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TRACK ALLOCATION IN INDIAN RAILWAYS
Institutional Design, Departmental Incentives, and the Allocation of Scarce Track Time

A comprehensive project submitted in partial satisfaction of the requirements for the degree

Master of Urban and Regional Planning

by

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16. Abstract

This capstone examines how Indian Railways allocates scarce track time between train operations and track maintenance. The same track that carries passenger and freight trains must also be made available for inspection, repair, and renewal. The study asks how institutional design and departmental incentives shape this allocation, and what changes can better align Operations and Maintenance with the wider goals of safety, reliability, and efficiency.

The report uses a focused case-study method. It reviews Indian Railways' rules on rolling block planning, line capacity, and maintenance access. It then studies six heavily used corridors through six indicators: passenger punctuality, freight speed, maintenance blocks granted against demand, block productivity, block overruns, and track-related failures. It also draws lessons from Britain, Japan, and India's Dedicated Freight Corridor experience.

The main finding is that the current system produces a stable but inefficient outcome. Trains continue to run and maintenance continues to happen, but both take place under congestion, rationing, repeated adjustment, uneven productivity, and weak commitment to planned blocks. The evidence shows that the problem is not simply too many trains or too few maintenance blocks. It is a governance problem. Departments work with different information, face different targets, and often protect themselves through defensive behavior.

The report recommends a corridor-level pilot to make track-time decisions more credible. The pilot would require clearer maintenance requests, stronger commitment as execution approaches, visible tracking of deviations, recovery of lost maintenance time, and KPIs that measure not only block grants but also execution quality and corridor outcomes.

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Disclaimer

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The views expressed in this report are those of the author and do not necessarily reflect the views of the Department of Urban Planning, the UCLA Luskin School of Public Affairs, the University of California, Los Angeles, or the Ministry of Railways, Government of India.

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This project is primarily a diagnosis and policy study, but its claims would have carried much less weight without empirical support. For that, I owe a huge thanks to my railway colleagues Jintu Baishya and Prabhakar Deo Dixit, with whom I had the pleasure of working in Northeast Frontier Railway. Despite demanding responsibilities and a time zone half a day away, they helped me access data, interpret operational details, and think through the problem more carefully.

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Executive Summary

Indian Railways depends on the efficient use of scarce track time to meet its core goals of delivering safe, reliable, and efficient passenger and freight services. But the same track that carries trains must also be made available for inspection, repair, renewal, and maintenance. This creates a recurring conflict between two essential functions: Operations, which seeks to keep trains moving and protect service performance, and Maintenance, which requires predictable and usable access to the track in order to keep the network safe and fit for use.

This report examines how that conflict is managed in Indian Railways and why it often remains unresolved. It asks: How do institutional design and incentive structures influence track allocation in Indian Railways, and what governance mechanisms can better align departmental and organizational objectives? The report treats track allocation not simply as a scheduling issue, but as a governance problem shaped by rules, incentives, information, and departmental interaction.

The central finding is that the present system produces a stable but inefficient outcome. On highly used corridors, Operations does not consistently achieve punctual services and smooth traffic flow, while Maintenance does not consistently secure stable, sufficient, and usable access to the track. Yet the system continues to function. Trains still run, and maintenance still happens, but both take place under congestion, rationing, overruns, uneven productivity, and repeated adjustment. The problem, therefore, is the persistence of a workable but suboptimal system where a significant number of passenger trains do not run on schedule, freight trains run at slower speeds, and track breaks down frequently.

To study this problem, the report uses six heavily used corridors as a stress test of the allocation system (Government of India, Ministry of Railways, 2025). It examines performance through six indicators: punctuality (on time performance) of passenger services, speed of freight trains, track possessions (traffic blocks) granted for maintenance versus those demanded, the productivity of maintenance possession hours, the instances and quantum of maintenance possession overruns, and track-related failures. The corridor evidence shows recurring signs of strain: weak punctuality in several cases, low freight speed in several cases, rationed maintenance access, poor conversion of granted time into productive work, repeated overruns, and significantly high quantum of track failures. The pattern does not point to one isolated issue such as simply “too few blocks” or “too many trains.” Instead, it points to a broader problem in how scarce track time is governed and consumed.

The report argues that this pattern is rooted in the design of the present allocation system. Track time is not clearly priced inside the organization, so its opportunity cost is not made visible to the departments using it. The system relies mainly on administrative rules, corridor conventions, and operational judgment. At the same time, Operations and Maintenance also work with different information sets and do not fully share the information that would allow each side to trust the other's claims.Operations knows more about train conflicts, traffic pressure, and what the timetable can absorb. Because the system does not require both sides to reveal these costs in a common format, each department protects itself. Maintenance may ask for more time than it expects to receive. Operations may cut or delay blocks because it fears overruns. This turns planning into defensive bargaining rather than cooperative allocation.

The report therefore recommends a near-term mechanism-design approach. The key recommendation is to redesign the rules of the game inside the present structure so that truthful requests, credible approvals, and cooperative behavior become easier and more rewarding than defensive bargaining. The main reforms proposed are: joint corridor-level performance metrics, better disclosure of maintenance need, stronger commitment as execution approaches, clearer review and consequence for deviation, better use of asset-condition (track in this case but the same logic applies for other signaling and overhead electrical transmission infrastructure) information, and greater visibility of the opportunity cost of track time.

The broader conclusion is that the Indian Railways does not need to choose between trains and maintenance. It must have both. The real challenge is to allocate scarce track time in a way that supports current service without quietly undermining future reliability and safety. Improvement need not wait for a grand structural transformation. It can begin by changing the rules through which the conflict is played.

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1. Introduction

1.1 Background and Problem Statement

Railways exist to move people and goods in large volumes, at predictable times, with low accident risk, and at costs that users can bear. They can deliver this service by assigning limited track time to two essential uses: train movement and track maintenance. Track allocation decides when trains use the line, when maintenance crews take possession of it, and what rules govern those choices. It determines who gets to use the track, when, and under what operating rules. That single decision shapes the outcomes most visible to the public and to the organization alike: punctuality, speed, safety, service levels, and cost.

This trade-off becomes more than an operating detail. A railway track is a shared resource, and on most sections trains cannot pass each other freely. Each additional train therefore consumes not only its own running time, but also headway, junction capacity, platform capacity, and recovery margins needed to keep the timetable robust. At the same time, maintenance also requires access to the same track through possessions or blocks. These are the windows in which the railway inspects, repairs, renews, and upgrades infrastructure safely. In practice, then, track allocation is the process through which the railway balances two essential but competing needs: running trains today and preserving the network for tomorrow.

The problem becomes sharper when demand is high. In lightly used sections, the railway can often fit both traffic and maintenance into the day with limited conflict. But in high-density corridors, scarcity becomes binding. More trains can improve service delivery in the short run, yet they also leave less time and flexibility for maintenance. Less maintenance access may protect immediate traffic flow, but it can also weaken asset condition, reduce speed, and make the system more vulnerable to failures and delays later. In this way, the conflict between Operations and Maintenance is not accidental. It is built into the way scarce track time must be shared on a busy railway network.

This tension is especially important in Indian Railways. Several sections (a corridor or segment of rail track usually a few kms long) now operate at or above 100 percent capacity utilization. What that means is that a section can show more than 100 percent line capacity utilization because “capacity” here is not a physical maximum. It is a planning value calculated by Indian Railways for a typical day, after making assumptions about train mix, operating margins, and a standard maintenance corridor. When actual train counts exceed that planning value, the line may still function, but it does so by using up recovery time, flexibility, or maintenance time. In that sense, utilization above 100 percent signals stress, not impossibility. At the same time, the maintenance window is often treated less as a hard operational requirement and more as something negotiable in day-to-day decision-making. The result is a setting in which pressure to run more services and pressure to protect the asset increasingly collide. This capstone begins from that collision. It treats the struggle over track time not as a narrow scheduling issue, but as a governance problem that affects how well Indian Railways can meet its wider organizational objectives.

This study therefore focuses on track allocation in Indian Railways as the institutional process through which competing departmental claims over a shared and scarce resource are managed. The problem is not simply that the railway is busy. It is that, under conditions of heavy demand, the rules and incentives governing access to track time shape whether the system delivers reliability, safety, and long-term performance—or settles for a less efficient compromise.

1.2 Research Question

This capstone examines how institutional design and incentive structures shape track allocation in Indian Railways. More specifically, it asks: **How do institutional design and incentive structures influence track allocation in Indian Railways, and what governance mechanisms can better align departmental and organizational objectives?** This question treats track allocation not as a narrow scheduling matter, but as a system of rules, incentives, and departmental interaction through which scarce track time is divided between train operations and maintenance.

The question matters because the allocative decision is not directly visible in one single order or market price. It takes shape through planning rules, corridor conventions, approvals, rejections, negotiations, and adjustments at the point of execution. To study that process, this report uses observable outcomes as evidence of how the system behaves under pressure. It asks whether the present arrangement is able to protect passenger reliability, keep freight moving, and provide maintenance with stable and usable access to track time in highly demanded corridors.

The broader aim is explanatory as well as practical. The report does not only ask whether the current system performs well or poorly. It also asks why it produces the pattern of outcomes that it does, and what kinds of governance changes could improve cooperation between Operations and Maintenance without assuming that full structural separation is either feasible or desirable in the short term.

1.3 Core Argument

This report argues that the present system of track allocation in Indian Railways produces a stable but inefficient outcome. On highly used corridors, neither Operations nor Maintenance gets the result it would ideally want. Operations does not consistently secure high punctuality and smooth traffic flow. Maintenance does not consistently secure stable, sufficient, and usable access to the track. Yet the system continues to function because both departments adjust to a workable middle. Trains still run, and maintenance still happens, but both take place under congestion, rationing, overruns, and uneven productivity. In that sense, the system is not breaking down; it is settling into an equilibrium that is stable, but not efficient.

The report further argues that this outcome is shaped by the institutional design of the allocation process itself. Track time is not clearly priced within the organization, so its opportunity cost is not made visible to the departments using it. Instead, allocation relies mainly on administrative rules, corridor conventions, and day-to-day operational judgment. These rules create room for commitments to shift at the point of execution, especially under pressure from traffic. At the same time, Operations and Maintenance work with different information sets and do not fully share the information that would allow each side to trust the other's claims. The result is a system in which bargaining, defensive behavior, and short-term adjustment become normal.

The central claim of this capstone, therefore, is not simply that Indian Railways faces congestion. It is that congestion interacts with institutional design, incentive structures, and information asymmetry to produce an allocation system that is workable, but systematically suboptimal. That is why the problem is not only one of capacity shortage. It is also one of governance.

1.4 Scope and Limitations

This study focuses on track allocation in **six highly utilized corridors** of Indian Railways. These corridors are drawn from a larger set of sections operating above 125 percent line capacity utilization, and they are used here as a stress test of the allocation system. The logic is straightforward: if track allocation works well, it should still produce stable maintenance windows, predictable execution, and manageable service outcomes even when the line is heavily used. If it works poorly, the weaknesses should appear most clearly in these saturated sections.

The analysis uses **six performance indicators** to examine how the allocation process performs in these corridors: passenger punctuality, freight speed, percentage of maintenance blocks granted, machine productivity, block overruns, and track-related failures. These indicators are used as proxies for the underlying allocative process, since the actual trade-offs are embedded in day-to-day decisions and cannot be observed directly in a single measurable variable. Together, the six metrics allow the study to assess current service outcomes, maintenance access, execution quality, and the hidden costs of congestion.

The report is limited in three important ways. First, it does not attempt a network-wide statistical study of all Indian Railways sections. Instead, it uses a focused corridor sample to examine the problem where pressure is most intense. Second, while the report engages larger questions about organizational form, it does not try to fully resolve what the ideal long-run railway structure for India should be. That question is important, but answering it would require a broader inquiry into regulation, financing, contracting, and political feasibility than this capstone can provide. Third, some observed outcomes—such as poor punctuality or low machine productivity—may reflect more than one cause. The study therefore uses the metrics not as proof of one isolated causal factor, but as evidence of recurring patterns that must be interpreted in light of institutional design, incentives, and information asymmetry.

Within those limits, the capstone makes a narrower but important contribution. It shows how a governance problem inside a vertically integrated public railway can be diagnosed through corridor-level evidence, and it uses that diagnosis to develop practical recommendations for redesigning the rules and incentives through which track time is allocated.

1.5 Structure of the Report

The report proceeds in eight chapters. Chapter 1 introduces the problem, states the research question, sets out the core argument, and defines the scope of the study. Chapter 2 explains why track allocation matters in railway systems and describes how track time is currently allocated in Indian Railways. Chapter 3 presents the conceptual framework and research design, including the theoretical lenses, the six-corridor sample, and the performance metrics used in the analysis. Chapter 4 examines the empirical findings from the six corridors. Chapter 5 explains those findings in terms of incentives, coordination costs, and stable but inefficient equilibrium. Chapter 6 turns to comparative lessons from Britain, Japan, and the Dedicated Freight Corridor experience. Chapter 7 presents recommendations for redesigning the rules of track allocation. Chapter 8 concludes by drawing together the main findings and their implications.

2. Track Allocation in Indian Railways: Problem and Institutional Context

2.1 Objectives of a railway system

At the broadest level, a railway system exists to move people and goods safely, efficiently, and at a cost that users and the economy can bear. Indian Railways' own vision language points in the same direction. It describes its role as providing safe, efficient, customer-focused, and environmentally sustainable integrated transportation solutions. Its operating manuals state the objective even more simply: railway operations are meant to provide safe, efficient, speedy, and economic transport. These formulations differ slightly in wording, but they point to the same core idea. A railway is expected to deliver mobility at scale while protecting safety, controlling cost, and maintaining service quality. (Ministry of Railways, 2024)

For Indian Railways, these objectives have both a service side and a system side. On the service side, the railway must carry large passenger volumes and large freight volumes in a way that is reliable enough for users to plan around. On the system side, it must do so without allowing the network to become unsafe, brittle, or prohibitively costly to run. That is why the usual practical goals of railway performance—running trains on time, moving freight at reasonable speed, and ensuring safety—should not be seen as separate goals. They are connected parts of the same task. A railway that carries more traffic but becomes less reliable has not fully succeeded. A railway that protects punctuality today by weakening the condition of the asset for tomorrow has not solved the underlying problem either.

Indian Railways' current policy direction also shows that railway objectives cannot be reduced to merely "running more trains." Its National Rail Plan aims to create capacity ahead of demand and raise rail's freight share toward 45 percent. Related official initiatives, including Mission Raftaar and later freight growth targets, show an explicit concern with speed, throughput, and modal competitiveness. In other words, the railway is not judged only by whether trains run at all. It is judged by whether it can move passengers and freight at sufficient scale, with acceptable speed and reliability, and in a way that helps rail remain a viable mode in the wider transport system. (National Rail Plan, Ministry of Railways)

Safety, however, remains the non-negotiable foundation under all of these ambitions. Indian Railways' annual reports repeatedly frame many investments and operating measures around the corporate objective of safety in train operations. They also link communications, signalling, block systems, and other operational measures to safety, efficiency, reliability, and headway reduction on busy routes. Hence, it shows that railway performance is never just about maximizing traffic. The railway must increase throughput only within a system that remains safe enough to sustain that traffic. Safety is therefore not one goal among many. It is the condition that makes the other goals meaningful.

A final objective, which is easy to understate but central to the rest of this report, is the preservation of the asset itself. A railway does not deliver service by consuming inventory; it delivers service by repeatedly using a fixed network of track, signals, power systems, yards, and rolling stock. The railway must therefore pursue not only movement, but sustainable movement: service today without undermining safety, speed, and reliability tomorrow. Once that is recognized, the objectives of a railway system can be stated more fully. The railway must move passengers and cargo in large volumes, at predictable times, with low accident risk, at reasonable cost, and in a way that preserves the infrastructure on which all future service depends. (Ministry of Railways, 2024)

2.2 Why track allocation matters

If the objectives of a railway system are to move people and goods safely, efficiently, reliably, and at reasonable cost, then the question immediately becomes: how are those objectives actually delivered on a fixed and shared network? A railway can achieve them only when it converts a fixed physical asset, the track, into usable train paths and usable maintenance time in a disciplined way. Track allocation sits at the center of this conversion. It decides who gets to use the track, when, and under what operating rules. That single decision shapes every visible system outcome—whether trains run on time, whether the railway can raise speeds safely, whether it can add services to meet demand, and whether it can control costs.

A railway track is a shared resource. Timetabling research has long treated the timetable as the practical expression of capacity allocation, because it embeds both the physics of train movement and the rules of conflict resolution. This matters because railway performance is not just about running trains; it is about running trains reliably under uncertainty. Small delays propagate when the schedule is tight and margins are thin. Scholars therefore describe an explicit capacity–punctuality trade-off: if utilisation is pushed up, robustness often falls and knock-on delay (secondary delay caused when one delayed train disrupts other trains that were originally on time) increases. On a crowded railway corridor, a small delay can spread because trains share the same track, junctions, and platforms and have little spare time in the timetable. Track allocation is where the railway chooses its point on that trade-off. If it allocates too much of the day to train operations, it may raise throughput in the short run, but it can also make the system brittle. If it allocates too much time to possessions, it may protect track and associated infrastructure conditions, but it can reduce service supply and revenues. Either way, the allocation decision drives punctuality, average speeds, and safety of services.

Track allocation also shapes safety and speed directly. Trains can run safely at higher speeds only when the track meets required standards for alignment, level, gauge, rail condition, and stability.

If the track deteriorates, the railway cannot simply keep running trains at the same speed. It must either impose temporary speed restrictions or accept a higher risk of failure. Both these alternatives reduce the available track capacity to run trains by either slowing them down (due to speed restrictions) or making the track unavailable for running trains (as track time is consumed in attending to breakdowns). Maintenance windows, or possessions, are therefore the mechanism through which the infrastructure is inspected, repaired, renewed, and upgraded without exposing workers to live traffic. Hence, through such maintenance possessions, Railway preserves the physical condition needed for safe and reliable train movement. Poor maintenance access also raises costs. When maintenance teams receive short, late, or uncertain blocks, they may have to mobilize crews and machines without getting enough productive work done. Deferred work can later appear as speed restrictions, failures, or emergency blocks. These outcomes raise operating costs, delay trains, and reduce the effective capacity of the corridor. Chronic conflict between Operations and Maintenance also creates transaction costs through repeated negotiations, last-minute replans, and wasted mobilisation when blocks are denied or curtailed.

The problem becomes sharper in high-demand sections because the timetable has little unused space. When demand is low, the railway can often fit both trains and maintenance into the day with limited conflict. When demand is high, every hour has competing uses. In those sections, the same corridor of available capacity must serve at least three claims: scheduled passenger trains trying to keep or recover time, freight trains needing paths and terminal slots, and maintenance requiring continuous, safe windows with workable start and end times. The Operating Department, through timetable planning and real-time control, usually decides which claim receives priority when all three cannot be accommodated. As the line gets closer to capacity, someone is more likely to be displaced. A freight train may wait, a passenger train may lose recovery time, or a maintenance block may be shortened or shifted. This is why track allocation between Operations and Maintenance becomes the key system problem. It is not only about how much time maintenance receives, but also about when it receives it, and how predictable that access is. Predictable, well-placed windows reduce total delay and total cost more effectively than ad hoc, short-notice possessions, because planned windows allow the timetable to absorb the capacity reduction more smoothly. Conversely, if maintenance windows arrive late, shrink on the day, or move outside workable hours, the railway may see a false economy: it protects train running today but pays later through speed restrictions, failures, and emergency possessions that disrupt traffic more severely.

High-demand sections also amplify incentive problems. Divisional, zonal, and Railway Board review systems evaluate departments through branch-specific indicators. Operations faces pressure to run trains, protect punctuality, and maintain traffic flow. Maintenance faces pressure to secure blocks, deploy machines, complete renewals, and reduce asset failures. These are reasonable goals within each branch, but they can push the departments to compete for the same track time. Operations can look good by running more trains and protecting punctuality today by squeezing maintenance. Maintenance can look good by demanding more blocks and delivering visible outputs even if the timing creates operational disruption. If the organisation does not make the opportunity cost of track time explicit and shared, each unit behaves as if capacity is free and conflict becomes normal. That is why success or failure in high-demand sections rests not simply on engineering or traffic volume, but on how the railway allocates track time between Operations and Maintenance.

2.3 How track time is allocated in Indian Railways

Once track allocation is understood as the mechanism through which railway objectives are translated into actual operating outcomes, the next question is straightforward: how is this allocation formally organised in Indian Railways? The answer is that Indian Railways does not treat maintenance access as something meant to be decided only informally or at the last minute. Its rule framework recognises, through explicit manuals and circulars, that planned maintenance requires planned access to the track. The General and Subsidiary Rules define a Rolling Block Programme as the advance planning of traffic blocks or disconnections over a specified duration, prepared on a rolling basis after reviewing the previous week's output. This matters because it anchors a basic institutional principle: maintenance access is supposed to be planned, reviewed, and extended forward, not left entirely to day-to-day bargaining.

To operationalise that principle, the Railway Board issued Joint Procedure Orders (JPOs) that define the planning horizon, the actors involved, and the escalation process when conflict arises. The 2024 Rolling Block Plan guidelines describe a 26-week plan as the broad road map for works requiring blocks or disconnections, with periodic review and specific lead times for major works and cases involving train regulation. From this broad plan, divisions prepare 4-week rolling block plans on a rolling basis, and then move to more detailed weekly and daily plans. These are finalised by the concerned branch officers of Operations and Maintenance and approved by the Divisional Railway Manager (DRM) according to a fixed rhythm. In formal design, then, Indian Railways uses a layered planning structure rather than a single one-time decision. The intent is to make maintenance access more predictable while still allowing review as conditions change.

The same circular also clarifies who adjudicates when disagreement appears close to execution. If a block timing already agreed in the daily plan is denied or reduced, the circular requires approval from the Senior Divisional Operations Manager (Sr. DOM) or Divisional Operations Manager (DOM), with reasons recorded. It also requires next-day review by the Additional Divisional Railway Manager (ADRM) or Divisional Railway Manager (DRM). This review compares the blocks demanded, the blocks agreed, the blocks finally granted, and the work actually completed. In other words, the formal system places divisional management above both departments as the final arbiter. It also treats block planning as an object of performance review, not merely as an informal adjustment between field units. On paper, therefore, the system is not without rules. It contains a planning ladder, approval points, and review mechanisms intended to govern the sharing of track time between train operations and maintenance.

The earlier 2023 JPO adds another important layer by linking block planning to the Working Time Table (WTT) and to the idea of a corridor. It says that the Sr.DOM should indicate a suitable corridor for giving blocks, taking into account the integrated maintenance corridor block in the WTT, historical data, and operational patterns. This is central to the practical question of who allocates track time. The Maintenance department carries the obligation to keep the asset fit, but the Operating department, through the timetable and through real-time conflict management, plays a decisive role in determining when access to the line is actually available. The operating side plots scheduled passenger train timings and then marks the residual capacity as corridors in the WTT. In practice, that corridor becomes the reference point against which Operations judges whether a maintenance demand falls within or outside the expected window.

At the same time, the rules also show why these corridors do not have absolute sanctity. The rolling block framework clearly distinguishes between broad plans and the more detailed weekly and daily plans that follow them. Allocations made earlier can still change close to execution. A maintenance block that appears secure in the weekly or daily plan may be shortened, delayed, or cancelled if late-running passenger trains, freight congestion, terminal backlogs, or special train movements require the Operating Department to recover track capacity. The 2024 guidelines explicitly anticipate train regulation, stakeholder coordination, and day-to-day adjustments, which again suggests that the plan is not self-enforcing. It is better understood as a negotiated commitment that must survive the pressures of actual execution. Indian Railways therefore has a formal planning system for maintenance access, but it is a system in which long-horizon planning and real-time operations remain tightly intertwined.

