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Assessment of the Infrastructure sector

For RKCPL Limited

Final report

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by S&P Global

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Contents

1 Macroeconomic overview of India

1.1 Review of real GDP growth over fiscals 2019-2025 and outlook for fiscals 2026-2030

India ranks as the world's 5th largest economy and is the fastest growing among major economies. The Indian economy logged 4.13% CAGR between fiscals 2019 and 2025 which was driven by rising consumer aspiration, rapid urbanization, the government's focus on infrastructure investment and growth of the domestic manufacturing sector. Economic growth was supported by benign crude oil prices, soft interest rates and low current account deficit. The Indian government also undertook key reforms and initiatives, such as implementation of the Goods and Services Tax (GST), Insolvency and Bankruptcy Code, Make in India, financial inclusion initiatives, and gradual opening of sectors such as retail, e-commerce, defense, railways, and insurance for foreign direct investments (FDIs).

A large part of the lower growth between fiscals 2018 and 2023 was because of the economy contracting 5.8% in fiscal 2021 owing to the fallout of Covid-19. The pandemic's impact was more pronounced on contact-sensitive services and social distancing norms-affected services such as entertainment, travel, and tourism, with many industries in the manufacturing sector also facing issues with shortage of raw materials/components as lockdown in various parts of the world upended supply chains.

Over the period, India's economic growth was led by services, followed by the industrial sector, while in part impacted by demonetization, the non-banking financial company (NBFC) crisis, slower global economic growth, and the pandemic.

As lockdowns were gradually lifted, economic activity revived in the second half of fiscal 2021. After a steep contraction in the first half, owing to rising number of Covid-19 cases, gross domestic product (GDP) moved into positive territory towards the end of fiscal 2021. Subsequently, in fiscal 2022, India's real GDP grew 9.7% from the low base of fiscal 2021.

India's GDP exceeded expectations during all four quarters of fiscal 2024. However, growth slowed down in fourth quarter but stayed strong. According to the National Statistics Office's (NSO) provisional estimates, GDP growth slowed to 7.8% year-on-year in the fourth quarter of last fiscal from 8.6% of third quarter but was higher than 6.1% in the year-ago quarter. This prompted the NSO to revise upward the fiscal 2024 GDP growth estimate to 8.2% (which is the provisional estimate), from the earlier estimate of 7.6%.

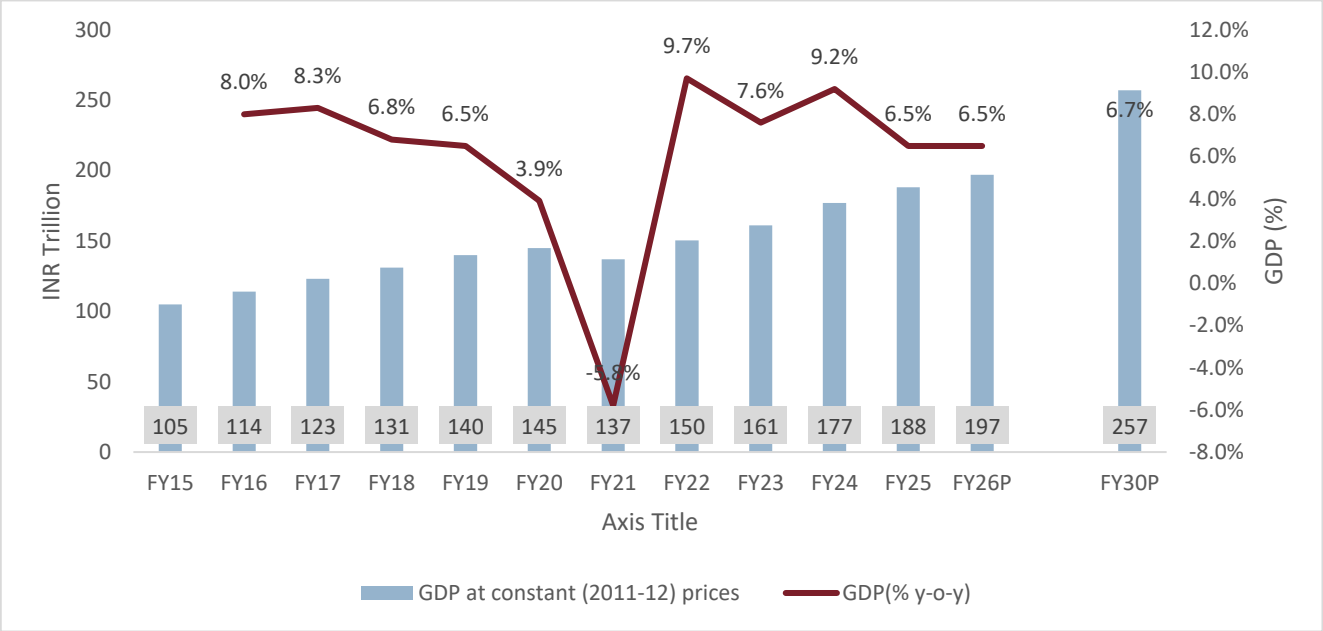
Growth surpassed forecasts in the fiscal 2024, driven by strong government spending and a sharp rise in manufacturing and construction growth. Globally, growth in major economies such as the US and China beat estimates and has contributed to better export earnings for India.

According to the National statistics Offices (NSO) second advance estimates (SAE) projects India's real gross domestic product (GDP) growth at 6.5% for the fiscal 2025, slightly higher than first advance estimates. GDP growth also revised upward to 9.2% for fiscal 2024 and 7.6% for fiscal 2023. However, the fiscal 2025 growth shows significant slowdown from the previous fiscal 2024 led by weak investments and reduced government consumption. However, growth improved in private consumption and exports.

Crisil forecasts growth in fiscal 2026 to 6.5%, but with risks on the downside owing to external headwinds. US tariff hikes pose a key downside risk to the industrial outlook this fiscal. As of now, the pause on the US's reciprocal tariff increase provides temporary relief, but the 10% universal tariff hike by the Trump administration is in force since

April. Slower global growth, along with anticipated reciprocal tariff hikes after June, are likely to hit goods exports this fiscal. Uncertainty regarding tariffs may hinder investments. The eventual impact of these factors will depend on the trade deal India strikes with the US.

India's GDP growth trend and outlook



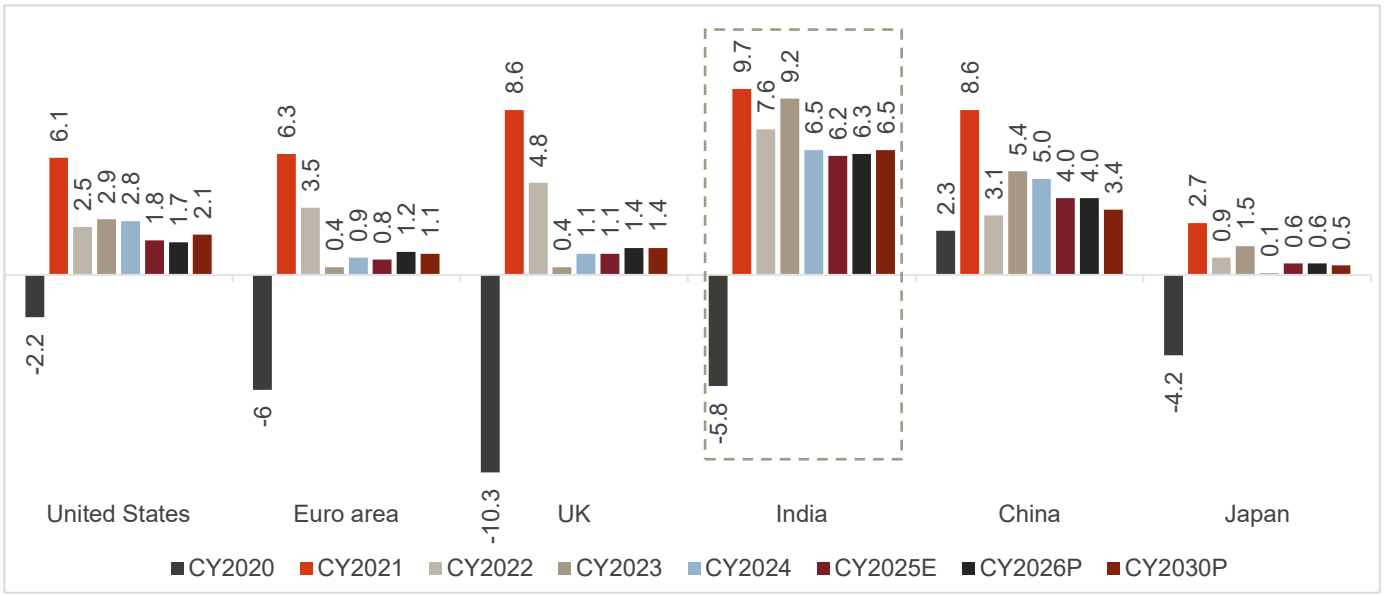
Note: P – Projected

Source: National Statistical Office (NSO), International Monetary Fund (IMF), CRISIL Intelligence estimates

India to remain a global outperformer

The global growth projected to decline in CY2025. Growth in advanced economies is projected to slow on account of greater policy uncertainty, trade tensions and softer demand momentum. In emerging market and developing economies, growth is expected to slow down with significant downgrades for countries affected most by recent trade measures. The growth outlook is relatively more stable for India despite global environment uncertainty and subdued growth. The steady expansion of the economy is supported by private consumption, particularly in rural areas.

GDP growth (% y-o-y) of key economies



Note: On Calendar Year (CY) basis

** Euro area comprises 19 member countries of the EU*

Source: International Monetary Fund (IMF); World Economic Outlook (WEO) - April 2025 update, CRISIL Intelligence

Global GDP growth is projected to decline from an estimated 3.3% in CY 2024 to 2.8% in CY2025. This is lower than IMF previous estimates with downward revision across all major countries and reflects largely the direct effects of the new trade measures and their indirect effects through trade linkage, heightened uncertainty and deteriorating sentiments. The growth impact of tariffs in the short term varies across countries depending on trade relationships, industry composition, policy responses and opportunities for trade diversification

- The U.S. economy is expected to grow at 1.8% in 2025, a sharp downgrade from previous estimates due to the impact of newly imposed tariffs and tightening financial conditions. The growth outlook reflects subdued investment and slowing consumer spending.
- The UK is projected to grow at a modest 1.1%, as it continues to face structural challenges, weak productivity growth, and the lingering effects of Brexit-related trade frictions. The services sector remains the main driver of growth.
- Growth in Euro region is forecast at 0.8%, reflecting sluggish domestic demand, elevated inflationary pressures, and weaker external demand. Germany, the region's largest economy, is projected to record zero growth, while Spain shows relative resilience with ~2.5% growth.
- India stands out as a bright spot, with GDP growth projected at 6.2% in 2025. This robust performance is driven by strong investment in infrastructure, rapid digital adoption, and expanding manufacturing under government-led initiatives like "Make in India."
- China's growth is forecast to moderate to 4.0%, amid weak property sector recovery and the adverse effects of ongoing trade tensions with major economies. Domestic consumption remains under pressure despite stimulus efforts.
- Japan is expected to grow at 0.6%, constrained by demographic challenges, tepid domestic demand, and the negative impact of rising global tariffs on its export-oriented sectors.

Key factors in budget 2025-26 that can influence medium to long term growth:

- Stronger Consumption Support: Tax relief measures and enhanced allocations for welfare programs like PMAY, PMGSY and MGNREGS (Mahatma Gandhi National Rural Employment Guarantee Scheme) to boost demand and economic activity.
- Sustained Infrastructure Investment: Increased funding for roads, highways, railways, and urban development, driving long-term growth and job creation.
- Government-Led Capital Expenditure: Continued high Capex allocation supporting various industries.
- Employment & Skilling Initiatives: Allocations for new employee generation schemes, vocational training, and opening of 'centres of excellence' will enhance workforce productivity and helps in skilling the youth of the country.
- Push for Innovation & Industrial Growth: Increased R&D funding, incentives for EVs and electronics manufacturing, and export promotion to strengthen India's global competitiveness.
- On consumption front, recently there was a key announcement made during union budget 2025-26 in February 2025 pertaining to direct taxes. As per new tax regime, no income tax payable up to annual income of Rs 12.75lakh and a new tax bracket subject to 25% tax added to 20-24Lakh income tax slab.

Per Capita Income

As per the provisional estimates by NSO, the per capita income (per capita NNI) is estimated to have grown by 5.4% in fiscal 2025, compared with 8.6% in fiscal 2024. In fiscal 2021, per capita income declined 8.9% owing to GDP contraction amid the pandemic impact. Per capita income rose by 7.6% in fiscal 2022 on the lower base of fiscal 2021.

According to the International Monetary Fund's estimates, India's per capita income (at current prices) is expected to grow at 9% CAGR over CY2025 to 2030.

Indian economy is expected to surpass USD 5 trillion mark over the next seven fiscals (2025- 2031) and inch closer to USD 7 trillion. A projected average GDP growth of 6.7% in this period will make India the third-largest economy in the world and lift per capita income to the upper middle-income category. By fiscal 2031, India's per capita income is expected to rise to ~USD 4,500, thereby making it an upper middle-income nation.

At the macroeconomic level, the rise in per capita income implies that as incomes increase, the proportion of expenditure allocated to discretionary items such as consumer durables and automobiles will also increase. This will lead to an improvement in consumption patterns, characterized by a growing demand for discretionary goods.

Trend in Inflation

- The Consumer Price Index (CPI)-based inflation dropped to 2.8% in May, the lowest reading since February 2019, from 3.2% in April as food inflation continued to decline.
- Fuel and core inflation also softened.
- Food inflation fell to 1%, the lowest since October 2021, from 1.8% in April. Fuel inflation reversed trend and eased marginally to 2.8% from 2.9%.
- Among food items, pulses, vegetables and spices saw deflation, while cereals recorded lower inflation. According to Crisil Intelligence- Research's Thali Index released last week, the cost of both vegetarian and non-vegetarian thalis in May fell ~6% each on-year largely due to lower vegetable prices.

- Non-food CPI inflation rose to a 20-month high of 4.1%, led by the fuel and light category, which saw inflation rise sharply due to the liquified petroleum gas (LPG) price hike by the government. Core inflation inched up 10 basis points to 4.2% in April but remained below its trend level (measured by the decadal average) of 4.9%.

Outlook on inflation

The Ministry of Agriculture's Third Advance Estimates has indicated a robust rabi harvest with record wheat production. The India Meteorological Department (IMD) has forecast above-normal monsoon of 106% of the long period average (LPA). The rains would have a positive impact on the upcoming kharif season. Both the above will keep food inflation in check this fiscal, provided there are no monsoon disruptions. Though the monsoon has lost some momentum in June, with all-India cumulative rainfall deficiency at 34% of LPA, it is the rains in July and August that matter the most for kharif crops.

On the energy front assuming no sustained impact of geopolitical tensions, Brent crude oil prices are projected to remain subdued, ranging between $65 and $70 per barrel in the current calendar year, which should help contain non-food inflation.

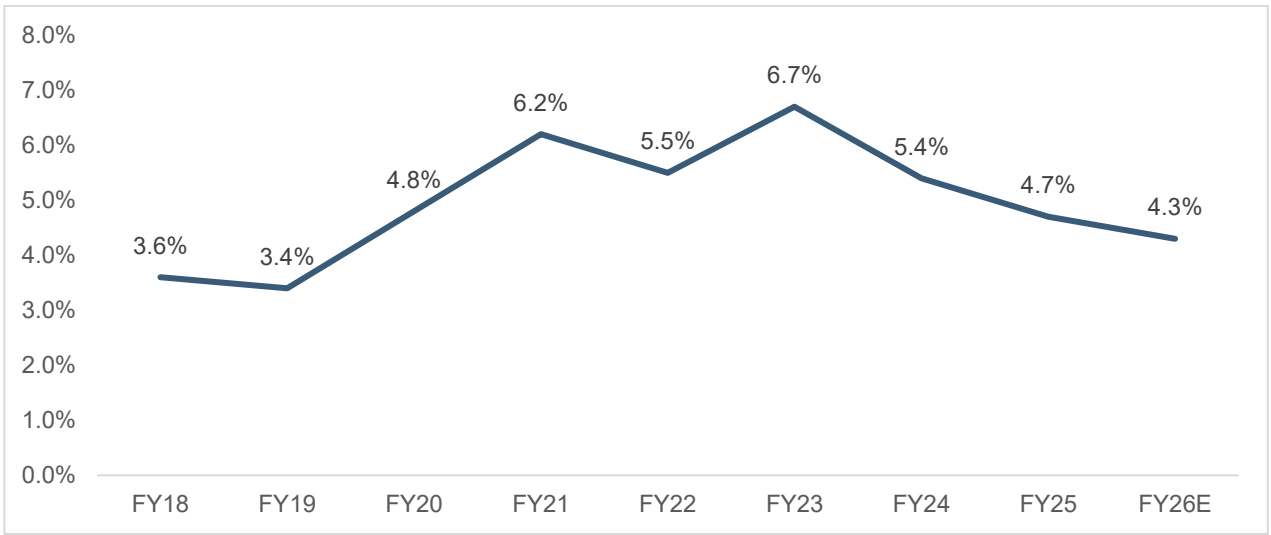
Given the current inflation trajectory, we expect headline inflation to average 4% this fiscal, from 4.6% last fiscal. Lower inflation keeps the window open for one more repo rate cut by the Reserve Bank of India (RBI) apart from the 100 basis points cut announced so far.

The Monetary Policy Committee (MPC) of the Reserve Bank of India (RBI) cut the repo rate by 50 basis points (bps) in June, following a 25-bps cut in February and April each. It also announced the cash reserve ratio (CRR) would be cut by 100 bps in four tranches between September and November 2025.

But the MPC changed its stance from accommodative to neutral, emphasizing the monetary policy space to support growth was shrinking. In April, the MPC had shifted its stance from accommodative to neutral.

The RBI has been proactively supporting systemic liquidity through various instruments. Liquidity was in surplus in May for the second consecutive month driven by open market operations (OMOs) and foreign portfolio inflows. The surplus has eased money market rates and facilitated better transmission of policy rate cuts to market lending rates.

CPI trendline



Source: Ministry of Statistics and Programme Implementation (MOSPI), CRISIL Intelligence

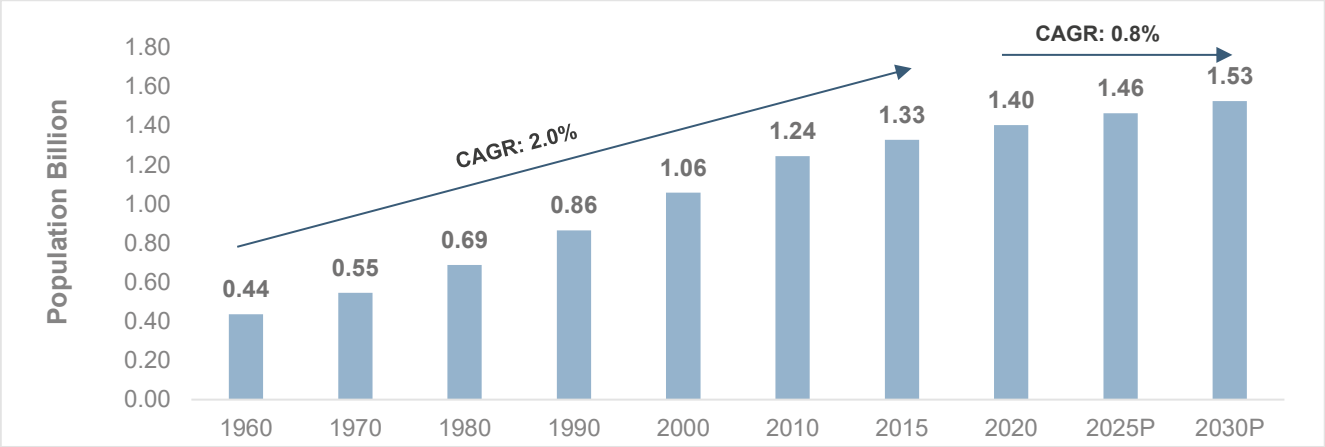
1.2 Review of population growth and urbanisation

1.2.1 India's population projected to touch 1,500 million by 2030

India's population clocked ~1.6% CAGR from 2001 to 2011, reaching ~1,200 million, and comprised nearly 246 million households, as per Census 2011.

According to the World Urbanization Prospects: The 2018 Revision by the United Nations, India and China – the top two countries in terms of population – accounted for nearly 37% of the world's population in 2015. India's population is expected to increase at 0.8% CAGR from 2020 to 1,525 million by 2030.

India's population growth



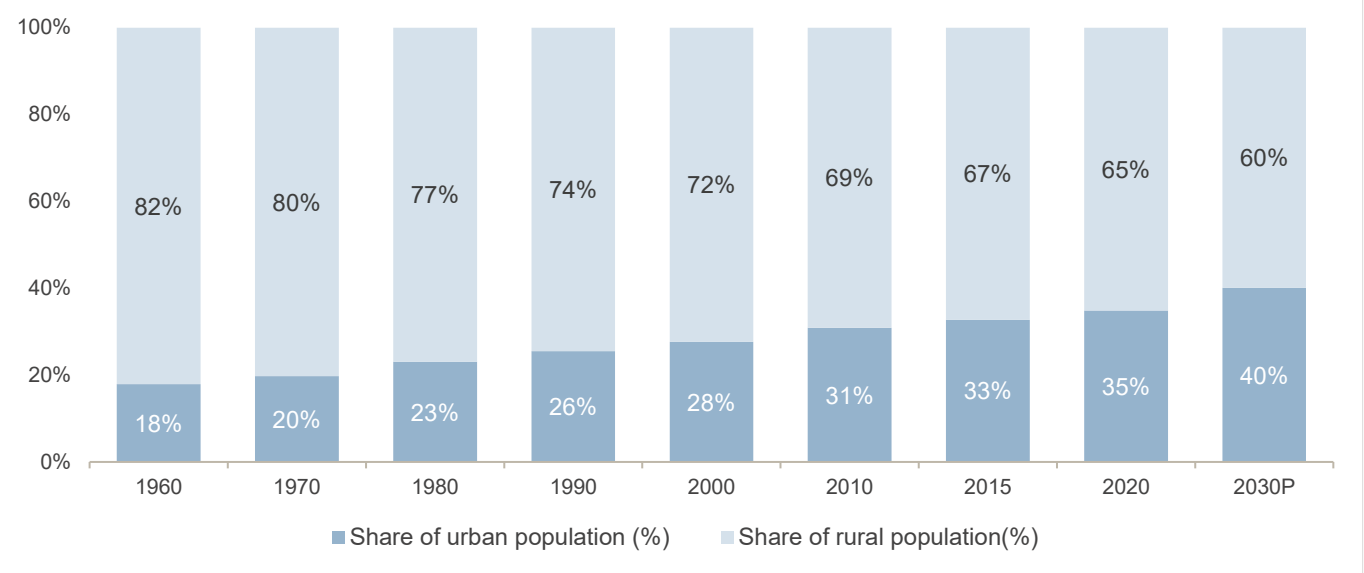
P: Projected

Source: United Nations, Department of Economic and Social Affairs, Population Division (2024); Probabilistic Population Projections Rev. 1 based on the World Population Prospects 2019 Rev. 1; CRISIL Intelligence

1.2.2 Urbanisation likely to reach 40% by 2030

The share of the urban population in India's total population has been rising over the years and stood at ~31% in 2010. People from rural areas move to cities for better job opportunities, education and quality of life. The entire family or only a few individuals (generally an earning member or students) may migrate, while the rest of the family continues to live in the native, rural house. This trend is expected to continue, with a United Nations report projecting that nearly 40% of the country's population will live in urban areas by 2030.

