwal Gonda 3rd line	62	0	62	800	
6	NER	DL	Mahaur-Dalgaon doubling with electrification	13	0	13	156	

3. BALANCE IMPORTANT SANCTIONED THROUGHPUT ENHANCEMENT PROJECTS ON HDN / HUN ROUTES

7	NER	DL	Chhapra-Balla Patch Doubling	65	0	65	580	
8	NER	DL	Balla-Gadpur city	65	0	65	550	
9	RVNL	DL	Phaphna-Indora, Mau-Shahganj doubling excluding Indora-Mau	150	0	150	1061	
10	RVNL	DL	Bhaini-Aunihar with electrification excluding Indora-Mau	117	0	117	1178	

4. ESSENTIAL MULTI - TRACKING PROJECTS

11	NER	DL	Aunihar-Jaunpur	60	0	60	367	
12	NER	DL	Doubling of Gorakhpur - Valmikinagar	87	0	87	1199	

5. GAUGE CONVERSION PROJECTS PLANNED TO BE COMMISSIONED BY 2024

13	NER	GC	Pilibhit-Shahjahanpur	84	38	46	500	
14	RVNL	GC	Lucknow-Pilibhit via Shapur, Lakhimpur	262	195	67	1458	
15	NER	GC	Indora-Cottinghat	34	0	34	213	
16	NER	GC	Baharich-Nanpara-Nepal Ganj	56	0	56	467	

6. ESSENTIAL NEW LINE PROJECTS

17	RVNL	NL	Mau-Ghaziipur-Tarighat	13	0	13	764	

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North Central Railway

1. SUPER CRITICAL PROJECTS

S. No.	Executing Agency	Plan Head	Name of Project	Length of Main Project (Km)	Length Commissioned upto Mar 28, (Km)	Balance Length as on 01.04.23 (Km)	Anticipated Cost (Cr.)	Name and designation of nominated HAG Officer
1	RVNL	DL	Bhimsen-Jhansi	205	87	119	2204	
2	NCR	DL	Mathura-Palwal 4th line	80	30	50	669	

2. CRITICAL PROJECTS

3	RVNL	DL	Mathura-Jhansi 3rd line	274	0	274	3678	
4	NCR	DL	Lalitpur-Binani with flyover at Lalitpur	16	0	16	304	
5	NCR	DL	Bhaupur-Pankaj - 4th line Connecting On Loop of Bhaupur to Shunting neck of Pankaj	11	0	11	97	
6	NCR	DL	Naini - Chhapki 3rd Down line with additional Platform	2	0	2	25	
7	NCR	DL	Kanpur New Coaching Complex - Kanpur	3	0	3	34	
8	NCR	DL	Ruma - Chakeri - Chandani - 3rd line	13	0	13	182	
9	NCR	DL	Chipiyara Bazar - Dadi 4th line	12	0	12	164	
10	NCR	DL	Daitwari - Borsari - Chodli Line (5.2 km)	5	0	5	60	

3. ADDITIONAL COAL PROJECTS

11	NCR WCR	DL	Jhansi-Rewa 3rd line	153	0	153	2002	

4. BALANCE IMPORTANT SANCTIONED THROUGHPUT ENHANCEMENT PROJECTS ON HDN / HUN ROUTES

12	NCR	DL	Allahabad Division- Construction of Aligarh Flyover	22	0	22	1179	
13	NCR	DL	Aligarh - Daud Khan 3rd line & construction of flyover at Daud Khan	7	0	7	448	
14	NCR	DL	Allahabad - Burauli 4th line (10 Km) with flying over at Subedarganj	10	0	10	493	
15	NCR	DL	Bhandari - Flyover for etawah bound down line	10	0	10	106	

5. ESSENTIAL MULTI - TRACKING PROJECTS

16	NCR	DL	Yamuna Br- Agra Fort- Double line with Major Bridge at Yamuna river	2.11	0	2.11	122	
17	NCR	DL	Doubling of Bilhi - Chunar	108	0	108	1080	

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NR

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Northern Railway

1. UPPER CRITICAL PROJECTS

No.	Executing Agency	Plan Head	Name of Project	Length of Main Project (Km)	Length Commissioned upto Mar 20, (Km)	Balance Length as on 01.04.20 (Km)	Anticipated Cost (Cr.)	Name and designation of nominated HAG Officer
1	NR	DL	Jalandhar-Pathankot-Jammu Tawi	209	204	5	851	
2	NR	DL	Kathua-Madhopur Punjab - doubling across Ravi Bridge	3	0	3	111	
3	RVNL	DL	Utrwala-Rabareilly	86	45	21	575	
4	RVNL	DL	Rabareilly-Amroha	63	15	45	854	

2. CRITICAL PROJECTS

5	NR, NER	DL	Rosa-Staper Cantt-Burhwal	181	0	181	1538	
6	NR	DL	Alamnagar-Utrwala	20	0	20	338	
7	RVNL	DL	Rajpura-Bhatinda	173	0	173	1769	
8	NR	DL	Barabanki-Akbarpur	161	0	161	1116	
9	NR	DL	Jaunpur - Akbarpur (Tanda)	77	0	77	676	

3. BALANCE IMPORTANT SANCTIONED THROUGHPUT ENHANCEMENT PROJECTS ON HDN / HUN ROUTES

10	NR	DL	Janghai-Phatapgarh-Amroha (57km)	57	0	57	720	
11	RVNL	DL	Janghai-Phatapgarh with electrification	47	0	47	409	
12	NR	DL	Jaunpur Jn. - Jaunpur city -Chord line	2	0	2	72	
13	NR	DL	Barabanki-Mathura - 3rd & 4th Line	33	0	33	407	

4. ESSENTIAL MULTI - TRACKING PROJECTS

14	NR	DL	Kathua-Madhopur Doubling across bridge No.15, 18 & 19	1	0	1	28	
15	NR	DL	Ludhiana-Kla Raipur (19 Kms) with freight line at Gil station on LDH-JHL section	19	0	19	238	
16	NR	DL	Ludhiana-Mullanpur	21	0	21	237	
17	NR	DL	Amritsar to Chheharta	7	0	7	28	
18	NR	DL	Varanasi - Mughalsarai - 3rd line (16.72 Km) with substructure of two line on bridge no 1 (Mahiya Bridge)	17	0	17	1386	
19	NR	DL	Doubling of Jakhai - Hisar Part of Ferozpur Bhatinda and Jakhai Hisar Doubling	82	0	82	820	
20	NR	DL	Connectivity between Pakhal and New Prithala	4	0	4	68	

5. NATIONAL PROJECTS

21	RVNL	NL	Bhanupali-Bilaspur-Beri	63	0	63	6753	
22	NR	NL	Udhampur-Srinagar-Baramulla Rail Link	272	161	111	27948	

6. ESSENTIAL NEW LINE PROJECTS

23	NR	NL	Rewari-Rohtak including MM by-pass line	85	81	5	1001	
24	NR	NL	Rohtak-Moham-Haroli	64	0	64	844	

भारत सरकार / Government of India
रेल मंत्रालय / Ministry of Railways
(रेलवे बोर्ड / Railway Board)

2020/W-I/Gent./Vision 2024 (E-off-3334078)

New Delhi, dated: 20.01.2021

The General Managers,
All Indian Railways.

East Coast Railway

83/25/10/21

Sub.: Nomination of HAG Officers for monitoring of Priority Projects of Vision 2024.

Hon'ble MR has instructed to nominate HAG Officer for monitoring execution of priority Railway Projects of Vision 2024. In this regard, a list of priority projects pertaining to your Railway is enclosed herewith. It is advised that one HAG/NFHAG Officer may be nominated for each project. If need be, the projects can also be assigned to NFHAG officers also. Nominated officers will be responsible for monitoring, resolving hurdles and handicaps and providing support to CAO/C in timely execution of projects. They should keep themselves abreast with field issues on a weekly basis and will be required to respond to queries at various levels as required. List of nominated officers may be advised to Railway Board at the earliest.

(Sanjay Rastogi)
Additional Member/Works
Railway Board.

Copy 100:-

Chief Administrative Officer (Const.)
All Indian Railways

O/C

East Cost Railway

SUPER CRITICAL PROJECTS								
S. No.	Executing Agency	Plan Head	Name of Project	Length of Main Project (Km)	Length Commissioned upto Mar 20. (Km)	Balance Length as on 01.04.20 (Km)	Anticipated Cost (Cr.)	Name and designation of nominated HAG Officer
1	RVNL	DL	Khurda Road-Barang	32	26	7	433	
2	RVNL	DL	Sambalpur-Titagarh	182	105	76	2006	
3	RVNL	DL	Raipur-Titagarh	203	119	84	1889	
4	RVNL	DL	Banspuri-Dattari-Tonka-Jakhapura	164	108	56	1552	
5	ECoR	DL	Sambalpur-Talcher	188	82	106	1539	
6	ECoR	DL	Khurda Rd. Vizianagram (Angul-Harpurgram) By Pass	3	0	3	46	
2. CRITICAL PROJECTS								
7	ECoR	DL	Bhadrak-Nergundi 3rd line	92	4	88	843	
8	RVNL	DL	Vizianagram-Titagarh (Sambalpur) 3rd line	265	16	248	3328	
9	ECoR	DL	Jarapaada-Budhapank 3rd & 4th line with flyover at Talcher.	101	0	101	810	
10	ECoR	DL	Budhapank-Solegaon via Rajatgarh 3rd & 4th line	170	0	170	1173	
11	ECoR	DL	Jagdulpur-Koraput	110	44	67	1547	
3. ADDITIONAL COAL PROJECTS								
12	RVNL	NL	Angul-Sukinda Road	104	0	104	2441	
13	ECoR	DL	Brundamal-Jharsuguda- flyover connection for joining DN Line	7	0	7	94	
4. BALANCE IMPORTANT SANCTIONED THROUGHPUT ENHANCEMENT PROJECTS ON HDN / HUN ROUTES								
14	ECoR		Baghuapal Fly over	20	0	20	152	

भारत सरकार / Government of India
रेल मंत्रालय / Ministry of Railways
(रेलवे बोर्ड / Railway Board)

2020/W-1/GenL/Vision 2024 (E-off- 3334078)

New Delhi, dated: 20.01.2021

The General Managers,
All Indian Railways.

ECR

BS
25/01/21

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(Sanjay Rastogi)
Additional Member/Works
Railway Board.

Copy to:-

Chief Administrative Officer (Const.)
All Indian Railways

OK

East Central Railway

1. SUPER CRITICAL PROJECTS							
S. No.	Executing Agency	Plan Head	Name of Project	Length of Main Project (Km)	Length Commissioned upto Mar 20. (Km)	Balance Length as on 01.04.20 (Km)	Anticipated Cost (Cr.)
1	ECR	DL	Katarnah-Kursela Patch Doubling incl. bridge on river Kosi	7	0.00	7	190.22
2	IRCON	DL	Hajipur-Bachwara	72	33	39	930
2. CRITICAL PROJECTS							
3	ECR	DL	Jatardih-Danesa Patch Doubling	29	7	22	332
4	ECR	DL	Gerhwa Road-Ramra	32	12	20	348
5	ECR	DL	Ramra-Singrauli	160	7	153	2436
6	RVNL	DL	3rd line bet. Dhanbad-Sonnagar	291	0	291	3406
7	ECR	DL	Karola Road- Shaktinagar	32	0	32	529
8	ECR	DL	Ranchi Road- Patratu	31	8	23	348
9	ECR	DL	Karola Paher - Mankatha Surface triangle	8	0	8	129
10	ECR	DL	Gerhwa Road ROR	7	0	7	263
11	ECR	DL	Gomoh- Flyover for DN trains	22	0	22	488
12	ECR	DL	Darbhanga bypass line connecting Shisho Hall and Kakarghat excluding Darbhanga Yard	8	0	8	253
3. ADDITIONAL COAL PROJECTS							
13	ECR	NL	Koderma-Ranchi	202	175	27	3700
14	ECR	NL	Koderma-Tilaha	65	25	40	1626
15	IRCON	DL	Kulua Gaya	124	18	106	1200
4. BALANCE IMPORTANT SANCTIONED THROUGHPUT ENHANCEMENT PROJECTS ON HDM / HUN ROUTES							
16	ECR		Sagauli-Vaishnagar	110	0	110	1216
17	ECR		Muzaffarpur-Sagauli	101	0	101	1186
5. ESSENTIAL MULTI - TRACKING PROJECTS							
18	IRCON	DL	Rampur Dumra - Tal-Rajendra Pul-Additional bridge and doubling	14	0	14	1491
19	ECR S	DL	Doubling of Pradhan Kuntha JN. Pathardih bazar - Bhajudih	17.1	0	17.1	171
6. GAUGE CONVERSION PROJECTS PLANNED TO BE COMMISSIONED BY 2024							
20	IRCON	GC	Jaynagar-Bijalpura	52	35	18	580
21	ECR	GC	Mansa-Saharsa, incl. Saharsa-Dausam Madhapura-Purnia & MM Banmaahi-Bihorigery	189	157	12	752
22	ECR	GC	Jaynagar-Darbhanga-Mankathagang & MM of Nankathagang-Shikha Tori	262	260	22	1061
23	ECR	GC	Sekri-Leukaha Bazar-Nirmali & Saharsa-Forbesganj	206	72	134	1471
7. ESSENTIAL NEW LINE PROJECTS							
24	ECR	NL	Parna Bridge and MM for doubling of Patliputra-Pahleza section with electrification	29	29	0	3457
25	ECR & RVNL	NL	Fatuha-Islampur(43.50) incl. MM for extn. of NL from Neora to Daniawan (42.2) , Daniawan to Biharsarif (38.2), Biharsarif to Barbigha (25.80 Km), Barbigha to Shekhpura(16.80)	167	84	72	1483
26	ECR	NL	Kosi Bridge	22	0	22	516

भारत सरकार / Government of India
रेल मंत्रालय / Ministry of Railways
(रेलवे बोर्ड / Railway Board)

2020/W-I/GenL/Vision 2024 (E-off- 3334078)

New Delhi, dated: 20.01.2021

The General Managers,
All Indian Railways.

ER

25/01/21

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(Sanjay Rastogi)
Additional Member/Works
Railway Board.

Copy to:-

Chief Administrative Officer (Const.)
All Indian Railways

O/C

Eastern Railway

1. SUPER CRITICAL PROJECTS

S. No.	Executing Agency	Plan Head	Name of Project	Length of Main Project (Km)	Length Commissioned upto Mar 20. (Km)	Balance Length as on 01.04.20 (Km)	Anticipated Cost (Cr.)	Name and designation of nominated HAG Officer
1	ER	DL	Dankuni-Chanderpur- 4th line .	25	0	25	450	
2	ER	DL	Bandel-Boinchi - 3rd line.	31	15	16	550	
3	ER	DL	Boinchi-Shaktigarh 3rd line .	26	19	7	400	
4	ER	DL	Monigram-Nimtila	34	21	13	455	

2. CRITICAL PROJECTS

5	ER	DL	Sagaridighi- Malda Town (Nimtila - New Farakka)	25	10	16	248	

3. ADDITIONAL COAL PROJECTS

6	ER	NL	Hansdiha-Godda	32	15	17	653	

4. BALANCE IMPORTANT SANCTIONED THROUGHPUT ENHANCEMENT PROJECTS ON HDN / HUN ROUTES

7	ER	DL	Rampurhat-Muralai - 3rd line	29	0	29	350	
8	ER	DL	Kabwa-Bazonsau - DL	31	13	18	310	
9	ER	DL	Bazar Sau-Azimganj Jn.	42	15	28	400	

5. ESSENTIAL MULTI - TRACKING PROJECTS

10	ER	DL	Sondalia-Champapukur (23.64 km)	24	18	6	266	
11	ER	DL	Madhapur bye-pass line	7	0	7	154	

6. ESSENTIAL NEW LINE PROJECTS

12	ER	NL	Tarekeshwar-Bishnupur (82.46 Km)	82	57	25	1144	
13	ER	NL	Munger-rail-cum-road Bridge on river Ganga (3.69 Km) by ECR and Jamalpur-Munger (8.10 KM) NL & Ratanpur-Jamalpur,DL (6.35 Kms) by ER. Total project length: 18.14 km.	28	20	8	2775	

भारत सरकार / Government of India
रेल मंत्रालय / Ministry of Railways
(रेलवे बोर्ड / Railway Board)

2020/W-1/Genl./Vision 2024 (E-off- 3334078)

New Delhi, dated: 20.01.2021

The General Managers,
All Indian Railways.

(cc)

25/01/21

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(Sanjay Rastogi)
Additional Member/Works
Railway Board.

Copy to:-

Chief Administrative Officer (Const.)
All Indian Railways

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भारत सरकार / Government of India
रेल मंत्रालय / Ministry of Railways
(रेलवे बोर्ड / Railway Board)

No. 2020/W-1/GenL/Survey Report (E-off:3334538)

New Delhi, Dt. 06.01.2021

The General Managers,
All Indian Railways.

Director General,
Indian Rly. Institute of Civil Engg. (IRICEN), Rail Path, Pune, Pin-411001 (Maharashtra).

Sub: Use of Modern Survey Technologies for Survey of New Line, Gauge Conversion & Doubling Projects.

Ref: (i) Railway Board letter No. 98/W-1/GenL/O/30-Pt. dated 26.06.2020.
(ii) Letter No. CAOC-II/Misc/2020 dated 16.10.2020.

A committee of three officers was nominated by Board (the then ME) vide Railway Board letter under reference (i) to study and evaluate various Modern Survey Technologies being used worldwide and in India.

The Committee has submitted its Report vide letter under reference (ii). The Committee has discussed in detail the existing practices and use of modern technology for surveys. Committee has also provided comparison of different technologies for different type of Surveys in the report. The Committee, besides other recommendations, has recommended that the report be circulated to field officers as a guiding factor while taking decision in the field regarding adoption of technology for surveys. The Report has been accepted by Board (Member/Infra). Report has been uploaded on Railway Board web site under Circulars in Works Directorate. (https://www.indianrailways.gov.in/railwayboard/view_section.jsp?id=0,1,304,366,556)

Board (Member/Infra) has also approved that Modern Survey Techniques may be introduced as a regular Course in IRICEN as well as may be included as one or two lectures in Phase-I training programme of IRSE Probationers. Any survey estimate (of a sanctioned/to be sanctioned survey) having elements of these techniques should be acceptable along with proper justification.

All Zonal Railways should envisage use of modern survey technologies for preparing Survey Reports/Detailed Project Reports for rail projects of New Line, Gauge Conversion and Doubling as per the Report.


6/1/20
(B. K. Gupta)
Executive Director/Proj.M.
Railway Board



GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

Report of Committee on
Various Modern Survey Technologies



October- 2020

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PREFACE

Various types of surveys are conducted as per Indian Railway Code for Engineering Department which includes Preliminary surveys (PETS) and Final Location Survey (FLS). Large number of Rail projects of New Line, Gauge Conversion and Doubling are being planned and executed by Indian Railway where engineering studies are to be performed in very short time period and in a most accurate manner. Presently, in the absence of defined framework, modern survey technologies are being used on IR in a selective manner based on the project requirement.

In this connection, Board (ME) has nominated a Committee of 3 officers, vide Railway Board Letter No. 98/W-I/Genl./O/30-Pt Dated 26.06.2020, to study and evaluate the various Modern Survey Technologies being used worldwide and in India. The Committee members are:

1. Shri S. K. Jha, CAO/CII/NR
2. Shri H.S. Yadav, CAO/C-I/NFR
3. Shri Sanjay Khare, Sr. Prof./Works/IRICEN, Pune

The Terms of Reference of the Committee are as under: -

- To study the various Modern Survey Technologies such as LiDAR Photogrammetry based survey and to formalize the scope & specification of these technologies for conducting PETS & FLS.
- To evaluate and compare the different technologies in terms of cost time requirement and quality of output generated for conducting PETS & FLS.
- To give recommendations about technologies to be preferred in PETS & FLS in various terrains for different type of projects.

The committee examined various prevailing practices adopted in Indian Railway. Most of the surveys are conducted using conventional survey technologies except in selective projects involving challenges like hilly terrain, complicated yard layouts etc. where modern survey technologies based on Remote sensing (Photogrammetry/ LiDAR based survey) are used.

This Report is based on literature survey, experience of construction units of NR & NFR, provisions given in IR Engineering Code and Presentations shared by survey organisation /consultant in IRICEN. The views expressed are subject to modification from time to time in the light of future developments on the subject.

REPORT

[A] INTRODUCTION

Planning of a new railway alignment can be expensive and time-consuming process by conventional surveying methods. There are many issues that need to be addressed to arrive at the most optimum rail connectivity between obligatory points considering the terms of reference. The challenge is to find out most feasible, economical and stable alignment and to identify that how the alignment will be influenced by the location properties like geographical, topographical, soil and slope variations and other geological conditions. So it is very important to conduct survey of an area very precisely for careful planning and designing of various infrastructure projects such as road, railways, transmission lines, pipelines etc.

The factors like cost & ease of construction, serviceability, environmental and social Impact should also be considered during the finalization of an alignment.

'Indian Railway Code for The Engineering Department' categorizes Engineering survey into three categories:

- Reconnaissance Survey
- Preliminary Survey
- Final Location Survey

Reconnaissance Survey

- The main objective of reconnaissance survey is to examine the general characteristics of the area for the purpose of determining the most feasible route, or routes, for further more detailed investigations.
- It is a rough, quick investigation of an area with a view to determine the technical feasibility and approximate cost of one or more routes for a proposed Railway line with the help of field reconnaissance, SoI topographical maps and other available resources.
- Particular attention is paid to ascertain the waterway requirement, and the best sites for stations, crossings of streams, bridges and roads.
- It consist of Trafic and Engineering Survey.

Preliminary Survey

- Preliminary survey consists of a detailed instrumental examination of the route / or routes selected as a result of "Reconnaissance" in order to obtain a close estimate of the probable cost of the projected line for making fair investment decision.
- Selected routes are put on paper and details such as gradient, curves, contours etc. are worked out.
- The long sections and formation levels are prepared and details of structures worked out.
- Most economical and efficient route is decided along traffic survey.

Final Location Survey

- A Final Location Survey will generally be a post investment decision investigation to prepare working details and to make accurate costing with detailed survey of the selected most economic route.
- Hydrological, geotechnical and geological investigations are carried out along the finalized route.
- The center line of the railway line is located on paper and stacked on ground. Details such as gradient, curves, contours, etc. are worked out.
- All the working drawings are prepared.

There are broadly two types of survey techniques which are currently practiced, namely Conventional and Modern survey methods. In conventional method, survey is carried out manually using available resources [Survey of India (SOI) maps & toposheets] and by measuring topographical features of area using survey equipments. The main disadvantages of using conventional methods of surveying are the following.

- They are tedious and time-consuming.
- Quality & accuracy of results are dependent on human skills.
- Difficulty in obtaining data at inaccessible locations especially in dense forests and mountainous terrain.
- Huge volume of data is processed manually and form of data is mostly incompatible with software.

- Most of the conventional survey techniques only provide topographical data.
- Results are not very presentable and difficult to comprehend.

Revolutionary changes have taken place in last few years in the field of surveying. With rapid advancement in the technologies like GNSS (Global Navigation Satellite System), LiDAR (Light Detection and Ranging), Aerial Photogrammetry from aircraft/ UAV (Unmanned Aerial Vehicle), Satellite imagery etc., there has been drastic improvement in the manner of determining dimensions and contour of the Earth's surface. Generation of different thematic maps of area on geographic information system (GIS) software by making use of behavior of different landforms on exposure to active/passive electromagnetics radiations through satellite/drone imagery has vastly improved the interpretation of geology, drainage patterns and geological structures. All these technologies work on the principle of Remote sensing. Also, the use of seismic & electromagnetic waves (geophysical survey) to interpret the lithology of the area has also increased the pace & reduced the cost of survey & design works by reducing the need of geotechnical investigation.

The details of these two different techniques i.e. the Conventional and Modern surveying techniques, have been elaborated in the subsequent paragraph below.

[B] Conventional Survey Technique –

In the conventional method of surveying technique, initial planning is carried out on the basis of available Survey of India (SOI) Topographical maps in various scales mainly 1:50,000 and 1:25,000 with contour interval of 20m to 40m. These SOI maps are referred to get the general information regarding terrain, various structural features and spot elevation range. Since, these toposheets are usually old and of larger scale, it has low accuracy level and therefore can only be referred for initial project planning. Thereafter, it is assisted by physical survey in field. Earlier, for this purpose, old equipments like prismatic compass, clinometer, Abney level/ Altimeter, Pedometer, Aneroid barometer, Clinometer, Ghat tracer etc. were being used. But now it is mostly done using modern survey instruments like Total station, DGPS, Digital Level etc. The result of this is to reproduce the topographical maps in smaller scale (in general 1:5000 or smaller) and having finer accuracy which is fit for engineering purpose.

A brief of these modern equipments are given below:

B.1 Total Station

A total station combines the functions of a theodolite and a level and more. It uses a laser or infrared beam. It is microprocessor based and can store data measured. The Microprocessor unit enables computation of data collected to calculate the horizontal distance, coordinates and reduced level of a point. These devices save the surveyor from collecting multiple measurements for each point location whose position needs to be known, as triangles can be constructed trigonometrically once an internal angle (between baseline and unknown point) and two edge lengths (the baseline and measured distance to unknown point) are known. Total stations have LCD displays where one can set up the kind of survey task one wants to carry out. Once set up, it will prompt for set up data (co-ordinates of the benchmark, height of the instrument over the benchmark etc.).

Survey with total station start with establishing Ground control point (GCPs). This generally requires close traverse for error distribution and producing error free co-ordinates (X, Y & Z) of GCP. This is followed by topographical survey and alignment survey.



B.2 Digital Auto Level

Digital automatic level is a precise instrument used for precise leveling. Operation of digital levels is based on the digital processing of indications of a coded staff. At the beginning of measurement, a visual pointing of the

instrument into the surface of leveling meter is performed. After that the instrument automatically points the focus of its optical system on the surface of the meter and then a rough correlation calculation is performed followed by the precise correlation. According to the data received in the processor of the instrument an exact distance from the axes of the instrument to the surface of the level meter is calculated. According to the information received by decoding the data as reflected from digital staff the height of the level placing is calculated in the processor. All the data measured during the day is saved in the instrument memory and can be brought out into readable formats in computers for further calculations.

For small stretch, the conventional survey will be very useful as it can produce desired result at low cost. However, Physical survey with these equipments involves large manpower and is time consuming which makes the physical survey very difficult and expensive for difficult hilly terrain as well as for large stretches. **Hence the need for Modern Surveying Techniques.**

But before we describe Modern Surveying techniques, first we must get familiar with some important tools/terminologies used in it.

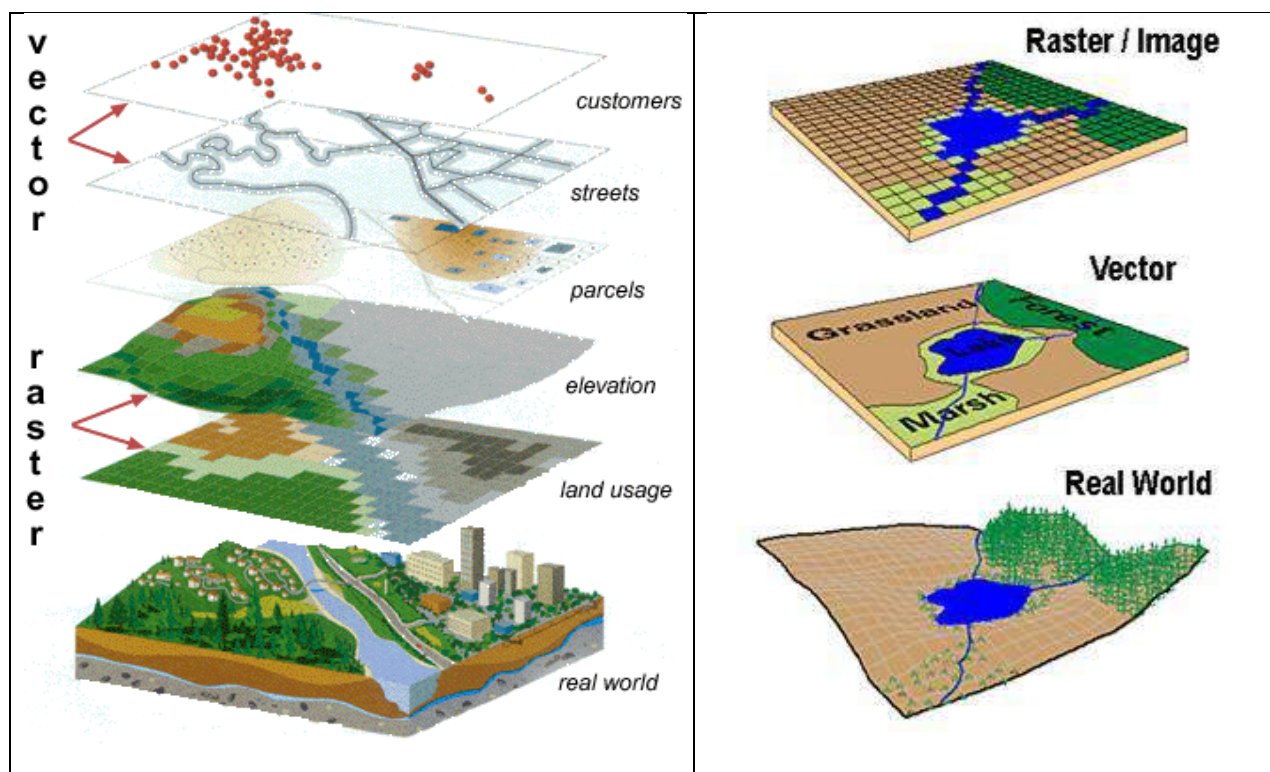
[C] Important tools/terminologies of Modern Surveying Techniques:

C.1 SPATIAL DATA

Spatial data, also known as geospatial data, is information about a physical object that can be represented by numerical values in a geographic coordinate system. Spatial data represents the location, size and shape of an object on planet Earth such as a building, lake, mountain or township.

Geographic Information Systems (GIS) or other specialized software applications can be used to access, visualize, manipulate and analyze geospatial data.

Spatial data are of two types according to the storing technique, namely, raster data and vector data. The whole geographic area is divided into groups of individual cells, which represent an image. Raster formats are grids of cells or pixels. Raster formats are useful for storing GIS data that vary, such as elevation or satellite imagery. Vector formats are polygons that use points (called nodes) and lines. Vector formats are useful for storing GIS data with firm borders, such as school districts or streets.

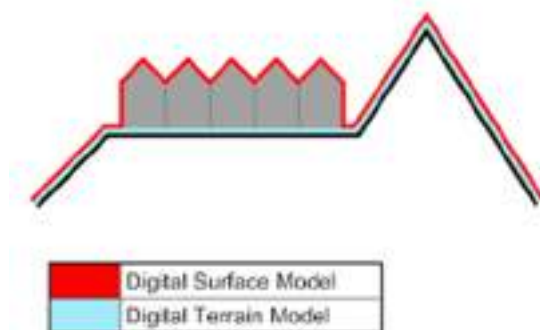


C.2 DIGITAL ELEVATION MODEL

Digital elevation model is a 3D representation of the earth's surface created from a terrain's horizontal (X, Y) & elevation (Z) data. There are three types of elevation models.

- DSM (Digital Surface Model): 3D Surface elevation model which contains all the natural and man-made features (i.e. vegetation, buildings etc.)
- DEM (Digital Elevation Model): 3D elevation model without natural and man-made features and furnished in raster format.
- DTM (Digital Terrain Model): It is the DEM in which terrain data is further enhanced with break lines (Ridge & valley line, cutting etc.), creating greater accuracy as it contains additional information of defined terrain features like roads, rivers, bridges etc.

DEM is often used as a generic term for DSMs and DTMs, only representing height information without any further definition about the surface.



Digital elevation models (DEM) can also be prepared from digitalized topographical sheets, topographical data measured with the help of total station or any other point cloud data.

C.3 Terms defining Image Quality:

C.3.1 Radiometric resolution/Bit: Amount of detail in each pixel expressed in units of bits. 1-bit raster contains two values (0&1) and has two shades black and white. 8-bit raster ranges from 0-255 ($2^8=256$ values in total) means 256 colors of shades of each band will be available. Typical Black & White images from a source are 8 bits, meaning the information is represented with a value of 0-255 or 256 in total.

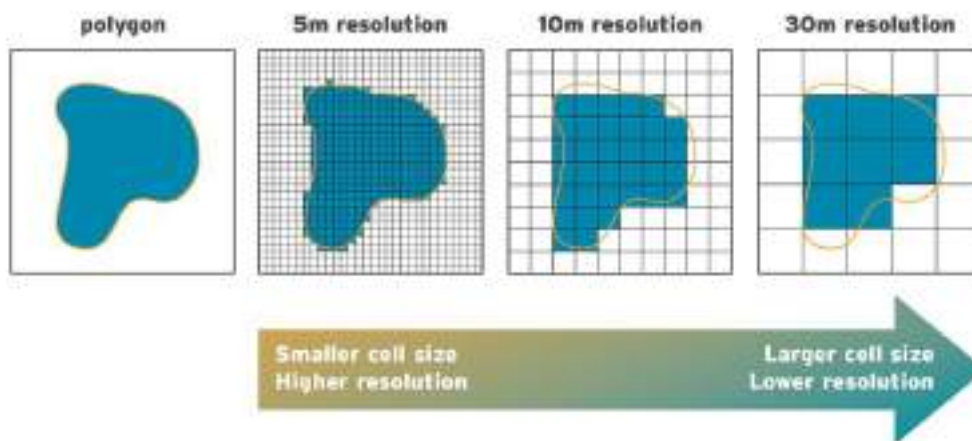
In contrast, a colour image is represented using 3 channels, Red, Green, Blue and each channel is 8 bits, equaling 24 bits of information. Humans visualise colours as a combination of the three primary colours red, green and blue. Every colour and corresponding shade is represented using a combination of these 3 primary colours and the intensity of each colour. A value of 0 in the blue channel means that pixel is black. If the value of a pixel in blue channel is 255, it means that the pixel is bright blue. So if a blue channel pixel has a radiometric resolution of 8 bits, there will be 256 shades of blue.

C.3.2 Off Nadir angle (ONA): Angle at which an image is captured by Satellite. Straight vertical view (0 degree) is the most preferred and the more is the ONA the more is the distortion of an image.

In Ortho rectified products, ONA is to be restricted to 30 degrees in the worst case. Less than 10 degrees is preferable.

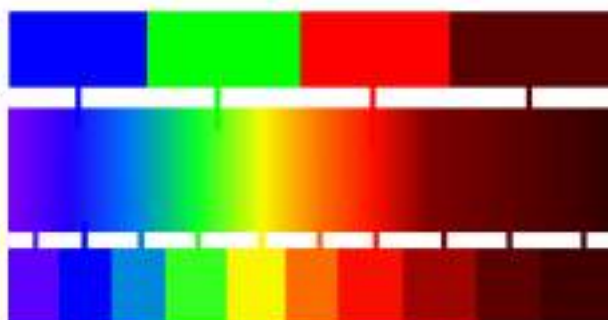
C.3.3 Image Resolution: Defines the pixel size, detail and the accuracy of the image.

Spatial Resolution: Specifies the pixel size of a satellite image. The higher the spatial resolution, the finer details it will contain. 30cm spatial resolution satellite image means the pixel size is 30cmx30cm.



Spectral Resolution: Ability of the sensor to define fine wavelength interval. It is number of bands in the spectrum in which the instrument can take measurements. For instance

- Panchromatic: A single band image which is black and white
- Colour: It is a 3 band image consisting of Red, green and Blue.
- Multispectral: Multispectral products include the Multispectral bands (Color and Near-Infrared). For example, the band order in a 4-band multispectral product is Blue, Green, Red and Near Infrared.
- Hyperspectral: A Hyperspectral image consists of hundred or more contiguous spectral bands. These images have potential applications in agricultural and coastal management.



C.4 GROUND CONTROL POINTS (GCP)

GCP are the points which are required to be measured at site to get fairly accurate ground coordinates at any location identifiable on satellite/drone image or LiDAR point cloud. There is also a need to create a local geoid model for converting the ellipsoid heights into orthometric /MSL heights very precisely. The Horizontal coordinates can be measured with the help of Total station, DGPS (Differential Global Positioning System) etc. and vertical coordinates can be obtained by levelling survey, total station, using EGM (Earth Gravitation Model) /Geoid models etc. The DGPS and geoid models are explained further in brief.

The GCP locations are selected based on following criteria:

- One GCP to be selected for every 50 Sqkm for satellite imagery and at every 250 to 500 m for drone imagery and made uniformly distributed according to the area of the image.
- The requirement of GCPs for drone LiDAR is approximately every 1 KM and for the aerial helicopter LiDAR the requirement of known (X,Y) point is at every 50 KM approximately and known (Z) every 5-10 KM to achieve the target accuracy of 1 M because of better equipment.
- Selected location should be easy to identify like the corner of a building, bridge, corner of a field etc.
- Common or repetitive features like parking lots or lines on a highway should be avoided.
- Collect GCPs in the area of overlap between two or more images wherever possible. GCPs collected in multiple images helps to increase the accuracy.

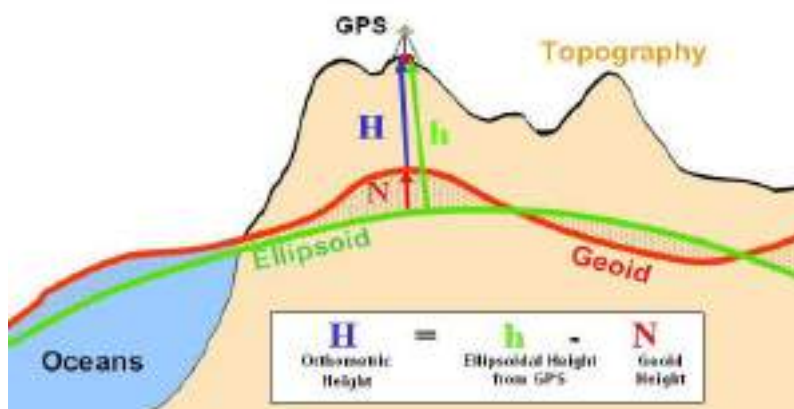
The GCP locations which are first identified qualitatively on raw satellite/drone images, are measured at site with the help of DGPS/Total Station/Levelling/RTX as explained below.

- DGPS: is used to measure latitude, longitude & ellipsoid height with reference to some known point (X,Y&Z) established by Survey of India (SOI). The ellipsoid height has to be converted to orthometric height (MSL) with the help of the latest earth gravitational model (EGM-08).
- Total station: The (X, Y & Z) coordinates of a point can also be measured with traversing from a known SOI point to the point of interest (GCP).
- Levelling: The Z coordinate of a GCP can be established by doing levelling survey from a known GTS benchmark of SOI to the identified GCP.

- RTX: RTX (real time measurement) is a GNSS based technology which does not need a reference known point as required for DGPS to measure the latitude, longitude & ellipsoid height of a GCP under 15 cm horizontal accuracy at 95% confidence levels. RTX method of measurement uses Advanced PPP (Post Precise Positioning) technique which unlike the usual DGPS does not require any office process after the measurement. Coordinates taken from the site are usable as final coordinates. Trimble R10 GNSS receiver is one such type used to perform this measurement.

C.5 Earth Gravitation Model (EGM)/Geoid Model

All the GNSS (Global Navigation Satellite System) based measurements provide the ellipsoidal height at any location which needs to be transformed to orthometric height (MSL) with the help of earth gravitation model (EGM)/ Geoid model. The geoid is the shape that the ocean surface would take under the influence of the gravity and rotation of Earth alone, if other influences such as winds and tides were absent. Transformation from ellipsoidal height (h) determined by GPS surveys to orthometric height (H) is directly achieved with precise Geoid (N) model. Geoid is an equipotential surface which is a very close approximation of mean sea level and N is the Geoid undulation from imaginary ellipsoid (Datum for any reference system). Relationship between ellipsoidal height, orthometric height and Geoid height/undulation is depicted in the figure below. Basic equation relating Orthometric and Ellipsoidal heights: $H = h - N$



EGM_08 is the latest geoid model and provide the MSL height with fairly good accuracy of approximately 50 cm. But this accuracy is not at all suitable for referencing highly accurate LiDAR/Drone data and therefore local geoid corrections are made using SOI available GTS benchmarks to make it as per desired accuracy.

C.6 GNSS and DGPS (Differential Global Positioning System) Survey

GNSS/GPS: GNSS stands for Global Navigation Satellite System and is the standard term for all the satellite navigation systems in the world that provide geo-spatial positioning (X, Y & Z) with global coverage. Common GNSS Systems are GPS (United States), GLONASS (Russia), Galileo (European Union), Beidou (China) and other regional systems. NavIC is the Indian Regional Navigation Satellite System (IRNSS) with 7 satellites. A GNSS/GPS receiver must acquire signals from at least four satellites to reliably calculate a three-dimensional position. Ideally, these satellites should be distributed across the sky. The receiver performs mathematical calculations to establish the distance from a satellite, which in turn is used to determine its position. The GNSS receiver knows where each satellite is at the instant, its distance is measured. Common GNSS receivers from Trimble, Leica, Topcon, Geomax, Stonex etc. are able to receive signals from most of the GNSS satellite systems and more are the satellites the more is the accuracy, redundancy and availability at all times. GPS is the most widely used GNSS in the world and therefore GNSS is sometimes commonly called as GPS.

Error in GNSS/GPS measurement: GPS signals coming from satellites down to the ground have to travel through layers of the earth's atmosphere, so they are subjected to delays. Radio signals coming down from satellites have to travel through the ionosphere where signal delays are caused and it depends upon receiver location, satellite location, time of day, solar flare activity, etc. Then further delay is caused when these signals travel through troposphere having clouds, rain and lightning. These delays are random delays which fluctuate and as such, there is no way to precisely measure it at any given time. This affects the time taken for the signal to travel from any given satellite to a GPS receiver, which introduces slight error into the GPS engine, causing an error in the measured position. This can cause an approximate error up to 5 m in every GPS measurement. Therefore DGPS is used to achieve higher accuracy in measurement.

Principle behind DGPS: Any two receivers that are relatively close together will experience similar atmospheric errors. Requirement of DGPS is that one GPS receiver be set up on a precisely known location and it is called as the base or reference station. The base station receiver calculates its position based on satellite signals and compares it to the known location. This difference is applied to the GPS data recorded by the second GPS receiver, which is known as the roving receiver. The corrected information can be applied to data from the roving receiver in real time in the field called as (RTK) Real Time Kinematic or

through post-processing after data capture using special processing software (Static DGPS). Static DGPS is more accurate than the RTK mode but RTK mode is much faster (2-3 minutes) than the Static mode. Measurement of coordinates of permanent control points is done by static DGPS.

The known base points with highly precise coordinates are provided by Survey of India (SOI) which they have already established across India. The base station can also be setup by recording the GPS data for as long as possible (48 hours normally). Over the time that the base station is capturing data, the ionosphere and troposphere change, causing the delays in the signals to change, randomly. Because the delays are subject to random changes, they can be averaged out to find out very precise location.