2.3.1 From plan to reality: evidence of execution gaps

The formal planning system creates a plan, but the plan does not always travel cleanly to execution. A useful way to see this is to compare four stages of the same maintenance request: the rolling block programme, the later block memo, the corridor slot available in the Working Time Table, and the block finally permitted by Operations. If the plan were fully credible, these four stages would broadly match. The section, work type, duration, and timing would remain stable unless a clear emergency forced a change.

A small set of examples from Rangiya Division shows that this is not always what happens. The 26-week rolling block plan itself records a detailed forward plan. It lists dates, block periods, block sections or stations, type of work, quantum of work, resources, supervisors, and likely restrictions. In other words, the document is not merely a rough wish list. It is meant to create a usable planning base for maintenance access.

But the comparison between planned and executed blocks shows several breaks in the chain. On 29 December 2025, the rolling block programme showed PCTM machine work on PBL–RNY UP line. The later memo demanded the block on BIZ–CGS DN line instead. The memo demanded four hours. The WTT corridor slot was three hours from 00:20 to 03:20. Operations finally permitted only two hours, from 10:30 to 12:30. This single example shows a section change, a duration cut, and a timing shift.

Other examples show a different kind of gap. On 29 December 2025, PQRS machine work was not planned in the rolling block programme, but the later memo demanded four hours for CPQ Yard DN line. Operations permitted two hours and thirty minutes. On 1 January 2026, the comparison again shows no PQRS block in the rolling block programme and no WTT corridor slot available, but the memo still demanded four hours and Operations permitted two hours and thirty minutes. On 25 February 2026, the comparison shows no SQRS block in the rolling block programme and no WTT corridor slot available, but the memo demanded four hours and Operations permitted three hours.

These examples should not be read as proof that only one department causes deviation. They show something more basic and more important: the plan remains fluid. Maintenance can shift what it asks for between the rolling programme and the memo. Operations can change the timing or duration of what it finally permits. In some cases, work that does not appear in the rolling programme enters the system later. In other cases, a planned block changes section or receives less time than demanded. The result is not a simple failure of one side. It is a pattern in which both sides learn that the plan is real, but not final. This matters because repeated exceptions create a norm. If people see the plan as a flexible starting point rather than a firm commitment, they behave accordingly. Maintenance may ask defensively because it expects change later. Operations may grant cautiously because it expects the demand to shift or the block to overrun. Over time, both sides adapt to a world where deviation is normal. The formal rule says "plan in advance." The working norm says "the plan can still move."

This is the crucial institutional point for the rest of the report. Indian Railways does not lack planning rules. It has a structured process, multiple planning horizons, designated decision-makers, and a review ladder. But because the allocation must pass through both the timetable and real-time operational judgment, the formal plan remains vulnerable to change at the execution stage. That is where the next issue emerges: why conflict between Operations and Maintenance persists even within a system that appears, on paper, to have already defined how access should be planned and reviewed.

2.4 Why conflict arises between Operations and Maintenance

The formal planning structure described above might suggest that conflict should be manageable. Indian Railways has a rolling block system, multiple planning horizons, designated approving authorities, and review mechanisms. Yet conflict between Operations and Maintenance remains persistent. The reason is that the formal framework does not remove the underlying scarcity. It only organizes how that scarcity is to be managed. On busy corridors, the same stretch of track must simultaneously support scheduled passenger services, freight movement, and maintenance work. Once traffic pressure becomes intense, the allocation of track time stops being a routine planning exercise and becomes a recurring contest over a scarce shared resource.

This conflict becomes structurally predictable because the two departments work from different logics and different information sets. Operations builds corridors mainly from scheduled trains and observed traffic patterns. Maintenance needs blocks based on asset condition, machine deployment, and work sequencing. Those information sets rarely match perfectly, especially when the system is congested. A block that appears workable from the timetable may be poorly suited for actual maintenance execution. It may be too short, too fragmented, too late in the day, or too uncertain to allow machines and crews to work productively. In that sense, the conflict is not simply about whether a block is granted. It is also about whether the block granted is usable in practice.

The departments also face different immediate pressures. Operations is judged by its ability to keep trains moving, protect punctuality, and respond to disruption in real time. Maintenance is judged by its ability to secure sufficient blocks, deploy machines, and keep the infrastructure fit for safe and reliable service. In high-demand corridors, these priorities collide over the same scarce hours. Since corridor definitions, timetable logic, and day-of-operation adjustments are mediated largely through the operating side, Maintenance often depends on a planning commitment that can later be revised when traffic pressure rises. This makes the conflict more than a technical disagreement. It becomes a repeated bargaining process in which each side tries to protect the outcomes by which it will later be judged.

The mismatch is therefore not only operational but also informational. Maintenance knows more about asset conditions, machine constraints, and the sequence in which work must be done. Operations knows more about real-time train conflicts, traffic pressure, and what the timetable can absorb. Since these information sets are not fully shared or translated into one shared measure of cost, the trade-off becomes hard to settle transparently. Instead, it appears as negotiation. That creates room for selective statistics, defensive claims, and blame-shifting, because each department can point to its own metric and say it acted reasonably even when the wider system performs poorly.

A further reason conflict persists is that the commitment built into the plan is not fully self-enforcing. The rolling block framework distinguishes between broad plans and the more detailed weekly and daily plans that follow them. The rules also explicitly anticipate train regulation, stakeholder coordination, and day-to-day adjustment. In practice, this means that what is planned earlier can still be reshaped later. A maintenance block may exist in the programme, yet remain vulnerable at the point of execution. Once departments know that commitments can move without immediate, automatic consequences, they begin to behave accordingly. Maintenance may ask defensively, fearing curtailment later. Operations may grant cautiously, fearing overruns or disruption. Over time, both sides adapt to a system in which the plan is real, but not fully credible.

Hence, conflict between Operations and Maintenance in Indian Railways should not be seen as a temporary coordination lapse or as a matter of personalities alone. It is produced by the institutional setting itself: scarcity of track time, differing departmental incentives, differing information sets, and a planning system whose commitments remain vulnerable at the execution stage. Indian Railways formally endorses long-horizon maintenance planning and prescribes a multi-horizon planning and review process. But the same design leaves large discretion at the point where trains actually run and blocks must actually be delivered. That is why recurring tension over track access is not an exception to the system. It is a predictable feature of how the system currently works.

3. Conceptual Framework and Research Design

This chapter explains how I study the track-allocation problem in Indian Railways. The previous chapter showed why track allocation matters and how the formal system works. This chapter turns to the framework I use to interpret that system and to the method I use to examine it empirically. I use three lenses. First, **New Institutional Economics** helps explain why railways often manage such exchanges inside an integrated organisation rather than through a market. Second, **Principal–Agent Theory** helps explain why, as organisations grow more complex, departments may begin to pursue their own targets in ways that do not always serve the larger organisational objective. Third, **Game Theory** helps explain how these departmental incentives and information gaps shape repeated strategic behaviour over track time. I then describe the corridor sample, the performance metrics, and the line-capacity method used in the analysis.

3.1 New Institutional Economics: Why are exchanges managed inside an integrated organisation?

A useful starting point is a simple question: if track time is scarce, why is it not allocated through a price mechanism inside Indian Railways? Why is it allocated through hierarchy, rules, and departmental bargaining instead? Track time is scarce. On a highly demanded corridor, only a limited number of trains can run safely in a given hour. If one train occupies a section, another cannot use it at the same moment. If maintenance takes possession of that section, train movement must pause. Every hour granted to one use denies that hour to another. In economics, such scarcity raises the basic allocation question: who gets access, on what terms, and by what mechanism?

The most familiar answer in economics is price. Price forces users to reveal how much they value access and to bear the opportunity cost of their demand. In some infrastructure sectors, price is used at least partly to ration scarce capacity. Congested electricity transmission, airport landing slots, and peak-period road space sometimes use charges, auctions, or fees to make scarcity visible. These systems are not pure markets, and they still rely heavily on rules and regulation. But price can act as one signal that extra use carries an opportunity cost. But in our case (Indian Railways) the competition is not a simple case of similar users competing for the same resource. The two main claimants over track time inside Indian Railways do not derive the same kind of value from it. The Operations side values track time to run services immediately. The Maintenance side values track time to preserve safety and reliability for the future. One benefit is immediate and visible. The other is preventive and probabilistic. A maintenance block prevents a failure that may not yet be visible. This makes the allocation problem more subtle than a standard market competition among similar claimants. Of course, Railways are not unique in facing an operations-maintenance trade-off. Roads lose lane capacity during repair, and airports lose runway, taxiway, gate, or terminal capacity during maintenance. The railway case is distinctive because the conflict is usually tied to a continuous path rather than only to a local capacity reduction. Road vehicles can often merge, slow down, or detour. Aircraft cannot use a closed runway, but airport operators can sometimes resequence flights, shift traffic to another runway, hold aircraft, reassign gates, or divert flights. A train, by contrast, needs an unbroken path through fixed track sections, junctions, signals, and platforms. When a maintenance possession closes one section, the train paths that depend on that section disappear for that period. On a saturated corridor, this makes the conflict between train movement and maintenance access especially direct. It helps explain why, historically, many railways managed such exchanges within an integrated organisation rather than through market transactions.

This is where the **New Institutional Economics (NIE)** lens becomes useful in understanding the organisational form that governs track exchange in railways. The core idea is that firms and integrated organisations exist because they can reduce the transaction costs of repeated exchange. When exchanges are frequent, asset-specific, uncertain, and hard to write into complete contracts, internal hierarchy may be more efficient than market bargaining. Railways fit this description closely. An asset is "asset-specific" when it has high value in one use but little value elsewhere. Railway track, signalling systems, maintenance machines, and trained crews fit this description because they are designed for a particular railway network and cannot easily be redeployed to another use. A "complete contract" is hard to write when the parties cannot specify every future condition in advance. Railways face that problem because traffic, failures, weather, asset condition, and maintenance needs change every day. Safety obligations are strict. Daily operations and maintenance are deeply interdependent. Under such conditions, it is not surprising that Indian Railways evolved as a publicly owned, vertically integrated, departmentally organised system rather than as a set of arms-length contracting entities.

At the same time, I do not treat this organisational form as either inherently ideal or clearly outdated. Instead, I ask a more careful question: **when does hierarchy stop saving more transaction cost than it creates?** Put differently, when does the benefit of keeping exchanges inside the organisation begin to be outweighed by the rising coordination cost of managing those exchanges across departments? This is the tipping-point question that guides the analysis here. The issue is not whether hierarchy is wrong in general. It is whether it becomes less effective for certain kinds of exchange once the system grows large, congested, and operationally complex. I argue that track allocation is one such case. It is frequent, costly at the margin, dependent on local information, and in constant need of adjustment. Administrative rules can structure this exchange, but they cannot easily reveal the full cost of each decision. It is at that point that internal coordination begins to weaken.

So the NIE lens performs two tasks in this report. First, it explains why Indian Railways' integrated structure made sense in the first place. Second, it helps frame the possibility that this same structure may now be producing diminishing returns for a specific internal exchange: the daily allocation of scarce track time between Operations and Maintenance.

3.2 Principal–Agent Theory: How internal incentives become misaligned as the system grows

If New Institutional Economics explains why these exchanges were brought inside the organisation, **Principal–Agent Theory (PAT)** helps explain what begins to go wrong once they are managed within a large and complex hierarchy. As the organisation grows and demand intensifies, decision-making becomes distributed. No single manager can directly oversee all parts of the system. Departments therefore emerge with their own tasks, their own targets, and their own internal logic. This does not make them irrational. It means they respond rationally to the incentives they face.

This is where **KPIs** become central to the analysis. Indian Railways, like any large organisation, relies on performance metrics to evaluate departments and individuals. That is understandable, because broad outcomes such as system reliability or long-term asset health are difficult to observe directly and difficult to assign neatly to one branch. Department-specific indicators are easier to measure and easier to use for appraisal. But this also creates a problem. If Operations is judged mainly by train punctuality, traffic throughput, and service delivery, it has a strong reason to protect track time for trains. If Maintenance is judged mainly by renewals completed, machines deployed, and block utilisation, it has a strong reason to demand more blocks and protect its own engineering outputs. Each department is therefore behaving rationally within its own incentive system, even when the result is costly for the railway as a whole.

I argue that internal coordination costs rise because both objectives and information become fragmented. Departments no longer simply carry out one common plan. Instead, they interpret their own targets, guard their own information, and act in ways that improve their own reported performance. This is not necessarily the result of bad intent. It is a predictable feature of organisation under complexity. **Principal–Agent Theory** helps explain why a system can become more siloed even when all actors remain formally committed to the organisation's broader mission.

This lens also helps explain why information asymmetry matters so much here. Maintenance knows more about track condition, hidden defects, machine readiness, and work sequencing. Operations knows more about train conflicts, service pressures, and what the timetable can absorb in real time. Because these information sets are not fully shared and cannot be translated into one common cost measure, each department has room to defend its own position.

Maintenance can argue that a larger block is necessary because the asset is in worse condition than others realise. Operations can argue that certain trains cannot be displaced because the traffic cost would be too high. Both claims may be partly true. But when the system does not fully reveal or price these claims, mistrust becomes easier to sustain.

From this perspective, **PAT** helps explain why Indian Railways has responded to rising internal coordination costs by relying more heavily on internal performance systems, and also why those systems can deepen the problem. They measure what is easiest to count, not always what matters most for the organisation as a whole. The result is departmental rationality without organisational optimisation.

3.3 Game Theory: How departmental incentives translate into repeated strategic behaviour

Once I understand the system as one in which departments face different incentives and hold different information, the next question becomes: **what kind of game are they playing?** Game Theory is useful here because the track-allocation problem has the basic ingredients of a game. There are at least two players. Each player's action affects the other. And each knows that the other is adjusting in response. In this case, the two players are Operations and Maintenance. Operations can be more cooperative or more defensive in granting blocks. Maintenance can be more transparent or more defensive in demanding them and in using them. Neither side acts in isolation.

I use the **Prisoner's Dilemma** as the simplest way to explain why individually rational behaviour may still produce a worse joint outcome. If both sides cooperated fully, the corridor would move toward a better result: Maintenance would receive predictable and usable access, while train operations would benefit later through fewer failures, fewer emergency restrictions, and more stable running. But cooperation is hard because each side fears being the only one to restrain itself. Maintenance fears being under-granted and therefore has an incentive to ask defensively. Operations fears overrun and disruption and therefore has an incentive to cautiously grant or cut blocks. When both behave defensively, the result is not a collapse of the system, but a suboptimal equilibrium marked by congested operations, rationed or unstable maintenance access, and repeated friction.

I then deepen the argument by describing the interaction as a **Bayesian game**. This matters because the departments do not just choose actions; they also form beliefs about each other's private information. Operations cannot fully tell whether a high maintenance demand reflects genuine asset need or strategic padding. Maintenance cannot fully tell whether a block denial reflects real train pressure or opportunistic squeezing of engineering time. This creates two familiar problems. First, **adverse selection** arises because Operations must decide under uncertainty whether a maintenance demand is genuine. Second, **moral hazard** arises because the system does not attach immediate and predictable costs to some forms of inefficiency on either side. Maintenance may not face a sharp penalty for weak conversion within a block. Operations may not face a sharp immediate penalty for the long-term asset damage caused by squeezing maintenance. The true cost of today's decision often appears later, somewhere else, and on someone else's balance sheet.

Repeated interaction makes this worse. Each time Maintenance inflates a demand and Operations discounts it, both sides feel confirmed in their beliefs. Maintenance concludes that it was right to ask for extra time. Operations concludes that it was right to remain suspicious. In this way, the equilibrium becomes self-reinforcing. Conflict becomes normal. Cooperation becomes exceptional. This is why simply telling departments to "work together" will not solve a problem generated by incentives, information asymmetry, and repeated defensive learning. The game reproduces itself unless the underlying payoffs and rules are changed.

In this capstone, Game Theory does not stand apart from the institutional analysis. It extends it. New Institutional Economics explains why the exchange over track time is managed within hierarchy. Principal–Agent Theory explains why that hierarchy can generate fragmented incentives. Game Theory then explains how those incentives translate into repeated strategic behaviour in everyday allocation decisions. Together, these three lenses provide the framework for interpreting the empirical evidence that follows.

3.4 Working Hypotheses

The framework above leads to four working hypotheses.

Hypothesis 1: In highly utilized corridors, the present allocation system will struggle to protect both service performance and maintenance access at the same time. This stress will appear in weak punctuality, low freight speeds, constrained maintenance blocks, or a combination of these.

Hypothesis 2: Even where maintenance time is granted on paper, it will not always convert into productive work on the ground. Low machine productivity and block overruns will show that the problem is not only the amount of time granted, but also the quality and credibility of that time.

Hypothesis 3: Because Operations and Maintenance face different incentives and work with different information sets, their repeated interaction will produce a stable but inefficient outcome rather than a jointly optimal one.

Hypothesis 4: The observed pattern across corridors will suggest that the present system does not clearly reveal the cost of track time, relies heavily on administrative rules, and operates under information asymmetry and weak commitment credibility.

These hypotheses guide the empirical analysis that follows. The next sections describe the data, the corridor sample, and the performance metrics used to examine them.

3.5 Data and sources

Because the allocative decision itself is not directly visible in one single variable, this study uses multiple sources and multiple proxy measures. The problem of track allocation plays out through day-to-day approvals, rejections, rescheduling, corridor conventions, and execution-stage adjustments. It therefore cannot be captured by looking at only one output or one department's records. Instead, the method is to combine rule documents, planning material, and corridor-level performance data.

The primary institutional sources are the relevant Indian Railways rules and circulars, especially the **General and Subsidiary Rules**, the **Joint Procedure Orders** on rolling block plans, and the Railway Board's guideline on **line capacity value and utilization percentage**. These documents help establish how the allocation system is supposed to work. They define the planning structure, the hierarchy of approval, the corridor concept, and the method by which line capacity is assessed.

The empirical part of the analysis uses corridor-level performance data for a selected set of high-density sections. The data are chosen to cover both current operating outcomes and hidden maintenance-related stress. The time span for data is 6 months, from April to Nov 2025. It is justified not as a long-run historical series, but as a period sufficient to observe how the present system behaves under pressure. The purpose is diagnostic rather than exhaustive. The corridor data are used to expose the pattern of trade-offs, not to build a national time-series model of all Indian Railways sections.

The design is therefore a focused institutional and corridor-based analysis. It combines rule interpretation with performance evidence. This fits the capstone's objective: to diagnose how the current governance arrangement behaves where scarcity is most intense, and to use that diagnosis to think about better design.

3.6 Selection of six corridors

The empirical analysis in this report focuses on **six highly utilized corridors**. I justify this choice through the line-capacity data. Once the Railway Board's method is applied, more than 50 sections fall into the category above **125 percent utilization**. Rather than trying to cover all of them, I select six corridors from this larger set and treat them as a **stress test** of the allocation system. The logic is simple. If track allocation works well, it should still produce reasonably stable outcomes even when the line is very busy. If it works poorly, its weaknesses should appear quickly in such sections.

The corridor approach also keeps the analysis concrete. Indian Railways is a nationwide network with very different kinds of lines. Some lines carry relatively light traffic. Others function more like national highways of the railway system, where passenger and freight movements compete for the same space. The six selected corridors sit on those "highway" parts of the network. They are not random stretches of track. They are places where congestion matters, where delays spread outward, and where the struggle over track time becomes visible.

The sample also provides some geographic spread. One group lies in the east and north-east gateway zone, near major routing points such as the Siliguri corridor and Deen Dayal Upadhyaya Junction. Another lies in central India around Nagpur, Amla, Itarsi, Wardha, and Ballarshah, where freight intensity is especially high. This matters because the purpose here is not to show an isolated local problem. It is to show a recurring pattern across busy and strategically important parts of the network.

I treat these six corridors, in effect, as a microscope. They are a slice of the system large enough to expose the heart of the problem. They help show whether Indian Railways behaves like a predictable planning system or like a system of continuous bargaining under pressure.

3.7 Performance metrics

A central design choice in this study is the use of **six proxy metrics** to assess the quality of the allocation process. I adopt this approach because a track-allocation system is "performing" when it makes workable trade-offs among three competing uses of the same scarce track time: scheduled passenger operations, freight throughput, and maintenance possessions. But the allocation decision itself is not directly observable. It takes shape through day-to-day approvals, rejections, rescheduling, and shifting priorities. That is why I use metrics that together reflect service reliability, network fluidity, maintenance access delivered, and the hidden costs of congestion.

The first metric is **passenger punctuality**. This captures how reliably passenger trains keep time. When track time is scarce, passenger services are often protected through precedence and pathing. If punctuality still degrades, it suggests either that the timetable is overloaded or that the allocation system cannot protect passenger paths under pressure. At the same time, punctuality is influenced by other factors as well. It is therefore an outcome indicator, not a pure measure of allocative efficiency.

The second metric is **average freight speed**. This captures the fluidity of the network. Freight is often the residual claimant for paths after passenger priority and maintenance needs are handled. When allocation becomes reactive and unstable, freight usually pays through extra waiting, re-pathing, and low effective speed. Freight speed therefore helps reveal congestion and path scarcity that may not be fully visible in punctuality alone.

The third metric is the **percentage of block hours granted out of block hours demanded**. This is the clearest direct measure of maintenance access in the dataset. If block demands are repeatedly cut, delayed, or only partly granted, Maintenance is clearly losing in the competition for track time. But the grant ratio is not just a count of maintenance happening. It also reveals whose claim on the corridor is being prioritized and whether the planned allocation has credibility.

The fourth metric is **machine or block productivity**. This shows whether the track time received by Maintenance is actually converted into engineering output. This is one of the most revealing measures in the framework because it distinguishes time granted on paper from time that produces work on the ground. Low productivity may reflect poor possession quality, such as late starts, interruptions, or early clearances. But it may also reflect weak engineering readiness, such as missing labour, materials, or supporting equipment. This metric therefore sits at the intersection of allocation and execution, which is exactly why it matters so much.

The fifth metric is **block overruns**, or **block bursts**. These show cases where a maintenance possession lasts longer than the time granted or agreed. A burst is both a reliability event and a clue about governance. It may reflect short or fragmented blocks, weak site readiness, or both. It also matters because, in a system with weak and unpredictable penalties for overrun, departments may adapt their behaviour around that weak enforcement. In that sense, block bursts are not just a field problem. They are also a window into the incentive structure of the allocation system.

The sixth metric is **track breakdowns or track-related failures**. These are the slow-burn indicator in the set. They do not rise the moment a block is denied. Instead, they show what happens later when maintenance access is repeatedly under-supplied, fragmented, or rushed. They also capture quality problems in execution. I therefore interpret breakdowns as a signal of both maintenance debt and maintenance quality. They reveal the long-run cost of a system that treats track time as effectively free at the margin and does not reliably charge the cost of today's

Taken together, these six metrics provide a structured way to read the allocation system. They connect current service outcomes, maintenance access, execution quality, and future asset condition, and thereby translate the capstone's central question into observable evidence.

3.8 How line capacity utilization is computed in Indian Railways, and why does it matter for this study?

The last methodological step is to explain how Indian Railways computes **line capacity utilization**, because this measure determines why the selected corridors are treated as high-stress cases. Indian Railways defines **line capacity value** as the number of trains that can be run on a section in a full day without speeds being reduced substantially. It calculates this section-wise between junctions for each financial year. **Line capacity utilization percentage** is then computed as the ratio of the average number of trains actually run per day during the peak quarter to that line-capacity value. By default, the peak quarter is the last quarter of the financial year, unless another quarter is clearly the true peak.