India's urban versus rural population



P: Projected
Source: World Urbanization Prospects: The 2018 Revision, United Nations; CRISIL Intelligence

1.3 Review of private final consumption growth

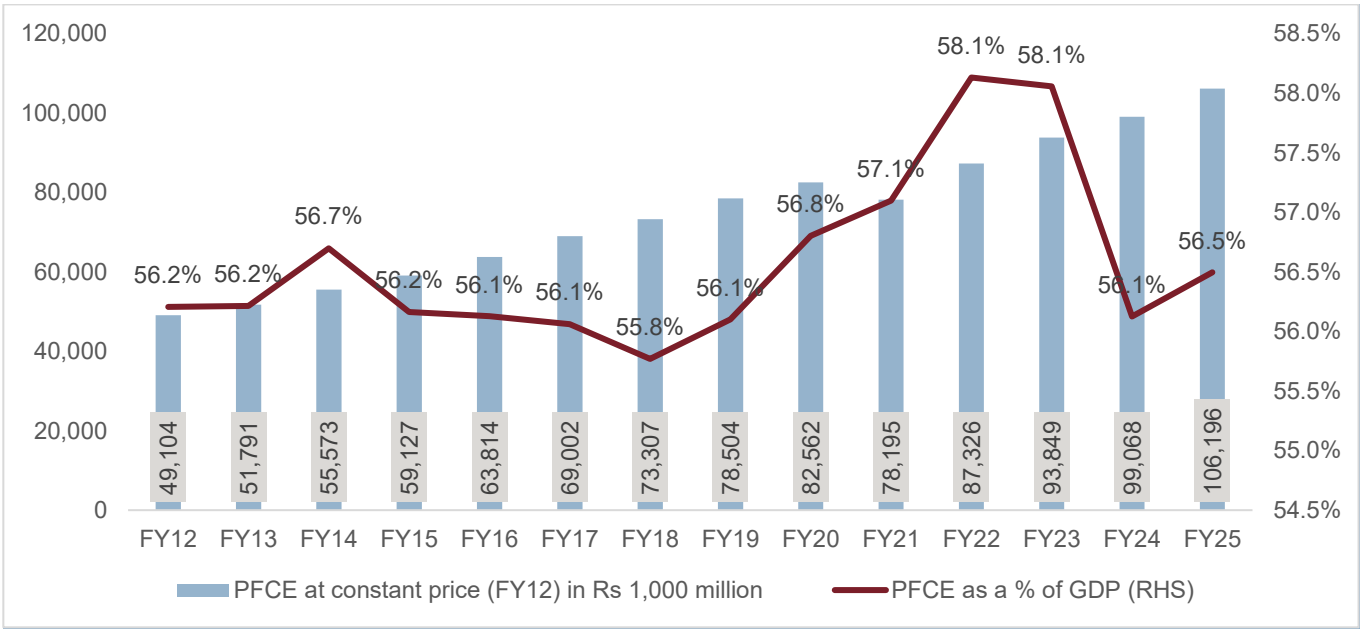
1.3.1 Private final consumption expenditure to maintain dominant share in GDP

Private final consumption expenditure (PFCE) reflects the overall consumption patterns and spending capacity of households within an economy. When PFCE increases it often translates to increased demand for various goods and services.

PFCE at constant prices clocked 6.0% CAGR between fiscals 2012 and 2023, maintaining its dominant share in the GDP pie, at 58.5% or Rs 93.5 trillion as of fiscal 2023. Factors contributing to the growth included good monsoons, wage revisions due to the implementation of the Pay Commission's recommendations, benign interest rates and low inflation.

That said, PFCE had declined to Rs 78.2 trillion in fiscal 2021 from Rs 82.6 trillion in fiscal 2020 on account of the pandemic, when consumption demand was impacted on account of strict lockdowns, employment loss, limited discretionary spending and disruption in demand-supply dynamics. PFCE increased 6.8% to Rs 93.8 trillion in fiscal 2023 but remained at 58.0% as a % of GDP. This was because the pandemic had an adverse impact on personal expenditure and government spending increased in an effort to boost the economy from the Covid-19-induced slump.

PFCE at constant prices



PE – Provisional Estimate
Source: First Advance Estimates 2024-25, MoSPI, CRISIL Intelligence

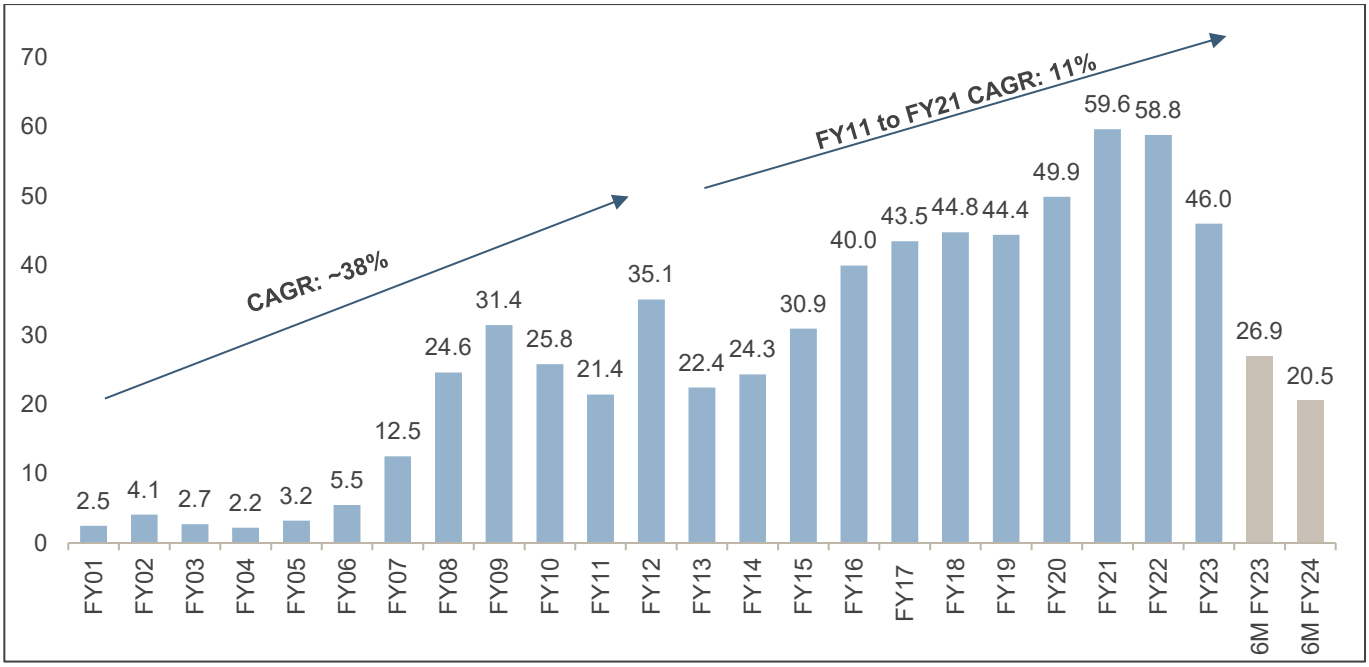
Private final consumption expenditure (PFCE) growth slowed in the fourth quarter of fiscal 2025. Demand for both goods and services seem to have slowed. For goods, the Index of Industrial Production (IIP) indicated slowing demand for both consumer durables and non-durables. Demand for services moderated, too, as indicated by slowing growth in THTC services. Urban demand was likely constrained by elevated interest rates and slowing credit growth. That being said, some strengthening of rural demand (real agricultural and rural wages picked up in the quarter as inflation slowed considerably and tractor sales accelerated compared with the previous quarter) helped provide a cushion.

1.4 Historical trends in FDI inflows

Under the new foreign investment policy, the Government of India constituted the Foreign Investment Promotion Board (FIPB), whose main function was to invite and facilitate foreign investments. The FIPB ceased to exist as per the decision taken by the finance ministry in 2017. The government has now empowered individual departments to clear FDI proposals in consultation with the Department of Industrial Policy and Promotion (DIPP) within the set timelines. From a baseline of less than $1 billion in 1990, India has become one of the most important FDI destinations in the world.

FDI inflows in India grew rapidly at ~17% CAGR to $49.9 billion in fiscal 2020 from $2.5 billion in fiscal 2001. The pace of growth was faster from fiscals 2001 to 2009 (~38% CAGR), but the global slowdown affected investments in fiscals 2010 and 2011. During fiscal 2021, India recorded highest ever FDI inflows of $59.6 billion, up ~20% on-year. Fiscal 2023 has recorded $46.0 billion FDI inflow which is ~22% lower than fiscal 2022. Continuing its downward trend FDI inflows declined by 24% to USD 20.5 billion during the first six months of fiscal 2024.

FDI equity inflows to India ($ billion)



Source: DIPP, CRISIL Intelligence

According to the quarterly factsheet on FDI prepared by the DIPP up to the fourth quarter of fiscal 2023, Mauritius was the leader in cumulative FDI inflows over April 2000 to March 2023 with a share of 26%, followed by Singapore (23%), United States (9%), Netherlands (7%), Japan (6%) and United Kingdom (5%). During the period, services sector accounted for 16% of the cumulative FDI inflows, followed by computer software and hardware (15%), telecommunications (6%), trading (6%), automobile (5%) and construction development (5%). FDI inflows in fiscal 2023 stood at $46.0 billion, registering a significant decline over fiscal 2022 levels.

2 Review of roads infrastructure in India

2.1 Overview of road infrastructure sector in India

Developing and modernising the infrastructure sector has been a priority area for the Government of India and has witnessed increasing public investments and budgetary support. Further, the government has undertaken several reforms and initiatives in the infrastructure sector, which has resulted in robust secular growth in most of the segments within the sector.

The roads sector registered a strong pace of constructions, annual national highway construction data reveals the share of four-lane and more highways has increased steadily, from 28% in fiscal 2019 to 44% in fiscal 2025, while the share of two-lane highways has decreased from 56% to 36%. The data also highlights the impressive pace of national highway construction in India, with the average daily lane-kilometre built increasing from 76 lane-km/day in fiscal 2020 to 89 lane-kms/day in fiscal 2021, when the absolute national highway construction reached a peak of 13,327 km. Notably, even though the absolute national highway construction is expected to decline to around 11,000 km in fiscal 2025, the pace of lane-km is expected to remain high at 91 lane-km/day, driven by the higher share of four-lane and more highways being constructed.

The government launched the National Infrastructure Pipeline (NIP) for fiscals 2020 to 2025, to boost infrastructure, with a projected investment of Rs 111 trillion during the period. Investments in energy (24%), roads (18%), urban (17%), and railways (12%) will amount to over 70% of the projected capital expenditure during the period. As per an economic survey, NIP will be funded by the central government (39%), state governments (40%), and private sector (21%). The NIP outlines a revised spend of 147 lakh crore which was originally planned over fiscals 2020-2025, a lofty target with focus on public funds to do the heavy lifting. With public funds being constrained due to the impact of the pandemic across fiscals 2021 and 2022, with vaccination, social and healthcare spends to be met. The investments outlined in the NIP are almost double over the previous 5-year plan and the achievement ratio of the 5-year plans have been dropping with rising outlay of capex. The consultant projects a 70-75% achievement of the NIP. The balance investments are unlikely to be met till fiscal 2025 and will likely spill over into further years. As per the India Investment Grid website accessed on April 24, 2024, 10,286 projects are under development covering over 56 sub-sectors.

The Public Private Partnership Appraisal Committee (PPPAC) set up by the government has been responsible for the appraisal of PPP projects in the central sector.

In fiscal 2021, the government approved the continuation of the revamped Infrastructure Viability Gap Funding (VGF) Scheme till fiscal 2025. The objective of the revamped scheme is to attract PPP projects and aid private investment in social infrastructure (health, education, wastewater, solid waste management, water supply, etc).

2.1.1 Road network in India

India has the second-largest road network in the world, spanning 6.67 million km as of fiscal 2024. Roads, the most frequently used mode of transportation in India, accounted for ~87% of passenger traffic and close to ~60% of freight traffic says MoRTH as of September 2024. Although national highways span nearly 146,145 km, constituting just 2% of road length, they accounted for ~40% of the total road traffic. The secondary road system comprises state roads and major district roads, which accounted for the remaining 60% of traffic and 98% of road length.

As per the report published by MoSPI in October 2024, in FY23 gross value add of road sector was ~68% among all contributors of output & value added from transport services.

Road network in India as of March 2025

Road network	Length (km)	Percentage of total length	Percentage of total traffic	Connectivity to
National highways	146,145	~2	40	Union capital, state capitals, major ports, foreign highways
State highways	179,535	~3	60	Major centres within the states, national highways
Other roads	6,019,723	~95		Major and other district roads, rural roads - production centres, markets, highways and railway stations
Total Network	6,345,403	100	100	India has more than 63 lakh km of road network

Source: MoRTH Annual Report 2024-25, PIB June 2025, CRISIL Intelligence

Growth in Road Network (FY15–FY24)

The growth momentum is evident in the pace of construction. Between FY2016 and FY2025, the length of national highways increased from just over 1.01 lakh km to 1.48 lakh km, registering a compound annual growth rate (CAGR) of 4.2%. The sector also achieved construction peaks of more than 13,000 km annually, or over 35 km per day, placing India among the fastest highway builders in the world. Although progress in state highways has remained relatively modest, rural road development under PMGSY has contributed significantly to expanding access in remote areas, improving social inclusion and rural economic integration.

The expansion of India's road network over the past decade reflects the government's sustained emphasis on infrastructure-led growth. Between FY16 and FY25, the total length of roads in the country increased from 5.60 million km to 6.35 million km, recording a compound annual growth rate (CAGR) of 1.39%. Within this, national highways registered the fastest growth, expanding from 101,011 km in FY16 to 148,204 km in FY25, with a CAGR of 4.19%, supported by consistent budget allocations, flagship programmes, and improved execution capabilities.

Total length and break-up of national, state and rural roads (unit: km)

Road network	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	CAGR
National highways	101,011	114,158	126,350	132,500	132,995	136,440	140,995	144,955	146,145	146,204	4.19
State highways	176,166	175,036	186,908	186,528	194,900	176,818	171,039	167,079	179,535	179,535	0.21
Other roads	5,326,116	5,608,477	5,902,539	6,067,269	6,165,660	5,902,539	6,059,813	6,019,757	6,019,723	6,019,723	1.37
Total	5,603,293	5,897,671	6,215,797	6,386,297	6,493,555	6,215,797	6,371,847	6,331,791	6,345,403	6,345,462	1.39

Source: MoRTH Annual Report 2022-23 and 2024-25, MoRTH PIB-05 Jan 2024, CRISIL Intelligence

Overall, the last decade has seen a decisive policy thrust towards broadening and upgrading India's road network, with national highways leading the transformation, state highways providing critical state-level linkages, and rural roads ensuring last-mile connectivity. Together, these developments have laid the foundation for improved logistics competitiveness and balanced regional development, positioning roads as a cornerstone of India's infrastructure strategy. The expansion of India's road network over the past decade reflects the government's sustained emphasis on infrastructure-led growth. Between FY16 and FY25, the total length of roads in the country increased from 5.60 million km to 6.35 million km, recording a compound annual growth rate (CAGR) of 1.39%. Within this, national highways registered the fastest growth, expanding from 101,011 km in FY16 to 148,204 km in FY25, with a CAGR of 4.19%, supported by consistent budget allocations, flagship programmes, and improved execution capabilities.

State/UT wise details of operationalized access-controlled Nationals HSCs/ Expressways

State/ UT	Operationalized Length as of 30th June 2025
Delhi	10
Gujarat	310
Haryana	583
Jammu & Kashmir	7
Karnataka	151
Madhya Pradesh	224
Rajasthan	964
Telangana	153
Uttar Pradesh	232
Uttarakhand	3
Grand Total	2,636

Source: MoRTH June 2025, Crisil Intelligence

2.1.2 Contribution of roads sector to India's GVA

The share of the roads sector in India's GDP stood at 3.0% in fiscal 2023. The share hovered at ~3.3% from fiscals 2012 to 2022.

GVA	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Road transport share (at constant prices)	3.2%	3.3%	3.3%	3.3%	3.3%	3.2%	3.3%	3.3%	3.3%	2.5%	3.1%	3.0%	2.9%
Road Transport (at constant prices) (Rs bn)	26,244	28,243	30,056	32,081	34,315	36,232	39,640	41,754	43,216	31,790	42,671	44,622	46,292

Source: MoSPI, National Accounts Statistics 2024, CRISIL Intelligence

2.2 Key budgetary proposals for infrastructure sector

The Union Budget 2025–26 underscores the Government of India's continued emphasis on infrastructure-led growth, with a record capital expenditure outlay of ₹11.21 lakh crore, marking a 10% increase over the previous year. Key proposals focus on strengthening core infrastructure through targeted allocations for transport, urban development, water supply, and energy. Alongside direct public investment, the budget also advances private sector participation via PPP pipelines and asset monetisation plans, reflecting a multi-pronged strategy to boost infrastructure development across the country.

Key announcements

- Rs 7,160,000 million (gross budgetary support + internal and extra budgetary resources) has been provided to infrastructure ministries towards capital spending, which is consistent with the figure in the interim budget
- The Pradhan Mantri Gram Sadak Yojana (PMGSY)-IV initiative aims to ensure all-weather connectivity for 25,000 rural habitations. Other significant road connectivity projects include the Patna-Purnea and the Buxar-Bhagalpur expressways, extensions to Bodhgaya, Rajgir, Vaishali and Darbhanga, and an additional two-lane bridge over the Ganga at Buxar. A total cost of Rs 260,000 million has been earmarked for these projects
- Irrigation and flood relief assistance will be provided to Bihar, Assam, Uttarakhand, Himachal Pradesh and Sikkim. This includes an allocation of Rs 115,000 million for the Kosi-Mechi project in Bihar and 20 other ongoing irrigation projects
- Transit-oriented development strategies will be devised for 14 major cities with populations exceeding 3 million, incorporating implementation as well as financing frameworks. Additionally, 35 cities will be developed as growth hubs through comprehensive economic and transit planning, along with the development of peri-urban areas
- Reforms in the domestic shipping sector regarding ownership, leasing and flagging are expected to support the players

Note: Core infrastructure ministries constitute road, railways, rural development, urban development, power, new and renewable energy, civil aviation, shipping, water resources, and atomic energy

2.2.1 Impact

- The total capex (gross budgetary support + internal and extra budgetary resources) for 10 core infrastructure ministries has been increased by 4.9% over fiscal 2024RE. The moderate increase in capital allocation to core infrastructure ministries suggests the need for crowding in of private sector investment
- Investment in urban development are expected to increase, particularly in public transport, water supply and sanitation, and waste management projects
- While the construction of national highways has progressed at a robust pace, rural road development has been lagging. However, with the announcement of PMSY-IV, an uptick in rural road execution is likely. Reform in the shipping sector is expected to support the sector; but further clarification and an action plan will be required to gauge the impact

2.2.2 Other Infrastructure Initiatives

Digital Infrastructure Modernisation

- BharatNet has connected 2.14 lakh Gram Panchayats, deploying 6.92 lakh km of optical fibre and 1.04 lakh Wi Fi hotspots as of January 2025.
- UMANG, launched in 2017, now supports 7.34 crore registered users and has processed 516 crore+ transactions across 2,101 services in 23 languages by December 2024.
- Mobile broadband speeds have surged from 1.3 Mbps (2014) to 95.7 Mbps by December 2024; India now has 4.62 lakh 5G BTS towers and 24.96 lakh 4G BTS sites.

PM Gati Shakti & Integrated Infrastructure Planning

- PM Gati Shakti coordinates planning across 16 ministries, aligning road, rail, and port investments through a geospatial master plan.
- By 13 March 2025, 115 highway and road projects covering ~13,500 km and valued at ₹6.38 lakh crore were reviewed, improving timeliness and reducing overlaps.

Bharatmala Pariyojana (Road & Highway Development)

- Phase I targets ~34,800 km, with 26,425 km awarded and 19,826 km completed by 28 February 2025.
- Total expenditure on Bharatmala stands at ₹4.92 lakh crore, including 6,669 km of greenfield corridors awarded and 4,610 km completed.
- This effort is repositioning India's road infrastructure by improving logistics efficiency and national connectivity.

National Highway Network Expansion

- Over the past decade, National Highway length surged from 91,287 km (2014) to 146,145 km (2024)—a ~60% increase—boosting regional and freight connectivity.

Sagarmala (Port-Led Development)

- Identified 839 projects worth ₹5.79 lakh crore, with 272 completed, and ₹1.41 lakh crore invested building coastal infrastructure by 19 March 2025.
- This enhances port connectivity and streamlines maritime logistics as part of 'Make in India' ambitions.

Outlay for core infrastructure ministries

Ministry/Department	FY25RE				FY26BE				FY26BE over FY25RE
	GBS (Rs crore)	IEBR (Rs crore)	GIA (Rs crore)	Total (Rs crore)	GBS (Rs crore)	IEBR (Rs crore)	GIA (Rs crore)	Total (Rs crore)	
Ministry of Railways	2,52,000	13,000	-	2,65,000	2,52,000	13,000	-	2,65,000	**0%**
Ministry of Road Transport and Highways	2,72,481	-	8,735	2,81,216	272,241	-	9,602	2,81,843	**0%**
Ministry of Rural Development	4	-	1,28,346	1,28,350	4	-	1,55,319	1,55,323	**21%**
Ministry of Housing and Urban Affairs	31,662	42,095	20,735	94,492	37,623	62,207	46,067	1,45,897	**54%**
Ministry of Power	1,127	70,710	14,775	86,611	658	85,838	17,075	1,03,572	**20%**
Ministry of New and Renewable Energy	7	31,701	15,134	46,843	7	35,460	24,508	59,975	**28%**
Ministry of Jal Shakti (Department of Water Resources, River Development and Ganga Rejuvenation)	323	2	14,361	14,686	556	2	17,413	17,971	**22%**
Ministry of Ports, Shipping and Waterways	1,342	8,509	681	10,532	1,761	7,123	846	9,731	**(8%)**
Ministry of Civil Aviation	102	3,913	656	4,670	70	4,194	301	4,565	**(2%)**
Department of Atomic Energy	12,497	12,585	905	25,987	11,978	13,131	964	26,073	**0%**
Total capex – Infrastructure ministries	5,71,544	1,82,514	2,04,328	9,58,386	5,76,900	2,20,955	2,72,095	10,69,949	**12%**
Total capex – Other ministries	4,46,885	1,99,927	95,563	7,42,375	5,44,190	2,10,636	1,55,097	9,09,924	23%
Grand total	10,18,429	3,82,441	2,99,891	17,00,761	11,21,090	4,31,591	4,27,192	19,79,873	**16%**

GIA: General Grant-in-aid, GBS: Gross Budgetary Support, IEBR: Internal and Extra Budgetary Resources, BE: Budget Estimate, RE: Revised Estimate, A: Actual.

Source: Budget documents, CRISIL Intelligence

2.2.3 Indian Railways: Capital Spending & Operational Scale

In FY 2024–25, Indian Railways witnessed its highest-ever capital expenditure, with a total of ₹2.65 lakh crore allocated in the Budget Estimate. By early January 2025, approximately ₹1.92 lakh crore (76%) had already been spent—primarily on capacity expansion, rolling stock procurement, and safety upgrades. Of the ₹50,903 crore set aside for rolling stock, ₹40,367 crore (79%) was deployed by January, while ₹34,412 crore earmarked for safety infrastructure saw an 82% expenditure, reflecting a strong push to front-load CapEx.

- Over the past ten years (FY15-FY24), the Indian government's annual Railways budget allocation has expanded by approximately 3.6 times.
- In capital expenditure terms between FY 2020 and FY 2024, the government has raised spending by 77%, demonstrating consistent escalation in rail-sector support.

Capacity Expansion, Modern Trains & Network Upgrade

A total of ₹81,713 crore was disbursed for major capacity works, including new lines, track doubling, and network enhancements—constituting 68% of the allocated budget for capacity augmentation, Rolling stock modernization continues at pace, supported by strong capital outlays that signal sustained fleet rejuvenation. The Economic Survey highlights significant capacity additions during FY 2024–25 and a notable rise in rolling stock deployment.

Multi-Modal Logistics & Gati Shakti Integration

Indian Railways is aligning closely with the PM Gati Shakti National Master Plan, focusing on enhanced logistics through Gati Shakti Cargo Terminus (GCT) projects. The ministry recently revised GCT bidding guidelines to attract greater private-sector participation and optimize terminal revenues—highlighting an increasing reliance on integrated, multi-modal infrastructure.

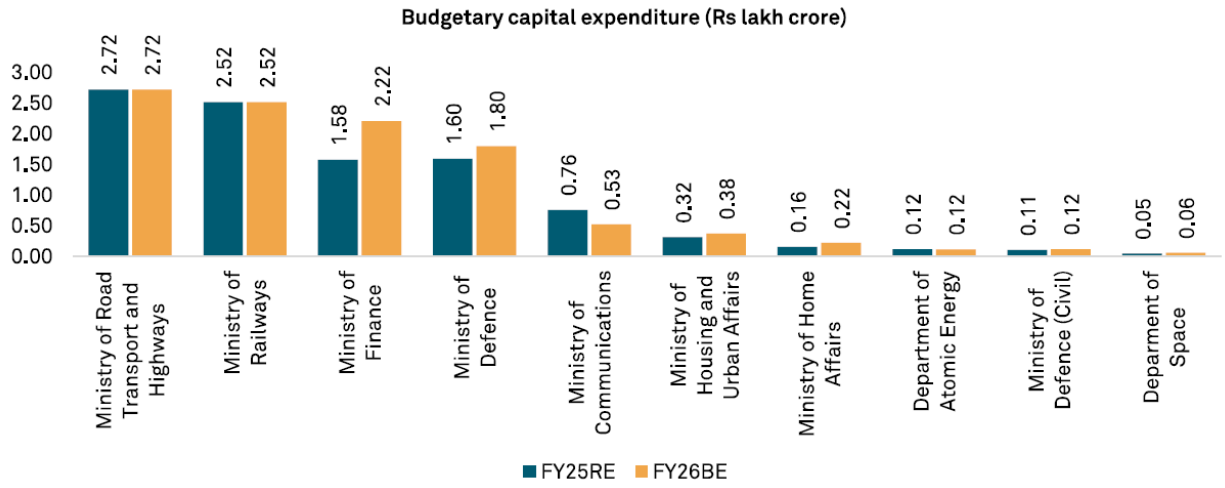
Station Redevelopment & Network Doubling

The government has greenlit several major rail infrastructure projects via the Cabinet Committee on Economic Affairs. Highlights include the 41 km third and fourth lines on the Ratlam–Nagda section (₹1,018 crore) and the Wardha–Ballharshah fourth line, spanning 176 km with a ₹3,399 crore investment—set to conclude by FY 2029–30. Meanwhile, over 103 stations have been redeveloped under the Amrit Bharat Station Scheme as of May 2025, upgrading facilities and improving passenger amenities across 18 states.