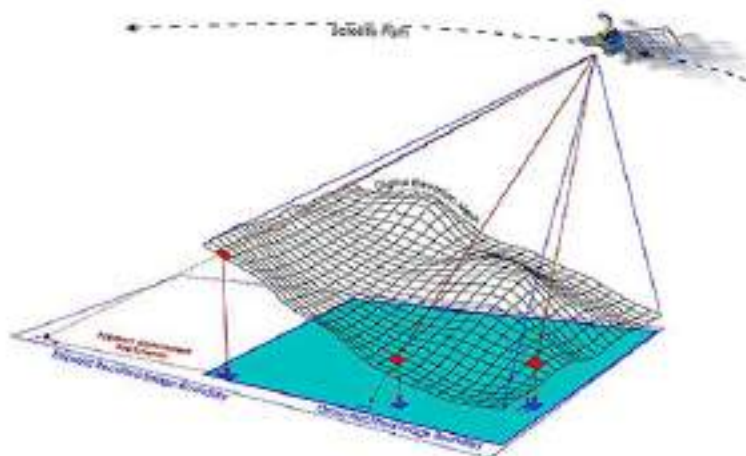
Procedure to Carry out Static DGPS Survey: SOI-GCP points which are used as a base station have been measured many years ago and therefore a compatibility survey is first performed in order to find out whether the points are fixed at their original location or not. A DGPS session (8 hours preferably) is first carried out on all the known SOI GCP points. One of the SOI GCP is considered as the known base point and rest of the SOI GCPs as unknown and then compared with their known values. This process is repeated one by one for all the points and most compatible base point is found out (having least error). The coordinates of all the SOI GCPs are modified with respect to the most compatible SOI GCP.

As the SOI GCPs are located very far from each other and therefore the second step is to create a sub network of points comprising of few known SOI GCPs and some of our unknown project GCPs. A DGPS session (8 hours preferably) is carried out for this sub network and coordinates of unknown project GCPs/ permanent control pillars are found. By now we have known coordinates at a fairly close distance (approximately 20 KM). Now we can run a small session of about (1 to 2 hours) by including a few known points from sub-network and some of the remaining unknown points of project GCP to find out the coordinates of unknown GCPs. Some of the points in one small session are overlapped with other small session to ensure compatibility between all the GCP points in our area of interest (AoI). In this way we find out very precise (X & Y) coordinates for all of our permanent control pillars/ project GCPs.

C.7 Orthorectification and Orthophoto

Orthorectification is the process of removing the effects of image perspective (tilt) and relief (terrain) effects for the purpose of creating a planimetrically correct image. The resultant orthorectified image has a constant scale wherein

features are represented in their 'true' positions. It is the process of converting images into a form suitable for maps by removing sensor, satellite/aircraft motion and terrain-related geometric distortions from raw imagery.



An orthophoto (orthophotograph or orthoimage) is an aerial photograph or satellite imagery geometrically corrected ("orthorectified") such that the scale is uniform: the photo or image follows a given map projection.

[D] Modern Surveying Techniques:

Unlike conventional surveying method, modern surveying techniques consist of limited field intervention. It can be carried out on aerial, ground and satellite based platforms using mounted cameras and sensors in lesser time without physically going to site. This concept of taking measurements from a distance is called **Remote Sensing**.

There are two types of Remote Sensing.

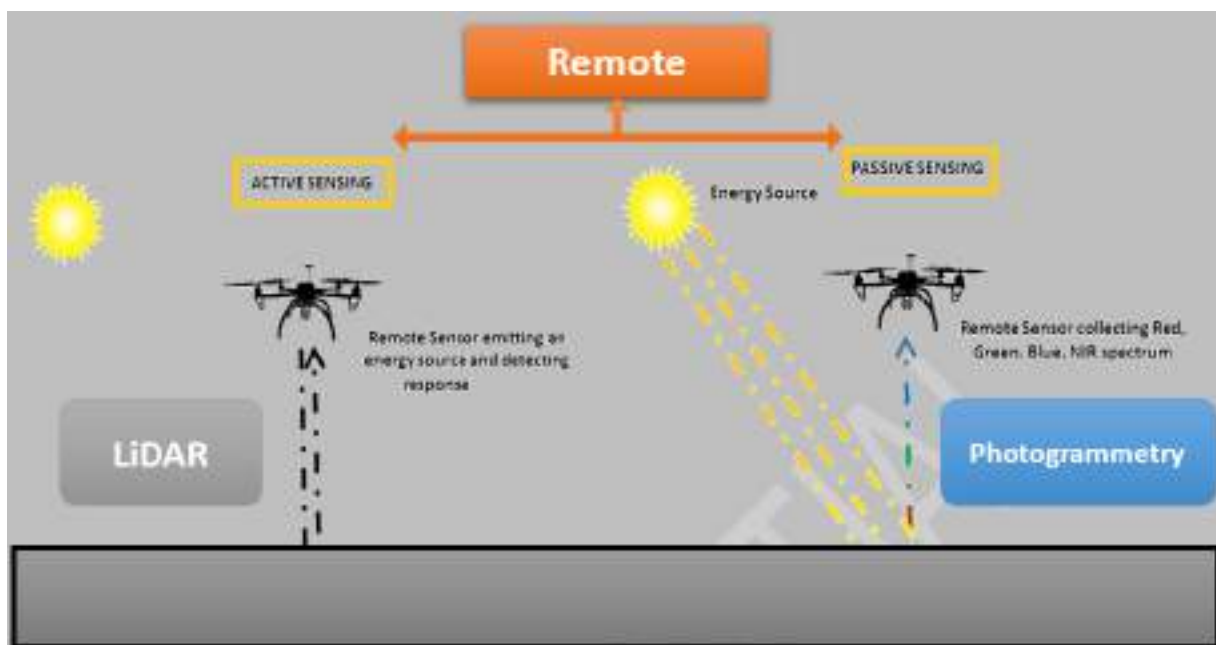
- **Active Sensing** - Active sensors have its own source of light or illumination. In particular, it actively sends a pulse and measures the backscatter reflected back to the sensor. Examples of active sensing are LiDAR, Sonar etc.
- **Passive Sensing** - Passive sensors measure reflected sunlight emitted from the sun. When the sun shines, passive sensors measure this energy. Examples of passive sensing are Drone/Satellite Images.

In remote sensing, the sensors collect the important details of ground in the form of images very precisely. These images have various combinations of bands of colours. All these geospatial and remotely sensed data can be used to visualize and analyze the ground features in 2D/3D mode with the help of

modern software's. This is specially useful in hilly reaches where the locations are not approachable and disturbed.

In the recent decade, the technology of LiDAR (Light detection and ranging) and photogrammetry is being used widely to extract bare earth surface elevations at required grid/point intervals by using various processing techniques which is primary input in the design of various construction and mining projects likes rail, road, power, mines etc. with a good accuracy and limited field activity involvement.

The end product of both the technologies, active or passive remote sensing, is Digital Elevation Model (DEM). DEM is a 3D representation of earth's topography and is the most important input for designing an alignment. The high spectral & radiometric resolution captured by satellite/drone images are very helpful in interpreting geology and various landforms in the area of interest. Slope & aspect maps can also be created from DEM in hilly terrain to further analyze the designed alignment for slope stability considerations. The probable thrust/fault and landside zones can also be predicted to avoid hazardous locations along the alignment. The cumbersome task of doing hydrological calculation can be done quickly and very precisely by making use of the DEMs. The temporal resolution of captured images is very useful to understand the change in geology, river flow pattern (meandering) and vegetation in an area over the years. Alignment drawings, L-section, cross-section, yard layouts and other alignment features can also be extracted very easily & quickly with help of the modern softwares using DEM.



D.1 This is aided by the use of geophysical surveys which are non-destructive, indirect, cheap and quick technique using seismic/electric/electromagnetic rays. These are carried out to measure physical properties of medium for subsurface characterization, ground water condition and geological structures and this has vastly reduced the need of geotechnical investigations during survey stage.

D.2 Both the LiDAR and Photogrammetric technologies, as compared to conventional land surveying methods, offer results much faster and with a much higher data density (both techniques measure all visible objects with no interpolation). However, the selection of the best technology for a project depends on type of use, environmental conditions, delivery terms, and budget among other factors. A detailed overview of the strengths and limitations of photogrammetry (satellite & drone) and LiDAR (aerial & terrestrial) is described in this report which will be helpful in choosing the right solution for a project, especially in terms of Railway RET/PET/FLS survey.

[E] Photogrammetry - PRINCIPLE, PROCESS AND OUTPUTS GENERATED:

With Photogrammetry, information about physical objects and the environment is obtained through the process of recording, measuring and interpreting photographic images and then converting them to maps through Orthorectification. It uses the same principle that human eyes or 3D videos do, to establish a depth perception, allowing the user to view and measure objects in three dimensions.

E.1 HI-RESOLUTION SATELLITE IMAGERY

Satellite images are captured by remote sensing satellites like Worldviews series, GeoEye, Pleiades, Quick Bird, Cartosat etc. These Satellite Imageries have application in diversified fields depending upon its resolution & band type. Stereo satellite imageries, which come in pairs, are used for creation of DEM (Digital elevation model). Stereo Images are the two pictures of an area taken from two slightly different angles which are then overlapped to produce the illusion of depth.



E.1.1 Processing of satellite imagery:

Step-1: Input Quality Checking & Inventory Report Preparation

Quality checking of the satellite images i.e. Nadir angle, snow & cloud cover, overlapping of images, gap area etc. is done in various GIS software such as ERDAS Imagine, Global Mapper, ARCGIS etc. Along with this, ground control point (GCP) locations are also verified. Any discrepancy with the satellite image is reported and the image is replaced.

Step-2: Selection for the location of GCP's & Preparation of Monographs for GCP establishment

GCP (Ground control Points) are the locations identifiable in satellite imagery as well as on ground. The measurement of (X, Y & Z) coordinates of these locations is done on ground to Geo reference the satellite imagery as per ground, Datum etc. The measurement can be done with the help of total station/DGPS/levelling etc. These GCP locations are identified with the help of google earth/satellite imagery. The georeferencing process is required to be done in all the photogrammetric/ LiDAR techniques.

Step-3: Aerial Triangulation (AT) - represents the mathematical process of establishing precise and accurate relationships between the individual image & Ground. When we talk in layman language it means Geo referencing of satellite imagery to the ground using GCP point established onto the ground.

AT is carried out for georeferencing of the satellite imagery. Georeferencing is the process of assigning geographic coordinates to a raster (grid of x and y) image to define its location in the world based on a map coordinate system (Everest/ WGS-84/ NAD-83 etc.). Satellite images, which are captured, don't

perfectly match with the Earth's surface and neither the images coincide with any projected coordinate system map (e.g. UTM).



Fig- Stereo Photogrammetry Workstation

So these satellite images (stereo pair) are georeferenced or transformed according to the constraints of map projections for the purpose of topographical survey/creation of DEM. This is done by identifying some prominent points, called ground control points (GCPs) or photo control points (PCPs,) on satellite images which are identifiable on ground for (X, Y & Z) coordinate measurement.

In the Aerial Triangulation process, firstly tie points which are generated at a certain interval, are used to connect two stereo images and remove tiling of images. It is done to provide relative accuracy between images. For absolute accuracy measured value of GCP is assigned in the image and the process of bundle block adjustment is carried out. A quality report is finally prepared to compare the adjusted GCPs coordinates on image with the measured GCPs coordinates and the difference should be within the permissible limits.

Step-4: DTM & 3D Topographical Map Generation - True Digital Representation of 3D Terrain Surface for engineering Analysis, (DTM) is made up of elevation points and abrupt change marked by 3D break lines representing elevations of Surface. Fewer points can describe very flat or evenly sloping ground; more points can be captured to describe very complicated terrain.

DSM is first generated using the georeferenced satellite image which includes all the natural and manmade features like trees, buildings etc. After the DSM is generated, mass points at certain interval on ground and break lines at ridges & valleys are generated to remove these natural & manmade features, thus generating DEMs. These mass points & break lines help in creation of smooth

contours of natural ground/ terrain. A check is done on contours and wherever abrupt changes are seen (Depicting sudden rise due to tree or building), mass points are deleted to get the smooth contours. Digitization of all the topographical features such as Roads, water body, bridges, building etc with break lines are done using the 3D glasses. Finally, DTM is generated using the software which is the 3-D model of terrain. DTM is used for different purposes.

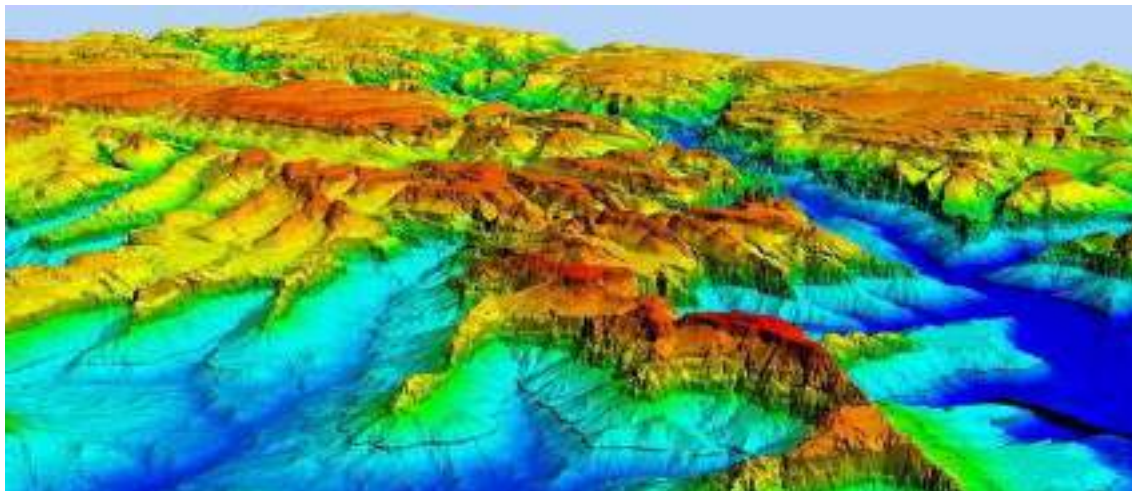


Fig-Digital Elevation Model

Step-5: Orthophoto Generation - Once an aerial photo has been orthorectified, it is commonly referred to as an Orthophoto. Orthophoto is a high resolution georeferenced colored 2D image generated in software using DTM & georeferenced image on which further pan sharpening is performed. Pan sharpening is the process in which colour of multi spectral low-resolution image is fused over Pan (black & white) image of high resolution.



Fig- Orthophoto

E.1.2 Other outputs generated by satellite images on GIS platforms:

Different kind of thematic maps which can be derived from remote sensing studies of satellite images are briefly explained in below.

Geological lineament map: Lineaments are the fractures, faults, thrusts, valley lines, submit lines etc. in the area of interest. These are extracted with the help of GIS software and verified later in the field by geologist to further carry out geological mapping studies. Lineament density maps is also drawn and area of high lineament density are avoided while deciding the railway route. ROSE diagram of lineaments can also be made to find out the direction of lineament sets and alignment is designed in such a way it crosses this area in perpendicular direction if needed.

Quaternary Deposits Map: Quaternary Deposits are the lithological formations which are younger than 2.58 million years and are the most unconsolidated & unstable. The area of quaternary deposits is segregated with the help of remote sensing for further studies.

Alluvial / Fluvial Map: The alluvial/ fluvial areas are identified along the river basins for these deposits and suitable measures can be taken while designing the alignment through this area.

Water drainage network maps: The water drainage maps are extracted with the help DEM in GIS software. Location of bridges/viaducts can be planed accordingly while design of alignment.

Topographical Analysis Maps (SLOPE, ASPECT): The slope and aspect maps are prepared with the help of DEM to carry out the slope stability, land slide or other geohazard analysis along the alignment. Aspect map is generated with the aim to reveal the direction of landslides (0° to 360° of North) and slope map is prepared in terms of percentage and degree in order to determine the inclination of the landslide.

NDVI: Normalized Difference Vegetation Index study is carried out in order to determine the open areas and vegetation-covered zones in the study area. This analysis helps in avoiding the green zones while design of alignment.

Anaglyph Maps: The Anaglyph Creation map provides a simple means of producing a color anaglyph simulation of the terrain in 3D using a DEM and an image. Sometimes detecting an image in 3D makes it much easier to interpret

the data and to pick out the details, such as the comparative height of neighboring peaks and valley floors.

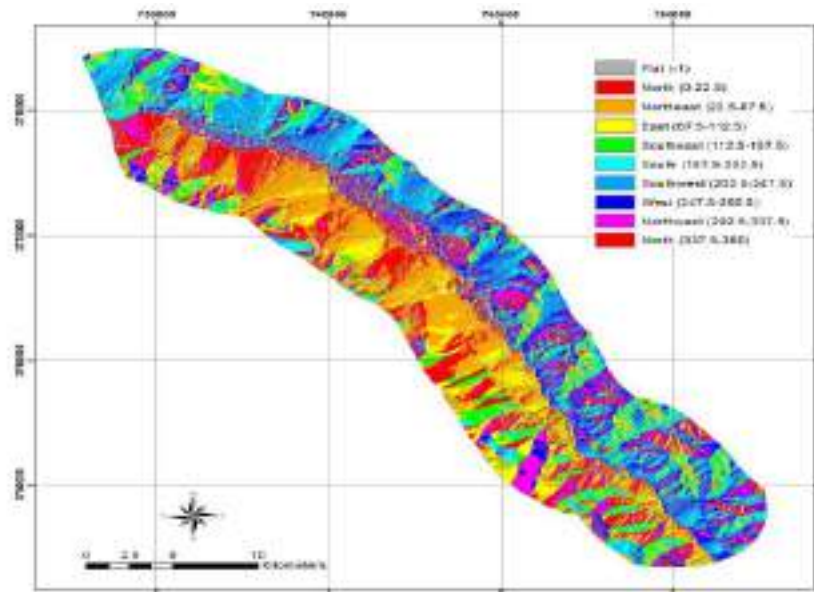


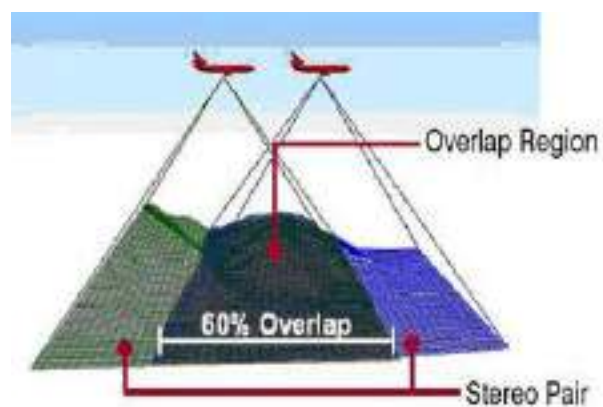
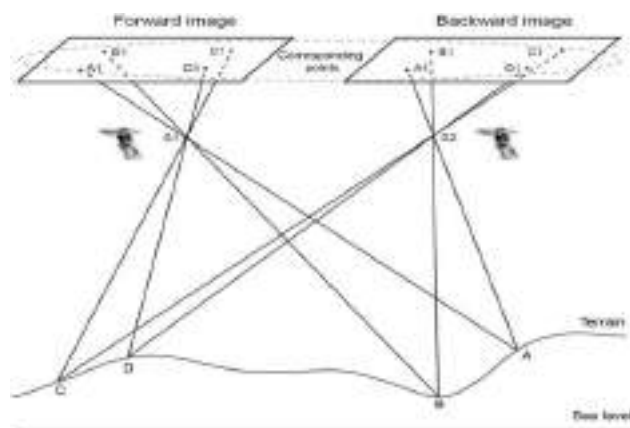
Fig-Aspect map

Archive data captured by different satellites around the world can also be bought through NRSC (National Remote Sensing Centre).

E.2 DRONE PHOTOGRAMMETRY

Drone photogrammetry is a passive technology, based on images that are transformed from 2D into 3D models.

Drone photogrammetry technique is very much similar to satellite imagery. The images are taken from airborne platform from two different angles and are generally overlapped (60-90%) to generate the 3D stereo pairs which are utilized for analyzing the various features in 3D. The overlap in case of satellite images need not be so much due to the large size of image and sufficient number of GCPs available for one image.



High-resolution cameras are mounted on Drone to take overlapping photographs and they are processed in similar way as explained in E.1.1. above to create digital elevation model (DEM) & Orthophotos.

Drone photogrammetry, in best cases, provides 1-3 cm of accuracy which is very good in comparison to Satellite imagery. But Drone survey is difficult to operate in hilly reaches whereas, satellite imageries have an advantage as it can capture details of inaccessible places. Satellite image processing is most suitable for large area of interest & for works which do not require very high accuracy and Drone photogrammetry is most suitable for small area of interest & for works requiring very high accuracy. Moreover, the data acquisition time for satellite imagery is quite less for larger area of interest.

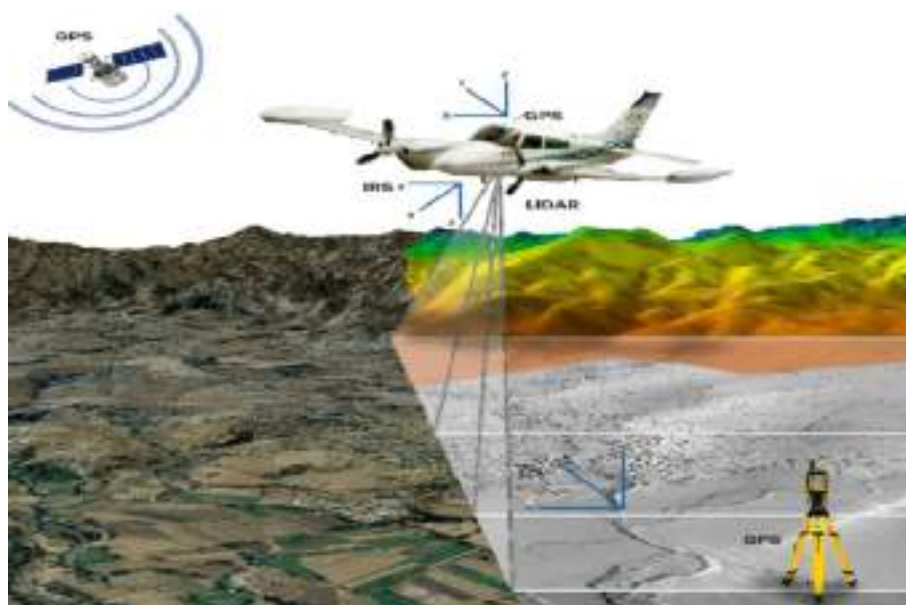
The data from Drone photogrammetry can also be used for other remote sensing studies as discussed in section E.1.2 above.



[F] LiDAR

LiDAR stands for Light Detection and Ranging. It is a technology that is based on laser beams. It shoots out laser to an object and measures the time it takes for the light to return. It is so called active sensor, as it emits its energy source rather than detects energy emitted from objects on the ground. The laser beams can penetrate dense forests and provide details of bare earth very conveniently in comparison to photogrammetry and this improves the accuracy of generated DEM considerably.

After careful review, the acquired Lidar data is processed by a team of Lidar professionals to generate a "Lidar point cloud." From this data, Digital Elevation Models (DEMs) and other valuable Lidar products can be created for a variety of uses.



LiDAR is also particularly useful for modeling narrow objects such as OHE masts & wires, sleepers & rails, power lines or telecom towers as photogrammetry might not recognize narrow and poorly visible objects. Besides, LiDAR can work in poor lighting conditions and even at night.

The main product of LiDAR survey is a 3D point cloud. The density of the point cloud depends on the sensor characteristics (scan frequency and repetition rate), as well the flight parameters. Assuming that the scanner is pulsating and oscillating at a fixed rate, the point cloud density depends on the flight altitude and speed of the aircraft.

Various use cases might require different point cloud parameters, e.g., for power line modeling one might want dense point cloud with over 100 points per

square meter, while for creating Digital Terrain Model of a rural area 10 points per square meter cloud may be good enough.

It is also important to understand that LiDAR sensor is only sampling positions without RGB, creating a monochrome dataset which can be challenging to interpret. To make it more meaningful, the data is often visualized using false-color based on reflectivity or elevation.



Fig: Example of point cloud before and after adding a color attribute.

It is possible to overlay color on the LiDAR data in post-processing based on images or other data sources, though this adds some complexity to the process. The color can also be added based on classification (classifying each point to a particular type/group of objects, e.g., trees, buildings, cars, ground, electric wires).

There are two types of LiDAR systems

Airborne/Aerial LiDAR: Airborne LiDAR system is installed on a helicopter/aircraft or drone for collecting data. Aerial Lidar is an aerial mapping technology which uses reflected laser returns—from the earth's surface to an aircraft with on-board sensors in order to determine the precise elevation and geospatial location of terrestrial objects and features. Airborne LiDAR is further divided into two types i.e. Topographic LiDAR and Bathymetric LiDAR. Topographic LiDAR typically uses a near-infrared laser to map the land, while

bathymetric LiDAR uses water-penetrating green light to also measure seafloor and riverbed elevations.

Terrestrial LiDAR: Terrestrial LiDAR systems are installed on moving vehicles like trains or tripods on the earth surface for collecting accurate data points. These are quite common for observing highways, Railways, analyzing infrastructure or even collecting point clouds from the inside and outside of buildings. Terrestrial LiDAR systems have two types i.e. Mobile LiDAR and Static LiDAR. Mobile LiDAR technology by installing LiDAR equipment on locomotive/last vehicle can be very beneficial for doubling projects. In the case of static acquisition, the LiDAR system is typically mounted on a tripod or stationary device.



Fig- Static & Mobile Terrestrial LiDAR

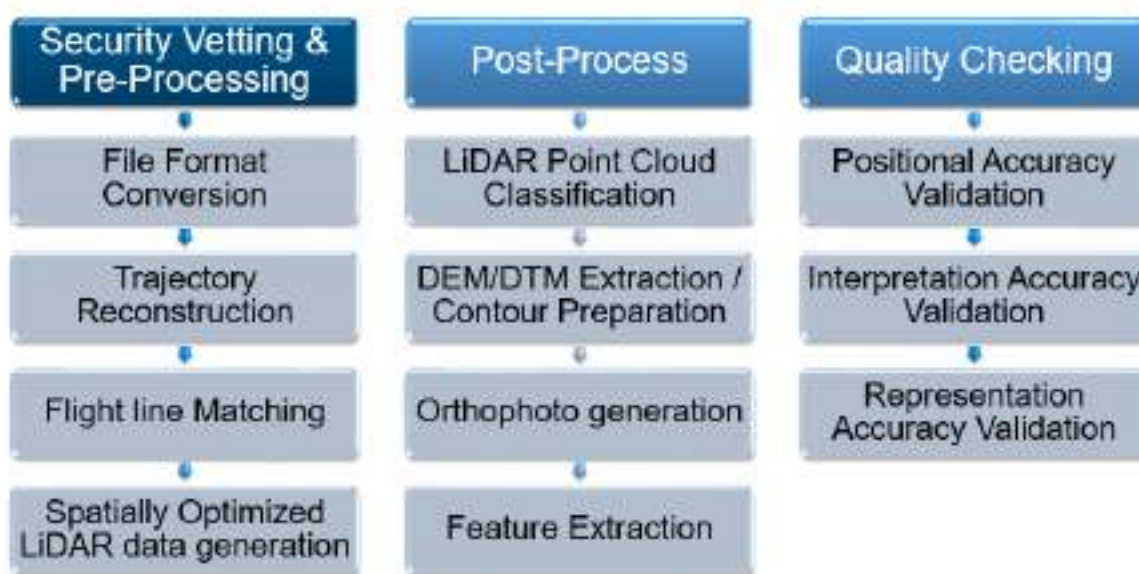
F.1 All LiDAR systems have mainly these major components:

- Laser source and laser detector emits the light and then receive it back after reflection from the surface.
- The timing electronics records the exact time the laser pulse leaves and returns to the scanner. Each pulse sent out can have up to multiple returns as it reflects off of objects on the surface.
- The Global Positioning System (GPS) records the precise X, Y & Z location of the scanner.

- The Inertia Measurement Unit (IMU) along with Global Positioning System (GPS) records the precise X, Y & Z location of the scanner. The IMU contains an accelerometer, a gyroscope, and magnetometer sensors that measure the velocity, orientation, and gravitational forces. It also constantly records the pitch, roll, and yaw of the aircraft.
- Computer needed to store the raw data

F.2 LiDAR Data Processing

The processing involves combining the raw data from each sensor and produce coordinates and images in their respective formats. By combining the laser range vector, scan angle of scanner, IMU roll, pitch, and yaw, it is possible to determine the coordinate corresponding to each laser pulse returned including multiple returns. The steps involved in processing of data can be summarized as below:



F.2.1 Importing IMU and On-Board GNSS Data

The data are downloaded from the Aero Control Data Unit using the Aero Office software and the same are separated for further processes.

F.2.2 Airborne GNSS Kinematic Data Processing

On-board GNSS kinematic data will be processed on-site at processing center using GrafNav or similar software to ensure an accurate Post Processing Kinematic Trajectory Solution and to process the kinematic corrections for the

aircraft. Aero Office or similar Software can be used to develop a trajectory file that includes corrected aircraft position and attitude information.

F.2.3 Generation and Calibration of Laser Point clouds (Raw Data)

The bore-sighting angles and lever-arm offsets, which are known as the mounting parameters. The mounting parameters together with other system parameters are derived through the calibration process carried out during LiDAR data acquisition. Laser data points are generated using Mathematical Morphology (MM) Process. This software combines the raw laser range and angle data file with the finalized GNSS/IMU solutions.

F.2.4 GNSS Trajectory Solution

The Ground DGNSS point data from the Ground Reference Station will be collected from the field team and the GNSS from the on-board GNSS systems are combined using GrafNav or similar Software.

F.2.5 INS Trajectory Solution

The trajectory and IMU data obtained from different software will be merged and processed. Various graphs like INS position RMS, Gyro-Bias etc. are generated and analysed.

F.2.6 Geo referencing laser points

The corrected INS (Inertial Navigation System) trajectories will be used to Geo-reference the laser points and thereby, converting the raw laser points into a generic format (.las). The geo referenced laser point contains the following details like Easting, Northing, Elevation, Intensity, Scan Angle, GNSS Time, Flight Line Number etc. There is requirement of GCPs for this purpose and at the same time integration of data with locally corrected Geoid model.

F.2.7 Importing Laser Points

The laser points in the generic format (.las format) will be imported into the software and separate blocks are created depending on the size of the point cloud data. If the size of the data is more than 50 million points, they are separated by creation of blocks.

F.2.8 Flight Line Adjustment

The flight line adjustment is done with the help of Tie Line. Tie Line iteration and Tie Line Accuracy is evaluated. Flight lines are adjusted based on it.

F.2.9 Preliminary Vertical Accuracy Assessment

In Aero Office Software, preliminary accuracy assessment will be done by analysing the INS trajectory solution, satellites observed, PDOP (Position dilution of precision) for the respective flight missions. Also target points marked along the center line of the corridor have to be checked for the vertical accuracy assessment.

F.2.10 Classification of LiDAR data for generation of High-Resolution DEM

TerraScan inbuilt macros with different parameters will be used to classify low points, ground points, and non-ground points. The existing features captured as 3D point cloud data during aerial survey will be classified as Point, Line and Polygon layers and depicted as Topographical map.

F.2.11 Bare earth classification

The LiDAR points will be processed according to the priorities of classifications. Firstly, high and low points will be filtered out followed by classification of bare earth. Ground points will be subjected to manual edits for accurate representation.

F.2.12 Water Classification and delineation of Hydro Break Lines

The hydro features such as rivers, streams, lakes, and ponds etc., will be classified by capturing break lines manually by outlining a water body to classify those points into water class. The LiDAR data intensity display will be used for water body delineation.

F.2.13 Digital Surface Model generation

After the editing phase, all the tiles will be mosaicked and edge-matched to a single dataset. DSM generation will employ Point to TIN and TIN to Raster process with Natural Nearest Neighbor interpolation.

F.2.14 DTM: Break line Production & Qualitative Assessment

A point cloud comprises discrete points with voids in between the points. To visualize the point cloud as a surface, we need to “fill in” the space between the points. One of the most common ways of doing this in a Geospatial Information System (GIS) is to connect each point in a triangle mesh.

The TIN is one of the most flexible representations of a point surface because, like a three-legged stool, the faces will always perfectly fit the elevation points of the original point cloud. The disadvantage of a TIN is that it has sharp edges

and hence is very coarse in appearance when zoomed in (a TIN is a first order approximation to a surface).

Break lines are three dimensional features (generally polylines or polygons) introduced into the TIN to constrain the generation of surface models. These introduced Break lines may be developed such that they do not modify the original surface geometry. Break lines can be stored as ancillary feature data that are dynamically added to the model when needed (during surface generation or derived product creation).

F.2.15 Orthophotos Generation

Ortho photos are generated if images are also captured along with LiDAR data.

[G] ACCURACY/ QUALITY OF OUTPUT

In surveying, accuracy always has two dimensions: relative and absolute. Relative accuracy is the measurement of how objects are positioned relative to each other. Absolute accuracy refers to the difference between the location of the objects and their true position on the Earth. This is why any survey can have a high relative but low absolute accuracy. The accuracy we measure at site for final product (DEM) is the absolute accuracy where random points are measured with respect to some known points (SOI/ Project GCP). If the relative accuracy is to be measured then the distance between two points can be measured at site or height difference may be checked between two points and compared with what we are getting from DEM. In general practice we are measuring the absolute accuracy here.

Satellite Imagery

The accuracy of product (DEM) varies from few meters to hundreds of meters and depend upon the quality of input data and its final use. The accuracy of DEM required for hydrological studies or study of large water bodies may be of the range of 30 m. This kind of data is readily available free of cost on internet. Preliminary study of geology may also be done with the help of Aster DEM or LISS data which is free of cost. But the accuracy of DEM required for engineering purposes is a lot more. The freely available CartoDEM of 15 M accuracy may be sufficient for corridor selection or reconnaissance survey but it will not give the fairly accurate quantities of cut/fill. Reconnaissance survey studies can also be done by procuring readymade CartoDEM or DEM prepared from 2.5 M spatial

resolution satellite images available at very reasonable rates. These freely available DEMs will give the more accurate results than the 20/40 M contours available in SoI topographical sheets used for conventional surveying. But as we go towards the preliminary studies where we require fairly accurate cost estimate, we may have to make DEM from 1 M spatial resolution satellite images.

The studies like FLS where highly accurate results are required for advanced studies will require the highly accurate DEM. The best spatial resolution images commercially available in the world are of 30 cm. India has launched its own satellite which will provide 25 cm resolution images in future. The accuracy of DEM which can be made out of 30 cm spatial resolution is under 1 M in horizontal and 1.5 M in vertical. This kind of results have been practically achieved in Bilaspur-Manali-Leh FLS project. This level of accuracy is fairly sufficient for FLS stages but if found necessary this can be supplemented with drone photogrammetry / LiDAR or helicopter LiDAR in narrow patches to get better estimate of quantities and highly accurate data for design of structures. Satellite images are sometimes not able to receive the data of bare earth in dense forests or deep gorges. In these cases the missing data is interpolated and thus decreasing the accuracy of final product.

The basic thumb rule for the final product is that DEM accuracy will be 2-3 times in horizontal and 3-5 times in vertical of actual pixel size of raw image. The accuracy is largely dependent on spatial resolution of image but at the same time we should be careful while purchasing the satellite images. The images with off nadir angle greater than 15 degrees and images with more cloud cover will also degrade the quality of final product. At the same time the accuracy of the final product depends upon the accuracy of ground control points. As per American Society for Photogrammetry and Remote Sensing (ASPRS) standards the GCP accuracy should be half of horizontal and one fourth of vertical targeted accuracy. Therefore, we have to be careful while selecting the mode of measurement of GCP on field. Although all the analysis is done on the software's but it also depends upon the skillset of engineer working on preparation of DEM.

Drone Photogrammetry

As the accuracy of DEM is dependent on resolution of satellite image, similar philosophy applied to drone photogrammetry. The good thing about the drone photogrammetry is that unlike satellites which are hundreds of KM away from earth, the drone can be flown at few meters of height above ground. This result

in fairly small pixel size of captured image and this increases the accuracy of final DEM. In best cases it also allows achieving 1-5 cm level accuracies. However, it requires significant experience to select appropriate hardware, flight parameters and software to process the data appropriately. Achieving high absolute accuracies requires using RTK/PPK technology (Post-processed kinematic and real-time kinematic) and additional GCPs or can be based purely on a large number of GCPs. The rest of the accuracy parameters remains the same as it is for satellite image processing. The bad thing is that it can capture very limited area in one go. If we try to increase the width of capture (Swath) by increasing the flying height of drone then it will also increase the pixel size of captured image and thereby decreasing the final product accuracy. We have to carefully balance and choose between the area of capture and accuracy of capture to suite our project requirement. For example, we may need greater width of corridor in preliminary survey as compare to final location survey but accuracy requirement will be less for preliminary survey in comparison to final location survey. In this way things can be balanced out.

Drone photogrammetry is sometimes not able to receive the data of bare earth in dense. In this case the missing data is interpolated and thus decreasing the accuracy of final product.

LiDAR

LiDAR is one of the most accurate surveying technologies used across the world. This is particularly the case for terrestrial lasers where the sensor is positioned on the ground, and its exact location is measured using geodetic methods. Such a setup allows achieving sub-centimeter level accuracies.

Achieving a high level of accuracy with aerial LiDAR is however more difficult as the sensor is on the move. This is why the airborne LiDAR sensor is always coupled with IMU (inertial motion unit) and GNSS receiver, which provide information about the position, rotation, and motion of the scanning platform. All the data obtained are combined allowing achieving high relative accuracy (1 to 5 cm). Achieving high absolute accuracies requires adding few Ground Control Points (GCPs) and several checkpoints for verification purposes. In some cases when additional GNSS positioning accuracy is needed, one can use advanced RTK/PPK UAV positioning systems. The advantage of LiDAR over Photogrammetry is that it can penetrate dense forests and provide highly accurate data even in dense forest and it can also work during night.

The accuracy of LiDAR final product is also dependent on density of point cloud and it depends upon the height of sensor & velocity of vehicle. We can choose the point cloud density based on the kind of work targeted. The survey of existing OHE may need greater point cloud density but less swath. Plain terrain where elevations are not varying much may need a less point cloud density in comparison to mountainous terrain with sharp change in elevation.

The horizontal accuracies are comparatively achieved easily in comparison to vertical accuracies. This is because the Datum used for vertical data is MSL and all the GNSS systems provide ellipsoid heights. These ellipsoid heights are converted to Orthometric/MSL heights with the help of geoid model. The geoid model in its natural form give accuracy of 50 cm as observed in Bilaspur-Manali-Leh project. This geoid model has to be corrected by locally adjusting the geoid heights with respect to difference observed between computed orthometric heights and actual MSL at number of locations. The accuracy of locally corrected geoid model will severely impact the quality of our final product.

[H] DATA ACQUISITION & PROCESSING TIME

Satellite Imagery

The input data for creating DEM and orthophotos from satellite imagery will be raw satellite images and coordinates of ground control points. The satellite images procured through NRSC are either from Indian satellites and foreign satellites. The images of resolution up to 1 m can be procured from Indian satellites and very high-resolution satellite images (30/40 cm) have to be obtained from foreign satellites through NRSC. The low-resolution free satellite images can be immediately downloaded from Bhuvan/NRSC website. Satellite images to be procured from Indian satellites can be obtained within 1-2 weeks if data is available in archive capture. But if fresh data have to be obtained than it will take much more time to capture the fresh data as per the orbit / return time of satellite. The low-resolution DEM can be downloaded immediately from NRSC and SOI website.

The data which is to be procured from foreign satellites is procured through NRSC only. User place the indent as per requirement and NRSC calls the quotations to foreign vendors accordingly. The most optimum vendor is given the order and data is supplied to user after scrutiny by NRSC. The archive data in this case can be obtained typically in 1-2 months. But if fresh data have to be obtained than it will take much more time to capture the fresh data as per the orbit / return time of satellite and total area of interest.

The measurement of GCP is also dependent on accuracy of coordinates required for the final product. Advanced technologies like RTX can measure the coordinates of any point in half an hour with the accuracy of 15-30 cm. But if more accurate data is required than we will have to go for DGPS. DGPS requires the data of some known GCPs of SOI and speed of measurement is dependent on availability of SOI GCPs in the region. More detailed analysis has to be done to convert ellipsoid heights obtained in RTX/DGPS measurement into MSL at all the GCPs. The time required for overall process is dependent on area of interest, availability of SOI GCPs/GTS benchmarks and accuracy desired GCPs. Procurement of data of SOI GCPs/GTS bench marks also take 2-3 weeks generally. Normally RTX technology will be sufficient for processing of 30 cm satellite imagery and may take 10-15 day for measurement of GCPs in area of interest of 5000 SQKM with two instruments. Measurement through conventional technologies like total station/ levelling will take much longer time in large area of interest but are very suitable for small area of interest.

Processing of satellite images is also dependent on number of manpower deployed for the work. Typically for small area of interest of about 200-300 SQKM may take 1-month time for processing. But for large area of interest of about 5000 SQKM with deployment of maximum manpower the work can be completed in 2-3 months. In nutshell the time required for overall process in best case scenario will be 2 months and it can take up to 6 months as well for large area of interest.

Drone Photogrammetry

The time required for capture of data is dependent on total area of interest and kind of terrain. Typically, in a day 8-12 KM of data can be captured through a drone in a day for one swath or 1-2 SQKM. In photogrammetry, one of the critical parameters required to process the data accurately is the image overlap that should be at the level of 60-90% (front and side) depending on the terrain structure and hardware applied.

Additionally, for high absolute accuracy, photogrammetry requires more Ground Control Points to achieve accuracy in comparison to satellite and LiDAR. As the area of interest is normally less in this case, measuring of GCPs can be done by conventional land surveying methods on the ground using Total Stations & Dumpy levels which mean further dependence on conventional survey techniques leading to time and cost. GCPs can also be measured through DGPS RTK mode if sufficient SOI GCPs are available in vicinity for expediting the work. Procurement of data of SOI GCPs/ GTS benchmarks also take 2-3

weeks generally. RTX data cannot be used in India yet to achieve cm level accuracy in the product. Data capture also depends upon location, accessibility, weather and lighting conditions. They are also less safe over urban areas and are prone to damage.

The processing time in case of drone photogrammetry will normally take a 3-4 weeks for medium size area of interest (100-150 SQKM).

LiDAR

The time required for capture of data is dependent on total area of interest and kind of terrain. Typically, in a day 8-12 KM of data can be captured though a drone in a day for one swath or 1-2 SQKM. For large area of interest, the data can be captured through helicopter with much faster pace. The data capturing in case terrestrial LiDAR is very fast and hundreds of KMs can be captured in a day by placing the LiDAR sensor on locomotive or last vehicle. This type of data capturing is very beneficial for doubling projects but missing data at high banks & deep cuttings have to be filled in with the help of drone survey.

The requirement of number of GCPs will be little less in case of LiDAR survey but the method of measurement of GCPs will remain the same as for drone photogrammetry. LiDAR data processing is very fast. Raw data require substantially less time (typically 1-2 weeks) to generate the final product in comparison to photogrammetry.

In photogrammetry, data processing is the most time-consuming part of the overall process which may lead to months together depending upon data volume and manpower availability. In addition, it requires powerful computers that can handle operations on gigabytes of images. The good thing is that in contrast to LiDAR data, the photogrammetry data can be shared for processing and processing time can be reduced with additional manpower and hardware.

[I] COST

The cost of a suitable surveying technique depends on many factors, some of which are given below for better understanding:

I.1 Cost of satellite images: The cost of satellite DEM is dependent upon the desirable accuracy. Low resolution satellite images and its readymade DEM are available free of cost at NRSC website. But as the requirement of desirable

accuracy increases, the rates are also increased. Some of the rates of commercially available satellite imagery/ DEM are given below in the table.