The capacity value itself is estimated using a **master chart** method. Scheduled trains from the Working Time Table are plotted, and then a realistic mix of freight and special trains is added. The guideline also requires a consistency check against theoretical capacity on the critical section. Importantly, the guideline assumes a **standard 3-hour corridor maintenance block** for uniformity across zones, while also noting that the actual blocks stipulated, granted, or required may differ in practice.

This is what makes the utilization measure analytically important. When a section appears to operate above **100 percent utilization**, it means the railway is running more trains in the peak period than the planning method would normally support once that standard maintenance window is accounted for. In some cases, utilization goes beyond **125 percent**. Such a figure may indicate that Operations is effectively using maintenance time as flexible capacity—squeezing more trains into what the planning method assumes should be protected for maintenance. The measure therefore does not just describe traffic density. It also reveals something about how the system is behaving toward maintenance time in practice.

This matters for the research design because it justifies the choice of the corridor sample. Once a section exceeds the 125 percent range, the line is no longer operating within what the planning method considers a workable daily level after accounting for maintenance. Such sections are therefore appropriate stress cases for judging whether the allocation system remains credible under pressure. If the system cannot protect maintenance windows, punctuality, and predictable execution in such sections, that tells us something important about the system's deeper design.

The line-capacity method also helps connect the empirical and theoretical parts of the capstone. High utilization is not merely background congestion. It is the condition under which weak incentives, bargaining, and poor cost visibility become especially visible. It creates the pressure under which the institutional weaknesses of the allocation system show themselves most clearly.

This chapter has set out the conceptual and methodological basis of the study. NIE explains why track allocation sits inside a vertically integrated hierarchy. PAT explains why departments within that hierarchy may begin to act in ways that protect their own targets rather than the organisation's wider objective. Game Theory explains how those incentives and information gaps translate into repeated defensive behaviour. The chapter has also described the six-corridor sample, the six-metric framework, and the line-capacity method used to identify high-stress sections. The next chapter turns to the corridor evidence itself and asks how these highly utilized sections actually perform on those measures.

4. Empirical Findings from Six High-Density Corridors

This chapter turns from framework to evidence. The previous chapter explained the logic of the study, the corridor sample, and the six metrics used to read the allocation process. This chapter asks a direct question: **how does track allocation actually perform on busy parts of Indian Railways?** The evidence comes from six high-density corridors where traffic pressure is strong enough to expose the strengths and weaknesses of the present system. The purpose is not to treat these six links as the whole railway. The purpose is to use them as stress cases. If the allocation system works well, it should still produce reasonably stable outcomes under pressure. If it works poorly, the cracks should show clearly in such corridors.

4.1 Overview of sampled corridors

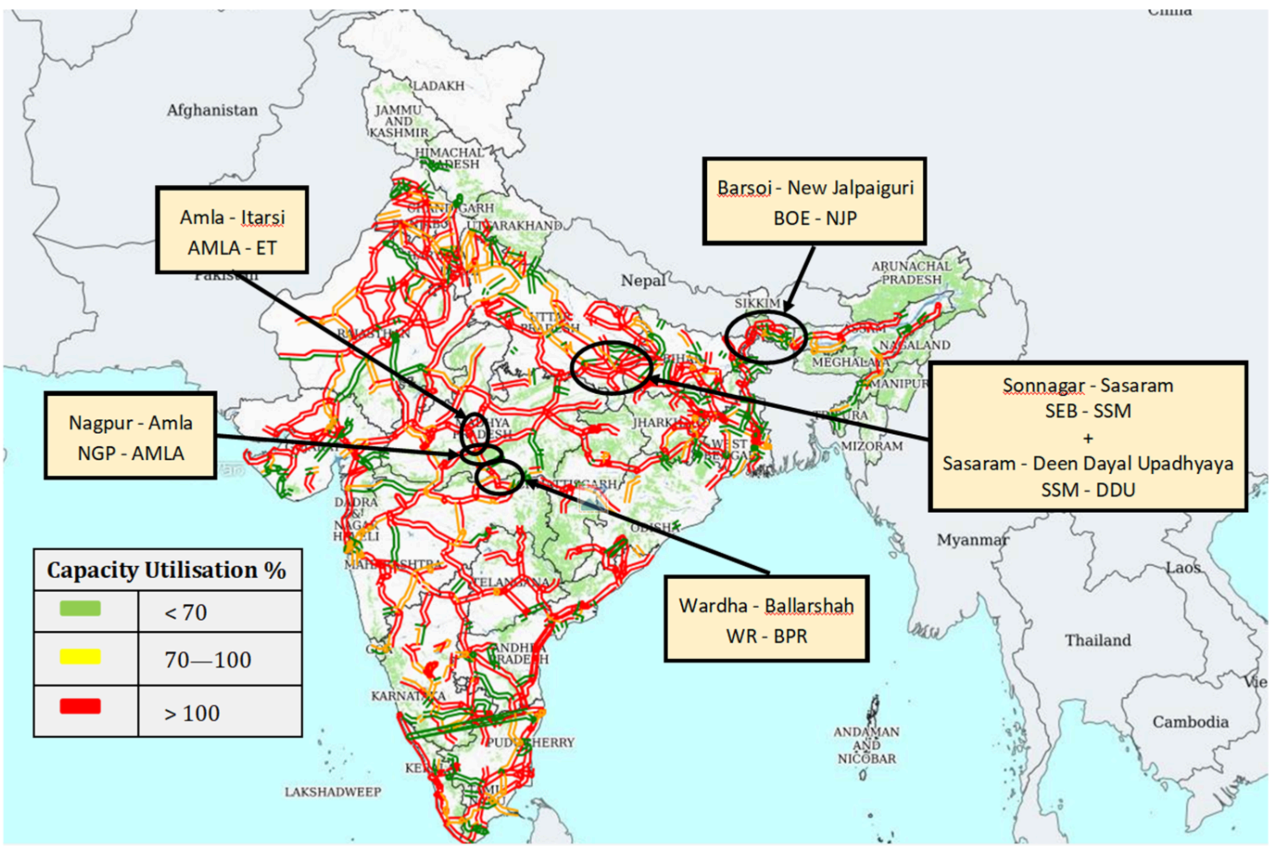

Figure 1. *Location of the six sampled high-density corridors on the Indian Railways network.*

The map shows the six corridors used as stress cases in this report: BOE–NJP, SEB–SSM, SSM–DDU, AMLA–ET, NGP–AMLA, and WR–BPQ. Line colors indicate capacity utilization levels: green sections operate below 70 percent, yellow sections between 70 and 100 percent, and red sections above 100 percent. The selected corridors sit on heavily used parts of the network, where conflicts between train operations and maintenance access are most likely to appear.

Indian Railways is a nationwide network. Some lines behave more like local roads, carrying moderate traffic with limited conflict. Others behave more like national highways, where passenger and freight trains compete intensely for the same track space. The six corridors examined here sit on those "highway" parts of the system. They are stretches where traffic pressure is high, where delay spreads quickly, and where the struggle over track time becomes visible. A corridor here means a specific stretch of line between two important nodes, such as a major junction, gateway, or merging point of traffic streams.

The sample has two broad clusters. One lies in the east and north-east gateway zone. **Barsoi–New Jalpaiguri (BOE–NJP)** sits near the Siliguri corridor, which acts like a funnel into the North-East. **Sonnagar–Sasaram (SEB–SSM)** and **Sasaram–DDU (SSM–DDU)** sit in the Bihar–eastern Uttar Pradesh belt near Deen Dayal Upadhyaya Junction, which is a major routing point for north Indian flows. The second cluster lies in central India, around **Nagpur–Amla–Itarsi** and **Wardha–Ballarshah**, where freight density is especially strong and traffic moves through major junctions and long-distance flows. In simple terms, each corridor is a relatively short piece of line carrying a disproportionate share of traffic pressure.

These corridors are useful because they let the analysis stay concrete. Instead of speaking in general terms about congestion and maintenance access, the chapter can ask what actually happens when the same corridor must absorb passenger trains, freight movement, and maintenance demands at the same time. The metrics from the previous chapter—punctuality, freight speed, block access, machine productivity, block overruns, and track failures—help show whether the current allocation system is delivering a workable balance or only managing stress from one day to the next.

4.2 Corridor-level findings

Six-corridor performance dashboard (ranked within each metric)
Green = better • Gray = middle • Red = problem area

	BOE–NJP (143 km)	SNG-SSM (23.6 km)	SSM–DDU (100 km)	AMLA–ITR (130 km)	NGP-AMLA (167 km)	WR-BSP (132 km)
Passenger punctuality (%)	54%	36%	37%	72%	64%	49%
Blocks granted / demanded (%)	92%	50%	73%	23%	23%	26%
Freight speed (km/h) ↑	22	22	23	19.7	24	11.4
Track breakdowns (#)	31	8	10	37	94	80
Block overruns (min)	56:49	27:34	02:34	06:11	11:00	21:33
Block productivity (%)	55.4%	82.4%	68.7%	72.7%	11.0%	64%

Better (within metric) • Middle • Problem area (within metric)

Figure 2. Six-corridor performance dashboard across service, maintenance access, execution quality, and asset condition.

The dashboard compares the six sampled corridors on passenger punctuality, block grant ratio, freight speed, track breakdowns, block overruns, and block productivity. The colors rank corridors within each metric: green indicates relatively better performance, gray indicates middle performance, and red indicates a problem area. The pattern shows that no corridor performs well across all dimensions, supporting the report's finding that the present allocation system produces a workable but uneven compromise rather than a jointly optimized outcome.

BOE–NJP (143 km): high block grant, but weak conversion and high overruns

BOE–NJP is not the most crowded corridor in the sample, but it is still overloaded. Capacity utilisation stands at **111 percent** with **144 trains**, and passenger punctuality is only **54 percent**, which means roughly half the trains miss the on-time standard. The striking result here is not denial of maintenance time. Maintenance demanded **1186:49 hours** and received **1096:56 hours**, about **92 percent** of what it asked for. On paper, this looks like a corridor where Maintenance receives access. Yet the execution picture is weak. Machine productivity is only **55.4 percent**, and block burst totals **56:49**. Possessions often run longer than the granted window.

This makes BOE–NJP important because it shows that the problem is not always simple block denial. Here, the system grants most of the time requested, but still struggles to turn that time into completed work within the planned duration. The result looks like a **conversion problem**, not a pure access problem. Low productivity combined with high overrun suggests late starts, weak readiness, setup delays, staffing or equipment mismatch, dependency delays, or weak discipline in closing the block on time. Whatever the immediate cause, the wider effect is clear: train running becomes less predictable because planned possessions do not stay contained within planned limits.

SEB–SSM (23.6 km): extreme crowding, sharp rationing, and frequent overruns

SEB–SSM is a very short corridor at only **23.6 km**, but it carries intense traffic pressure. Train count is **368** and capacity utilisation reaches **164 percent**. Passenger punctuality falls to **36 percent**, which is one of the weakest results in the sample. Maintenance demanded **1055:27 hours** but received only **526:57 hours**, roughly **half** of what it asked for. Access is therefore sharply rationed. Yet machine productivity is **82.4 percent**, which means that when Maintenance does get time, it uses that time fairly well. At the same time, block burst totals **27:34 hours** across **69 cases**.

This corridor reads like an extreme pressure point. Operations pushes to move trains through a corridor with almost no slack. Maintenance receives limited windows. When those windows are finally available, the possession duration is still hard to keep contained. The combination is costly. Poor punctuality shows that Operations is not fully protecting service quality. High productivity shows that Maintenance is not simply wasting the time it receives. Frequent overruns show that the system is still unable to maintain clean control over the possession boundary. In a corridor this crowded, every extra minute matters because it takes away scarce train paths and adds more uncertainty into a timetable that is already overstretched.

SSM–DDU (100 km): fewer overruns, but still very poor punctuality under extreme utilisation

SSM–DDU shows a different pattern. Capacity utilisation is even higher at **168 percent** with **358 trains**, and punctuality remains very poor at **37 percent**. Maintenance demanded **326:34 hours** and received **240:19 hours**, about **73 percent** of what it asked for. Machine productivity is **68.7 percent**, which is not ideal but is better than the weakest cases. Most strikingly, block burst is only **02:34** across **four cases**. Among the six corridors, this is the cleanest overrun story.

This corridor matters because it shows that better possession discipline does not automatically solve the corridor problem. Even with relatively limited overruns, punctuality remains extremely poor. The main lesson is that **congestion alone can dominate outcomes** when utilisation becomes that high. A corridor can hold possession overruns down and still fail to deliver reliable service because the timetable is simply too crowded. This also serves as a warning against treating clean possession control as a complete solution. It helps, but it cannot overcome extreme overuse of the line by itself.

AMLA–ET (130 km): better punctuality, but severe rationing and weak freight outcomes

AMLA–ET appears stronger at first glance because punctuality is **72 percent**, the best in the sample. But the rest of the picture is much less comfortable. Capacity utilisation is still **157 percent**. Maintenance demanded **210:06 hours** but received only **49 hours**, roughly **one-quarter** of what it asked for. Freight speed is only **19.7 km/h**, and asset failures are **37**.

This corridor shows why punctuality alone can mislead. Passenger trains may be getting enough priority to stay within the on-time threshold, while freight absorbs the delay through waiting, crossings, and slow running. It is also possible that the punctuality measure itself does not fully capture the congestion cost being imposed elsewhere in the system. Either way, AMLA–ET is a warning against reading one visible service indicator as proof of general system health. A corridor can look acceptable on passenger punctuality and still show severe rationing of maintenance access and poor freight movement.

NGP–AMLA (167 km): relatively better freight speed, but very high failures and limited maintenance access

NGP–AMLA presents another mixed picture. Punctuality is **64 percent** and capacity utilisation is **155 percent**. Maintenance demanded **26 hours** but received only **8 hours**, around **one-third** of what it asked for. Freight speed reaches **24 km/h**, the highest in the sample. But that better movement comes with a warning sign: asset failures rise to **94**, the highest in the sample, and block burst is **11:00**.

This looks like a corridor that is being kept moving, but at significant infrastructure cost. The relatively better freight speed suggests that the line is still being pushed for current traffic performance. The very high failure count suggests that the asset is carrying the burden of that choice. Low access and high failures together form a risky combination. They point to a corridor that may be running “hot”: traffic continues to move, but the infrastructure shows growing strain and may impose a heavier cost later through more failures, restrictions, or emergency interventions.

WR–BPQ (132 km): very low freight speed, high failures, limited access, and significant overruns

WR–BPQ shows one of the hardest combinations in the sample. Punctuality is **49 percent** and utilisation is **147 percent**. Maintenance demanded **375:15 hours** and received **95:15 hours**, again around **one-quarter** of what it asked for. Freight speed is only **11.4 km/h**, which is extremely low. Failures are high at **80**, and block burst totals **21:33**.

This corridor appears trapped in a difficult loop. Heavy traffic and limited maintenance access seem to be weakening track condition. Poorer track condition then contributes to slow running and more delay. That, in turn, reduces the slack needed to create workable maintenance windows. Significant overruns make the situation worse because each extension consumes more capacity in a corridor that already has little room left. WR–BPQ therefore captures a full cycle of congestion, under-supplied maintenance, weak service movement, and further loss of flexibility.

4.3 Cross-corridor patterns

Taken together, the six corridors reveal three broad patterns.

First, the system is operating these links beyond comfortable utilisation ranges. Every corridor in the sample sits above **100 percent utilisation**, and several are far above that level. In plain language, the railway is trying to run too much through too little space. Once utilisation reaches that level, the timetable becomes fragile. Small disruptions spread more easily, and performance becomes harder to protect. The corridor results fit that logic closely. Poor punctuality appears in several corridors even before one examines the maintenance side in detail.

Second, the maintenance-access story is not only about how many blocks are granted. It is also about the **quality, usability, and discipline** of those blocks. Some corridors show sharp rationing of access, such as SEB–SSM, AMLA–ET, NGP–AMLA, and WR–BPQ. Some show relatively high grant but weak conversion, such as BOE–NJP. Several show repeated overruns beyond agreed duration. This means the problem changes from corridor to corridor. In one place, Maintenance is denied time. In another, time is granted but not converted cleanly into output. In yet another, possession discipline looks better but congestion still overwhelms the corridor. The common thread is that the system is not consistently producing stable, usable, and predictable access for maintenance.

Third, the overall outcome looks like a **workable compromise**, not a jointly optimized plan. Operations does not secure high punctuality across multiple corridors. Maintenance does not secure stable and sufficient access across multiple corridors, and even where time is granted, it cannot always turn that time into clean output within the planned window. Yet the system does not collapse. Trains continue to run. Maintenance continues to happen. But both happen with congestion, rationing, overruns, uneven productivity, and variable service quality. This is what makes the pattern so important. The system is not producing a clean win for either department or for the railway as a whole. It is producing a stable but inefficient middle.

4.4 What does the evidence suggest

The corridor evidence suggests that the current track-allocation system in Indian Railways is not delivering the ideal result that any of the main actors would want. Operations would ideally want high punctuality, higher speeds, and minimal disruption to train graphs. Maintenance would ideally want sufficient and predictable possessions, low overruns, strong conversion of block time into engineering output, and fewer failures. The organisation as a whole would ideally want both departments to support a wider objective: safe, reliable, and efficient railway performance over time. The evidence does not show that outcome. It shows that all three fall short in important ways.

Three features of the evidence matter especially.

First, overload forces constant trade-offs. When utilisation sits at or above 100 percent, the corridor has little slack. Every minute becomes contested. That alone makes punctuality harder to protect and maintenance access harder to preserve. In some corridors, congestion appears to dominate even when overruns are limited. In others, congestion and maintenance conflict reinforce each other. Either way, the timetable is operating under stress rather than within a comfortable margin.

Second, the system shows weak control over possession duration and conversion. Block burst reveals repeated extensions beyond the agreed window in several corridors. Low machine productivity reveals that even granted time does not always convert into completed work smoothly. This is not only a field issue. It is also a governance issue. The pattern suggests a system in which planned block duration is not always fully credible, where readiness and sequencing are uneven, and where the true cost of deviation is not sharply imposed at the point of decision.

Third, the system allows a workable compromise rather than forcing a cleaner choice or a better joint solution. Maintenance sometimes accepts less access than it needs and tries to keep the corridor safe anyway. Operations sometimes tolerates possessions and even overruns because it must, but then pays in punctuality, freight movement, or both. The result is not ideal for either side. But it is workable enough to continue. That is why the evidence supports the claim that the present allocation system produces a stable but inefficient equilibrium.

This chapter therefore sets up the next one. The problem revealed by the six corridors is not simply that Indian Railways is busy. The deeper problem is that the present allocation form does not clearly reveal the cost of track time, relies heavily on administrative rules, works with commitments that can shift at execution, and operates under conditions of uneven information. The corridor evidence shows the symptoms of that world: very high utilisation, weak punctuality in several corridors, rationed blocks in several corridors, uneven productivity, and repeated overruns. The next chapter turns from evidence to explanation and asks why this institutional setting produces those outcomes so persistently.

5. Explaining the Findings: Incentives, Coordination Costs, and Equilibrium

The previous chapter showed what happens on busy corridors: weak punctuality, low freight speed in several cases, rationed maintenance access in several corridors, uneven machine productivity, and repeated possession overruns. This chapter asks a deeper question: **why does the system keep producing these results?** The answer does not lie in congestion alone. Congestion is the pressure. The more important issue is how the institutional design responds to that pressure. This chapter argues that the present structure of Indian Railways still makes sense in many ways, but that it is under strain in one specific area: the daily allocation of scarce track time between Operations and Maintenance. What once saved coordination cost now increasingly creates it.

5.1 Organizational evolution of Indian Railways

Track time is a scarce resource. On a highly demanded corridor, only a limited number of trains can run safely in a given hour. If one train occupies a section of line, another cannot use it at the same moment. If the Maintenance department takes possession of that section to inspect or renew the track, train movement must pause. The track cannot expand in response to short-term pressure. Every hour granted to one use denies that hour to another. This basic fact raises a simple economic question: when a scarce resource is wanted by more than one user, how should it be allocated?

In many sectors, the familiar answer is price. Price forces users to reveal how much they value access and to account for the opportunity cost they impose on others. That logic appears in other infrastructure systems. Congested electricity transmission is priced. Airport slots are increasingly traded or auctioned. Road congestion pricing tries to ration limited road space during peak periods. In each case, the point is the same: price acts as a signal. It tells users that the resource is scarce and that extra use carries a cost.

Railways also face scarcity, but the problem is more complicated here because the two main claimants over track time do not seek the same kind of benefit. Operations values track time to run services immediately. Maintenance values track time to preserve safety and reliability for the future. One benefit is immediate and visible. The other is preventive and less visible. A maintenance block prevents a failure that may not yet have occurred. This makes the allocation problem more subtle than a simple competition among similar users. It helps explain why systems such as Indian Railways evolved as integrated public hierarchies rather than as internal markets for track time.

5.2 Why hierarchy made sense

A vertically integrated railway structure did not emerge by accident. It solved real coordination problems. Railways are systems with highly specific assets, strong safety obligations, and tightly connected functions. Track, signalling, rolling stock, and timetable planning all depend on each other. Under those conditions, managing exchange through internal hierarchy can be more efficient than trying to write complete contracts for every interaction. The broad logic of New Institutional Economics helps explain this. When exchanges are frequent, uncertain, and difficult to contract for in advance, organisations often bring them inside the firm because internal coordination can be cheaper than market bargaining.

This is why the key question is not whether hierarchy was a mistake from the start. It was not. Hierarchy can remain effective for long-term planning, safety oversight, capital investment, and standard setting. It creates unified control over a national network, which matters especially in a public railway of the size and strategic importance of Indian Railways. The more useful question is narrower: **where has hierarchy stopped being efficient, even if it remains useful overall?** That question matters because different transactions inside the same organisation do not all have the same governance needs. Some are handled well by hierarchy. Others begin to strain under it.

The argument here is that **track allocation has become one of those strained transactions**. It is too frequent, too local, too information-heavy, and too costly at the margin to be managed smoothly by administrative rules alone. That does not mean the whole organisational form has failed. It means that one particular internal exchange is showing diminishing returns under the present arrangement.

5.3 Rising coordination costs inside the firm

A useful way to identify an institutional tipping point is to ask whether greater effort and tighter control still produce better outcomes. In the busy corridors studied here, the evidence suggests that they often do not. Passenger punctuality remains weak in several sections. Freight speed remains low in several sections. Track failures persist. Maintenance overruns are frequent. Yet both the Operations and Maintenance departments remain active, and both often continue to meet the kinds of internal targets by which they are judged. This gap between effort and result suggests a coordination problem, not simply a capacity problem.

The reason becomes clearer once the character of the transaction is considered. Track allocation today is not an occasional planning exercise. It is a high-frequency daily exchange. Decisions must be made repeatedly about how to divide scarce track time between train movement and engineering access. As traffic density rises, those decisions become more numerous, more interdependent, and more consequential. At the same time, uncertainty rises because track condition varies across locations and failures cannot be predicted with precision. Under these conditions, the cost of coordinating the exchange inside hierarchy rises sharply. The problem is no longer just whether the railway has enough capacity in the abstract. It is whether the organisation can repeatedly make fine trade-offs under pressure using administrative rules alone.

This is what the corridor evidence points toward. Delays, overruns, and breakdowns are not isolated events. They are symptoms of a system that struggles to manage frequent, high-stakes trade-offs through internal procedures that do not fully reveal the cost of each decision. The present arrangement still functions, but it does so with rising friction. That is why the findings are better understood as signs of **institutional strain** rather than as evidence of one department simply failing to do its job.

5.4 KPI-driven incentives and siloed behavior

As organisations grow in scale and complexity, senior management cannot directly observe every decision and trade-off. They therefore rely on performance indicators as proxies for effort and effectiveness. That is understandable. Broad outcomes such as "system reliability" or "long-term asset health" are difficult to measure directly and difficult to assign to one branch. Department-specific indicators are easier to count and easier to use for appraisal. But once such metrics become central, they begin to shape behaviour. Over time, they can shape behaviour more strongly than the organisation's stated goals.