Energy, Sustainability & Outlook

Railways are transitioning toward 100% electrification by FY 2025–26, with significant allocations made to traction electrification and clean energy sourcing. There's also momentum behind advanced technologies—such as potential nuclear power solutions for rail traction and deployment of automatic train protection—highlighting a shift toward more reliable, green, and safe rail operations.

Capex focused on infrastructure creation



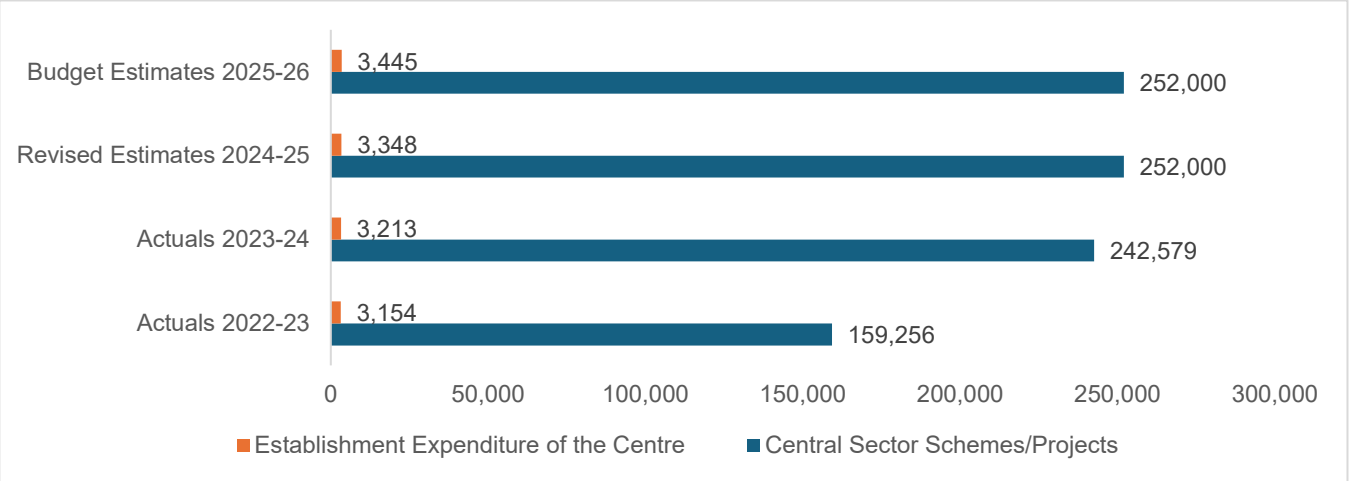
Note: Significantly higher capex allocation to the Ministry of Finance is largely a reflection of state capex loans that are routed through this ministry and are budgeted at Rs 1.5 lakh crore next fiscal, compared with Rs 1.25 lakh crore this fiscal.

Source: Budget 2024-25, CRISIL Intelligence

In the Union Budget 2025–26, the Government of India has allocated a record capital expenditure (Capex) of ₹2,62,200 crore for the Ministry of Railways, with a Gross Budgetary Support of ₹2,52,200 crore—up from ₹2,40,200 crore in FY 2023–24 and a massive jump from just ₹28,174 crore in 2013–14. This sustained increase in Capex

reflects the government's commitment to transforming Indian Railways into a world-class transport system. Over the past decade, Indian Railways has achieved significant milestones, including commissioning 31,180 km of track and increasing the pace of track laying from 4 km/day in 2014–15 to 14.54 km/day in 2023–24. Electrification also surged, with 41,655 route km electrified since 2014. The emphasis on infrastructure and safety has yielded tangible outcomes such as record freight loading of 1,588 MT in FY 2023–24 and all-time high receipts of ₹2,56,093 crore. The Railways is also driving industrial growth through corridor-based development under PM Gati Shakti, focusing on energy, minerals, ports, and high-traffic routes, with a view to reducing logistics costs, enhancing multimodal connectivity, and improving passenger experience.

Ministry of Railways: Expenditure Profile (In Rs. Cr.)



Source: Union Budget 2025-26, CRISIL Intelligence

Capital outlay of the Ministry of Railways

Capital outlay (Rs billion)	2020-21	2021-22 BE	2022-23 BE	2023-24	2024-25 RE	2025-26 BE
Indian Railways - Commercial Lines	299.10	1,169.99	1,369.79	2,424.68	2,518.93	2,519.51

Source: CRISIL Intelligence

2.2.4 Construction investments to grow at 6-8% CAGR between fiscals 2026 and 2030

The construction industry in India is expected to grow steadily at an annual rate of 6-8% between fiscal years 2026 and 2030. This growth will be mainly driven by increased spending on infrastructure projects such as roads and railways, supported by both central and state government investments.

In fiscal year 2025, construction capital expenditure rose by 7% compared to the previous year, reaching ₹12.7 lakh crore. This increase aligns with the government's emphasis on infrastructure development, as seen in the rising budget allocations aimed at achieving the goals outlined in the National Infrastructure Pipeline (NIP).

Previously, the construction sector faced challenges like policy delays in infrastructure and low industrial investments. Residential construction also declined due to weak demand, affordability issues, and a sluggish economy. However, recent government initiatives have revitalized construction activity, especially in infrastructure.

Some key initiatives introduced by the government:

- PMAY-U 2.0 launched with mission of “Housing for all” with effect from Sep 2024. Proposals for construction of 3.52 lakhs approved under PMAY-U 2.0 as of March 2025.
- Swachh Bharat Abhiyan and Smart Cities Mission: These programs focus on improving sanitation and developing urban areas into sustainable, citizen-friendly cities.
- Atal Mission for Rejuvenation and Urban Transformation (AMRUT): This initiative enhances urban living by providing basic services like water supply and sewerage, improving infrastructure for better quality of life.
- Pradhan Mantri Krishi Sinchai Yojana (PMKSY): By consolidating major irrigation schemes, this program aims to extend irrigation coverage and improve water use efficiency in agriculture.
- Hybrid Annuity Model (HAM) in Road Construction: This public-private partnership model reduces financial risk for private players, encouraging investment in road infrastructure.
- Gati Shakti Plan and National Infrastructure Pipeline (NIP): These programs accelerate infrastructure development, enhance connectivity, and promote urbanization, forming the foundation for economic prosperity.
- Credit Guarantee Scheme Expansion: The scheme now offers up to ₹10 crore for mid-sized contractors and ₹5 crore for micro and small enterprises, providing easier access to credit with lower interest rates and reduced collateral requirements.
- Interest-Free Loans for Urban Infrastructure: The government allocated ₹1.5 lakh crore in 50-year interest-free loans to states for capital expenditure, aiming to boost urban infrastructure and indirectly benefit the manufacturing sector by improving logistics and connectivity.

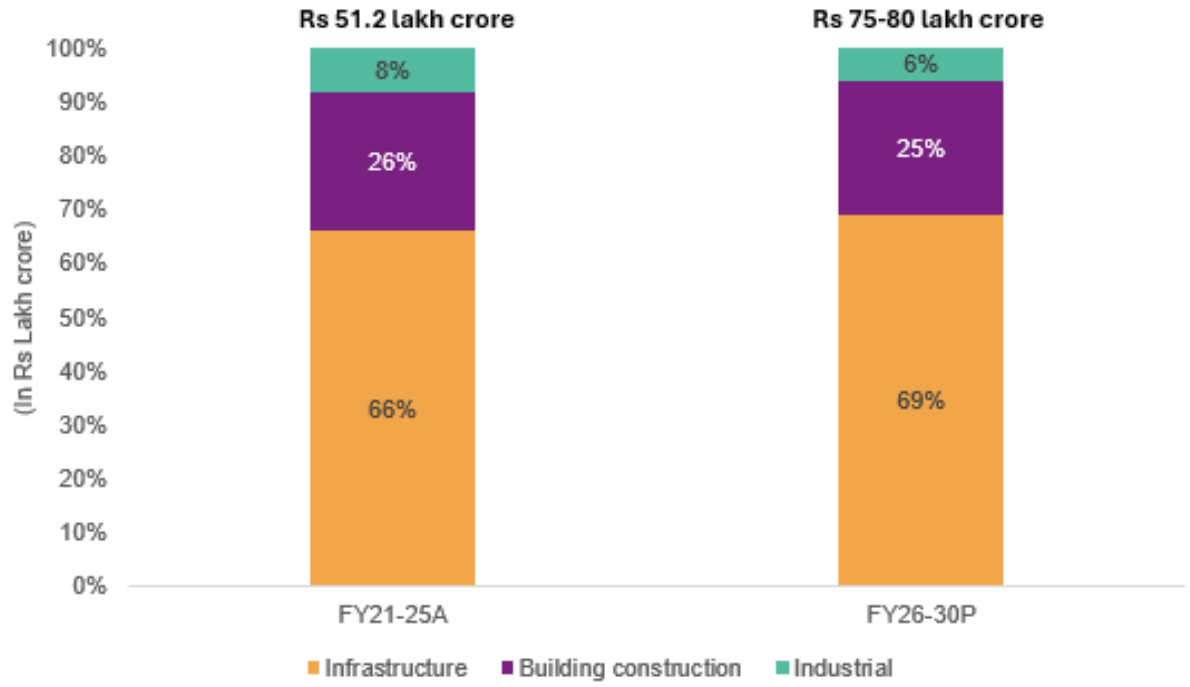
Other important announcements made during budget FY26:

- The total of the central government's budget is Rs 19.79 lakh crore for fiscal 2026BE, comprising: (i) Total expenditure through budget (gross budgetary support – GBS), (ii) Resources of public enterprises (internal and extra budgetary resources – IEBR) and (iii) Grants in aid of creation of capital assets (grants in aid – GIA). There is an uptick of 16.4% in the central government’s total budget from fiscal 2025RE.
- The budgetary capital expenditure for infrastructure ministries* is Rs 10.6 lakh crore, up 11.6% from fiscal 2025RE.
- The total GBS to infrastructure ministries* for fiscal 2026BE has increased a mere 0.9% over fiscal 2025RE.
- The budgeted expenditure by major infrastructure ministries# which receive over 50% of infrastructure allocation, remains similar to fiscal 2025RE.
- Each infrastructure-related ministry will come up with a three-year project pipeline that can be implemented through the public-private partnership (PPP) mode. States are also encouraged to do so.
- To support states in infrastructure development, an outlay of Rs 1.5 lakh crore is proposed for 50-year interest free loans as capital expenditure and incentives for reforms.

- In the second phase of the asset monetisation plan, the government aims to generate Rs 10 lakh crore with a pipeline of assets to be monetised between fiscals 2025 and 2030.

The share of infrastructure projects is expected to stabilise in the ~68-70% range in the next five years as against ~55-57% before 2020, as Infrastructure investments are seen growing faster than the other two segments due to the Government's focus on Infrastructure under the NIP, NMP and the Gati Shakti initiative. The Central government's focus on roads, urban infrastructure and railways will boost infrastructure investments. Roads, railways, irrigation & Power sectors will continue to drive the bulk of these investments. Building & construction and industrial segments are expected to witness muted growth.

Total construction spending (at current prices)



Source: Budget documents-July 2024, CRISIL Intelligence

2.2.5 Roads and highways

- The overall gross budgetary outlay for the Ministry of Road Transport and Highways doubled from Rs 1,280 billion in fiscal 2019 to Rs 2,640 billion in fiscal 2024RE. Against this backdrop, the growth rate of roads and highways capex for the next fiscal has moderated sharply, only 3% higher vis-à-vis fiscal 2024RE. Similar to the previous fiscal, the entire allocation of Rs 2,720 billion would be via gross budgetary support since the internal and extra budgetary resources limit has been completely eliminated to reduce the NHAI's dependence on market borrowings. On the other hand, the asset monetisation target has increased from Rs 100 billion in fiscal 2024RE to Rs 150 billion in fiscal 2025BE. To be sure, in 9M fiscal 2024, the NHAI has been able to monetise ~Rs 160 billion, which bodes well for the divestment target set out for fiscal 2025. This assumes greater significance as roads account for close to 30% of the National Monetisation Plan (NMP) targets and healthy progress in monetisation of road assets is imperative to achieve the same

- The budgetary allocation of Rs 1,680 billion towards the NHAI for the next fiscal has remained flattish vis-à-vis fiscal 2024RE. The elimination of internal and extra budgetary resources and minimal contribution of cess implies a significantly large portion of the NHAI funding would be met through gross budgetary support
- Furthermore, the NHAI has been aiming to modify the BOT model with fast-tracked clearances to award more projects, since the share of this model has dipped to negligible levels in recent years. Large developers are also likely to be interested in BOT projects amidst dipping profitability in the hybrid annuity model owing to competitive bidding. Notably, if successful, the shift towards BOT could reduce funding burden on the ministry since 100% of the construction cost is borne by the developer in this model.

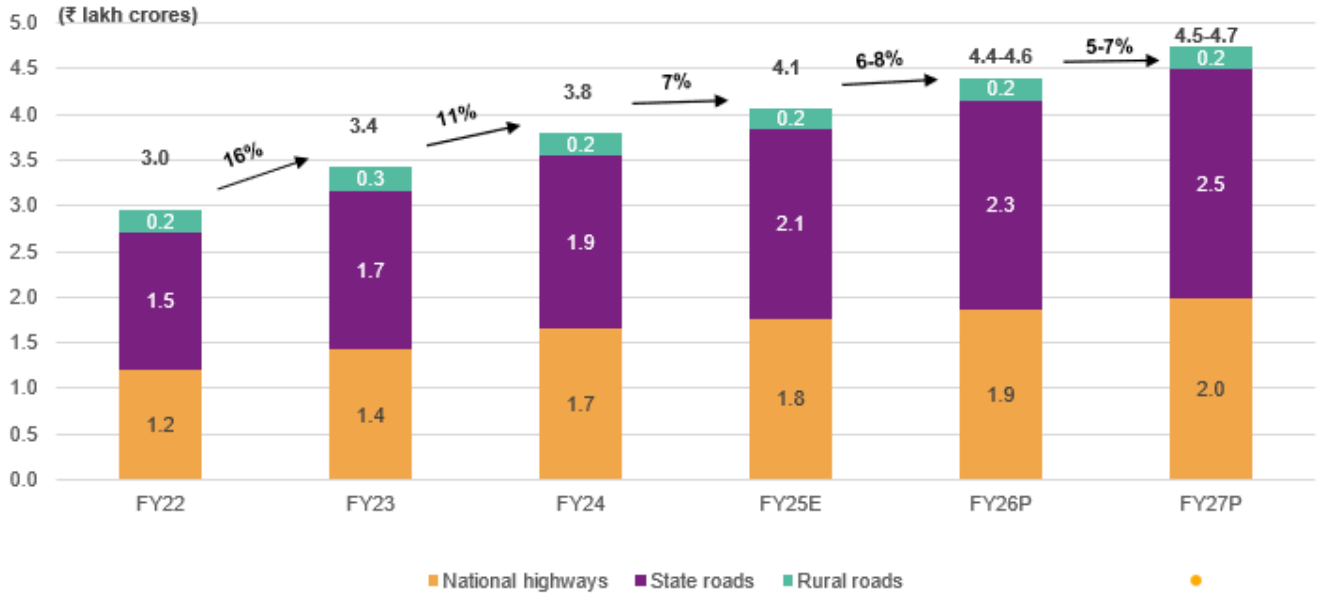
Note: Based on budget document of February 2024

Capital outlay of the Ministry of Road, Transport and Highways

Capital outlay (Rs billion)	FY16	FY17	FY18	FY19	FY20	FY21	FY22RE	FY23A	FY24BE	FY24RE	FY25BE	Growth FY24RE vs FY23A
Ministry of Road, Transport and Highways	275	412	508	677	684	892	1213	2171	2704	2764	2780	27%

Source: CRISIL Intelligence

Road's capex growth to normalize to 6-8% in fiscal 2026



Source: CRISIL Intelligence

PMGSY allocation for this fiscal (budget estimate) is Rs 120 billion, down ~37% over fiscal 2023A. However, over the past two years, the achievement ratio under the scheme has been low. Therefore, actual expenditure against the allocation remains a monitorable

Key Investments in Road sector

FY	NH Budget (MoRTH) (Rs cr)	M&R expenditure (Rs cr)
2019-20	74,767	3,011
2020-21	94,257	5,948
2021-22	123,537	5,135
2022-23	208,226	6,278
2023-24	276,351	6,523
2024-25	278,000	-

Source: PIB, CRISIL Intelligence

National Highways: Total Length awarded; Total Length constructed

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25E	2025-26P
National highways - Year-wise total length awarded (KM) by NHAI	8948	10965	12731	12376	8581	9000	9000
National highways - Total length constructed (KM) by NHAI	10237	13237	10457	10331	12349	11500	10000

Source: CRISIL Intelligence

Bharatmala Programme & Future TAM (Next 5 Years)

Bharatmala Phase I Achievements (as of Feb 2025)

- 26,425 km of highway packages awarded; 19,826 km completed
- ₹4.92 lakh crore spent to date
- Greenfield corridors: 6,669 km awarded; 4,610 km completed

Employment & Economic Impact

- Over 24,050 km of NH constructed in the last five years
- Generated ~45 crore direct man-days and ~57 crore indirect man-days of employment

National Highway Network Expansion

- NH grew from 91,287 km (2013–14) to 146,204 km (2025) (~60 % increase)

Total Addressable Market (TAM) Outlook – Next 5 Years

- Accelerated CapEx: With NHAI CapEx rising to ₹2.5 lakh crore and MoRTH NH budgets at ₹2.78 lakh crore, funding is robust.
- Completion of Phase I & Transition to Phase II: As Bharatmala Phase I wraps, Phase II rollout underpins continued infrastructure demand.

- Ancillary Growth: Elevated contractor activity (EPCs), material supply chains, asset monetisation vehicles (InvITs, ToT) fuel sector expansion.
- Monetisation Capital: ₹1.4 lakh crore mobilised across >6,100 km NH via InvITs/ToT in NMP; supports future financing
- Network Intensification: NH length, high-speed corridors, and 4 lane expansion create heavy lift work pipelines.

TAM Projection:

- Over the next five years, the combined funding, asset-monetisation, and infrastructure scaling could easily translate into a ₹10–12 lakh crore cumulative TAM — underpinned by:
- ₹2.5 lakh crore/year NHAI CapEx
- ₹2.7 lakh crore/year MoRTH NH allocations
- Ongoing maintenance (₹6–7k crore/year)
- Monetisation inflows (InvIT/ToT) and private sector investment

2.3 Indian freight traffic scenario

2.3.1 Road transportation remains dominant, but Railways eye share given Dedicated Freight Corridors and rising road freight rates

Roads are expected to remain dominant in transportation, having grown 5-7% in fiscal 2024. Railways are expected to gain share owing to the Dedicated Freight Corridors (DFCs) and higher road freight rates. DFCs are aimed at decongesting India's railway network. It will help carry freight at higher speed with increased load-carrying capacity, up to 6.2 million TEUs (twenty-foot equivalent unit) in total, reducing operating costs in India for rail freight significantly. Roads are typically preferred for non-bulk, high-value commodities. CRISIL expect growth in road freight traffic to increase at a compounded annual growth rate (CAGR) of 4-6% in BTKM terms between the fiscals 2024 and 2029. In the same period, railways are expected to grow at a CAGR of 10-12%, growing faster than roads. Railways gained share in fiscal 2021 as rail freight traffic was more resilient during the pandemic. The share of railways increased further in fiscal 2022 owing to increased rail capacity, partial commissioning of the DFCs, soaring diesel prices and higher road freight rates. Commissioning of the DFCs will aid in increasing the share of railways in India's freight traffic.

Road freight movement is estimated to have grown 5-7% in fiscal 2024, at a slightly slower pace than that of rail freight movement. In fiscal 2023, road Billion Tonne Kilometres (BTKM) is estimated to have grown ~7%, mainly attributed to higher production across all sectors and government spending focused on investments. However, it is expected that road transport will lose market share to railways in the upcoming years on account of the establishment of DFCs and comparatively higher road freight rates relative to other modes of transportation.

Share of roads in total freight movement (in terms of BTKM)

Mode	Modal share (FY25E)	BTKM growth forecast			
		FY24E	FY25E	FY26P	CAGR FY25-30P
Road	63%	8-10%	5-7%	4-6%	6-8%
Rail	26%	5%	6-8%	7-9%	7-9%
Coastal	5%	7-9%	10-12%	4-6%	5-7%
Primary BTKM		**7-9%**	**5-7%**	**5-7%**	**6-8%**

P: Projected, E: Estimated

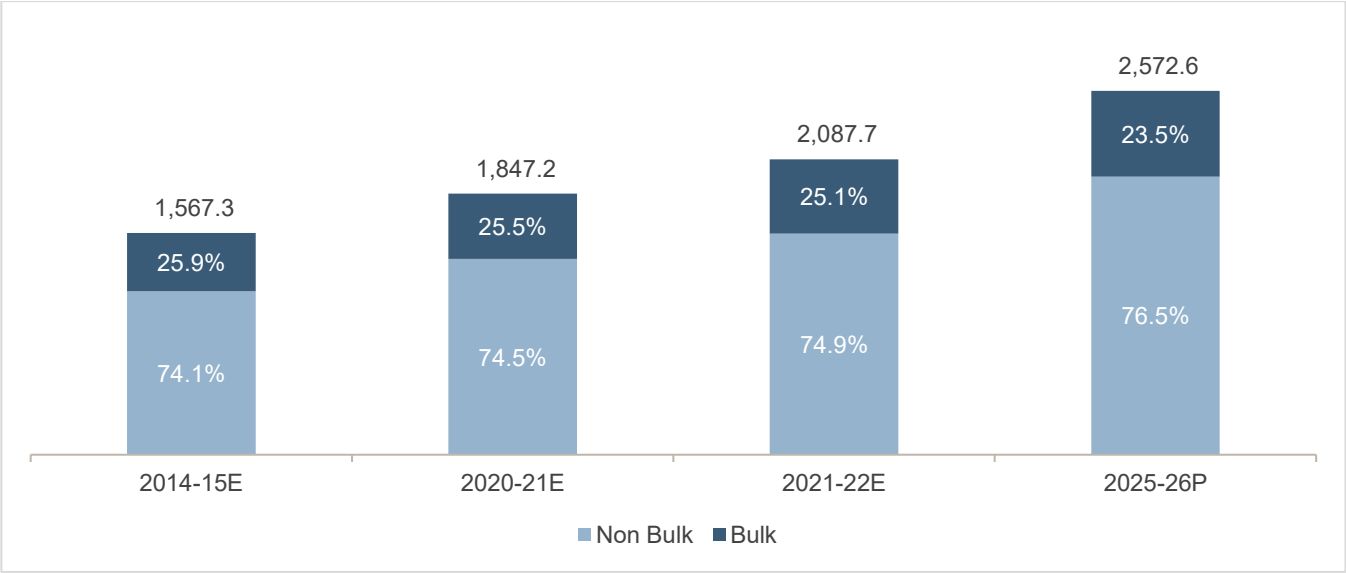
Source: CRISIL Intelligence

2.3.2 Roads remain the preferred mode for non-bulk transportation

Roads generally account for a significant share in non-bulk commodity transportation, as:

Road freight movement is expected to grow at 4-6% in fiscal 2026, lower than the rail freight movement. The growth is driven by the demand from non-bulk commodities. In fiscal 2025 we estimate the road BTKM to grow by 5-7% on-year. However, the road is expected to lose share to railways in the coming years due to commissioning of the dedicated rail freight corridors and higher road freight rates compared to other modes of transport.

Roads predominantly transfer non-bulk freight (in terms of BTKM)



E: Estimated; P: Projected

Source: CRISIL Intelligence

2.4 Policy framework for road sector

2.4.1 Recent policy reforms provide a significant push to the sector

2.4.1.1 Key policy measures to boost private participation

In March 2024, MoRTH issued a comprehensive update to the Model Concession Agreement (MCA) for BOT (Toll) projects, introducing several key reforms to strengthen risk allocation and streamline project execution. First, to ensure timely project commencement, the timeframe for land acquisition clearances in forest or sanctuary areas was tightened—reducing the right-of-way approval period from 240 days to 180 days. If project implementation is delayed due to failure in appointment of a concessionaire within 90 days of signing, NHAI is obligated to compensate the contractor at 1% of the total project cost for each day of delay. Furthermore, any delay extending 90 days beyond the scheduled completion date renders the concessionaire ineligible to bid on future projects until completion.

The amendment also enhances performance guarantees and defect liability: the defect liability period was extended from 4 to 10 years. Additional performance security can be required in response to circumstances like underperformance or project slippage. Notably, interest rates on mobilisation advances payable to the authority have increased, while concessionaires are no longer allowed retention of mobilisation advance against parent company bank guarantees—shifting working capital risks more squarely onto developers.