Satellite Name	Spatial Resolution	DEM Accuracy	Contour interval	Map Scale	Cost
Cartosat 1	2.5 M	5 M	10 M	1:10,000	Rs. 6450/ (27.5 km * 27.5 km)
Cartosat 2	1 M	2-3 M	2-3 M	1:5000	Rs. 2890/ (9.6 km * 9.6 km)
CartoDEM	2.5 M	15 M	15 M	1:15000	Rs. 6290/ (14 km * 14 km)
World View	0.5 M	1-2 M	1-2 M	1:2,000	35 \$/SQKM Archive
					55 \$/SQKM Fresh
World View	0.3 M	1 M	2 M	1:1,000	45 \$/SQKM Archive
					65 \$/SQKM Fresh
Worldview DEM	0.5 M	3 M	3 M	1:2000	35 \$/SQKM
Worldview Orthophoto	0.5 M	3 M	-	-	20 \$/SQKM

I.2 Processing cost of satellite images: The cost of processing (DEM & Orthophoto creation) is approximately Rs. 5000-7000/- per SQKM including measurement of GCPs and may decrease as the area of interest increases.

I.3 Cost of producing DEM : The overall cost for production of DEM through drone photogrammetry in a single swath (100-200 m) including the cost of measurement of GCPs will be Rs. 25000/- per KM. Similar cost for drone LiDAR DEM for a single swath (100-200 m) including the cost of measurement of GCPs will be Rs. 40000/- per KM. The cost of terrestrial LiDAR through locomotives/last vehicles will be Rs. 25000/- per KM for single run. The cost of aerial LIDAR in which data is captured through helicopters for large area of interest in highly rugged terrains is in the range of Rs. 50000-60000/- per SQKM.

I.4 Hardware cost: When we look at the overall cost of LiDAR and photogrammetry surveys, there are multiple cost items which need to be

considered. First of all the hardware, UAV LiDAR sensor sets (scanner, IMU, and GNSS) cost between Rs.36 lakhs to 2.16 Cr. For most use cases the high-end devices are preferable. To prevent from damage, most users spend additional Rs.18 lakhs to Rs.36 lakhs for the appropriate UAV platform. It all adds up to minimum Rs.50-60 lakhs for a single surveying set which is equivalent to 5x Tesla Model.

For photogrammetry, all needed is a satellite based high resolution image or high-resolution camera-equipped drone, and these tend to be much cheaper. In the Rs.2.00 to 5.00 lakhs range, a wide selection of professional multirotor devices such as DJI Inspire can be purchased. For the price level of Rs. 7.00 lakhs to Rs. 18.00 lakhs, one can buy RTK/PPK enabled sets such as DJI Matrice 600 or fixed-wing devices SensflyeBee and PrecisionHawk Lancaster.

I.5 Software cost: Another cost item is processing software. In case of LiDAR, it is typically added for free by a sensor manufacturer. However, post-processing, e.g. point cloud classification, one might require using 3rd party software, such as TerraScan that cost Rs 15 lakhs to 24 lakhs for a single license. On the other hand, photogrammetry software prices are closer to the level of Rs.2000/- to Rs.4000/- a month per license.

I.6 Labour and time cost: Besides this, another important factor that influences the cost of the service is labor and time. Here, LiDAR has a significant advantage over photogrammetry, as it not only requires significantly less time to process the data but also to set up and mark GCPs.

Overall, depending on the use case, photogrammetry services are typically cheaper than LiDAR simply because the investment in the hardware is very less.

[J] COMPARISON OF VARIOUS SURVEY TECHNOLOGIES

All the survey methods described above has their own positive and negatives in terms of their uses. Therefore, the choice of technology for conducting survey depends upon requirements, time and cost. The various survey techniques, both conventional and modern techniques, have been evaluated and compared in terms of cost, time requirement and output. The table mentioned below shows comparative description of all three techniques as discussed in earlier sections.

Detail Matrix of Comparison

S N	Parameter	Conventional Surveying	Satellite Imagery	Drone Photogrammetry	LiDAR
1	Equipment/ Software Requirement	DGPS, Total Station, Auto level, AutoCAD 2D Software	DGPS, Total Station, Auto level, Photogrammetry Software, 3D Computers	DGPS, Total Station, Auto level, drone camera, Photogrammetry Software, 3D Computers	DGPS, Total Station, Auto level, Drone/terrestrial/aerial LiDAR equipment, LiDAR Cloud data Processing Software
2	Input Requirement	Topographical sheets, Survey Corridor or Alignment, SOI Bench Marks	Satellite Images, SOI Bench Marks, DGPS Control Points	Area of Interest and Drone Images, SOI Bench Marks, DGPS Control Points	Area of Interest, DGPS Control Points and Cloud data of LiDAR
3	Time taken	High	Moderate/high	Moderate	Fast
4	Accuracy	Human error	Moderate	High	Higher
5	Estimated Cost	Cost Range from Rs.8000 to 15000 per sq. km and depends upon the density of points and type of equipment being used. The main cost is (additional) for the manpower working on the data for longer duration.	Cost Range is Rs 5000-7000/sq. km for moderate quality DEM & orthophotos and Rs. 10000-12000/sq. km for high quality DEM & orthophotos. This includes measurement of GCPs and procurement of satellite imagery.	Cost Range from Rs.30000 to 40000 per Sq. km and Rs. 25000/ KM for single swath including drone image and GCP.	Cost Range from Rs. 50000-60000 per Sq. km for large areas and Rs. 35000-45000/ KM for single swath. This includes Data acquisition by Aerial fly, GCP (min. 50 to 100 sq. km. for viability) and Local geoid correction.

* Depending upon necessary clearances and flying schedule done on time else it takes more time.

[K] DESIGN OF ALIGNMENT, PREPARATION OF ESTIMATE, MAPS AND DRAWINGS USING MODERN SURVEYING TECHNIQUES

Design of alignment is most important output of all survey procedures. All the efforts made for preparation of good quality DEM will be finally used in alignment software for design of alignment. A suitable alignment can be defined as *"A most preferable route between two obligatory points considering all the terms of reference"*.

The shortest path between two points is the direct straight connection; but due to topographical, strategic, commercial and geological constraints, alignment deviation is done with the help of introduction of curves.

K.1 Some Factors in choosing a suitable alignment:

- The first step while designing the alignment is the marking of all the obligatory points (locations which are mandatory to connect) on the Google earth or Orthophotos. The minimum distance requirement between two obligatory points (stations) is calculated based on their elevation difference & ruling gradient on the section. If the Crow fly distance between two stations is more than the calculated distance based on gradient requirement, then crow fly distance will be the designed section length.
- On the basis of varying terrain, it can be divided into number of sections if needed.
- The obstructions in the form of natural & manmade features are avoided by introduction of permissible curves.
- Station location is one of the important parameters in the alignment design. Location should link maximum nearby villages.
- Sharp curve at the entry/exit or within the station should be avoided.
- Station site should be on the flat ground as far as possible.
- Minimum three alignments should be studied at reconnaissance/ preliminary stage before the finalization of route based on the technical parameters such as Gradient, Degree of Curve, block section length etc. provided by the Railway Administration with terms of reference.
- Other aspects to keep in mind while design of alignments are the following:
 - Minimum Cut and Fill
 - Tunnel Length (in case of Hilly Terrain)
 - Open Area
 - Bridge Length and Height
 - Safety and Comfort
 - Environmental Impact
 - Geological Constraints
 - Accessibility for ease of construction

K.2 Selection of Best suited alignment: A detailed techno-commercial (multi-criteria analysis) analysis is done to select the most technically feasible and economically viable alignment from among the alternatives. A weightage is

decided for all the factors which are taken into consideration and rating is given to each factor for every alignment. A combined score is calculated for all the alternatives and the best alternative is finalized. The main factors which are taken into consideration are the following:

- Cost Consideration
- Ease of Construction Consideration
- Serviceability Consideration
- Geological Consideration
- Environmental and Social Impact Consideration
- Design of alignment using software

K.3 PROCESS OF ALIGNMENT DESIGN:

K.3.1 Various designing softwares such as Autocad Civil 3D, Bentely rail track, Quantum etc. are used these days for alignment design. Foremost requirement for designing an alignment is Digital Elevation Model. *More precise is the DEM, highly accurate will be the alignment design & so the cost estimate.*

K.3.2 At very first tentative alignments are marked based on the technical parameters & obligatory points in software with the superimposed orthophoto in background or the Google earth (in case if orthophoto is not available) for the better understanding/visualization of the topography. Horizontal geometry is decided by proving inputs like degree of curve, transition lengths, curve type with inbuilt tools. Topographical data as well as administrative boundaries are also essential for alignment design as well as to generate various output maps.

In conventional survey, topographical sheets were traced manually to obtain contours and topographical features such as road, river, bridges, dams etc which used to be time consuming and cumbersome task. Subsequently some softwares, such as Autocad, came up with its digitizer tool which helped to trace the feature faster; but work still required substantial time and manpower.

In the modern digital world all these data are available in vector form and can be easily purchased from Survey of India. Open series maps are available on SOI portal which help to understand Topo sheet number with regard to the Area of interest of project. Each topo sheet covers an area of 700 Sqkm. in scale of 1:50000. Typical Pricing per sheet is shown below:

Type of sheet	Cost per sheet in Rs
Topographical map	
Single layer	6300
2 layers	10350
3 to 5 layers	14500
Whole sheet	20700
Administrative Boundary (Per state)	
only District Boundaries	4550
District boundaries upto Taluk level	9250
Village boundaries	22500

K.3.3 Availability of the digital data eliminated the laborious task of tracing or digitizing features manually. These features are used in the various maps designed in the alignment study such as General map, Index plan, Detailed plan, ESP. All the available digital features such as Road network, drainage network containing Rivers, nallahs, canal, bridges, culverts, administrative boundaries, and forest boundaries can be used easily in the background of any alignment for any map preparation.

Thematic digital maps produced through remote sensing studies such as lineament maps, drainages network maps, Geohazard maps, Quaternary deposit and also georeferenced GSI maps can be opened in background easily and necessary refinement can be made for the safe structure planning. Using all the maps most viable and safe alignment can be designed

K.3.4 After generating the longitudinal section, vertical geometry of the alignment is designed such as Gradient, vertical curves etc. Wherever necessary the alignment can be improved to minimize or to balance cut fill only just by shifting or by curve introduction in the alignment and respective changes can be seen immediately in the section. Tunnel and bridge lengths can be altered easily. This way most economical alignment is produced. Chainage, Formation as well as ground levels, cut fill, horizontal & vertical geometry can be shown in the bottom of profile view with the help of tools at any interval required. Cross sections may also be generated quickly at any interval.

K.3.5 Yard plan can also be prepared using different turnout options available within the software. Placing of rails, sleepers, platform can also be shown in software.

K.3.6 Output maps such as General maps, Index map Index plan and section and detailed plan& section of the required scale can be generated in the

software very easily. *Any modification in the drawing in later stage will reflect itself in the maps hence repetitive work of manually modifying the maps in the old times is saved.*

K.3.7 Various list such as Curve, gradient, structures can be extracted from the software and also earthwork can be calculated quickly after deciding the permanent way profile. As most of the data can be directly extracted from software using DEM, the time for the preparation of cost estimate and report gets minimized.

K.3.8 3D visualization of the alignment can be generated within the software for better understanding of route.

K.3.9 With using modern technologies, all the data becomes digitally available and we can reach very precise location even by using our smartphone or GPS device. This saves time as well money to put pegs along the alignment for locating it as being done in conventional survey.

[L] INTERNATIONAL BEST PRACTICES:

Drone photogrammetry, LiDAR and satellite imagery are the latest techniques being used around the world for surveying. The use of technology is totally dependent upon the criticality and extent of survey. Readymade DEM available with many satellite imagery providers are also used these days for the accuracy requirement of up to 3 m. LiDAR and Drone Photogrammetry used based on the characteristics of terrain. RTX method (Advance PPP technology) instead of conventional DGPS is also used for measuring (X, Y & Z coordinates) of ground control points with very fine accuracy (<5cm) in America and Europe, which is yet not possible with such fine accuracy in Asian Countries.

[M] CONCLUSIONS

M.1 Comparing Conventional & Modern Surveying techniques :When comparing Conventional method of surveying with equipments (like total station) and modern aerial technologies (like LiDAR and photogrammetry), it must be understood that all these technologies have their applications as well as limitations, and in the majority of use cases, these are complementary. None of these technologies is better than the other and none of them will cover all the use cases. The comparison between all these technologies is already discussed in above table in **[J]** above.

As can be seen that in conventional method, the best advantage is to pick the topographical and other project related features physically, seen by the human eye while its main disadvantage is that it takes longer time in collection of data and then it's processing.

On the other hand, the modern technologies involve very less physical presence and therefore very fast in data acquisition and processing with very high accuracy. Hence it is quite useful for long stretch survey. However, even modern surveying techniques are also dependent on methods like DGPS, Total Station, Levelling, EGM etc., as ground control points will have to be set up manually. And accuracy of aerial technologies will also depend upon the accuracy of GCPs.

M.2 Comparing within Modern Surveying Techniques - Satellite imagery, Drone photogrammetry and LiDAR:

The main advantages of Satellite imagery is acquisition of data for large area of interest in one go at very reasonable rates and provides 3D elevation models & orthophotos.

Drone Photogrammetry has benefits in its accuracy and cost effectiveness, gives 3D and 2D coloured model while its main disadvantage is that it takes comparatively longer time for data acquisition and processing than LiDAR. It is also difficult to obtain bare earth model in dense forest areas through photogrammetric techniques.

On the other hand LiDAR gives point cloud data which is excellent for accuracy but does not provide colored 3D model for visualization and comparison. It is also a costlier survey due to high cost of equipment.

M.3 Other Conclusions:

- RET surveys can be done by using free CartoDEM available on NRSC website along with georeferenced SOI topsheets. However, for preliminary survey like PET survey of railway line where some details of ground are required, digitalized SOI topsheets and moderate resolution Cartosat-2 satellite image DEM and referred to at low cost as it will save both time and money.
- For FLS of Railway alignment, high accuracy level is required. For this, use of high resolution (0.5/0.3m resolution) multiband satellite images, which can give highly accurate DEM, are needed along with accurate ground survey work like precise measurement of GCPs and DGPS, double tertiary levelling etc.

- All the three modern technologies i.e. Satellite imagery, drone photogrammetry and LiDAR can be adopted for FLS of railway line depending upon the size & area of interest, terrain type, NL/DL/GC projects etc. Work may be done by using satellite imagery in large and tough terrain in hilly regions, supplemented by drone photogrammetry/LiDAR if felt necessary for new lines. Some problems faced in conducting flights for LiDAR or drone photogrammetry in hilly terrain are inaccessibility, weather as well as various clearances required for drone flights. Hence, to obviate these problems, many a times it is considered preferable to purchase and process high-resolution satellite images instead.
- If the terrain is plain/rolling then for FLS, work can be done based on drone photogrammetry with very high accuracy with no need for satellite imagery. LiDAR survey being an expensive technology, can also be dispensed with in such a terrain.
- But if the terrain is difficult, hilly and with dense vegetation, LiDAR survey is much faster and can replace both satellite & drone photogrammetry.
- The use of terrestrial LiDAR on locomotives/last vehicle is the best option for FLS studies on doubling projects.

[N] RECOMMENDATIONS:

The purpose of survey is to accumulate the required basic data from the field and its processing. Modern survey techniques have an edge over conventional methods in terms of accuracy and time. The objective of all the surveys is to create DEM for better project planning and all these survey methods have their own merits and demerits. Hence the choice of survey technologies can be made based on techno-economic suitability for the specific project.

Some brief idea based on study and experience are summarized in Annexure I, II & III for Reconnaissance Survey, Preliminary Survey & Final Location Survey respectively. However, these are meant for general guidance only.

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Reconnaissance Survey

Type of Survey	Terrain	Satellite Imagery			Drone Photogrammetry	LiDAR
		Specification	Cost ₹	Time		
New Line	Plain/ rolling	CartoDEM	6290/ 14 km X 14 km grid	Instantly	These are not recommended at this stage due to its high cost and redundant accuracy which is not required at this stage.	
	Hilly/ Mountainous	CartoDEM	6290/ 14 km X 14 km grid	Instantly		
Gauge conversion	Plain/ rolling	CartoDEM	6290/ 14 km X 14 km grid	Instantly		
	Hilly/ Mountainous	CartoDEM	6290/ 14 km X 14 km grid	Instantly		
Doubling	Plain/ rolling	CartoDEM	6290/ 14 km X 14 km grid	Instantly		
	Hilly/ Mountainous	CartoDEM	6290/ 14 km X 14 km grid	Instantly		

The additional costs to be incurred while adopting modern technology in reconnaissance survey will be for design of alignment and drawing/map preparation on alignment software, preparation of report, limited site reconnaissance and making cost estimate after extracting BOQ from software. Digital drawings available for reserved forests, state/district/village boundaries, road map, water bodies etc. will be used in the background of designed alignment to furnish desired maps in no time. Using software will considerably reduce the time and manpower required for preparation of final report. Engineer may decide to adopt modern surveying for RET survey based on availability of software and expertise.

ANNEXURE-II**Preliminary Survey**

Type of Survey	Terrain	Satellite Imagery			Drone Photogrammetry			LiDAR		
		Specification	Cost ₹	Time	Specification	Cost ₹	Time			
New Line	Plain/rolling	1 M cartosat imagery DEM	5000 – 7000/ SQKM	1-3 months depending upon total area.	Drone photogrammetry is not recommended at this stage in plain terrain due to its high cost and redundant accuracy which is not required at this stage.			LiDAR survey is not recommended at this stage in due to its high cost and redundant accuracy which is not required at this stage.		
	Hilly/Mountainous	1 M cartosat imagery DEM	5000 – 7000/ SQKM	1-3 months depending upon total area.	Drone photogrammetry (5-10 cm) can be done at important locations like bridge, tunnel portals and stations where high accuracy will be beneficial. The cost will be approx. ₹ 30000-40000 / SQKM.					
Gauge conversion	Plain/rolling	1 M cartosat imagery DEM	5000 – 7000/ SQKM	1-3 months depending upon total area.	Drone photogrammetry (5-10 cm) can be done at junctions and important locations like bridge, tunnel portals and stations where high accuracy will be beneficial. The cost will be approx. ₹ 30000-40000 / SQKM.					
	Hilly/Mountainous	1 M cartosat imagery DEM								
Doubling	Plain/rolling	1 M cartosat imagery DEM	5000 – 7000/ SQKM	1-3 months depending upon total area.	Drone photogrammetry (1-5 cm) can be done in doubling projects in single swath (100 m width). The cost will be ₹ 25000/ Km which is little on a higher side for preliminary survey.	₹ 25000 / Km	1–2 months	Terrestrial LiDAR (1-5 cm DEM) is one of the best techniques for doubling projects. The cost and time will be similar/less to drone photogrammetry		
	Hilly/Mountainous	1 M cartosat imagery DEM	5000 – 7000/ SQKM	1-3 months depending upon total area.						

The additional costs to be incurred while adopting modern technology in preliminary survey will be for design of alignment and drawing/map preparation on alignment software, preparation of report, site visit and making cost estimate after extracting BOQ from software. Traversing with total station along alignment & rivers, taking levels, plain table surveying, installing pegs etc. can be totally avoided using modern technologies. With the digital drawings of alignment and GPS, we can reach the exact location on ground whenever we want. Digital drawings available for geology (GSI maps), reserved forests, state/district/village boundaries, road map, water bodies etc. will be used in the background of designed alignment to furnish desired maps in no time. These days' digital and scanned toposheets are also available from SOI and they can also be put in the background of designed alignment for better visualization of data. All these technologies, if adopted will save huge time and manpower (if not cost) required for preparation of final report.

Final Location Survey

Type of Survey	Terrain	Satellite Imagery			Drone Photogrammetry			LiDAR		
		Specificat ion	Cost ₹	Tim e	Specification	Cost ₹	Time	Specification	Cost ₹	Time
New Line	Plain/ rolling	30/40 cm high resolution 4/8 band imagery DEM, orthophoto & thematic maps	10000 to 12000 per SQKM for DEM & Ortho photo	2-6 mon ths	Drone photogrammetry (1-5 cm) can be adopted for new lines if width of corridor to be studied is low and area has less vegetation.	30000 to 40000 per SQKM or 25000 /swath /km	1-2 SQKM/ day and preparat ion of DEM may take 1 month	Aerial LiDAR (1-5 cm) can be adopted for new lines if width of corridor to be studied is low and area has dense vegetation.	50000 to 60000 per SQKM or 35000 /swath /km	1-2 SQKM/ day with drone & 50-100 SQKM/day with helicopter and preparation of DEM may take 2-3 weeks.
	Hilly/ Mountainous									
Gauge conversio n	Plain/ rolling									
	Hilly/ Mountainous									
Doubling	Plain/ rolling									
	Hilly/ Mountainous									

The additional costs to be incurred while adopting modern technology in final location survey will be for design of alignment, drawing/map preparation, extracting plan & L-sections on alignment software, hydrological studies with the help of prepared DEM, thematic map preparation from satellite/drone images, preparation of report, site visit and making cost estimate after extracting BOQ from software, geotechnical/geophysical studies. Traversing with total station along alignment & rivers, taking levels, plain table surveying, installing pegs etc. can be totally avoided using modern technologies. Requirement of permanent benchmarks can be reduced significantly. Yard plan/sections can be easily prepared in modern software's. With the digital drawings of alignment and GPS we can reach the exact location on ground whenever we want. Digital drawings available for geology (GSI maps), reserved forests, state/district/village boundaries, road map, water bodies etc. will be used in the background of designed alignment to furnish desired maps in no time. These days' digital and scanned toposheets are also available from SOI and they can also be put in the background of designed alignment for better visualization of data. All these modern technologies if adopted will save huge time and manpower (if not cost) required for preparation of final report and quality of output will be much better than using conventional technologies.

Sanjay Khare
Sr. Prof (works)
IRICEN,Pune

S.K.Jha
CAO/C-II/NR

H.S.Yadav
CAO/C-I/NFR

भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड RAILWAY BOARD)

No. 2015/W-1/Genl./Corr. GM/Part 2

New Delhi, dated. 07.10.2020

The Chief Administrative Officer (Con.),
All Indian Railways.

Sub: Carrying out FLS and submission of DPRs by Zonal Railways.

Ref: (i) Rly. Board's Letter No. 2015/W-1/Genl/CorrGM dt 23.03.2015 & 30.03.2015
(ii) Rly. Board's Letter No. 2015/W-1/Genl/CorrGM/Pt-III dated 06.08.2015
(iii) Rly. Board's Letter No. 2015/W-1/Genl/CorrGM Pt. dated 29.09.2015

Detailed instructions regarding preparation of DPRs/Detailed Estimates have been issued vide Railway Board's letters under reference. However, during examination of various DPRs submitted by zonal railways in past, many deficiencies have been noticed. Many or some of the activities of FLS are omitted before preparation of DPRs. Moreover, projects sanctioned on the basis of these DPRs are resulting in cost-overrun (cost increase due to other than escalation) at a later stage.

It is re-iterated in this regard that activities of Final Location Survey (FLS) are very well defined in Engineering Code vide para E-420 to E-474. Similarly, guidelines for preparation of Detailed Project Report including Detailed Estimate are given in detail in Para E-502 to E-554. All provisions of Engineering Code in respect of Final Location Surveys and Detailed Project Reports should be strictly followed before submission of DPRs to Railway Board.

In addition to above, many other repetitive shortcomings/discrepancies and deficiencies have been commonly observed in various DPRs submitted by zonal railway. Many of the existing instructions are not followed especially in respect of land requirement, track centres, provision of ROB/RUBs, various service buildings including S&T buildings, amenities at stations etc. This results in delays in sanction of projects. A list of such commonly observed deficiencies is annexed herewith for guidance in preparation of DPRs.

It is, therefore, once again re-iterated that utmost care should be taken in carrying out FLS, execution planning of the works and preparation of cost estimates to ensure all relevant Codal provisions and other instructions and DPRs are submitted with due care. It should be noted that responsibility will be fixed on DPR preparing officer, if it results in significant variation at a later stage.

This has the approval of Additional Member/Works, Railway Board.


(B.K. Gupta)
Executive Director/Proj. M
Railway Board
Tele/Fax: 011-23388236
& Rly. 44325

Points to be taken care off for preparation of DPRs and cost estimation of the projects

Annexure to letter no. No. 2015/W-1/Genl./Corr. GM/Part 2 dated 07.10.2020

The following shortcomings & discrepancies, commonly observed in various DPRs submitted by zonal railways are being advised to take care and avoid in all future DPRs. The list is not exhaustive and all relevant instructions on various aspects should be followed.

Civil Engineering:

- Land required should be reviewed for reduction as per Board's letter No. 2018/W-I/Genl/Land Acquisition/Pt I dated 13.06.2019.
- Land requirement should be based on existing land boundary plus requirement as per L-section. Plan clearly showing existing boundary, proposed track and land required as per bank height and Table showing these distances should be submitted accordingly along with calculation of quantity of land requirement arrived at. Other aspects such as land requirement in yards and at bridges should also be explored for reducing land acquisition.
- In calculation of land cost, Rates should be taken village wise and relevant multiplying factor as per location of land should be taken. Solatium and other charges should be taken as per rules of respective State govt. clearly linking the rules.
- Bifurcation of length, total cost, area of land required and land cost should be given for Different States.
- Blanket thickness should be as per latest RDSO guidelines. Earthwork quantity should be assessed carefully.
- In case of doublings, T/C should be kept minimum as per SOD i.e. 5.3 m. only.
- Wherever, C/C distance has been taken more at bridge locations due to existing bridges foundation, wing wall etc., at such locations, piers should be explored with pile foundation to reduce the size of foundation in order to avoid infringement with existing bridge foundation. If wing wall is required to be broken at high bank location then sheet piling may be considered to avoid speed restriction in existing line instead of going for higher track centre.
- Efforts should be made to design the yard in such a way so that it gets adjusted in existing land by reducing the CSR of yard lines from 786 m to bare minimum i.e. 735 m or so.
- Approval of yard layouts should be done at initial stage. Guidelines issued by Railway Board for standard layouts shall be followed. All loops are planned as common loop at most of the stations which is not desirable. Only one loop at a station should be taken as common loop. Directional loop should be provided with over run only on one side. Other operational facilities should also be bare minimum. Number of emergency crossovers should be kept as minimum. This will reduce the requirement of platforms, FOB etc. It will reduce the cost of S&T works and other costs also. Generally, FOB cost should be for extension only, wherever required.
- S&T buildings area should be taken as per extant instructions of Board.
- Length of H/L platforms should be as per Board's letter No. 2013/W-I/Genl/O/30 Pt-II dated 25.02.2020.
- Bare minimum facilities should be considered at stations.
- Washable aprons should not be taken.
- Other service buildings should be reduced to bare minimum.
- Quarters should be taken as bare minimum. Replacement of quarters should not be planned in doubling works.
- ROBs/RUBs for replacement of LCs should not be charged to Doubling works and LC should be extended. Only extension part may be considered if ROB/RUB is already sanctioned separately or existing at site.
- Unnecessary Boundary walls and retaining walls should not be considered in Estimate.
- Third line should be planned as bi-directional and not the middle line resulting in unnecessary increase in cost.

Engineering:

- Maintenance cost being taken in the estimate @10% should not be considered.
- Phasing of the work should be defined in DPR. S&T alteration cost can be optimised if phasing of the work is defined in advance.
- In station area, cable duct should be used for cable laying. At platform area, concrete duct should be planned during construction of the platform.

Elect Engineering (Genl. & TRD):

- Escalators, lifts and solar power system etc. should not be taken in doubling estimates.
- Tower wagon should not be included.
- SP/SSP and OHE depot should be planned as bare minimum only.
- In case of doublings, where single line is already electrified, double line should not be planned normally on the side of existing masts.

General:

- Separate provision should be kept for utility shifting and infringement removal works.
- D&G charges should be taken as per latest guidelines of Railway Board vide letter No. 2018/E&R/3(2)/1 dated 04.03.2020 with 10% efficiency cut. Environmental and Sports charges should not be considered in projects funded by EBR (IF) such as Doubling Plan Head projects. Security charges should be removed from all estimates as per letter No. 2019/E&R/3(2)/1 dated 18.05.2020.
- D&G charges should not be taken on Preliminary Expenses and Land cost.

Traffic:

- Traffic projections/savings due to avoidance of detention should be done carefully and clearly summarized in a table.

Economics:

- ROR calculation along with cash flow etc based on Gross Project Cost should be done carefully for correct financial appraisal of the project.

भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड RAILWAY BOARD)

No. 98/W-I/Genl./O/30 Pt.

New Delhi, dtd. 14.09.2020

The General Managers,
All Indian Railways.

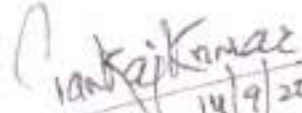
Sub: Maintenance of newly commissioned New Line/Doubling/Gauge conversion sections.

Ref: (i) Rly. Board's Letter No. 2003/W-II/DL/O/1 dated 10.04.2003
(ii) Rly. Board's Letter No. 2005/W-I/Genl./H. over dated 20.12.2005
(iii) Rly. Board's Letter No. 98/W-I/Genl./O30-Pt. dated 01.11.2011

References have been received in Railway Board regarding charging of cost of maintenance of newly opened sections to Project Estimate and allotment of additional funds under Revenue for the same.

The matter has been deliberated in Board's office. As per Engineering Code and Indian Railway Finance Code, maintenance of the sections which are opened to the traffic has to be charged to Revenue under SMH02 (Repair and maintenance of permanent way and works). Funds are allotted on the basis of projections made by Principal Finance Advisors (PFAs) concerned at respective budget stages. Therefore, PFAs may be kept advised to project additional requirement of funds for sections newly opened/being opened.

This is issued with the concurrence of Finance Directorate of Railway Board and approval of Additional Member (Works)..


(Pankaj Kumar)
14/9/2020
Director/Proj. Monitoring
Railway Board

O/C

07/9/2020

भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड RAILWAY BOARD)

No. 2013/W-I/Genl/O/30/Pt-II

New Delhi, dated. 11.05.2020

**The Chief Administrative Officer (Con.),
All Indian Railways.**

**The CMD/MD,
IRCON, RVNL, RITES.**

Sub: Preparation of estimates and Excess Expenditure incurred by Railway over and above sanctioned detailed estimates during the course of execution of projects.

**Ref: (i) Railway Board's letter No. 98/W-I/Genl/O/30 Pt. dtd. 25.07.2008.
(ii) Rly. Board's letter No. 2013/W-I/Genl/O/30 Pt.II dtd. 15.12.2014.
(iii) Rly. Board's letter No. 90/W-2/NL/E/5/Vol. II/Pt dtd. 27.01.2015.
(iv) Rly. Board's letter No. 2019/W-I/Genl/Land-LC dtd. 10.06.2019.
(v) Rly. Board's letter No. 2013/W-I/Genl/O/30/Pt.II dtd. 25.02.2020.**

Consolidated instructions regarding preparation of Detailed Estimates/Revised Estimates have been issued vide Railway Board letter mentioned at ref. (i) above.

Further, cases have come to notice of Board, wherein Railway have incurred expenditure much beyond the sanctioned amount and submitted Revised Estimate (RE) for post facto sanction of Board. Such situations have invariably arisen as a result of non-submission of RE in due time. Instructions were issued vide Railway Board letter at ref. (ii) above, that Revised Estimates should be submitted in time and no contractual liabilities should however be entered into unless revised estimate is sanctioned by Competent Authority.

Further, instructions were issued vide Railway Board letter mentioned at reference (iii) above, that all works may be executed as per scope of work sanctioned at the stage of detailed estimate. All deviations beyond GM's power may be submitted to Railway Board and sanction obtained before the work is executed.

However, it is seen that these instructions are not being followed by Railways, resulting in uncontrolled excess in the estimates over the sanctioned quantities. Some of the common reasons of excess are:

- (i) In New Line, Gauge Conversion Projects, embankment height have been raised to accommodate LHS/RUB. This has resulted in large variation in cost of land acquisition as well as earthwork. Instructions have been issued vide Railway Board letter dt. 10.06.2019 (reference (iv) above) and Level Xings have been permitted on projects where ROR of the project is less than 10. Instructions were issued that all the ongoing new line projects should be reviewed in light of above instructions.
- (ii) Track centre is being kept more than prescribed as per instructions from Railway Board. This has resulted in extra acquisition of land and extra earthwork. On scrutiny in many projects it has been found that track centre prescribed by Railway Board was feasible at site.

- (iii) In doubling projects ROB's have been charged to doubling project. Instructions for sanction of ROB are clear on TVU basis with cost sharing with state governments.
- (iv) Non standard spans are being used in bridges and ROB where it is possible to use standard RDSO spans resulting in extra expenditure.
- (v) In New Line, Gauge Conversion, Doubling projects instances have been noticed where passenger amenities such as High Level platforms have been provided in much excess quantity of what has been provided in detailed estimate. Issue has been reviewed in Railway Board and instructions have been issued vide Railway Board letter dtd. 25.02.2020 (reference (v) above), wherein it has been clarified that length of high level platform will be restricted to longest plying/proposed train in the section.
- (vi) In one of the doubling project of Zonal Railway, in a project of 29 Km doubling, loop lines of more than required have been made. Even the ROR of the project is negative indicating the traffic in the section.
- (vii) Quarters which are due for replacement are being charged to Gauge Conversion and Doubling projects. Quarters justified on account of project only can be charged to the project.
- (viii) Station Buildings and other passenger amenities are being charged in extravagant manner without sanction of detailed estimate and in much more quantity than to be provided as per extent instructions.

It should be appreciated that availability of funds is limited. Funds under EBR (IF) also have been tied up with loans on which interest is to be paid by Ministry of Railways. Therefore, tendency to provide facilities in extravagant and lavish manner has to be severely curbed. Any change in detailed estimate should be summarily rejected, unless extenuating circumstances are established for inclusion of revised facilities/higher standards at a later stage.

It is therefore desired that content of letter should be followed in true spirit and CAO(C) of Zonal Railways should take acknowledgement of this instruction from all CEs/Dy CEs and confirmation should be sent to Railway Board within 15 days. Similarly CMDs of PSUs should take acknowledgement from respective in-charge officers. Any violation of the instructions can lead to action against the officer responsible.

This has the approval of Board (ME).


 15/5/20
 (B.K. Gupta)
 Executive Director/Proj. M
 Railway Board
 Tele/Fax: 011-23388236
 & Rly. 44325

भारत सरकार/GOVERNMENT OF INDIA
रेल मंत्रालय/MINISTRY OF RAILWAYS
(रेलवे बोर्ड)(RAILWAY BOARD)

52-121

No. 2013/W-1/GenL/0/30/Pt-II

New Delhi, Dated 25.02.2020

The General Managers,
All Indian Railways.

Sub: Platform length at Railway Stations for new line, gauge conversion & doubling projects.

References have been received in Board regarding provision of high level platforms in New Line, Gauge Conversion & Doubling Projects.

The matter has been considered in Board's office and following has been approved by Board (ME, MT & CRB):-

- (i) For all New Line, Gauge Conversion projects, high level platforms should be restricted to the length of longest stoppage coaching train, proposed on that New Line/Gauge Converted Line and the remaining portion of the platform should be at rail level to accommodate a 26 coach train.
- (ii) For all doubling, 3rd and 4th line projects, high level platforms should be restricted to the length of the longest stopping coaching train at that station and the remaining portion of the platform should be at rail level to accommodate a 26 coach train.
- (iii) All loop lines should be of full length of required CSR and the rail level platform provided for 26 coach length should have the required technical clearance for upgradation to high level as and when required.

Zonal Railways should take necessary action accordingly.



25/2/20
(B. K. Gupta)

Executive Director (Proj.M.)
Railway Board



0/4

SN-120

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

No.2019/W-1/Genl./land-LC

New Delhi, dt. 10.06.2019

General Manager,
All Indian Railways.

- Sub:- Level Crossing on new line projects
Ref:- 1) Board's letter No. 2006/CE-IV/LX/WP/1 dt. 09.01.2012
2) Board's letter No. 2013/W-1/Genl./O/30 pt-II dt. 18-06.2013 &
3) Board's letter No. 2013/W-1/Genl./O/30Pt-II dt. 11.09.2015.

It has been noted that as a consequence of Railway Board's policy to have no level crossings on new line projects, the bank height has gone up leading to increase in land acquisition earth work having considerable financial implication. Many new line projects unremunerative to begin with, have become unaffordably expensive, as land cost itself constitutes 30 to 50% of the project cost.

With objective of keeping the project cost to the minimum, Board (ME,MT,FC and CRB) it has been decided that :

For all new line projects under execution/ sanction and under sanction on Socio-economic grounds with Rate of Return less than 10%, it is proposed to provide level crossings as interlocked LCs in the estimates instead of LHSs/RUBs to minimize the project cost by reducing land acquisition and formation cost. RUB/ROB can be provided to eliminate level crossings if the formation level permits its construction without raising or lowering the formation level specifically to accommodate them and with no extra land acquisition.

All new line projects where land has not been acquired should also be thus reviewed with immediate effect with overall objective of reducing the project cost


11/6/19
(B.K. Gupta)

Executive Director (Proj. Monitoring)

Government of India
Ministry of Railways
Railway Board

SN-119
Sno 45

No.90/W-2/NL/E/5/Vol.II Pt.

New Delhi, 27.01.2015

General Managers,
All Indian Railways.

Sub: Excess expenditure incurred by Railways over and above sanctioned detailed estimates during the course of execution of projects.

While examining the Revised Estimates for Railway projects (New Lines, Gauge Conversions and Doublings) submitted by Railways from time to time it has been observed that Railways have often incurred excess expenditure on scope of works not sanctioned at the stage of detailed estimates. This has been viewed very seriously by Board in view of present financial crunch being faced by Railways making it difficult for the Railways for making adequate allocations of funds for all the sanctioned projects on regular basis.

In view of above Railways are advised that henceforth all works may be executed only as per the scope of works sanctioned at the stage of detailed estimates. All deviations beyond GM's powers may be submitted to Railway Board and sanction obtained before the work is executed.

Railways may please ensure strict compliance in the matter in future.


(Anjum Pervez)

Executive Director/Proj. Mon.

Copy to/- 1) CAO/Construction, All Indian Railways.
2) MD/RVNL.

कार्यालय कॉपी

निर्देश शारदा कृपया पत्र को
शीघ्र जारी करने की
अवसरमा करें।




27.1.2015

SN-112

GOVERNMENT OF INDIA
MINISTRY OF RAILWAY
(RAILWAY BOARD)

No.2013/W-I/Genl./0/30 Pt.II

New Delhi, Dated: 15.12.2014

The General Managers,
All Indian Railways.
General Manager/Con./NFR

Sub:- Contractual Payment in case of excess over sanctioned estimates.

Cases have come to notice of Board wherein Railways have incurred expenditure much beyond the sanctioned amount and submitted Revised Estimate (RE) for post facto sanction of Board. Such situations have invariably arisen as a result of non-submission of RE in due time. Railway should therefore prepare and submit RE for sanction of Competent Authority well before the sanctioned amount is expected to be exceeded.

However, as per Para 1136 of Engineering code, payments in regard to contractual liabilities of existing contracts and payments in respect of salaries etc. cannot be stopped taking the plea that the expenditure has exceeded or likely to exceed the sanctioned amount. No further, contractual liabilities should however, be entered into unless the revised estimate is got sanctioned.

Railways are therefore, advised to adhere to provisions of Engineering Code in regard to submission and sanction of revised estimate.

This issues with the concurrence of Finance directorate of Railway Board.


(Anisur Rehman) 15/12/14
Director/Works-II
Railway Board.

Copy to: Chief Administrative Officers/Construction,
All Indian Railways.

Check list and certificates regarding rates

1. Rate of different items to be adopted in estimates should be last accepted rates of the items/Analysis of rate (If LAR is not available).

Certificates in this regard should be furnished.

2. In case of revised estimate it should be certified that the estimate is based on the accepted rates of already completed works/works in progress, and the prevailing rates during the year _____ for the works-in-progress.
3. Rates of sleeper/rail and other P-way fittings should be as per rates circulated by Railway Board or Open Line for the purpose of preparation of estimates.
4. The reason for increase due to escalation w.r.t. Abstract cost in case of Detailed Estimate and w.r.t. Abstract Estimate as well. The Detailed Estimate in case of Revised Estimate should be brought out.
5. Variation statement should be vetted by Associate Finance.
6. Revised Financial Internal Rate of Return for the increased cost has to be worked out and is enclosed (if this is not done, reasons for the same has to be furnished).

Annexure V

Consolidated Variation Statement duly vetted by Finance.

Annexure VI

Detailed explanatory note for increase in cost

Explanatory note for increase in cost due to new items and increase in quantities should be given. *The note should bring out the technical features leading to such variations covering following details :*

- a. In case of gauge conversion – Details and justification for diversion, if any.
- b. Minor and Major bridges – No. of bridges proposed for strengthening (in case of gauge conversion).
- c. Minor and Major bridges – No. of bridges proposed for rebuilding and the reason thereof (in case of gauge conversion).
- d. Detailed technical justification for change in gradient increase of cross-stations.
- e. Number of ROB/RUBs being rebuilt or raised.
- f. In respect of other plan heads also, the details of ROB/RUBs which have been proposed in lieu of level crossing should be given. It should be clearly brought out by the Railways whether the formation level has been raised specifically to accommodate RUB in lieu of level crossing or not. In case this has been done the cost implication thereof has to be indicated.
- g. Detailed technical justification for change in the type of foundation, change in span and change in type of superstructure of minor and major bridges should be specifically brought out.
- h. Detail technical reason for change in signaling standard should be given.
- i. Justification for change in formation levels.
- j. Similarly detailed technical justification for increase in the number and linear water-way for both major and minor bridges should be given.

Annexure VII

Views of Associate Finance and remarks thereon.

13. (i) Whether variations in quantities have been adequately scrutinized?
(ii) Whether detailed technical justification for the variations in the scope/for inclusion of new items have been given in the explanatory memorandum?
14. (i) Whether variation statements for each sub-estimate prepared and enclosed?
(ii) Whether a consolidated variation statement prepared and enclosed?
(iii) Whether the variation statements have been vetted by Associate Finance?
15. Whether M&P items and/or off-line facilities provided in the estimate are directly related to the work under consideration?
16. (i) Whether provision of various D&G and other Misc. charges have been restricted to the bare minimum?
(ii) Whether Establishment sheets for all departments have been prepared and enclosed with the estimate?
17. Whether the details of CRRM have been mentioned clearly in the estimate?
18. Whether the Detailed estimate has been prepared after receipt of Detailed Estimate for the approach portion from PWD/State Govt? (In case of ROB/RUB)
19. (i) Whether forestry clearance is required?
(ii) If yes, what is the status?
20. (i) Whether all Annexure have been signed by an SAG officer?
(ii) Whether the Top Sheet and variation statements have been signed by SAG officers from the Executive and Accounts Departments?

Statement showing the Standard & Basic facilities at various stages.