In Indian Railways, Operations and Maintenance face different performance signals. Operations-related KPIs tend to emphasise outputs such as the number of trains run, punctuality at end points, and revenue generation. Maintenance-related KPIs tend to emphasise outputs such as kilometres of track renewed, adherence to budgets, and completion of sanctioned works. Each set of metrics makes sense within its own branch. But neither set captures the joint outcome that matters most to the railway: the safe, reliable, and efficient use of the network over time.

This creates predictable incentives. Operations does not fully bear the long-term cost of squeezing maintenance, because deferred maintenance affects future reliability more than present scorecards. Maintenance does not fully bear the opportunity cost of long possessions, because its evaluation focuses on work completed rather than on trains displaced. Both departments therefore behave rationally within their own appraisal systems even when that behaviour weakens wider system performance. As the organisation grows, the problem worsens because reliance on measurable targets increases. What begins as a tool for accountability gradually becomes a substitute for broader judgment. Departments learn to optimize against their own scorecards rather than against the railway's wider objective.

That is why the problem should not be framed as one of bad intent. The issue is not that one side wants to damage the system. The issue is that a departmentally rational action can still be systemically costly. A railway can therefore end up with departments that look busy and compliant while the network as a whole performs below what it could.

5.5 Information asymmetry and weak commitment credibility

The coordination problem becomes harder because the two departments do not work with the same information. Maintenance knows more about track condition, hidden defects, machine constraints, and work sequencing. Operations knows more about train conflicts, traffic pressure, and the relative importance of different services on a given day. Neither side sees the full picture. More importantly, the system does not translate these information sets into one common and trusted measure of cost. That makes disagreement difficult to settle transparently.

As a result, both departments begin to act defensively. Maintenance inflates demands because it expects to be under-granted. Operations discounts those demands because it expects exaggeration. This does not require bad faith. It follows naturally from the information structure. When one side cannot verify the other side's claim, suspicion becomes rational. The result is a system in which demands are padded, claims are discounted, and each side guards its own information more carefully. Administrative rules then stop clarifying trade-offs and instead become part of the bargaining process.

Weak commitment credibility makes this worse. On paper, the planning system creates blocks, corridors, approvals, and reviews. But at the execution stage, those commitments can still shift. Earlier plans can be revised under traffic pressure. A block can be shortened, delayed, or altered. Overruns do not always trigger immediate and predictable consequences. Because departments know this, they adapt their behaviour in advance. Maintenance asks defensively because it doubts that the full demand will survive execution. Operations grants cautiously because it fears overrun or disruption. Over time, both sides begin to treat the plan as real but not fully reliable. This is why track allocation starts to look less like a predictable planning system and more like a repeated bargaining system. Scarcity matters, but scarcity alone does not explain the pattern. The stronger explanation is a combination of scarcity, fragmented information, and weakly credible commitments.

5.5.1 Informal norms and the limits of rule change

Formal rules matter, but they do not operate by themselves. A railway can change a circular faster than it can change an organizational habit. The written rule may say that maintenance blocks should be planned, reviewed, and protected. But the working norm may still say that maintenance time can be adjusted when traffic pressure rises. If that norm remains strong, a new rule may change the paper process without changing the real behavior.

Institutional theory helps explain this gap. North (1991) defines institutions as the constraints that structure political, economic, and social interaction. These constraints include both formal rules, such as laws and written procedures, and informal constraints, such as customs, traditions, sanctions, and codes of conduct. This distinction matters for Indian Railways because the rolling block system is a formal rule, while the acceptance of last-minute adjustment is closer to an informal working norm. The rule says, “plan in advance.” The norm may say, “the plan can still move.”

Helmke and Levitsky (2004) make this point more directly. They argue that informal institutions can shape real behavior even when formal rules are already in place. Informal institutions may support formal rules, but they may also accommodate, compete with, or substitute for them. In the track-allocation case, the informal norm of exception does not fully replace the formal rolling block system. Instead, it weakens the system by making planned blocks negotiable at the point of execution.

This is why the problem is not simply that the Indian Railway lacks rules. It already has rules. It has a rolling block programme, planning horizons, approvals, and reviews. The deeper problem is that the working norm allows both sides to treat the plan as flexible. Maintenance may change what it asks for between the rolling programme and the memo. Operations may change the timing, duration, or priority of a block when traffic pressure rises. Over time, both departments learn that the plan is real, but not fully binding.

Roland’s distinction between fast-moving and slow-moving institutions helps explain why this matters for reform. Written procedures and administrative rules can change quickly. Norms, beliefs, and organizational culture change more slowly. Roland (2004) describes culture, values, beliefs, and social norms as slow-moving institutions, while formal political or administrative rules can move much faster. This means that a new circular may not change behavior unless it also changes the repeated incentives that sustain the old norm.

The practical implication is simple. The recommendation should not assume that exceptions will disappear. Indian Railways will always need some exceptions. Accidents, unsafe conditions, weather events, festival specials, election-related passenger movements, freight surges, and other public-service demands may require Operations to change the plan. The problem is not the existence of exceptions. The problem is when exceptions become cheap, routine, and invisible.

A better reform should therefore discipline exceptions rather than pretend to eliminate them. Every deviation from a locked block should carry a reason code. Safety emergencies should be recorded as no-fault deviations. Declared public-service events should be allowed, but they should create a maintenance recovery obligation. Routine operational convenience should count as an avoidable deviation. This approach does not fight the exception culture directly. It changes what an exception means. An exception would no longer mean “ignore the protocol.” It would mean “record the departure, justify it, and repair the maintenance loss.”

In this sense, any pilot project should be understood as a norm-shaping device, not only a rule change. It does not expect informal practice to change overnight. Instead, it changes the record that repeated practice leaves behind. A block request must carry evidence. A block approval must carry commitment. A deviation must carry a reason. A legitimate exception must carry a recovery obligation. Over time, these repeated signals can shift the working norm from "the plan can always move" to "the plan can move only with a visible reason and a repair of the loss."

5.6 Stable but inefficient equilibrium

Game-theoretic reasoning helps explain why this pattern does not correct itself. Operations expects Maintenance to exaggerate demands, so it squeezes. Maintenance expects Operations to squeeze, so it exaggerates further. Neither side wants to move first because unilateral cooperation is risky. If Maintenance suddenly asks honestly while Operations continues to squeeze, Maintenance loses. If Operations suddenly grants generously while Maintenance continues to over-demand or overrun, Operations loses. That makes self-protection rational even when both sides would be better off under a more cooperative arrangement.

This is what creates the **stable but inefficient equilibrium**. The system does not collapse, because both departments still get something. Trains continue to run. Maintenance continues to happen. But neither side gets the result it would ideally want, and the organisation as a whole does not get a clean optimum either. The corridor evidence already showed this pattern in practice: congestion, rationing, uneven productivity, and repeated overruns. The game-theoretic explanation shows why that pattern persists. The system is not stuck because people fail to understand the problem. It is stuck because the present incentives make defensive behaviour safer than unilateral cooperation.

The game is also not a one-time event. It is repeated daily. Yesterday's block cut shapes today's demand. Yesterday's overrun shapes today's grant. Repeated interaction reinforces mistrust. Every time Maintenance inflates a request and Operations cuts it, both sides feel confirmed in their beliefs. The equilibrium therefore becomes self-reinforcing. Conflict becomes normal. Coordination becomes rare. That is why appeals to goodwill alone are unlikely to solve the problem. Without changing the rules, the information structure, or the payoffs, the system keeps returning to the same result.

Conclusion

This chapter has explained why the corridor outcomes seen earlier are not random. Indian Railways' integrated structure still serves important purposes and cannot be dismissed as a simple mistake. But the daily allocation of scarce track time now places that structure under strain. Coordination costs have risen. KPI systems encourage siloed behaviour. Information is fragmented. Commitments are only partly credible at execution. Under those conditions, Operations and Maintenance do not move toward a jointly better result. They move toward a stable but inefficient compromise. The next chapter turns outward and asks what can be learned from other arrangements, especially Britain, Japan, and the Dedicated Freight Corridor experience.

6. Comparative Lessons and Emerging Institutional Experiments

The previous chapter explained why the present allocation system in Indian Railways tends to produce a stable but inefficient outcome. This chapter asks a practical next question: **do other systems handle the same conflict differently, and what can be learned from them?** The purpose here is not to import a foreign model whole. Railway systems differ in traffic mix, state capacity, network design, regulation, and political setting. The purpose is narrower and more useful. It is to see how other arrangements deal with the same basic problem of scarce track time and competing claims over it. Three cases are especially helpful: Britain, Japan, and the Dedicated Freight Corridor experience in India. Britain makes the cost of access and disruption more visible through separation, contracts, and an external referee. Japan, especially on the Shinkansen, reduces the conflict by designing it out through timetable discipline and protected maintenance windows. DFCCIL sits somewhere in between: it introduces some separation, but without the same enforcement environment.

6.1 Britain: making the cost of disruption visible

Britain addresses the track-allocation problem by separating infrastructure from train operations and then governing access through contracts, charges, and regulation. The infrastructure manager maintains the track and releases capacity for train services after accounting for maintenance needs. Train operators then apply for paths on the remaining capacity. This matters because the main contest is not framed as an internal argument between departments. It is framed as a regulated access problem in which different operators seek use of a scarce network under a formal rule system.

The most important lesson from Britain is not simply that money changes hands. It is that **financial consequences attach to specific decisions**. When engineering works overrun the agreed window and disrupt services, compensation mechanisms make that disruption visible and costly. When delays are caused by infrastructure failure or operator fault, the performance regime assigns responsibility and financial consequence. In simple terms, the system does not leave the cost of bad coordination hidden inside one large organization. It pushes that cost back toward the actor and decision that created it. That makes possession planning and execution more disciplined, because mistakes are not absorbed as vague system pain. They appear in accounts, contracts, and regulator-backed obligations.

This matters for the present capstone because it highlights what is weak in the Indian case. In Indian Railways, a block overrun or poor-quality possession may create heavy system costs, but those costs do not usually land as an immediate and predictable consequence on the relevant unit. In Britain, by contrast, deviation becomes more visible and more costly. The access system therefore does two things at once: it allocates scarce capacity and it strengthens commitment credibility. A possession is not just a plan on paper. It sits inside a framework where changing it has consequences.

At the same time, Britain is not a simple prescription for India. The British system depends on an external referee, mature contractual practice, and a more developed regulatory environment. It also deals mainly with conflict among operators after infrastructure needs are defined, not with the exact internal departmental struggle seen inside Indian Railways. So the lesson is not that India should copy Britain wholesale. The more useful lesson is narrower: **when the cost of taking track time and the cost of disrupting the plan become visible and enforceable, hidden bargaining reduces and discipline improves**.

6.2 Japan: designing the conflict away

Japan offers a different comparison. Britain relies more on contracts, charges, and regulation. Japan, especially on the Shinkansen, relies more on timetable design and operating discipline. It does not mean that Japanese railways face no exceptions. They do. JR Central's own public timetable says that the published timetable is only a basic timetable and that extra trains may run depending on season, events, day of the week, and other reasons (Central Japan Railway Company, n.d.). This means the Shinkansen does not solve the problem by assuming that no one will ask for special treatment. It solves it more by planning for variation in advance and by channeling exceptions through the timetable.

The strongest evidence comes from Ogawa et al. (2008), a JR Central-authored paper on the Tokaido Shinkansen timetable. The authors explain that JR Central adjusts the number of services for every operating hour of the year, using demand forecasts and ticket-sales data to decide when to add extra trains. They also describe how JR Central responds to unexpected special demand, such as concerts, football games, and seasonal travel, by monitoring sales and adding services when needed. In fiscal year 2008, extra services alone exceeded 13,000. This evidence suggests that the Shinkansen does not reject all exceptions. Instead, it absorbs many exceptions through a disciplined scheduling process before they become last-minute operating conflicts (Ogawa et al., 2008).

This is the more precise lesson for Indian Railways. The Shinkansen does not eliminate the conflict between train movement and maintenance. It reduces the number of times that conflict has to be renegotiated at the execution stage. JR Central's integrated report states that the Tokaido Shinkansen timetable "differs every day" and that rolling stock, track, and technical departments work together to configure trains to meet demand. At the same time, the system maintains strong operating discipline: in FY2023 it ran 372 trains per day, including extra trains, with an average delay of 1.6 minutes per train (Central Japan Railway Company, 2024). That combination matters. The system remains flexible, but the flexibility is planned, measured, and controlled.

Therefore, the Shinkansen system treats exceptions as a timetable-planning problem, not as a routine invitation to reopen the basic allocation of track time. Extra trains are added when the operating plan can support them. Demand changes are handled through advance scheduling, ticket-sales monitoring, seasonal peak pricing and careful adjustment of services. The lesson for Indian Railways can be that maintenance access becomes more credible when the railway protects the timetable as a serious commitment and channels exceptions through a rule-bound planning process, rather than allowing repeated day-of-operation bargaining to decide whether maintenance time survives. The railway becomes less dependent on informal adjustment and more dependent on timetable design and operational discipline.

Japan's conventional lines are closer to the Indian problem because they involve shared corridors and competing demands between passenger and freight movement. But even there, the conflict is handled differently. First, freight is pushed heavily into the night. Second, access charging exists but is limited and tied more to avoidable cost than to a full market-style scarcity price. Third, targeted investments are used to raise freight output per path where many new paths cannot be created. For example, running longer container trains increases the amount moved per slot and reduces pressure on the number of train paths required. In simple terms, when Japan cannot create many more slots, it tries to get more value out of each slot.

This comparison is useful, but it also has clear limits. India cannot assume the same degree of nighttime flexibility because many long-distance passenger services also occupy night hours heavily. The governance structure also differs. In Japan, some of the conflict appears across company boundaries and is handled through timetable coordination and access rules. In India, the conflict usually appears inside one public enterprise between departments over the same corridor time. The visible problem may look similar, but the governance levers are not the same. That is why Japan should be read less as a template and more as a contrast. It shows two powerful ideas: **first, design conflict away where possible; second, where conflict cannot be avoided, contain it through disciplined timetabling, simpler claims on the track, and targeted corridor investment**.

6.3 The Dedicated Freight Corridor: separation without a strong referee

India's most important internal experiment is the Dedicated Freight Corridor. It was created because high-density routes were saturated and freight and passenger trains were competing on the same tracks, pulling down freight speed and capacity. To address this, the government created DFCCIL as a Ministry of Railways company to build and run a freight-focused network and maintain its assets, while Indian Railways continued to interface with the wider network and remain the main train operator. In appearance, this creates some distance between infrastructure and operations. But the separation is only partial.

This partial separation matters for track allocation. Unlike Britain, the main players are not multiple competing operators using a common network under a strong regulator. Indian Railways remains the central train operator, while DFCCIL builds, maintains, and controls corridor traffic. In practice, this means IR becomes DFCCIL's main, and effectively only, customer. The Track Access Charge is supposed to fund the corridor, with one part covering fixed charges and another part covering operation and maintenance. That gives the system a financial structure. But the price signal is weaker than it may first appear. If the charge remains mainly a corporate-level transfer, the operating department making the path decision may not feel a sharp marginal cost at the moment of scheduling. So the presence of a charge alone does not guarantee that the daily allocation decision becomes more disciplined.

The deeper issue is enforcement. On paper, DFCCIL can look superficially similar to a separated model: infrastructure on one side, train operations on the other. But the surrounding institutional environment is very different. India does not yet have the same degree of separation between policy, operations, and regulation that would create strong external accountability. There is no obvious equivalent of a mature regulator-backed compensation regime that routinely penalizes possession overruns or poor infrastructure performance in a way that all sides treat as binding. The result is a hybrid. DFCCIL carries maintenance responsibility. IR carries operating demand. Track access charging is intended to fund the system. But commitment credibility still depends far more on internal governance than on an outside referee.

This makes the DFC case especially valuable for the capstone. It shows that **separation by itself does not solve the allocation problem**. Separation can help clarify roles. It can reduce some direct conflict. It can create a more focused freight environment. But if pricing remains weak at the decision margin and performance commitments remain weakly enforced, then the deeper governance problem survives. The DFC case therefore suggests that organizational separation without strong incentive design and credible enforcement may improve some outcomes, but it does not automatically create a clean, disciplined allocation regime.

6.4 Lessons for the Indian context

Taken together, the three cases point to four practical lessons.

First, make the cost of deviation visible. Britain's strongest lesson is not separation alone. It is the fact that disruption and overrun carry clearer and more immediate consequences. That matters because a system becomes more disciplined when the cost of changing a plan does not remain hidden. Indian Railways currently suffers from the opposite problem. The cost of a block cut, a block overrun, or poor possession quality often spreads through the network without landing clearly on the decision-maker.

Second, protect maintenance by design where possible. Japan's strongest lesson is that some conflicts should not be left to repeated bargaining at all. If the timetable, corridor design, or traffic pattern can protect maintenance windows in advance, then the system does not need to renegotiate the same scarce hours again and again. Even where full separation of claims is not possible, disciplined timetable design and clearer protected windows can reduce the volume of day-to-day conflict.

Third, where more paths cannot be created, get more value from each path. Japan's conventional-line experience also points to a simpler operational lesson. On saturated corridors, the only answer is not always "create more slots." Sometimes the better answer is "move more per slot" or reduce conflict by changing how the slot is used. That idea matters for India because some corridors are so heavily used that daily bargaining over time alone cannot solve the underlying pressure.

Fourth, separation without enforcement has limited value. The DFC case shows that role separation can help, but only to a point. If the organization still lacks strong external accountability, a sharp marginal cost signal, and credible consequences for deviation, then the new structure may still rely on internal adjustment and informal accommodation. In other words, structure matters, but rules and payoffs matter just as much.

These lessons also explain what should not be concluded from the comparison. The answer is not that India should immediately copy Britain's full separation model or Japan's Shinkansen structure. The railway context is different, the institutional environment is different, and the political and legal costs of large structural change can be very high. The more careful conclusion is that India can borrow **design principles** even where it does not borrow the whole model. The most useful principles are these: protect maintenance where possible, make the cost of track use and disruption more visible, reduce the space for hidden bargaining, and back commitments with more credible consequences.

Conclusion

This chapter has used three comparisons to clarify what is missing in the present Indian arrangement. Britain shows the value of visible cost and enforceable commitments. Japan shows the value of designing conflict away where possible and containing it firmly where not. DFCCIL shows both the promise and the limit of partial separation inside the Indian setting. The common lesson is not that one foreign structure should be transplanted into Indian Railways. The common lesson is that track allocation works better when the system reduces hidden bargaining, protects essential maintenance access more credibly, and attaches clearer consequences to deviation. The next chapter turns from comparison to recommendation and asks how those principles can be translated into a more cooperative and more credible allocation system within the constraints of Indian Railways.

7. Recommendations: Redesigning Track Allocation Rules

The previous chapters showed that the present track-allocation system in Indian Railways does not produce a clean organisational optimum. It produces a stable but inefficient middle. Operations protects trains where it can, but still struggles with punctuality and freight speed on crowded corridors. Maintenance secures some access, but often with rationing, weak conversion, and overruns. The system continues to function, but it does so through congestion, bargaining, and adjustment rather than through a reliable and jointly efficient rule system. This chapter argues that the most useful near-term response is **not** to begin with wholesale structural separation. The more practical response is to redesign the rules of the game inside the present structure so that truthful requests, credible approvals, and cooperative behaviour become easier and more rewarding than defensive bargaining.

7.1 Why mechanism design is the near-term focus

The basic diagnosis of this capstone is that track allocation in Indian Railways is not failing because people do not understand the problem. It is failing because the current rules make defensive behaviour rational. Maintenance asks defensively because it expects cuts later. Operations grants cautiously because it expects exaggeration, overruns, or both. In such a setting, appeals to "better coordination" are not enough. When the payoffs remain the same, behaviour tends to remain the same. That is why the central recommendation here is a mechanism-design approach: change the rules and incentives so that departments find it safer to cooperate than to protect themselves through repeated tactical moves.

This logic fits the larger argument of the report. Organisational form shapes incentives. Incentives shape payoffs. Payoffs shape behaviour. And behaviour shapes how track time is finally allocated. If that chain is taken seriously, then the most direct point of intervention is not always the organisational form itself. Sometimes it is the incentive structure operating inside it. In the short to medium term, redesigning incentive structures is likely to yield more immediate gains than reopening the whole question of who owns what, who is legally separate from whom, and how a new structure would be enforced.

7.2 Why not immediate structural separation

This does not mean organisational form is irrelevant. It matters greatly. The comparison with Britain and the experience of DFCCIL both show that structure affects incentives, information flows, and enforcement. But a recommendation chapter has to ask not only what looks attractive in theory, but also what is likely to work in the current Indian context. Here, several reasons caution against making large structural separation the first step. The lesson of the last structural reorganisation, the strategic nature of railways as a national network, the unionised setting, the absence of mature markets, and the danger that contractual and litigation costs may rise sharply in a system where dispute resolution is already slow.

There is also a more specific reason tied to this capstone's argument. The immediate problem lies in a repeated internal exchange over scarce track time. That exchange is already being handled badly under the present rules. Creating a new formal structure without changing the incentives, information design, and commitment system could simply move the same conflict into a new place. The DFCCIL experience already suggests that partial separation without strong enforcement and clear cost signals does not automatically solve the deeper problem. So the near-term task is narrower and more practical: **make the present system behave more credibly and more cooperatively before assuming that a new structure by itself will do so.**

7.3 The main principle: turn a defensive game into a cooperation game

The recommendation can be stated simply. The current system behaves like a repeated defensive game. Each side expects the other to protect itself, so each side protects itself first. A better system would not depend on trust alone. It would make cooperation safer by design. That means four things.

First, the system should make it easier for Maintenance to ask **truthfully** rather than defensively. Second, it should make approvals by Operations more **credible** once granted. Third, it should make performance more **observable**, so that both departments can see whether the plan was used well or changed unnecessarily. Fourth, it should align rewards and penalties with **joint corridor outcomes** rather than only with branch-specific outputs. These are simple strategic principles, but they matter greatly. In repeated conflict, cooperation does not emerge from good intentions alone. It emerges when the rules change the expected payoff from cooperation.

7.4 Working on the "key" in KPIs

Indian Railways already has a KPI culture. This is an advantage. A reform does not need to introduce performance measurement from scratch. The sample scorecard for Eastern Railway (Annexure) shows a structured monthly system with targets, achievements, maximum marks, marks obtained, percentage scores, ranks, and historical trends. It also gives weight to several items that matter for this capstone, including punctuality, freight speed, track renewal, rolling block utilization, asset reliability, and safety.

But the same KPI structure also shows the weakness of the present system. It measures important outputs, but it does not fully measure the quality of coordination between Operations and Maintenance. For example, the scorecard includes **Punctuality (Mail & Express)** as a separate operating measure and **Average speed of freight trains** as a capacity/use measure. It also includes a **Track Renewal/Maintenance** category and a **Rolling Block Utilization** sub-category.

The rolling-block KPI is especially relevant. It gives marks for the percentage of granted or agreed blocks in the rolling block plan, the percentage of refusal of agreed blocks by the executive, and the percentage of blocks given outside rolling blocks. The sample scorecard shows 30 marks for Rolling Block Utilization, with sub-measures for granted/agreed blocks, refusal of agreed blocks, and blocks given outside rolling blocks.

This is a useful start, but it is still too thin for the problem studied in this report. It asks whether blocks were granted, refused, or given outside the rolling plan. It does not ask enough questions about the journey from plan to execution. It does not clearly measure whether the block remained on the same section, whether it started at the planned time, whether the window was continuous, whether the duration was usable, whether Maintenance was ready, whether Operations cut the block after commitment, whether Maintenance overran the block, or whether the corridor outcome improved. In a hospital analogy, the current KPI counts the appointment. It does not fully judge whether the appointment was kept, whether the patient was ready, whether the doctor arrived, whether the surgery was completed, and whether the patient recovered. That is the missing piece. Track allocation needs a KPI that measures commitment and conversion, not only permission.