Additional clauses address termination and dispute resolution. Concession termination due to “deemed delay” or force majeure now imposes stiffer compensation obligations, and the definition of “Change in Ownership” limits equity dilution. An escrow mechanism has also been strengthened, mandating irrevocable payment instructions to cover tax, O&M, debt servicing, concession fees, and dam age claims in a prescribed waterfall structure—ensuring priority servicing of project obligations.

These reforms, calibrated after extensive stakeholder consultations, aim to enhance accountability, protect public investments, reduce developer liability, and facilitate smoother execution of BOT-Toll projects. Overall, the March 2024 MCA amendments mark a significant recalibration of risk and performance standards in India’s highway PPP framework.

To encourage and facilitate private sector investment and participation in the roads sector, the central government, via its respective authorities, has undertaken certain policy measures and provided certain fiscal incentives within the sector. The most significant policy reforms in recent times are discussed below.

2.4.2 Amendments to the EPC model concession agreement (MCA)

The key changes are as follows:

- Right of way: Deadline reduced from 240 days to 180 days for approval/ clearances for areas under forest or sanctuary
- If the appointed date is not received within 90 days of signing the agreement, the contract may be terminated, the authority will pay contractor damages = 1% of the contract price to the contractor for each day of delay
- If the project is not completed within 90 days of the scheduled completion date, the contractor would be ineligible to bid for future projects till it is completed
- Lower compensation and longer tenure for the contractor’s maintenance obligations. Defect liability period increased from 4 years to 10 years

- Higher interest on mobilisation advances paid to the authority; earlier recovery of mobilisation advance by the authority; release of retention money against bank guarantees discontinued

2.4.2.1 Impact

- The authority's obligations increased to enable quicker land acquisition
- Developer's working capital needs increased, also responsible for timely project completion

2.4.3 Introduction of the hybrid annuity model (HAM) in 2016

The broad outline of the new model of operation is as follows:

- Of the total project cost, 40% is to be funded by the government, and the remaining by the developer
- The project cost will be linked to inflation
- Construction support is to be disbursed in five equal instalments of 8% each, and the timing of each such payment will be linked to the percentage of project cost spent by the concessionaire
- Traffic risk will be borne by the government, with developers receiving fixed annuities
- Annuities will be linked to bank rate plus 3%
- 80% of land to be provided prior to the appointed date

2.4.3.1 Impact of the model

- With land being acquired and other clearances already in place before the appointed date, construction risk is expected to be lower
- Lenders will be assured a steady stream of inflows as traffic risk will be borne entirely by the government
- Low risk and lower capital requirements are expected to attract private players, as well as bankers, towards these projects and gradually help increase private participation in the sector

2.4.4 Exit policy

On August 26, 2015, the Cabinet Committee on Economic Affairs (CCEA) amended its earlier approval dated May 13, 2015, to allow 100% equity divestment after two years of completion for all BOT projects, irrespective of the year of award. The earlier policy allowed such divestments only for projects awarded prior to September 30, 2009. While the earlier policy allowed the funds obtained through such divestments to be used only for the completion of the concessionaire/promoter's other pending BOT road projects, the new policy allows the proceeds to be used to complete any highway project, any power sector project, or also to retire debt in any other infrastructure project. The exit policy has been changed to six months for HAM projects during construction period and remains as two years for BOT projects as per the latest MCA changes in 2020.

2.4.4.1 Impact

This move will help close stake sale transactions announced in the last one year and help free up developers' capital, which can be used to repay debt or invest in new projects.

2.4.4.2 NHAI fund infusion

On May 13, 2015, the CCEA permitted the NHAI to infuse funds in projects stuck in advanced stages of completion. Below are the broad contours of the policy announced:

- Government to look at one-time fund infusion for installed projects where 50% work has already been done
- The NHAI to have the first charge on toll revenue

2.4.4.3 Impact

This policy will improve developers' cash flows through toll collections and also their debt servicing ability. However, as the NHAI will have the first charge on receivables, lenders are hesitant to allow such a fund infusion. Hence, this policy may not have a significant impact in the near future.

2.4.5 Premium rescheduling

In March 2014, premium rescheduling was announced for projects with delays or lower-than-expected traffic. This helped players manage cash flow mismatches, especially at a time when loan tenures were significantly lower than the project life, resulting in cash flow issues. It also helped specifically in the case of aggressively bid projects where premium payments amounted to a very large portion of the total cost. Decision allowing rescheduling of premium payments, i.e. monthly payments due, to be made by developers to NHAI with an escalation of 5% per annum over the concession period.

2.4.6 Substitution

In January 2014, the CCEA approved the proposal to facilitate the substitution of concessioners in ongoing and completed national highway projects. As per the proposal, existing concessioners are permitted to divest their equity in totality in on-going or completed projects. However, subsequent to the substitution, the leading substituting entity will be required to maintain at least 51% equity holding in the project SPV. The decision to permit substitution will be taken by lenders in consent with the NHAI.

2.4.7 De-linking of forest and environmental clearances

In March 2013, the Supreme Court approved the de-linking of forest and environmental clearances. This de-linking is valid only for road widening projects. In a notification in 2011, the Ministry of Environment and Forests had asked for forest clearances before seeking environmental approval. This led to many road projects being stalled in the first stage itself. This judgement in 2013 allows companies to start road widening work with just environmental clearances, without having to wait for forest clearances. However, forest clearances will be necessary for stretches that fall in forested areas.

2.4.8 Relaxation on green nod norms for road widening projects up to 100 km

In June 2013, the environment ministry cleared a proposal allowing for the expansion of highways up to 100 km without environmental clearances. Earlier, approval from the environment ministry was not required for road expansion up to 30 km. The relaxation will also be applicable on existing highways, which require additional 40 m of land for widening. This limit was earlier 20 m.

2.4.9 Payment of 75% of arbitration claims

In August 2016, the ministry introduced a policy with regard to the payment of 75% of arbitration claims to the concessionaires. According to the policy, if an arbitration claim has been awarded in favour of a private concessionaire in a lower court/tribunal and the government agency has appealed against it in a higher court/tribunal, then the private player can receive 75% of the claimed amount. It will have to provide the authorities a bank guarantee of an equivalent amount to the government agency.

As per PIB's publication dated 14th, October 2023, Union Minister for Road Transport and Highways, Shri Nitin Gadkari, held a High-Level meeting with the National Highway Builders Federation to resolve their issues. It was agreed that implementation of Vivad Se Vishwas II Scheme be taken in a campaign mode with a target to settle all eligible claims. NHBF was requested to ensure that all contractors file their claims by 25th October 2023.

The Vivad se Vishwas II (Contractual Disputes) Scheme of Department of Expenditure, Ministry of Finance, Government of India contains detailed procedure / modalities to arrive at the settlement amount that shall be offered to the contractors and where the claim amount is Rs.500 crore or less, procuring entities will have to accept the claim, if the claim is in compliance with the guidelines. In case the claim is more than Rs.500 crore, then the decision of not accepting the request for settlement from the contractor should be done after recording the reasons with the approval of the competent authority. The claims are to be submitted by 31.10.2023 through GeM portal.

The extant guideline is applicable to disputes of all such cases where the award has been passed by the court/tribunal is for monetary value only and the award of the Arbitration is issued up to 31.01.2023 or Court Award is passed up to 30.04.2023.

Secretary for Ministry of Road Transport & Highways, Shri Anurag Jain said that Vivad se Vishwas II Scheme has been formulated to clear backlog of old litigation cases. He said the scheme will help in freeing up locked working capital and stimulate fresh investments.

As per PIB's publication dated 08th February 2024 regarding updates of Vivaad se vishwash II scheme, by February 5, 2024, 120 applications have been received, with 56 applications accepted and settlement offers extended, and 43 offers accepted by contractors. However, 7 applications have been rejected. The scheme's deadline for application submission is March 31, 2024, with extended cut-off dates provided for certain cases.

2.4.9.1 Impact

This policy will help private players facing financial problems and having substantial claims pending with the NHAI. It is expected to help kick-start stalled projects on account of fund infusion by developer and provide some relief to lenders because of loan repayment.

2.4.10 Land Acquisition and Clearances – Milestones for Awarding NH Projects

Land acquisition and statutory clearances remain critical determinants of timely project execution in the road sector. To address persistent delays, cost overruns, and disputes arising from incomplete pre-award activities, the Ministry of Road Transport and Highways (MoRTH) has streamlined the process through the issuance of revised guidelines effective from June 1, 2025. These guidelines prescribe a set of milestones that must be mandatorily achieved before the approval, award, and declaration of appointed dates for National Highway (NH) projects.

The framework requires that environment, forest, and wildlife clearances are synchronised with the approval of alignment, ensuring that no project is taken forward to the bidding stage without securing these approvals. Specifically, environment and wildlife clearances are required to be in place prior to the receipt of bids, while forest clearance must be obtained before the issuance of the Letter of Award (LoA). Similarly, the preparation and approval of General Arrangement Drawings (GADs), both with the Railways and the Inland Waterways Authority of India (IWAI), are mandated to be completed during the feasibility stage, with railway GADs to be cleared prior to bid receipt and IWAI GADs before bid invitation. In addition, utility shifting estimates must also be finalised before bids are invited, reducing the likelihood of construction stage disruptions.

A major emphasis has been placed on land acquisition, which has historically been one of the largest sources of delay in highway development. The guidelines stipulate that notification under Section 3A of the National Highways Act, 1956 must be issued within 60 days of alignment approval. Further, notification under Section 3D is required for at least 90 percent of the Right of Way (ROW) length before bids are received, and award under Section 3G must also cover 90 percent of the ROW before issuance of the LoA. To ensure readiness for construction, possession of 90 percent of ROW length must be available on or before the appointed date. In case of critical structures such as standalone bridges or tunnels, possession of 100 percent ROW in approach stretches of up to one kilometre on either side is mandatory before LoA issuance. Importantly, the guidelines also underline that assessment of value and payment for affected structures should be treated as an integral part of the acquisition process to avoid compensation-linked disputes.

2.5 Overview of PPP framework and models in operations

PPP is an arrangement between a government/statutory entity/government-owned entity and a private sector entity for the provision of public assets and/or public services through investments made and/or management undertaken by the private sector entity for a specified period of time. In this arrangement, allocation of risk between the private sector and the public entity is defined well. The private entity receives performance-linked payments that conform with (or are benchmarked to) specified and pre-determined performance standards, measurable by the public entity or its representative.

For broad-based and sustainable growth, the government recognises the need to engage with the private sector through a PPP framework to achieve the following objectives:

- Harness private sector efficiencies in asset creation, maintenance and service delivery
- Focus on a life-cycle approach for project development, involving asset creation and maintenance over its life cycle
- Create opportunities to bring in innovation and technological improvements
- Enable affordable and improved services to users in a responsible and sustainable manner

While the preferred form of the PPP model is one in which ownership of the underlying asset remains with the private entity during the contract period, and the project is subsequently transferred back to the public entity on contract termination, the final decision on the form of PPP is taken using the value-for-money analysis.

The types of construction contracts based on price risk are as follows:

Fixed-price contracts: These contracts state the fixed fee or payment (per unit output or whole project) the contractor receives on completion of a contract. The contractor bears the risk of a rise in cost during the construction period. Certain pass-through of higher cost may be allowed in some projects.

Cost-plus contracts: These are contracts in which the contractor is entitled to receive a fixed surplus over the project cost borne. The surplus given to the contractor can be in the form of a fixed percentage over cost or a pre-decided fee over cost. Therefore, any increase in cost of the project, during the construction phase, is passed on to the client.

Types of PPP models

Type of project	Description	Development risk	Financing risk	Traffic risk and accrual of toll fee collection	Net cash outflow for the government	Revenue for private party	Concession period	Award criteria
BOT-toll	Private party builds the road, undertakes O&M and collects toll	Concessionaire	Concessionaire	Concessionaire	Yes (in the form of grant/equity support)	Toll	20-30 years for the NHAI** and other authorities	Highest revenue sharing bid/highest premium/ lowest equity support
BOT-annuity	Private party builds the road, undertakes O&M* and collects annuity from the granting authority	Concessionaire	Concessionaire	Authority	Yes, net payment to be made is the difference between the toll collection and the annuity payable	Annuity payment	15-20 years for the NHAI and other authorities	Lowest annuity
BOT-HAM	Private party builds the road, undertakes O&M. Gets 40% of payment during construction and 60% as annuity along with interest	Concessionaire	Concessionaire	Authority	40% during construction and 60% as semi-annual annuity along with interest, net of toll collected	Construction grant plus annuity payments, interest on annuities, inflation-indexed O&M payments	Around 15 years of operations plus additional construction period	Lowest project cost plus O&M cost
EPC	Private party builds the road, based on the cost incurred by the government	Concessionaire	Authority	Authority	Yes	Contract amount	Not required	Lowest contract price requested
OMT	Private party collects toll, and undertakes O&M and major maintenance	No development risk except minimal risk in case of paved shoulders	Concessionaire	Concessionaire	No	Toll	Up to nine years for NHAI projects	Highest % of toll revenue share or highest premium per year
Tolling	Private party pays the estimated toll upfront to the authority and collects it during the concession period	No development by tolling contractor	Concessionaire	Concessionaire	No	Toll	One year for NHAI projects	Highest revenue-sharing bid

Type of project	Description	Development risk	Financing risk	Traffic risk and accrual of toll fee collection	Net cash outflow for the government	Revenue for private party	Concession period	Award criteria
TOT	Private party pays an upfront bid concession fee (summation of NPV of free cash flow based on concessionaire estimates) to the authority, undertakes O&M plus certain capex and collects the toll during concession period	Authority (in case upgradation of lanes is taken up during the concession period)	Concessionaire	Concessionaire	No	Toll	15, 20, 30 years#	Highest upfront payment

Note: Development risk refers to construction risk in developing a road project

**Operations and maintenance*

*** National Highways Authority of India*

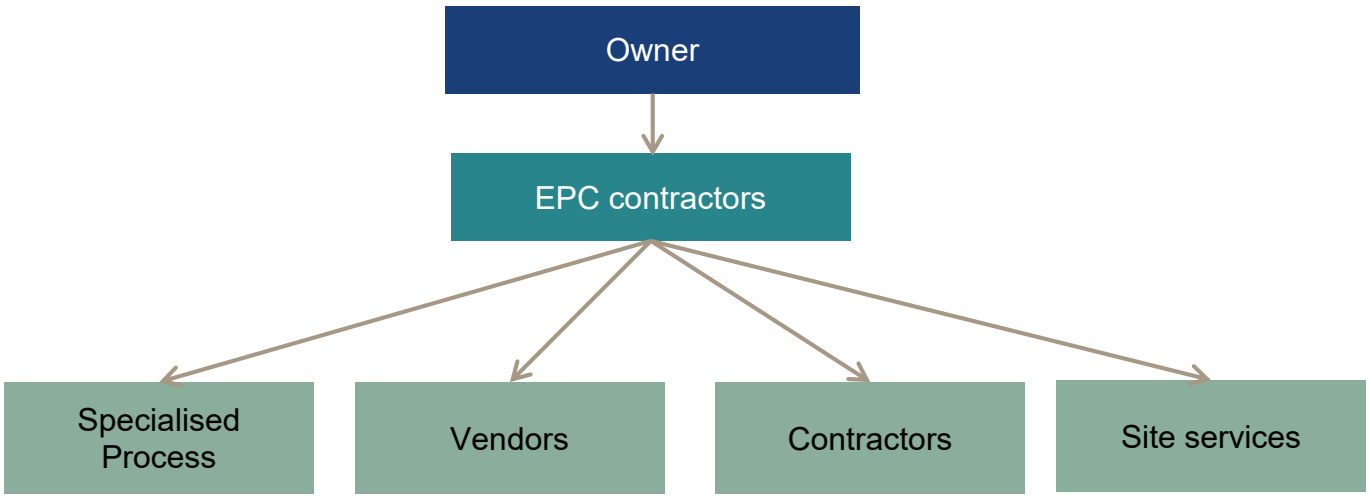
#As per TOT bundles of NHAI in 2021-22

Source: CRISIL Intelligence, NHAI

2.5.1 EPC

EPC contracts are fixed-price, wherein the client provides conceptual information about the project. Technical parameters, based on the desired output, are specified in the contract. The contractor undertakes the responsibility of designing the project either through an in-house design team or by appointing consultants. Unlike item rate and LSTK contracts, the contractor is allowed to innovate on the project design. Based on these designs, the contractor draws up cost estimates and accordingly bids for the project.

EPC contracts



Source: CRISIL Intelligence

2.5.1.1 Key Metrics for EPC Companies in India's Road Infrastructure

Reviewing the performance of road infrastructure EPC (Engineering, Procurement, and Construction) companies in India requires a comprehensive analysis of their operational and financial health. Here's a breakdown of the key metrics that are considered:

2.5.1.2 Operational Metrics

These metrics provide insight into the company's core business activities and its ability to execute projects efficiently.

1. **Order Book**

- Order Book Value: The total value of unexecuted contracts a company has on its books. A healthy and growing order book indicates future revenue visibility.
- Order Book to Revenue Ratio: This ratio, often expressed as a multiple (e.g., 2.5x), compares the order book to the company's last fiscal year's revenue. A higher ratio suggests strong revenue visibility for the coming years.
- Order Inflows: The value of new contracts secured during a specific period. Analyzing the trend in order inflows (e.g., quarterly or annually) helps to gauge the company's success in bidding and winning new projects.
- Order Diversification: Assess the mix of orders, not just by value but also by sector (e.g., roads, railways, water supply) and geography (domestic vs. international). Diversification can mitigate risks associated with a slowdown in a particular sector.

2. **Project Execution & Capacity**

- Pace of Execution: This can be measured by the rate at which projects are completed. For road projects, this might be expressed in kilometers per day.
- Execution Capacity: Evaluate the company's ability to take on and successfully complete its order book. This involves assessing its equipment base, technical expertise, and manpower availability.
- Sub-contracting: The extent to which a company relies on sub-contractors for project execution. This can impact margins and project control.
- Project Timelines & Delays: Track the on-time completion of projects. Delays can lead to cost overruns and financial penalties.

3. **Bidding and Competition**

- Bidding Strategy: Understand if the company is engaging in aggressive bidding to win orders, which could potentially lead to lower-margin projects.
- Margin on Orders: While challenging to pinpoint precisely, analysts often try to understand the potential profitability of new orders to determine if a company is sacrificing margins for growth.

2.5.1.3 Financial Metrics

These metrics provide a snapshot of the company's financial health, profitability, and balance sheet strength.

1. **Profitability**

- Revenue Growth: The year-over-year or quarter-over-quarter increase in a company's revenue. This is a primary indicator of growth.
- EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization) Margin: A key measure of operational profitability. This shows how much profit a company makes from its core business operations.

- Net Profit Margin: The percentage of revenue that translates into net income.

2. Financial Position & Liquidity

- Working Capital Cycle: The time it takes for a company to convert its working capital (raw materials, inventory, etc.) into cash. A longer cycle can strain finances.
- Total Outside Liabilities to Tangible Net Worth (TOL/TNW): A measure of a company's leverage. A lower ratio indicates a stronger balance sheet.
- Debt-to-Equity Ratio: This shows the proportion of debt a company uses to finance its assets relative to the value of its shareholders' equity. A lower ratio is generally more favorable.
- Cash Flow from Operations (CFO): A positive and growing CFO indicates that the company's core operations are generating enough cash to fund its business.

3. Project-Specific Financials

- Funding Requirements: Assess the company's need for both fund-based (e.g., loans) and non-fund-based (e.g., bank guarantees) limits to support its projects.
- Working Capital Requirements: The capital needed to manage day-to-day operations, especially given the typically long gestation periods and payment cycles in infrastructure projects.
- Raw Material Costs: Since raw materials like steel and cement constitute a significant portion of project costs, fluctuations in their prices can directly impact a company's margins, especially on fixed-price contracts.

2.5.2 Operate, Maintain and Transfer (OMT)

The OMT concept was introduced to assure road users of adequate quality and safety. An OMT project entails a contract for the right to collect toll and a contract for the operation and maintenance of the stretch.

2.5.3 Scope of work for OMT contracts under Model Concession Agreement (MCA) includes the following:

- O&M of the stretch/ section of highway
- Tolling of the section
- Construction of project facilities such as toll plazas, street lighting, medical aid posts, traffic aid posts, and bus shelters
- Any major maintenance work (necessary in long-term contracts, not mandatory in short-term contracts)

This model provides consistent revenue (in terms of concession fee by private parties) to the NHAI as well as just-in-time (JIT) maintenance of the project. It includes performance-based, periodic and routine maintenance (minor repairs, cleaning of carriageways, shoulders, cross drainage structures, etc); as well as road property and incident management. In this type of arrangement, toll collection rights are given to the private operator, which form the sole source of revenue.

Road development agencies are looking to generate revenue by awarding OMT contracts. Such revenue is planned to be used to upgrade other roads, and/or for maintenance of roads with low-volume traffic. OMT projects provide an

opportunity for firms from the private sector who are not willing to take up construction risk and cannot bring in large investments but can take traffic risk.

From a developer's perspective, OMT projects offer an opportunity to synergise existing projects by taking up OMT contracts on the same corridor. From an investor's perspective, such projects are equivalent to design, build, finance, operate and transfer (DBFOT) toll-based concessions in terms of traffic risk, but without the construction risk. Investments in such projects would carry benefits similar to investments in DBFOT (toll) projects during the operation period. However, OMT projects have financial liabilities, principally towards road development agencies, unlike capital-intensive DBFOT (toll) projects, where financial liabilities of the project are borne by the road development agencies as well as by lenders. On the other hand, the ticket size of OMT projects, which is about 1/10th the size of a DBFOT (toll) project, is smaller, so a pool of such projects is required to attract larger investors. The creation of such a pool of projects has other advantages such as the hedging of traffic risk. The medium concession period in OMT projects (5-10 years) is another factor that might attract private equity funds to such schemes.

The typical bidding process for an OMT project is as follows:

2.5.4 Bidding process of state authorities

Like the NHAI, many Indian states such as Bihar, Madhya Pradesh, Andhra Pradesh and Telangana follow a two-stage bidding process (qualification stage followed by bidding stage). In the first stage, the authorities qualify applicants through an RFQ process, based on their technical and financial strength. However, unlike the NHAI, which undertakes qualification of a number of OMT projects in one single process (through an RFQ stage), qualification for every single OMT project of the Madhya Pradesh Road Development Corporation (MPRDC) and the Bihar State Road Development Corporation (BSRDC) is typically carried out separately. In the second stage (the bidding stage), which mirrors the NHAI process, bids are invited from qualified applicants and the project is awarded to the bidder which quotes the maximum concession fee or minimum O&M support from the authority. The Karnataka Road Development Corporation, on the other hand, follows a single-stage bidding process wherein qualification and evaluation of financial bids are undertaken.

2.6 Key initiatives and overview on HAM

The MoRTH released the standard concession agreement and request for a proposal for the much-awaited HAM for private-public partnerships in the road construction sector in June 2016. HAM is a mix of EPC and BOT-annuity models.

The broad contours of the model of operation are as follows:

- 40% of the total project cost to be funded by the government, and the remaining by the developer
- The project cost will be linked to inflation
- Construction support is to be disbursed in five equal instalments of 8% each, and the timing of each such payment will be linked to the percentage of project cost spent by the concessionaire
- Traffic risk will be borne by the government, with developers receiving fixed annuities
- Annuities will be linked to bank rate plus 3%
- 80% of land to be provided prior to the appointed date

2.6.1.1 HAM will improve private participation, project awards

The elimination of traffic risk will provide stable cash flows to developers and ensure timely debt servicing for bankers.

The HAM shifts the traffic risk to the NHAI from the concessionaires, with developers being provided fixed annuities based on predetermined schedules. Debt servicing, which is generally challenging during the initial years of the concession period for BOT-toll projects, is set to become easier with the receipt of fixed annuity payments.

The elimination of traffic risk is also a positive, given the bitter experience of road developers, where actual base traffic and traffic growth are significantly lower than estimated. Typically, a two-percentage point decline in traffic growth leads to a ~150 bps decline in project IRRs.

Linking construction and maintenance costs to inflation and ensuring the timely availability of land will mitigate cost overrun risks.

In the past, cost overruns severely impacted project returns. An analysis of projects completed between fiscals 2009 and 2014 shows a dramatic 45% cost overrun for a sample of 51 projects, aggregating to ~3,350 km. The aggregate cost overrun works out to ~Rs 100 billion for these projects.

Typically, a one-year reduction in the concession period owing to project completion delays can reduce project returns by 120-150 basis points (bps). Further, a 10% increase in cost can lower project returns by ~100 bps.

Hence, to address the issue of cost overruns, the government has linked construction, and operation and maintenance costs to inflation. Issues related to delays in land acquisition, which have been the industry's Achilles' heel, have also been addressed, with projects being awarded only after 80% of the land required is in possession of the awarding agency.

In the past, there were significant discrepancies between project costs quoted by the NHAI and project loans taken by developers, due to the factoring in of cost overruns by developers into their own cost estimates. This posed a challenge to bankers in the case of project termination, as compensation was provided by the NHAI only on its approved cost. With project costs being dynamically linked to inflation, bankers' risk has been reduced significantly.

- **Lower equity contribution requirement to increase private players' ability to bid for projects**

  With the government incurring 40% of the project cost, the HAM calls for lower equity contribution from developers (~15%, compared with ~25% for BOT-toll projects). This is extremely beneficial, given the current weak financial position of road developers. Further, with the NHAI's equity stake in the project, banker comfort in lending to the project increases significantly.