S.No.	Description	Facilities on existing MG section (for GC projects)& existing single line (for DL projects)	Facilities as per Survey Report/ Abstract Estimate	Facilities As per Detailed Estimate	Facilities sanctioned as MM or proposed to be sanctioned	Facilities as per Revised Estimate	Justification for change
1	Ruling Gradient						
2	Depth of Blanketing						
3	Rail section						
4	Sleeper density						
5	Ballast cushion						
6	No. of T/o						
	(a) 1 in 8/12						
	(i) 1 in 12						
7	Length of loop						
7a	No of loops						
8	Length of siding						
8a	No of siding						
9	L Xing						
10	ROB						
11	RUB						
12	No of minor Bridges						
12a	Total Linear waterway of Minor Bridges						
13	No of major Bridges						
13a	Total Linear waterway of Major bridges						
14	Type of Signalling						
15	Type of block working						
16	Control Communication						
	Any other type of						
17	communication facilities						
18	No. of halt stations						
19	No. of Xing stations						
20	Area of service bldg.						
21	No. of quarters						
22	Washing line (length)						
	Other mechanical						
23	facilities.						
24	Goods shed facilities						
25	Washing Apron						
26	Total area of P/F shelter						
27	No of P/F face						
	Total length of R/L						
28	Platform						
	Total length of M/L						
29	Platform						
	Total length of H/L-						
30	Platform						
	No of Bye-Pass/ y-						
31	connection						

Annexure to accompany the Estimates

- a. Top sheet as per form E 702
- b. Estimate as per for E553 & E554.
- c. Check list for estimates as Annexure-I
- d. Brief history, details of previous sanctions, latest status, detailed justification of work as Annexure-II.
- e. Chart showing the facilities proposed in the original estimates, approval in further estimates (stage-wise) and now proposed in the estimate. It should be possible to see what changes have been brought out at which stage. This can be shown in a tabular form bringing out facilities provided in the Revised/Detailed estimate under consideration vis-a-vis the facilities and provisions in the Abstract estimate or in the detailed/revised estimate sanctioned so far (as Annexure III). Clear justification for the change has to be spelt out in detail.
- f. Check list and certificate regarding rates adopted (to be prepared and furnished as per guidelines in Annexure IV).
- g. Consolidated comparative statement showing the variation in cost w.r.t. the Abstract cost in case of Detailed Estimate, and variation w.r.t. Abstract cost as well as Detailed Estimate in case of Revised Estimate, clearly bringing out the variation due to escalation, variation due to change in quantities and variation due to new items should accompany the estimate. The reasons for variations should be given in brief in the statement (as Annexure-V).
- h. Technical explanatory note for increase in cost due to new items and increase in quantities should be given. The note should bring out the technical features leading to variations, for example, increase in the formation level, change in the span and type of bridge, change of signaling std. etc., (as Annexure VI).
- i. Views of Associate finance and remarks thereon (as Annexure-VII).
- j. Above Annexure should be signed by an officer not below the rank of SA. Top sheet and comparative statement should also be signed by an officer not below the rank of SAG from the Executive and Accounts Departments.

Annexure II

Brief history, details of previous sanctions, latest status of work and detailed justification of work

1. Work originally approved in Railway Budget.

- i) Year
- ii) Anticipated cost : (Gross)
(Net)
- iii) GMT (as per survey report):
- iv) No. of trains each way
(as per survey report)

3. Details of all previous sanctioned Estimates.

- i) Sanctioning Authority
- ii) Letter No.
- iii) Cost : (Gross)
(Net)

Total of sanctioned cost:

4. Estimate under consideration :

- i) Submitted on
- ii) Cost : (Gross)
(Net)

5. Present status of work (for works in progress)

Physical progress upto () () %

Month

Expenditure upto

(19)

(Rs.)

March

Outlay for the year

(10)

(Rs.)

Financial Year

Balance to complete

Target date for completion

Brief Description of work completed.

6. Important features of the project

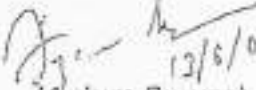
7. Detailed Justification of Work.

To enable expeditious processing of estimates for sanction in Boards office complete information as per Annexure I to VII (Copy enclosed) should invariably accompany the Estimate.

Estimates submitted to Board without the above mentioned Annexure will not be entertained.

Detailed Estimates, Revised Estimates, Material Modification proposals which are to be sanctioned by Board /MSR/MR should be personally vetted by FA&CAO/FA&CAO/C. All such estimates should have the personal approval of the General Manager of the Railway/Production Unit.

DA-As above


12/6/0
(Anjum Parvez)
Director Works-II
Railway Board

Copy to CAO/Cs all Indian Railways

Checklist for Estimates (Remarks against each should be given wherever required) Annexure-I

1. Whether the Final Location Survey has been completed (Indicate the agency which has done the FLS and the salient features of the project) ?
2. Whether the L-section has been critically scrutinized and approved?
3. (i) Whether Free Board from HFLs and the clearances required for bridges have been taken into account while finalizing L-section ?
(ii) Whether any condonation is required ?
4. Whether Yard plans (A3/A4 size) have been approved by CTPM/COM and attached?
5. Whether the operating features approved by CTPM/COM have been considered while framing the estimate ?
6. (i) Whether provisioning for land has been made as per prescribed norms and are reasonable ?
(ii) Whether land rates obtained from Revenue authorities were considered?
(Photocopies of related documents to be attached to justify the land rates)
7. Whether track standards adopted are in accordance with extant guidelines? (Railway Board's authority/guidelines to be quoted)
8. Justification for adoption of Signaling and Electrical standards is to be given. Is it commensurate with the expected traffic in the section ? (Please quote Railway Board's policy letter)
9. (i) Justification for adoption of type of the Bridge be provided.
(ii) Have waterway calculations for Major Bridges been done?
(iii) Whether details of waterway calculation for important bridges enclosed?
(iv) Whether GAD of bridges have been finalized and approved?
(v) Whether Geo-technical investigations have been done?
10. Whether passenger amenities proposed at the station are as per the prescribed norms? Station-wise details of facilities being provided have to be furnished.
11. (i) Whether views of Associate Finance enclosed ?
(ii) Whether administrative remarks to Finance comments given and enclosed?
12. Whether explanation for cost escalation of various items between the time of sanction of the work and preparation of the detailed estimate and between the sanction of detailed estimate and revised estimate given?

Government of India
Ministry of Railways
(Railway Board)

No98/W-I/Genl/0/30/Pt

New Delhi, dated 13.6.08

 General Managers
All Indian Railways.

Sub: Preparation of estimates.

1. Of late it is observed that the Detailed estimates are submitted to Board for sanction with large variations in cost with reference to the sanctioned abstract estimated cost of the Project.

While a certain excess over originally sanctioned cost can be attributed to escalation in the cost of labour and material taken place during the intervening period, in several cases the excess is due to increase in the scope of work or material modifications to provide for items not contemplated at the approval stage of the project. Apart from large excesses in quantities particularly earthwork, items introduced subsequently include revision of track and signaling standards, provision of OFC, carriage and wagon facilities, yard remodeling, terminal facilities and passenger amenities.

In the circumstances, it is imperative to undertake a rigorous review of the nature and scope of works included under each sub-work in the sub-estimates of various departments, i.e. Civil, Electrical, TRD, S&T and Mechanical. The detailed estimate would, therefore, has to be examined with reference to the scope of work and standards of construction outlined at the Project Report stage. Any change should be summarily rejected, unless extenuating circumstances are established for inclusion of revised facilities/higher standards at the detailed estimate stage.

While it is important to take advantage of technological advancements for bringing about better efficiency and cost reduction, initial conceptualization of the project and forecast of expenditure has to be sound and precise, at least to a reasonable extent.

Railways may ensure that the planning for works is done more realistically and cost consciousness is kept in view so that need for expanding the scope of sanction at a later stage can be scrupulously avoided.

The tendency to provide facilities in extravagant and lavish manner has to be severely curbed. Estimates pertaining to service buildings particularly those for housing the S&T infrastructure, sheds in workshops, offices for inspectorial staff etc. have to be pruned down to bare minimum level only just to meet the functional requirements and nothing more.

2. It has also been observed that a number of Detailed estimates/ Revised estimates/ Material Modifications are being sent to Railway Board for sanction without full details and without adequate explanation and justification on the change in scope of work and increase in quantities. Even the variation statements are not being prepared properly. Back references have, therefore, to be made to the Railways for seeking clarifications. This results in delay.

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

SN-117
S No 44

No.98/W1/Genl/0/30-Pt.

New Delhi, Dated 25.07.08.

FA & CAOs,
All Indian Railways.

Sub: Preparation of Estimates.

Attention is invited to the instructions contained in Board's letter No.98/W-1/Genl/0/30/Pt. dated 13.06.08 (Copy enclosed for ready reference) on the above subject. Some Railways have desired to know as to whether the said letter has been issued with the concurrence of Finance Directorate of Ministry of Railways. It is hereby confirmed that the said letter has been issued in consultation with the Finance Directorate of the Ministry of Railways. Further action may please be taken accordingly.

Please acknowledge receipt.


(ANJUM PERVEZ)
DIRECTOR/WORKS-II
RAILWAY BOARD

Copy to: (i) EDF(X)-I, Railway Board.
(ii) CAO/C, All Indian Railway.

O/c

Pl. issue



07/08/08

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No. 98/W-I/Genl/O/30-Pt.

New Delhi, dated 18.02.2020

**General Managers,
All Zonal Railways.**

Sub: General instructions regarding surveys of railway projects.

Ref: Para 253-266 of Chapter 2 of Indian Railways Code for the Engineering Department.

In one of the Para of 54th report of the Committee on Petitions (16th Lok Sabha) presented to the House on 3rd August 2018, the Committee has recommended that *"prior to sanctioning of any Railway Project in any region of the country, the DPRs should be formulated after taking into account the views/ opinion of all the stakeholders. For this purpose, if required, a Public Notice, thereby, inviting views/suggestions of various stakeholders could be invited. The Committee would like the Ministry of Railways (Railway Board) to take necessary action on these lines and apprise the Committee accordingly within three months of presentation of this Report to the House."*

In this regard, it has been noticed that instructions already exist vide Para 253 of Indian Railways Code for the Engineering Department vide which before any survey operations are commenced, a notification is to be published in the local Government Gazette. This should be arranged for by railway administration as promptly as possible after receipt of sanction to the survey. Further as per general instructions given in para 254-266, consultation with irrigation department, civil authorities, military authorities etc has to be done and views to be obtained. It has been noticed that these instructions are not being followed scrupulously.

In view of the above, it is hereby advised that all the instructions regarding surveys, stipulated in Indian Railways Code for the Engineering Department, should be strictly adhered to. The views, if any, obtained during the consultation with State Government, Military Authorities, Civil Authorities etc should be suitably incorporated in the Detailed Project Reports for consideration.

This has the approval of AM/Works.



Pankaj Kumar
18/2/2020
(Pankaj Kumar)

Director/
Project Monitoring
Railway Board

Ph (Rly.) : 030-43574,

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Mobile : 9910487540

Email : dir.w2rb@gmail.com

भारत सरकार/GOVERNMENT OF INDIA
रेल मंत्रालय/MINISTRY OF RAILWAYS
(रेलवे बोर्ड)(RAILWAY BOARD)

No. 2013/W-I/GenL/0/30/Pt-II

New Delhi, Dated 25.02.2020

The General Managers,
All Indian Railways.

Sub: Platform length at Railway Stations for new line, gauge conversion & doubling projects.

References have been received in Board regarding provision of high level platforms in New Line, Gauge Conversion & Doubling Projects.

The matter has been considered in Board's office and following has been approved by Board (ME, MT & CRB):-

- (i) For all New Line, Gauge Conversion projects, high level platforms should be restricted to the length of longest stoppage coaching train, proposed on that New Line/Gauge Converted Line and the remaining portion of the platform should be at rail level to accommodate a 26 coach train.
- (ii) For all doubling, 3rd and 4th line projects, high level platforms should be restricted to the length of the longest stopping coaching train at that station and the remaining portion of the platform should be at rail level to accommodate a 26 coach train.
- (iii) All loop lines should be of full length of required CSR and the rail level platform provided for 26 coach length should have the required technical clearance for upgradation to high level as and when required.

Zonal Railways should take necessary action accordingly.


25/2/20
(B. K. Gupta)

Executive Director (Proj.M.)
Railway Board



0/c

भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड RAILWAY BOARD)

No.2018/W-1/Genl./Land Acquisition

New Delhi, Dt. 05.02.2020

The General Managers,
All Indian Railways.

Sub: Execution of new Line Projects –Policy regarding.

Ref: (i) Board's letter no. 2017/W-1/Genl./Budget dated 08-01-2018.
(ii) Board's letter no. 2017/W-1/Genl./Misc. dated 29-06-2018.

Reference above, instructions were issued to Zonal Railways vide letter under reference (ii) stipulating that "payment for establishment charges and joint measurement charges for land acquisition may be made to State Government on their demand & that payment for land acquisition should be made only after finalization of award by the State Government".

Consequent to above, a large number of construction projects became stalled because aforesaid instructions were not in line with the provisions of section 19 of land acquisition act 2013 and Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (Gujarat) Rules 2017.

The matter has been examined in consultation with L&A Directorate and accordingly to streamline the issue of land acquisition in Railway projects, it has been decided by Railway Board (ME & FC) that:

- (1) All Doubling & Gauge Conversion & only important New Line projects should be declared as Special Railway Projects & land acquisition should be done as per Railway Amendment Act, 2008 by opening a joint account. However, authority to declare any project as Special Railway Project still vests with General Manager of Zonal Railway as communicated vide Board's letter No. 2010/LML/12/8 dated 22.11.2017.
- (2) Board's letter No. 2017/W-1/Genl./Misc. dated 29.06.2018 stands withdrawn with immediate effect.



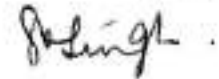
(Har Mohan Gupta)
Executive Director Works
Railway Board

No.2018/W-1/Genl./Land Acquisition

New Delhi, Dt. 05.02.2020

Copy to:-

1. The PFA, All Indian Railways.
2. Deputy Comptroller and Auditor General of India (Railways), Room No. 224, Rail Bhawan, New Delhi.



For Financial Commissioner (Railways)

Copy to: CAO(Const.), All Indian Railways for information and necessary action.

भारत सरकार/GOVERNMENT OF INDIA
रेल मंत्रालय/MINISTRY OF RAILWAYS
(रेलवे बोर्ड)(RAILWAY BOARD)

No. 2017/W-I/Genl./Safety/Policy

New Delhi, Dated 31.01.2020

The General Managers,
All Indian Railways.

Sub: Platform level for new Construction/Platform raising works.

**Ref: (i) Board's letter No. 2012/LM(PA)/03/05 dated 18.08.2017.
(ii) Board's letter No. 2013/W-I/Genl./0/30 Pt. II dated 02.11.2017.**

Vide letter under reference (ii), instructions were issued to Zonal Railways stipulating that "The provision of High Level Platforms which would also necessarily mean provision of FOBs should not be made a pre-condition for commissioning of the project of New Lines, Gauge Conversion and Doubling due to be commissioned in 2017-18 & 2018-19 & these works can be executed subsequently chargeable to the project (New Line/Gauge Conversion/Doubling)".

Since the currency of the issued letter has expired, the matter has been reviewed by Board (CRB, ME & FC) and it has now been decided that, "The provision of High Level Platforms which would also necessarily mean provision of FOBs should not be made a pre-condition for commissioning of the project of New Lines, Gauge Conversion and Doubling due to be commissioned in Financial Year 2019-20 & 2020-21 & these balance works can be executed subsequently chargeable to the project (New Line/Gauge Conversion/Doubling). However, for financial year 2021-22 onwards, Zonal Railways should do advance planning of high level Platforms/FOBs".

This issues with the concurrence of Finance Directorate of Ministry of Railways.



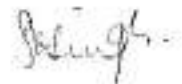
(Har Mohan Gupta)
Executive Director(Works)
Railway Board

No. 2017/W-I/Genl./Safety/Policy

New Delhi, Dated 31.01.2020

Copy to:-

- (a) The PFA(Con.), all Indian Railways.
- (b) The Principal Directors of Audit, all Indian Railways.
- (c) Deputy Comptroller and Auditor General of India (Rlys.), R.No. 224, Rail Bhavan, New Delhi.



For Financial Commissioner/Railways

Copy to:-

- (i) Chairman cum Managing Directors/RVNI., IRCON & RITES.
- (ii) Principal Chief Engineers & Chief Administrative Officers (Const.), all Indian Railways.
- (iii) PED(Stn. Dev.), Railway Board.
- (iv) F(X)-II, Works-I & II and WDO branches, Railway Board.



01/2

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No. 2013/W-I/Genl./O/30/Pt. II

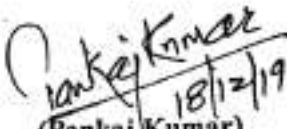
New Delhi, dated 18.12.2019

**General Managers,
All Indian Railways.**

Sub: Construction of formation for Doubling on DFC feeder routes.

The issue of loading standards to be considered for construction of formation for doubling work on DFC feeder routes has been under consideration. As per extant instructions (GE:G-0014 of Nov '09), formation specification for New Lines/Doubling/GC works to be carried out on IR have to be kept for 25 T loading standards. However, the instructions are not explicit about loading standards to be considered for formation specification on the DFC feeder routes.

* Now Board (ME) has approved that construction of formation for Doubling on DFC feeder routes should be for DFC loading standard (32.5 T Axle Load). These instructions will apply for all new doubling works on DFC feeder routes wherever detailed estimates is yet to be sanctioned.


(Pankaj Kumar)

Dir./Works-II
Railway Board

Ph (Rly.) : 030-43574,
Ph : 011- 23070944

Copy for information and necessary action to:

1. Chairman & Managing Directors,
RVNL, IRCON & RITES
2. Chief Administrative Officers (Const),
All Indian Railways

भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड RAILWAY BOARD)

No. 2013/W-I/Genl./O/30 Pt.-II

New Delhi, dt. 10.10.2019

The General Managers,
All Indian Railways.

The CMDs,
RITES, IRCON & RVNL.

Sub: Elimination of level crossings in Doubling Projects.

**Ref: (i) Board's letter no. 2006/CE-IV/LX/WP/1 dated 09.01.12.
(ii) Board's letter no. 2013/W1/Genl./O/30 Pt-II dated
18.06.13 & 11.09.15.**

Instructions have been issued for elimination of level crossings vide Railway Board letters under reference.

It is noted that commissioning of doubling is getting delayed due to insistence by Railways to first eliminate the manned LCs, with the result, the relief in line capacity is also getting delayed. Railways to ensure that no doubling gets delayed for want of elimination of Level Crossings. It may be better to commission doubling first and do elimination later on in second phase.

This has the approval of Board (ME).


10/10/19
(B.K. Gupta)

Executive Director/Proj. M
Railway Board
Tele/Fax: 011-23388236
& Rly. 44325

Copy to:

Chief Administrative Officers (Const.),
All Indian Railways.

etc



GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

No.2019//W-1/Genl./land-LC

New Delhi, dt. 10.06.2019

General Manager,
All Indian Railways.

Sub:- Level Crossing on new line projects

Ref:- 1) Board's letter No. 2006/CE-IV/LX/WP/1 dt. 09.01.2012
2) Board's letter No. 2013/W-I/Genl./O/30 pt-II dt. 18-06.2013 &
3) Board's letter No. 2013/W-I/Genl./O/30Pt-II dt. 11.09.2015.

It has been noted that as a consequence of Railway Board's policy to have no level crossings on new line projects, the bank height has gone up leading to increase in land acquisition earth work having considerable financial implication. Many new line projects unremunerative to begin with, have become unaffordably expensive, as land cost itself constitutes 30 to 50% of the project cost.

With objective of keeping the project cost to the minimum, Board (ME,MT,FC and CRB) it has been decided that :

For all new line projects under execution/ sanction and under sanction on Socio-economic grounds with Rate of Return less than 10%, it is proposed to provide level crossings as interlocked LCs in the estimates instead of LHSs/RUBs to minimize the project cost by reducing land acquisition and formation cost. RUB/ROB can be provided to eliminate level crossings if the formation level permits its construction without raising or lowering the formation level specifically to accommodate them and with no extra land acquisition.

All new line projects where land has not been acquired should also be thus reviewed with immediate effect with overall objective of reducing the project cost


11/6/19
(B.K. Gupta)

Executive Director (Proj. Monitoring)

**Government of India
Ministry of Railways
(Railway Board)**

No.2015/W-1/Genl./CORR.GM/P.III

New Delhi dt. 25.02.2019

General Manager,
All Indian Railways.

Sub: Execution of New Line, gauge Conversion and Doubling Projects.

**Ref: (i) Board's letters of even number dated 30.11.2018 on EPC Contract.
(ii) Board's letter No. 2017/W-1/Genl./Policy dated 30.10.2017.**

Railway Board vide letter under reference (i) has issued instructions to Zonal Railways to call tenders in EPC mode. As, EPC tenders need exhaustive planning, there is need of proper planning at Zonal Railway level before inviting EPC tender to avoid delay and litigation in future.

1. To streamline the procedure, Railways/Executive Agency are advised to approve/finalise the following drawings/documents before inviting EPC tenders:-

- Alignment and Longitudinal section of the project.
- General Arrangements Drawings of Important bridges /Major bridges/Minor Bridges/ROBs / RUBs /LHS/FOBs.
- Design Basis Report for Important Bridges.
- Engineering Scale Plans (ESPs)
- Signal Interlocking Plans (SIPs).
- Cable Route Plans.
- Layout Plans for Buildings etc.

2. **Shifting of Utilities:**

All the utilities are to be shifted in advance before calling EPC Tender to the extent possible. For this, separate agency may also be fixed.

3. **Procedure & Timeline for approval of ESPs & SIPs:-**

- Executing agency will request ADRM for proposing Divisional requirements to be incorporated in the Proposed / Existing Yard.
- ADRM will indicate the Divisional requirements in the yards to the Executing Agencies within 10 days of receipt of requisition from Executing Agency.
- Division should approve the ESPs within 15 days of submission of ESPs by the Executing Agency.
- Zonal Headquarter should approve ESPs within 15 days of submission by Division office.
- Zonal Headquarter should finalize and approve SIPs within 21 days of approval of ESPs.
- For the approval of ESPs/SIPs, ADRM will be coordinator at Divisional level and AGM at the Headquarter level.

Contd...2/-

4. Method statement:

In case of Doubling/3rd line/4th line, Method Statement and Sequence of working including Yard Remodelling should be prepared and got approved from Zonal Railway Head quarter before Calling of EPC Tender. AGM of Railway will coordinate.

5. Detailed Project Report (DPR):

DPR of the Projects should be realistic and should be updated by Executing Agency, if required.

6. Submission of Land Plans & forestry clearances applications:-

- After sanction of the project, Executing agency has to submit complete land acquisition proposals to state revenue authorities for land acquisition and upload forestry/wild life clearance proposals where ever required on MoEF's website within the following timelines:-

➤	Projects upto 100 km length	:	3 months
➤	Projects more than 100 km length	:	6 months

7. For New Line works, instructions have already been issued vide letter under reference(ii) stipulating that issue of tenders or commencement of physical work for New Line projects shall be taken up only after completion of land acquisition.

8. Above instructions should be followed for Non-EPC tenders as well.

This has the approval of Board (ME, MT, FC and CRB).


(S. C. Jain)
Executive Director (Works)
Railway Board

Copy to:

- (i) CMDs of IRCON, RITES & RVNL for information please.
- (ii) CAO/Cs of Zonal Railways for information & necessary action.

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No.2015/W-I/Genl./Corr.GM/Pt.II

New Delhi, dt. 30.01.2019

**General Manager,
All Indian Railways.
General Manager/Con./NFR**

Sub:- Approval and Execution of projects of New Line, Gauge Conversion and Doubling included in Budget 2018-19 and later subject to requisite approvals appearing with # mark in Pink Book

Ref: i) Railway Board's letter No 2015/W-I/Genl./Corr.GM/Pt-III dated 03.8.2015,
ii) Railway Board's letter No 2015/W-I/Genl./Corr.GM/Pt.II dated 06.1.2017.
iii) Railway Board's letter No 2015/W-I/Genl./Corr.GM/Pt.II dated 16.11.2017

Vide above referred letters, orders were issued regarding taking up the projects included in Budget 2015-16, 2016-17 and 2017-18.

Now competent authority has approved for continuation of the existing system for projects as communicated vide letter No 2015/W-I/Genl./Corr.GM/Pt.II dated 16.11.2017.

The process will be as under:

- a) Since DPR contains Detailed Estimate of a project duly approved by the General Manager of the Railway, the same stands sanctioned as and when the project is sanctioned by the competent authority.
- b) DPR cost is firmed up cost based on Final Location Survey and the same is to be treated as Base Cost for deciding competent authority and cost comparison in future.

This issues with the concurrence of Finance Directorate of Ministry of Railways.


(Dhnanajaya Singh)
Director/Works-II
Railway Board

Copy to:

1. Chief Administrative Officers/Construction, All Indian Railways.
2. FA&CAO(C) s, All Indian Railways.

भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड RAILWAY BOARD)

No. 2015/W-I/Genl./Corr.GM/Pt.

New Delhi, dt. 06.12.2018

General Manager, All Indian Railways/PUs, NF (Const.).

^ CMD/MD of all PSUs.

CAO/Con., All Indian Railways.

Sub: Speed Policy framework for Indian Railways.

Ref: Railway Railway's letter No. 2017/Mobility/2/3 dated 08/12.06.2018.

1. Following policy guidelines regarding New Line, Gauge Conversion and Doubling were issued vide Railway Board letter mentioned above:

"For new line construction, track geometry should be for 160kmph and minimum MPS on opening should be 130kmph. There should be no level crossings on new lines. For Gauge Conversion/Doubling/3rd line etc. minimum MPS should be 130kmph with no unmanned level crossings."

2. Representations have been received in Railway Board from different Zonal Railways regarding adopting these instructions due to problems of land acquisitions near the existing lines for flattening of curvature in case of DL, 3rd line projects. Further there will be time and cost overrun for EBR funded as well as NL projects in case these instructions are strictly adopted.

3. Matter has been deliberated in the Board and it has been decided that the directions issued vide Railway Board letter mentioned above should be treated as a policy frame work only. Each case may be examined on its own merits and CAO/C may take a reasoned decision for departure from Policy frame work. Clearance of Plans and estimates should not be delayed once CAO/C has taken a decision.

4. This has the approval of Board (ME, MT, FC and CRB).


6/12/18
(B.K. Gupta)

Executive Director/Proj. M
Tele/Fax: 011-23388236 , Rly. 44325

Copy to:

1. For kind information of CRB, FC, ME, MTR, MS, MT, MRS, SECY, DG(S&T), DG(Stores), DG(Pers).
2. All AMs, PEDs, Railway Board, Rail Bhavan.

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RAILWAY BOARD**

No. 2017/W-I/Genl/Policy

New Delhi, Dt. 05.12.2018

**The General Managers,
All Indian Railways.**

**The General Manager (Const.)
Northeast Frontier Railway,
Maligaon, Guwahati.**

**Sub: Execution of Works under various Plan head costing more than
₹ 3 Crore.**

Ref: Board's letter No. 2002/WI.Genl/TTF dated 04-04-2006.

Reference above, guidelines on entrusting the Works to Construction Organization of Railways were issued. As per the guidelines, the Works (other than the track renewals) costing over ₹ 3 crore were generally entrusted to Construction Organisation on the Railways.

Presently, large number of New Lines, Gauge Conversion, Doubling/3rd & 4th Line projects, MTP projects etc are being executed by Construction Organisation and there is substantial increase in the Outlay of various Plan Heads.

In view of above, Board has decided that, henceforth, Works (other than track renewal) costing more than ₹ 10 crore should generally be carried out by Construction Organisation and the Works of value less than ₹ 10 crore should generally be executed by Open Line Organization.


(S.C. Jain)

**Executive Director(Works)
Railway Board**

Copy to:-

1. PSO to CRB for information of CRB.
2. PSO to ME for information of ME.
3. PSO to FC for information of FC.
4. PSO to MT for information of MT.
5. PSO to MRS for information of MRS.
6. PSO to MTR for information of MTR.
7. PSO to MS for information of MS.
8. AM(CE), AM(Elect.), AM(Fin.), AM(Budget), AM(PU), AM(Sig.), Adv.(Works), PED(Bridge) & PED(SD) Railway Board.
9. Chairman cum Managing Directors /RVNL, IRCON, RITES, KRCL & MRVC.
10. CAO/Cs & PCEs of All Zonal Railways for necessary action.

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RAILWAY BOARD**

No. 2015/W-I/Genl./ CORR.GM/Pt.III

New Delhi, Dt. 30.11.2018

The General Managers,
All Indian Railways.

Sub: EPC Tender.

Ref: Board's letter of even number dated 04-05-2016.

A- EPC Tender

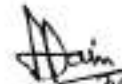
In continuation of Board's letter referred above, regarding invitation of EPC Contract, following instructions are to be implemented with immediate effect:-

- 1) The tenders for new line works, gauge conversion works, doublings, large colonies, workshops and important bridges shall be EPC tenders only. In case EPC tenders are not to be invited, then personal approval of GM shall be taken. However, in case of major yards, the decision of its exclusion from EPC contracts be taken by CAO/C.
- 2) The value of EPC tenders shall be more than ₹ 100 crores.
- 3) The standard tender documents of EPC tenders as already circulated by Railway Board are to be adopted.
- 4) The scope of works/items to be included in the EPC tender shall be approved by CAO/C.
- 5) Before inviting the EPC tender, if required, comprehensive DPR be prepared including concept plans and considering the standard drawings.
- 6) Action plan for implementation of EPC scheme, project wise, shall be sent to Railway Board by 15.12.18.

B- Other than EPC Tender

The tenders in construction works shall be invited for value more than ₹20 crores only, so that they are evaluated at SAG level tender committee. In case any tender below ₹ 20 crores value is to be invited, then personal approval of CAO/C shall be taken.

This has the approval of Member(Engineering).


(S.C. Jain)

**Executive Director Works
Railway Board**

Copy to:-

1. CAO/C, All Indian Railways.



**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No. 2018/W-I/GenL/Policy

New Delhi, dated 07.09.2018

The CAO/Const.
All Indian Railways.

Chairman & Managing Director,
RVNL, RITES & IRCON.

Sub: Policy guidelines on Loop line and Siding.

It has been observed that Railways are commissioning New Line/Gauge Conversion / Doubling/ 3rd Line & 4th Line projects using first class new rails on Loop line/Siding.

Board has already issued instructions for using 2nd hand serviceable rails on Loop line / Siding.

It is therefore advised that 2nd hand serviceable rails should only be used for Loop line / Siding for all New Line/Gauge Conversion/Doubling/3rd Line & 4th Line projects.


(S.C. Jain)

Exe. Director (Works)
Railway Board

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**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

2018/W-I/Genl/ Land Acquisition/ Pt I (e Off 3265888)

New Delhi, 06.09.2018

**The General Managers,
All Indian Railways**

Sub : Land acquisition for Railway Projects in tunneling portion

With expansion of Railways in hilly and inaccessible regions, tunneling lengths are major portions in many projects. Issue of land acquisition for tunneling portion has been raised several times. Engineering Code Para 819 mentions about the land acquisition in the tunnel portion.

It has been observed that for different projects in different Zonal Railways, uniform practice of land acquisition is not being followed.

In order to maintain uniformity over different Zonal Railways, following guidelines are to be followed regarding land acquisition near tunnels :

- i) No land acquisition over tunnels **except** at the entrances to the tunnels i.e. portals and for any adits/shafts which may be required for facilitation of rate of construction or for provision of safety features.
- ii) For geologically unstable regions, where there are chances of cave-ins during tunneling/excavations and also at locations of low over burdens - the land acquisition may be resorted to on case to case basis by Zonal Railways based on practical considerations.

This has the approval of Board (ME).


(B.K. Gupta)

Executive Director (Project Monitoring)

Tel./Fax: 011-2338 2102

Copy to: PCEs & CAO/Cs of all Zonal Railways.

Government of India
Ministry of Railways
(Railway Board)

No.2018/W-I/Genl./Policy

New Delhi dt. 31.08.2018
04.09

General Manager,
All Indian Railways.

Chairman & Managing Director,
RVNL, RITES & IRCON

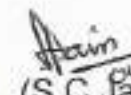
General Manager/Const.,
Northeast Frontier Railway,
Guwahati

**Sub: Policy Guidelines – Execution and Alignment of
3rd Line Projects.**

Ref: Board's letter No.2013/PL/19(Policy) dt. 05.07.18.

Please refer to Board's letter under reference wherein policy guidelines for execution and alignment of 3rd line projects was issued.

In this connection Board (CRB) has further issued directives that "Please ensure that these are being followed. Exception would need CRB's approval."


(S C Jain)
Executive Director/Works
Railway Board

Copy to:

- (i) AM/Plg, AM/Traffic
- (ii) Chief Administrative Officer/C, All Indian Railways – for information.
- (iii) Principal Chief Operations Managers, All Indian Railways – for information.

0/c

R.No.258, Raisina Marg,
Rail Bhawan, New Delhi - 110001.

No.2013/PL/19/1(Policy)

Dated 05.07.2018

The General Managers,
Central Railway, Mumbai.
East Coast Railway, Bhubaneswar.
East Central Railway, Hajipur.
Eastern Railway, Kolkata.
North Central Railway, Allahabad.
North Eastern Railway, Gorakhpur.
Northeast Frontier Railway, Malegaon.
Northern Railway, New Delhi.

North Western Railway, Jaipur.
South Central Railway, Secunderabad.
South Eastern Railway, Kolkata.
South East Central Railway, Bilaspur.
Southern Railway, Chennai.
South Western Railway, Hubli.
West Central Railway, Jabalpur.
Western Railway, Mumbai.

Sub: Policy Guidelines - Execution and Alignment of 3rd Line Projects.

Ref: 2013/PL/19/1(Policy) dated 30.09.2013 and 10.06.2015.

In reference to above, it is reiterated that in case of construction of 3rd line, it should be bi-directional and on one side of the existing double line. Integration of 3rd line with existing double line should be at a distance of 30 Kms or so or after 3-4 stations so that the large scale yard remodelling are avoided and project is executed with ease without long duration of non-interlocked working. Rest of the instructions will be the same as communicated earlier vide references above.

*Pls ensure that these are being followed:
Exceptions would need CEB's approval*

(V. Shanker)

(Executive Director/Planning)

Tele/Fax- 011-23383354

Rly. 030-43424

Copy to: PCOMs & CTPMs of All Zonal Railways.

*For Head circulation -
urgent 23/8
DW-2*

6

भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड) RAILWAY BOARD

No.2017/W-I/Genl./Misc

New Delhi, Dt. 29.06.2018

The General Managers,
All Indian Railways.

Sub: Execution of new Line Projects –Policy regarding.

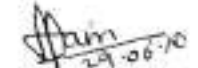
Ref: Board's letter no. 2017/W-I/Genl/Budget dated 08-01-2018.

Ministry of Railways have a number of projects, where Railway have made payment to State Governments for land acquisition, but land has not been handed over to Railways.

Land acquisition problems are hindering the progress of Railway projects, as considerable funds have been blocked with the State Governments. To overcome this bottleneck, following has been decided:-

- (1) Payment for establishment charges and joint measurement charges for land acquisition may be made to State Government on their demand.
- (2) Payment for land acquisition should be made only after finalization of award by the State Government.

This issues with the approval of Board (ME & FC).


(S.C. Jain)

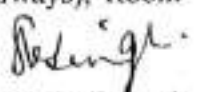
**Executive Director Works
Railway Board**

No.2017/W-I/Genl./Misc

New Delhi, Dt. 29.06.2018

Copy to:-

1. The PFA, All Indian Railways.
2. Deputy Comptroller and Auditor General of India (Railways), Room No. 224, Rail Bhawan, New Delhi.


For Financial Commissioner (Railways)

Copy to: CAO(Const.), All Indian Railways for information and necessary action.

भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड) RAILWAY BOARD

No. 2013/W-I/Genl./0/30Pt.-II

New Delhi, Dt.28.05.2018

The General Managers,
All Indian Railways.

Sub: Degree of curvature for new projects of New Line, Gauge Conversion and Doubling and Level crossing in New Line.

Ref: i) Board's letter of even number dated 04-05-2018.

Please refer to Board's above referred letter dated 04-05-2018 in connection with degree of curvature for new projects of New Line, Gauge Conversion and Doubling. In view of earlier issued instructions on the subject vide letter No. 2014/CE-II/TSC/1Pt.-I dated 08-09-2016, the Para (i) may be modified as under:

- (i) **Except for projects of hilly terrain, new sections may be designed for a speed of 160 kmph with limiting curvature of 1°(one degree).**

Regarding level crossing on new line, Board (ME) has decided that

“Introduction of Level Crossing either Manned or Unmanned will require Board's approval”

Zonal Railways are advised to follow the above guidelines while designing new sections.


28/5/18

(B. K. Gupta)
Exe. Director (Proj. M)
Railway Board

भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड RAILWAY BOARD)

No. 2013/W-1/Genl./0/30 Pt-II

New Delhi, dt. 04.05.2018

**The General Managers,
All Indian Railways.**

**Sub: Degree of curvature for new projects of New Line, Gauge
Conversion and Doubling.**

Issue of Degree of curvature for new projects of New Line, Gauge Conversion and Doubling has been deliberated in Board. It has been decided that:

- (i) Except for projects of hilly terrain, new sections may be designed for a speed of 160 kmph with limiting curvature of 1.4° .
- (ii) In Doubling, 3rd & 4th line projects which are essentially sanctioned for decongesting the route, the existing standards may be allowed to continue. A policy directive to this effect has already been issued by Railway Board's letter No. 2015/W-I/Genl./Corr.GM/Pt. dtd. 29.11.2017.
- (iii) Gauge Conversion projects should be planned for 100 kmph except in hilly terrain, where case to case basis decision can be taken.

Zonal Railways are advised to follow the above guidelines while designing new sections. This has the approval of Board (ME).


415/18

(B.K. Gupta)
Executive Director/Proj. M
Railway Board
Tele/Fax: 011-23388236
Rly. 44325



0/c

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No.2017/W-I/Genl.Policy

New Delhi, December 18, 2017

**The General Manager,
All Indian Railways.**

**Subject: Flash Butt Welding of Rails using Mobile Flash Butt
Welding Plants.**

The matter of Flash Butt Welding of Rails in situ has been considered by Board (ME). It has been decided that in situ Mobile Flash Butt welding of Rails will be permitted subject to the following safeguards:-

- 1) QAP for the Flash Butt Welding Machine to be duly approved by RDSO;
- 2) QAP for welding for every site to be prepared and approved by concerned CE/CON in consultation with CTE of the Railway;
- 3) Adequate training of workers and supervisors of contractor and department supervisors to be ensured by Dy.CE(CON); and
- 4) 10% test check by Dy.CE/CON.

This issues with the approval of Board (ME)


18.12.2017
(Ajit Pandit)

Additional Member (Works)

Copy to:

All PCEs & CAOs of Indian Railways – for information and necessary action.

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Kumar,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

General Managers of Zonal Railways have also been empowered to review further investments in projects where State support is not forthcoming and the projects have remained in limbo for long period. A copy of the policy for execution of New Line projects issued by Ministry of Railways is enclosed for your kind information.

It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

DA: As above.

With best wishes

Ajit Pandit
06.12.2017
(Ajit Pandit)
Additional Member (Works)
Tel: 011-2338 7963

Shri Dinesh Kumar,
Chief Secretary,
Govt of Andhra Pradesh,
Hyderabad

Copy to: The General Manager, Southern, South Central and South Western Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shrimati Gamlin,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

DA: As above.

With best wishes,

Ajit Pandit
06.12.2017
(Ajit Pandit)
Additional Member (Works)
Tel: 011-2338 7963

Smt. Sakuntala Gamlin,
Chief Secretary,
Govt of Arunachal Pradesh,
Itanagar

Copy to: The General Manager, Northeast Frontier Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Pipersenia,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

General Managers of Zonal Railways have also been empowered to review further investments in projects where State support is not forthcoming and the projects have remained in limbo for long period. A copy of the policy for execution of New Line projects issued by Ministry of Railways is enclosed for your kind information.

It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

DA: As above.

With best wishes,

Ajit Pandit
06.12.2017
(Ajit Pandit)
Additional Member (Works)
Tel: 011-2338 7963

Shri Vinod Kumar Pipersenia,
Chief Secretary,
Govt of Assam,
Dispur

Copy to: The General Manager, Northeast Frontier Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Singh,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

General Managers of Zonal Railways have also been empowered to review further investments in projects where State support is not forthcoming and the projects have remained in limbo for long period. A copy of the policy for execution of New Line projects issued by Ministry of Railways is enclosed for your kind information.

It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

DA: As above.

With best wishes,

Ajit Pandit
06.12.2017
(Ajit Pandit)
Additional Member (Works)
Tel: 011-2338 7963

Shri Anjani Kumar Singh,
Chief Secretary,
Govt of Bihar,
Patna

Copy to: The General Manager, Eastern, East Central, North Eastern & Northeast Frontier Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Dhand,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

General Managers of Zonal Railways have also been empowered to review further investments in projects where State support is not forthcoming and the projects have remained in limbo for long period. A copy of the policy for execution of New Line projects issued by Ministry of Railways is enclosed for your kind information.

It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

With best wishes,

DA: As above.

Ajit Pandit
06.12.2017
(Ajit Pandit)

Additional Member (Works)
Tel: 011-2338 7963

Shri Vivek Kumar Dhand,
Chief Secretary,
Govt of Chhattisgarh,
Naya Raipur

Copy to: The General Manager, East Coast & South East Central Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Singh,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

General Managers of Zonal Railways have also been empowered to review further investments in projects where State support is not forthcoming and the projects have remained in limbo for long period. A copy of the policy for execution of New Line projects issued by Ministry of Railways is enclosed for your kind information.

It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

With best wishes,

DA: As above.

Ajit Pandit
6.12.2017

(Ajit Pandit)

Additional Member (Works)

Tel: 011-2338 7963

Dr. J.N. Singh,
Chief Secretary,
Govt of Gujarat,
Gandhi Nagar

Copy to: The General Manager, Western & North Western Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Sharma,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

General Managers of Zonal Railways have also been empowered to review further investments in projects where State support is not forthcoming and the projects have remained in limbo for long period. A copy of the policy for execution of New Line projects issued by Ministry of Railways is enclosed for your kind information.

It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

DA: As above.

With best wishes

A. Pandit
06-12-2017
(Ajit Pandit)

Additional Member (Works)
Tel: 011-2338 7963

Shri Dharmendra Sharma,
Chief Secretary,
Govt of Goa,
Panjim

Copy to: The General Manager, South Western Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Dhesi,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

General Managers of Zonal Railways have also been empowered to review further investments in projects where State support is not forthcoming and the projects have remained in limbo for long period. A copy of the policy for execution of New Line projects issued by Ministry of Railways is enclosed for your kind information.

It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

DA: As above.

With best wishes,

A. Pandit
06.12.2017
(Ajit Pandit)

Additional Member (Works)

Tel: 011-2338 7963

Shri Depinder Singh Dhesi,
Chief Secretary,
Govt of Haryana,
Chandigarh

Copy to: The General Manager, Northern, North Central & North Western
Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Pharka,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

General Managers of Zonal Railways have also been empowered to review further investments in projects where State support is not forthcoming and the projects have remained in limbo for long period. A copy of the policy for execution of New Line projects issued by Ministry of Railways is enclosed for your kind information.

It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

With best wishes,

DA: As above.

Ajit Pandit
06.12.2017

(Ajit Pandit)
Additional Member (Works)
Tel: 011-2338 7963

Shri V.C. Pharka,
Chief Secretary,
Govt of Himachal Pradesh,
Shimla

Copy to: The General Manager, Northern Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Vyas,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

With best wishes,

DA: As above.

Ajit Pandit
06-12-2017
(Ajit Pandit)
Additional Member (Works)
Tel: 011-2338 7963

Shri Bharat Bhushan Vyas,
Chief Secretary,
Govt of Jammu & Kashmir,
Srinagar

Copy to: The General Manager, Northern Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Smt. Verma,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

With best wishes,

DA: As above.

A. Pandit
06.12.2017
(Ajit Pandit)

Additional Member (Works)
Tel: 011-2338 7963

Smt. Raj Bala Verma,
Chief Secretary,
Govt of Jharkhand,
Ranchi

Copy to: The General Manager, Eastern, East Central & South Eastern Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Khuntia,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

With best wishes.

DA: As above.

Ajit Pandit
06.12.2017
(Ajit Pandit)
Additional Member (Works)
Tel: 011-2338 7963

Shri Subhash Chandra Khuntia,
Chief Secretary,
Govt of Karnataka,
Bengaluru

Copy to: The General Manager, Central, Southern, South Central & South Western Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Smt. Netto,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

With best wishes,

DA: As above.