7.5 Reduce information asymmetry: make maintenance requests more truthful and more legible

The second reform should deal with the information problem. At present, Maintenance knows more about track condition and work sequencing, while Operations knows more about train pressure and real-time timetable stress. Because neither side fully trusts the other's claims, bargaining fills the gap. That is why the system needs better **information revelation** before the decision is made. A demand for a block should not remain just a number of hours. It should carry a standardised disclosure of why that block is needed and what risk follows if it is not granted.

A better block-demand format could therefore require four things:

1. the engineering reason for the block,
2. the minimum usable duration,
3. the preferred timing and why that timing matters,

4. the likely consequence of postponement, such as rising failure risk, temporary speed restriction, or future emergency work.

This would not eliminate disagreement, but it would improve the quality of disagreement. Operations would no longer be evaluating a request that appears only as "X hours demanded." It would be evaluating a claim that is more visible, more comparable across requests, and harder to inflate casually. Over time, this can help separate genuine urgency from routine padding.

This reform should also move Indian Railways gradually from fixed rule-of-thumb windows toward more **condition-based prioritisation** where feasible. That is important because a corridor window designed mainly through timetable logic will never fully solve a maintenance need that depends on actual asset condition. Better condition signals will not remove scarcity, but they will make decisions less blind and less dependent on defensive claims.

7.6 Make approvals credible: lock decisions more firmly as execution approaches

The third reform should focus on **credible commitment**. This is one of the central weaknesses identified in the report. Indian Railways already has plans, corridors, and reviews. But the same design still allows large movement at the execution layer. Once departments learn that commitments can shift late and without predictable consequence, both begin to act defensively. Maintenance inflates early because it expects later curtailment. Operations hesitates early because it fears later overrun. A more credible system should therefore make an agreed block harder to change as it moves closer to execution.

This can be done without radical restructuring. A practical design would create a commitment ladder:

- At the 26-week and 4-week stage, plans remain indicative.
- At the weekly stage, blocks receive provisional commitment.
- At the daily stage, blocks become locked except under clearly defined and recorded exceptional conditions.
- Any same-day cut, shift, or cancellation should require approval above the branch level and should be logged against the corridor record.

The system already has parts of this ladder on paper. What is missing is the sense that the last-stage commitment is genuinely hard to reverse. That should now be strengthened. The nearer the execution date, the stronger the burden of justification should become for changing the plan.

7.7 Put clearer consequences on deviation

A commitment is only as strong as the consequence for breaking it. This is where the British comparison matters most. The lesson is not that India must copy Schedule 4 or Schedule 8 literally. The lesson is that deviations become more disciplined when they stop remaining diffuse system pain and begin to carry identifiable consequence. In the current Indian setting, a block overrun, a late block cut, or poor possession quality often damages the corridor without creating an equally sharp and immediate consequence for the unit that caused it. That is why the next reform should introduce **graduated consequences** for repeated deviation.

These consequences need not begin as financial penalties in the British sense. A first step can be managerial and reputational:

- mandatory next-day review of all major deviations,
- corridor-wise monthly deviation scorecards,
- repeated overrun or repeated late curtailment flagged in divisional review,
- explanation required where branch behaviour repeatedly damages corridor outcomes.

Over time, the system can move toward stronger consequences, including performance-linked scoring or internal budget consequences for repeated, avoidable deviation. The key point is simple: a plan that can be broken without consequence is not a strong plan.

7.8 Make the cost of track time more visible

One of the strongest findings of this capstone is that the present system does not clearly reveal the opportunity cost of track time. This is why both departments can behave as if capacity is "free" at the margin. The next reform should therefore make the cost of using track time more visible in the decision process, even if the railway does not introduce a literal internal market. The aim is not to force departments to buy and sell track time. The aim is to stop treating each extra hour as costless.

A practical way to do this is to require a simple **corridor decision note** for major access conflicts. That note would show, in plain operational terms:

- trains likely to be displaced or slowed if the block is granted,
- maintenance risk likely to rise if the block is denied or cut,
- whether the block is preventive, urgent, or deferrable,
- and whether a later emergency block would likely cost more than the present planned one.

This does not create a perfect price, but it does create a clearer cost comparison. In strategic terms, it improves the decision by forcing both sides to confront the cost they are otherwise tempted to hide. That is already a major improvement over a system in which one side sees only train loss today and the other sees only engineering need today.

7.09 Improve block usability, not just block quantity

The corridor evidence shows that access problems are not only about the quantity of time granted. In some places, the issue is weak conversion of granted time into output. That means reforms should not stop at “grant more blocks.” They must also improve the **usability** of those blocks. A three-hour block that begins late, breaks repeatedly, or lacks site readiness may be less valuable than a shorter but cleaner one. This suggests a simple but important shift in focus: judge the system not only by hours granted, but also by whether the window was workable and whether the worksite was ready to use it.

This calls for three practical changes:

- tighter readiness checks before granting machine blocks,
- clearer distinction between grant failure and preparation failure,
- and post-block review focused on conversion quality, not only on block utilisation ratios.

That distinction matters. Without it, Operations can blame Maintenance for poor conversion and Maintenance can blame Operations for poor window design, and both may be partly right. A cleaner review system should separate these causes more deliberately.

7.10 An Illustrative Pilot

The recommendations above can be tested through a six-month Rolling Block Credibility Pilot on one or two saturated corridors. One corridor can be where the main problem is access rationing and another can be where the main problem is weak conversion of granted time into output. This distinction matters because the evidence in this report shows that the problem does not look the same everywhere. In some corridors, Maintenance receives too little time. In others, Maintenance receives time but does not convert it cleanly into output. A good pilot should test both problems.

The pilot DRM or ADRM should chair the pilot. The pilot should make three things visible: what Maintenance genuinely needs, what Operations actually commits to, and which side causes avoidable deviation from the plan.

The pilot should have four parts -

- First, use a validated block-demand format - A maintenance request should not appear only as a number of hours. It should explain the work clearly. Each demand should state the reason for the block, the asset condition, the minimum usable duration, the preferred timing, the machine and crew readiness, the expected output, and the likely consequence of postponement. This would change the quality of the conversation. Operations would no longer receive a vague demand for "four hours." It would receive a specific claim: this work is needed at this location, for this reason, with this machine, for this output, and with this risk if postponed. That makes genuine maintenance need easier to protect and casual padding harder to defend.

- Second, introduce a T-1 commitment lock - The pilot should create a simple commitment ladder. The 26-week plan can remain indicative. The 4-week plan can remain a planning commitment. The weekly plan should create a provisional commitment. But once the daily plan is finalized at T-1, the block should become a locked commitment. A locked block should still be changeable for real emergencies. The railway must retain flexibility for accidents, unsafe conditions, extreme weather, major public-service movements, festival or election specials, defence movement, or severe freight congestion. But the change should not disappear into informal adjustment. It should carry a reason code.

  This is the key shift. The pilot should not pretend that Indian Railways can eliminate exceptions. It should make exceptions visible. A same-day change should answer a few questions objectively: What changed? Who approved it? Why did it change? How many maintenance minutes were lost? When will those minutes be recovered?

- Third, create a Track-Time Deviation Account - The pilot should create a shadow account of deviation minutes. It should not start with real money. It should start with visibility. If Operations cancels, delays, or cuts a locked block for avoidable reasons, the lost minutes should enter the Operations deviation account. If Maintenance receives the block but is not ready, underuses the window, or overruns the granted duration for avoidable reasons, the lost or excess minutes should enter the Maintenance deviation account. If the deviation occurs because of an accident, weather, unsafe condition, or declared public-service need, it should be recorded separately as a no-fault or declared-exception case.

  This is not a punishment device in the first stage. It is a truth device. It asks the system to stop hiding the cost of deviation. Today, a lost block becomes general system pain. Under the pilot, the lost block becomes a visible entry: who lost the time, why it was lost, and how the system repaired the loss.

- Fourth, create a recovery obligation for legitimate exceptions - The pilot should distinguish between avoidable deviation and legitimate exception. This matters in Indian Railways because Operations faces pressure that Maintenance does not face in the same immediate way. If the railway must run extra passenger specials for a festival, election, or major public event, Operations cannot simply say no. If freight demand surges because

> ports, mines, or power plants need movement, Operations must respond. These are real obligations.
>
> But legitimate exceptions should not be free. If a locked maintenance block is cancelled to run additional trains, the corridor should record the lost minutes and create a maintenance recovery obligation. For example, if Operations cancels a 180-minute block for a declared public-service movement, the system should identify an equivalent usable block in the next planning cycle. This does not punish Operations for responding to public need. It prevents Maintenance from silently paying the entire cost.

This is how the pilot would begin to change the norm. It would not say, “No exceptions.” It would say, “Exceptions must leave a trace.” Over time, that trace can change behavior. Operations would still have flexibility, but it would no longer treat maintenance time as a costless reserve. Maintenance would still need to justify its demand, but it would gain stronger protection once the system validates and locks that demand.

Proposed pilot KPI: Track Access Reliability and Conversion

The pilot should replace the existing rolling-block KPI for selected corridors with a more complete Track Access Reliability and Conversion KPI. The existing KPI already measures granted/agreed blocks, refusal of agreed blocks, and blocks outside rolling blocks. The pilot should build on that structure, not discard it.

A practical 30-mark pilot KPI could look like this:

Sub-KPI	**Marks**	**What it measures**	**Whose behavior it changes**
Validated demand submitted on time	5	Whether Maintenance submitted reasoned, complete, and usable block requests	Maintenance
T-1 locked blocks delivered as planned	7	Whether Operations delivered the block after daily commitment	Operations
Block usability	5	Whether the block started on time, had workable duration, and remained continuous	Operations and Maintenance
Productive conversion	5	Whether Maintenance converted granted time into planned output	Maintenance

Avoidable deviation minutes	5	Whether either side caused late cuts, underuse, or overruns	Both
Corridor outcome check	3	Whether punctuality, freight speed, failures, and speed restrictions moved in the right direction	Both

This KPI would change the signal from "How many blocks were granted?" to "Did the corridor keep its commitments and convert them into better outcomes?"

How to assess the pilot

The pilot should use a simple before-and-after evaluation. It should compare the six months before the pilot with the six months of the pilot on the same corridor. If possible, it should also compare pilot corridors with similar non-pilot corridors. The aim is not to prove a perfect causal relationship. The aim is to see whether the mechanism changes behavior in the expected direction.

The pilot should track three groups of indicators.

1. Commitment indicators

These indicators test whether the plan became more credible.

Indicator	Expected direction
Share of T-1 locked blocks executed without change	Increase
Same-day cancellations of locked blocks	Decrease
Average minutes lost due to late cuts	Decrease
Blocks shifted to different section after commitment	Decrease
Blocks inserted outside the rolling plan without reason code	Decrease

2. Conversion indicators

These indicators test whether Maintenance used the access better.

Indicator	Expected direction
Machine productivity per granted block hour	Increase
Share of blocks with machine/crew/material readiness confirmed before start	Increase
Underused granted minutes due to Maintenance unreadiness	Decrease
Overrun minutes per block	Decrease
Output completed against planned output	Increase

3. Corridor outcome indicators

These indicators test whether the corridor improved as a system.

Indicator	Expected direction
Passenger punctuality	Improve or at least not deteriorate
Average freight speed	Improve
Track-related failures	Decrease
Temporary/permanent speed restrictions caused by track condition	Decrease
Emergency maintenance blocks	Decrease

The evaluation should not expect every indicator to improve immediately. Some maintenance indicators may improve before service outcomes improve. For example, better blocks may first raise machine productivity and reduce overruns. Failures and speed restrictions may fall later. The pilot should therefore judge early success by commitment and conversion indicators, and judge deeper success by corridor outcomes over a longer period.

The pilot would test the central claim of this report. Cooperation improves when the system makes truthful requests, credible approvals, disciplined execution, and visible recovery obligations safer than defensive bargaining. The pilot would not expect norms to change overnight. It would change the repeated signals that sustain the old norm. A block request would need evidence. A block approval would carry commitment. A deviation would carry a reason. A legitimate exception would create a recovery obligation. Over time, this can shift the working norm from “the plan can always move” to “the plan can move only with a visible reason and a repair of the loss.” That is the practical path from administrative planning to credible track-time governance.

The recommendations in this chapter do not rest on the hope that departments will simply begin to trust each other more. They rest on a more practical idea: trust grows more easily when the rules reduce the reward from bluffing, make decisions more visible, and make commitments harder to reverse casually. That is the central recommendation of this capstone. Indian Railways does not need to begin by dismantling its organisational form. It should begin by redesigning the rules through which scarce track time is requested, granted, used, and reviewed. If truthful requests become easier, if approvals become more credible, if deviations become more visible, and if both departments are judged more by corridor outcomes than by silo targets, the present defensive game can begin to shift toward a more cooperative one. That will not eliminate scarcity. But it can make scarcity much less wasteful.

8. Conclusion

This capstone began with a question: **how do institutional design and incentive structures influence track allocation in Indian Railways, and what governance mechanisms can better align departmental and organizational objectives?** The analysis treated track allocation not as a narrow scheduling issue, but as a governance problem inside a large public railway. The central argument has been that the present system does not fail because the railway lacks rules, planning documents, or managerial intent. It fails because the current rules do not create the right incentives for truthful requests, credible approvals, and cooperative use of scarce track time. As a result, the system settles into a pattern that is stable enough to continue, but not efficient enough to serve the railway’s wider goals well.

The empirical evidence from the six high-density corridors supports that claim. These corridors were used as a stress test because they operate above the levels that the planning method treats as comfortably workable once a standard maintenance window is accounted for. In such conditions, the weaknesses of the allocation system become easier to see. The corridor evidence showed recurring signs of strain: weak punctuality on several links, low freight speed in several cases, rationed maintenance access on several corridors, uneven conversion of granted time into productive work, repeated possession overruns, and, in some places, high failure counts. The pattern did not point to a single simple failure such as “too few blocks” or “too many trains.” It pointed to a more general problem of how scarce track time is governed under pressure.

The theoretical framework helped explain why this pattern persists. New Institutional Economics helped show why Indian Railways evolved as a vertically integrated, departmentally organised structure in the first place. Given the nature of railway assets, the frequency of exchange, and the importance of safety, hierarchy made sense. But the same framework also suggested that hierarchy may stop saving coordination cost for some transactions once demand rises and the system becomes more complex. Principal–Agent Theory then helped explain why the response to growing coordination difficulty often takes the form of branch-specific performance systems. These systems are understandable, but they also encourage departments to protect their own outputs and information. Game Theory helped explain how this produces repeated defensive behaviour. Maintenance asks defensively because it expects to be cut. Operations grants cautiously because it expects exaggeration or overrun. Over time, both sides become locked into a stable but suboptimal pattern.

This is the capstone’s main contribution. It shows that the conflict between Operations and Maintenance in Indian Railways should not be seen only as a problem of personalities, weak local management, or even congestion alone. Congestion is real, but it is not the full explanation. The deeper problem lies in the rules of the game: the cost of track time is not clearly revealed, commitments can shift at execution, information is unevenly held, and departments are rewarded more for branch outputs than for shared corridor outcomes. In that setting, a workable compromise emerges, but it is not a jointly efficient one. Trains continue to run. Maintenance continues to happen. But both take place under congestion, rationing, mistrust, and repeated adjustment.

The comparative chapter strengthened that conclusion. Britain showed that track allocation becomes more disciplined when the cost of access and the cost of disruption are made more visible and more enforceable. Japan showed that some conflicts can be reduced not by better bargaining alone, but by designing them out through stronger timetable discipline and protected maintenance windows. The DFCCIL experience showed that role separation by itself does not solve the deeper problem if pricing remains weak at the decision margin and commitment credibility still depends mainly on internal governance. Taken together, these comparisons suggested that the most useful lesson for Indian Railways is not to copy one foreign structure wholesale, but to adopt a clearer set of design principles: reduce hidden bargaining, improve information, make commitments more credible, and attach clearer consequences to deviation.

That is why the recommendation chapter did not begin with large-scale structural separation. There may be a case for deeper organisational reform in the long run, but the evidence in this capstone suggests that the higher-value near-term move lies elsewhere. The more practical step is to redesign the incentive structure inside the present system. Joint corridor-level metrics, better disclosure of maintenance need, stronger commitment as execution approaches, clearer review of deviation, and greater visibility of the cost of track time can begin to change behaviour without requiring immediate institutional upheaval. In simple terms, the priority is to turn a repeated defensive game into a more cooperative one. That does not remove scarcity. But it can reduce the waste created by how scarcity is currently managed.

This study also has clear limits. It does not attempt a network-wide statistical model of all Indian Railways sections. It focuses on six highly utilized corridors in order to study the problem where it is most visible. It also does not fully resolve the larger question of what the ideal long-run organisational structure for Indian Railways should be. That is an important question that requires more research. The answer would depend not only on economics and railway operations, but also on law, regulation, political feasibility, labour relations, and state capacity. This capstone therefore makes a narrower claim. It argues that even within the present structure, much can be improved if the rules governing track allocation are redesigned more carefully.

The broader lesson extends beyond Indian Railways. Large public organisations often assume that once an exchange is brought inside the firm, coordination will naturally follow. This capstone suggests otherwise. Internal exchanges can become just as contested as market exchanges when incentives are fragmented, information is uneven, and commitments are weak. In such settings, the answer is not always to dismantle the organisation. Sometimes the better first step is to redesign the internal rules so that departments reveal better information, trust commitments more, and bear more of the real cost of their choices. Track allocation in Indian Railways is one such case.

In the end, the problem is not that Indian Railways must choose between trains and maintenance. It must have both. The real question is whether the system can allocate scarce track time in a way that supports current service without quietly undermining future reliability and safety. At present, the answer appears to be: only imperfectly. But that also means there is room for reform. The railway does not need to wait for a grand structural transformation before improving this problem. It can begin by changing the rules through which the conflict is played. That is the central conclusion of this capstone.

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Appendices:

Appendix A. Ministry of Railway's Guidelines on Line Capacity Calculation and Utilization

Appendix B. Joint Procedure Orders on Rolling Block Planning

Appendix C. Illustrative case of difference in the Rolling Block Programme and execution in Rangiya Division

Appendix D. Key Performance Indicators (Sample Eastern Railway)

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

International Year of Cooperatives
Cooperatives Build a Better World

No.2024/Plg/Line Capacity/1 **New Delhi, dated 09.04.2025**

General Managers
All Zonal Railways

CMD/KRCL

Sub: Line Capacity Value and Line Capacity Utilization Percentage.
Ref: Board's letter No. 90/PL/28/2 dated 02/04/1990.

Calculation of line capacity is very important while measuring efficiency of operations and planning of project for capacity enhancement and removal of bottlenecks. In the recent past many changes have taken place such as commissioning of automatic signaling system, multi-tracking, introduction of higher speed freight trains etc. It has been observed that different Zonal Railways have been calculating line capacity by taking different standard values and assumptions.

At the international level, UIC Leaflet 406 provides a reference for capacity calculation. It provides a framework for evaluating railway line capacities, using timetable compression method. Further, CRIS has developed the Digital Capacity Planning Tool (DCPT), available on the Smart Freight Operations Optimization and Real Time Information (SFOORTI) dashboard of FOIS which attempts to estimate the line capacity utilization over a period of time. While formulating these guidelines the above methods have been referred.

To standardize the methodology and assumptions and bring in uniformity in the estimation of line capacity the following guidelines, in supersession of the earlier letter no. 90/PL/28/2 dated 02.04.1990 on the above subject, are issued. These guidelines shall be applicable for estimation of line capacity value and utilization percentage for the FY24-25 and onwards.

(1) The "line capacity value" is expressed as the number of trains that can be run on a given section from 00:00hrs to 24:00hrs without reducing the speed considerably. The line capacity value to be calculated by Zonal Railway for a financial year for the sections between two junctions.

(2) "Line capacity utilization percentage" shall be expressed as ratio of the actual number of trains run per day each way averaged over the peak period Q4 (i.e. JAN-MAR) divided by the line capacity value each way for the financial year. The Zonal Railway may take a different quarter i.e. Q3 (OCT-DEC), if Q4 is not the peak period.

$$\textbf{Line Capacity Utilization \%} = \frac{\textbf{Avg no. of trains run per day in peak period each way}}{\textbf{Line capacity value each way}}$$

(3) The line capacity value is to be worked out section-wise on the basis of the master chart method. The line capacity value so arrived at, should not be less than the theoretical capacity arrived at on the basis of the Scott's formula applied in the critical section. The value of block operation time "t" in Scott's formula to be taken as 2mins and efficiency factor to be considered as 80% in view of advancement in technology and systems. The master chart method of assessment is primarily intended to obtain a realistic and fair line capacity value for a particular section.

(4) While drawing of the master chart following care should be taken:

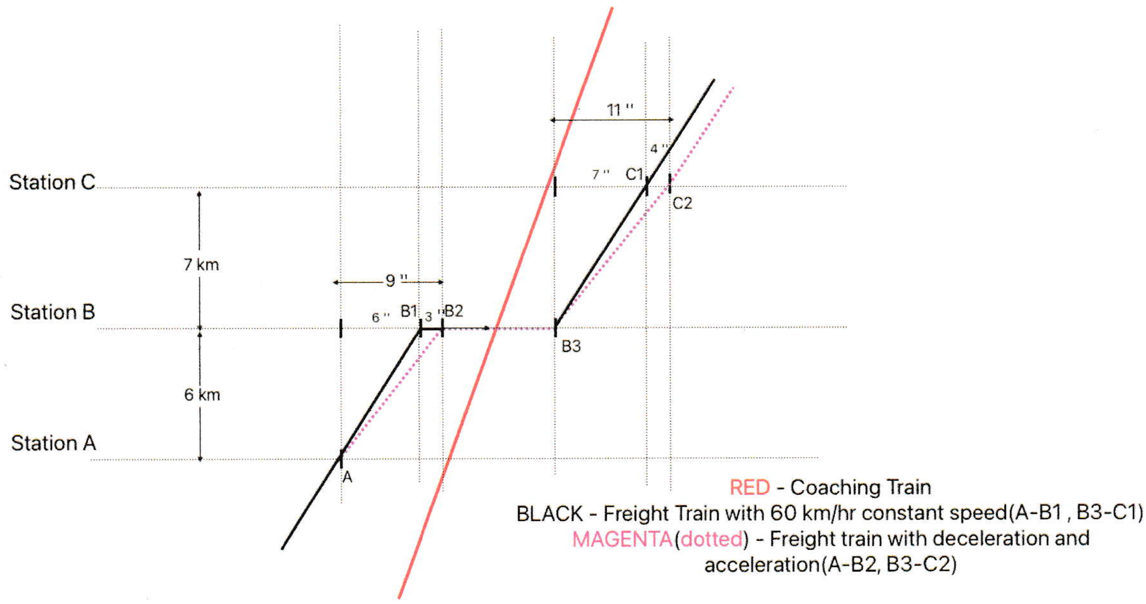
(i) Scheduled trains to be plotted as per the working time table.

(ii) A judicious mix of the number of freight trains and coaching specials to be plotted based on previous years in a particular section.

(iii) In Absolute Block System, to plot freight trains on master chart speed of 60kmph to be taken for estimation of block section clearance time, to incorporate average speeds of various type of freight stocks such as containers, empty freight, and loaded freight etc. In case of steep gradients in ruling section the actual running time for loaded freight train may be taken as a special case. A minimum possible margin i.e. 1 minute to be taken for firing/plotting next freight or coaching special trains after clearance of block section in advance.