- **Developers' interest rate risk to reduce significantly**

  The HAM provides for bi-annual interest rate payments to concessionaires on the reducing balance of project completion cost, at interest rate payments linked to the average one-year MCLR of the top five scheduled commercial banks +1.25%. This significantly lowers the risk for the developer, in terms of interest rate volatility.

- **Low-risk model to provide moderate returns**

  We expect low risk and lower capital requirements to attract private players. Hence, we believe developers would target returns of 11-13%, given the lower risk and assuming moderate competition. Lower competition is mainly on account of the stretched financials of many developers.

- **Boost private investments in national highways over the next five years**

  Because of delays in land acquisition and caution shown by lenders in the initial phases for lending to HAM projects, total awarding declined in fiscal 2019 to 2,222 km, compared with 7,397 km in fiscal 2018. Of the total awarding in fiscals 2018 and 2019, ~2,884 and ~977 km, respectively, were awarded through the HAM. The share of private investment has declined between fiscals 2018 and 2019 from 31% to 24%, respectively, mainly on account of EPC projects. Fiscal 2021 saw increased participation in awarding on account of changes to the HAM bid eligibility and MCA changes. A total of 6,306 km was awarded in fiscal 2022, of which, ~3,468 km was under the HAM, compared with a total 4,818 km in fiscal 2021 (~2,602 km under the HAM).

2.7 Review and outlook of NHAI funding

2.7.1 Asset monetisation critical

The National Highways Authority of India (NHAI) has been grappling with burgeoning debt, which has been a major concern for the authority's financial sustainability. As of March 2025, the NHAI's outstanding debt was ~Rs 2.7 lakh crore. This significant debt burden has been a result of the authority's aggressive highway development programme, which has led to a substantial increase in its borrowing requirements. However, in a positive development, the NHAI has recently made significant repayments of ~Rs 58,900 crore, which has been supported by the successful implementation of asset monetisation initiatives.

MoRTH has already achieved a significant milestone by raising ~Rs 1.3 lakh crore through various modes of monetisation. This initial success is expected to be further bolstered by the National Monetisation Pipeline (NMP) 2.0, which will likely provide an additional opportunity of Rs 3-3.5 lakh crore for road asset monetisation over the next 5-6 years. The steady growth in traffic and toll collection is also expected to support investment momentum in the sector, ensuring a stable revenue stream for investors. The asset monetisation programme is likely to play a crucial role in supporting the sector's balanced growth by unlocking the value of existing infrastructure assets, attracting private sector investment, and enabling the development of new projects. As a result, the road and highway sector is well-positioned to achieve sustainable growth, driven by a combination of government support, private sector investment and increasing demand for infrastructure development.

Due to higher awarding under EPC and HAM, NHAI's outflow toward milestone payments formed ~46% of the total met through market borrowings.

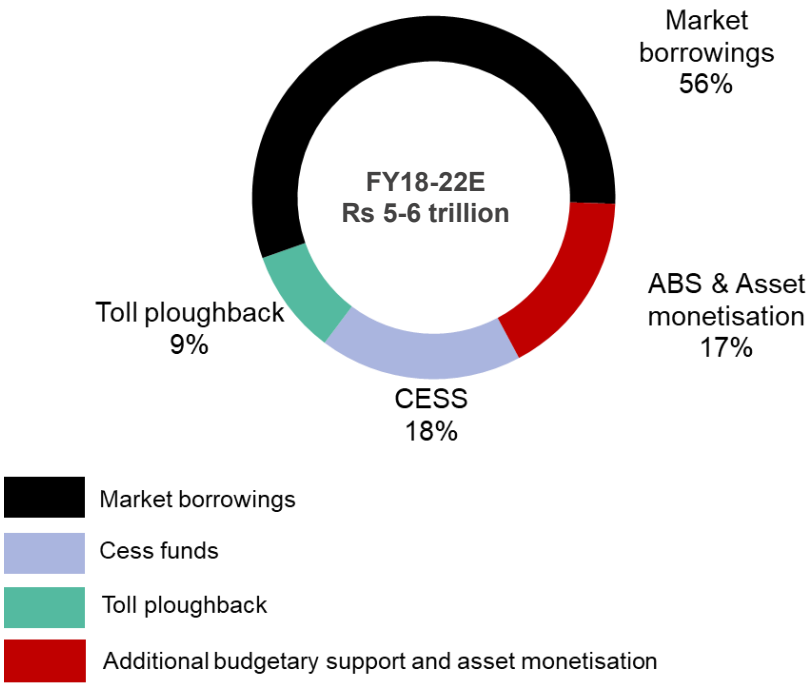
Of the Rs 5,000-6,000 billion spent over the last five years (fiscals 2018-2022), 46% was toward milestone payments for EPC and HAM (40% for HAM) projects, while ~29% was toward land acquisition expenditures and 19% toward interest and repayment of borrowing.

During FY2018 to FY2022, the National Highways Authority of India (NHAI) managed a cumulative outlay of approximately ₹5-6 lakh crore, mobilised through a diversified funding mix. Approximately 56% of the funds were raised via market borrowings, making it the dominant source of finance. This was followed by cess funds (18%), asset-backed securitisation (ABS) and asset monetisation initiatives (17%), and toll ploughback (9%).

In terms of application, construction activities accounted for the largest share at 46% of the total outflows. This was followed by land acquisition costs (29%) and debt servicing (19%), highlighting the capital-intensive nature of national highway development and the rising importance of debt management in NHAI’s financial strategy. A small residual share was directed toward administrative and other expenses.

These trends underline NHAI's increasing reliance on off-budget borrowings and monetisation strategies while maintaining a strong focus on asset creation and project delivery.

NHAI sources of funds: market borrowings accounted for 56%



Source: NHAI, CRISIL Intelligence

Owing to the high dependence on market borrowings to fund asset creation through EPC and HAM projects, NHAI's debt-to-equity ratio rose to 1.2x in fiscal 2021. Due to the reduction in dependence on external borrowings, NHAI's leverage position saw a sharp improvement. The entity's debt-to-equity ratio dropped from 1.2x in FY21 to 0.75x as of December 2022, attributable to NHAI's strategic importance to the government and the road sector being a key area of reform to eliminate infrastructure bottlenecks and ensure a source of momentum for economic growth. Hence, the sector is witnessing the implementation of significant initiatives, such as the BMP project.

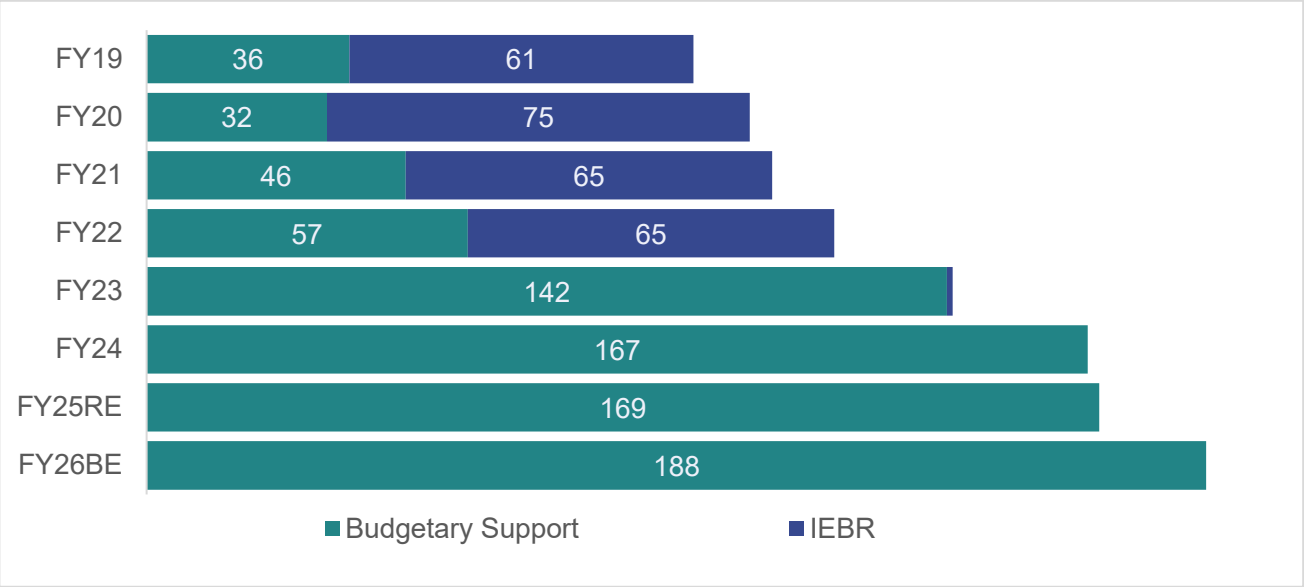
To limit the rise in borrowings, NHAI's budgetary support in the form of cess and toll plough-back increased 106% for fiscal 2023 (budgeted), with nil IEBR (Internal & Extra Budgetary Resources). The trend continued in fiscal 2024 wherein the IEBR continued to be nil in the budgeted estimates for fiscal 2024. The overall support to NHAI marked a 13% increase over the revised estimate for fiscal 2023. A NHAI press release of August 6, 2024, stated that in a major step to reduce its overall debt liability, the entity achieved a significant financial milestone with the successful pre-payment of bank loan amounting to Rs 157,000 million. Retiring this debt ahead of schedule will result in an estimated interest savings of ~Rs 10,000 million. With this pre-payment, the outstanding debt liability of NHAI dropped to ~Rs 3,200,000 million.

The government directs InvIT monetisation proceeds to be exclusively used for NHAI debt repayment. In fiscal 2024, Rs 157,000 million was generated through InvIT. In fiscal 2025, NHAI intends to monetise projects worth Rs 150,000 – 200,000 million through InvIT. With this, the overall debt liability of NHAI is expected to further reduce to ~Rs 3,000,000 million by the end of fiscal 2025.

As part of the robust debt payment plan and use of InvIT monetisation proceeds, NHAI actively engaged with lender banks to reduce interest rates. As a result, banks reduced their interest rate from 8.00-8.10% to 7.58-7.59%. In this process, bank loans where interest rates could not be reduced have been repaid Rs 157,000 million and this will result in significant interest savings of around Rs.10,000 million.

Budgetary support to NHAI up by 11% vis-a-vis FY25RE, IEBR remains absent in FY26 budget as well.

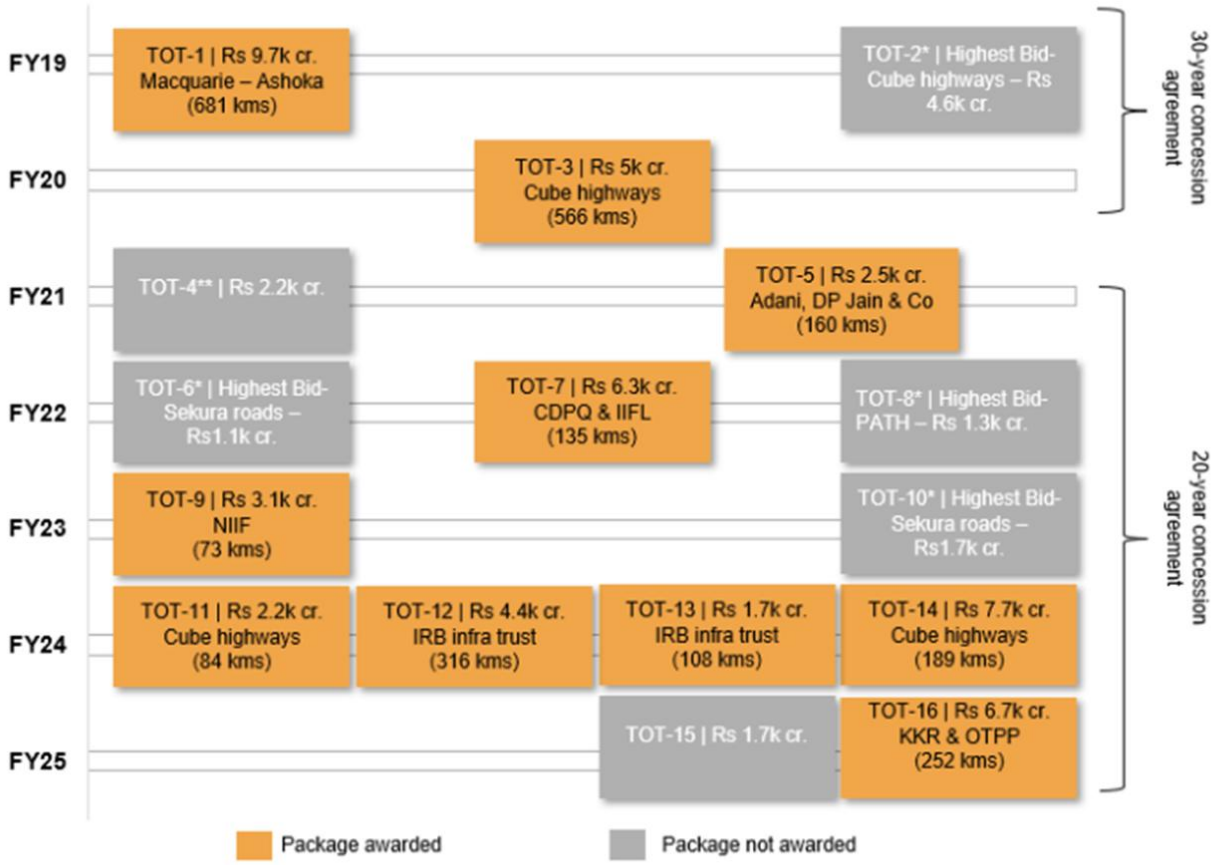
Reduction in IEBR led to improvement in NHAI's leverage (in Rs. '000 crore)



Source: Budget documents, CRISIL Intelligence

Other modes of funding such as TOT have seen only limited success. With the implementation of Fastags, TOT becomes more attractive as its able to eliminate cash handling and plug leakages in the system. During FY24, NHAI has also successfully awarded TOT bundles 13 and TOT 14. Also, NHAI has invited bids for TOT bundles 15, 17, 18 and 19. Bidding process of TOT 16 is completed, and Highway Infrastructure Trust has emerged as highest bidder for TOT Bundle 16. The convergence of the expectations of the government authorities and the private bidders remains a key monitorable as well as a major requirement for this mode of funding to become truly successful.

Success of TOT critical to meet ambitious Bharatmala targets

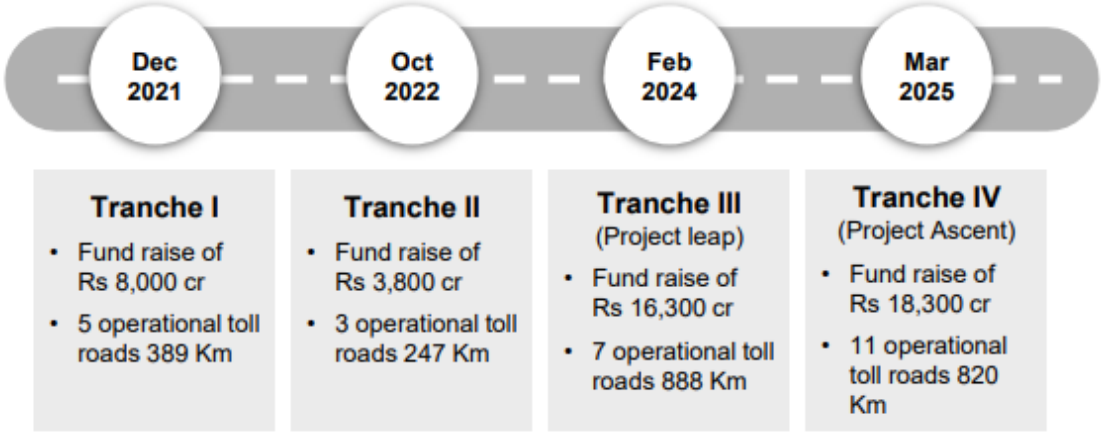


Source: NHAI, CRISIL Intelligence

Section	Length (km)	Status
TOT 17	333.4	Bidding process in progress
TOT 18	283.8	Bidding process in progress
TOT 19	184.5	Bidding process in progress
TOT 20	145.6	Proposal Stage
TOT 21	139.3	Proposal Stage
TOT 22	90.6	Proposal Stage

The authority has also tied up debt via SPVs level funding for the Delhi-Mumbai expressway where it has already raised Rs 97.31 billion.

InvITs and SPV level financing



Source: NHAI, CRISIL Intelligence

The National Highways Infra Trust (NHIT), an InvIT established by NHAI in 2020 to drive the Government of India's asset monetization programme, has successfully concluded its fourth fund-raising round at an enterprise value of approximately Rs. 18,380 crores. This marks the largest monetization transaction in the Indian roads sector to date, taking the cumulative realized value across all four rounds to over Rs. 46,000 crores.

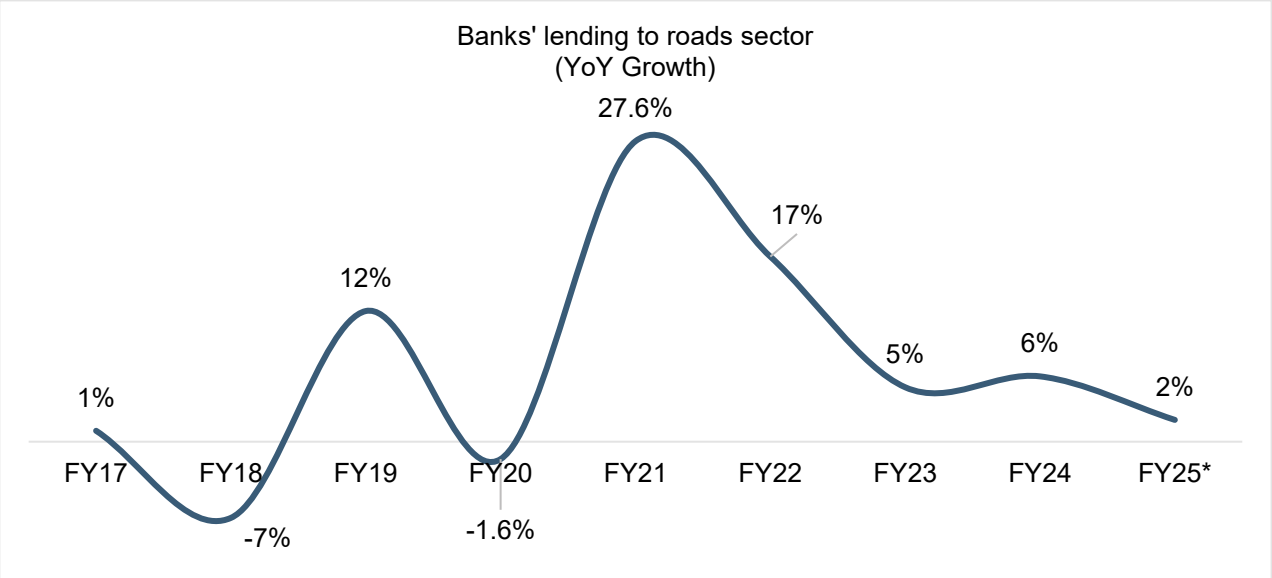
In this round, NHIT raised Rs. 8,340 crores in unit capital from prominent domestic and global investors and secured Rs. 10,040 crores in debt from domestic lenders. The proceeds will finance the acquisition of seven key national highway stretches across Andhra Pradesh, Uttar Pradesh, Uttarakhand, Gujarat, and Chhattisgarh, with a total concession value of Rs. 17,738 crores. With this round, NHIT now manages a diversified portfolio of 26 operational toll roads (41 toll plazas), covering 2,345 km across 12 states, with concession periods ranging from 20 to 30 years. The success of this fundraising round demonstrates the confidence of investors in the Indian road sector and NHIT. It also highlights the government's efforts to monetise its infrastructure assets and attract private sector investment in the sector.

Improvement in bank credit growth led by higher HAM execution

After a dip in fiscal 2020, bank lending to the roads sector staged a healthy recovery and grew by 27% yoy owing to higher awarding and higher construction. The traction continued in fiscal 2022 as well with lending to the sector witnessing a robust growth of 17% yoy. In fiscal 2023, the growth momentum has moderated due to the high base with the on-year growth rate for the year standing at 5%. At the end of fiscal 2023, the outstanding bank credit to the roads & highways sector stood at Rs 2.9 trillion.

For projects that were awarded in fiscal 2012, banks approved costs that were much higher than those approved by the National Highways Authority of India (NHAI). As a result of the problems faced in these projects, bankers are now very cautious while evaluating projects and are estimating project costs much closer to the NHAI estimates. They demand that at least 80% land acquisition should be completed, and all clearances must be obtained at the beginning. While this has increased the time taken by players to achieve financial closure, it will ensure participation only by serious players. However, viable projects and those that have not gone through aggressive bidding should achieve financial closure quite smoothly.

Bank credit growth to the roads sector moderated in fiscal 2024 due to the high base



Source: RBI, CRISIL Intelligence

2.8 Investments in National Highways: Review and outlook

2.8.1 NHAI awarding to revive in fiscal 2025, share of BOT to increase substantially

National Highways Authority of India (NHAI) awarding has witnessed a rise from merely 2,222 km in fiscal 2019 to 6,003 km in fiscal 2023. Fiscal 2021 was a pivotal year since despite the COVID-induced disruptions, the NHAI awarded 4,818 kms in which was a three fiscal high back then. Additionally, favourable changes in the BOT and HAM agreements, and relaxation of bidder eligibility criteria not only indicated a clear policy shift to improve private-sector participation but also aided the spurt in the HAM awards. In fiscal 2023, NHAI's awarding volume remained above the 6,000 km mark for the second consecutive year as 6,003 km was awarded during the fiscal year. The share of HAM in awarding increased slightly from 54% in fiscal 2022 to 56% in fiscal 2023. On the other hand, the share of EPC remained unchanged at 43%.

In fiscal 2024, awarding momentum has been marred by various roadblocks. NHAI's flagship Bharatmala Pariyojana Programme (BMP) Phase-1 has witnessed significant cost overrun on account of costlier land acquisition and high inflation. Notably, as per CAG audit report, while only 75% of the estimated project length has been awarded, 158% of the original estimated financial cost has already been expended. Currently, the estimated cost of the BMP phase-1 is almost twice and the initial estimate and the ministry is awaiting cabinet approval for a revamped programme and additional funds in order to undertake rapid awarding of projects in the pipeline. As a result, NHAI awarding was ~3,339 kms in fiscal 2024. Notably, the share of HAM dipped significantly due to the aforementioned issues regarding the BMP. Going forward, the share of HAM is expected to revive to around 25-30% in fiscal 2025. Further, on account of amendments in the BOT MCA, the awarding under the BOT model is also likely to increase substantially. This is likely to be supported by the interest of developers in the revamped BOT model due to the following factors:

- HAM was favored by the road developers due to lower risk and higher profitability. However, the competition in HAM awarding has increased substantially leading to average bid premiums tumbling from a peak of 15-20% to around 4-6% in the last few fiscals. As a result, the share of the larger developers have dropped substantially since many large developers have refrained from bidding aggressively for HAM projects in order to protect their margins. Given the amendment in BOT MCA and the scope of higher profitability due to lower bidding competitiveness in the BOT space many large developers are keen on taking up BOT projects.
- Furthermore, owing to the healthy balance sheets the developers are also in a comfortable position to undertake BOT projects with high funding requirements.
- The increased traffic visibility vis-à-vis earlier years also augurs well for the BOT projects.

The shift towards the BOT model comes against the backdrop of NHAI facing funding challenges and moderation in growth in the central government's budgetary outlay towards the roads & highways sector. Thus, the shift will have a two-pronged benefit by not only alleviating funding challenges to a great extent but also increasing the private investments in the sector.