Ajit Pandit
06.12.2017

(Ajit Pandit)
Additional Member (Works)
Tel: 011-2338 7963

Smt. Nalini Netto,
Chief Secretary,
Govt of Kerala,
Thiruvananthapuram

Copy to: The General Manager, Southern Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Singh,

Sub: Execution of New Line Projects – Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

With best wishes,

DA: As above.

A Pandit
06.12.2017
(Ajit Pandit)

Additional Member (Works)
Tel: 011-2338 7963

Shri Basant Pratap Singh,
Chief Secretary,
Govt of Madhya Pradesh,
Bhopal

Copy to: The General Manager, Central, East Central, North Central, South Central, South East Central, Western & West Central Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Mallick,

Sub: Execution of New Line Projects – Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

DA: As above.

With best wishes,

Ajit Pandit

06-12-2017

(Ajit Pandit)

Additional Member (Works)

Tel: 011-2338 7963

Shri Sumeet Mallick,
Chief Secretary,
Govt of Maharashtra,
Mumbai

Copy to: The General Manager, Central, South East Central & Western
Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-1/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Rashmi,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

DA: As above.

With best wishes,

Ajit Pandit
06.12.2017
(Ajit Pandit)

Additional Member (Works)

Tel: 011-2338 7963

Shri Rajani Ranjan Rashmi,
Chief Secretary,
Govt of Manipur,
Imphal

Copy to: The General Manager, Northeast Frontier Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Tsering,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

With best wishes,

DA: As above.

Ajit Pandit
06.12.2017

(Ajit Pandit)
Additional Member (Works)
Tel: 011-2338 7963

Shri Yeshi Tsering,
Chief Secretary,
Govt of Meghalaya,
Shillong

Copy to: The General Manager, Northeast Frontier Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Lalmalsawma,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

With best wishes,

DA: As above.

Ajit Pandit
06.12.2017
(Ajit Pandit)

Additional Member (Works)
Tel: 011-2338 7963

Shri Lalmalsawma,
Chief Secretary,
Govt of Mizoram,
Aizawl

Copy to: The General Manager, Northeast Frontier Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Kumar,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

With best wishes,

DA: As above.

Ajit Pandit
06.12.2017

(Ajit Pandit)
Additional Member (Works)
Tel: 011-2338 7963

Shri Pankaj Kumar,
Chief Secretary,
Govt of Nagaland,
Kohima

Copy to: The General Manager, Northeast Frontier Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/GenL/Misc.

New Delhi, 06.12.2017

Dear Shri Padhi,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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With best wishes,

DA: As above.

Ajit Pandit
06.12.2017
(Ajit Pandit)

Additional Member (Works)
Tel: 011-2338 7963

Shri Aditya Prasad Padhi,
Chief Secretary,
Govt of Odisha,
Bhubaneswar

Copy to: The General Manager, East Coast, South Eastern & South East
Central Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Singh,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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With best wishes,

DA: As above.

Ajit Pandit
06-12-2017

(Ajit Pandit)
Additional Member (Works)
Tel: 011-2338 7963

Shri Karan Avtar Singh,
Chief Secretary,
Govt of Punjab,
Chandigarh

Copy to: The General Manager, Northern & North Western Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-1/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Jain,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

DA: As above.

With best wishes,

Ajit Pandit
06.12.2017
(Ajit Pandit)

Additional Member (Works)
Tel: 011-2338 7963

Shri Ashok Jain,
Chief Secretary,
Govt of Rajasthan,
Jaipur

Copy to: The General Manager, Northern, North Central, North Western, Western and West Central Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-1/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Srivastava,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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DA: As above.

With best wishes,

Ajit Pandit

06.12.2017

(Ajit Pandit)

Additional Member (Works)

Tel: 011-2338 7963

Shri A.K. Srivastava,
Chief Secretary,
Govt of Sikkim,
Gangtok

Copy to: The General Manager, Northeast Frontier Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Smt. Vaidyanathan,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

With best wishes,

DA: As above.

Ajit Pandit
06.12.2017
(Ajit Pandit)

Additional Member (Works)
Tel: 011-2338 7963

Smt. Girija Vaidyanathan,
Chief Secretary,
Govt of Tamil Nadu,
Chennai

Copy to: The General Manager, Southern, South Central and South Western Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Singh,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

With best wishes,

DA: As above.


06.12.2017

(Ajit Pandit)
Additional Member (Works)
Tel: 011-2338 7963

Shri Shekhar Prasad Singh,
Chief Secretary,
Govt of Telangana,
Hyderabad

Copy to: The General Manager, South Central Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-1/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Ranjan,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

General Managers of Zonal Railways have also been empowered to review further investments in projects where State support is not forthcoming and the projects have remained in limbo for long period. A copy of the policy for execution of New Line projects issued by Ministry of Railways is enclosed for your kind information.

It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

DA: As above.

With best wishes,

Ajit Pandit
06.12.2017

(Ajit Pandit)
Additional Member (Works)
Tel: 011-2338 7963

Shri Sanjeev Ranjan,
Chief Secretary,
Govt of Tripura,
Agartala

Copy to: **The General Manager, Northeast Frontier Railway**

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-1/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Kumar,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

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It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

With best wishes,

DA: As above.

Ajit Pandit

06.12.2017

(Ajit Pandit)

Additional Member (Works)

Tel: 011-2338 7963

Shri Rajiv Kumar,
Chief Secretary,
Govt of Uttar Pradesh,
Lucknow

Copy to: The General Manager, East Central, Northern, North Central, North Eastern & West Central Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-1/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri Singh,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

General Managers of Zonal Railways have also been empowered to review further investments in projects where State support is not forthcoming and the projects have remained in limbo for long period. A copy of the policy for execution of New Line projects issued by Ministry of Railways is enclosed for your kind information.

It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

DA: As above.

With best wishes,

Ajit Pandit
06.12.2017

(Ajit Pandit)
Additional Member (Works)
Tel: 011-2338 7963

Shri Utpal Kumar Singh,
Chief Secretary,
Govt of Uttarakhand,
Dehradun

Copy to: The General Manager, Northern & North Eastern Railway

Ajit Pandit
Additional Member (Works)



भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
रेल भवन, नई दिल्ली-110001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
RAIL BHAVAN, NEW DELHI-110001

D.O. No. 2017/W-I/Genl./Misc.

New Delhi, 06.12.2017

Dear Shri De,

Sub: Execution of New Line Projects - Policy regarding.

Ministry of Railways have a number of projects where considerable investments have been made but returns are not forthcoming due to land acquisition problems. Therefore, Ministry of Railways has decided that the commencement of physical work for New Line projects shall be taken up only after completion of land acquisition. However, General Managers of Zonal Railways have been empowered to invite tenders if they are certain of the possibility of land acquisition in a reasonable time frame. For this, a written assurance from the State Government will be required by General Managers of Zonal Railways.

General Managers of Zonal Railways have also been empowered to review further investments in projects where State support is not forthcoming and the projects have remained in limbo for long period. A copy of the policy for execution of New Line projects issued by Ministry of Railways is enclosed for your kind information.

It is therefore requested to expedite the land acquisition proceedings in your State, so that project activities by way of calling of tenders etc. may be initiated.

With best wishes,

DA: As above.

Ajit Pandit
06.12.2017

(Ajit Pandit)
Additional Member (Works)
Tel: 011-2338 7963

Shri Malay Kumar De,
Chief Secretary,
Govt of West Bengal,
Kolkata

Copy to: The General Manager, Eastern, Northeast Frontier & South Eastern Railway

(भारत सरकार) GOVERNMENT OF INDIA
(रेल मंत्रालय) MINISTRY OF RAILWAYS
(रेलवे बोर्ड) (RAILWAY BOARD)

No. 2017/W-I/Genl./Policy

New Delhi, 30.10.2017

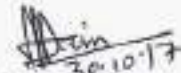
The General Managers,
All Indian Railways

Sub: Execution of New Line Projects.

In supersession of all earlier instructions, Board (ME, CRB) has decided that issue of tenders or commencement of physical work for New Line projects shall be taken up only after completion of land acquisition subject to following consideration:-

- (i) GMs may invite tenders if they are reasonably certain of the possibility of land acquisition in a reasonable time frame. A written assurance from the State Government in this regard can be considered by the GM.
- (ii) For the purpose of execution, large projects can be divided in phases by GMs, however after ensuring that each phase on completion yields commercial returns for Railways, subject to (i) above.
- (iii) Projects where local support/State support is not forthcoming resulting in poor/nil progress as well as old projects that have not made any headway or projects that are unlikely to give any tangible benefits to the Railways would need to be continuously reviewed. Such reviews may be carried out in structured quarterly meetings to be convened by the GMs.

The new policy shall be followed in cases of new projects or old projects where tenders have not yet been finalized.


(S.C. Jain)

Executive Director (Works)
Tel/Fax: 011-2338 2102

Copy to:

- (i) Chairman cum Managing Directors/RVNL, IRCON, RITES, KRCL & MRVC.
- (ii) Principal Chief Engineers & Chief Administrative Officers (Const.),
All Indian Railways.
- (iii) AM(CE), AM(Works), PED(Bridges) & PED(SD), Railway Board.

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RAILWAY BOARD**

No. 2015/W-I/Genl./Corr.GM/Pt

New Delhi, dated: 29.11.2017

**The General Managers,
All Indian Railways.**

Sub: Construction of 3rd and 4th Line.

Ref:- 1) Railway Board's letter No. 2016/Mobility/1/3 dated 18.9.2017 and 18.10.2016
2) SECRly's letter No. CAO/C/SECR/Policy Project/1954 dated 21.9.2017
3) SECRly's letter No. SECR/HQ/Engg./TC-6/Mission Raftaar/321 dated 04.10.2017

Vide Railway Board's letter under reference, additional policy guidelines for planning new 3rd and 4th line works were issued by Mobility Directorate. Letter seeking clarifications were received from various Railways executing 3rd and 4th line works. The issue was put up for consideration of Board.

Considering the fact that these Capacity enhancement works were sanctioned to remove bottlenecks/capacity constrains and they are funded through Extra Budgetary resources i.e. loan from LIC and debt servicing of EBR-IF (LIC Loan) shall commence from 2020 onwards, the following course of action has been decided by the Board:-

- i. **EBR-IF funded project should be executed with existing railway standards without further delay**
- ii. Directives of Mobility Directorate for even future projects shall be considered on case to case basis.

Railways are advised to follow the above instructions.


(B.K. Gupta),
Exe. Director/Proj.M,
Railway Board.

Please issue
24/11/2017

(भारत सरकार) GOVERNMENT OF INDIA
(रेल मंत्रालय) MINISTRY OF RAILWAYS
(रेलवे बोर्ड) (RAILWAY BOARD)

No. 98/W-I/Genl./0/30-Pt.I

New Delhi, 24 .11.2017

The General Manager
All Indian Railways.

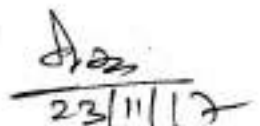
Sub: Construction of 3rd and 4th Line.

- Ref: 1) Railway Board's letter No. 98/W-I/ Genl./0/30/Pt. I dtd. 01.08.2017
2) RVNL's letter No. CPM/DKI/MTJ-JHS/GC dtd. 06.09.2017.
3) SEC Rly's letter No. Dy. CE/ Con/D&D/ details/design formation/
dtd. 24.08.2017.
4) East Coast Railways's letter No. CE/ CON/II/BBS/ BHC-NRG 3rd
line/66/02510 dtd. 26/27.07.2017.

Vide Railway Board's letter under reference, instructions were issued for 3rd and 4th line works. Letter seeking clarifications were received from various Railways and RVNL executing 3rd and 4th line works. Considering that the 3rd and 4th line works have been sanctioned, on the basis of existing congestion levels and required to be commissioned at the earliest to avoid further diversion of traffic, it is reasoned that incorporating DFC standards now in these works would not only delay the commissioning of the works but also substantially increase the overall estimate, the following course of action has been decided by the Board:-

3rd/4th line projects will be developed as per normal railway standards.

Railways are advised to follow the above instructions.


23/11/17
(B.K. Gupta)

Executive Director (Project Monitoring)
Tel/Fax: 011- 2338 8236



o/c

(भारत सरकार) GOVERNMENT OF INDIA
(रेल मंत्रालय) MINISTRY OF RAILWAYS
(रेलवे बोर्ड) (RAILWAY BOARD)

New Delhi, 01.08.2017

No. 98/W-I/Genl./0/30/Pt.I

The General Managers,
All Indian Railways

Sub: Construction of 3rd line & 4th line to DFC standard.
Ref: Minutes of the Board meeting held on 21.02.2017.

Railway Board has taken following decision with regard to construction of 3rd & 4th line projects.

"It was decided that wherever 3rd line has been sanctioned but work has not commenced, the same should be to DFC standard. It would be further desirable to sanction 4th line also on all these sections and construct both 3rd line as well as 4th line to DFC standard. Suitable material modification, if required, should be processed for sanction."

Accordingly, Zonal Railways are advised to do the needful and submit proposals.


(B.K. Gupta)

Executive Director (Project Monitoring)
Tel/Fax: 011- 2338 8236



रेल विकास निगम लिमिटेड

(भारत सरकार का उपक्रम)

Rail Vikas Nigam Limited

(A Government of India Enterprise)

No. CPM/DLI/MTJ-JHS/GC

Dated: 06.09.2017

The Executive Director/Project Monitoring,
Railway Board,
Rail Bhawan,
New Delhi.

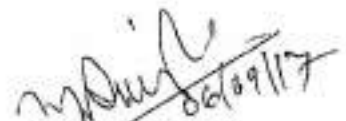
Sub: Construction of 3rd line & 4th line to DFC standard.

Ref: Board's Letter No. 98/W-I/Genl./0/30/Pt.I dated 01.08.2017.

Railway Board vide its Letter under reference, has communicated Railway Board's decision with regard to construction of 3rd line & 4th line projects. In accordance with this decision, wherever 3rd line is sanctioned and work has not commenced, the same should be to DFC standard and it would be desirable to sanction fourth line also on all these sections and construct both 3rd line as well as 4th line to DFC standards.

Following issues needs clarification in implementation of above decision of Railway Board :-

1. On projects such as Mathura-Jhansi 3rd line on NCR, the contract has been awarded for construction of important and Major bridges for 25 T Loading standards and work has commenced. For construction of Roadbed and Minor bridges for 25 T Loading standards, bids have already been opened and under finalization. In such cases, implementing Railway Board's decision will lead to various contractual issues.
2. On North-South Route, DFC is already sanctioned and construction of 3rd line to DFC standard may not be desirable from Techno-Economic considerations.
3. Linking construction of sanctioned 3rd line with unsanctioned 4th line may delay the targeted capacity enhancement 3rd line projects.


(M. P. Singh)
CPM/Delhi

C/- ED/B&S/Railway Board, New Delhi.

SOUTH EAST CENTRAL RAILWAY

Office of
Chief Administrative Officer (Con)
Bilaspur.

No. DyCE/Con/D&D/details/design formation/

Date:- 24-08-17

Executive Director (Project Monitoring)
Railway Board, Rail Bhawan
New Delhi

Sub- Construction of 3rd line & 4th line to DFC standard

Ref:- Railway Board letter No 98/W-1/Genl./0/30/Pt.I dated 01-08-2017

In reference to above, the status of the projects of 3rd line/4th line in SEC Railway (Construction), in respect of the loading standard is given below.

Projects	Remarks
Champa-Jharsuguda 3 rd line (152.38):	46.324 Km is commissioned and in balance stretch the work is in progress with 25 T loading standard for Formation and Bridges.
Durg-Rajnandgaon 3 rd line (31 Km)	Out of 31 km 8 Km is commissioned and in balance stretch , work is in progress with 25 T loading standard for Formation and Bridges.
Rajnandgaon-Nagpur 3 rd line (228 Km):	The work is in progress at 39.17 Km alongwith at important bridges and in balance stretch the tenders are under advance stage of finalisation with 25 T loading for formation and bridges.
Bilaspur-Jharsuguda 4 th line (206 Km):	At 82 Km the work is in progress with completion of substructure of one important bridge and in balance stretch EPC tender is under finalisation with 25 T loading for formation and bridges.

Thus 25 T loading has been adopted for formation and bridges of 3rd line and 4th line on HDN east-west corridor (Jharsuguda-Bilaspur-Nagpur). In view of this it is not feasible to adopt the DFC standard at this stage. However, the necessary instructions may be issued regarding the above subject.

(D. R. Tembhurney)
Chief Engineer/Con-1

The Executive Director of Works, Railway Board: For kind information please.

large no. of work
we go on whole
the work have to stop
where estimate has been
revised est. then it will require
and till revision decision to stop tender
has to be taken.
3. Decision of project
process the work accordingly.
28/8/17
EDW

SN-60

EAST COAST RAILWAY

Office of the
Chief Administrative Officer (Construction)
Annex Building (East), Rail Vihar,
Chandrasekharpur, Bhubaneswar- 751023

Fax/Tel : 0674-2300193

Date: 26th July 2017

27

No. CE/CON/II/BBS/BHC-NRG 3rd line/66 02510

To
**The Executive Director (Planning),
Railway Board,
Room No. 258, Raisina Marg,
New Delhi – 110 001**

Sub: Proposal required for 3rd/4th line in place of New DFC Corridor.
Ref: Railway Board's letter No. 2017/PL/14/1 dated 29.06.2017.

* With reference to the above cited subject, Railway Board has advised to develop the 3rd/4th lines in East Coast Corridor from Vijayawada to Kharagpur as per DFC standard. It is pointed out that 3rd line from Bhadrak to Nergundi (80 km) (excl. Jakhapura-Haridaspur) has been sanctioned in the year 2012-13 with 25t Axle loading standard. The detailed estimate has been sanctioned in Oct'2016 & March'2017 (Pt). The status of the project is as under;

Bhadrak - Jakhapura (51.4km) : RFQ finalized RFP & MCA under approval of Railway Board. Agency is being finalized on annuity model.

Jakhapura-Haridaspur (23.5km) : Commisioned (RVNL) with HM loading standard.

Haridaspur - Byree (16.8km) : Tenders under finalization on annuity model.

Byree - kapilas (10.5km) : Work in progress.

Kapilas - Nergundi (4.2km) : Tender under finalization with conventional method.

The Bridges have been/are planned to be designed as per 25 T loading std. As per "Bridge rule 2.3.1 (a) &(b)" and "Substructure & Foundation code 5.81 table-3" the design parameters of 25t loading standard, HM loading standard and DFC loading standard differ as under;

SN	Parameters	25T loading standard	HM Loading standard	DFC loading standard
1.	Axle load	25.00t	30.00t	32.50t
2.	Train load	9.33 t/m	12.00t/m	12.13t/m
3.	Earth pressure due to surcharge due to live load	13.70t/m	15.80t/m	16.30t/m

Similarly, as per para 17.1 of "Guidelines and Specifications for Design of Formation for Heavy Axle Load, GE-14" the parameters and specifications for formation design are different for 25T axle load and 32.5T (DFC) Load. To construct the 3rd line with DFC standard the on-going works have to be stopped and tenders under process/finalization have to be cancelled /discharged. This will also need saction of Material Modification. Thereafter, design/drawings for strengthening of existing and for balance bridges and formation have to be done before processing for tenders. ✓

In view of the above, Railway Board is requested to kindly issue necessary instructions at the earliest. This has got the approval of CAO/C/BBS.

C/- ED/Works /Railway Board/New Delhi
C/- CTPM/ECOR

(N.S.Ulkey)
Chief Engineer (Con-II)
E.Co.Railway, Bhubaneswar

Reference has been received from Ecor regarding 3rd line. PI look into it. with DFC standard.

EO/Boj.M.

31-08-17

(भारत सरकार) GOVERNMENT OF INDIA
(रेल मंत्रालय) MINISTRY OF RAILWAYS
(रेलवे बोर्ड) (RAILWAY BOARD)

No. 2017/W-I/Genl./Monthly Achievement

New Delhi, 28.11.2017

The General Manager (Const.),
N.F. Railway, Guwahati

The Chairman cum Managing Director,
Rail Vikas Nigam Ltd., New Delhi

The Chief Admn. Officers (Const.),
All Zonal Railways

Sub: Details to be included in Monthly PCDO.

While perusing the PCDO, Member Engineering has observed some deficiencies in the information. Now, Member Engineering has desired that the details of cost of all projects should also be included in monthly PCDO under the following descriptions:-

- (i) Abstract cost;
- (ii) Last sanctioned cost; and
- (iii) Latest anticipated cost/completion cost.

It is also desired that the complete details of targeted and non-targeted sections of a project should invariably be provided together for each project in the PCDO from the month of November onwards.

V. Garg
28/11/17
(Vijay Garg)
Director (Works)-I
Railway Board

O/C

*Is issued for.
28/11/2017*



**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No.2015/W-1/Genl./Corr.GM/Pt.II

New Delhi, dt. 16.11.2017

**General Manager,
All Indian Railways.
General Manager/Con./NFR**

Sub:- Approvals and Execution of 54 projects of DL,GC and NL included in Budget'2017-18

Ref: i) Railway Board's letter No 2015/W-1/Genl./Corr.GM/Pt-III dated 03.8.2015
ii) Railway Board's letter No 2015/W-1/Genl./Corr.GM/Pt.II dated 06.1.2017

Vide above referred letters, orders were issued regarding taking up the projects included in Budget 2015-16 and 2016-17.

Now competent authority has modified the system for projects included in Budget 2017-18. The modified process will be as under:

- a) Since DPR contains Detailed Estimate of a project duly approved by the General Manager of the Railway, the same stands sanctioned as and when the project is sanctioned by the competent authority.
- b) DPR cost is firmed up cost based on Final Location Survey and the same is to be treated as Base Cost for deciding competent authority and cost comparison in future.

This issues with the concurrence of Finance Directorate of Ministry of Railways.


(Dhananjaya Singh)
Director/Works-II
Railway Board

Copy to:

1. Chief Administrative Officers/Construction, All Indian Railways.
2. FA&CAO(C) s, All Indian Railways.

(भारत सरकार) GOVERNMENT OF INDIA
(रेल मंत्रालय) MINISTRY OF RAILWAYS
(रेलवे बोर्ड) (RAILWAY BOARD)

No. 2013/W-I/Genl./0/30 Pt.II

New Delhi, 02.11.2017

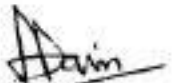
**The General Managers,
All Indian Railways**

Sub: Platform level for new Construction/Platform raising works.
Ref: Board's letter No. 2012/LM(PA)/03/05 dated 18.08.2017.

Vide letter referred above, instructions were issued to construct High Level Platform at all New Line, Gauge Conversion and Doubling projects including new Platform raising works. The matter has been reviewed and Board (CRB, ME & FC) has now decided as under:-

"The provision of High Level Platforms which would also necessarily mean provision of FOBs should not be made a pre-condition for commissioning of the project of New Lines, Gauge Conversion and Doubling due to be commissioned in 2017-18 & 2018-19. These works can be executed subsequently chargeable to work of project (New Line/Gauge Conversion/Doubling)".

This issues with the concurrence of Finance Directorate of Ministry of Railways.


(S.C. Jain)

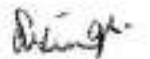
Executive Director (Works)
Tel/Fax: 011-2338 2102

No. 2013/W-I/Genl./0/30 Pt.II

New Delhi, 02.11.2017

Copy to:

- (a) The PFA(Con.), all Indian Railways.
- (b) The Principal Directors of Audit, all Indian Railways.
- (c) Deputy Comptroller and Auditor General of India (Rlys), R.No. 224, Rail Bhavan, N. Delhi.



For Financial Commissioner/Railways

Copy to:

- (i) Chairman cum Managing Directors/RVNL, IRCON & RITES.
- (ii) Principal Chief Engineers & Chief Administrative Officers (Const.), all Indian Railways.
- (iii) PED(Stn.Dev.), Railway Board.
- (iv) F(X)-II, Works-I & II and WDO branches, Railway Board.

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RAILWAY BOARD

No.2012/LM(PA)/03/05

New Delhi, dated 18.8.2017

The General Managers
All Indian Railways

Sub: Platform level for new Construction/Platform raising works

Ref: This office letter of even number dated 11.9.2012

As per "Norms of Minimum Essential Amenities" at various categories of stations, given in Annexure III of letter referred above, minimum level of Platform is specified as Medium level for all new lines/ gauge conversion and doubling projects.

It has now been decided to construct high level platforms at all new lines/ gauge conversion and doubling projects including new platform raising works.

This has the approval of Board (ME).

(Anish Kumar)
Dir. /Stn. Dev. (Engg.)



(भारत सरकार) GOVERNMENT OF INDIA
(रेल मंत्रालय) MINISTRY OF RAILWAYS
(रेलवे बोर्ड) (RAILWAY BOARD)

No. 2017/W-I/Genl./Policy

New Delhi, 30.10.2017

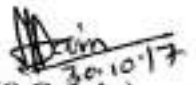
**The General Managers,
All Indian Railways**

Sub: Execution of New Line Projects.

In supersession of all earlier instructions, Board (ME, CRB) has decided that issue of tenders or commencement of physical work for New Line projects shall be taken up only after completion of land acquisition subject to following consideration:-

- (i) GMs may invite tenders if they are reasonably certain of the possibility of land acquisition in a reasonable time frame. A written assurance from the State Government in this regard can be considered by the GM.
- (ii) For the purpose of execution, large projects can be divided in phases by GMs, however after ensuring that each phase on completion yields commercial returns for Railways, subject to (i) above.
- (iii) Projects where local support/State support is not forthcoming resulting in poor/nil progress as well as old projects that have not made any headway or projects that are unlikely to give any tangible benefits to the Railways would need to be continuously reviewed. Such reviews may be carried out in structured quarterly meetings to be convened by the GMs.

The new policy shall be followed in cases of new projects or old projects where tenders have not yet been finalized.


(S.C. Jain)

Executive Director (Works)
Tel/Fax: 011-2338 2102

Copy to:

- (i) Chairman cum Managing Directors/RVNL, IRCON, RITES, KRCL & MRVC.
- (ii) Principal Chief Engineers & Chief Administrative Officers (Const.),
All Indian Railways.
- (iii) AM(CE), AM(Works), PED(Bridges) & PED(SD), Railway Board.

(भारत सरकार) GOVERNMENT OF INDIA
(रेल मंत्रालय) MINISTRY OF RAILWAYS
(रेलवे बोर्ड) (RAILWAY BOARD)

No. 2014/W-I/Genl./Group of Infra

New Delhi, 27.09.2017

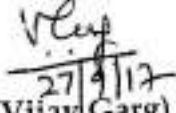
**The General Managers,
All Indian Railways**

Sub: Clarification of MoEF&CC with respect to Gauge Conversion works.

Ref: MoEF&CC letter No. 11-55/2017-FC dated 06.09.2017

The instructions/clarifications issued by Ministry of Environment, Forest and Climate Change (MoEF&CC) vide above letter regarding applicability of Forest Conservation Act, 1980 with reference to Gauge Conversion projects is enclosed for information and necessary action please.

DA: As above.


27/9/17
(Vijay Garg)
Director (Works)-I
Tel/Fax: 011-2338 3833

Copy to:

1. PCEs & CAO/Cs of all Zonal Railways.
2. CMD/RVNL, RITES & IRCON.

F.No.11-55/2017-FC
Government of India
Ministry of Environment Forests & Climate Change
(FC Division)

Indira Park Varanasi
All India Jor Bagh Road
New Delhi-110003
Dated: 6th September, 2017

To

The Additional Principal Chief Conservator of Forests (Land Management) & Nodal Officer Forest (Conservation) Act, 1980.
State Government of Madhya Pradesh,
Bhopal-462016.

Sub: Request for cutting and removing of already marked trees during Joint survey of Railway officials along with Forest officials in between section Seoni-Rhoma from Railway km 63.30 km 67.60 within existing Railways land boundary- reg.

Ref: Your office letter no. F-5/714/2013/10-11/411 dated 03.02.2017.

Sir,

Kindly refer your above referred letter. It is clarified that the instructions/ clarification with reference to gauge conversion as issued by this Ministry vide letter no. 17-30/2016-FC dated 13th October, 2016 and dated 7th November 2016 (copies attached) will be applicable to all such gauge conversion cases.

This issues with the approval of Competent Authority.

Yours faithfully,

Encl: As above.

(Nisheeth Saxena)
Sr. Assistant Inspector General of Forests (FC)
Tel. No. 24695415

Copy to:

1. The PCCF, Government of Madhya Pradesh, Bhopal.
2. PCCF (HoF) all states/UTs
3. APCCF all regional offices of MOEF & CC
4. Forest Conservation Monitoring Cell, MoEF&CC, New Delhi.
5. Guard File.

Copy also forwarded to:

- (1) PPS to DGF&SS
- (2) PPS to ADGF(FC)/WL/NTCA
- (3) PPS to Member Secretary, Central Zoo Authority.

(Nisheeth Saxena)
Sr. Assistant Inspector General of Forests (FC)

F. No. 17-30/2016-FC
Government of India
Ministry of Environment, Forests & Climate Change
(Forest Conservation Division)

Indira Paryavaran Bhawan,
Jor Bagh Road, Aligarh,
New Delhi: 110003,
Dated: 07th November, 2016

Subj: The Gauge Conversion works from Meter Gauge (MG) to Broad Gauge (G) in progress on Sikar-Churu section between railways km. 39.84 to 45.75 - regarding applicability of Forest (Conservation) Act, 1980.

In continuation to this office letter No F. No. 17-30/2016-FC dated 13th October, 2016 it is to further clarify as below:

If conversion of Meter Gauge to Broad Gauge is effected within the forest land, in the right of way of the railway line and which is already under non-forest use before the 25th October, 1980, then Forest (Conservation) Act, 1980 may not be applicable. However if additional land beyond the existing alignment of Meter Gauge Railway Track is required for any non forestry activities, then clearance under the Forest (Conservation) Act, 1980 would be required.

This issues with the approval of competent authority.

(Rajagopal Prashant)

Sr. Assistant Inspector General of Forests (FC)

Copy:-

1. The Chief Secretary, Government of Rajasthan, Jaipur.
2. The Principal Chief Conservator of Forest, Government of Rajasthan, Jaipur.
3. The Nodal Officer, Forest (Conservation) Act, 1980 office of the PCCF, Government of Rajasthan, Jaipur.
4. The APCCF, Regional Office, (Central Zone) Lucknow.
5. Guard File.

Copy for information to:

1. Sh Sheo Nath Singh, Under Secretary, Cabinet Secretariat, Rashtrapati Bhawan with reference to no 551/2/3/2016-Cab III. dtd 13/10/2016

(Rajagopal Prashant)

Sr. Assistant Inspector General of Forests (FC)

Recd 07/11/16.

2.5.16m

F. No. 17-30/2016-FC
Government of India
Ministry of Environment, Forests & Climate Change
(Forest Conservation Division)

Indira Paryavaran Bhawan,
Jor Bagh Road, Aliganj,
New Delhi: 1100 03,
Dated: 13th October, 2016

Sub: The Gauge Conversion works from Meter Gauge (MG) to Broad Gauge (G) in progress on Sikar-Churu section between railways km. 39.84 to 45.75 - regarding applicability of Forest Conservation Act 1980

In response to the DO No F.1(9) Forest/2016 dated 26th September 2016 received from Chief Secretary, Government of Rajasthan, regarding the applicability of Forest Conservation Act 1980 on the works of gauge conversion on existing MG railway track undertaken by the railways on Sikar-Churu section between railways km. 39.84 to 45.75. The issue was discussed by the officers of MoEF & CC, who visited Jaipur, with the officers of Rajasthan Forest Department, officers of Northern Railways, Revenue Department and the relevant records were examined by them to resolve the disputes on land ownership between railway & State Forest Department Rajasthan and the applicability of Forest (Conservation) Act, 1980 on land between km. 39.84 to 45.75 of railway line on Sikar-Churu Section.

As per the government record the railway line is passing through Khasra no. 41/105 and 28/101 of village Bir Fatehpur which has been notified in 1966 as Protected Forest under section 29 of the Rajasthan Forest Act 1953. The report of the committee was submitted to this ministry.

On the basis of the report the clarification of the Ministry, regarding applicability of Forest Conservation Act 1980 on the gauge conversion of existing MG railway line constructed before 25.10.1980 on notified forest land, is as under:

1. If the conversion of MG to BG railway track is effected within the existing formation width of MG railway track already under non-forestry use before 25.10.1980, then Forest Conservation Act 1980 shall not be applicable.
2. Forest Conservation Act will, however, be applicable:
 - If the land is used for any other purpose other than the railway track then FC Act will be applicable.
 - If the railway requires additional land beyond the existing formation width under non forestry use of MG railway track for any other ancillary activities then provisions of Forest Conservation Act shall be applicable.
 - Though, railway has communicated in the meeting that in general no tree felling will be required for BG Conversion. If, however, any tree cutting is required for gauge conversion even on existing formation width then due permission will be taken from the State Forest Department.

3. Ownership issue as per revenue record may, however, be decided by the State Government keeping in view various rulings of Hon'ble Supreme Court in forestry related issues especially the T. N. Godavarman Thirumulkpad vs Union of India and ors (WP No 202 of 1995) of 1996.

This issues with the approval of competent authority.



(Nisheeth Saxena)

Sr. Assistant Inspector General of Forests (FC)

Copy:-

1. The Chief Secretary, Government of Rajasthan, Jaipur.
2. The Principal Chief Conservator of Forest, Government of Rajasthan, Jaipur.
3. The Nodal Officer, forest (Conservation) Act, 1980 office of the PCCF, Government of Rajasthan, Jaipur.
4. The APCCF, Regional Office, (Central Zone) Lucknow.
5. Guard File.



(Nisheeth Saxena)

Sr. Assistant Inspector General of Forests (FC)

(भारत सरकार) GOVERNMENT OF INDIA
(रेल मंत्रालय) MINISTRY OF RAILWAYS
(रेलवे बोर्ड) (RAILWAY BOARD)

No. 2016/W-I/Genl./Budget (RE & BE)

New Delhi, 15th September, 2017

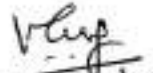
**The General Managers,
All Indian Railways**

**Sub: Expenditure on land acquisition for New Line and other projects
which is provided free of cost by State Government.**

In many New Line projects, State Governments are providing land free of cost. The expenditure incurred on acquisition of land by State Governments is not reflected in the expenditure on the projects.

The issue has been considered in Railway Board and it has been decided that the expenditure on land acquisition for New Lines and other projects which is provided free of cost by State Governments or on a token payment basis may be reflected in the CAPEX Statement under "EBR(P)".

This issues with the concurrence of Budget and Finance Directorates of Ministry of Railways.


15/09/17
(Vijay Garg)

Director (Works)-I
Tel./Fax: 011-2338 3833

Copy to:

- (i) Chief Administrative Officers (Construction) of all Zonal Railways.
- (ii) FA&CAO(Construction) of all Zonal Railways.

GOVERNMENT OF INDIA भारत सरकार
MINISTRY OF RAILWAYS रेल मंत्रालय
(RAILWAY BOARD) (रेलवे बोर्ड)

रेल भवन, नई दिल्ली - 110001
Rail Bhawan, New Delhi-110001

No.2017/SIG/WP/Double Dist.

Date 22.08.2017

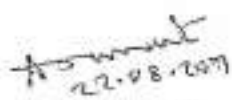
**General Managers,
All Indian Railways**

Sub: Provision of Second Distant Signal on 'B' Route.

In order to overcome capacity constraints, Indian Railways has undertaken a massive augmentation of existing infrastructure on the saturated routes. As a part of this exercise, several works of doubling/tripling are being done on various sections on 'B' Routes of different Zonal Railways.

2. In order to achieve full benefits of the ongoing infrastructure augmentation, it is necessary that maximum potential of higher speed is achieved on 'B' Routes similar to 'A' Routes.
3. Keeping these objectives in view, Board have decided that all works of doubling/tripling being undertaken on 'B' Route on various Zonal Railways shall be carried out with the provision of Second Distant Signal.
4. The work for provision of Second Distant Signal shall be done as a part of the existing estimate with suitable revision.


(N. Kashinath)
Additional Member (Signal)


(Ajit Pandit)
Additional Member (Works)

(भारत सरकार) **GOVERNMENT OF INDIA**
(रेल मंत्रालय) **MINISTRY OF RAILWAYS**
(रेलवे बोर्ड) **(RAILWAY BOARD)**

No. 2017/W-I/Genl./Policy/1

New Delhi, 10th August, 2017
11/08/2017

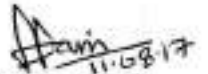
The General Managers,
All Indian Railways

Sub: Execution of Yard Remodelling works in all New Line, Gauge Conversion and Doubling projects.

It has been observed that Yard Remodelling works falling in jurisdiction of the Railway other than the one who is executing the main project of New Line/Gauge Conversion/Doubling gets delayed for one reason or other.

It has been decided that the Yard Remodelling work will be done by the Railway having geographic jurisdiction over the Yard in all cases of New Line/Gauge Conversion/Doubling works except in cases where other arrangement is agreed to both the Zonal Railways. However, Zonal Railway executing the project will coordinate the execution of project on overall basis.

This has the approval of Board (ME).


(S.C. Jain)
Executive Director (Works)
Tel./Fax: 011-2338 2102

Copy to: PCEs & CAO/Cs of all Zonal Railways.

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No. 2015/W-I/Genl/Corr.GM/Pt

New Delhi, Dated: 25.07.2017

**The General Managers,
All Indian Railways.**

Sub:- Project Implementation and Monitoring.

Ref:- Appraisal note of NITI Aayog in one of the Detailed Project Reports (DPRs) submitted by Railways for project included in Budget 2016-17.

NITI Aayog in its Appraisal Note in one of the DPRs submitted by Railways for project included in Budget 2016-17 has observed that in DPRs being submitted by Railways, there is no chapter on Implementation Plan of the project. No details regarding implementation are mentioned in the DPR.

Therefore, in future DPRs under preparation by Railways, Chapter for Implementation Plan to be added which shall include sufficient details. A realistic completion schedule for the projects may be drawn up on BAR-PERT Chart starting from the date of project approval till commissioning of the project to facilitate monitoring.

This may be adhered to in future DPRs being submitted for approvals.


25.7.17

(Anirudh Jain)

**Additional Member/Works
Railway Board.**

(भारत सरकार) GOVERNMENT OF INDIA
(रेल मंत्रालय) MINISTRY OF RAILWAYS
(रेलवे बोर्ड) (RAILWAY BOARD)

No. 2017/W-I/General/Policy/1

New Delhi, 05.07.2017

✓ The General Managers,
All Indian Railways

The General Manager (Const.),
Northeast Frontier Railway,
Maligaon, Guwahati

Sub: Provision of Traction Distribution (TRD) estimate in proposal for New Line, Doubling & Gauge Conversion in electrified/ undergoing electrification territory.

Board (MTR, MT, ME & CRB) has decided that all the doubling works and New Line/Gauge Conversion of sections connected to adjoining electrified sections which shall remain isolated otherwise shall be assessed with electrification. Such works shall invariably be executed together with electrification through a single agency.

In this regard, it is advised to keep provision of TRD estimate in proposal for New Line, Doubling & Gauge Conversion in electrified/ undergoing electrification territory.


(B.K. Gupta)

01/12
Executive Director (Project Monitoring)
Tel/Fax: 011- 2338 8236

Copy to:

1. CAO/Cs, CEEs & PCEs of all Zonal Railways - for necessary action please.
2. AM(Works), AM(Elect.), ED(RE), ED(Works) for information please.

(भारत सरकार) GOVERNMENT OF INDIA
(रेल मंत्रालय) MINISTRY OF RAILWAYS
(रेलवे बोर्ड) (RAILWAY BOARD)

No. 2017/W-I/Genl./Survey/1

New Delhi, dt. 22.05.2017

**The General Manager,
All Indian Railways**

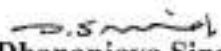
**The General Manager (Const),
Northeast Frontier Railway,
Maligaon, Guwahati**

**The Chief Admn. Officers (Const.),
All Zonal Railways**

Sub: Delegation of powers for Tender to survey.

Ref: (i) No. 97/W-2/Surveys/CR dated 14.11.2002,
(ii) No. 97/W-2/Surveys/CR(Pt) dated 12.12.2008,
(iii) No. 97/W-1/Surveys/CR/ Pt.III dated 21.09.2009,

In partial modification to Railway Board's letters mentioned under reference above, Board (ME & FC) has decided to authorize Chief Administrative Officer (Construction) to decide in favour of undertaking Surveys, including FLS, through Works contract. Tender Committee for such survey tenders will be at a minimum level of Junior Administrative Grade (JAG) with acceptance of tenders at the level of Senior Administrative Grade (SAG) and Contract Management at SAG level.

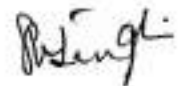

(Dhananjaya Singh)
Director (Works)-II
Tel.: 011- 2378 2083

No. 2017/W-I/Genl./Survey/1

New Delhi, dt. 22.05.2017

Copy to:-

- (i) The FA&CAO/Con., All Indian Railways
- (ii) Deputy Comptroller and Auditor General of India (Railways),
Room No. 224, Rail Bhawan, New Delhi (together with 80 spares)



For **Financial Commissioner (Railways)**

Copy to:

AM(Works), AM(CE), ED(Works), ED(Works Planning) and Dir. (Works)-I
F(X)-II, Budget and WDO branches of Railway Board.

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

No. 97/W-2/Surveys/CR

New Delhi, dated 14.11.02

General Managers
All Indian Railways

Chief Adm. Officers/Con
All Indian Railways

RE. G. / 15.11	
W. G. / F. R.	59.

Sub: Undertaking of Final Location Surveys through contractual agencies

The question of permitting the Railways to entrust surveys to private agencies has been under the consideration of the Board for some time. Board have now decided that the work of final location survey may be outsourced to outside agencies based on the following guidelines:-

- (i) It is beyond the capacity of the Railway to complete the survey in a reasonable time frame.
- (ii) The personal approval of General Manager with the concurrence of FA&CAO (Open Line) should be taken.
- (iii) ~~The accepted rates should not exceed the yardsticks circulated by Board.~~
- (iv) The survey tender should be treated as works contract. The tender committee will be at SAG level with acceptance at the level of CAO/C irrespective of the value of the contract.

Board desires that a comprehensive review of survey staff may be made and reductions made, wherever necessary as a result of outsourcing.

The Board has also approved the revision in yardstick of final location survey from Rs.

36,000/Km to Rs. 50,000/Km.

This issues with the concurrence of the Finance Directorate of the Ministry of Railways.

(P.K. Sanghi)
Executive Director/Works
Railway Board

Copy to:-

FA&CAOs, all Indian Railways

FA&CAOs/Con, all Indian Railways

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

No.97/W-2/Survey/CR-Pt.

New Delhi, dt.12.12.2008

General Manager,
All Indian Railways,

General Manager(Constrn.),
N.F.Railway

Chief Admn.Officers (Const.),
All Indian Railways.(except NF Rly.)

Sub: Undertaking of Final Location Surveys through contractual agencies

Ref:- (i) Rly. Board's letter No.97/W2/Surveys/CR dt.14.11.2002

(ii) Rly. Board's letter No.F(X)II-2006/PW/17 dt. 4.12.2006

Attention is invited to Board's letter No. 97/W2/Surveys/CR dt.14.11.2002 whereby Railways were advised the circumstances in which surveys could be outsourced to outside agencies and the guidelines to be followed in such cases.

Vide letter No. dt.4.12.2006 referred at (ii) above, powers have been delegated for sanction of part estimate to meet expenditure towards preliminary activities like FLS, Geo-technical studies, design, preparation of plan and designs etc. These preliminary activities may be executed on works contract basis.