(iv) In case of Automatic Block Section, "Headway (in minutes)" to be considered for firing/plotting the next train. Headway to be taken as 3min to 4min for sub-urban section and 7 mins for other sections.

(v) In addition to running time available in points (iii & iv) above, for crossing/precedence or start/stop, the indicative allowance for acceleration and deceleration for freight trains to be taken as 4 ± 1 min and 3 ± 1 mins respectively and for coaching trains, the acceleration and deceleration allowance to be taken as 3 ± 0.5min and 2 ± 0.5min respectively.



Plotting freight train on Master Chart

(vi) While estimating the running time in the block section the permanent speed restrictions to be taken into account along with the engineering/traffic allowances, specifically provided in working time table duly approved by the competent authority.

(5) It is to be noted that line capacity value for a section should not decrease over a time period on year-to-year basis unless major restrictions are imposed in the section.

(6) Line capacity value should be calculated in terms of the no. of trains separately for UP & DN lines. In case of 3rd and 4th line UP line capacity value and DN line capacity value should be reported separately.

(7) The line capacity should be calculated separately for "sub-urban" sections. Further in a multi tracked section if different signaling systems are commissioned in the same direction such as automatic on one line and absolute on the other, then different line capacities in the same direction may be reported.

(8) For uniformity, all Zonal Railways should consider 3 hrs. corridor maintenance block for calculation of line capacity value. The actual maintenance blocks stipulated or granted or required may however be different.

(9) If in an entire section (i.e. generally section between two junctions) multi-tracking work is expected to be completed within next one year, then line capacity calculation should take work completion into account so that a proper picture is available while justifying a new work in the same section.

(10) The line capacity value and utilization percentage obtained considering above guidelines may throw up a different number for the same section and same level of congestion. Therefore, the norms of project justification for doubling, multi-tracking may need revision in view of the above.

This has the approval of M(O&BD).

9.9.2025

(Manoj Gangeya)
Executive Director (Planning)
Railway Board

Copy to :-

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2. CTPM's, all Zonal Railways

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

No. 2020/Track-III/TK/2 **New Delhi, dated 05.12.2024**

General Manager,
All Zonal Railways

Sub: Rolling Block Plan guidelines.
Ref: JPO issued vide letter no.2020/Track-III/Tk/2 dated 29.08.2023

Based on experience gained in implementation of Rolling Blocks so far, in supersession of the above referred JPO, following guidelines should be considered while framing Rolling Blocks plans:

1.0 26 Weeks Rolling Block plan will be a broad road map for execution of the planned engineering, electrical and signalling works which require traffic/ OHE blocks and/ or disconnection of signalling gears.

1.1 Such planning shall be reviewed once in every 2 months, duly updating the block planning for remaining period and incorporating new planning for additional weeks.

1.2 This planning would facilitate advance planning for blocks of longer duration which would require regulation of trains. Proposals for mega blocks (traffic blocks of duration more than 4 hours requiring approval of Railway Board) should be proposed well in advance by Divisions and approval of the same should be communicated to Divisions at least 4 weeks in advance, so that the same gets incorporated in the final 4 weeks Rolling Block Plans. This will give sufficient notice period to passengers & time to stakeholders for resource mobilization required to execute this works. Planning should be integrated for all stakeholders i.e Railway and other agencies such as IRCON, RVNL, RITES etc.

1.3 Proposals for regulation of trains, wherever required, must reach Railway Board 10 weeks in advance (ARP is 8 weeks plus 2 weeks processing) so that travelling public are not inconvenienced.

1.4 These blocks are mainly for planned works such as Girder Launching/De-Launching, Box Pushing, NI and major machine planning, Ballast Less Track/Washable Apron etc. and thus day to day block requirement for routine maintenance need not to be included in this plan. All Pre-NI, NI and Post-NI works must necessarily be a part of Rolling Block plan.

1.5 DRMs to exercise checks for consolidation and/ or correctness of blocks planned by various stake holders, to optimise usage of blocks. DRMs should ensure that the targets achievable are realistic and required resources have been planned, including clubbing of resources where required. Further DRMs to also pool in various resources and action required for execution of planned works in block time which results in minimum disruption.

2.0 Based on broad 26 weeks programme, 4 Week Rolling Block plans shall be prepared every week. It shall be a more detailed plan which should provide for regular maintenance activity also. All blocks, except emergent blocks, should be included in the RBP.

3.0 Based on 4 week Rolling Block plans, Weekly plans shall be prepared in comprehensive and detailed manner and shall be finalized by concerned Branch officers and approved by DRM by Saturday, so that concerned departments can plan manpower and material in advance for effective utilization of block from first day of upcoming week i.e Monday.

3.1 Block demanded should also be included in RBP and percentage of block agreed with respect to block demanded should be deliberated. This may also require changes in block planning so as to ensure optimum resource utilization for proper asset maintenance. Effort shall be made to integrate data across various softwares (e.g TMS,TDMS,COA etc.) for effective analysis.

3.2 The block planning for next day shall be finalized by previous day evening and communicated to all concerned.

3.3 Denial or reduction of block timing agreed to in Daily Plan will require approval of SR.DOM/DOM, who will record reasons.

4 Evaluation of daily block demanded, block agreed, block finally granted and deliverables e.g. distance of track covered, reduction in speed restrictions etc achieved should be analyzed at the level of ADRM/DRM on the following day. The evaluation of Rolling Block Performance should be rigorously done by divisions and Zonal Railways. Board will randomly monitor the performance over any ZR/Division.

This has the approval of Board (MI, MOBD and CRB).

6.12.24 | 06/12/24

ED/Track(Mod) | **ED/Coaching**

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CRB & CEO, M(TRS), M(Infra), M(O&BD), M(F), Secretary/RB, DG(RHS), DG(RPF)DG(HR), DG(Safety)

Advisor/MR, EDPG/MR, OSD/MR and OSD/Co-ordMR

All AMs, PEDs & Executive Directors of Railway Board.

सत्यमेव जयते

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

No. 2020/Track-III/TK/2 **New Delhi, dated 29.08.2023**

General Manager,
All Zonal Railways

Sub: Rolling Block Plan- Joint Procedure order.

Board had advised for implementation of Rolling Block Plans and accordingly divisions are preparing rolling block plans for execution of various planned works. To ensure proper implementation of rolling block plans and uniformity of approach, the ensuing procedure order is being issued. Following guidelines may be kept in consideration while framing rolling block plans:

a) Rolling Block Programme shall eventually be prepared for 26 weeks in the Division and approved by DRM. It shall be reviewed weekly and another one-week planning will be added every week. However, as this is a new practice, it was initially implemented for 1/2/4 weeks planning. The same should now be extended to 8 weeks planning and gradually increased to 26 weeks planning as the experience is progressively gained.
b) Rolling Block Plan shall fulfil the requirement of traffic/power block for renewals, maintenance, new asset creation work, disconnections,movement of track machines, inspection vehicles and RMCs etc. including blocks committed for outsourced track machines. Mega blocks may be planned once in a week or as per the requirements of major infrastructure works or NI works.
c) The Rolling block programs should integrate planning for all type of works e.g. civil, electrical, S&T and projects for creation/modification/rehabilitation of all types of infrastructure assets requiring blocks. Requirement of blocks by different stakeholders shall be assessed and dovetailed in a joint manner.With integrated planning, separate blocks in same section for works of different departments/agencies can be avoided in the 26 weeks horizon.
d) SrDOM shall indicate a suitable corridor for giving the blocks demanded taking into consideration the integrated maintenance corridor block provided in the working timetable, historical data and operational patterns.

e) An empowered team of all concerned branch officers shall be nominated on each Division to review and finalise the Rolling Block Plan.

f) The weekly block planning will be finalized by concerned branch officers and approved by DRM.Grant of blocks & output of blocks shall be reviewed by DRMs regularly and the review of grant and utilisation of blocks in the previous week shall be part of Rolling Block Programme.

g) The record of block demanded, granted, actual duration and output should be updated, as usual, in Control Office Application (COA), Track Management System (TMS), Traction Distribution Management System (TDMS) etc. for log. The planning, execution and internal communication for Rolling Block Programme may be done as deemed fit by the division.

h) This programme is for planned works. Activities requiring urgent blocks will continue to be governed as per the existing practices/provisions.

i) Appropriate and adequate resources should be mobilised to optimise the productivity during these blocks. Proper planning and resource mobilisation should be ensured to complete the planned work within planned block time with required quality.

j) Eventually planning for blocks for mega works and NI works necessitating cancellation/rescheduling/diversion of trains, should be made adequately in advance and such works should be eventually slotted for exact dates in the 26 weeks horizon so that trains can be cancelled/rescheduled/diverted before the commencement of Advance Reservation Period (ARP), so that passengers are not inconvenienced. However, to start with, cancellation/rescheduling/diversion are to be made 4 weeks in advance as far as possible and the period should be gradually increased to ARP.

k) For increasing the maintenance corridors, intra zonal trains can be rescheduled with the approval of GM under information to Railway Board.

l) For increasing the maintenance corridors, trains involving only 2 zones can be rescheduled by the zones concerned with mutual consultation & approval of GMs under information to Railway Board. If agreement is not reached between the two zones, matter may be referred to Railway Board.

This has the approval of Board (MI,MOBD,MTRS and CRB).

PED/Track(M&Mc) **ED/Coaching**

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Copy to :

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MR, MOSR(D), MOSR(J)

CRB & CEO, M(TRS), M(Infra), M(O&BD), M(F), Secretary/RB, DG(RHS), DG(RPF)DG(HR), DG(Safety)

EDPG/MR, OSD/MR and OSD/Coord./MR

All AMs, PEDs & Executive Directors of Railway Board.

From Plan to Reality: Identifying Execution Gaps

SN	Date	Block Type	Section in which Block demanded as per Rolling Block Program	Section in which Block demanded as per Memo	Hours demanded as per Rolling Block Program	Hours demanded as per Memo	Time available as Per Corridor Slot of WTT	Block permitted on the memo by Operating
1	29-12-2025	PCTM machine work	PBL-RNY (UP Line)	BIZ-CGS (DN Line)	Not Mentioned.	4:00 hrs	03:00 hrs (00:20-03:20)	2:00 hrs (10:30-12:30)

North East Frontier Railway, Rangiya Division

				Trains to be regulated	Location	Type of Work	Type of Work	Type of Wo	Quantum of work	Quantum of work	Quantum of work	Resources			Supervisor deputed			Repercussions / restriction impossed by respective dpt.		
Date (Day)	Block Period (Hrs.)	Block From	Block Upto		Block Section/ Station	ENGG	TRD	S&T	ENGG	TRD	S&T	ENGG	TRD	S&T	ENG G	TRD	S&T	ENGG	TRD	S&T
					BSGN-NBQ (UP LINE)															
					BSGN-NBQ (DN LINE)	1. PCTM machine work at NBQ-BNGN														
		-	-		NBQ-PBL (UP LINE)	1. MFI Machine work BNGN-BJF														
		-	-		PBL-RNY (UP LINE)	1. PCTM-11036 machine work														
		-	-		RNY-AGT (UP LINE)	1. Point maintenance														
		-	-		AGT-RNY (DN LINE)	2. USP-56659 machine work 3. Duomatic-8151 machine work 4. UTV-74 machine work														
		-	-		RNY-PBL (DN LINE)	1. Point maintenance														
		-	-		PBL-NBQ (DN LINE)	1. MFI Machine work BNGN-BJF														
					KYQ-AZA															
29.12.2025 (Monday)		-	-		AZA-DPRA (DOWN LINE)															
		-	-		DPRA-JPZ (DOWN LINE)	1.UTV-34 machine work. 3. MFI-56575 machine tamping work.														
		-	-		JPZ-NBQ (DOWN LINE)	1. PCTM machine work at MZQ														
		-	-		NBQ-JPZ (UP LINE	2. PCTM machine work at MZQ 3. Duomatic-8151 machine work at NBQ-MZQ														
		-	-		JPZ-DPRA (UP LINE	3. Duomatic-8151 machine work at NBQ-MZQ														
		-	-		DPRA-AZA (UP LINE)															
	4:00hrs	**06:00**	**10:00**		AYU-GUP	1. DTE Machine Work														
	3:00hrs	11:30	14:30	Corridor	RNY-MJBT	1.MFI- 56575 Machine work between Section RNY-MJBT. (04 Hrs. block required),														
	3:00hrs	11:30	14:30	Corridor	MJBT-RPAN															
	3:00hrs	13:45	16:45	Corridor	RPAN-HML	1.TWR Works														
	3:00hrs	14:30	17:30	Corridor	HML-NLP															

Corridor → BG-1 → DN LINE
BG-2 → UP LINE & DN LINE

Date - [illegible]

To,
CHC/RNY.
N.F. Railway.

Block message for 30.12.2025

SN	Location HM	Location OHE	Work proposed	Section	UP/DN	Hrs (mnt)	OPT assessment	Spell	Power block	Msg No	Demand by
BG-I											
1	KM 252/0-1	-	Carrying of FOB girder 5 nos. at PF no. 2/3 (10.00-16.00)Hrs (TRD staff required)	HBQ Yd L/1, 2, 3 & 4	DN	2 00	13:00-14:15	1	Yes	[illegible]	[illegible]
2	KM 259/5-260/0	KM 259/22-260/2	PQRS-05 & 06 M/C work (10.00-17.00)Hrs (Target = 23 Panels) (TRD & SIG staff required) (Base at PBL)	CPQ Yd L/1 & 2	DN	4 00	12:15-14:45	1	Yes	[illegible]	[illegible]
3	-	-	Glued joint re-fabrication work. (10.00-16.00)Hrs	CPQ Yd L/4	UP	3 00	NO SLOT	1	No	[illegible]	[illegible]
4	KM 262/0-260/5	KM 262/2-260/22	Duo-8151 M/C work (10.30-17.00)Hrs (TRD & SIG staff required) (Base at PTLD)	CPQ BJF	DN	4 00	12:15-14:30	2	No	[illegible]	[illegible]
5	KM 263/0-262/5	KM 263/2-262/18	USP-56659 M/C work (10.30-17.00)Hrs (TRD staff required) (Base at PTLD)	CPQ BJF	DN	4 00	-DO-	2	No	[illegible]	[illegible]
6	KM 263/5-263/2	KM 263/20-263/10	UTV-74 M/C work (10.30-17.00)Hrs (TRD staff required) (Base at CPQ)	CPQ BJF	DN	4 00	-DO-	2	No	[illegible]	[illegible]
7	-	-	AT welding work. (08.30-17.00)Hrs	BPRD Yd L/9	Loop	4 00	12:09-13:39	2	No	[illegible]	[illegible]
8	KM 316/0-309/0	-	MFI-57271 M/C work (10.30-17.00)Hrs (TRD staff required) (Base at PTLD)	SPQ-PBL	DN	4 00	11:30-13:45	2	No	[illegible]	[illegible]
9	KM 316/5-6	-	Rail changing & welding work. (10.00-17.00)Hrs (TRD & SIG staff required)	PBL Yd	DN	4 00	11:20-13:20	2	No	[illegible]	[illegible]
10	KM 323/5-6	-	Shifting of release girder of Br. No. 466. (09.00-17.00)Hrs	PBL-TIHU	DN	3 00	11:30-13:30	1	No	[illegible]	[illegible]
11	KM 352/1-2	KM 352/1-17	Rail changing & glued joint re-fabrication work (10.00-16.00)Hrs (TRD & SIG staff required)	HLV-GOE	UP	3 00	NO SLOT	1	No	[illegible]	[illegible]
12	-	KM 382/16-382/34	PCTM-11036 M/C work (10.30-16.00)Hrs (TRD staff with TOWER wagon required) (Base at BIZ)	BIZ-CGS	DN	4 00	10:50-12:50	2	Yes	[illegible]	[illegible]
BG-II											
13	KM 9/0-1	-	Robotic reconditioning of x-ing body. (10.00-16.00)Hrs	MZQ Yd L/2	UP	3 00	12:00-14:00	1	No	[illegible]	[illegible]
14	-	KM 38/07-09	SEJ gap adjustment work. (10.00-16.00)Hrs.	JPZ-PHV/T	UP	2 00	12:15-14:15	1	No	[illegible]	[illegible]
15	KM 135/5-135/0	-	SQRS M/C work. (13.30-17.30)Hrs (Target = 46 Panels) (TRD & SIG staff required) (Base at DDNI)	CGON Yd L/2 CGON-BMGH	DN	4 00	14:15-16:45	1	Yes	US/254/12/25	[illegible]
16	-	KM 147/3-148/31	USP-56683 M/C work. (10.30-16.00)Hrs (TRD staff required) (Base at CGON)	CGON-MRZA	UP	4 00	10:30-11:45	2	No	[illegible]	[illegible]
17	KM 148/0-149/0	-	Duo-8136 M/C work (10.30-16.30)Hrs (TRD staff required) (Base at BOKO)	CGON-MRZA	UP	4 00	10:30-11:45	2	No	[illegible]	[illegible]
18	KM 148/0-2	-	Welding work. (10.00-16.00)Hrs.	CGON-MRZA	UP	4 00	Block overlap	2	No	US/255/12/25	[illegible]
19	KM 150/5-8	-	JCB work. (10.00-16.00)Hrs (TRD & SIG staff required)	CGON-MRZA MRZA Yd	UP	3 00	Block overlap	2	Yes	US/256/12/25	[illegible]
20	KM 160/5-158/0	-	DTE-57053 M/C work. (10.30-16.00)Hrs. (TRD staff required) (Base at MRZA)	MRZA-AZA	UP	4 00	10:30-12:00	2	No	VP/71/12/25	[illegible]
21	KM 162/3-161/7	-	PCTM-11035 M/C work (10.30-16.00)Hrs (TRD & SIG staff required) (Base at MRZA)	AZA Yd	UP & DN	4 00	10:30-11:50	2	No	[illegible]	[illegible]
BG-III											
22	Pt. No. 111	KM 15/09-15/11	MFI-56575 M/C work (10.30-16.00)Hrs (TRD & SIG staff required) (Base at GVR)	GVR Yd	SL	4 00	11:45-13:45	2	No	[illegible]	[illegible]
23	KM 26/8-9	KM 26/5-11	Sleeper spacinrng work. (10.00-16.00)Hrs	KBY Yd L/2 & 1	SL	3 00	12:00-14:00	2	No	NK/47/12/25	[illegible]
24	KM 81/4-5	-	Welding work. (11.00-16.00)Hrs	RWTB-MJBT	SL	3 00	12:45-14:45	2	No	RP/51/12/25	SSE/PW/MJBT [illegible]
25	KM 0/0-0/2	KM 1/A-4/A	Pre-TTR work over Pt. No. 128. (10.00-17.00)Hrs	RPAN Yd L/4	SL	4 00	12:30-14:30	2	No	[illegible]	[illegible]

SN	Date	Block Type	Section in which Block demanded as per Rolling Block Program	Section in which Block demanded as per Memo	Hours demanded as per Rolling Block Program	Hours demanded as per Memo	Time available as Per Corridor Slot of WTT	Block permitted on the memo by Operating
2	29-12-2025	PQRS machine Work	No PQRS Block Planned	CPQ Yard (DN line)	-	4:00 hrs	3:00 hrs (10:55-13:55)	2:30 hrs (12:15-14:45)

North East Frontier Railway, Rangiya Division																				
				Trains to be regulated	Location	Type of Work	Type of Work	Type of Wo	Quantum of work	Quantum of work	Quantum of work	Resources			Supervisor deputed			Repercussions / restriction impossed by respective dpt.		
Date (Day)	Block Period (Hrs.)	Block From	Block Upto		Block Section/ Station	ENGG	TRD	S&T	ENGG	TRD	S&T	ENGG	TRD	S&T	ENG G	TRD	S&T	ENGG	TRD	S&T
29.12.2025 (Monday)					BSGN-NBQ (UP LINE)															
					BSGN-NBQ (DN LINE)	1. PCTM machine work at NBQ-BNGN														
		-	-		NBQ-PBL (UP LINE)	1. MFI Machine work BNGN-BJF														
		-	-		PBL-RNY (UP LINE)	1. PCTM-11036 machine work														
		-	-		RNY-AGT (UP LINE)	1. Point maintenance														
		-	-		AGT-RNY (DN LINE)	2. USP-56659 machine work 3. Duomatic-8151 machine work 4. UTV-74 machine work														
		-	-		RNY-PBL (DN LINE)	1. Point maintenance														
		-	-		PBL-NBQ (DN LINE)	1. MFI Machine work BNGN-BJF														
					KYQ-AZA															
		-	-		AZA-DPRA (DOWN LINE)															
		-	-		DPRA-JPZ (DOWN LINE)	1.UTV-34 machine work. 3. MFI-56575 machine tamping work.														
		-	-		JPZ-NBQ (DOWN LINE)	1. PCTM machine work at MZQ														
		-	-		NBQ-JPZ (UP LINE	2. PCTM machine work at MZQ 3. Duomatic-8151 machine work at NBQ-MZQ														
		-	-		JPZ-DPRA (UP LINE	3. Duomatic-8151 machine work at NBQ-MZQ														
		-	-		DPRA-AZA (UP LINE)															
	4:00hrs	**06:00**	**10:00**		AYU-GUP	1. DTE Machine Work														
	3:00hrs	11:30	14:30	Corridor	RNY-MJBT	1.MFI- 56575 Machine work between Section RNY-MJBT. (04 Hrs. block required),														
	3:00hrs	11:30	14:30	Corridor	MJBT-RPAN															
	3:00hrs	13:45	16:45	Corridor	RPAN-HML	1.TWR Works														
	3:00hrs	14:30	17:30	Corridor	HML-NLP															

No PQRS work on 29/12/2025 as per Rolling Block Program

Corridor → BG-1 → DN LINE
BG-2 → UP LINE & DN LINE

Date - [illegible]

To,
CHC/RNY.
N.F. Railway.