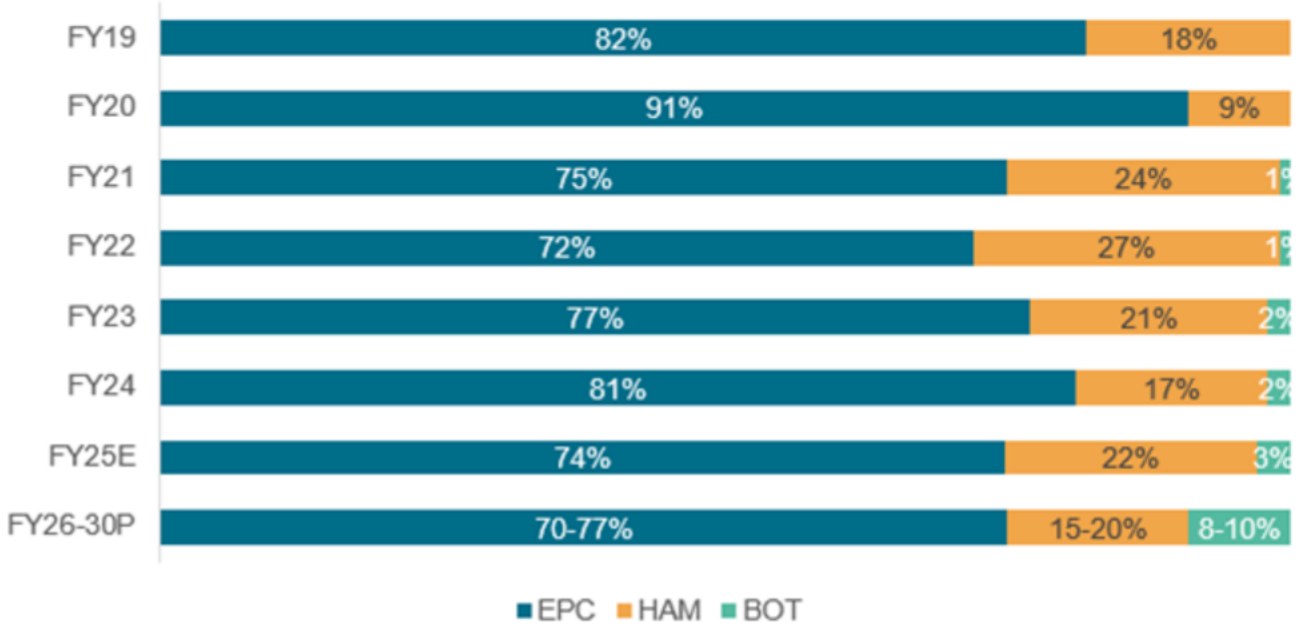
The Indian road and highway sector has also undergone significant changes in the mode of project execution over the years. Between 2007 and 2014, build-operate-transfer (BOT) projects accounted for ~50% of total project awards, indicating their popularity during that period. However, post-2014, the popularity of BOT projects declined due to various challenges such as aggressive bidding, unrealistic traffic projections, land acquisition delays and disputes, which led to project failures and non-performing assets (NPAs) for banks.

In response to these challenges, the government introduced the hybrid annuity model (HAM) in 2016, which subsequently became a popular mode of execution. HAM allowed for a more balanced risk-sharing mechanism between the government and private developers, making it a more attractive option for investors.

However, in fiscal 2025, the share of BOT projects ticked upwards, driven by favorable changes made in the model concession agreement (MCA) for developers. The MCA amendments have made BOT projects more attractive to developers, and the share of BOT projects is forecast to rise to 8-10% in the near future. This is also driven by a strong pipeline of projects and further amendments in the MCA, which are expected to make BOT projects more viable and attractive to investors.

The resurgence of BOT projects is a positive development for the sector since it indicates a renewed interest in private sector participation and investment in road and highway development. The government's efforts to revamp the MCA and make it more favourable for developers have paid off, and the sector is expected to benefit from increased private sector investment and participation.

BOT model share in NH awards projected to increase to 8-10% in coming fiscals



Sources: NHAI, CRISIL Intelligence

Mode wise status of works awarded under Bharatmala Pariyojana (2024-2025)

Mode of Implementation	Length (km)	Awarded Total Capital Cost (Rs. Cr)	% Length
EPC	14,748	406,024	55.81%
HAM	11,269	436,522	42.64%
BOT Toll	408	11,111	1.55%
Total	26,425	853,657	100%

Sources: MoRTH Annual Report 2024-25, CRISIL Intelligence

2.8.2 NH construction activity to normalize; awarding anticipated to recover over the coming fiscals

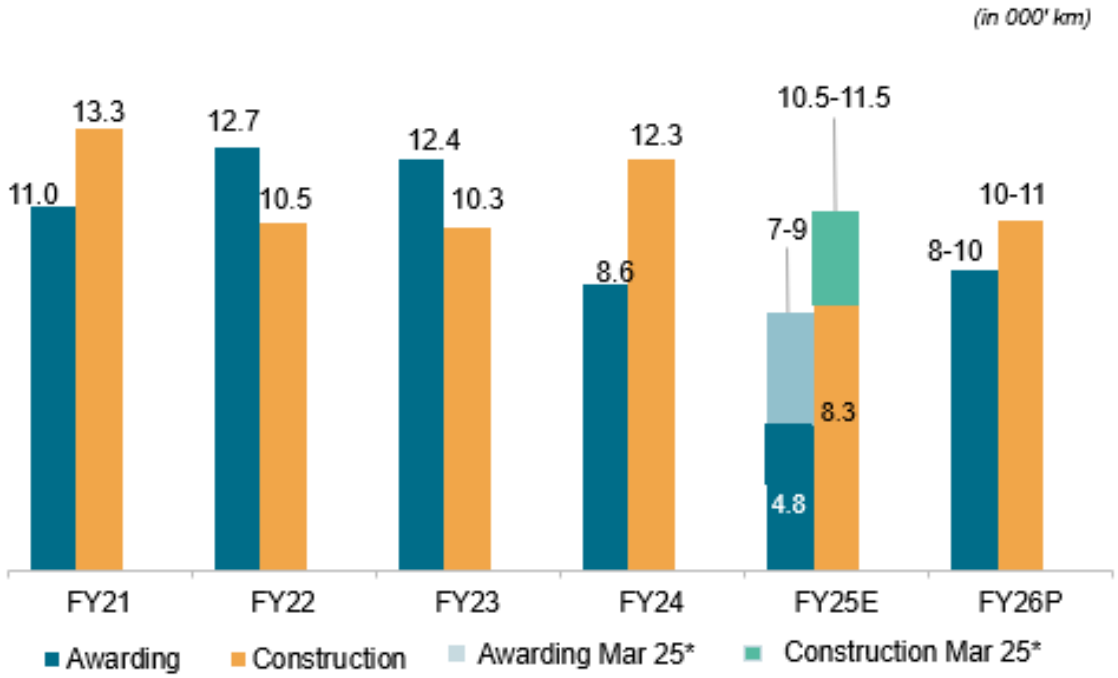
Even though overall national highways construction at the MoRTH level remained flattish in fiscals 2022 and 2023, NHAI execution witnessed strong momentum. NHAI execution sequentially rose from 4,175 km in fiscal 2021 to 4,882 km in fiscal 2023. Acceleration in project awards, sharper focus on resolving land acquisition issues, and the 'Atmanirbhar Bharat' initiatives to ease liquidity (monthly milestone payments, release of retention money, reduction in performance security & extension of 3-6 months in milestones & SCODs) for EPC road players augured well for the pace of execution of NHAI projects.

Higher awarding of the previous and many of those projects receiving appointed dates in a timely manner have further boosted NHAI execution in fiscal 2024. As a result, 6,644 km of NHAI projects were executed during the year. In other words, the construction per day stood at around 18 km.

The government has intensified its eLfforts in developing the national highway network, leading to a noticeable increase in the number of highway projects being awarded and constructed over the past five fiscal years. Typically, it takes approximately 9 to 18 months from the award of a project to the issuance of the appointed date, marking the commencement of construction. This trend underscores the government's commitment to enhancing

road infrastructure and suggests a continued focus on expanding and improving the national highway system in the upcoming years.

Lower awarding in fiscals 2024 and 2025 to impact the pace of execution



Source: MoRTH, CRISIL Intelligence

Note: 11M of FY24, FY25

- National highway awards declined 31% in FY24 to 8,581 km.
- Apr–Feb FY25 awards remained at similar levels, indicating subdued momentum.
- NH awarding expected to stay in the 7,000–9,000 km range, similar to FY24.
- Due to an 18-month execution lag, lower awards will impact FY26 construction.
- NH construction likely to dip to 10,000–11,000 km in FY26, down from 12,300 km in FY24

Fiscal 2025 awarding recovered in H2 after sluggish start; execution remained subdued (in kms)

Months	FY23	FY24	FY25
Apr	201	114	0
May	295	268	4
Jun	473	229	91
Jul	1,006	514	468
Aug	731	631	589
Sep	1,386	530	293
Oct	915	309	340
Nov	375	221	773

Months	FY23	FY24	FY25
Dec	1,741	295	542
Jan	1,277	370	1,100
Feb	903	1,391	674
Mar	4,879	3,709	3,126

Source: MoRTH, CRISIL Intelligence

Monthly NH execution over the past 3 years (in kms)

Months	FY23	FY24	FY25
Apr	578	523	483
May	729	942	805
Jun	659	785	646
Jul	527	420	600
Aug	419	526	427
Sep	647	371	376
Oct	501	907	583
Nov	706	774	841
Dec	1,008	968	1,092
Jan	1,029	1,442	1,147
Feb	126	1,430	1,330
Mar	2,267	3,261	2,670

Source: MoRTH, CRISIL Intelligence

2.8.3 Policy push boosted HAM share in awarding

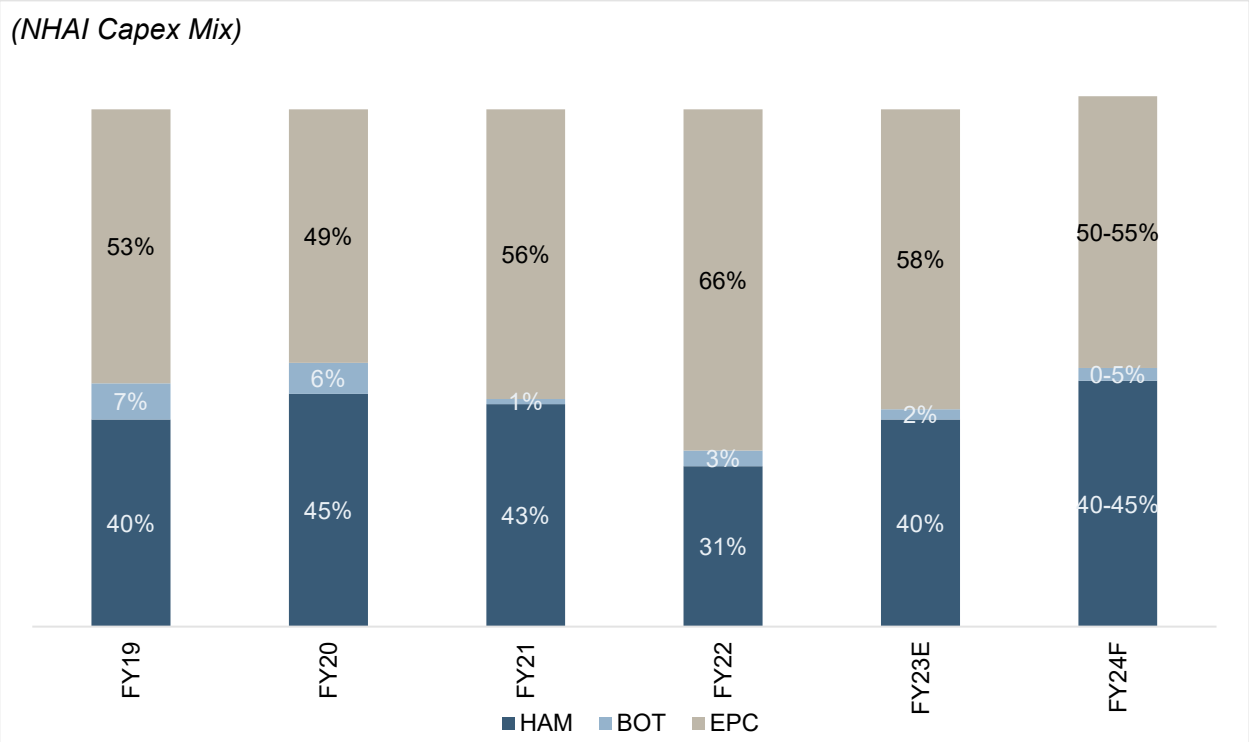
NHAI awards roads and highway projects under:

- EPC
- BOT
- HAM

Incorporating multiple suggestions from various stakeholders, the ministry and NHAI amended certain parameters in the HAM MCA in October 2020. These were largely aimed at protecting developers' returns and ease their liquidity.

On the back of the higher HAM awarding, CRISIL Intelligence estimates of split for the NHAI capex mix indicates that the share of HAM in NHAI capex is expected to rise. However, given that EPC has also cornered a large share in awarding in the previous fiscals, its share in NHAI capex is expected to remain at ~50-55% in fiscal 2024. Overall, the share of public funds in NHAI investments is likely to hover around the 70% range. Therefore, NHAI funding would remain critical to sustain the sector forward.

As capex under EPC and HAM remains high, public funds are burdened



P: Projected

Source: NHAI, CRISIL Intelligence

2.8.4 Number of highway lanes increased over past five fiscals

The NHAI has also focused on increasing the number of lanes on national highways. Single lane roads decreased to 21% in fiscal 2016 from 32% in fiscal 2015, while two-lane roads increased to 56% from 47%, and four-lane roads to 25% from 12%.

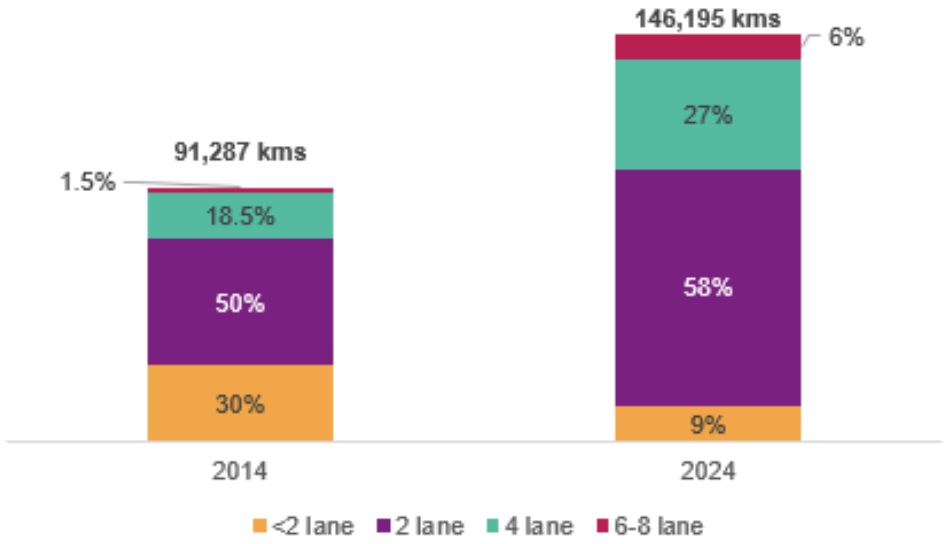
Road network across India

Road classification	Length
National highways	1,46,195 km
State highways	1,79,535 km*
Rural and other roads	60,19,723 km*
Total	63,45,453 km

*Note: * as per Basic Road Statistics of India (2018-19)*

Source: MoRTH, Crisil Intelligence

National highways witness significant expansion in last decade



Source: MoRTH, Crisil Intelligence

National Highway length grew by 60%, from 91,287 km in 2014 to 1,46,195 km today; 4-lane+ NHs rose more than 2.5x to ~48,000 km.

2.8.5 Few HAM projects terminated due to land acquisition issues

Even though execution of HAM contracts has picked up, delays with regard to appointed date persists. In fact, a few of these projects have also been terminated.

Terminated HAM projects

Name of asset	Concessionaire	Termination effective
Vizag Port road	Sadbhav Infrastructure	Jul-2019
Meensurutti to Chidambaram	KNR Construction	Apr-2019
Puducherry-Poondiyankuppam Highway	IRB Infrastructure	Nov-2019
Poondiyankuppam-Sattanathapuram	IRB Infrastructure	Nov-2019

Source: Company report, CRISIL Intelligence

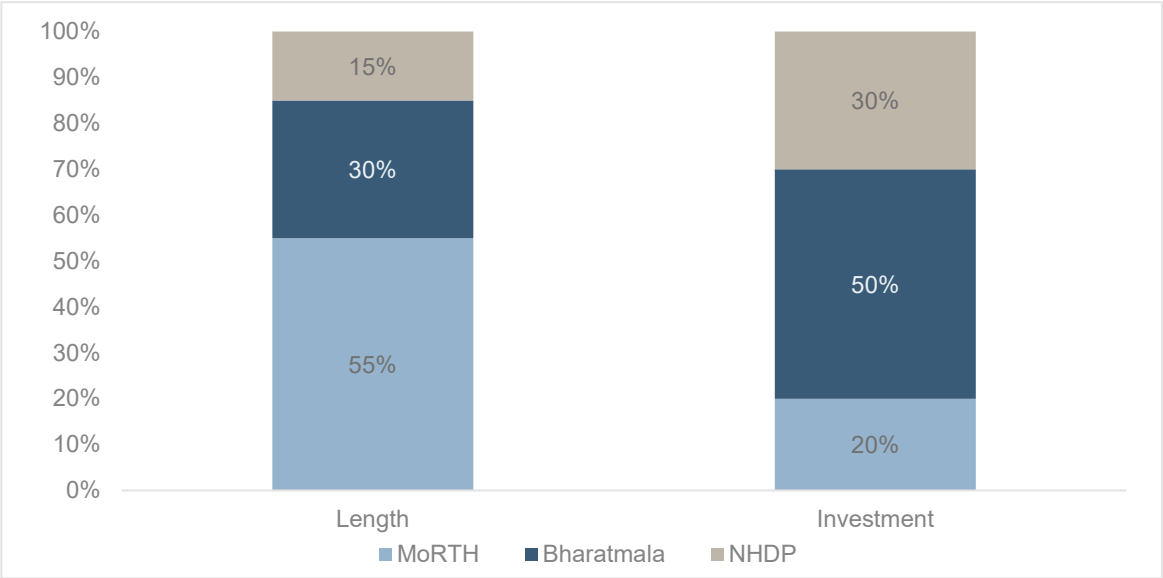
2.8.6 Bharatmala Phase 1 awarding has focused on expressways; likely to stretch till fiscal 2025

Bharatmala Pariyojana is an umbrella project introduced by the central government in 2015 to improve the efficiency in the roads sector. The Bharatmala plan spans across two phases and envisages the construction of 65,000 km of highways under the following categories: national corridor roads (north-south, east-west and Golden Quadrilateral), economic corridor roads, inter-corridor roads and feeder roads. As per the ministry, Bharatmala, along with incumbent schemes, would require a total outlay of Rs 6.9 trillion.

Phase I of the scheme envisages development of ~24,800 km of national highways/roads as well as 10,000 km of residual roads between fiscals 2018 and 2022 under NHDP. Awarding under Bharatmala has begun from fiscal 2018

and we believe it will stretch till fiscal 2025 for Phase 1. Awarding under Bharatmala began in fiscal 2018, with Phase 1 expected to stretch till fiscal 2025.

Share of different schemes under national highways (fiscals 2023 to 2027P)



P: Projected
Note: National highway investments do not include land acquisition costs
Source: CRISIL Intelligence

2.8.7 Pradhan Mantri Gram Sadak Yojana (PMGSY)

The Pradhan Mantri Gram Sadak Yojana (PMGSY), a flagship programme of the Indian government, aims at connecting rural areas by constructing roads. As of now, a total of 8,34,716 km of road length has been sanctioned under various ongoing interventions/ verticals of PMGSY. Of this, 7,71,641 km road has already been completed and upgraded.

However, in fiscal 2025, the overall construction under PMGSY declined 31% on-year. Despite this, the programme has made significant progress, except PMGSY-III during which it achieved only 40% of its target. While PMGSY-I achieved 97% of its target, PMGSY-II covered 75-80%.

To further boost the programme, the Union Cabinet has approved the implementation of PMGSY-IV over fiscal 2024-25 to fiscal 2028-29. Under the phase, financial assistance will be provided for the construction of 62,500 km of road length to enable new connectivity to eligible isolated habitations. The total outlay of the scheme is set at Rs 70,125 crore.

The pace of execution of projects under the phase will be closely monitored. The government's focus on providing connectivity to rural areas through PMGSY is expected to have a positive impact on the economy, particularly in rural areas, improving the overall quality of life for citizens.

State-wise Road length completed under PMGSY

(Road length in KM)

State	FY22	FY23	FY24
Uttar Pradesh	3,368	5,011	6.799
Madhya Pradesh	4,444	3,732	910
Chhattisgarh	3,304	670	201
Rajasthan	3,255	544	1,669
Jammu And Kashmir	3,278	464	956
Odisha	2,819	2,668	2,589
Karnataka	2,560	1,629	457
Uttarakhand	2,061	904	594
Assam	2,164	624	610
Bihar	1,862	1961	2,251
Others	12,889	11,542	15,856
Total	**42,004**	**29,749**	**26,100**

Source: Pradhan Mantri Gramsadak Yojana, CRISIL Intelligence

2.8.8 Outlook of toll collection and remittance on national highways

As per IHMCL data, the electronic toll collection on national highways is estimated to have reached ~₹ 496.89 billion in the fiscal year 2024. Further, toll collections are expected to grow at a CAGR of 9.5-10.0% between fiscal years 2023 and 2028 on a like-to-like basis and to grow at 18-19% considering new road additions and subsequent tolling on them over the same period. The growth will be driven by factors such as improvement in overall economic activity, efficiency gains due to removal of check posts post implementation of GST, increase in both passenger and commercial vehicles, strong execution pipeline of road and highway projects, better compliance and blocking of leakages due to electronic toll collection.

2.9 Key transactions in road sector

Recent key asset sales and private equity transactions

Date	Target	Buyer	Seller	Deal value (Rs mn)	% sought
Aug-2025	5 Assets – 2 sections of Hg Khammam-Devarapelle NH and 3 sections of Raipur-Vishakapatnam NH	Neo Assets Fund	HG Infra Engineering	36,000	100%
Mar-2025	2 NHAI road assets in Haryana and Punjab	Neo Assets Fund	CDS Infra	15,000	100%

Date	Target	Buyer	Seller	Deal value (Rs mn)	% sought
Mar-2025	The two assets being transferred, Quazigund Expressway Pvt. Ltd. ("QB") and Athaang Jammu Udhampur Highway Pvt. Ltd. ("JU")	Cube Highways	National Investment and Infrastructure Fund	41,850	NA
Dec-2024	4-lane highway along Aligarg-Kanpur section	Bharat Highways InvIT	G R Infraprojects Limited	990	NA
Dec-2024	Acquired five build-operate-transfer (BOT) toll road assets of Ashoka Concessions, a subsidiary of highway builder Ashoka Buildcon	CDPQ (Canadian Pension Fund)	Ashoka Buildcon	45,000	NA
Jan-2024	Portfolio of 11 HAM & 1 BOT (UPSHA)	KKR & Co	PNC Infrastructure	90,057	100%
Apr-2023	Kundapur-Surathkal section (90.1 km road project in Karnataka, comprising 74.8 km Kundapur-Surathkal section and 15.3 km Mangaluru-Kerala border section	KKR & Co	Navayuga Udupi Tollways	9240	NA
Apr-2023	Baharampore-Farakka Highways Ltd	Cube Highways and Infrastructure Pte Ltd	HCC Group	13,230	NA
Mar-2023	Aurang Tollway (section of NH 6 between Aurang in Chhattisgarh and Odisha border)	Macquarie Group	BSCPL	16,000	NA
Feb-2023	5 completed HAM assets (Welspun Delhi Meerut Expressway Pvt Ltd, Welspun Road Infra Pvt Ltd, MBL (CGRG) Road Ltd, MBL (GSY) Road Ltd, Chikhali Tarsod Highways Pvt Ltd) and one operating BOT toll asset (Welspun Infrafacility Pvt Ltd)	Actis and Welspun Enterprises	5 completed HAM assets (Welspun Delhi Meerut Expressway Pvt Ltd, Welspun Road Infra Pvt Ltd, MBL (CGRG) Road Ltd, MBL (GSY) Road Ltd, Chikhali Tarsod Highways Pvt Ltd), and Welspun Infrafacility Pvt Ltd	NA	NA
Nov-2022	Eastern Peripheral Expressway	CDPQ-backed Maple Highways	NHAI	62,670	NA
Oct-2022	InvIT (across 7 states: Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh, Telangana)	CPPIB and Ontario Teachers' Pension Plan Board	National Highways Infra Trust	NA	NA
Sep-2022	Andhra Pradesh and Gujarat assets (Tada Nellore)	Adani Group	Macquarie Group	31,100	NA
Aug-2022	SP Jammu-Udhampur Highway Ltd	NIIF	Shapoorji Pallonji Group	22,800	100%

Date	Target	Buyer	Seller	Deal value (Rs mn)	% sought
Jul-2022	Navayuga Quazigund Expressway Pvt. Ltd	NIIF	Navayuga Quazigund Expressway Pvt Ltd	30,350	NA
Jun-2022	Six operating highway toll projects	Actis' Long Life Infrastructure Fund	Welspun Enterprises Ltd	60,000	100%
Jun-2022	Five operational road projects	IndInfravit Trust, an InvIT led by Canada Pension Plan Investment Board	Brookfield	93,750	100%
April – 2022	KKR & Co's road platform in India	Ontario Teachers	Ontario Teachers' Pension Plan Board committed an investment to boost alternative investment company KKR & Co's road platform in India.	Committed Rs 13.33 billion ($175 million)	-
Jul-2021	One highway concession	KKR Asian Fund III LP	Global Infrastructure Partners	-	39%
Jan-2021	Shree Jagannath Expressways Pvt. Ltd	Indian Highway Concessions Trust	Bharat Road Network	7,300	74%
Dec-2020	Jorabat Shillong Expressway Ltd	Sekura Roads Ltd	IL&FS Transportation Networks Ltd	9,300	100%
Dec-2020	Chenani Nashri Tunnelway Ltd.	Cube Highways and Transport Assets Advisors Private Limited	IL&FS Transportation Networks Ltd	39,000	100%
Jun-2021	Navayuga Road Projects Pvt. Ltd. – two road projects	Sekura Roads Ltd	Navayuga Road Projects Pvt Ltd	-	100%
Feb-2021	Sadbhav Infrastructure Projects Ltd	Allianz Global Investors joined by AMP Capital	-	To raise Rs 7 billion ($96 million) through NCDs	-
Jan-2021	Chennai Elevated Tollway Ltd	JC Flowers Asset Reconstruction Company	-	Acquire over half of the debt of a stressed road developer at a discount of over 80%	-
Dec--2020	Chenani Nashri Tunnelway Ltd Asset, a road tunnel, from Infrastructure Leasing & Financial Services Ltd	Cube Highways and Infrastructure Pvt Ltd	-	Rs 39.0 billion ($528 million)	-
Sep-2020	Farakka Raiganj Highways Ltd	Cube Highways and Infrastructure Pvt Ltd	Hindustan Construction Company	Rs 15.08 billion (USD 205 million)	-
Jan-2020	KNR Walayar Tollways Pvt Ltd	Cube Highways and Transport Assets Advisors Private Limited	KNR Construction Ltd	6,200	100%

Date	Target	Buyer	Seller	Deal value (Rs mn)	% sought
Aug-2019	Five under construction HAM projects – Dilip Buildcon Ltd	Cube Highways and Transport Assets Advisors Private Limited	Dilip Buildcon Ltd	7,300	100%
Aug-2019	KNR Shankarampet Projects Pvt Ltd	Cube Highways and Transport Assets Advisors Private Limited	KNR Construction Ltd	1,000	100%
Feb-2019	Two road projects – KNR Construction Ltd	Cube Highways and Transport Assets Advisors Private Limited	KNR Construction Ltd	2,000	100%

Source: Industry, CRISIL Intelligence

2.10 Overview of investments in road platforms

Investments by private sector to grow 3x over the next five years

CRISIL Intelligence projects that private sector investment in national highway construction will double to ₹2.7 trillion during fiscals 2024 to 2028, compared to the preceding five-year period. This growth is expected to be driven primarily by the Hybrid Annuity Model (HAM), as the Build-Operate-Transfer (BOT) toll model is likely to attract limited interest.