In view of above, instructions issued vide letter No. 97/W2/Surveys/CR dt.14.11.2002 may be treated as withdrawn.

This issues with the concurrence of the Finance Directorate of the Ministry of Railways.

(Virender Kumar)
Director Works-II
Railway Board

No. 97/W-2/Survey/CR-Pt.

New Delhi, dt. 12-12-08

Copy to:

The FA & CAOs, & FA&CAO/Cons., all Indian Railways.

For Financial Commissioner/Railways

Copy to:

WDO, F(X)-II and Budget branches of Railway Board.

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

No.97/W-1/Survey/CR/PL.III

New Delhi, dt.21.1.2009

The General Managers,
All Indian Railways

Chief Admn Officers (Const.),
All Indian Railways,
(Except N.F. Rly.)

General Manager(Constrn.),
N.F. Railway,
Malgaon, Guwahati

Sub: Revised rates for Final Location Survey (FLS)

Ref- (i) Rly. Board's letter No.97/W-1/Surveys/CR/PL.III dt.21.9.2007

(ii) Rly. Board's letter No.97/W-2/Survey/CR-PL dt. 12.12.08.

1. Vide letter cited as reference (i) above, revised yardsticks for conducting various types of surveys including Final Location Surveys were advised.

2. On further consideration of the matter, Board have now approved a revised yardstick in respect of Final Location Surveys by enhancing the rate from Rs.75,000 per km. to Rs.1,00,000 (Rs. One lakh) per km. Any further expenditure on FLS beyond the limit shall have the personal approval of CAO/C after personal concurrence of FA&CAO/C and shall be within the overall limit of 2% of the total value of the work as originally sanctioned in the Budget.

3. Already instructions have been issued vide letter cited as reference (ii) above that outsourcing of preliminary activities for project execution may be done through works contracts. It is further clarified that the Tender Committee to finalize such works tenders would continue to be SAG level irrespective of value of such tenders as was the practice till now.

4. This issues with the concurrence of the Finance Directorate of the Ministry of Railways.

Please acknowledge receipt.

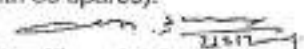

(Virender Kumar)
Director Works-II

New Delhi, dt.21.1.2009

No.97/W-1/Survey/CR/PL.III

Copy to (i) The FA & CAO/Con., All Indian Railways

(ii) Deputy Comptroller and Auditor General of India (Railways),
Room No.224, Rail Bhavan, New Delhi (together with 80 spares).


For Financial Commissioner/Railways

Copy to: Sr. PPS/ME, FC, CRB,
AMW, Adviser (Proj), AMCE, EDW, EDW(P) and DW-I
F(X)-II, Budget and WDO branches of Railway Board.

Government of India
Ministry of Railways
(Railway Board)

No.2013/W-I/Genl./0/30 Pt.II

New Delhi dated 12.05.2017

The Chief Administrative Officer (C) and
Principal Chief Engineers,
All Indian Railways.

Sub: Provision of Fixed structures in New Line/Gauge Conversion Projects and Setting of Gate Lodges, station buildings etc. alongside the existing track.

In New Line and Gauge Conversion Works, sometimes station building, Gate huts and other permanent structures are being provided without provision of future doubling and associated changes in the yards. This results into dismantling of these structures during execution of doubling and a long period of Pre-NI and NI working.

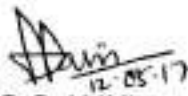
It is, therefore, decided that yard plans in case of New Lines and Gauge Conversion projects shall be planned with future doubling in mind. Proposed tracks for doubling shall be shown on the plan in broken lines and permanent structures located accordingly.

In case of manning of unmanned level crossing, it is noticed that sometimes gate lodges are being constructed near the track without provision of additional line, which are required to be dismantled at the time of doubling/3rd line to accommodate the additional track.

Therefore it has been decided that whenever a new gate lodge or station building or any other structure is being constructed either as a replacement or as a new structure, these shall be constructed at adequate set back distance to accommodate the new doubling/3rd line. Further, new gate lodges should be provided in staggered manner on alternate side of track.

The above instructions will be applicable for those projects where ESP have not been prepared. Where ever it is not possible to adhere to the above instructions, approval of PCE or CAO(C) shall be obtained.

This is issued with the approval of Member Engineering.


12.05.17
(S C JAIN)

Executive Director/Works
Railway Board

Government of India
Ministry of Railways
(Railway Board)

No.2013/W-II/Genl./0/30 Pt.II

New Delhi dated 12-05.2017

The Chief Administrative Officer (C) and
Principal Chief Engineers,
All Indian Railways

Sub: Provision of transition curve in new line and gauge conversion.

It has been observed that while planning the construction of new lines & gauge conversion, transition curves are being designed and provided for speed potential up to 100 Kmph, as most of the routes of new lines are categorized in Group 'E' category.

At later date, to increase the speed of a particular route, normally length of transition curve is required to be increased to maintain desired rate of change of cant and cant deficiency, involving shift of the curve. To achieve this objective, additional works of considerable value, like widening of embankment/cutting, extension of bridges are required. On electrified routes, relocation of OHE mast is also involved. Due to high cost and various other constraints, execution of such works is not always possible. Under the circumstances, a number of speed restrictions are imposed on such routes due to inadequate length of transition curve.

To avoid such a situation, it is desirable to design the transition curve for a future speed potential of 160 kmph at the first instance itself. Therefore, while planning the alignment of new line & gauge conversion projects, transition curve should be designed and planned/executed for a future speed potential of 160 Kmph. This implies that the speed on a particular curve will be governed by its radius and super elevation and there will be no restriction of speed on account of inadequate transition length. While opening the section at a lower speed, super elevation on the curve shall be provided as per prevailing designed maximum speed of the section. These instructions will be applicable for sections, where detailed plan and longitudinal sections have not already been prepared. In case of any deviation from the above, prior approval of PCE/CAO(C) should be taken.

This issues with the approval of Member Engineering.


(S C JAIN)

Executive Director/Works
Railway Board

भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड RAILWAY BOARD)

No. 2016/W-II/ECOR/Misc/24

New Delhi, dtd. 31.01.2017

General Manager,
All Zonal Railways, CORE,
Metro Rail/Kolkata, Konkan Railway.

Chairman and Managing Director,
RVNL, IRCON, PGCIL.

Sub: Revision in OHE parameters for new electrification works undertaken by CORE, RVNL, IRCON or other agencies and undertaken by Railway through Construction Organisation/Open line.

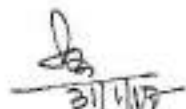
Ref: Railway Board's letter No. 2001/Elect(G)/170/1 dtd. 22.11.2016.

Vide above reference instructions were issued to follow revised OHE parameters for all new OHE laid by CORE, RVNL, IRCON or other agencies and the works undertaken by Railways through construction organization/open line.

One of the railway has pointed out that if the above guidelines are implemented the costs of the projects will increase. This may also affect the progress of the work.

The issue has been considered by the Board and it has been decided that Revised Specifications may be implemented in those projects where work has not commenced. The change on account of reduced spacing of OHE masts etc. shall not be treated as a Material Modification but as a change in quantity, to be explained at an appropriate stage while processing the raised estimate, as per extant rules. Works shall not be kept on hold on this account.

This issue with the approval of Board (ME & MTR).


(B.K. Gupta)

Executive Director(Project Monitoring)
Tele/Fax: 011-23388236

- Copy to: (i) CAO/Con., All Indian Railways.
(ii) PCE, All Indian Railways.
(iii) CEE's, All Indian Railways.
(iv) Adviser/RE, Railway Board.
(v) MD/DFCCIL, KRCL

भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड RAILWAY BOARD)

No. 2017/W-I/Genl./NL-RE

New Delhi, dtd. 27.01.2017

**General Manager (CORE),
Allahabad.**

**General Managers,
All Indian Railways.**

Sub: Planning of OHE Layout While Executing Electrification Work on Single Line Sections.

A large number of electrification works are being sanctioned on single line sections. In most cases, doubling of the line has also been sanctioned simultaneously. Even in those cases where doubling has not been sanctioned, the same is inevitable in near future, looking at the importance and traffic density of these single line sections.

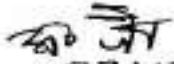
In cases where Electrification work has been carried out for existing single only, it is noticed that proper planning to take care of future Double Line is not being done. A careful planning will reduce lot of OHE modification work in yards, as also in mid section, during Doubling.

A number of portals are being erected in yards with the existing 3 lines of a single line section at the time of Electrification. If these portals are provided with a future four line yard in mind, taking into account the future passenger platform which will come on the fourth line, lot of efforts during doubling will be saved. This will save lot of cost also as a large number of existing OHE Portals are to be dismantled and new Portals being provided to accommodate the new four line yard during doubling.

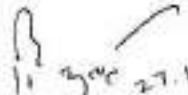
In most cases, even the alignment of future double line in mid-section is not being taken care of. As a result, large number of Power Supply Installations like Sectioning Posts Sub-sectioning Posts and Sub-stations require shifting to make way for the new double line.

It has, therefore, been decided that whenever a Electrification Project is sanctioned on a single line section, alignment of the future double line shall first be decided. Yard Plans for the double line section shall also be prepared in advance and got approved. The Layout plans of OHE shall be developed based on these yard plans and alignment of the new double line so decided.

In cases where railway electrification of existing single line is sanctioned as one work while doubling along with electrification of new double line is sanctioned as a separate work, electrification of both lines shall be executed by one agency only. Board's RE and Works Directorates will jointly decide the executing agency. Aspects brought out above shall be properly taken care of by the executing agency in such cases.


27.1.17
(Anirudh Jain)

Additional Member (Works)


27.1.17
(V.K. Agarwal)

Additional Member (Electrical)

(भारत सरकार) GOVERNMENT OF INDIA
(रेल मंत्रालय) MINISTRY OF RAILWAYS
(रेलवे बोर्ड) (RAILWAY BOARD)

No. 2016/W-I/Genl/Corr.

New Delhi, 09.01.2017

General Manager (Const.),
N.F. Railway, Guwahati

Chief Admn. Officers (Const.),
All Zonal Railways

**Sub: Reporting of progress of New Line, Gauge Conversion and Doubling
Projects in the monthly PCDO.**

During the monthly review of the progress being reported through monthly PCDO, it has been observed that progress of complete project is not being properly given. In most of the PCDOs, progress of only targeted sections has been given. The details of other non-targeted sections are not being reflected properly. This has been viewed seriously by Member Engineering.

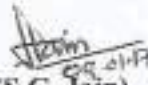
In view of the above, it has been decided that progress of complete project (NL, GC & DL), including targeted and non-targeted, be reflected at one place in the PCDO covering the following points:

1. Layout Plan of the Project.
2. Line Diagram of the Project indicating State-wise commissioned, sanctioned work in progress, section where work yet to be started.
3. Name of the Project.
4. Length of the Project.
5. State-wise bifurcation of length of the Project.
6. Year of sanction, last sanctioned cost, latest anticipated cost, expenditure upto Mar'16.
7. Outlay for 2016-17, up-to-date expenditure during current financial year.
8. Source of funding and cost sharing pattern.
9. Status of land acquisition including the bifurcation between Private, Government, forest land & detail of land involved, payment made to the State Governments etc.
10. Detailed progress of the targeted section **of 2016-17 and 2017-18**, giving the status of each major activity, targets, status of tender etc.
11. Status of non-targeted section giving details of tenders, percentage progress of each major activity, land acquisition etc.
12. Assistance required from concerned State Government/other Ministries.
13. Year-wise planning for commissioning of complete project wherever feasible.
14. In addition, PCDO should contain an Annexure where details of issues pending with each State be given which include land acquisition (Private, Forest, Government with area & other details), utility shifting, encroachment, Law & Order, funds etc.)

These above details should be reflected in the PCDO of January, 2017 onwards.

Also, PCDOs with hard copy as well as soft copy be sent positively by 10th of following month.

DA: Sample format (4 Pages)


(S.C. Jain)
Executive Director (Works)
Tel/Fax: 011-2338 2102

Status of Ongoing Projects:

(A) New lines:

(1) LALITPUR-SATNA-REWA-SINGRAULI :

1.1 [Layout Plan/Sample Enclosed]

1.2 Line diagram:

NCR upto km 65				WCR from km 65		
Stations/km	Lalitpur 0	Tikamgarh 51	Mawal 61	Khargapur 88	Chhatarpur 135	Khajuraho 165
Length of section	51 km	10 km	21 km	47 km	30 km	
Land	Acquired	Acquired	Acquired	Acquired	Acquired	
Forest and other clearances	Recd	Recd	Recd	Recd	Recd	
Progress	Commissioned	Commissioned	Commissioned	Commissioned	Commissioned	
spl feature						
Any other issue						

UP upto km 51			MP from km 51			
	Panna 236	Satna 308	Rewa 357	Govindgarh 377	Sidhi 455	Singrauli 541
71 km	72 km	49 km	20 km	78 km	86 km	
in process	in process	Existing line	Acquired	Partly acquired	Not started	
Not Recd	Not Recd		Recd	Recd	Not Recd	
Land Acquisition	Land Acquisition			WIP	Not started	
Buffer zone of Panna National Park				Tunnel 4 km, Br on Sone-16X45.7 m	9 tunnels (longest 1250m), 3 imp bridges (580m, 260m, 320m)	

Legends
 activity completed
 activity in progress
 activity not started
 Work completed but not commissioned



1.3 Salient Features:

Total Length: ...km	Original sanctioned cost: Rs. ... Cr
Length commissioned by 31.3.16: ...km	Last sanctioned cost: Rs. Cr (month/year)
Year of sanction:	Latest anticipated cost: Rs. Cr
Physical progress: ...%	Cumulative expenditure upto 31.3.16: Rs. Cr
Funding pattern: ...%: ...% (Rly: state/other ministry/PSU etc.)	Outlay 16-17: Rs. ... Cr
	Exp during current month: Rs. Cr
	Cumulative exp during 16-17: Rs. Cr

1.4 Details of section targeted in 16-17 and 17-18:

1.4.1 List of sections targeted for commissioning in 16-17 and 17-18

S. N.	Section	Length	Target month of commissioning
1			
2			
3			

1.4.2 Section wise progress of targeted sections:

(i) [section name]

Activity	Unit	Scope	Progress upto 31.03.16	Progress during the month	Cumulative Progress in 16-17	TDC, Remarks including status of tender
Land Acquisition	Acre					
E/Work	Lakh cum					
Blanketing	Lakh cum					
Imp. Major bridges	No					
Minor bridges	No					
ROB/RUB	No					
Ballast supply	Lakh cum					
Track linking	Km					
Yards	No					
Station building	No					
S&T works	No					
Power line crossings	No					
Electrification	Km					
Other electric works						

Remarks:

1.5 Details of all other sections:

Sample details are as under:-

- a) **Lalitpur-Satna-Rewa-Singrauli:** For the section from Mawai (Km 165) to Singrauli, assigned to WCR, section-wise progress is as under:
- (i) **Mawai- Khargapur section (23 Km):** CRS Inspection in this section was held on 06.05.2015. Passenger services have been started in this section from 18.10.16.
- (ii) **Khargapur-Chhatarpur section (47 Km):** CRS Inspection in this section was held on 30/31.03.2016. Passenger services have been started in this section from 18.10.16.
- (iii) **Chhatarpur-Khajuraho section (30 Km):** CRS Inspection in this section was held on 20.06.2016. Passenger services have been started in this section from 18.10.16.
- (iv) **Khajuraho-Panna (70.55 Km):** Alignment passes through buffer Zone of Panna National Park and Gangue Wild Life Sanctuary. Modified alignment (No.VII) from Khajuraho to Panna, to reduce tunnel length from 11 km (single tunnel) to 2 Nos of tunnels approx. 1 Km. each, has been approved on 22.07.15. Field work of Final Location Survey has been completed. Detailed Estimate amounting to Rs 2088.66 Crores has been prepared and sent to Railway Board on 17.10.16 for sanction.
- (v) **Panna-Satna (72.60 Km):** Detailed estimate, amounting to Rs. 918.17 Crores, has been sanctioned by Board on 02.09.2016. Land acquisition started. Section - 11 has been issued by Collector Satna for 9 villages (First Tehsil-Raghu Raj Nagar). Total Rs 281 Cr have been deposited with State Government for Land acquisition. Tenders for E/W & Minor Bridges have been opened on 10.10.16 for the stretch Km 0 to 60 Km and are under finalisation. Tenders for Major bridges have also been opened on 24.10.16 and are under finalisation.

Online proposal for diversion of 69.86 Ha forest land near Panna has been submitted and accepted by Nodal Officer on 15.02.2016. Hard copy of proposals has also been submitted to DFO/N/Panna on 03.05.2016.

- (vi) **Rewa-Sidhi (88.75 Km):** Detailed estimate for this section has been sanctioned by Railway Board on 02.09.2016. Work of Major Bridges, except one bridge, is completed in Rewa-Govindgarh section (20.15 Km). Contract for one balance Major Bridge at chainage 14719 m has also been awarded on 11.07.16. Fresh contracts for earthwork and minor bridges in km 0 to km 20 have been awarded on 11.04.16 and work is in progress.

For Tunnel work beyond Govindgarh, for carrying out Geological investigation and suggesting methodology for execution of work and preparing Tender documents, MOU was signed with Central Institute of Mining and Fuel Research (CIMFR), Nagpur in April'2016. Report from CIMFR has been received on 27.06.2016 and Alignment has been finalized, as suggested by CIMFR. Tender for tunneling work between Govindgarh-Bhangwar stations (approximate length 3.375 Km) has been invited and opened on 28.10.2016. For land acquisition from Km 70.00 to Km 88.5, section 21 has been published.

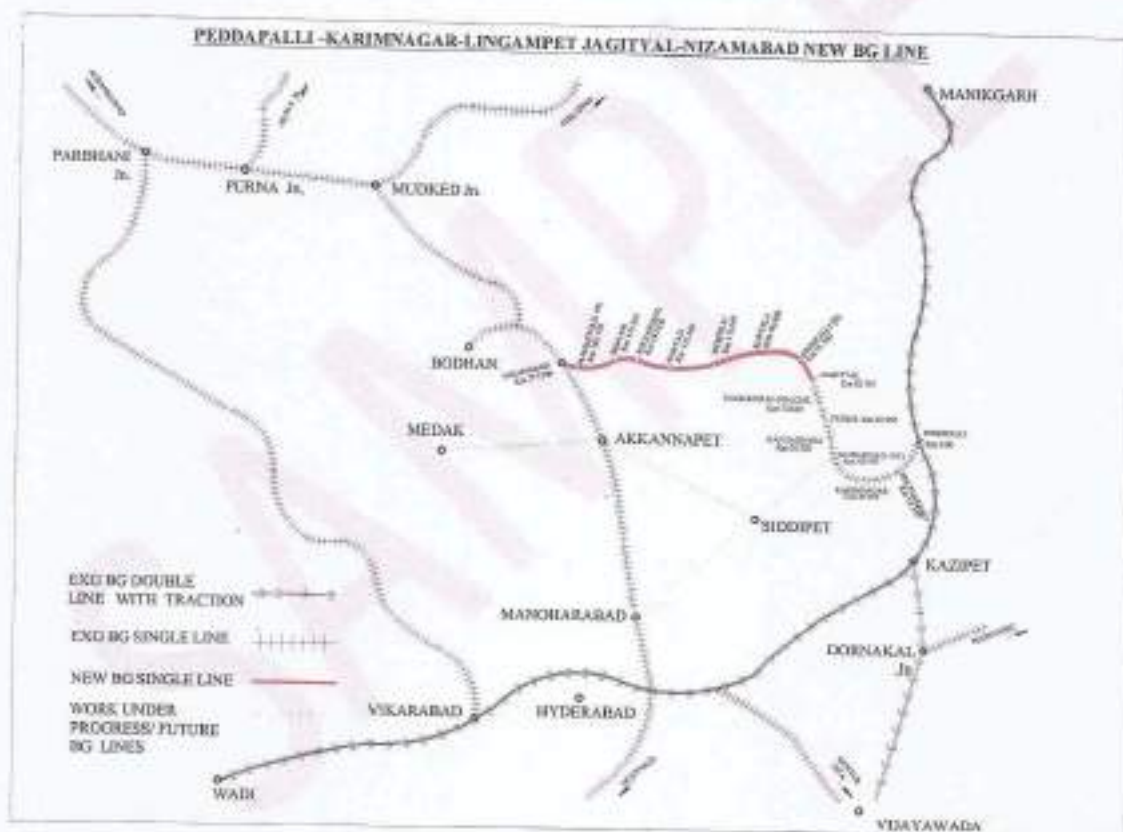
Out of a provision Rs 141.31 Cr. towards land acquisition, Rs. 94.00 Cr. had been paid to State Govt. for land acquisition during 2015-16. Rs 39.80 Cr. had also been paid to State Govt. in earlier years.

- (vii) **Sidhi - Singrauli:** Detailed estimate, amounting to (Rs 1177.39 Cr.), was submitted to Railway Board for sanction vide letter No. DY/DO/326/II dated 14.11.15. In compliance of observations of Railway Board conveyed vide letter no. 2013/W-I/WCR/Sidhi-

Singrauli dated 30.06.16, latest yard plans of the said work have been submitted to Board vide letter No. Dy/DO/326/637/VII dated 14.10.16. Project sheets for Sidhi –Singrauli Section upto Km 122 have been approved. Contract for marking of old alignment and land acquisition in Sidhi-Singrauli section has been awarded in Oct' 2016 and work is in progress. Papers for land acquisition to be submitted to State Govt. are under preparation.

- 1.6 **Issues with state government(s)**, if more than one State in the project, state-wise details be given. (Land acquisition, Utility Shifting, Law & Order, Funds from State Government for cost sharing projects etc.):
- 1.7 **Issues with other central ministries** (Forest & Wild Life clearance):
- 1.8 **Year wise planning of commissioning of complete project:**

"SAMPLE LAYOUT PLAN"



Electrical Engineering Circulars

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

No. 2022/RE/161/4

New Delhi, dated 27.05.2022

General Managers
All Zonal Railways

General Manager/Const.
Northeast Frontier Railway
Guwahati.

General Manager
CORE
Prayagraj.

CMD/RVNL
New Delhi.

CMD/RITES
Gurugram.

CMD/IRCON
New Delhi.

Sub: Up-gradation of Electric Traction System.

Full Board (CRB&CEO, MI, MOBD, MTRS & MF) have approved the followings in regard to electric traction system to meet the future peak demand.

- (i) All future electrification works (NL, GC, DL/Tripling/Quadrupling) to be sanctioned with 2x25 kV traction system.
- (ii) In all sanctioned RE works, where tenders have yet not been called, 2x25 kV traction system to be adopted

In this regard, Zonal railways are advised to take following actions

- a) To make provision of 2x25 kV traction system in TRD estimate for New Line, Gauge Conversion, Doubling/Tripling/Quadrupling works.
- b) In all sanctioned RE works (Plan head:35/11/14/15); wherein tenders have yet not been invited, 2x25 kV traction system may be proposed as material modification.

Bodh
27.05.22
(Bhupender Singh Bodh)
Executive Director,
Railway Electrification



7C
Issue

Signal & Telecommunication Circulars

(भारत सरकार) GOVERNMENT OF INDIA
(रेल मंत्रालय) MINISTRY OF RAILWAYS
(रेलवे बोर्ड) RAILWAY BOARD

No.2021/SIG/Estimates/DPR(efile-3363771)

Dated 24.02.2023

General Manager
All Zonal Railway.

Sub: Standard format for DPR for S&T works
Ref: Boards Letter no-2021/SIG/Estimate/DPR dated 25.08.2022

Vide above reference letter, checklist and appraisal Performa for S&T estimate has been already circulated to Zonal Railways.

Further in order to bring uniformity in DPR preparation and to effectively appraisal DPR, standard format of DPR for S&T projects has been finalized (copy enclosed)

For all future S&T works costing more than Rs 50 crore , DPR in this standard format may be submitted through a covering letter signed by an officer not below SAG level.

This issues with approval of Board (MI).

DA: DPR standard performa


(Sudeep Shrivastava)
ED/GS/S&T
Railway Board

Copy to:

- i. CAO/C, All Zonal Railway, for kind information & n/a.
- ii. PCSTE, All Zonal Railway, for kind information & n/a.
- iii. CMD, DFCCIL, IRCON, RCIL, RVNL & RITES for kind information pls.
- iv. PED/GS/RB for kind Information.

Standard DPR format for S&T works:

Table of contents:

Abbreviations:

1. Executive Summary:

- Introduction,
- Project Overview and objectives,
- Scope and justification,
- Methodology of preparation of DPR.
- Site Survey / Studies,
- Traffic / Network requirement
- Safety and Signalling Requirements.
- Telecommunication Requirements.
- Site constraints / utility shifting, if any.
- Mandatory Clearances,
- Phasing and Project Time Line
- Testing and commissioning requirements.
- Project Cost and Source of Funding
- O&M requirements including Training, spares etc.
- Conclusion and Recommendations

2. Field Surveys and Investigation:

- Past studies / Feasibility studies along with recommendations, if any.
- Site availability
- Encumbrances, if any
- Soil Survey for Cable laying: Type of Soil, Rocky Terrain, Water bodies etc.
- Location of SP, SSP, Substation etc.
- Vicinity to High Voltage Line/Cables,

- Radio Survey / RSSI
- Cable Route Survey including Track Crossing
- Approach road and Location of proposed S&T installation
- Available utilities
- Infringements, if any.

3. Site Profile and Alignment:

- Brief of section including geographical location, climate, route length, Road/ Rail connectivity, important stations/loading points/industry in vicinity etc
- Details of existing Signalling and Telecomm installation including year of installation, type of interlocking, blocking working etc..
- Existing approved drawings including yard layout, L section drawings, GAD/Building Drawing, SIP, cable route plan, TOC etc.
- Traffic pattern including line capacity utilization, MTPA, critical block section, etc.
- Maximum permissible speed,
- Permanent way details such as alignment, turn out details, number and CSL/CSR of running and stabling lines, gradient in yards and section, PSR, isolation in yards etc
- Details of bridges, culverts, span, tunnels etc.
- Location of traffic and engineering LC gates
- Available condonations for deviations from SOD, G&SR, if any
- Gap analysis including List of Sanctioned and on going Works
- Any other specific relevant feature

4. Project Overview:

- Concept plan and approved preliminary drawings
- Details of Scope of work clearly listing various Engineering activities including O & M activities required during and after project, if included
- Standards of proposed block working, interlocking, speed requirements etc Requirements of Service Buildings including GAD for proposed structures
- Alteration/ additions required in existing buildings
- Power budget and details of other requirement from electrical general ,TRDetc
- Phasing of project
- Land requirement, if any
- Utility shifting, as required
- Systems to be adopted for project monitoring
- Bidding system to be adopted
- Quality assurance mechanism/system

5. Technology details:

- Design standards including
- Tentative Cable route plan including methodology details like ducting, HDD,route diversity etc
- Details of S & T works involving new installation
- Details of alteration works in existing installation
- Details of S&T assets which are to be shifted in project
- Specification and installation/testing procedure for S & T equipment
- Policy references/ traffic or safety requirement for provision of Signalling and Telecommunication systems like ABS, CTC, Kavach, EI, DAC, LTE, IPS etc
- Reliability, Availability, Maintainability and Safety (RAMS) criteria or other KPIs for installed systems/ equipment

- Standard check list for S & T works
- Specific provisions for prevention of theft, outside interference, fire etc
- Specific provisions for predictive maintenance using remote diagnostics, IOT, AI etc
- Activities that can be done without block or disconnection
- Activities that will need block or disconnection.
- Testing and training required before commissioning including requirements of equipment manuals, documents, Drawings etc.
- Tentative duration of Pre NI and NI
- O & M requirements post commissioning including , AMCs from OEMs, provisions for spare, depot, Staff , training infrastructure, residential accommodation etc.

6. Mandatory clearances:

- Condonations of SOD, G&SR etc required, if any and competent authority for same.
- Statutory clearances/approval like CRS, WPC, SACFA etc required and competent authorities for the same.
- ISA certification, if required.
- Tentative timelines and responsibility for processing sanction/condonation.
- Statutory fee payments to be made and agency making it.

7. Project benefits

- Improvement in line capacity, reduction in yard detention, turnaround time, MTPA etc
- Network effect of project
- RAMS improvements
- Employment generation
- Environmental benefits
- Promotion of Atam Nirbhar Bharat (boost to local industry, skill development etc)

8. Project implementation plan:

- Phasing.
- Completion period.
- Inter departmental assistance required.
- Responsibility Matrix.
- List of Documents, Drawings, Plans etc to be submitted.
- Lifecycle of asset and its maintenance strategy.

9. Cost estimation:

- Preliminary cost estimate including department wise cost breakup
- Basis of working out cost of various components
- Expected escalation for period of completion of project
- Departmental charges or lumpsum charges for executing agency
- Phase wise fund requirement,
- Disposal of released material, credit for released material.
- Details of cost estimation in Standard Performance to be provided as vol 2 of DPR.

10. Financial/Economics analysis and works accounting system:

- Annual plan allocation
- Life cycle cost of project including O&M costs
- Alternative analysis
- Proposed source of funding
- Works Accounting System (including budget management, billing methodology, account management system etc).
- Cash flow projections along with assumptions made
- Calculation of FIRR
- Economic benefits of project, if any
- Calculation of EIRR.
- Sensitivity analysis

11. Risk Analysis:

- Key assumptions and their assessment
- Cost risk
- Schedule risk
- Operational risk
- Technology risk
- Proposed sharing of risk
- Risk mitigation measures

* The above list is indicative.

* Appraisal performance, Checklist, and PPT shall also be submitted along with DPR for Board appraisal.

GOVERNMENT OF INDIA (भारत सरकार)
MINISTRY OF RAILWAYS (रेल मंत्रालय)
RAILWAY BOARD (रेलवे बोर्ड)

No. 2021/Sig/WP/Action Plan

New Delhi, Dated 14.06.2022

The General Managers
All Indian Railways

Chief Managing Directors
RVNL, RITES, IRCON & RAILTEL

Sub: Guidelines for provision of Automatic Signalling on Indian Railways.

Ref: (i) Signal Dte's letter No. 2017/Sig/Misc. dated 18.12.2018

(ii) Planning Dte's No. 2018/PL/42/19/Pt.1 dated 14.12.2018

1. Automatic Signalling is a key means for capacity and throughput enhancement. Recently, Automatic Signalling has been identified as an important component of the Mission 3000 MT per annum by 2026-27. It is felt that there is a need for adoption of uniform approach keeping in view traffic density, site specific requirements etc.
2. Accordingly, it is advised that "Automatic Block Signalling works" may be planned based on following: -
 - (a) All sections on HDN Routes on IR
 - (b) Sections on HUN routes identified by Zonal Railways based on Traffic density/sections identified for Mission 3000 MT by 2026-27.
 - (c) All notified "sub-urban sections"
 - (d) On approaches of important junction stations/yards
 - (e) On sections where 3rd and/or 4th line works are being undertaken.
 - (f) Any other section identified by Zonal Railways justified based on traffic requirements.
3. Further, while planning auto signaling works, safety & feasibility should be examined based on site requirements like gradient etc.

This issues with the approval of Board (MI and CRB & CEO).



(Sudeep Shrivastava)
Executive Director/Signal (Project)

Copy to-

1. All PSOs/Sr. PPSs/PPSs of Board Members for kind information of
 - (a) Chairman & CEO
 - (b) Member/O&BD
 - (c) Member/Finance
 - (d) Member/Infrastructure
 - (e) Member/Traction & Rolling Stock
2. AM/Planning - For kind information please.
3. PED/Gati Shakti - For kind information please.

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No.2021/SIG/WP/Targets

New Delhi, dated 15.07.2022

**General Manager
All Zonal Railways.**

Sub: Automatic Signalling Works on Indian Railways.

Automatic Signalling (ABS) has been identified as key means for capacity and throughput augmentation on existing Railway Network. In order to expedite throughput enhancement for 3000 MT capacity by 2026-27, it has been decided that in 2022-23 target for provision of Automatic Signalling shall be enhanced to 2502 Rkm (as per annexure).

Accordingly, to execute ABS works in Mission Mode, following decisions have been taken for expeditious implementation of the Automatic Signalling projects:

1. If required, tender for Automatic Signalling works may be invited pending sanction of detailed estimates with approval as per existing delegation. However, Acceptance letter should be issued after sanction of detailed estimate.
2. Change in Engineering Scale Plan (ESP) will not be allowed for Automatic Signalling works and Signal Interlocking Plan (SIP) for ABS works will be finalised with existing yard layouts.
3. Requirement of cables and Auto huts should be optimized.
4. Cable laying being a critical activity, should be mechanized and HDD should be used at difficult locations.
5. Timely completion of civil structures viz Auto huts/ Goomties /Relay huts needs to be ensured, if necessary by adopting latest construction technologies. Necessary officials like AENs and IOWs shall be deployed for timely construction of goomties.
6. Provision of AT Supply in all Auto Hut/Goomties may be ensured as per requirement of Project in Charge. Necessary official from Electrical/TRD shall be deployed for this purpose.

This issues with approval of Board (MI, MF and CRB & CEO).


(Sudeep Shrivastava)
ED/Gati Shakti/S&T

**Copy to: (1) PCSTEs, All Zonal Railways
(2) PFAs, All Zonal Railways
(3) CAO/Cs, All Zonal Railways**

Finance Circulars

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

2022/F(X)II/PW/6

New Delhi, dated 01/03/2023

General Managers
All Indian Railways

Subject: Delegation of powers to DRMs for sanction of works under umbrella works.

Ref:- (i) Board's letter No.2022/F(X)II/PW/6 dated 22.11.2022

(ii) Board's letter No. 2017/CE-I/WP/2018-19/1Pt. dated 27.10.2022

1. Instructions issued vide Para 1 of Board's letter referred (i) above, regarding Delegation of powers to DRMs have been reviewed and in partial modification, Board have decided as under:-

The following powers are delegated to DRMs for sanction of works under lump-sum instead of umbrella works:-

PH No.	Planhead	Extent of powers upto
16	Traffic facilities	1.5 Cr
29	Road Safety works – Level Crossings	2.5 Cr
30	Road Safety works – (ROB/RUB)	1 Cr
33	Signalling and Telecommunication Works	2.5 Cr
36	Other Electrical Works including TRD Works	2.5 Cr
42	Workshops including Production Units	2.5 Cr
51	Staff Welfare	2.5 Cr
53	Passenger & Other Railway User's Amenities	2.5 Cr
64	Other Specified works	2.5 Cr

2. Regarding Para-2 (iii) of Board's letter dated 27.10.2022 referred under (ii) above, GMs may devise suitable mechanism for the communication of Umbrella Provision to DRMs for '*DRMs Priority Works*' costing up to Rs 10 Crore.

3. Please acknowledge receipt.


(Ajeet Kumar Srivastava)
Executive Director Finance (Exp.)
(Railway Board).

2022/F(X)II/PW/6

New Delhi, dated 01/03/2023

Copy to:

- i) Dy. Comptroller & Auditor General of India (Railways), Room No. 224, Rail Bhawan, New Delhi.
- ii) PFAs, Indian Railways.
- iii) FA & CAO(C)s, Indian Railways.



(Ajeet Kumar Srivastava)
Executive Director Finance (Exp.)
(Railway Board).

Copy to:

CRB & CEO, M/Fin, M/O&BD, M/Infra, M/T&RS, Secretary/Railway Board.

**Government of India
Ministry of Railways
(Railway Board)**

No. 2022/FX(II)/PW/3

Dated 08.02.2023

The General Managers, Indian Railways.
The Director General, RDSO, Lucknow.
The General Manager, CORE, Allahabad.
CAOs (Const).
CAO,MTP/Mumbai
CAO/DLW and COFMOW, New Delhi.
PFAs, Indian Railways
FA&CAOs (Construction)

Sub: Delegation of Powers to Field Units for Construction Projects.

Ref: Board's Letter No 2022/F(XII)/PW/3 dated 20.07.2022

References have been received from various field units stating that in some Zones proposals / Estimates/Variations in the estimates seeking approval of GMs, two levels of Finance Vetting/Concurrence are being asked- one by Construction Finance and another by Head Quarter Finance.

Vide Board's Letter No 2022/FX(II)/PW/3 dated 20.07.2022 point 2, it was prescribed that "if the proposal/estimate is already concurred/vetted by FA&CAO/C, second level concurrence/vetting by PFA/Open Line will not be required for submitting the same for GM's approval/Sanction"

It is once again reiterated that Zonal Railways need not seek Concurrence/Vetting of Head Quarter Finance, once Concurred/ Vetted by FA&CAO/C for submitting the same for GMs approval/Sanction.

Please acknowledge receipt.

(Enclosure Board's Letter No 2022/FX(II)/PW/3 dated 20.07.2022)


(AJEET KUMAR SRIVASTAVA)
EXECUTIVE DIRECTOR
FINANCE EXPENDITURE

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No.2022/F(X)II/PW/3

New Delhi, dated 20/07/2022

The General Managers, Indian Railways.
The Director General, RDSO, Lucknow.
The General Manager, CORE, Allahabad.
CAOs (Const).
CAO, MTP/Mumbai.
CAO/DMW and COFMOW, New Delhi.

Sub: Delegation of Powers to field units for construction projects.

Ref: i. Model Schedule of Powers, 2018.

ii. Board's letter No.2022/F(X)II/PW/1 dated-10/05/2022.

In partial modification to the powers delegated to the field units through Model SOP -2018, Ministry of Railways have decided to further rationalize the powers on certain items related to execution of projects as indicated in the annexure.

2. If the proposal/estimate is already concurred/vetted by FA&CAO/C, second level concurrence/vetting by PFA/open line will not be required for submitting the same for GM's approval/sanction.
3. Other provisions of Schedule of Powers will remain unchanged.
4. Please acknowledge receipt.

Enclosure: Annexure (02 No. of pages)



(Ajeet Kumar Srivastava)
Executive Director Finance (Exp.)
Railway Board.

No.2022/F(X)II/PW/3

New Delhi, dated 20/07/2022

Copy to:

- i) Dy. Comptroller & Auditor General of India (Railways), Room No. 224, Rail Bhawan, New Delhi.
- ii) PFAs, All Indian Railways including Production units.
- iii) FA & CAO(C)s, All Indian Railways.



(Ajeet Kumar Srivastava)
Executive Director Finance(Expenditure)
(Railway Board)

No.2022/F(X)II/PW/3

New Delhi, dated 20/07/2022

Copy for information to:

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The Director General, Indian Railway Institute of Financial Management,
Secunderabad.
The Director General, Indian Railway Institute of Transport Management,
Lucknow.
The Director General, Indian Railway Institute of Civil Engineering, Pune
The Director General, Indian Railway Institute of Mechanical and Electrical
Engineering, Jamalpur
The Director General, Indian Railway Institute of Signal Engineering and
Telecommunications, Secunderabad.
The Director General, Indian Railway Institute of Electrical Engineering, Nasik.
The Executive Director, Indian Railways Centre for Advanced Maintenance
Technology, Gwalior.
The Registrar, Railway Claims Tribunal, Delhi
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The Secretary, Railway Rates Tribunal, Chennai.

The Chairman, Railway Recruitment Board, Ahmedabad, Ajmer, Allahabad, Bangalore, Bhopal, Bhubaneshwar, Chandigarh, Chennai, Gorakhpur, Guwahati, Jammu & Srinagar, Kolkata, Malda, Mumbai, Muzaffarpur, Patna, Ranchi, Secunderabad and Trivandrum.



(Ajeet Kumar Srivastava)
Executive Director Finance(Expenditure)
(Railway Board)

Copy to: OSD/MR, OSD/Co-ord/MR, Additional PS/MR, Advisor/MR, Sr. PPSs/PPSs/PSs to Board Members, Secretary, DG/RHS, DG/RPF, ADG/DS, Additional Members, OSDs, Advisors and Executive Directors, DIP, Editor/Indian Railways, Editor/Bhartiya Rail and O&M Branch of Board's office.

Annexure to Board's Letter No.2022/F(X)II/PW/3 dated: 20/07/2022

S. No.	Description of item	Existing provision	Modified provision
1	Works Contract for approved and sanctioned works- or supplies related to sanctioned works or zonal contracts. (A) Calling of Tenders: (i) Open Tenders.	Note (5) of item 5 A (i). Pre-vetting of tender schedules is not necessary except in the rare urgent cases where tenders are called without sanction of detailed estimate. Pre-vetting is also not necessary in case of zonal works and revenue works in Open Line up to Rs.5 lakhs for which detailed estimates need not be framed. It shall be ensured that the tender schedules are prepared based on the scope of the work as included in the sanctioned estimates. In cases of urgency, open tenders may be called, before sanction of detailed estimates, with the approval DRM/PHOD/CHODs. However, the letter of acceptance shall be issued only after the sanction of detailed estimate.	Note (5) of item 5 A (i). Pre-vetting of tender schedules is not necessary where tenders are called without sanction of detailed estimate, if detailed estimate is vetted and submitted for sanction of competent authority. Pre-vetting is also not necessary in case of zonal works and revenue works in Open Line up to Rs.5 lakhs for which detailed estimates need not be framed. It shall be ensured that the tender schedules are prepared based on the scope of the work as included in the sanctioned estimates. In cases of urgency, open tenders may be called, before sanction of detailed estimates, with the approval DRM/PHOD/CHODs. However, the letter of acceptance shall be issued only after the sanction of detailed estimate.
2	5. (F) To dispense with calling of tenders for works which are urgent in nature and to accept offers received in response to quotations.	Note (1) of Item 5 (F) 1. The power given in 5(F) (ii) is to be used for last mile connectivity of projects.	Note (1) of Item 5 (F) 1. The power given in 5(F) (i) & (ii) is to be used for last mile connectivity of projects, unforeseen/left over works directly required for completion of projects.

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3	9(A). Variation in quantities specified in contracts (A) Increase in quantities specified in the Contract.	Note (6) for Item 9 (A)- 6. Execution of quantities beyond 150% of the overall agreement value should not be permitted and, if found necessary, should be only through fresh tenders or by negotiating with the existing contractor, with personal concurrence of PFA and personal sanction of General Manager.	Note (6) for Item 9 (A) 6. Execution of quantities beyond 150% of the overall agreement value should not be permitted and, if found necessary, should ordinarily be only through fresh tenders or by negotiating with the existing contractor, with personal concurrence of FA&CAO(C) and personal sanction of General Manager.
4	Para 35 (A). Acquisition of land- (A) against provision made in a sanctioned estimate	Note of Item 35 (A) 1. Finance vetting is necessary as regards funds availability. 2. Subject to overall sanctioned cost for land in the estimate not being exceeded by more than 20%.	Note of Item 35 (A) 1. Finance vetting is necessary as regards funds availability. 2. For payment of land cost due to: a. Full price escalation. b. Upto 20% due to increase in quantity. GM will sanction sub-estimate of land with concurrence of FA & CAO/C and payment may be released if project is getting delayed on this account without waiting for sanction of revised estimate of the project. The revised estimate should necessarily include this sub-estimate of increased land cost before sanction.

3/6
20/11/20
EJF

Reminder-II

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No. F(X)II/2022/PD/1

New Delhi, dated.08.02.2023

General Managers,
All Indian Railways.

Sub: Productivity Test

Please refer to Board's letter of even number dated 31.03.2022 followed by reminder dated 17.10.2022 wherein it was requested to submit the Productivity Test reports undertaken for the Railway projects by the Zonal Railways.

During a recent EBR meeting, NITI Aayog has also asked for the productivity test. It is therefore requested that results of Productivity Tests already conducted should be submitted immediately and remaining productivity tests should be completed at the earliest.

DA: Enclosed.


**(Ajeet Kumar Srivastava)
Executive Director, Finance (Exp.)
(Railway Board)**

Copy for information to:

PFAs, All Zonal Railways.