Block message for 30.12.2025

SN	Location HM	Location OHE	Work proposed	Section	UP/DN	Hrs timed	OPT assessment	Spell	Power block	Msg No	Demand by
BG-I											
1	KM 252/0-1	-	Carrying of FOB girder 5 nos. at PF no. 2/3 (10.00-16.00)Hrs **(TRD staff required)**	HBQ Yd L/1, 2, 3 & 4	DN	2.00	12:00-14:15	1	Yes	[illegible]	[illegible]
2	KM 259/5-260/0	KM 259/22-260/2	**PQRS-05 & 06 M/C work (10.00-17.00)Hrs (Target = 23 Panels) (TRD & SIG staff required)** (Base at PBL)	CPQ Yd L/1 & 2	DN	4.00	12:15-14:45	1	Yes	[illegible]	[illegible] P. Singh
3	-	-	Glued joint re-fabrication work. (10.00-16.00)Hrs	CPQ Yd L/4	UP	3.00	NO SLOT	1	No	[illegible]	[illegible] P. Singh
4	KM 262/0-260/5	KM 262/2-260/22	**Duo-8151 M/C work (10.30-17.00)Hrs (TRD & SIG staff required)** (Base at PTLD)	CPQ BJF	DN	4.00	12:15-14:30	2	No	[illegible]	[illegible] P. Singh
5	KM 263/0-262/5	KM 263/2-262/18	**USP-56659 M/C work (10.30-17.00)Hrs (TRD staff required)** (Base at PTLD)	CPQ BJF	DN	4.00	- DO -	2	No	[illegible]	[illegible] P. Singh
6	KM 263/5-263/2	KM 263/20-263/10	**UTV-74 M/C work (10.30-17.00)Hrs (TRD staff required)** (Base at CPQ)	CPQ BJF	DN	4.00	- DO -	2	No	[illegible]	[illegible] P. Singh
7	-	-	AT welding work. (08.30-17.00)Hrs	BPRD Yd L/9	Loop	4.00	12:00-13:30	2	No	[illegible]	[illegible]
8	KM 316/0-309/0	-	**MFI-57271 M/C work (10.30-17.00)Hrs (TRD staff required)** (Base at PTLD)	SPQ-PBL	DN	4.00	11:30-13:45	2	No	[illegible]	[illegible]
9	KM 316/5-6	-	Rail changing & welding work. (10.00-17.00)Hrs **(TRD & SIG staff required)**	PBL Yd	DN	4.00	11:20-13:30	2	No	[illegible]	[illegible]
10	KM 323/5-6	-	Shifting of release girder of Br. No. 486 (09.00-17.00)Hrs	PBL-TIHU	DN	3.00	11:30-13:30	1	No	[illegible]	[illegible]
11	KM 352/1-2	KM 352/1-17	Rail changing & glued joint re-fabrication work (10.00-16.00)Hrs **(TRD & SIG staff required)**	HLV-GOE	UP	3.00	NO SLOT	1	No	[illegible]	[illegible]
12	-	KM 382/16-382/34	**PCTM-11036 M/C work (10.30-16.00)Hrs (TRD staff with TOWER wagon required)** (Base at BIZ)	BIZ-CGS	DN	4.00	10:50-12:50	2	Yes	[illegible]	[illegible]
BG-II											
13	KM 9/0-1	-	Robotic reconditioning of x-ing body. (10.00-16.00)Hrs	MZQ Yd L/2	UP	3.00	12:00-14:00	1	No	[illegible]	[illegible]
14	-	KM 38/07-09	SEJ gap adjustment work. (10.00-16.00)Hrs	JPZ-PHZT	UP	2.00	12:15-14:15	1	No	[illegible]	[illegible]
15	KM 135/5-135/0	-	**SQRS M/C work. (13.30-17.30)Hrs (Target = 46 Panels) (TRD & SIG staff required)** (Base at DDNI)	CGON Yd L/2 CGON-BMGN	DN	4.00	14:15-16:45	1	Yes	[illegible]	[illegible]
16	-	KM 147/3-148/31	**USP-56683 M/C work. (10.30-16.00)Hrs (TRD staff required)** (Base at CGON)	CGON-MRZA	UP	4.00	10:30-11:45	2	No	[illegible]	[illegible]
17	KM 148/0-149/0	-	**Duo-8136 M/C work (10.30-16.30)Hrs (TRD staff required)** (Base at BOKO)	CGON-MRZA	UP	4.00	10:30-11:45	2	No	[illegible]	[illegible]
18	KM 148/0-2	-	Welding work. (10.00-16.00)Hrs	CGON-MRZA	UP	4.00	Block overlap	2	No	[illegible]	[illegible]
19	KM 150/5-8	-	JCB work. (10.00-16.00)Hrs **(TRD & SIG staff required)**	CGON-MRZA MRZA Yd	UP	3.00	Block overlap	2	Yes	[illegible]	[illegible]
20	KM 160/5-158/0	-	**DTE-57053 M/C work. (10.30-16.00)Hrs (TRD staff required)** (Base at MRZA)	MRZA-AZA	UP	4.00	10:30-12:00	2	No	[illegible]	[illegible] V. Pandey
21	KM 162/3-161/7	-	**PCTM-11035 M/C work (10.30-16.00)Hrs (TRD & SIG staff required)** (Base at MRZA)	AZA Yd	UP & DN	4.00	10:30-11:50	2	No	[illegible]	[illegible] V. Pandey
BG-III											
22	Pt. No. 111	KM 15/09-15/11	**MFI-56575 M/C work (10.30-16.00)Hrs (TRD & SIG staff required)** (Base at GVR)	GVR Yd	SL	4.00	11:45-13:45	2	No	[illegible]	[illegible]
23	KM 26/8-9	KM 26/5-11	Sleeper spacinmg work. (10.00-16.00)Hrs	KBY Yd L/2 & 1	SL	3.00	12:00-14:00	2	No	[illegible]	[illegible]
24	KM 81/4-5	-	Welding work. (11.00-16.00)Hrs	RWTB-MJBT	SL	3.00	12:45-14:45	2	No	[illegible]	SSE/PW/MJBT [illegible]
25	KM 0/0-0/2	KM 1/A-4/A	Pre-TTR work over Pt. No. 128. (10.00-17.00)Hrs	RPAN Yd L/4	SL	4.00	12:30-14:30	2	No	[illegible]	SSE/PW/RPAN [illegible]

SN	Date	Block Type	Section in which Block demanded as per Rolling Block Program	Section in which Block demanded as per Memo	Hours demanded as per Rolling Block Program	Hours demanded as per Memo	Time available as Per Corridor Slot of WTT	Block permitted on the memo by Operating
3	01.01.2026	PQRS machine Work	No PQRS Block Planned	CPQ Yard (DN line)	-	4:00 hrs	No Slot available as per WTT-97 on that day.	2:30 hrs (12:10-14:40)

01.01.2026 (Thursday)	3:00hrs	**12:35**	**15:35**	Corridor	BSGN-NBQ (UP LINE)	
					BSGN-NBQ (DN LINE)	1. PCTM machine work at NBQ-BNGN
	3:00hrs	**12:20**	**15:20**	Corridor	NBQ-PBL (UP LINE)	1. MFI Machine work BNGN-BJF
	3:00hrs	**13:30**	**16:30**	Corridor	PBL-RNY (UP LINE)	1. PCTM-11036 machine work
	3:00hrs	**14:30**	**17:30**	Corridor	RNY-AGT (UP LINE)	1. Point maintenance
					AGT-RNY (DN LINE)	2. USP-56659 machine work 3. Duomatic-8151 machine work 4. UTV-74 machine work
					RNY-PBL (DN LINE)	1. Point maintenance
					PBL-NBQ (DN LINE)	1. MFI Machine work BNGN-BJF
	3:00 hrs	**0:20**	**3:20**	Corridor	KYQ-AZA	
					AZA-DPRA (DOWN LINE)	
					DPRA-JPZ (DOWN LINE)	1.UTV-34 machine work. 3. MFI-56575 machine tamping work.
					JPZ-NBQ (DOWN LINE)	1. PCTM machine work at MZQ
					NBQ-JPZ (UP LINE	2. PCTM machine work at MZQ 3. Duomatic-8151 machine work at NBQ-MZQ
					JPZ-DPRA (UP LINE	3. Duomatic-8151 machine work at NBQ-MZQ
					DPRA-AZA (UP LINE)	
	4:00hrs	**06:00**	**10:00**		AYU-GUP	1. DTE Machine Work

3:00hrs	**11:30**	**14:30**	Corridor	RNY-MJBT	1.MFI- 56575 Machine work between Section RNY-MJBT. (04 Hrs. block required),
3:00hrs	11:30	14:30	Corridor	MJBT-RPAN	
3:00hrs	13:45	16:45	Corridor	RPAN-HML	1.TWR Works
3:00hrs	14:30	17:30	Corridor	HML-NLP	

No PQRS work on 01/01/2026 as per Rolling Block Program

To,
CHC/RNY.
N.F. Railway.

BG - 1 → DN LINE → CORRIDOR

BG-2 → UP & DN → CORRIDOR
Both

Date :- 01.01.2026

Block message for 02.01.2026

SN	Location HM	Location OHE	Work proposed	Section	UP/DN	Hrs Dmnd	OPT assessment	Spell	Power block	Msg No.	Demand by
			BG-I								
1	KM 252/0-1	-	Carrying of FOB girder 5 nos. at PF no. 2/3. (10.00-16.00)Hrs. **(TRD staff required)**	NBQ Yd. L/1, 2, 3 & 4	DN	2.00	13:00-14:00	1	Yes	W/ABSS/NBQ	SSE/W/NBQ
2	KM 259/0-9	KM 259/2-40	**PQRS-05 & 06 M/C** work (10.00-17.00)Hrs **(TRD & SIG staff required)** (Base at PBL)	CPQ Yd. L/1 & 2	DN	4.00	12:10-14:40	1	Yes	RS/02/01/26	SSE/PW/BJF R. Singh
3	KM 260/0-261/0	KM 260/2-261/2	**Duo-8151 M/C** work (10.30-17.00)Hrs. **(TRD & SIG staff required)** (Base at PTLD)	CPQ Yd. CPQ-BJF	DN	4.00	12:15-14:15	2	No	RS/03/01/26	SSE/PW/BJF R. Singh
4	KM 261/5-262/0	KM 261/14-262/02	**USP-56659 M/C** work (10.30-17.00)Hrs. **(TRD staff required)** (Base at PTLD)	CPQ-BJF	DN	4.00	12:15-14:15	2	No	RS/04/01/26	SSE/PW/BJF R. Singh
5	-	-	**UTV-74 M/C** work. (10.30-17.00)Hrs. **(TRD staff required)** (Base at CPQ)	BJF Yd. L/1	DN	4.00	12:15-14:15	2	No	RS/05/01/26	SSE/PW/BJF R. Singh
6	-	-	AT welding work. (08.30-17.00)Hrs. **(TRD & SIG staff required)**	BPRD Yd. L/5, 7 & 9	Loop	4.00	11:30-13:30	2	No	PKD/C/26/01/01	SSE/CON/BPRD
7	KM 316/4-309/0	-	**MFI-57271 M/C** work. (10.30-16.00)Hrs. **(TRD & SIG staff required)** (Base at PTLD)	PBL Yd. L/3 SPQ-PBL	DN	4.00	11:15-13:15	2	No	DP/132/01/26	JE/PW/SPQ D. Paul
8	KM 325/5-6	-	Shifting of release girder of Br. No. 486. (09.00-17.00)Hrs.	PBL-TIHU	DN	3.00	11:15-13:15	1	No	AS/486/21/01/26	SSE/Br/BNGN
9	KM 353/4-5	KM 353/09-11	Glued joint re-fabrication work.(10.00-16.00)Hrs. **(TRD & SIG staff required)**	NLV-GOE	UP	3.00	NO SLOT	1	No	AK/05/01/25	SSE/PW/RNY A. Kumar
10	Pt. No. 102 & 124.	-	Joint compliance work. (10.00-16.00)Hrs.	BIZ Yd.	UP & DN	3.00	NO SLOT	2	No	PKC/02/01/26	JE/PW/RNY P. K. Choudhury
11	-	KM 382/30-36	Sheet piling work. (10.00-16.00)Hrs. **(TRD staff required)**	BIZ-CGS	DN	3.00	10:30-12:30	1	Yes	AK/01/01/26	JE/W/RNY
12	Pt. No. 137 & 138.	-	**PCTM-11036 M/C** work.(10.30-16.00)Hrs. **(TRD & SIG staff required)** (Base at BIZ)	CGS Yd.	DN	4.00	10:30-12:30	2	No	SKS/04/01/26	JE/PW/CGS S. K. Singh
			BG-II								
13	KM 8/7-9	-	Visual inspection & lubrication of fish plate joints. (10.00-16.00)Hrs.	MZQ Yd. L/3 & 4	DN	4.00	12:00-14:30	2	No	CK/01/01/26	JE/PW/BNGN C. Kumar
14	KM 171/0-2	-	Glued joint re-fabrication work.(10.00-16.00)Hrs.	ALMG Yd.	SL	3.00	10:00-13:00	1	No	AK/05/01/26	JE/PW/ALMG A. Kumar
15	KM 201/1-200/9	-	Lubrication of fish plate joints. (10.00-16.00)Hrs.	BLPA-CHAA	SL	4.00	10:00-13:00	2	No	OP/128/12/25	JE/PW/BGBI O. Prakash
16	-	KM 37/39-41	SEJ gap adjustment work. (10.00-16.00)Hrs.	JPZ-PNVT	UP	2.00	13:15-15:15	1	No	OF/01/01/26	JE/PW/GLPT O. Faruk
17			**SQRS M/C** work. (Base at DDNI)								
18	KM 100/8-7	KM 100/30-28	SEJ opening & checking with USFD. (10.00-16.00)Hrs.	RGJI-DPRA	DN	3.00	10:15-13:15	2	No	NS/01/01/26	SSE/PW/RGJI N. Saha
19	KM 115/2-114/2	-	**Duo-8136 M/C** work.(10.30-16.00)Hrs. **(TRD staff required)** (Base at BOKO)	SNCA-BOKO	DN	4.00	10:30-13:30	2	No	BCB/03/01/26	SSE/PW/BOKO B. C. Baishya
20	KM 138/5-135/0	-	Ballast unloading work. (10.00-17.00)Hrs. **(TRD & SIG staff required)**	MRZA-CGON CGON-BMGN	DN	4.00	10:00-12:00	2	Yes	US/01/01/26	SSE/PW/CGON U. Saud
21	KM 147/5-148/5	-	**USP-56683 M/C** work. (10.30-16.30)Hrs. **(TRD staff required)** (Base at CGON)	CGON-MRZA	UP	4.00	10:30-13:00	2	No	GR/05/01/26	JE/PW/SNCA G. Roy
22	KM 148/0-149/0	-	Welding work. (10.00-16.30)Hrs.	CGON-MRZA	UP	4.00	14:30-16:30	2	No	GR/07/01/26	JE/PW/SNCA G. Roy
23	KM 148/5-149/5	-	**DTE-57053 M/C** work. (10.30-16.30)Hrs. **(TRD staff required)** (Base at MRZA)	CGON-MRZA	UP	4.00	10:30-13:00	2	No	GR/06/01/26	JE/PW/SNCA G. Roy
24	KM 161/7-163/2	-	**PCTM-11035 M/C** work.(10.30-16.00)Hrs. **(TRD & SIG staff required)** (Base at MRZA)	AZA Yd.	UP & DN	4.00	10:45-12:45	2	No	VP/77/01/25	JE/PW/MRZA V. Pandey
25	KM 163/5-164/1	-	Glued joint re-fabrication work. (10.00-16.00)Hrs.	AZA-KYQ	SL	3.00	NO SLOT	1	No	VP/02/01/26	JE/PW/MRZA V. Pandey

14:00 - 16:00

SN	Date	Block Type	Section in which Block demanded as per Rolling Block Program	Section in which Block demanded as per Memo	Hours demanded as per Rolling Block Program	Hours demanded as per Memo	Time available as Per Corridor Slot of WTT	Block permitted on the memo by Operating
4	23.02.2026	DTE Machine Work	AYU-GUP	CGON-MRZA UP Line	4:00 hrs	4:00 hrs	3:00 hrs (13:30-16:30)	2:00 hrs (15:00-17:00)

				Trains to be regulated	Location	Type of Work	Type of Work	Type of Wo	Quantum of work	Quantum of work	Quantum of work	Resources			Supervisor deputed			Repurcussions / restriction impossed by respective dpt.		
Date (Day)	**Block Period (Hrs.)**	Block From	Block Upto		Block Section/ Station	ENGG	TRD	S&T	ENGG	TRD	S&T	ENGG	TRD	S&T	ENG G	TRD	S&T	ENGG	**TRD**	**S&T**
					BSGN-NBQ (UP LINE)															
					BSGN-NBQ (DN LINE)	1. PCTM machine work at NBQ-BNGN														
		-	-		NBQ-PBL (UP LINE)	1. MFI Machine work BNGN-BJF														
		-	-		PBL-RNY (UP LINE)	1. PCTM-11036 machine work														
		-	-		RNY-AGT (UP LINE)	1. Point maintenance														
		-	-		AGT-RNY (DN LINE)	2. USP-56659 machine work 3. Duomatic-8151 machine work 4. UTV-74 machine work														
		-	-		RNY-PBL (DN LINE)	1. Point maintenance														
		-	-		PBL-NBQ (DN LINE)	1. MFI Machine work BNGN-BJF														
					KYQ-AZA															
23.02.2026 (Monday)		-	-		AZA-DPRA (DOWN LINE)															
		-	-		DPRA-JPZ (DOWN LINE)	1.UTV-34 machine work. 3. MFI-56575 machine tamping work.														
		-	-		JPZ-NBQ (DOWN LINE)	1. PCTM machine work at MZQ														
		-	-		NBQ-JPZ (UP LINE	2. PCTM machine work at MZQ 3. Duomatic-8151 machine work at NBQ-MZQ														
		-	-		JPZ-DPRA (UP LINE	3. Duomatic-8151 machine work at NBQ-MZQ														
		-	-		DPRA-AZA (UP LINE)															
	4:00hrs	**06:00**	**10:00**		AYU-GUP	1. DTE Machine Work														
	3:00hrs	11:30	14:30	Corridor	RNY-MJBT	1.MFI- 56575 Machine work between Section RNY-MJBT. (04 Hrs. block required),														
	3:00hrs	11:30	14:30	Corridor	MJBT-RPAN															
	3:00hrs	13:45	16:45	Corridor	RPAN-HML	1.TWR Works														
	3:00hrs	14:30	17:30	Corridor	HML-NLP															

To,
CHC/Punctuality/RNY
N.F. Railway.

Date :- 23.02.2026

Block message for 24.02.2026

SN	Location HM	Location OHE	Work proposed	Section	UP/DN	Hrs Dmnd	TRD assessment	Spell	Power block	Msg No.	Demand by
				BG-I							
1	KM 247/7-8	Pt. No. 16 & 16X.	MFI-56575 M/C work. (10.30-16.00)Hrs. (TRD & SIG staff required) (Base at CPQ)	DTX Yd. L/3 & 4	DN	4.00	13·00 - 14·45	2	No	AM/21/02/26	SSE/PW/NBQ A. Malakar
2	KM 263/0-261/0	-	UTV-74 M/C work. (10.30-17.00) Hrs. (Base at CPQ)	BJF-CPQ	DN	4.00	12·00 - 14·30	2	No	RS/112/02/26	SSE/PW/BJF R. Singh
3	KM 267/2-8	KM 267/09-267/30	Shifting of released girder. (10.00-17.00) Hrs.	BJF-CPQ	DN	3.00	- Do -	2	No	AS/450/02/26	SSE/Br/BNGN
4	KM 278/3-279/3	Pt. No. 105, 123 & 121	MFI-57271 M/C work. (10.30-17.00)Hrs. (TRD &SIG staff required) (Base at PTLD)	PTLD Yd.	DN	4.00	11·45 - 14·15	2	No	RC/73/02/26	SSE/PW/SBE R. Chakrabharty
5	KM 269/2-3	-	Welding work. (10.00-17.00)Hrs.	BJF Yd. L/3	UP	3.00	13·45 - 14·15	2	No	RS/111/02/26	SSE/PW/BJF R. Singh
6	KM 295/3-2	KM 295/22-16	Glued joint re-fabrication work. (10.00-16.00)Hrs. (TRD & SIG staff required)	BPRD Yd. L/2	DN	3.00	C/o N/A.	1	No	AB/126/02/26	SSE/PW/BPRD A. Baruah
7	KM 295/3-296/1	KM 295/23-296/32	TRR & welding work. (10.00-16.00)Hrs. (TRD & SIG staff required)	BPRD Yd. L/4	UP	4.00	13·30 - 15·30	2	No	AB/127/02/26	SSE/PW/BPRD A. Baruah
8	KM 296/3-4	-	Reconditioning of pt. No. 125 (10.00-16.00) Hrs.	BPRD Yd.	UP DN	4.00	No SLOT	2	No	AB/128/02/26	SSE/PW/BPRD A. Baruah
9	KM 322/4-320/8		Rail panel carrying work (10.00-16.00) Hrs.	TIHU=PBL	DN	3.00	11·00 - 13·45	2	No	TK/39/02/26	JE/PW/RNY T. Kalita
10	KM 361/3-4 Pt. No. 159.	-	PCTM-11036 M/C work.(10.30-16.00)Hrs. (TRD & SIG staff required) (Base at GOE)	RNY Yd.	UP	4.00	No SLOT	2	No	TK/40/02/26	JE/PW/RNY T. Kalita
11	Pt. No. 104, 107, 123	-	Glued joint re-fabrication work. (10.00-16.00)Hrs.	RNY Yd.	DN	3.00	13·30 - 16·00	1	No	AK/94/02/26	SSE/PW/RNY A. Kumar
12	KM 387/3-4	-	Glued joint re-fabrication work. (10.00-16.00)Hrs.	CGS-AGT	DN	3.00	C/o N/A.	1	No	RGS/84/02/26	SSE/PW/CGS R. G. Singh
				BG-II							
13	KM 177/1-3	-	Broken sleeper renewal work	ALMG-BGBI	SL	3.00	10·00 - 13·00	2	No	AK/16/02/26	JE/PW/ALMG A. Kumar
14	KM 7/5-8/2	-	Point maintenance work. (10.00-16.00) Hrs.	MZQ Yd. L/2 &3	UP DN	4.00	11·45 - 13·45 11·45 - 14·00	4	No	CK/39/02/26	JE/PW/BNGN/Spl.
15	KM 29/7-8	KM 29/36-40	Maintenance work over Br. No. 345. (10.00-16.00)Hrs.	AYU-JPZ	DN	3.00	11·30 - 14·00	2	No	MK/52/02/26	JE/PW/JPZ M. Kumar
16	KM 123/0-122/0	-	JCB work. (10.00-16.00)Hrs. (TRD staff required)	BMGN-BOKO	DN	4.00	10·00 - 12·00	2	Yes	BCB/288/02/26	SSE/PW/BOKO B.C. Baishya
17			SQRS M/C work. (Base at DDNI)								
18	KM 122/1-121/0	-	Welding work. (10.00-16.00)Hrs.	BMGN-BOKO	DN	4.00	10·00 - 12·30	2	No	BCB/289/02/26	SSE/PW/BOKO B.C. Baishya
19	KM 82/5-9		SEJ flange testing by USFD. (10.00-17.00)Hrs.	AMGA Yd. L/3	UP	4.00	13·45 - 16·45	2	No	RGM/42/02/26	JE/PW/DDNI R.G. Meena
20	KM 136/7-9	-	DTE-57053 M/C work. (10.30-16.00)Hrs. (TRD & SIG staff required) (Base at MRZA)	CGON-MRZA	UP	4.00	15·00 - 17·00	2	No	US/42/02/26	SSE/PW/CGON U. Saud
21	KM 150/7-8	-	PCTM-11035 M/C work.(10.30-17.00)Hrs. (TRD & SIG staff required) (Base at BOKO)	MRZA Yd. L/2	UP	4.00	No SLOT.	2	No	VP/89/02/26	JE/PW/MRZA V. Pandey
22	KM 120/9-4	-	DTE-57053 M/C work. (10.30-16.00)Hrs. (TRD staff required) (Base at MRZA)	BMGN-BOKO D/L	DN	4.00	14·00 - 17·00	2	No	BCB/290/02/26	SSE/PW/BOKO B.C. Baishya
				BG-III							
23	KM 60/9-61/0	KM 60/18-60/30	Improved SEJ installation work (10.00-16.00) Hrs. (TRD & SIG staff required)	ULG Yd. L/2	SL	4.00	10·30 - 12·00 12·15 - 14·15	1	No	RK/02/02/26	JE/PW/ULG R. Kumar
24	KM 99/8-100/0	KM 99/15-100/0	SEJ flange testing by USFD. (10.00-17.00)Hrs.	DKJR-NMM	SL	3.00	10·45 - 12·30 13·00 - 15·00	2	No	SK1/31/02/26	JE/PW/DKJR S. Kumar
25	-	-	Piling work at PF. No. 2 & 3. (08.00-18.00)Hrs. (TRD staff required)	RPAN Yd. L/3 & 6	SL	4.00	8·00 - 12·00	1	Yes	RPAN/PF 28/3/94	JE/W/RPAN
26	KM 25/7-20/7	-	Duo-8151 M/C work. (10.30-16.00)Hrs. (TRD staff required) (Base at BHNG)	BVU-BHNG	SL	4.00	10·30 - 12·30 15·00 - 17·00	2	No	SJG/27/02/26	SSE/PW/RPAN S. J. Gupta
27	KM 202/0-204/0	-	MFI-57118 M/C work.(10.30-16.00)Hrs. (TRD staff required) (Base at VNE)	NBX-HML	SL	4.00	10·30 - 12·30 14·30 - 16·30	2	No	KK/25/02/26	JE/PW/NBX K. Kumar
28	KM 218/0-217/5		UTV-34 M/C work.(10.30-17.00)Hrs. (TRD staff required) (Base at GPZ)	GKPZ Yd. L/1 HML-GPZ	SL	4.00	10·30 - 12·00 14·45 - 17·00	2	No	KT/120/02/26	JE/PW/TBH K. Timsina