A policy push through revisions in the Model Concession Agreements (MCA) for both HAM and BOT projects, along with relaxed bid eligibility criteria across all national highway projects, is expected to support increased private sector participation.

In response to challenges posed by the COVID-19 pandemic, NHAI and the Ministry introduced several measures under the Atmanirbhar Bharat package to support developers. These included shifting from milestone-based to monthly payments, extending project completion timelines, and other reliefs that helped sustain private interest. Although these measures were extended until October 2020, they are unlikely to continue beyond the current fiscal.

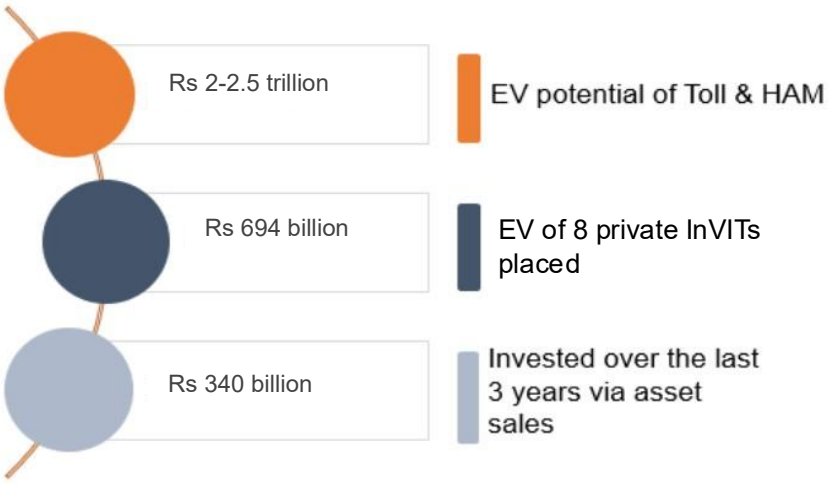
Asset monetisation, equity infusion key to support private investment in the long run

Currently, there are two broad drivers of asset sales in the roads sector - rationalisation of financial position to improve balance sheet strength and asset churning to be able to participate in the upcoming projects. The erstwhile major BOT players are selling off assets to reduce their debt burden and free up equity, which can be infused in under-execution projects.

The players present in HAM are currently selling off HAM assets to participate further in upcoming HAM projects. Some players intend to sell off under-construction projects to financial investors with projects being executed by the same player. Thus, they are able to convert HAM projects to EPC without facing the cut-throat competition they deal with currently in the EPC mode. This will help them retain margins.

About Rs 700-800 billion has already been invested through these models. CRISIL's analysis of BOT and HAM projects indicates a potential of ~Rs 2.0-2.5 trillion in terms of enterprise value.

Asset monetisation has a lot of potential to free up developers' balance sheets



Source: CRISIL Intelligence

2.11 Overview of National Highways Development Project (NHDP)

The NHDP encompasses building, upgradation, rehabilitation and broadening of 124 national highways identified by NHAI. The project is being executed by the NHAI, in coordination with the public works departments of various states. The NHAI also collaborates with the Border Roads Organisation to develop certain stretches. The NHDP is being implemented in seven phases.

The projects are awarded to private players either on EPC (cash) or on BOT basis and now on HAM. NHDP cash contracts are mainly financed through budgetary allocations from the Central Road Fund (CRF), negative grants/premium received, and toll revenue. Loans and grants are also received from the World Bank and ADB.

2.11.1 Bharatmala Pariyojana

Bharatmala Pariyojana (BMP), an umbrella project of the central government since 2015, aims to improve efficiency in the roads sector. It is expected to supersede the NHDP and envisages the construction of 65,000 km of highways under the national corridor (north-south, east-west, and golden quadrilateral), economic corridor, inter-corridor roads, and feeder roads categories. As per the ministry's announcements in 2017, Bharatmala, along with the other schemes being undertaken, was estimated to have required a total outlay of Rs 6,900,000 million.

Total aggregate length of 26,425 km with a total capital cost of Rs. 8,53,656 crores have been approved and awarded till date under Bharatmala Pariyojana (including 6,758 km length of residual NHDP). No further projects are now being taken up under Bharatmala Pariyojana. The status of various components of Bharatmala Pariyojana as on 31st December 2024 is as given below.

Status of Bharatmala Pariyojana

Components	Length (in km)	Total Length Completed (in Km)
Economic Corridors	8,737	5,986
Inter-Corridors Roads	2,889	2,108

Components	Length (in km)	Total Length Completed (in Km)
Feeder Roads	973	540
National Corridors	1,777	1,394
National Corridors Efficiency Improvement	824	732
Expressways	2,422	1,791
Border Roads & International Connectivity Roads	1,619	1,400
Coastal Roads	77	72
Port Connectivity Roads	348	120
Balance Road Works under NHDP	6,758	5,058
Total- Bharatmala	**26,425**	**19,201**

Source: MoRTH 2024-25, CRISIL Intelligence

2.11.2 Status of BMP-1

National highways measuring 34,800 km in length were planned under BMP phase 1, according to a MoRTH press release, out of which, 26,418 km (76%) were awarded for construction as of December 2023 and ~15,549km have been completed so far. The projects under BMP are mainly funded by the centre, while MoRTH manages resource mobilisation. Andhra Pradesh has seven projects of ~384 km length of roads at the bidding stage at a cost of Rs 65,860 million under BMP. MoRTH has identified corridors measuring 1,719 km in Telangana for development under BMP phase 1, out of which 1,026 km has been awarded. As of December 2023, Rs 4.23 trillion was spent under phase 1 of the project.

State-wise summary of BMP

State	Total project length (km)	Awarded project length (km)	Length completed (km)	State	Total project length (km)	Awarded project length (km)	Length completed (km)
Andhra Pradesh	2,525	1,936	641	Maharashtra	3,029	2,174	1,628
Assam	433	431	312	Manipur	635	635	332
Bihar	1,572	1,152	571	Meghalaya	170	170	81
Chhattisgarh	571	471	134	Mizoram	593	593	363
Delhi	203	203	158	Nagaland	208	208	131
Goa	26	26	26	Odisha	1,586	967	785
Gujarat	1,577	1,194	742	Punjab	1,764	1,553	424
Haryana	1,058	1,058	776	Rajasthan	2,503	2,360	2,152
Himachal Pradesh	167	167	105	Tamil Nadu	2,414	1,476	1,011
Jammu & Kashmir	433	251	88	Telangana	1,719	1,026	492
Jharkhand	1,000	801	367	Tripura	94	94	66
Karnataka	2,059	1,603	855	Uttar Pradesh	3,127	2,496	1,612
Kerala	1,126	708	172	Uttarakhand	273	264	112
Madhya Pradesh	3,063	2,017	1,137	West Bengal	874	385	277

Source: MoRTH, PIB, CRISIL Intelligence

2.12 Overview of National Highways and Infrastructure Development Corporation Limited (NHIDCL)

The National Highways and Infrastructure Development Corporation Limited (NHIDCL) was established under the MoRTH, on July 18, 2014. It aims to boost construction of national highways and infrastructure in the Northeastern Region and strategic border areas. NHIDCL facilitates economic development in these regions by integrating them more robustly with the mainstream, providing economic benefits to the local population.

As of March 31, 2022, NHIDCL employs 345 individuals across 13 states/UTs and Kathmandu, Nepal. It has also ventured into other infrastructure projects such as multi-level car parking, logistic parks, and bus ports. NHIDCL's projects are enhancing accessibility to remote areas, constructing safer roads, tunnels, and bridges, particularly in challenging terrains like Jammu and Kashmir, Uttarakhand, North-East, West Bengal, and Andaman & Nicobar Islands. Additionally, NHIDCL is contributing to socio-economic growth through skill development programs, improving livelihoods, fostering trade, tourism, and supporting states in by providing financial aid and basic life care ambulances during pandemic.

2.12.1 NHIDCL portfolio for road development in Northeast Regions of India and Jammu & Kashmir

As of FY 2025, NHIDCL is managing a robust portfolio of 262 ongoing projects, covering 5,338 km of highways, with a cumulative estimated cost of approximately ₹1.3 lakh crore. In addition, the corporation has successfully completed 90 projects spanning 1,681 km, with a total expenditure of around ₹21,851 crore.

NHIDCL has demonstrated remarkable financial growth, with its revenue rising from ₹94.37 crore in 2018 to ₹474.22 crore in 2023, reflecting a CAGR of 38%.

In the current financial year alone, NHIDCL:

- Constructed 1,160 km of national highways
- Awarded works for 1,000 km of road length worth ₹23,055 crore
- Completed 29 projects in the Northeastern region

The corporation is currently tasked with developing and upgrading road connectivity across an aggregate length of approximately 8,857 km, including corridors in the North Eastern states, Andaman & Nicobar Islands, North Bengal, and hill states/UTs like Jammu & Kashmir, Ladakh, and Uttarakhand.

Order Book of NHIDCL

State	Total NH Length entrusted
Jammu & Kashmir	448
Ladakh	234
Manipur	1,481
Meghalaya	367
Mizoram	912
Nagaland	690
Sikkim	256

State	Total NH Length entrusted
Tripura	879
Uttarakhand	100
West Bengal	98

Source: NHIDCL Annual Report 2023-24, CRISIL Intelligence

2.13 PM Gati Shakti - National Master Plan for Multi-modal Connectivity

Gati Shakti Scheme or National Master Plan for multi-modal connectivity plan, was unveiled in October 2021, with an objective of curtailing the logistics cost for the country, by coordinating the infrastructure creation activity different government entities. Major characteristics of the scheme are

- Digital platform for coordination across 16 ministries, including roadways and railways
- 'Gati Shakti' platform will subsume the infrastructure projects announced under National Infrastructure Pipeline (valued at Rs 111 trillion)
- Existing infrastructure schemes across ministries, such as Bharatmala (Roads), Sagarmala (Ports), UDAN (Air), Inland Waterways, Dry ports etc. will be incorporated in the platform
- The platform will also provide spatial data and implementation status for different projects
- Eleven industrial corridors and two defence corridors are also planned in the scheme, covering clusters for textile, pharmaceutical, fishing, electronics, agriculture etc.

Key targets set for different heads under the scheme are:

Sectors	Ministry Involved	Target by FY25	Previous Level (FY20/FY21)
Ports	Ministry of Ports, Shipping & Waterways	Increase capacity to 1,759 million tonnes	1,282 million tonnes (FY20)
National Waterways	Ministry of Ports, Shipping & Waterways	Ramp up cargo movement to 95 million tonnes	74 million tonnes (FY20)
Railways	Ministry of Railways	Freight movement target: 1,600 million tonnes	1,210 million tonnes (FY20)
Multimodal Logistics Parks (MMLPs)	Ministry of Railways	Develop 500 multimodal cargo terminals	-
Gas Pipelines	Ministry of Petroleum and Natural Gas	Double pipeline length to 34,500 km	17,000 km (FY20)
Renewable Energy	Ministry of New and Renewable Energy	Add 150 GW incremental renewable capacity	-
Power Transmission	Ministry of Power	Expand transmission capacity to ~452,000 circuit km	-

An integrated platform to monitor the progress of projects and logistics initiatives spanning across different ministries will certainly aid in increasing coordination and planning infrastructure creation and connectivity.

2.14 Overview of Cable Stayed Bridges

Cable-stayed bridges are a type of bridge where the deck is supported by cables attached to vertical towers known as pylons. Unlike suspension bridges, where cables are primarily horizontal, cable-stayed bridges have cables that

connect directly from the deck to the pylons, allowing for greater stability and a more compact design. This makes these bridges suitable for areas with limited space or challenging terrains.

Some Notable Cable-Stayed Bridges in India

1. **Bandra-Worli Sea Link (Mumbai)**: A prominent example featuring stylish pylons and efficient design, showcasing advancements in Indian bridge engineering.
2. **Chenab Bridge**: Currently under construction, this bridge is set to be one of the tallest and longest cable-stayed bridges in the world, connecting important regions in Kashmir.
3. **New Yamuna Bridge (Allahabad)**: An impressive cable-stayed structure aimed at enhancing connectivity in urban areas.
4. **Chennai's Durgam Cheruvu Cable Bridge**: A key bridge connecting important transit routes, highlighting modern architectural trends in India.

2.15 Overview of Elevated Roads

Elevated roads, often designed as flyovers or overpasses, are roadways that are built above ground level to allow for the uninterrupted flow of traffic. They play a crucial role in urban planning and traffic management by reducing congestion at critical junctions, maintaining traffic speeds, and providing a smoother transit experience for commuters. One notable example is the 114 km elevated road corridor announced for Bengaluru, aimed at mitigating traffic woes in the city as part of the Swachha Bengaluru initiative. This project emphasizes the growing trend of integrating elevated roads into urban development plans to alleviate congestion and improve air quality.

Some Notable Elevated Road Projects

1. **Mumbai-Pune Expressway:** Recognized as India's first access-controlled expressway, it includes elevated sections to facilitate high-speed travel between these two major urban centres.
2. **Yamuna Expressway:** A prominent example of an elevated road that connects Greater Noida to Agra, showcasing the effectiveness of elevated systems in facilitating long-distance travel.

3 Overview of Infrastructure Investment Trusts (InvITs) for roads in India

3.1 Overview of InvITs currently listed in India

3.1.1 InvITs to deleverage balance sheets and enable capital recycling

Infrastructure investment trusts (InVITs) will help free up capital of players by divesting stake in operational assets and help recycle this capital to deleverage balance sheets for creating new assets.

Details of InVITs currently registered in India:

Name	Sponsor	Date of registration	Assets
IRB InviT Fund	IRB	Mar-2016	5 toll road assets & 1 HAM asset
Interise Trust	L&T IDPL	Mar-2018	14 BOT-toll, 3 BOT annuity assets
Oriental Infratrust	Oriental Group	Mar-2019	5 toll & 1 annuity asset
IRB Infrastructure Trust (IRB InVIT II)	IRB Infrastructure Trust (IRB InVIT II)	Nov-2019	16 Toll Assets
Indus Infra Trust	G R Infraprojects Limited	Aug-2022	9 HAM assets
Cube Highways Trust	Cube Highways Group	July-2022	18 Tolland 6 HAM Assets
Highways Infrastructure Trust	Galaxy Investments II Pte. Ltd	Mar-2022	14 HAM, 1 TOT, 10 Toll, 2 BOT Annuity
Maple Infrastructure Trust	Maple Highways Pte Ltd	Feb-2020	2 toll assets
Vertise Infrastructure Trust	National Highway Authority of India	Oct-2020	15 TOT Assets
Shrem Invit	Shrem Infra Structure Private Limited	Feb-2021	19 HAM, 10 ATM, 6 AM, 2 Toll
NXT- Infra Trust	Actis-Highway Infra Limited	Jan-2024	6 Assets (1 BOT, 5 HAM)
Roadstar Infra Investment Trust	IL&FS Transportation Networks Ltd	Apr-2024	6 Assets (2 BOT Annuity and 4 BOT)
Capital Infra Trust	Gawar Group	Jan-2025	9 HAM Assets

Note: Recent details pertaining to Roadstar Infra Investment Trust is currently not available in public domain-Jun 2025

Source: Credit Rating Rationale, DRHP, CRISIL Intelligence

Infrastructure Investment Trusts (InvITs) have emerged as an important instrument to mobilise capital for the roads sector in India. By enabling developers to monetise operational assets and recycle proceeds into new projects, InvITs support balance sheet deleveraging while attracting long-term institutional investors.

As of early 2025, 13 InvITs are registered in India, with sponsors ranging from large private developers (IRB, L&T IDPL, Cube Highways, Gawar Group) to public sector entities such as the National Highways Authority of India (NHAI). The asset mix under these InvITs is diversified, comprising toll roads, HAM projects, BOT annuity assets, and TOT stretches. Notable among them are the IRB Infrastructure Trust (16 toll assets), Highways Infrastructure Trust (18 toll and 6 HAM assets), and NHAI's Vertis Infrastructure Trust (15 TOT assets).

More recent entrants such as NXT-Infra Trust (2024, 6 assets), Roadstar Infra Investment Trust (2024, 6 assets), and Capital Infra Trust (2025, 9 HAM assets) reflect the continued momentum in monetisation. Collectively, InvITs have become a vital vehicle for deepening private participation, bringing in foreign investors, and ensuring a sustainable funding model for India's expanding highway network

InvITs, as envisaged in Union Budget 2014-15, will own and manage income-generating infrastructure projects. As per regulations, these trusts will be allowed to make only 20% of their investments in under-construction projects. The rest will have to be invested in completed, revenue-generating infrastructure projects. Such trusts are expected to help unlock tied-up capital of developers and attract foreign capital.

In Union Budget 2015-16, the finance minister exempted the capital gains tax on sponsors at the time of listing of units of InvITs. In Union Budget 2016-17, distributions made from special purpose vehicles to InvITs were exempt from the dividend distribution tax.

Additionally, the Union budget (FY21) announcement of scraping dividend distribution tax (DDT) and shifting the taxation of such payouts to investors would prove to be a negative for InvITs. Our interactions with market participants, however, indicate that given this could hurt asset monetisation plans esp. in the roads sector, the government may create a carveout for InvITs to allow them to continue with the earlier regime.

Regulatory Requirements for InvITs (as per SEBI)

Infrastructure Investment Trusts (InvITs) in India are regulated by the SEBI (Infrastructure Investment Trusts) Regulations, 2014, and subsequent amendments.

SEBI mandates that at least 80% of the assets of an InvIT must be in completed, revenue-generating infrastructure projects. InvITs must distribute at least 90% of their net distributable cash flows to unitholders, ensuring regular income flow.

InvITs are required to be listed on a stock exchange, with a minimum investment ticket size of ₹10,000-15,000, making them accessible to a broader investor base.

Leverage is capped at 49% of asset value but can go up to 70% for InvITs that meet certain conditions like AAA rating and consistent cash distribution. The regulatory framework emphasizes strong governance, with at least 50% independent directors, quarterly disclosures, independent valuations, and mandatory approvals for related-party transactions.

Additionally, InvITs follow a pass-through taxation structure, meaning income is taxed only at the investor level, not at the trust level, enhancing tax efficiency.

Investment Characteristics of InvITs

Investors are drawn to InvITs for their stable and predictable income streams, backed by operational infrastructure assets like roads, transmission lines, and pipelines. The mandatory 90% distribution rule ensures regular payouts, typically on a quarterly basis.

InvITs offer relatively low risk, given their focus on completed assets, and have low price volatility compared to equities. The listed nature of InvIT units provides liquidity, allowing investors to exit or re-enter easily, unlike traditional infrastructure investments which are highly illiquid.

The tax pass-through structure enhances post-tax returns, especially for long-term income-focused investors. Additionally, SEBI's oversight, combined with strict governance norms and transparency requirements, instils investor confidence and protects minority interests.

In essence, InvITs provide an attractive blend of regular income, liquidity, transparency, and access to infrastructure assets, making them suitable for both retail and institutional investors seeking predictable, inflation-hedged returns.

4 Raw Materials for Road Construction

4.1 Overview of Bitumen Derivatives Market in India

In the second quarter of fiscal 2025, bitumen consumption declined by 7% on-year following general and state elections scheduled during the fiscal leading to muted off-take of road implementation, this is post witnessing an exponential growth of 40% and 27% on-quarter during the third and fourth quarters of fiscal 2024 as the road construction was increased pre- election season, respectively.

4.1.1 Road construction and Infrastructure to drive bitumen demand in FY 2026

In the FY 2026, bitumen demand is expected to improve post completion of elections, road implementation off-take is expected to pick up in-line with continued focus on increasing the pace of construction activity, leading to increase in investments by the center and state governments. Healthy implementation of state roads to increase by up 8-10%, which accounts to 65-70% of overall bitumen demand. Thus, CRISIL Intelligence expects bitumen consumption to improve 9-11% on-year to 9-11 million tonne in FY 2026.

In FY 2027, the demand for Bitumen is anticipated to grow 6% reaching consumption to 9-11 MMtpa. The long-term demand for bitumen for road construction and maintenance is driven by infrastructure development, urbanization, government initiatives such as the Bharatmala project, and economic growth.

In FY 2025, bitumen consumption is projected to grow 0-1% following lower off take of road construction owing to general and state elections scheduled during FY 2025. However, it is expected to normalize and improve the conditions in FY 2026. In the first half of this FY 2025, bitumen consumption de-grew due to uneven rains across the nations which have impacted the consumption along with lower off take of road construction anticipated for the fiscal. In the second half of last fiscal bitumen consumption increased due to cessation of rains and increase road implementation.

4.1.2 Bitumen demand to log higher growth in the long run

The expansion of transportation networks and the need for well-constructed roads fuel the demand for bitumen as a key component. Urbanization and population growth contribute to the increasing requirement for road infrastructure, while government policies and emphasis on sustainable and durable roads further drive the need for quality bitumen fuel. Economic growth and industrial activities also impact demand through increased road freight and transportation of goods.

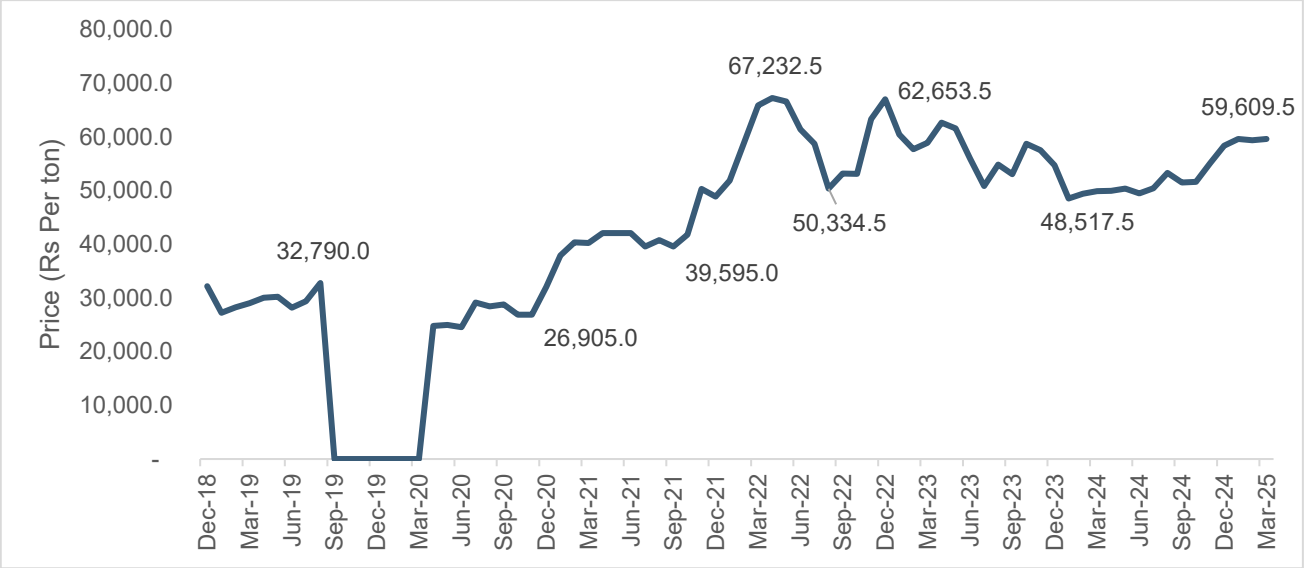
CRISIL Intelligence projects bitumen demand to increase at 5-7% CAGR between fiscals 2025 and 2029, to reach 11-13 MMtpa.