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No. F(X)II/2022/PD/1

New Delhi, dated 31.03.2022.

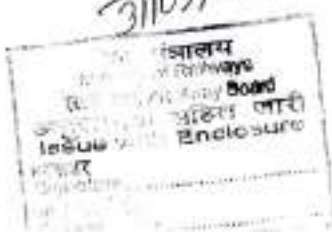
General Manager,
Central Railway,
Mumbai.

Sub: Productivity Test.

- Ref:** i) Board's Letter No.F(X)II/2005/PD/1 (Reports) dated 15.12.2014, 31.08.2015, 14.10.2015 and 08.09.2021.
ii) Board's letter No.2018/F(X)II/PD/NFR/14 dated 18/01/2019.

In terms of provisions contained in Para 243-248 of Indian Railways Finance Code Vol-1 (extracts enclosed), all major works undertaken with the objective of increasing earnings or reducing expenditure or both have to be subjected to Productivity Tests/Reviews in order to determine whether the financial returns anticipated at the time of sanction have actually been realized or not. This exercise has to be carried out jointly by the Operating, Commercial, Engineering, Accounts and other concerned departments of Zonal Railways. However, it has been observed that the Zonal Railways have not been regular in carrying out and submitting their respective reports to Railway Board.

2. It is for favour of your attention that the Productivity Tests should be invariably undertaken for all those projects where this test is due and the reports of such tests should be submitted to Railway Board on time.
3. A list of works, which have been completed in last 10 (ten) years, has been obtained from IRPSM and **annexed** to this letter. While the Productivity Test has to be done for all major works, Central Railway may conduct the Productivity Tests for the works mentioned in the list enclosed, to start with.



4. Railway is requested to undertake Productivity Test of the above works as per provisions mentioned in para 1 of the letter *ibid* and send the report to this office at the earliest.

5. This issues with the approval of Board (MF and CRB & CEO).

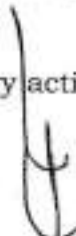
DA: As above.


(Mohit Sinha) 30/3/22
Additional Member Finance

No. F(X)II/2022/PD/1

New Delhi, dated 31.03.2022.

Copy to: PFA, Central Railway, Mumbai for information and necessary action.


(Mohit Sinha) 30/3/22
Additional Member Finance

Copy for information to :

1. EDCC for information of CRB & CEO;
2. M(O&BD)
3. M.I.
4. M.F.

Note : The preparation of financial justification as contemplated in this paragraph is not necessary for condemning rolling stock in the following cases:-

- i) Overaged stock due to be replaced by virtue of their age but condemned before replacement.
- ii) Under or overage stock involved in accidents and certified to be irreparable (not included under the category of "beyond economical repairs").
- iii) Non I.R.S. type coaches and wagons of inherently weak design proposed to be condemned on condition basis whether under or overage.

240 Example are given in Annexure 'G' illustrating the method of financial justification to be adopted in the case of replacement, reconditioning or abandonment of existing assets. The data used in the illustrations are hypothetical and the methods adopted are not to be regarded as exhaustive or as precluding the use of other methods that may be found to be more appropriate. The D.C.F. method can be conveniently used in some cases as has been shown in Example (1) of Annexure 'G'.

241 Second-hand Value- The second-hand value of an asset is what it is presently worth and has often to be distinguished from its scrap value. For purposes of financial justification of transfer, purchase or sales, the second-hand value of assets may, except in certain cases (e.g. rails, locomotives, boilers, etc.) where separate rules have been prescribed for the determination of the second-hand value, be determined as provided below:-

- i) The first cost of an asset (based on which its second-hand value has to be computed) should be taken as the value of a similar asset at present day prices and not the value actually paid for the asset when it was originally purchased.
- ii) The second-hand value of an asset that does not depreciate is the same as the first cost.
- iii) The second-hand value of a depreciating asset should be so appraised that the average annual cost of service or the average cost per unit of service, as the case may be, of the second-hand asset is equal to that of the same or similar asset while new.

242 Examples illustrating the application of the principles enunciated in the preceding paragraph are given in Annexure 'H'.

243 Post project appraisal - It is important that an investment proposal is subjected to proper financial appraisal not only before it is sanctioned but also a certain period of time after the project has been in operation. Whether the financial return anticipated from a project at the estimate stage is actually realised in due course or not should be determined by conducting a 'Productivity test' in respect of all major works. For any such comparison to be meaningful and realistic, it is important that the computation of the actual additional earnings and working expenses is done on the same lines as at the project estimate stage. As commercial profitability is liable to be affected by escalation in prices or any other extraneous development, in order to have a more reliable and accurate evaluation wherever relevant, a comparison in terms of physical units of throughput may be carried out. Such a comparison should preferably be done classwise in the case of passenger traffic and commodity-wise in the case of goods traffic.

244 New Lines - In respect of each new line opened for traffic, the railway administration should submit to the Railway Board a statement, showing the financial results of its working in Form No. 244 shown below. The statement should reach the Railway Board not later than the 31st December following the financial year to which it refers and should be accompanied by a covering memorandum in which brief explanations should be given of important variations between the actual realisation and the estimated earnings, together with a Note by the General Manager indicating how the actual net cash flow compares with what was estimated at the project stage. The Note should also bring out the probable traffic prospects of the line in the sixth and the eleventh year of opening.

Statement showing Financial Results of working of New Branch Lines.

Form No.F.244

Railway -----
Length in Kilometres-----Name of branch -----
Gauge -----Opened on-----

Year	Cost on 31 st March plus calculated interest during construction.		Earnings of Branch line proper		Actual expenditure of branch assessed on the basis of costing/financial data applied to the traffic over the branch line		Net earning of branch proper (Col.3-4)	
					Working expenses (excluding depreciation & interest)			
	As originally Estimated.	Actuals.	As originally Estimated.	Actuals.	As originally Estimated	Actuals	As originally Estimated.	Actuals
(1)	(2)		(3)		(4)		(5)	
Actuals after opening – 1 st year .. 2 nd year .. 3 rd year .. 4 th year .. 5 th year .. 6 th year .. 7 th year .. 8 th year .. 9 th year .. 10 th year and so on upto 30 years								

Main line				Additional net earnings(Col.6-7).		Total net earnings (Col.5+8)		Return on total cost Col.9x 100	Remarks
Additional earnings minus any loss due to short circuiting or diversion of traffic.		Additional expenses calculated on the basis of costing/ financial data applied to traffic from the existing line to branch line and vice-versa.					Col.2		
		Working expenses (excluding depreciation & interest)							
As	Actuals.	As	Actuals	As	Actuals	As	Actuals		

originally Estimated		originally Estimated.		originally Estimated		originally Estimated			
6		7		8		9		9A	10

Foot notes to Form No. F. 244.-

- 1). Actuals will be actuals to end of the year for which accounts have been closed, and fresh estimates for the years thereafter.
- 2). Special steps taken in the course of the year:-

(a) To develop the traffic earnings-

(b) To reduce the expenses

(i)

(i)

(ii)

(ii)

(iii)

(iii)

(iv)

(iv)

- (3). Probable future development of traffic and possibility of the line paying its way (short note)--

Head of Traffic Department.

Head of Account Department

Note:- The traffic data required to be maintained vide Para 245 should be used for costing purposes so as to arrive at the expenditure of the Branch proper and of traffic moving from the existing line to the Branch line and vice versa.

245 The following statistics should be maintained from year to year in respect of all new lines opened for traffic and submitted to the Railway Board by 1st August of each year :-

- (i) (a) Passenger earnings from traffic local to the branch line.
- (b) Other coaching earnings from traffic local to the branch line.
- (ii) (a) Passenger earnings from traffic from the new line to the existing lines and vice versa.
- (b) Other coaching earnings from traffic from the new line to the existing lines and vice versa.
- (iii) (a) Tonnage of goods traffic local to the branch line.
- (b) Tonnage of goods traffic inter-changed with the existing lines
- (iv) (a) Earnings from goods traffic local to the branch line.
- (b) Earnings from goods traffic interchanged with the existing lines.

246 The following instructions should be followed in preparing the statement F-244 :-

(i) Column 3 should indicate the earnings of the branch from all traffic originating therein, whether local or foreign (Proportion due to the branch) and all traffic received from the main line.

(ii) Columns 4 & 5 should be worked out on the basis of the costing/financial data under Group 'C' (see Annexure 'A') in respect of the traffic referred to in (i) above.

(iii) The additional or new traffic interchanged to be shown in column 6 should include only that portion of the traffic received by the main line from the new branch and of the traffic from the main line to the branch, which arises solely from the construction of the new branch line. In the absence of actual figures of additional traffic interchanged with the existing lines, a reasonably approximate figure may be adopted. In the case of chord line short-circuiting a previously existing route, figures relating to cross traffic which would have been carried by the previously existing route, if the chord line had not been constructed, may be omitted from this statement and a proportionate reduction in the working expenses on the branch line made. Column 7 should be worked out on the basis of costing financial data under group 'C' (See Annexure 'A' and para 217).

247 The statements vide Paras 244 & 245 should be submitted for every completed financial year after the date of opening of the new line for a period of 11 years. The actuals for the years to end of which accounts have been closed and the cash flows for the remaining years of the assumed project life should be arrived at on the basis of the best possible estimation. The entire series of net cash flows should then be discounted to arrive at the rate of return compared to the originally expected return. In case the actual cash flows shown in statement F.244 indicate a fair degree of proximity to the original estimates, it may be assumed that the cash flows for the remaining years of the project life will also follow the same trend unless definite foreknowledge is available to the contrary. If a review of the annual cash flows for a sufficiently long period (say 5 to 7 years) indicates that the cash flows have settled down, within limits, to a 'uniform' series, the Railway Board may decide that submission of the Statements F. 244 & F. 245 for future years in the case of a particular new line be discontinued.

248 **Open Line Works** - For the purpose of applying the productivity tests to open line works, i. e. works undertaken with the definite object of increasing earnings or reducing expenditure and to which such tests can be applied within five to seven years of their completion, selection will be made out of these works sanctioned (and/or charged to Capital) on grounds of remunerativeness. All such works costing over Rs. 1 crore will invariably be subjected to this test. The result of the test should be reported by the General Managers to the Railway Board. In the case of works costing between Rs. 20 lakhs and Rs. 1 crore charged to Capital and sanctioned by the General Manager within his powers of sanction, selection for the purpose of productivity test will be made by him in consultation with his Financial Adviser and Chief Accounts Officer. As stated earlier in the preceding para in the case of New Lines, the actual net cash inflow for each year, to end of the 5th/7th year from the date of commissioning should be recorded for each open line work to be subjected to the productivity test, and the cash flows for the rest of the project life assessed on the basis of the latest estimate. The whole series of net cash flow should then be discounted to arrive at the rate of return compared to the return originally expected.

249 In addition to productivity test to be conducted as provided in paragraph 248 above, a productivity review should also be undertaken in respect of selected works costing over Rs. 10 lakhs which are estimated to fetch some return, even though not the return prescribed for a work being classified as remunerative and as such charged to O. L. W. R. or Development Fund. The methodology to be followed will be the same as prescribed in the preceding para in respect of works costing over Rs. 1 crore each. The Railway Board will be selecting works which are sanctioned by them. The selection made by the Railway Board out of such works sanctioned by them will be notified through letters conveying sanction to the estimates for such works. For works costing over Rs. 10 lakhs and upto Rs. 1 crore each, sanctioned by the General Manager within his own powers of sanction, selection for the purpose of productivity review will be made by him in consultation with his Financial Adviser and Chief Accounts officer.

Note.-Justification for works or part of a scheme should show the probable period that will elapse between the completion of the works and the time when the productivity review can be made. This note equally applies to paragraph 248.

250 The fact that productivity tests are to be applied to a particular work should be intimated to the authorities entrusted with its execution as also to the Accounts and Audit officers. In respect of all such

कॉपी जारी करें
17/10/22

Reminder-1

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No. F(X)II/2022/PD/1

New Delhi, dated.17.10.2022

General Managers,
All Indian Railways.

Sub: Productivity Test.

Ref: This office letter of even number dated 31.03.2022.

Please refer to Board's letter dated 31.03.2022 under reference on the above subject wherein all Zonal Railways were requested to submit the Productivity Test reports undertaken for the works mentioned in the list enclosed with the referred letter.

The requisite report(s) is/are still awaited from your Railway. It is requested that the same may kindly be submitted to this office urgently.


(Anish Singh)
Director, Finance (Exp.)
(Railway Board)

Copy for information to:

PFAs, All Zonal Railways.

o/c


18/10/22

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No.2022/F(X)II/PW/3

New Delhi, dated 20/07/2022

The General Managers, Indian Railways.
The Director General, RDSO, Lucknow.
The General Manager, CORE, Allahabad.
CAOs (Const).
CAO, MTP/Mumbai.
CAO/DMW and COFMOW, New Delhi.

Sub: Delegation of Powers to field units for construction projects.

Ref: i. Model Schedule of Powers, 2018.

ii. Board's letter No.2022/F(X)II/PW/1 dated-10/05/2022.

In partial modification to the powers delegated to the field units through Model SOP -2018, Ministry of Railways have decided to further rationalize the powers on certain items related to execution of projects as indicated in the annexure.

2. If the proposal/estimate is already concurred/vetted by FA&CAO/C, second level concurrence/vetting by PFA/open line will not be required for submitting the same for GM's approval/sanction.
3. Other provisions of Schedule of Powers will remain unchanged.
4. Please acknowledge receipt.

Enclosure: Annexure (02 No. of pages)



(Ajeet Kumar Srivastava)
Executive Director Finance (Exp.)
Railway Board.

No.2022/F(X)II/PW/3

New Delhi, dated 20/07/2022

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- iii) FA & CAO(C)s, All Indian Railways.



(Ajeet Kumar Srivastava)
Executive Director Finance(Expenditure)
(Railway Board)

No.2022/F(X)II/PW/3

New Delhi, dated 20/07/2022

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The Executive Director, Indian Railways Centre for Advanced Maintenance
Technology, Gwalior.
The Registrar, Railway Claims Tribunal, Delhi
The Chief Commissioner of Railway Safety, Lucknow
The Secretary, Railway Rates Tribunal, Chennai.

The Chairman, Railway Recruitment Board, Ahmedabad, Ajmer, Allahabad, Bangalore, Bhopal, Bhubaneshwar, Chandigarh, Chennai, Gorakhpur, Guwahati, Jammu & Srinagar, Kolkata, Malda, Mumbai, Muzaffarpur, Patna, Ranchi, Secunderabad and Trivandrum.



(Ajeet Kumar Srivastava)
Executive Director Finance(Expenditure)
(Railway Board)

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Annexure to Board's Letter No.2022/F(X)II/PW/3 dated: 20/07/2022

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3/6
20/11/20
EJF

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No.2022/F(X)II/PW/1

New Delhi, dated 10/05/2022

The General Managers, Indian Railways.
The Director General, RDSO, Lucknow.
The General Manager, CORE, Allahabad.
CAOs (Const).
CAO, MTP/Mumbai.
CAO/DMW and COFMOW, New Delhi.

Sub: Delegation of Powers to CAO/Con for construction projects.

Ref: Model Schedule of Powers, 2018.

The proposal for delegation/enhancement of powers to CAO/C of All Indian Railways on certain items for execution of projects was under consideration of Board. In order to fast pace the completion of the projects to reap the intended benefits and to empower the Construction Organization to take expeditious decisions, it has been decided by Board (MF) to issue the enhanced powers to the CAO/C of all Indian Railways as per the enclosed annexure.

2. These powers have to be exercised by CAO/C personally and are not to be further delegated to the subordinate officers.
3. While exercising these powers, concurrence of the associate finance would be required unless stated otherwise specifically.

4. In cases where the powers of CAO/C delegated through this letter has exceeded the powers already delegated to the General Managers, GMs will automatically be authorized to exercise the same enhanced powers as delegated to the CAO/C through this letter.

5. The powers already delegated to other officers under CAO/C will remain unchanged.

Enclosure: Annexure (Page 1-5)


(Ajeet Kumar Srivastava)
Executive Director Finance (Exp.)
Railway Board.

No.2022/F(X)II/PW/1

New Delhi, dated 10/05/2022

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The Registrar, Railway Claims Tribunal, Delhi

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(Ajeet Kumar Srivastava)

Executive Director Finance(Expenditure)

(Railway Board)

Copy to: OSD/MR, OSD/Co-ord/MR, Additional PS/MR, Advisor/MR, Sr. PPSs/PPSs/PSs to Board Members, Secretary, DG/RHS, DG/RPF, ADG/DS, Additional Members, OSDs, Advisors and Executive Directors, DIP, Editor/Indian Railways, Editor/Bhartiya Rail and O&M Branch of Board's office.

Annexure to Board's Letter No.2022/F(X)II/PW/1 dated: 10/05/2022

S. No.	Description of item	Extent of powers	Remarks
1	5 A(iii) Special Limited Tender (a) Works of specialized nature (b) Works of Urgent nature	CAO/C - Full Powers. CAO/C - Full Powers	Authority: 1. (Rly. Bd's letter No. 94/CE-I/CT/4 dated 22.10.2001 and 17.10.2002 2. Rly. Bd's Ltr. No. F(X) II/2006/PW3 dt. 27-2-2006 and 16-05-2006 and F(X)II/2006/PW/13 dt. 9-8-2006. 3. Rly. Bd's. Lr. No.2007/CE/I/CT/18 dt. 28-9-2007.
	Notes for Item 5 A(ii) Special Limited Tender: 1) Associate Finance concurrence is necessary. 2) As per Rly. Bd's. Lr. No. 2007/CE/I/CT/18 dt. 28-9-2007 CAO/C with the concurrence of FA&CAO/C may invite special limited tenders not only for specialized nature of work but all types of works depending upon the merit of the case. 3) Special Limited Tenders may be invited from specialized and reputed contractors/organizations/agencies. (Rly. Bd's letter No. 94/CE-I/CT/4 dated 17.10.2002) 4) Tenderers from whom Special Limited Tenders are to be invited should preferably be more than Six but not less than Four (Rly. Bd's letter No. 94/CE-I/CT/4 dated 17.10.2002) 5) Tender Notice period should not be less than 14 days.		
2	5 (B)(ii) Consultancy (i) Consultancy works for other than property development schemes from outside bodies including PPP projects	CAO/C – Full powers	Authority: 1. Item No.30(a) of GM's delegation. Bd's Letter No. F(X)II- 2016/PW/ 3 dt.14.09.2016 2. Railway Board Letter no F(X)- II/2015/PW/7 dated 12.06.2017 3. 2017/Trans/01/Policy dtd 18.10.2017

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	(ii) Consultancy works for property development schemes i.e., for commercial exploitation from outside bodies		Railway Board letter no No. 2017/Trans/01/Policy dated: 27 - 11- 2017 on the subject Process Reforms – Engagement of Consultants
	Note for Item 5 (B) (ii) Associate Finance concurrence is necessary.		
3	5 (D) (ii) Invitation of single tender for construction projects, which are targeted for completion in the current financial year.	CAO/C – Rs 60 Cr	Authority: 1. Para-1214-A of Engineering Code 2. Railway Board's letter No. 2007/CE-I/CT/18 dated 07.03.2008 3. Railway Board's letter No. 2007/CE-I/CT/18 Pt. XII dated 31.12.2010 (Para-3), 4. Bd's Letter No.2011/CE I(Spl)/CT/0/4 dated 27.06.2011 and 11.10.2012 & Letter No.2011/CE-I/CT/0/4 dated 14.11.2013 followed by 02.05.2017.
	Notes for Item 5 (D): 1. Personal concurrence of PFA/FA & CAO/C is required. 2. Powers to be exercised only in respect of Plan Heads and Projects targeted for completion by awarding Single Tender as per the instructions of Railway Board for specific Financial year. 3. Prudence and transparency shall be maintained in the exercise of these powers. 4. These powers shall be exercised judiciously and sparingly with extreme caution. 5. Cases finalized under these powers shall be reported to Board through GM.		
4	5. (F) (ii) To dispense with calling of tenders for works which are urgent in nature and to accept offers received in	CAO/C - Rs. 4 Cr. per	Authority: Board's Letters Nos.

	response to quotations.	case for construction Projects with annual limit of Rs. 25 Cr.	1. 2007/CE- I/CT/18/Pt. dt 05.03.2009. 2. 2007/CE-I/CT/18 Pt.13 dt.06.09.10. 3. 2007CE- I/CT/18/Pt.13 dt.11.09.17
	Notes for Item 5 (P) (i) : 1. The power given in S(F) (ii) is to be used for last mile connectivity of projects. 2. Finance concurrence is necessary except for delegation under col. 5(i) for which certification by accepting Authority that the work is of urgent nature and directly related to safe running of trains in his jurisdiction is required to be recorded. 3. The powers should be exercised sparingly. The circumstances under which quotations have to be called should be spelt out. 4. The powers are also subject to the availability of provision in sanctioned estimate or preparation/ sanction to the detailed estimates wherever necessary. 5. The work should not be split up for the purpose of bringing it within the ambit of this dispensation 6. The reasonableness of rates should be gone into objectively and in detail by the accepting authority. 7. Quotations should not be for fancy (expensive but of low utility) items. 8. Quotations should only be for works which are urgent in nature. 9. Quotations should normally be invited from at least three well experienced contractors/ agencies not necessarily borne on the approved list. 10. Accepting Authority must take precautions to see that the quotations are from genuine firms (and not from fictitious firms). 11. A Register showing the full particulars of works authorized through quotations shall be maintained by the officer having powers to dispense with calling of tenders. The register shall be sent to associate finance while seeking their concurrence. 12. Notice period of at least 7 days from the date of NIQ (Notice inviting Quotation) shall be maintained. In case of emergency, the period can be reduced with approval of the authority accepting quotation 13. The notice inviting quotations should be given wide publicity.		
5	8(A)(ii) Introduction of new non-schedule items in contract for works Without Finance Concurrence	CAO/C - Up to Rs. 5 Cr or 1% of the contract value whichever is less for targeted	Authority: 1. Board's letter No. 87/WI/CT/10 dated 17.3.1988 and No.94/CE-I/CT/37 dated 6.6.95. 2. Railway Boards Letter No. 2007/CE- I/CTdated 31.8.2007 and Cs no dtd 04.01.08 3. Board's, letter no 2017/Trans/01/Policy

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		works.	dated 18.10.2017 4. Board's Lr No.2018/TF/Civil/ Works Dtd.12/06/2018
	8(B)(ii) Introduction of new non-schedule items in contract for works with finance Concurrence	CAO/C - Full Powers	
	8 (C) Introduction of new non-schedule items in Consultancy contract with finance Concurrence	CAO/C - Rs 5 Cr. or 10 % of the contract value, whichever is less	
	Notes for item 8: 1. It should be ensured that the rates sanctioned for such non- schedule items, are comparable to the rates for similar works executed in the area. 2. Rates should be derived from Last Accepted rates of SOR/NS items of similar conditions and where new items cannot be derived from such SOR/NS items, market rates should be taken. Rates of such NS items accepted without finance concurrence cannot be quoted as Last accepted rate (LAR) for justifying similar rates in future tenders. 3. The variation shall be governed as per notes in item no 9 of this SOP works matters Part-A. For item 8(A)i & C 4. 70% payment can be released of approved NS item after approval of competent authority pending processing by Finance & sanction of competent authority.		
6	37 (F) Rendering services: Services for preparation of drawing, field survey, estimate, land acquisition, forest clearance, collection of data.	CAO/C - Full powers	1. Board letter no 2017/Trans/01/Policy dated 18.10.2017
7	43 (ii) To sanction expenditure on testing charges of steel, concrete cubes, ballast,	CAO/C - Full power	Authority: 1. From reputed institutes Like IIT/NIT/

	soil, drinking water etc. from Govt. Institutions/ Govt. approved laboratories		Shriram Institute for Industrial Research/ MSME etc 2. Rates, Finance concurrence required For cases in excess of Rs 25000/
	Note: 1. Testing of the materials shall be carried out from Engineering institute like IIT's, NITs, National Test House, or any other NABL (National Accreditation Board for Testing and Calibration Laboratories) accredited Laboratories. 2. In case of institutions of National repute like IIT, NIT, NTH etc. – Advance payment can be made if demanded.		
8	46 (ii) Entering into contracts/formal understanding in the prescribed forms for consultancy services on technical matter on nomination basis such as proof checking of design and drawing by Engineering institute of National/International repute like IITs/NITs etc.	CAO/C – Full powers	1. Format of MOU to be vetted by Law Branch. 2. Finance concurrence is necessary along with vetting of Draft MOU.
	Note for 46 (ii) Provision of Advance payment up to Rs. 1 Cr. with the Personal concurrence of FA & CAO/C & approval of CAO/C can be made		

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**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No.FX)II/2022/10/9

New Delhi, dated 21/03/2022.

The General Managers,
All Indian Railways.

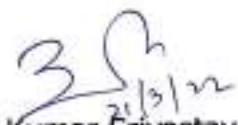
Sub: Works being charged to EBR/IF.

Guidelines for funding the works from EBR/IF have already been issued vide Board's letter No. 2015/FS Cell/1/6 dt. 01/06/2016 and the subsequent letters of Railway Board.

It is reiterated that EBR/IF is an interest bearing Fund and, therefore, only those works are charged to EBRIF which have potential to generate Rate of Return above the hurdle rate.

Since the EBR/IF Fund has a high cost, it is important that only those items should be included in the estimates chargeable to EBR/IF, which can be linked to the completion of the project directly. Even the provision of environment related works are not made under such works.

The provision for Contingencies made in the estimates of such projects should be utilized only for those items which are absolutely necessary to complete the project and are incidental to it and no frills should be charged to EBRIF even in the contingency provision.


(Ajeet Kumar Srivastava)
Executive Director Finance (Exp.)

Copy to: PFAs, All Zonal Railways.

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**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No.2021/F(X)II/Allocation/1

New Delhi, dated 11/1/2022

- ✓ The General Managers, All Indian Railways.
The CAOs(C), All Indian Railways.
The Director General RDSO, Lucknow.
The General Manager, CORE, Prayagraj.
The CAOs(R)/DMW, Patiala & MTP, Chennai.

Sub:- Amendment in Scope of Railway Safety Fund.

The Railway Safety Fund (RSF) is a non-interest bearing fund created w.e.f. 01.04.2001 on the recommendations of Railway Convention Committee, 1999. It is financed / credited with funds received from General Exchequer as Railways' share out of Central Road & Infrastructure Fund (CRIF) from cess levied on HSD oil and petrol etc, as per the CRIF Act.

2. Presently, projects under Planheads 29-Road Safety Works-Level Crossings and 30-Road Safety Works-Road Over/Under Bridges are mainly charged to this fund.

3. In view of amendment to the CRIF Act and the consequential Gazette Notification by Government of India, it has been decided by Board that infrastructure projects under the Planheads New Lines, Gauge Conversion, Traffic Facilities, Track Renewals, Bridge Works, Electrification, Customer Amenities and Metropolitan Projects, can also be financed from Railway Safety Fund, in addition to Road Safety Works-Road Over/Under Bridges and Level Crossings.

4. Please acknowledge receipt of this letter.

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11/01/22

(Ajeet Kumar Srivastava)
Executive Director Finance Expenditure
(Railway Board)

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Copy to:

- i. The PFAs, All Indian Railways/Production Units etc.
- ii. FA & CAO(C)s, All Indian Railways.
- iii. Dy. Comptroller & Auditor General of India (Railways), Room No. 224, Rail Bhawan, New Delhi.

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11/01/22

(Ajeet Kumar Srivastava)
Executive Director Finance Expenditure
(Railway Board)

No.2021/F(X)II/Allocation/1

New Delhi, dated 11/1/2022

Copy for information to:

The Director General, National Academy of Indian Railways, Vadodara.
The Director General, Indian Railway Institute of Financial Management, Secunderabad.
The Director General, Indian Railway Institute of Civil Engineering, Pune.
The Director General, Indian Railway Institute of Mechanical and Electrical Engineering, Jamalpur.
The Director General, Indian Railway Institute of Signal Engineering and Telecommunications, Secunderabad.
The Director General, Indian Railway Institute of Electrical Engineering, Nasik.
The Director General, Indian Railway Institute of Transport Management, Lucknow.
The Executive Director, Indian Railways Centre for Advanced Maintenance Technology, Gwalior.
The Registrar, Railway Claims Tribunal, Delhi.
The Chief Commissioner of Railway Safety, Lucknow.
The Secretary, Railway Rates Tribunal, Chennai.
The Chairman, Railway Recruitment Board, Ahmedabad, Ajmer, Allahabad, Bangalore, Bhopal, Bhubaneshwar, Chandigarh, Chennai, Gorakhpur, Guwahati, Jammu & Srinagar, Kolkata, Malda, Mumbai, Muzaffarpur, Patna, Ranchi, Secunderabad and Trivandrum.

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12/1/22

Copy to:

PSOs/Sr. PPSs/PPSs/PSs to Board Members, Secretary, DG/RHS, DG/RPF, ADG/DS, Additional Members, OSDs, Advisors and Executive Directors, DIP, Editor/Indian Railways, Editor/Bhartiya Rail and O&M Brach of Board's Office.

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11/01/22

(Ajeet Kumar Srivastava)
Executive Director Finance Expenditure
(Railway Board)

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GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

No 2021/F(X)II/PW/3

New Delhi, dated 21/09/2021

The General Managers, Indian Railways,
The Director General RDSO, Lucknow.
The General Manager CORE
CAOs (Const)
CAO, MTP/Mumbai.
CAO/DMW and COFMOW.

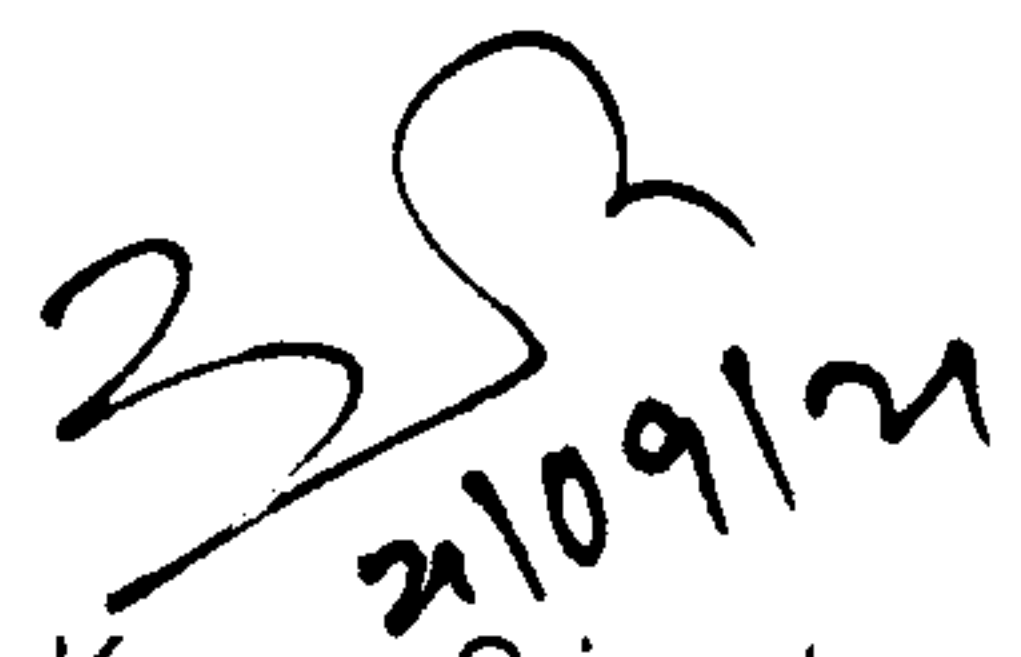
Sub: Delegation of Powers to General Managers – Revision of Annexure – II to Chapter V, Indian Railways Financial Code, Vol. I.

Ref: Board's letter No F(X)II-2015/PW/7 dated 12/06/2017 on the above subject.

During a review of delegation of powers to General Managers, with a view to make it more effective, it was felt that the delegation of powers earlier issued needs to be updated. Accordingly, revised version of supersession the delegation of powers in the form of Advance Correction Slip No. 90 is enclosed herewith. The orientation of the attached delegation of powers is different from the one earlier issued in the following manner:

- i. The items have been updated by incorporating the amendments already issued.
- ii. The items which have lost relevance have been deleted.
- iii. The items appearing in various parts of the earlier delegation have been consolidated.
- iv. The numbering system has been streamlined, so that quoting of items in files becomes easier.
- v. Too many details and notes have been done away with.
- vi. The items, on which separate detailed instructions from Board exist, have either been omitted or only a brief reference has been given.
- vii. The items which are not covered in this delegation will be governed by existing codal provision or subject specific guidelines of Board.

Please acknowledge the receipt.


(Ajeet Kumar Srivastava)
Executive Director Finance (Exp.)II
(Railway Board).

No 2021/F(X)II/PW/3

New Delhi, dated 21/09/2021

Copy to:

- i) Dy. Comptroller & Auditor General of India (Railways), Room No. 224, Rail Bhawan, New Delhi
- ii) PFAs, Indian Railways.
- iii) FA & CAO(C)s, Indian Railways.



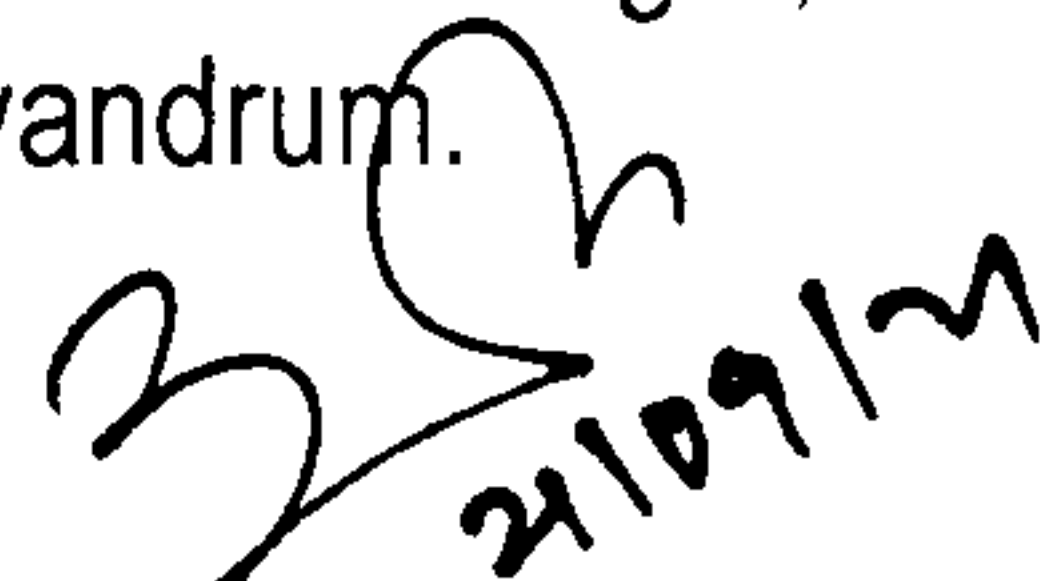
(Ajeet Kumar Srivastava)
Executive Director Finance (Exp.)II
(Railway Board).

No 2021/F(X)II/PW/3

New Delhi, dated 21/09/2021

Copy for information to:

The Director General, National Academy of Indian Railways, Vadodara.
The Director General, Indian Railways Institute of Financial Management, Secunderabad
The Director General, Indian Railway Institute of Transport Management, Lucknow.
The Director General, Indian Railway Institute of Civil Engineering, Pune.
The Director General, Indian Railway Institute of Mechanical and Electrical Engineering, Jamalpur.
The Director General, Indian Railway Institute of Signal Engineering and Telecommunications, Secunderabad.
The Director General, Indian Railway Institute of Electrical Engineering, Nasik.
The Executive Director, Indian Railways Centre for Advanced Maintenance Technology, Gwalior.
The Registrar, Railway Claims Tribunal, Delhi.
The General Secretary, IRCA, New Delhi.
The Chief Commissioner of Railway Safety, Lucknow.
The Secretary, Railway Rates Tribunal, Chennai.
The Chairman, Railway Recruitment Board, Ahmedabad, Ajmer, Allahabad, Bangalore, Bhopal, Bhubaneshwar, Chandigarh, Chennai, Gorakhpur, Guwahati, Jammu & Srinagar, Kolkata, Malda, Mumbai, Muzaffarpur, Patna, Ranchi, Secunderabad and Trivandrum.



(Ajeet Kumar Srivastava)
Executive Director Finance (Exp.)II
(Railway Board).

Copy to:

CRB & CEO, M/Fin., M/O&BD, M/Infra, M/TRS, Secretary/Railway Board

ADVANCE CORRECTION SLIP No.90
FINANCIAL CODE VOLUME I-1982 Edition (Reprint-1998)
ANNEXURE-II-(See Paragraph-505)

Annexure to Board's letter No. 2021/F(X)II/PW/3 dated 21/09/2021.

POWERS OF GENERAL MANAGERS OF INDIAN RAILWAYS

In supersession of existing orders on the subject, the President is pleased to make the following rules specifying the areas in which the General Managers and DG RDSO may not sanction expenditure or deal with other matters without previous sanction of the higher authority.

The General Managers shall have powers to sanction expenditure and to delegate their powers to authorities subordinate to them alongwith powers to re-delegate further in consultation with the Principal Financial Adviser (PFA) of the Railways.

The exercise of the powers delegated shall be subject to existing Codal Provisions, Rules and Regulations as well as restrictions imposed from time to time by Railway Board on specific subjects.

CAVEATS TO DELEGATION

The previous sanction of the higher authority is necessary for **all items listed below:**

A) Establishment Matters

I) Permanent /Temporary/Work charged posts:

- 1) the creation of any post.
- 2) revival of a sanctioned post kept in abeyance or remaining vacant for a period of more than 02 years.
- 3) the grant of provisional payment beyond 3 months to incumbent of any post beyond available sanction.

(MoF's OM No: 7(1)/E.Coord-I/2017 dated 12.04.2017 & 7(2)/E.Coord/2020 dated 04.09.2020 as revised from time to time)

II) Pay/Allowances etc:

- 1) grant to a Railway employee emoluments higher than that admissible under the Railway Rules or any orders of the Government of India.
- 2) permitting Medical Officers to receive fees for professional attendance to patients if they hold posts in which private practice is debarred.

- 3) permitting a Railway employee to undertake work and/or receive fee (non-recurring or recurring) from private sources exceeding Rs.5,000/- per annum in each individual case.
- 4) *Additional Post Allowance:*
permitting additional post allowance except as per Board's letter No: F(E) Spl./2009/FR/1/3(7th CPC) dated 05.09.2018 as revised from time to time.

III) Award/Reward/Honorarium:

- 1) the grant of reward in excess of Rs. 5,000/- in each individual case subject to limit of Rs 1,00,000/- group award.

(Board's Letter No: F(X)II-2016/PW/3/Pt3 dated 16.12.2016 as revised from time to time)

- 2) the grant of reward in excess of Rs. 30,000/- in each individual case to non-gaz Railway employees who have done exemplary work to avert accidents. This may be re-delegated to DRMs upto Rs.7,500/- in each case.

(Board's Letter No: F(X)II-2014/PW/4 dated 05.02.2015 as revised from time to time)

- 3) the ex-gratia payment of bonuses or rewards in excess of Rs.50,000/-per case, for inventions.GM may exercise these powers only in those cases where the employee secures the patent for such innovation and transfers the rights to Indian Railways unconditionally and such innovation is considered useful for Indian Railways.

(Board's Letter No: F(X)II-2016/PW/3/Pt3 dated 10.02.2017 as revised from time to time)

- 4) the acceptance of honorarium by a Gazetted Railway servant in excess of Rs.20,000/- per case for undertaking work as arbitrator in a dispute in which the Railway Administration is a party and in excess of Rs. 5,000/- in a year in all other types of cases, except cases of acceptance of honorarium for conducting Disciplinary Enquiries against Railway Officers arising out of Vigilance/CBI cases where the limit shall be as per the rate fixed by Board from time to time.

(Board's Letter No: F(X)II-2008/PW/6 dated 25/04/2013 & No.2019/Trans Cell/S&T/Suggestions from GMs dated 02.09.2019 as revised from time to time)

- 5) the grant of honorarium to Non-gaz railway employee in excess of Rs.15,000/- in each individual case. Where the honorarium is recurring, the limit applies to the total amount paid in a financial year. These powers will be exercised with the concurrence of PFA.

(Board's Letters F(X)II/13/PW/4 dated 25.07.2013 as revised from time to time)

- 6) *Rewards to persons other than Railway Employees:*
 - a) the grant of rewards in excess of Rs.25,000/- in each case.
 - b) the grant of reward in excess of Rs.50,000/- in each case to the persons who have done exemplary work to avert accidents and saved passengers life. This may be re-delegated to DRMs upto Rs.10,000/- in each case.

(Board's Letter No:F(X)II-2016/PW/3 dated 14.09.2016 as revised from time to time)

IV) Other Matters:

- 1) the acceptance of resignation of a gazetted officer.

(DoPT's OM No: 28034/25/87-Estt(A) dated 11.02.1988 as revised from time to time)

- 2) the deputation of a Railway servant out of India.
- 3) the sanction of expenditure on deputation of Railway employees for training courses, seminars, symposia in recognized non-Railway Institutions in excess of Rs.1.00 crore in a year for Zonal Railways and Rs.8 lakh in a year for Production Units as detailed in Railway Board's Letter No: 2017/Trans/01/Policy dated 18.10.2017 and 2018/Trans./Cell/E/process reforms dated 12.12.2018 as revised from time to time.
- 4) the waiver of the cost (Full or partial) of training of a Railway employee who has received training at Railway's cost and who is required to serve the Railway for a minimum prescribed period.
- 5) permitting a railway servant below Junior Scale to travel by Air on duty as detailed in Board Letter No: F(E)/2021/AL-28/47 dated 13.08.2021 as revised from time to time.
- 6) the construction or purchase of a building for use as residence by an Officer or to hire a building for use as residence by an Officer under conditions which fall outside the framework of the extant instructions in regard to the ceiling of rental, minimum period for the lease and other conditions.
- 7) *the remission of recovery of rent:* beyond four months.
(The General Manager may exempt the incumbent of a post from occupying the quarter allotted to the post and/or from paying rent thereof upto a maximum period of four months in the following circumstances:
 - a) when an employee is temporarily transferred to a post in another station;
 - b) when the quarter is subjected to extensive repairs, such as renewals of roofing, replacement of flooring, or such other special works necessitating the vacation of the whole quarter;
 - c) when an employee is required to vacate the quarter under medical advice on account of an infectious disease or an epidemic.)
- 8) the write-off of –
 - a) Advances
 - b) Amounts overdrawn by Officers, or otherwise due from them, which were discovered in audit within a year.

B) Works Matters

I) Expenditure on works not wholly chargeable to Ordinary Working Expenses

- 1) Sanction of works:
In the plan heads New Lines, Gauge Conversion, Railway Electrification works, Metropolitan Railway Projects, setting up of new Production Units, Rolling Stock or Surveys.
- 2) Sanction of works in other Plan heads beyond Rs.2.5 crore provided and subject to:

- a) Total lumpsum provision made in the Budget for such works is not exceeded.
- b) Works in respect of existing Railway Schools, Hospitals, Dispensaries, Institutes, Officers Club, Rest Houses and Holiday Homes –not more than Rs.1.00 crore in each case,
- c) Works under PH-30- upto Rs.1.00 crore in each case.
- d) Works under Plan head Computerization:-
 - i. upto Rs.2.5 crore including cost of Hardware upto Rs.1.0 crore.
 - ii. Extension/Up gradation /Strengthening of LAN: upto Rs.20 lakh in each case.
- e) Machinery and Plant – costing up to Rs.50 lakhs each for GM/Open Line and PUs (including CAO in independent charge). General Managers may decide to delegate these powers upto a maximum of Rs.20 lakh to CWMs/DRMs subject to annual ceiling fixed by the Railway for the Workshop/Division.
- f) *Out of Turn (not permitted for Computerization and M&P):*
Budgetary ceiling for other than safety related items will be Rs.25 crore (other than lumpsum) in a financial year. Safety related works should be completed within a maximum period of 08 months from the date of sanction.
- g) For Customer Amneties Works: DRMs may sanction works under the plan head 5300 up to Rs.2.5 crore in each case (under Lumpsum category as well as Out of Turn).