CHC/Punctuality/RNY
23/2

Engg/CNL/RNY
23/02/26

SN	Date	Block Type	Section in which Block demanded as per Rolling Block Program	Section in which Block demanded as per Memo	Hours demanded as per Rolling Block Program	Hours demanded as per Memo	Time available as Per Corridor Slot of WTT	Block permitted on the memo by Operating
5	25.02.2026	SQRS machine Block	No SQRS Block Planned	BOKO Yard DN Line	-	4:00 hrs	No Slot available as per WTT-97 on that day.	3:00 hrs (13:45-16:45 hrs)

	3:00hrs	14:30	17:30	Corridor	HML-NLP															
25.02.2026 (Wednesday)	3:00hrs	**12:35**	**15:35**	Corridor	BSGN-NBQ (UP LINE)															
	3:00hrs	**11:00**	**14:00**	Corridor	BSGN-NBQ (DN LINE)	1. PCTM machine work at NBQ-BNGN														
	3:00hrs	**12:20**	**15:20**		NBQ-PBL (UP LINE)	1. MFI Machine work BNGN-BJF														
	3:00hrs	**13:30**	**16:30**	Corridor	PBL-RNY (UP LINE)	1. PCTM-11036 machine work														
	3:00hrs	**14:30**	**17:30**	Corridor	RNY-AGT (UP LINE)	1. Point maintenance														
	3:00hrs	**10:00**	**13:00**	Corridor	AGT-RNY (DN LINE)	2. USP-56659 machine work 3. Duomatic-8151 machine work 4. UTV-74 machine work														
	3:00hrs	**10:30**	**13:30**	Corridor	RNY-PBL (DN LINE)	1. Point maintenance														
	3:00hrs	**11:20**	**14:20**	Corridor	PBL-NBQ (DN LINE)	1. MFI Machine work BNGN-BJF														
					KYQ-AZA															
					AZA-DPRA (DOWN LINE)															
					DPRA-JPZ (DOWN LINE)	1.UTV-34 machine work. 3. MFI-56575 machine tamping work.														
					JPZ-NBQ (DOWN LINE)	1. PCTM machine work at MZQ														
					NBQ-JPZ (UP LINE	2. PCTM machine work at MZQ 3. Duomatic-8151 machine work at NBQ-MZQ														
					JPZ-DPRA (UP LINE	3. Duomatic-8151 machine work at NBQ-MZQ														
					DPRA-AZA (UP LINE)															
	4:00hrs	**06:00**	**10:00**		AYU-GUP	1. DTE Machine Work														
	3:00hrs	**11:30**	**14:30**	Corridor	RNY-MJBT	1.MFI- 56575 Machine work between Section RNY-MJBT. (04 Hrs. block required),														
	3:00hrs	11:30	14:30	Corridor	MJBT-RPAN															
	3:00hrs	13:45	16:45	Corridor	RPAN-HML	1.TWR Works														
	3:00hrs	14:30	17:30	Corridor	HML-NLP															
					BSGN-NBQ															

No SQRS work on 25/02/2026 as per Rolling Block Program

Date :- 25.02.2026

To,
CHC/RNY.
N.F. Railway.

Block message for 26.02.2026

SN	Location HM	Location OHE	Work proposed	Section	UP/DN	Hrs Dmnd	OPT assessment	Spell	Power block	Msg No.	Demand by
BG-I											
1	KM 247/8-9	Pt. No. 18 & 18A.	**MFI-56575 M/C** work. (10.30-16.00)Hrs. **(TRD & SIG staff required)** (Base at CPQ)	DTX Yd. L/1 & 2	DN	4.00	10:45 - 12:15	2	No	AM/25/02/26	SSE/PW/NBQ A. Malakar
2	KM 258/0-260/5	-	**UTV-74 M/C** work. (10.30-17.00) Hrs. (Base at CPQ)	CPQ-BNGN	DN	4.00	No slot	2	No	RS/121/02/26	SSE/PW/BJF R. Singh
3	KM 258/5-6	Pt. No. 101.	X-ing body reconditioning work. (10.00-17.00)Hrs.	CPQ Yd.	UP	4.00	12:30 - 15:00	2	No	RS/119/02/27	SSE/PW/BJF R. Singh
4	KM 260/5-6	-	Rail changing & Welding work. (10.00-17.00)Hrs.	CPQ-BJF	UP	3.00	— do —	2	No	RS/120/02/26	SSE/PW/BJF R. Singh
5	KM 288/2-291/0	KM 288/09-290/49	**MFI-57271 M/C** work. (10.30-17.00)Hrs. **(TRD &SIG staff required)** (Base at PTLD)	SBE Yd. SBE-BPRD	UP	4.00	— do —	2	No	RC/80/02/26	SSE/PW/SBE R. Chakrabharty.
6	KM 291/3-290/9	KM 291/14-290/48	Replacement of girder at Br. No. 450. (10.00-17.00)Hrs.	SBE-BPRD	DN	1.30	No slot	1	No	JMB/46741/02/26	SSE/Br/BNGN
7	KM 295/3-2	KM 295/22-16	Glued joint re-fabrication work. (10.00-16.00)Hrs. **(TRD & SIG staff required)**	BPRD Yd. L/2	DN	3.00	No slot	1	No	AB/137/02/26	SSE/PW/BPRD A. Baruah
8	KM 322/4-320/8	-	Rail panel carrying work. (10.00-16.00)Hrs.	PBL-TIHU	DN	3.00	No slot	2	No	TK/52/02/26	JE/PW/RNY T. Kalita
9	KM 326/2-3	Pt. No. 105.	Chair plate rubber pad changing work. (10.00-16.00)Hrs.	TIHU Yd.	DN	3.00	No slot	2	No	TK/51/02/26	JE/PW/RNY T. Kalita
10	KM 361/1-2	Pt. No. 165.	X-ing body changing work. (10.00-16.00) Hrs. **(TRD & SIG staff required)**	RNY Yd.	DN	2.00	No slot	2	No	AK/105/02/26	SSE/PW/RNY A. Kumar
11	Pt. No. 153 & 151.	-	**PCTM-11036 M/C** work.(10.30-16.00)Hrs. **(TRD & SIG staff required)** (Base at GOE)	RNY Yd.	UP/DN	4.00	No slot for [illegible]	2	No	PKC/64/02/26	JE/PW/BIZ P. K. Chaoudhury
12	KM 361/0-1	Pt. No. 155/156.	Glued joint re-fabrication work. (10.00-16.00)Hrs.	RNY Yd.	DN	3.00	No slot	1	No	AK/106/02/26	SSE/PW/RNY A. Kumar
13	KM 361/0-1	-	Rail changing & welding work. (10.00-16.00) Hrs. **(TRD & SIG staff required)**	RNY Yd.	DN	3.00	No slot	2	No	AK/104/02/26	SSE/PW/RNY A. Kumar
14	KM 375/3-376/0	-	Joint pts & x-ing compliance work. (10.00-16.00)Hrs.	BIZ Yd	UP	3.00	14:30 - 17:00	1	No	RGS/98/02/26	SSE/PW/CGS R. G. Singh
BG-II											
15	KM 207/1-2	-	SEJ flange testing by USFD. (14.00-17.00)Hrs.	BLPA-CHAA	SL	3.00	10:00 - 13:00	2	No	AK/29/02/26	JE/PW/CHAA A. Kumar
16	-	KM 200/9-201/16	Destressing work. (10.00-16.00)Hrs.	BLPA-CHAA	SL	3.00	"	1	No	PKD/335/02/26	SSE/PW/BLPA P. K. Das
17	KM 177/1-2	-	Sleeper renewal work. (10.00-16.00)Hrs.	ALMG-BGBI	SL	3.00	"	2	No	AK/20/02/26	JE/PW/ALMG A. Kumar
18	KM 92/7-8	KM 92/34-28	WCMS x-ing body installation & welding work.(10.00-16.00)Hrs. **(TRD & SIG staff required)**	RGJI Yd.	DN	4.00	14:00 - 17:00	1	No	NS/71/02/26	SSE/PW/RGJI N. Saha
19	KM 119/8--118/8	-	JCB work. (10.00-16.00)Hrs. **(TRD & SIG staff required)**	BOKO Yd.	DN	4.00	13:45 - 16:45	2	Yes	BCB/317/02/26	SSE/PW/BOKO B. C. Baishya
20	KM 119/7-4	KM 119/28-16	**SQRS M/C** work.(13.30-17.30) Hrs. **(TRD & SIG staff required)** (Base at DDNI)	BOKO Yd. L/2	DN	4.00	— do —	1	Yes	BCB/322/02/26	SSE/PW/BOKO B. C. Baishya
21	KM 120/3-4	-	Welding work. (10.00-16.00)Hrs.	BOKO-BMGN	DN	4.00	— do —	2	No	BCB/318/02/26	SSE/PW/BOKO B. C. Baishya
22	KM 122/3-120/0	-	**DTE-57053 M/C** work. (10.30-16.00)Hrs. **(TRD & SIG staff required)** (Base at MRZA)	BOKO-BMGN	DN	4.00	— do —	2	No	BCB/319/02/27	SSE/PW/BOKO B. C. Baishya
23	KM 135/4-5	Pt. No. 109	Point shifting work. (10.00-17.00)Hrs.	CGON Yd.	UP	4.00	Not allowed till Bo't allow	2	No	US/45/02/28	SSE/PW/CGON U. Saud
24	KM 150/9-151/9	-	**PCTM-11035 M/C** work.(10.30-17.00)Hrs. **(TRD & SIG staff required)** (Base at BOKO)	MRZA Yd. L/2	UP	4.00	14:00 - 17:00	2	No	VP/100/02/26	JE/PW/MRZA V. Pandey

Score Card of Zone: ER for the month of Sep 2025

Colour Legend:

70%>	<=70% and >60%	<=60% and >50%	<=50%

Summary for Sep 2025

Rank:	11	WorkLoad:	183	Obtained Marks:	592.42 (60.45%)	Max. Marks:	980.00

Historical Ranks:-

	Sep 2025	Aug 2025	Jul 2025	Jun 2025	May 2025	Apr 2025	Mar 2025	Feb 2025	Jan 2025	Dec 2024	Nov 2024
Rank	11	10	10	12	10	10	10	13	11	11	12
Marks Obtained	592.42	568.18	564.25	549.21	552.24	547.70	606.67	556.34	550.69	540.33	511.41
Max. Marks	980.00	980.00	980.00	980.00	980.00	980.00	970.00	970.00	970.00	970.00	970.00
%age	60.45	57.98	57.58	56.04	56.35	55.89	62.54	57.35	56.77	55.70	52.72

Details for Sep 2025

KPI / Sub KPI	Target	Achieved	Max. Marks	Marks Obtained	%age	Rank
1. Operational, Financial & Efficiency Improvement Parameters			205.00	235.30	114.78	1

KPI / Sub KPI	Target	Achieved	Max. Marks	Marks Obtained	%age	Rank
1.1 Total Revenue (Goods + Passenger + Other Coaching + Sundry Revenue)(Apportionate)	6050.99 Rs. in Cr.	5296.53 Rs. in Cr.	40.00	30.96	77.40	13
1.2 Ordinary Working Expanses (Net)(Spending Limit)	7349.53 Rs. in Cr.	7269.59 Rs. in Cr.	20.00	22.72	113.60	3
1.3 Originating Passenger Traffic	633.38 Millions	643.54 Millions	20.00	20.60	103.00	1
1.4 Originating Freight Loading	51.55 Million Tons	47.62 Million Tons	25.00	20.80	83.20	14
1.5 Originating NTKM (Goods)	23326.00 Million KMs	20991.49 Million KMs	20.00	16.01	80.05	12
1.6 Punctuality(Mail & Express)	85.00 %	82.00 %	20.00	17.36	86.80	8
1.7 Sundry Revenues	249.04 Rs. in Cr.	202.55 Rs. in Cr.	10.00	6.91	69.10	11
1.8 Capital expenditure [excluding EBR(PPP)]	3106.52 Rs. in Cr.	7871.65 Rs. in Cr.	35.00	88.69	253.40	1
1.9 Scrap disposal	272.50 Rs. in Cr.	237.51 Rs. in Cr.	10.00	7.41	74.10	6

KPI / Sub KPI	Target	Achieved	Max. Marks	Marks Obtained	%age	Rank
1.10 Deletion of works from IRPSM (Total works with physical completion >=99% on opening day of FY)	136.00 No. of works	123.00 No. of works	5.00	3.84	76.80	7
2. Capacity Enhancement			265.00	38.57	14.55	15
2.1 Doubling (Railway)	5.45 Kms	0.00 Kms	35.00	0.00	0.00	12
2.2 Railway Electrification (1*25 KV/2*25 KV)	413.00 RKMs/TKMs	0.00 RKMs/TKMs	15.00	0.00	0.00	9
2.3 New Lines (Railway)	5.22 Kms	0.00 Kms	15.00	0.00	0.00	8
2.4 Gauge conversion (Railway)	0.00 Kms	0.00 Kms	5.00	0.00	0.00	3
2.5 Gati-Shakti Cargo Terminals	1.50 Nos.	0.00 Nos.	15.00	0.00	0.00	6
2.6 Average speed of freight trains including yarding & stabling	10.00 % improvement over last year	-13.13 % improvement over last year	30.00	0.00	0.00	7
2.7 No. of Permanent Speed Restrictions Removed	10.00 Nos.	9.00 Nos.	10.00	7.65	76.50	9
2.8 No. of Permanent Speed Restrictions Relaxed	7.50 Nos.	15.00 Nos.	5.00	4.52	90.40	4

KPI / Sub KPI	Target	Achieved	Max. Marks	Marks Obtained	%age	Rank
2.9 Raising of sectional speed to 160KMPH	125.00 RKMs	0.00 RKMs	20.00	0.00	0.00	1
2.10 Raising of sectional speed to 130KMPH	272.50 TKms	0.00 TKms	20.00	0.00	0.00	1
2.11 Raising of sectional speed to 110KMPH	15.50 TKms	194.86 TKms	20.00	23.00	115.00	1
2.12 Raising of Loop Line speed to 30 Kmph	2.50 Nos. of stations	0.00 Nos. of stations	20.00	0.00	0.00	7
2.13 Electrification of siding	3.50 TKms.	0.00 TKms.	5.00	0.00	0.00	5
2.14 Removal of Mechanical interlocking	5.00 No. of stations	2.00 No. of stations	10.00	3.40	34.00	2
2.15 No. of TSS commissioned (1*25 KV)	0.50 Nos.	0.00 Nos.	5.00	0.00	0.00	9
2.16 No. of TSS commissioned (2*25 KV)	2.50 Nos.	0.00 Nos.	5.00	0.00	0.00	3
2.17 No. of SS/SSP commissioned (2*25 KV)	8.50 Nos.	0.00 Nos.	5.00	0.00	0.00	3
2.18 Automatic Block Signalling (ABS)	37.00 RKMs	0.00 RKMs	10.00	0.00	0.00	14
2.19 KAVACH	130.00 RKMs	0.00 RKMs	15.00	0.00	0.00	3

KPI / Sub KPI	Target	Achieved	Max. Marks	Marks Obtained	%age	Rank
3. Capacity Utilization			75.00	53.56	71.41	4
3.1 Diesel Loco Utilization	316.00 Kms	314.85 Kms	5.00	4.23	84.60	10
3.2 Electric Loco Utilization	277.00 Kms	282.17 Kms	10.00	9.13	91.30	9
3.3 NTKMs/wagon-day	3851.00 Kms	2935.26 Kms	10.00	6.48	64.80	13
3.4 Terminal detention (from arrival to departure)			40.00	25.58	63.95	4
3.4.1 Unloading:- % improvement in unloading time [(Last Year performance - current year performance)*100/Last Year performance]	5.00 % improvement over 2024-25	13.31 % improvement over 2024-25	10.00	10.68	106.80	2
3.4.2 Loading:- % improvement in loading time [(Last Year performance - current year performance)*100/Last Year performance]	5.00 % improvement over 2024-25	3.97 % improvement over 2024-25	10.00	6.75	67.50	8
3.4.3 Examination:- % improvement in rake examination time [(Last Year performance - current year performance)*100/Last Year performance]	5.00 % improvement over 2024-25	-41.25 % improvement over 2024-25	10.00	0.00	0.00	6
3.4.4 PDD:- TO with PDD less than one hr. / Total TO	54.00 %	51.77 %	10.00	8.15	81.50	11

KPI / Sub KPI	Target	Achieved	Max. Marks	Marks Obtained	%age	Rank
3.5 Extended crew run:- Total crack trains / Total goods trains run	10.50 %	10.06 %	10.00	8.14	81.40	10
4. POH Outturn			40.00	35.96	89.90	4
4.1 Coaches (ICF, LHB, NMG) (BG)	1167.50 VUs	1269.00 VUs	10.00	8.85	88.50	6
4.2 Wagons (BG)	4440.00 VUs	4184.00 VUs	10.00	8.01	80.10	11
4.3 Electric Locomotives (BG)	38.50 VUs	43.00 VUs	10.00	10.25	102.50	2
4.4 MEMU/EMU (BG)	952.00 VUs	982.00 VUs	10.00	8.85	88.50	4
5. Track Renewal/ Maintenance			70.00	59.70	85.29	8
5.1 Progress in track renewal (Total CTR = Primary + Secondry)	346.50 TKms	216.39 TKms	20.00	10.62	53.10	15
5.2 Deep screening of turnouts by machines	195.00 Nos.	193.00 Nos.	10.00	8.41	84.10	13
5.3 Deep screening plain track by BCM	200.00 TKms	217.44 TKms	10.00	8.80	88.00	9
5.4 Rolling Block Utilization			30.00	31.87	106.23	2
5.4.1 Percentage of granted/agreed block in rolling block plan	85.00 %	91.17 %	10.00	10.81	108.10	4
5.4.2 Percentage of Refusal of agreed block by executive	5.00 %	1.42 %	10.00	10.65	106.50	1

KPI / Sub KPI	Target	Achieved	Max. Marks	Marks Obtained	%age	Rank
5.4.3 Percentage of blocks given outside rolling blocks	10.00 %	3.65 %	10.00	10.41	104.10	5
6. Asset Reliability (Average increase in asset reliability/ improvement over last year)			135.00	93.45	69.22	9
6.1 Rail Failure/ Million GTKM	10.00 %	30.29 %	20.00	20.91	104.55	7
6.2 Diesel Loco Failure/ Loco holding (Ownership Basis)	5.00 %	21.43 %	10.00	10.64	106.40	8
6.3 Electric Loco Failure/ Loco holding (Ownership Basis)	5.00 %	11.70 %	20.00	20.70	103.50	12
6.4 Coach Detachment (Ownership Basis) Per 1000 Coach holding	5.00 %	-400.00 %	5.00	0.00	0.00	8
6.5 Wagon Detachment (Territorial Basis) / Avg. wagon holding	5.00 %	69.96 %	10.00	12.10	121.00	3
6.6 OHE Failures (All sub heads) (ATF,BBOHE,ETFB,GRID,OHE,OHEOTH)	74.00 Nos.	80.00 Nos.	15.00	8.70	58.00	9
6.7 Signal Failures/ '000DESU	5.00 %	6.60 %	20.00	20.40	102.00	13
6.8 C&W Others Failures (Territorial Basis) (COTH + WOTH)	5.00 %	-686.67 %	15.00	0.00	0.00	5
6.9 ACP cases (Single Head - ACP)	5.00 %	-84.23 %	10.00	0.00	0.00	6
6.10 Miscreant Activities (All sub heads) (MAOTH,SPELT,TOHE,TOSG,TOTP,TOTR)	5.00 %	-38.46 %	10.00	0.00	0.00	8

KPI / Sub KPI	Target	Achieved	Max. Marks	Marks Obtained	%age	Rank
7. Improvement in Safety performance			30.00	-16.83	-56.10	-
7.1 Accidents per million Train Kms	0.00 Nos.	0.00 Nos.	0.00	0.00	-	1
7.2 Elimination of LC	18.00 Nos.	1.00 Nos.	20.00	0.95	4.75	16
7.3 Interlocking of LC gates	3.00 Nos.	0.00 Nos.	10.00	0.00	0.00	13
7.4 Hot axles (ownership basis)			0.00	-2.78	-	7
7.4.1 Hot axle cases (ownership basis)	0.00 Nos.	29.00 Nos.	0.00	-2.78	-	7
7.4.2 Wagon outturn(POH+ROH)	0.00 Nos.	10446.00 Nos.	0.00	-2.78	-	7
7.5 Breach of block	0.00 Nos.	0.00 Nos.	0.00	0.00	-	1
7.6 SPAD	0.00 Nos.	3.00 Nos.	0.00	-15.00	-	3
7.7 Fire cases (on ownership basis in rolling stocks and installations directly connected with train operations)	0.00 Nos.	0.00 Nos.	0.00	0.00	-	1
8. Station Development			75.00	25.37	33.83	13
8.1 Lifts	6.50 Nos.	3.00 Nos.	5.00	1.96	39.20	7

KPI / Sub KPI	Target	Achieved	Max. Marks	Marks Obtained	%age	Rank
8.2 Escalators	4.00 Nos.	0.00 Nos.	5.00	0.00	0.00	9
8.3 Redeveloped Railway Stations under Amrit Bharat Stations scheme	28.00 Nos.	0.00 Nos.	30.00	0.00	0.00	11
8.4 Fund utilisation in PH-53	162.94 Rs. in Cr.	163.97 Rs. in Cr.	25.00	21.38	85.52	8
8.5 Divyangjan compliance stations including Amrit Bharat Stations scheme	193.00 Nos.	46.00 Nos.	10.00	2.03	20.30	3
9. Human Resource and Court cases			85.00	67.34	79.22	7
9.1 Grievance Redressal Efficiency Index	1.00 ----	0.91 ----	20.00	18.20	91.00	5
9.2 Rationalization in Manpower (Redistribution + Surrender)	1253.50 Nos.	410.00 Nos.	20.00	6.54	32.70	8
9.3 Medically de- categorized staff awaiting redeployment :- Total redeployed / Total de-categorized	100.00 %	100.00 %	5.00	5.00	100.00	1
9.4 Training of employees - Total trained at training institutes in current FY/ Avg. total employees on roll	2.00 % improvement over FY 2024-25	6.03 % improvement over FY 2024-25	10.00	8.52	85.20	4
9.5 RCT - UTI Cases			10.00	9.12	91.20	2

KPI / Sub KPI	Target	Achieved	Max. Marks	Marks Obtained	%age	Rank
9.5.1 DRM reports pendng for more than 90 days	2.00 %	2.43 %	5.00	4.12	82.40	2
9.5.2 WS pending for more than 30 days after receipt of DRM report (or within 90 days from RCT Notice)	3.00 %	1.86 %	5.00	5.00	100.00	1
9.6 Medical Reimbursement			5.00	4.96	99.20	2
9.6.1 Reimbursement within 60 days / Total reimbursement cases	100.00 %	99.14 %	5.00	4.96	99.20	2
9.7 CG Appointment			15.00	15.00	100.00	1
9.7.1 Total cases finalized (from death/ de- categorization of employee to eligible ward joining in Railway Service) within 6 months / Total cases finalized	100.00 %	100.00 %	15.00	15.00	100.00	1