II) Sanction of estimates:

Sanction of Estimates **except** in the following cases:

- 1) where excess over original sanctioned cost/abstract cost due to reasons other than price escalation is upto 20% of original cost. However, General Managers will have full powers to sanction excess due to price escalation.
- 2) *Material Modification* upto Rs 2.5 Cr subject to other restrictions laid down in Board's letter dated 25.08.2021
- 3) *M&P estimates* for increase in cost due to price escalation not more than 100% of original estimate or Rs.2 crore, whichever is less & increase due to reasons other than price escalation including material modification not more than 20% of the original estimate or Rs. 50 lakh, whichever is less.
- 4) *Survey Estimates*: where variation is upto 20% on an original estimate sanctioned by higher authorities, General Manager can sanction survey estimates provided the surveys are included in the sanctioned budget.
- 5) *Estimates of Lump sum works*: General Managers can sanction excess over estimate upto variation prescribed in Board's letter dated 25.08.2021.
- 6) *Part Estimates*: costing upto 5 % of the total value of the work, as originally sanctioned in the Budget.

(Board's Letter No: 2021/F(X)II/PW/4 dated 25.08.2021 as revised from time to time).

III) Contracts:

- 1) Incurrence of expenditure for engaging/obtaining consultancy services in excess of Rs.10 crore as detailed in Board's Letters No: 2021/F(X)II/PW/4 dated 10.08.2021 & 12.08.2021 as revised from time to time.
- 2) the grant of advances to contractors –
 - a) Mobilization advance in excess of 10% of the contract value.
 - b) Advances against new machinery and plant – in excess of 10% of contract value or 75% of the purchase price of new machinery and plant brought to the site of work (whichever is less).
 - c) Advances for accelerating the progress of work in special circumstances in excess of 5% of contract value or Rs.1 crore (whichever is less).

(Board's Letters No: F(X)II-97/PW/4 dated 05.05.1998, 2007/CE-I/CT/18 Pt.2 dated 04.10.2012, 2007/CE-I/CT/18 Pt.3 dated 23.05.2012 & 2018/CE-I/CT/1 dated 22.01.2018 as revised from time to time)

C) Legal Matters

- 1) the reimbursement of legal expenses of a Railway servant –
 - a) Who institutes a suit in a Court of Law without the prior approval of the Railway Administration; or
 - b) If the suit emanates as a result of actions taken by the Railway servant other than the discharge of official duty.
- 2) the filing or defending of an appeal in the Supreme Court.
- 3) the engagement of a Railway Counsel on scale of fees higher than that prescribed by Ministry of Law and Justice;
- 4) the engagement of counsel at more than Rs.1,050/- per day in Supreme Court or in any of the High Courts or at more than Rs.750/- per day elsewhere;
- 5) payment of fees in excess of scales of fees fixed by the High Courts concerned.

D) Commercial Matters

- 1) the write-off of amounts due to the Railways, otherwise than when they are irrecoverable, in excess of Rs.2 lakh in each case other than wharfage, demurrage, storage and lost property charges which may be written off or refunded by Railway Administration without the sanction of higher authority. This shall apply only for persons other than Railway employees.

(Board's Letter No: F(X) II-2016/PW/3 dated 14.09.2016 as revised from time to time)

- 2) the payment of claims, otherwise than as specified below or claims for compensation other than those relating to goods lost or damaged and those arising out of Railway accidents –

(a) Claims settled out of court	Upto Rs.1,00,000/- in each case.
(b) Claims decreed by a court of Law.	Full powers subject to the condition that particulars of cases involving expenditure of more than Rs.1,00,000/- in each case should be reported to Railway Board for information.

The powers under this item should not be re-delegated to subordinate authorities.

E) Railway Assets

1) the sale of -

- a) Any portion of a Railway line.
- b) Any item of authorized rolling stock.

However, the sale of following may be excluded from above delegation:-

- i) Railway component can be sold for the purpose of vendor/product development at book rate/latest purchase rate whichever is higher with usual charges as permitted in Stores code.
- ii) Movable asset (other than rolling stock) can be sold on book rate or reserve price whichever is higher, provided it is not to be replaced.

(Board's Letter No: F(X)II-2016/PW/3 dated 22.03.2017 as revised from time to time)

- 2) the dismantling or otherwise permanently closing to public traffic of any existing open line section.
- 3) the introduction of new designs for goods and coaching stock sanctioned for construction during each financial year irrespective of whether the stock is to be built to existing, sanctioned or new designs.
- 4) changes, alterations or modifications in the design, layout or equipment of the existing rolling stock and marine vessels involving:-
 - (a) infringements of the schedule of maximum and minimum running dimensions unless previously sanctioned;
 - (b) decrease in the revenue earning capacities of coaching and goods vehicles and marine vessels, such as alterations in the class or seating capacity of coaching vehicles and marine vessels and a permanent decrease in the relationship between gross load and tare in the case of goods vehicles;
 - (c) conversion of public service vehicles into Railway service vehicles and vice versa and material modifications (such as alterations in the wheel arrangements etc. in existing Railway service vehicles.);
 - (d) the introduction of new facilities, fittings and equipments for the traveling public where such have not previously had the approval of the Board, e.g. cooling arrangements in carriages, electric fans in second class compartments, variations in types of lavatory and other equipments which involve matter of policy.
- 5) alteration in the authorized stock of all descriptions.

F) Miscellaneous Matters

- 1) reappropriation of funds beyond Railway Board budget directorate's guidelines.

(Board's Letter No: 2011-B-174 dated 26.08.2021 as revised from time to time)

- 2) the purchase of a motor-car, motor-boat, truck or any other vehicle.
- 3) the incurrence of expenditure on each ceremonial occasion in excess of Rs.5 lakh.

The incurrence of expenditure on important functions which are attended by Minister of Railways/Minister of State for Railways: in excess of Rs.15 lakh in each case,
The expenditure on functions attended by President/Prime Minister: in excess of Rs.20 lakh in each case.

- a) The powers under this item will be exercised by the General Managers subject to an annual ceiling of Rs.37.50 lakh for Production Units and Rs.75 lakh for Zonal Railways.
- b) The power under this will cover the expenditure on Railway week celebration also, the limit for which will be Rs.5 lakh for a Zonal Railway/Production Unit as a whole.

(Board's Letter No: F(X)II-2015/PW/7/Pt.2 dated 29.12.2017 as revised from time to time)

- 4) the incurrence of expenditure in excess of Rs.5 lakh per year in connection with the entertainment of distinguished visitors, i.e. distinguished official or non-official personages, representatives of foreign technical associates, foreign technical experts, representatives of Trade and Industry including overseas companies.

(Board's Letter No:F(X)II/2016/PW/3 dated 14.09.2016 as revised from time to time)

- 5) the grant of fees to private persons or donations to private bodies including Institutes, Hospitals and Schools, an excess of the scales or maximum limits laid down by the Railway Board.
- 6) the payment of arbitration fees to Retired Railway Officers in excess of Rs.2,25,000/- per case.

(Board's Letter No: 2009/CE-I/CT/14/Main dated 09.04.2021 as revised from time to time)

- 7) the payment of contribution or subscription to a professional institution in excess of Rs.1,00,000/- per annum in each case.
- 8) the write off of irrecoverable losses of cash, stores, tools and plant –
 - a) exceeding Rs.5 lakh in value when a Railway employee is in any way responsible for the loss.
 - b) exceeding Rs.5 crore in value when a Railway employee is not in any way responsible for the loss.
 - i) Every important case of loss should be brought to the notice of the Railway Board, as soon as possible, after its discovery. When the loss involved does not exceed Rs.50,000/- the case need not be reported unless it represents unusual features or reveals serious defects in procedure.
 - ii) Inefficient balances under Suspense Heads not exceeding Rs.1 lakh can also be written off by the General Manager.

(Board's Letter No:F(X)II-2016/PW/3 dated 14.09.2016 as revised from time to time)

- 9) Except in accordance with the rules contained in the Indian Railway Codes or any general or special orders issued by the Railway Board –
 - a) the construction of an assisted siding.
 - b) the acquisition, lease or disposal of land.
- 10) the alteration of or departure from the terms of contracts with Branch or Worked Lines.

- 11) The supply of electricity to outsiders except under the following conditions –
 - a) the provisions of the Electricity Act are not infringed;
 - b) such supply does not cause any extra outlay either immediate or contingent;
 - c) the supply can be made without any inconvenience to the Railway and after its full needs have been met;
 - d) the rates charged allow for profit to Railways after taking into account all costs of production, direct and indirect and are above the rates of electricity supplied to Railway employees; and
 - e) the Railway should have power to discontinue the supply without notice and without compensation.
- 12) any alteration in the existing Cash and Pay arrangements.
- 13) any expenditure on an object which has not previously been recognized as a fit object for Railway expenditure. If any item is not covered anywhere, clarification from board may be sought.

.....

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

No. F(X)II/2019/WP/4/2

New Delhi, dated 13.08.2019

The General Managers,
All Indian Railways including PUs.

Sub: Proposals seeking Board's approval for Sub-Umbrella Works.

Ref: Board's letter No. 2017/CE-I/WP/2018-19/1 Pt. dated 07.08.2018 (cc: enclosed).

It has been observed that few Zonal Railways/Production Units are sending the list of sub-umbrella works for approval of Board without obtaining concurrence of their associate finance.

Railways are advised to follow Board's letter under reference and send the proposals only after obtaining concurrence of Principal Financial Advisor and approval of General Manager.


(Ajeet Kumar Shrivastava)
Executive Director/Finance (Exp)
(Railway Board)

Copy to: PFAs, All Indian Railways including PUs.



भारत सरकार Government of India
रेल मंत्रालय Ministry of Railways
(रेलवे बोर्ड) (Railway Board)

No. 2017/CE-I/WP/2018-19/1pt.

New Delhi, Dated 07.08.2018

As per list attached

Sub: Procedure to be followed for execution of Umbrella Works under different Plan Heads.

Ref: This office letter of even No 2017/CE-I/WP/2018-19/1pt, dated 19.07.2018.

Railway Board vide letter No 2017/CE-I/WP/2018-19/1pt, dated 19.07.2018 has issued the 'Procedure to be followed for execution of Umbrella Works under different Plan Heads'. As per para 3B(v) of letter, a list of all works costing more than Rs 2.5 crore sanctioned by General Manager under the category of Umbrella Works needs formal approval/post-facto approval of CRB. It has been observed that Zonal Railways/Production Units are sending list of such works with approval of General Manager, but, without concurrence of Principal Financial Advisor.

The matter has been examined in Board's office and it has been decided by Board (ME & FC) that list of works approved by General Manager with/without finance concurrence shall be considered in Board's office for formal approval/post-facto approval of Board (CRB) during the current year i.e. 2018-19. However, from 2019-20 onward Zonal Railway shall send such list for formal approval/post-facto approval of CRB only after Zonal finance concurrence of individual works in the list and approval of such list by General Manager.

Kindly acknowledge the receipt.

Prem Sagar
07.08.18

(प्रेम सागर गुप्ता)

कार्यकारी निदेशक / सिविल इंजीनियरिंग(जी) / रेलवे बोर्ड

[Rly no. 030-44803, MTNL No.-011-23383379]

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No. 2018/F(X) II/10/34

New Delhi, dated 5.12.2018

The General Managers,
All Indian Railways,
Including CLW, DLW, ICF, RCF & Rail Wheel Factory.
Metro Railway, Kolkata.
The General Manager (Const.),
N.F. Railway, Guwahati.
CAOs (Constn), All Indian Railways (except NF Railway)
The Director General and Ex-Officio General manager, RDSO, Lucknow.
The General Manager,
Central Organisation for Rly. Electrification, Allahabad.
CAO, MTP/Mumbai.
CAO/DLMW, Patiala and COFMOW, New Delhi.

Sub: Railway Board's letters issued without concurrence of Finance Directorate of Ministry of Railways.

Ref: Railway Board's letters:

- (i) No.2009/AC-II/20/1 dated 15.01.09
- (ii) No. F(X)I/2009-10/2 (Misc) dated 04.05.2009
- (iii) No.2016/F(S)II/1/9 dated 25.10.2016
- (iv) No. F(X)II/94/Exp./2/Pt dated 12.05.1999, 17.12.1997 & 31.12.2007
- (v) No. F(C)/Misc/Inst/98 dated 22.03.1998

As per the existing instructions, letters having financial implications but issued without concurrence of the finance directorate of the Ministry of Railways are not to be taken into account for incurring or justifying any expenditure.

Despite the above instructions, references continue to be received in Board's office from Zonal Railways seeking clarification whether instructions contained in certain letters of Board's office was issued with the concurrence of the Finance Directorate of Board or not. These letters include instructions for engaging the third party for departmental work, change in procedure for tender finalization and other instructions having financial implications.

It is reiterated that if the letters issued by various Directorates of Board which have financial implication, do not have a sentence stating that "This issues with the concurrence of Finance Directorate of Ministry of Railways/approval of FC/approval of full Board", it should not form justification for any action.


(Ajeet Kumar Srivastava)
Executive Director Finance(Exp.)II

Copy to:-

1. PFAs, All Zonal Railways and Production Units.
2. All CAOs of Zonal Railways and Production Units including CAO/Workshop Projects Organization.
3. All EDs and Directors of Railway Board.

Please give for
H2

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

SM-13

No. 2016/F(X)II/10/27

New Delhi, dated 13.03.2018

The General Managers,
All Indian Railways,
Including CLW, DLW, ICF, RCF & Rail Wheel Factory.
Metro Railway, Kolkata.

The General Manager (Const.),
N.F. Railway, Guwahati.
CAOs (Const), All Indian Railways (except NF Railway)

The Director General and Ex-Officio General manager, RDSO, Lucknow.
The General Manager,
Central Organisation for Rly. Electrification, Allahabad.

CAO, MTP/Mumbai.
CAO/DLMW, Patiala and COFMOW, New Delhi.

Sub: Delegation of powers to General Managers to sanction Cash
Imprests.

Ref: Board's letter of even number dated 10.04.2017.

With reference to Board's letter quoted above, it is clarified that expenditure on any item from Cash Imprest under Para 1050 of Indian Railways Finance Code Volume-I can be made up to an amount of Rs. 15,000/- in each case without inviting quotations/bids subject to a certificate to be recorded by the procuring official/imprest holder in the format given in the above letter.

Further, it is reiterated that the quantum of cash imprest may be decided by the zonal railways in consultation with the associate finance depending upon the functional requirements of the imprest holder.

9/c


(Niraj Kumar)
Director Finance (Exp.) I,
Railway Board.

No. 2016/F(X)II/10/27

New Delhi, dated 13.03.2018

Copy to: Dy. Comptroller & Auditor General of India (Railways), Room no. 224,
Rail Bhawan, New Delhi with 45 spares.
PFAs, All Indian Railways including Production units.
FA & CAO(C)s, All Indian Railways.

8m
14/03/18


(Niraj Kumar)
Director Finance (Expenditure)-I
Railway Board

Planned to fail
(UCCU)
28/11

भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
रेलवे बोर्ड RAILWAY BOARD

No. 2017/Trans/01/Policy

New Delhi, dated: 27 - 11- 2017

The General Manager, All Indian Railways/PUs, NF(Con), CORE
The DG/RDSO & NAIR,
CAOs, DMW/Patiala, WPO/Patna, COFMOW/NDLS, RWP/Bela

Sub: Process Reforms – Engagement of Consultants

Ref : 1. Railway Board's letter no. F(X)II-2015 / PW/ 7 dated 12-06-17.
2. Railway Board's letter no. 2017/Trans 01/Policy dated 18-10-17, 08-11-17
3. Railway Board's letter no 2007/CE-II/CT/18/Pt.13 dated 11.09.17
4. Railway Board's letter no 2017/CE-II/CT/9 dated 11.09.17
5. DRM/DLI letter no DRM/Misc/2017 dated 01-11-17

1.0 Powers have been delegated to Zonal Railways for entering into consultancy contracts vide letters under reference 1, 2 above. Railways have experienced difficulties in award of these consultancy contracts, leading to operational/service delivery inadequacies.

2.0 Following powers have recently been delegated to DRMs, CWMs, PHODs, CHODs & CAOs/Construction vide letters referred 1, 2 above:

- a) DRM/CWM –Upto Rs 10 Lakh per case with annual ceiling of Rs 1.5 Crore
- b) PHOD/CHOD –Upto Rs 20 Lakh per case with an annual ceiling of Rs 1.5 Crore
- c) CAO/Construction – Rs 50 lakh per case with annual ceiling of Rs 5 Crore
(Powers to CAO/Con are in addition to powers delegated to General Managers)
- d) GMs –Upto Rs 10 Crore

3.0 In view of the exigencies brought out by field officials, and in order to develop draft guidelines for dealing with consultancy tenders, the following documents have been considered:

- a) GFR-2017
- b) Manual of Procurement of Consultancy & Other services 2017, issued by Ministry of Finance (Department of Expenditure, DoE)
- c) CPWD Manual
- d) Railway Boards letters under reference 1 to 4 above

Accordingly, with the approval of Board (CRB), following guidelines are issued for engagement of consultants.

4.0 Guidelines on the Procedure for entering into Consultancy Contracts

4.1 Engagement of consultants may be resorted to in situations requiring high quality services for which the concerned Railway does not have requisite expertise. Approval of the competent authority (GM/DRM/CWM/PHOD/CHOD/CAO) with concurrence of associate

Ministry of Railways
रेलवे बोर्ड / Railway Board
उपलब्धता प्रमाण जारी
Issued for Closure
हस्ताक्षर
Signature
जारी की तिथि
Date of Issue

[Handwritten signature]

finance should be obtained before engaging consultant(s). The proposal to the competent authority shall comprise of at least the following:

- a) Name of the Consultancy Work including its Objectives and Scope
- b) Estimated Cost of Consultancy
- c) Eligibility and prequalification criteria
- d) Classification of the Nature of Consultancy as per 4.5 below
- e) Type of Selection method proposed to be followed (as per Para 4.4 below)
- f) The proposal shall be concurred by Finance only at one level, i.e. by the associate finance of the approving authority.

4.2 Preparation of Scope of required consultants: The requirement, objectives and the scope of the assignment should be prepared in simple and concise language. The eligibility and prequalification criteria, to be met by the consultants should also be clearly identified at this stage.

4.3 Estimating reasonable expenditure: Reasonable expenditure should be estimated by ascertaining the prevalent market conditions and consulting other organizations engaged in similar activities.

4.4 Types of Selection: There are three methods of selection prescribed as per the Manual of Procurement of Consultancy and Other Services 2017 published by the Ministry of Finance (DoE) and these are:

- a) Price based System – Least Cost Selection (LCS)
- b) Quality and Cost Based Selection (QCBS)
- c) Direct Selection: Single Source Selection (SSS)

Any of the above methods may be followed as per the requirement.

4.5 Classification of Nature of Consultancy: Classification should be done based on both monetary value as well as complexity of the proposed assignment. The procedure to be followed will be different according to the nature of consultancy, and the following classification is recommended:

- (a) **Low Cost Simple Consultancies:** This includes assignments of a standard or routine nature (such as audits and engineering design of non-complex works, architectural consultancies, design of structures, design of systems like water treatment, sewage treatment, garbage handling and processing, traffic flow, checking of designs etc) where well established methodologies, practices and standards exist. The upper limit for such consultancies under this category is Rs 20 lakhs.
- (b) **Other Consultancies:** This includes all assignments costing above Rs 20 lakh, (including the standard or routine nature assignments /simple consultancies also) and assignments below Rs 20 lakh which are complex in nature and cannot be classified as 'simple' in terms of (a) above.



4.6 Panel based Selection Procedure for Low Cost Simple Consultancies as defined in para 4.5 (a) above: This is basically the LCS system of selection only, however as the value of Consultancy is less than Rs 20 Lakh, publication of EoI on Central Public Procurement Portal (CPPP) www.eprocure.gov.in / GEM or Railway website is not mandatory. For such cases the detailed procedure is as outlined below:

4.6.1 Identification of Likely Sources: Preparation of a long list of potential consultants may be done on the basis of formal or informal enquiries from other Ministries or Departments or Organizations involved in similar activities, Chambers of Commerce & Industry, Association of consultancy firms including other Railway Zones/Divisions CPWD, MES, DDA, PSUs etc. Concurrently valid panels if any, existing on these organizations may be used as such, if required.

4.6.2 Short Listing of Consultants: From the list of consultants identified above, those meeting the requirements for the assignment should be short listed for further consideration. The number of short listed consultants should not be less than three. For the purpose of short listing, objective eligibility criteria (based on guidelines mentioned in para 5-D) may be prepared by the officer concerned (not below SG/JAG) and approved by DRM/CWM/PHOD/CHOD/CAO concerned. The shortlisted panel should be got approved by the SAG officer in charge.

4.6.3 Preparation of Terms of Reference (TOR). The TOR should include:

- a) Precise statement of objectives.
- b) Outline of the tasks to be carried out.
- c) Schedule for completion of tasks.
- d) The support or inputs to be provided by the Railway to facilitate the consultancy.
- e) The final outputs that will be required of the Consultant.

4.6.4 Issue of Tender Enquiry/RFP: This is the document to be used for obtaining offers from the **shortlisted consultants** for the required service. It should contain:

- a) A letter of Invitation
- b) Information to Consultants regarding the procedure for submission of proposal.
- c) Terms of Reference (TOR).
- d) Qualification Criteria
- e) Bid Evaluation Criteria and selection procedure
- f) Standard Format in which Technical and Financial Proposal is Required
- g) Proposed contract terms.
- h) Procedure proposed to be followed for midterm review of the progress of the work and review of the final draft report.

4.6.5 Receipt and Opening of Proposals: Normal Tender Opening procedure to be followed.



4.6.6 **Evaluation of Bids:** Evaluation is to be done by duly constituted tender committee. The committee shall record in detail the reasons for acceptance or rejection of bids analyzed and evaluated by it. The selection / evaluation may be done by following the **Least Cost selection (LCS) method**. This system of selection is roughly the same as the price based selection of L-1 offer (among the technically responsive offers) in procurement of Goods/Works. There is no weight age for Technical score in the final evaluation and the responsive technically qualified proposal with the lowest offered cost shall be selected. Under normal circumstances, as the offers are received from the shortlisted and technically qualified bidders, the lowest cost offer may be chosen.

4.6.7 **Other terms and Conditions:** Regarding Notice Period, Earnest Money, Security Deposit, Release of SD/EMD etc. terms and conditions of the Works contract tenders are to be followed.

4.6.8 For processing all such activities as described above, IREPS may be used.

4.6.9 Constitution of Tender Committee shall be as under

Tender Authority	Acceptance	Tender Committee
DRM in Division and CWM in Workshop CHOD in (SAG) and SAG officer in Hq/ Construction/ RE Upto Rs 10 Lakh		Two member Committee of SG/JAG branch officers from Executive Department as Convener and a Finance member
PHOD & CAO/Con in Headquarter, Railway Electrification, Projects & Construction Organization beyond Rs 10 lakh and upto Rs 20 lakh		Two member Committee of SAG officers From Executive Department as Convener and a Finance member

4.7 **Procedure for Other Consultancies, as defined in para 4.5 (b) above :**

4.7.1 **Preparation of Terms of Reference (TOR).** A TOR should be prepared for the consultancy assignment. The TOR should include the following:

- Precise statement of objectives.
- Outline of the tasks to be carried out.
- Schedule for completion of tasks.
- The support or inputs to be provided by the Railway to facilitate the consultancy.
- The final outputs that will be required of the Consultant.



4.7.2 Issue of Tender Enquiry/RFP: This is the document to be used for obtaining offers from the consultants for the required service. It should contain:

- a) A letter of Invitation
- b) Information to Consultants regarding the procedure for submission of proposal.
- c) Terms of Reference (TOR).
- d) Qualification criteria.
- e) List of key position whose CV and experience would be evaluated.
- f) Bid evaluation criteria and selection procedure.
- g) Standard formats for technical and financial proposal.
- h) Proposed contract terms.
- i) Procedure proposed to be followed for midterm review of the progress of the work and review of the final draft report.

4.7.3 RFP shall be issued to the likely consultants shortlisted as per method provided in para 4.6.1 & 4.6.2 above. If required Expression of Interest (Eoi) may also be floated for shortlisting of potential consultants and RFP may be issued to these as well. Further the RFP (and Eoi if necessary) should be published on Central Public Procurement Portal (CPPP) at www.eprocure.gov.in/ www.ireps.gov.in and on GeM. It should also be published on Railway's website.

4.7.4 Receipt and Opening of Proposals: Proposals should ordinarily be asked for from consultants in 'Two bid' system with technical and financial bids sealed separately. The bidder should put these two sealed envelopes in a bigger envelop duly sealed and submit the same to the Department by the specified date and time at the specified place. On receipt, the technical proposals should be opened first at the specified date, time and place. Now with implementation of IREPS tenders may be processed on IREPS as Two packet tendering system.

4.7.5 Evaluation of Technical Bids: Evaluation is to be done by duly constituted tender committee. Based on pre-specified Technical eligibility criteria, the committee shall consider the technical proposals in detail and give Technical score. Only those bidders whose Technical score is more than specified Technical score required for qualifying, shall be considered for opening of the financial bids.

Following the LCS model of selection of consultants, If the Consultancy is of Simple nature as defined in para 4.5 (a) above, Simple pass/ fail decision can also be arrived based on the objective Technical criteria and the Technically Qualified bidders may be decided for further evaluation. In this case giving Technical scores is not required.

4.7.6 Evaluation of Financial Bids of the qualified bidders:

The Department shall open the financial bids of only those bidders who have been declared technically qualified by the Tender Committee for further analysis, evaluation and ranking and selecting the successful



bidder for placement of the consultancy contract. Now the selection can be done using either of the following two options

(a) The Lowest cost offer from amongst the technically qualified/passed Consultants may be selected, i.e. LCS method of selection as described in para 4.6.6 above.

OR

(b) The selection / evaluation may be done by following the **Quality and Cost Based Selection (QCBS) method** described below.

4.7.7 Quality and Cost Based Selection (QCBS):

- i. In QCBS system, initially the quality of technical proposals is evaluated and a technical score given as per criteria announced in the Tender/RFP. Only those responsive proposals that have achieved at least minimum specified qualifying score in quality of technical proposal are considered further.
- ii. After opening and scoring, the financial proposals of responsive technically qualified bidders is opened and , a final combined score arrived at by giving predefined relative weightages for the score of quality of the technical proposal and the score of financial proposal.
- iii. The RFP shall specify the minimum qualifying score for the quality of technical proposal and also the relative weightages to be given to the quality and cost (determined for each case depending on the relative importance of quality vis-a-vis cost aspects in the assignment, e.g. 70:30, 60:40, 50:50 etc). The proposal with the highest weighted combined score (quality and cost) shall be selected. The weightages shall be prescribed in the RFP as per the approval of competent authority (DRM/CWM/PHOD/CHOD/CAO/C).
- iv. The weightage of the technical parameters i.e. non- financial parameters in no case should exceed 80 percent.

4.7.8 Constitution of Tender Committee shall be as under

Tender Authority	Acceptance	Tender Committee
DRM in Division and CWM in Workshop ,CHOD in (SAG) and SAG officer in Hq/ Construction/ RE Upto Rs 10 Lakh		Two Member Committee of SG/JAG branch officers from Executive Department as Convener and a Finance member
PHOD in Headquarter, beyond Rs 10 lakh and upto Rs 20 lakh		Two member Committee of SAG officers From Executive Department as Convener and a Finance member
CAO in Construction & RE works beyond Rs 10 lakh		Two member Committee of SAG officers From Executive Department

and upto Rs 50 lakh	as Convener and a Finance member
GM for all cases beyond the powers listed above and upto Rs 10 Crore	Three member Committee of HAG officers From Executive Department as Convener, One Finance member and one Third member to be nominated by GM

4.8 Direct Selection of Consultancy: Single Source Selection (SSS)

Under some special circumstances, it may become necessary to select a particular consultant/service provider where adequate justification is available for such single source selection in the context of overall interest of procuring entity. The selection by SSS/Nomination on the Railways may be done for all types of consultancies under exceptional circumstances such as:

- A. Tasks that represent a natural continuation of previous work carried out by the firm;
- B. In case of an emergency situation, situations arising after natural disasters, situations where timely completion of the assignment is of utmost importance;
- C. Situations where execution of the assignment may involve use of proprietary techniques or only one consultant has requisite expertise;
- D. At times, other PSUs or Government organizations are used to provide technical expertise. It is possible to use the expertise of such institutions on SSS basis. such organizations may be RITES, IRCON, RAILTEL, DMRC, IITs, IIMs, IISC Bangalore, NITs, School of Planning and Architecture Delhi, J J College of Architecture Mumbai etc;
- E. Under some special circumstances, it may become necessary to select a particular consultant where adequate justification is available for such single-source selection in the context of the overall interest of the Railway. Full justification for single source selection should be recorded in the file and approval of the competent authority obtained before resorting to such single source selection.
- F. Single Source Selection (SSS) shall be approved as per following:

(I) For SSS cases under Item no 4.8 D above

Approval of the case
DRM in Division upto the limits specified in para 2.0 above based on Executive proposal duly concurred by associate finance
PHOD/CHOD/CWM/CAO in Headquarter, Workshops, Railway Electrification, Projects & Construction Organization upto the limits specified in para 2.0 above based on Executive proposal duly concurred by associate finance

(II) In other cases of SSS, approval of GM would be required.

5.0 The procedure mentioned in Para 4, above is subject to the following:

- a) Full justification of the single source selection as per para 4.8 above, is recorded in the file

- b) Prices are reasonable and consistent with market rates for tasks of a similar nature.
 - c) The required consultancy services are not split into smaller sized procurement
 - d) For the Objective Technical eligibility criteria The Railway may decide based on the following example:
 - i. Minimum experience including number of assignments handled by the firm similar to the area of assignment;
 - ii. Turnover and other financial parameters of the firm, if required
 - iii. Minimum educational qualifications of each of the key professionals
 - iv. Minimum requirement of experience of the key professionals in an area similar to the proposed assignment.
 - e) As far as possible such Consultancy Tenders may be dealt with on IREPS
 - f) All rules, procedures, guidelines regarding EMD, SD, Notice Period etc shall be as per the Rules of the Works Tenders on IR. For further clarity if any, The Manual for Procurement of Consultancy & Other services 2017 published by Ministry of Finance (Department of Expenditure) may be referred to.
6. This is issued with the concurrence of Associate Finance of Transformation Cell Railway Board.

Kindly acknowledge the receipt and ensure compliance.

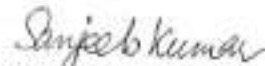

(T.K. Pandey)

Executive Director (Civil) Transformation

No. 2017/Trans/01/Policy

New Delhi, dated: 27-11-2017

- 1. PFAs, All Indian Railways & Production Units
- 2. The ADAI (Railways), New Delhi
- 3. The Director of Audit, All Indian Railways


(Sanjeeb Kumar)

Executive Director Accounts
Transformation Cell

Copy – As per list enclosed

Copy to

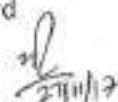
1. The ADAI (Railways), New Delhi
2. The Director of Audit, All Indian Railways
3. The Director, Indian Railway Institute of Civil Engineering, Pune.
4. The Director, Indian Railway Institute of Mechanical and Electrical Engineering, Jamalpur.
5. The Director, Indian Railway Institute of Signal Engineering and Telecommunications, Secunderabad.
6. The Director, Indian Railway Institute of Electrical Engineering, Nasik.
7. The Executive Director, Indian Railways Centre for Advanced Maintenance Technology, Gwalior.
8. The Director, Indian Railway Institute of Transport Management, Lucknow.
9. The Registrar, Railway Claims Tribunal, Delhi.
10. The General Secretary, IRCA, New Delhi.
11. The Chief Commissioner of Railway Safety, Lucknow.
12. The Secretary, Railway Rates Tribunal, Chennai.
13. The Chairman, Railway Recruitment Board, Ahmedabad, Ajmer, Allahabad, Bangalore, Bhopal, Bhubaneswar, Chandigarh, Chennai, Gorakhpur, Guwahati, Jammu & Srinagar, Kolkata, Malda, Mumbai, Muzaffarpur, Patna, Ranchi, Secunderabad and Trivandrum.

Copy to:

1. The Genl. Secy., AIRF, Room No. 248, & NFIR Room No. 256-C, Rail Bhavan
2. The Secy. Genl., IRPOF, Room No. 268, FROA, Room No. 256-D & AIRPFA, Room No. 256-D Rail Bhavan

Copy to:

1. PS to MR, MOS(S), MOS(G)
2. CRB, FC, ME, MTR, MRS, MS, MT, SECY, DG (RHS), DG (RPF), DG (Stores), DG(Pers), DG(S&T)
3. All AMs, Principal Executive Director & Executive Directors of Railway Board


(T.K.Pandey)

Executive Director (Civil) Transformation

Government of India/Bharat Sarkar
Ministry of Railways/Rail Mantralaya
(Railway Board)

No.2017/F(X)II/3/1

New Delhi : 20.10.2017

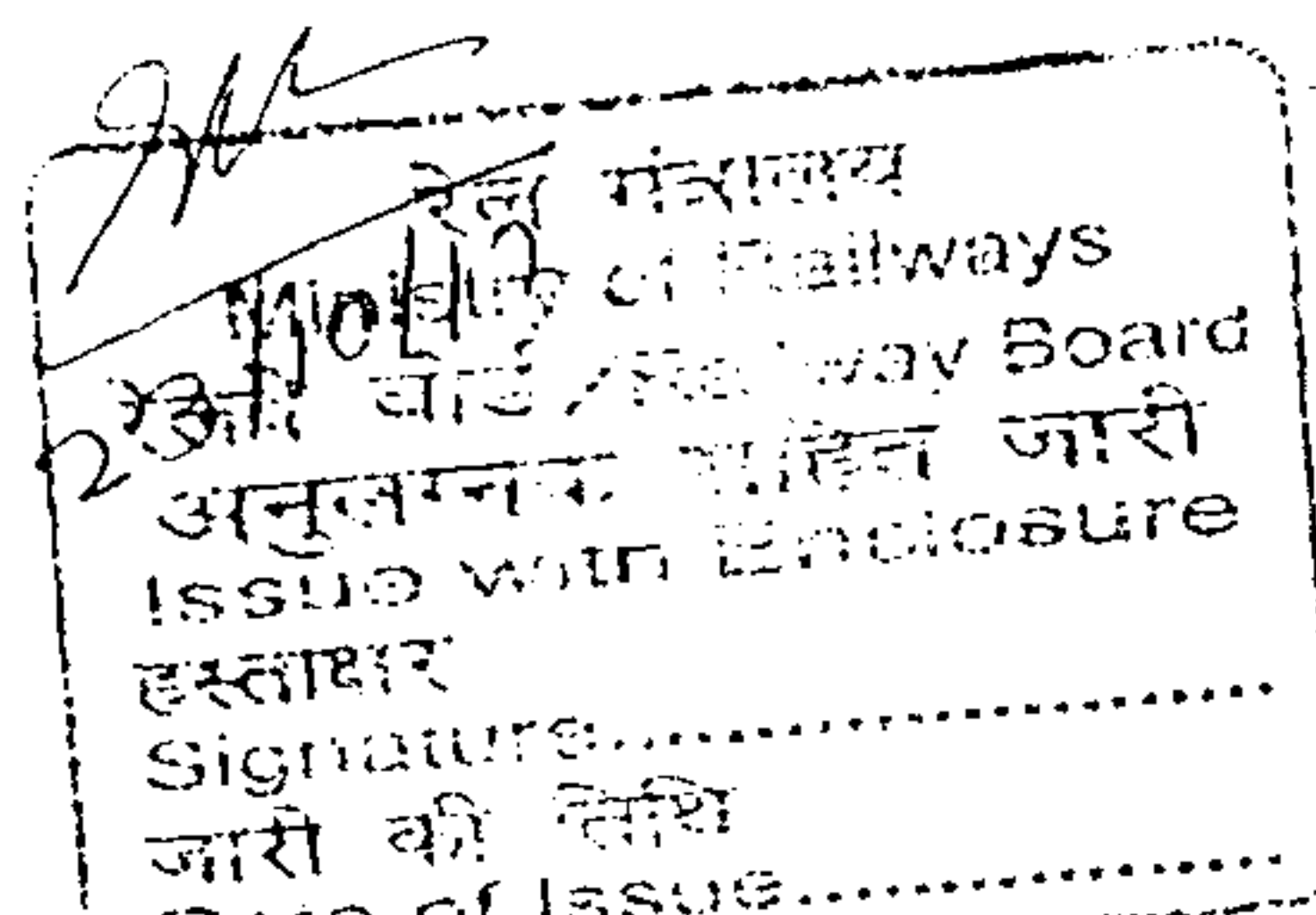
The General Manager,
All Zonal Railways, PUs

Sub : Preparation of Estimates.

- Ref: (1) Board's letter no.F(X)II-99/Estimates/6 dt.04.10.1999.
(2) Board's letter no.94/W-2/GC/N/14 dt.07.02.2000.
(3) Board's letter no.97/W2/LCT/N/0/1 dt.08.07.2000 and
dt.25.08.2000.
(4) Board's letter no.2000/WI/Genl/Estimates/O/77 dt.16.10.2000.

The Board has been deeply concerned over the way estimates are being prepared on zonal railways with huge variation/revision occurring subsequently in the estimates. There is an urgent need to review the underlying basis/assumptions for a more realistic estimation to minimize instances of time and cost over-runs. Equally important is the issue of ensuring that the estimates are based on functional needs for arriving at the minimum cost while meeting the desired objectives/parameters. The tendency of over provisioning of facilities also needs to be curbed. It is pertinent to note that higher estimated costs are likely to lead to higher rates as assessment of reasonableness of rates are more often than not based on the estimated cost of tender. Last Accepted rates need to be reviewed with the market trends to arrive at the appropriate level. The importance of realistic rates being considered both at Abstract Estimate and Detailed Estimates becomes crucial in this background. The preparation of Detailed Estimates needs to be based on finalised and approved plans, so that no significant subsequent scope change is warranted except in exceptional unforeseen circumstances. Significant variations in costs after the work has been taken up can render the very rationale of the original decision to sanction the work, open to question.

..2/-



2. There is a need for due diligence even in cases where the tenders have been opened and are under finalization. The need for ensuring the best rates for the Railway system while maintaining the required level of quality cannot be over emphasized. You are requested to direct all officers under you accordingly. The general approach of basing the recommended rates solely on the past accepted rates has to change to a system of in-depth analysis of the justified rates. The tenders already opened and under consideration would also need to be finalized on the above lines.

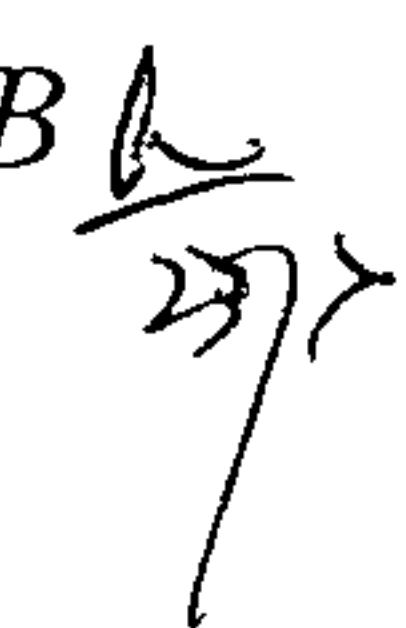
3. In case of projects, where land acquisition is an essential component, tenders should be awarded only after the process of land acquisition is completed or it has been entirely tied up. This is very relevant for the organization as the uncertainty in land acquisition leads to huge cost/ time overruns. In addition, no tangible benefit accrues to the organization unless the project is taken to its logical conclusion. The contractors who fear delayed progress on this account are more likely than not to build in a cushion in their rates which would not be warranted where the smooth execution is not factored in due to uncertain land acquisition. General Managers must ensure that award of tenders in such projects, especially of New Lines, follows clear availability of land.

4. The need for planning and financial discipline in preparation of estimates and execution of works has been reiterated earlier too, but, the end results have not been very encouraging. The projects are sanctioned based on the estimated cost and revenue expected and a realistic estimation of both has become even more important in the present day scenario. There is a need for more intensive analysis of expected revenue stream which unfortunately has not been put to desired levels of due diligence in recent years.

You are advised to take early necessary steps on the issues brought out above as also direct all PHODs/DRMs/CWMs to ensure that these directions percolate to the lowest levels.


(B N Mohapatra) 20/7

Financial Commissioner, Railways

Copy to : CRB  23/7



**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RAILWAY BOARD**

No. 2016/F(X)II/10/27

New Delhi, dated 10.04.2017

The General Managers,
All Indian Railways,
Including CLW, DLW, ICF, RCF & Rail Wheel Factory.
Metro Railway, Kolkata.

The General Manager (Const.),
N.F. Railway, Guwahati.

CAOs (Con), All Indian Railways (except NF Railway)

The Director General and Ex-Officio General manager, RDSO, Lucknow.
The General Manager,
Central Organisation for Rly. Electrification, Allahabad.

CAO, MTP/Mumbai.

CAO/DLMW, Patiala and COFMOW, New Delhi.

Sub: Delegation of powers to General Managers to sanction Cash Imprests.

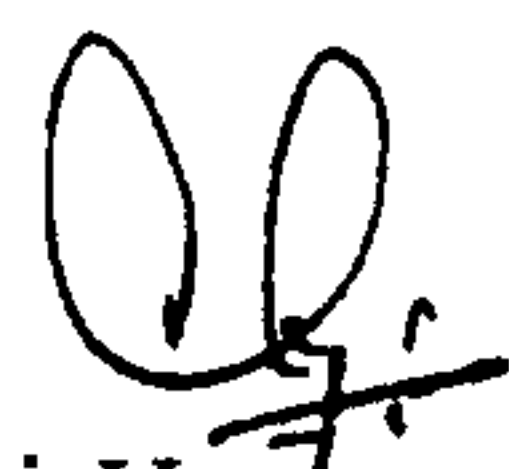
Ref: Board's letter No.F(X)II-2003/PW/9 dated 18.06.2004

Para 1050 of Indian Railway Finance Code, Volume-I may be amended as per enclosed Advance Correction Slip no 83.

2. Further, as already indicated in Para 1051, an imprest should be fixed in consultation with associate finance.

3. This disposes recommendation no.2.6.5 of Safety Task Force report.

4. Please acknowledge receipt.


(Niraj Kumar)
Director/Finance (Exp)-I
Railway Board.

Advance Correction Slip No 83.

Para 1050 of Indian Railways Finance Code Volume-I may be amended to read as under:-

1050 Cash Imprests:- An imprest is a standing advance of a fixed sum of money placed at the disposal of an individual to meet the following types of expenditure:-

- 1) Petty Office expenses.
- 2) Cost of raw materials for the diet of indoor patients of hospitals.
- 3) Emergent charges which cannot be foreseen.
- 4) Other petty expenses upto an amount of Rs.15,000/- in each case. Emergency petty advances may also be made on the responsibility of the imprest holder out of imprest money placed at his disposal.

A certificate to be recorded by the procuring official/imprest holder in the following format:-

"I,, am personally satisfied that these goods purchased are of the requisite quality and specification and have been purchased from a reliable supplier at a reasonable price."

(Authority: No.2016/F(X)II/10/27 dated|004.2017)