4.2 Price of Bitumen in India

- Prices remained relatively stable between Dec 2018 and Mar 2020, ranging from approximately ₹28,000 to ₹33,000 per ton.
- A sharp decline occurred around Jun 2020, with prices hitting a low of ₹26,905, likely due to reduced demand and economic slowdown during the COVID-19 pandemic.

- Post-2020, prices began a steady upward climb, peaking sharply at ₹67,232.5 in Jun 2021, driven by economic recovery and global crude price surge.
- Subsequent fluctuations were observed, with highs of ₹62,653.5 (Mar 2022) and intermediate dips such as ₹50,334.5 (Jun 2022) and ₹48,517.5 (Jun 2023).
- By Mar 2025, prices again rose to ₹59,609.5, indicating a potential long-term upward trend.

Prices of Bitumen in India



Source: IOC, CRISIL Intelligence

4.3 Other Raw Materials

4.3.1 Cement

The share of the infrastructure segment in cement demand has been on the rise over the past few years because of a surge in the central government's capex towards infra sectors. In fact, the share has jumped from 19-21% in fiscal 2017 to 29-31% in fiscal 2025. Over the period, the share of housing declined from 64-66% to 55-57% whereas share of industrial and commercial segment remained almost same. Going forward, we expect the infrastructure segment's share to rise further because of the continued rise in central and state government's focus on roads, railways, metros, airports and irrigation. The segment's share is expected to increase to 31-33% in fiscal 2030.

The government's focus on developing dedicated rail corridors for the energy, mineral and cement sectors, higher budget allocation for metro, UDAN scheme for airports, expansion of metro rail and Namo Bharat to more cities, ongoing NHAI road projects should continue to support infrastructure demand in fiscal 2026.

The reduction in the GST rate on the key construction material is expected to decrease its prices, thereby stimulating the construction sector. The price fall, in turn, will lead to lower construction costs for urban and rural individual housing buildings (IHBs), enabling homeowners to allocate savings towards larger or modified living spaces. Given that raw materials account for 50-60% of total construction costs, a 7-8% decline in cement prices is anticipated to result in a marginal 100 bps reduction in the overall cost.

Roads: The allocation for MoRTH is further distributed towards NHAI and roads and bridges construction. The budgeted capex for roads and bridges has increased moderately by 5% in fiscal 2026BE over fiscal 2025RE. Similarly, the NHAI has been allocated a marginal 1% increase in capex in fiscal 2026BE compared to the previous fiscal 2025RE under MoRTH. While there is no growth in overall allocation for MoRTH and Railways, the high quantum of capital expenditure is expected to support cement consumption from construction of roads. A portion of the funds from NHAI will be directed toward completing pending works under the Bharatmala Pariyojana program, an initiative focused on highway expansion and connectivity improvements.

CRISIL Intelligence expects a revival in cement demand growth in fiscal 2026, with on-year growth of 6.5-7.5% after a moderation in fiscal 2025 which is estimated to have grown by only 4.5-5.5% on three consecutive high bases. The moderation is owing to slowdown during first half of the fiscal on account of general elections followed by erratic monsoon. In fiscal 2026 infrastructure to remain the key demand driver. A 10% rise in the capex for core infrastructure ministries (Railways, Road Transport and Highways, Rural Development, Housing and Urban Affairs, Ports, Shipping and Waterways and Civil Aviation) in fiscal 2026BE over the fiscal 2025RE is expected to drive the segment growth to 7-9% in fiscal 2026.

4.3.2 Long Steel

India's sponge iron production is estimated to have increased by 8% to 55.5 million tonnes, with healthy infrastructure and construction growth, which are key drivers of the long steel segment. The reduction in long steel output by a major player also led to a surge in demand for secondary TMT, which in turn boosted demand for sponge iron. Looking ahead, the sponge iron sector is expected to witness a positive growth of 8-10% in fiscal 2026, driven by the strong and sustained momentum in the Indian steel sector, which is fuelled by robust construction demand and supportive government policies. Additionally, the anticipated increase in US production with amended import duty/tariffs in place, is expected to reduce scrap availability, thereby benefiting the Direct Reduced Iron (DRI) sector.

4.4 Technology shift in raw materials

4.4.1 Ready-mix concrete

Ready mix concrete (RMC) consists of cement, aggregates, water and other ingredients, which are weighed and batched at a centrally located plant, and subsequently transported to the construction site, without undergoing any further treatment. Operations are carried out in factory-like conditions and are automated. Hence, RMC is a value-added, semi-finished product, and results in superior quality concrete.

RMC is used extensively in countries such as US, Australia, New Zealand and England, where 70-95 per cent of all concrete comes from central batch plants. In India, the first commercial RMC plant was set up in 1992 in Pune, Maharashtra.

Construction in real estate Industry has seen steady growth post the implementation of RERA. Tier 2 & 3 cities are increasingly changing the traditional dynamics with growing RMC penetration. In the last 20 years, RMC has seen extensive use in national and state highways and expressways, housing, railways, mass rapid transport, and irrigation projects, aided by the entry of major cement companies and some organised RMC players. Government impetus to various infrastructure projects and affordable housing to drive RMC demand. Also, metro rail project is another major

infrastructure project that is expected to create huge demand for construction across the country.

The use of RMC has several advantages, making it a more viable and efficient alternative to site-mix concrete. It circumvents the messy and long-drawn task of producing the concrete onsite. The consumption of cement reduces by nearly 10% to 12% with better handling practices and proper mixing.

In the longer run RMC demand is expected to see growth as real estate demand is expected to rise along with continued spends on infra by the central government. The key drivers for RMC in the medium term are

- Robust infrastructure investments will drive demand from the infra segment which accounts for 30-35% of the total RMC consumption in India
- Expansion of metro rail network across various Tier 2 cities like Indore, Bhopal, Patna, Nagpur and Jaipur to name a few.
- Airport construction to pickup pace thanks to the central government's UDAN scheme
- Revival of residential as well as commercial real estate after a lull over the last few years
- Continued urbanisation which still remains slow at 30-35% in India, well below that of developed nations
- Other central Government projects like Pradhan Mantri Awas Yojana, Smart city projects and Sagarmala will also lead to steady offtake for RMC

5 Indian Railway Sector

5.1 Railway Infrastructure

Indian Railways is a crucial part of India's transport infrastructure, serving millions of passengers and facilitating the movement of goods across the country. With a vast network and efficient operations, it plays a key role in both social and economic advancement. Indian Railways operates 13,523 passenger trains and 9,146 freight trains every day on its network with passenger trains and freight trains running at an average speed of 50.6 kmph and 24 kmph respectively. Indian Railways achieved 6,450 km of complete track renewal, 8,550 turnout renewals, and raised speeds to 130 kmph over 2,000 km in 2024. Indian Railways electrified 3,210 Rkm in 2024, extending the electrified BG network to 97% with renewable energy capacity reaching 2,014 MW.

A record 136 Vande Bharat trains and the first Namo Bharat Rapid Rail were introduced, alongside 21,513 special train trips during peak seasons. Indian Railways loaded 1,473 MT of freight in 2024, achieving a 3.86% growth, with EDFC and WDFC facilitating over 72,000 train runs. Work started on 1,198 stations out of 1,337 stations under Amrit Bharat Station Scheme. 10,000 Locos being equipped with Kavach safety technology, 9000 technicians trained and bids invited for 15,000 Rkm. Indian Railways' heritage sites, including 80 stations and 78 structures, were digitized, while festivals like Ghum boosted tourism.

5.2 Overview of Rail Length

As of 2024, it manages the fourth largest national railway system by size with a track length of 135,207 km (84,014 mi), running track length of 109,748 km (68,194 mi), route length of 69,181 km (42,987 mi) and electrified Route length of 62,253. As of April 2022, a total of 452 railway projects of total length 49,323 km costing approx. Rs. 7.33 lakh crore (US$ 87.92 billion) are in different stages of planning/ sanction/ execution across Indian Railways. Indian Railways achieved track laying of 5100 Kms during fiscal year 2024. Indian Railways electrified 6,577 Route Kilometres (RKMs) in CY 2023, bringing the total broad-gauge network electrification to 93.83% of the total (65,556 RKMs).

Length of Railway Tracks at the end of FY 2024

Railway network	Length (km)	Percentage of total length
Running Track	1,09,748	~81
Electrified Route	62,253	~46
Total Track Length	1,35,207	100

Source: Railway Yearbook 2023-24, CRISIL Intelligence

5.3 Recent Infrastructure Developments

Significant progress has been made in railway infrastructure in recent years, marked by several landmark projects:

- Chenab Bridge: Inaugurated in June 2025, the Chenab Bridge is the world's highest railway arch bridge, located at a height of 359 meters above the river. Spanning 1,315 metres, this steel arch structure has been designed to withstand seismic forces and high wind speeds, showcasing advanced engineering capabilities.
- Anji Khad Bridge: Also inaugurated in June 2025, Anji Khad is India's first cable-stayed railway bridge. Built in a geologically challenging region, it will play a vital role in improving connectivity and mobility in the Jammu and Kashmir region.
- New Pamban Bridge: Dedicated to the nation in 2025, this is India's first vertical lift rail sea bridge. It strengthens rail connectivity between the mainland and Rameswaram Island, enhancing access to the southernmost regions.
- Kosi Rail Mahasetu: Commissioned on September 18, 2020, this bridge holds strategic significance for areas near the India–Nepal border and supports regional connectivity and trade.

5.4 Progress of Key Railway Programmes

- Electrification Drive: The pace of electrification has accelerated significantly. While only 5,188 route kilometers (Rkm) of broad-gauge network were electrified between 2004–2014, over 45,000 Rkm have been electrified between 2014 and 2025. This has led to annual savings of approximately ₹2,960 crore (up to February 2025), improving energy efficiency and reducing carbon footprint.
- Signal Modernisation: As of March 31, 2025, over 6,600 stations have been equipped with electrical and electronic interlocking systems. These systems aim to minimize human error and enhance safety through centralized operation of points and signals.
- One Station One Product (OSOP): This initiative supports local artisans, weavers, potters, and craftsmen by providing dedicated retail spaces at railway stations. As of March 2025, 2,266 OSOP outlets are operational at 1,979 stations, collectively generating sales of over ₹107.89 crore.
- Freight Loading Growth: Indian Railways has seen substantial growth in freight traffic. Between 2004–2014, the cumulative freight loading stood at 8,473 MT. Between 2014–2025, this has increased to over 14,200 MT, with a record 1,617.38 MT handled in 2024–25 alone.
- Dedicated Freight Corridor (DFC): Prior to 2014, no part of the DFC was operational. Since then, over 96% of the 2,843 km corridor has been completed. The Eastern DFC (1,337 km) is fully commissioned, while the Western DFC (1,506 km) is nearing completion, offering a transformative boost to freight logistics efficiency.

5.5 Government Policy and budgetary outlook

The Government of India has adopted few initiatives for the Railways sector in the recent past, Under the Union Budget 2025-26, the government allocated Rs. 3.02 lakh crore (US$ 34.7 billion) compared to Rs. 2.52 lakh crore (US$ 30.3 billion) in 2024-25 to the Ministry of Railways. DFCCIL which is a special purpose vehicle was set up for implementing the DFC project under the administrative control of Ministry of Railways. The plan is to construct dedicated freight lines along the eastern (1856 km route length) and western (1504 km route length) parts of India. Total length will be 28243 kms with a total estimated cost of US$ 11.66 billion as on September 2019 financial progress stands at 63.6% and physical progress stands 67.5%.

Dedicated Freight Corridor

Constructed exclusively for movement of goods train, the first phase of the dedicated freight corridor (DFC) project includes the Western DFC, running from Mumbai to Dadri, near Delhi, and the Eastern DFC, running from Sonnagar, Bihar to Ludhiana in Punjab. The western corridor caters mainly to containers as 60% of container traffic originates from this region. The eastern corridor caters primarily to dry bulk cargo.

Compared to Indian Railways, which primarily operates single-stack container trains, the Dedicated Freight Corridor (DFC) is designed for double-stack operations, significantly enhancing capacity. The DFC also enables long-haul train movements, wherein two freight trains can be coupled and operated together. Notably, the JNPT terminal is equipped to support such long-haul configurations.

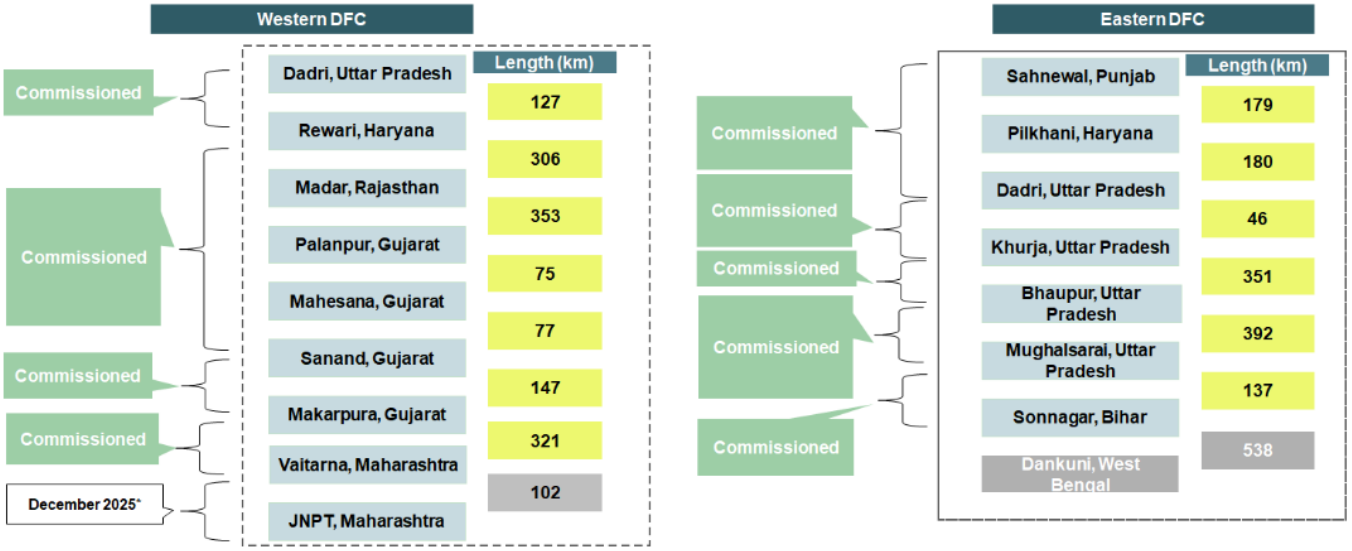
Operational efficiency on the DFC is considerably higher. While Indian Railways records an average freight train speed of 18–20 kmph, the DFC currently supports speeds of up to 100 kmph, with an average of 55–60 kmph. Post completion of the remaining sections, the average operational speed is targeted to reach 75 kmph—marking a substantial improvement in transit time and network productivity.

DFCs are intended to help the Indian railway (IR) regain lost freight share. By cutting the turnaround time between the importing and consuming destinations, they are expected to compel several industries to realign their logistics strategies. The DFCs and associated logistics parks can help lower plant-level inventory, largely ensuring huge savings in working capital. Sectors such as cold chain and transportation of perishables and express distribution may be encouraged to choose rail for freight due to the expected efficiencies of DFCs. Due to DFC, the wagon availability is expected to increase along with decrease in haulage time. Not only would DFCs ensure faster freight movement but also help the overall economy through decongestion of major highways due to the partial shifting of some freight to rail. It will also allow for faster evacuation of cargo from ports, improving efficiency. However, to maintain the rail share in tonnage in the long term, additional capacity needs to be added.

Project Details:

- Total Length of Eastern & Western DFC: 2843 kms (except Sonnagar-Dankuni section)
- Eastern DFC: 1337 kms
- Western DFC: 1506 kms
- Majority of the corridor is already operational, with the busiest sections inaugurated between 2020 and early 2024.
- Remaining unfinished stretch is the Vaitarna–JNPT segment (102 km) on WDFC, scheduled for completion by Dec 2025.
- DFCCIL has achieved 93–96% financial completion, reflecting strong alignment between construction milestones and funding cycles.

Section Wise Progress



Source: DFCCIL, CRISIL Intelligence

5.6 Overview of Railway bridges

As on 01-04-2024, IR has 1,63,810 Bridges, out of which 740 bridge are important, 13,176 bridges are major and 1,49,894 bridges are minor Bridges. During the year 2023-24 a total of 2,132 Bridges were Strengthened, Rehabilitated and Rebuilt to enhance safety of train operation. Modern Bridge Inspection techniques have been adopted, which includes inspection by Drones, Under Water Inspections, monitoring the water level with the help of water level system, 3D scanning of river bed etc. There is a well-established system of inspection of railway bridges in Indian Railways. All the bridges are inspected twice a year, one before the onset of monsoon and one detailed inspection after the monsoon by the designated officials. After inspection, every bridge is assigned an Overall Rating Number (ORN) and based on the ORN of bridge Rebuilding/Strengthening is undertaken.

Trend in Number of Bridges Across the span of FY21 to FY24

Bridge Type	Length (km) Year 20-21	Length (km) Year 21-22	Length (km) Year 22-23	Length (km) Year 23-24
Important	729	739	711	740
Major	12,493	12,590	12,610	13,176
Minor	1,42,056	1,43,088	1,44,743	1,49,894
Total Length	1,55,278	1,56,417	1,58,064	1,63.810

Source: Railway Yearbook 2023-24, 2022-23, 2021-22, 2020-21, CRISIL Intelligence

5.7 Overview of Metro

Metro rail infrastructure in India has witnessed rapid growth over the past decade. As of May 2025, metro services are operational or under construction in 23 cities, with a total of 1,013 km of operational metro lines, a sharp rise from 248 km in 2014, reflecting an addition of 763 km in just eleven years. This expansion has elevated India to the third-largest metro rail network globally.

Between 2014 and 2025, the government approved 34 metro projects spanning 992 km, significantly accelerating urban mobility development. Daily ridership has also seen a fourfold increase, from 28 lakh in 2013-14 to over 1.12 crore in 2025. The commissioning pace of metro lines has multiplied nearly nine times, with an average of 6 km operationalised every month, compared to 0.68 km per month prior to 2014.

In parallel, India has made notable progress in regional connectivity through the Regional Rapid Transit System (RRTS). The introduction of Namo Bharat trains on the Delhi–Meerut RRTS corridor exemplifies this effort, providing high-speed, efficient, and modern public transportation across urban and suburban regions.

To address the mobility needs of medium and small cities with lower population densities, the Government of India has introduced Metro Neo and Metro Lite projects. These systems offer affordable, efficient, and scalable urban transit solutions, with significantly lower capital and operating costs compared to conventional metro systems.

India's current metro rail network was conceived, constructed and operationalised less than ten years ago yet, daily ridership across metro systems in the country has already crossed the 10 million mark, and is expected to exceed 12.5 million in a year or two. India is witnessing a steep rise in its metro ridership and will continue to do so as our metro systems evolve. It must also be noted that nearly all metro rail systems in country presently generate operational profits. A number of advancements and technological innovations have taken place during recent years in various Metro Rail operational in the country.

Metro and Mass Rapid Transit System (MRTS) projects consistently emerge as the second-largest expenditure item under the Ministry of Housing & Urban Affairs for urban development. Across fiscal years 2023–24, 2024–25, and projections for 2025–26, MRTS/metro projects claim 30–36% of the total envelope, second only to the Pradhan Mantri Awas Yojana (Urban). This underscores the central government's strategic emphasis on capital-intensive metro infrastructure as a cornerstone of its urban policy.

Some of the noteworthy technological advancements are:

- Introduction of Namo Bharat Train- India's first State of Art Namo Bharat train with design speed of 180 kmph and operational speed of 160 kmph has been introduced on priority section between New Ashok Nagar to Meerut South Depot on Delhi- Meerut RRTS corridor.
- European Train Control System (ETCS) – World's first State of Art ETCS level II with Hybrid level-III radio based train signalling system on LTE backbone has been introduced on Namo Bharat trains running between New Ashok Nagar to Meerut South Depot on Delhi- Meerut RRTS corridor enhancing passenger safety to a new level.
- Unmanned Train Operations (UTO) – For improved efficiency and quality of service including better utilisation of resources, UTO is functional in many stretches of Delhi Metro Rail Corporation.
- Indigenous Automatic Train Supervision system (i-ATS) – India's first Indigenously built Automatic Train Supervision System developed by the combined efforts of DMRC and Bharat Electronics Limited (BEL) has been implemented on Red Line of Delhi Metro

Budget Estimates for Metro Rail

Year	Amount (in Crore)
2018-19	₹14,264 Crore
2019-20	₹17,713 Crore
2020-21	₹17,482 Crore
2021-22	₹18,998 Crore
2022-23	₹19,130 Crore
2023-24	₹19,518 Crore
2024-25	₹21,335 Crore
2025-26	₹24,785 Crore

Source: Union Budget 2024, 2025, CRISIL Intelligence

6 Indian Airport Sector

6.1 Airport Infrastructure & Connectivity

Airport infrastructure industry is governed by the Ministry of Civil Aviation, which is the apex body that formulates policies and programmes. Four regulatory bodies operate under the ministry - Directorate General of Civil Aviation (DGCA), Bureau of Civil Aviation Security (BCAS), Airports Authority of India (AAI) and Airports Economic Regulatory Authority (AERA). AERA is the new regulator of airports constituted in 2008.

CRISIL Intelligence projects passenger traffic recording a 7-10% on-year rise in fiscal 2025 to 405-415 million in fiscal 2025 aided by strong demand across travel segments viz. leisure, VFR, corporate and MICE coupled with increased capacity deployment by airlines expanding network aided by new aircraft deliveries and capacity expansion at major airports such as Delhi, Bangalore, Hyderabad, Chennai etc.

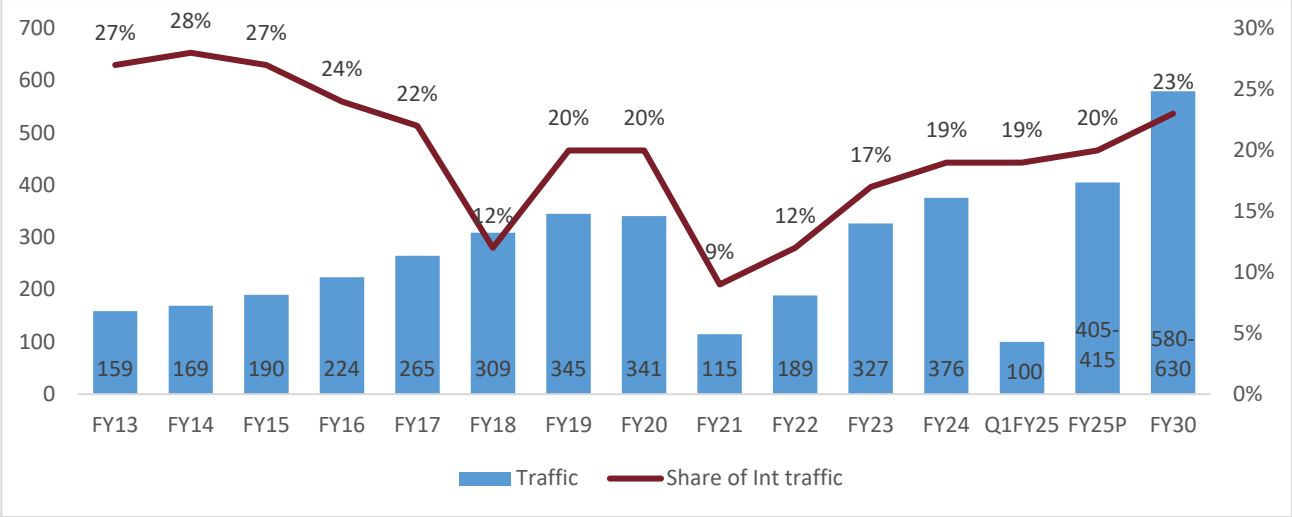
In Q1FY25, airport passenger traffic recorded a 7% on-year rise to 99.5 million attributable to rising travel demand supported by increased capacity deployment by airlines and terminal capacity enhancement at major airports.

In FY24, passenger traffic at airports recorded a 15% on year rise to 376 million, surpassing pre-Covid levels by 10% on account of pet-up travel demand, capacity push by airlines coupled with new airlines expanding networks to international markets. Passenger traffic at airports recorded 73% on-year rise to 327 million in fiscal 2023, marginally lower than fiscal 2019-20 levels. The rise was led by domestic passengers, with the share of international passengers at 17%, below the long-period average of 22-25%. The healthy rise in passenger traffic is led by pent up demand across segments. Leisure and VFR are expected to be the dominant travel modes attributable to pent-up demand and revenge tourism.

Passenger traffic is expected to reach 580-630 million by fiscal 2030 as Indian aviation gets back to pre-pandemic double-digit growth rates, led by low travel density per capita, shift from rail travel to air travel, and increasing air connectivity.

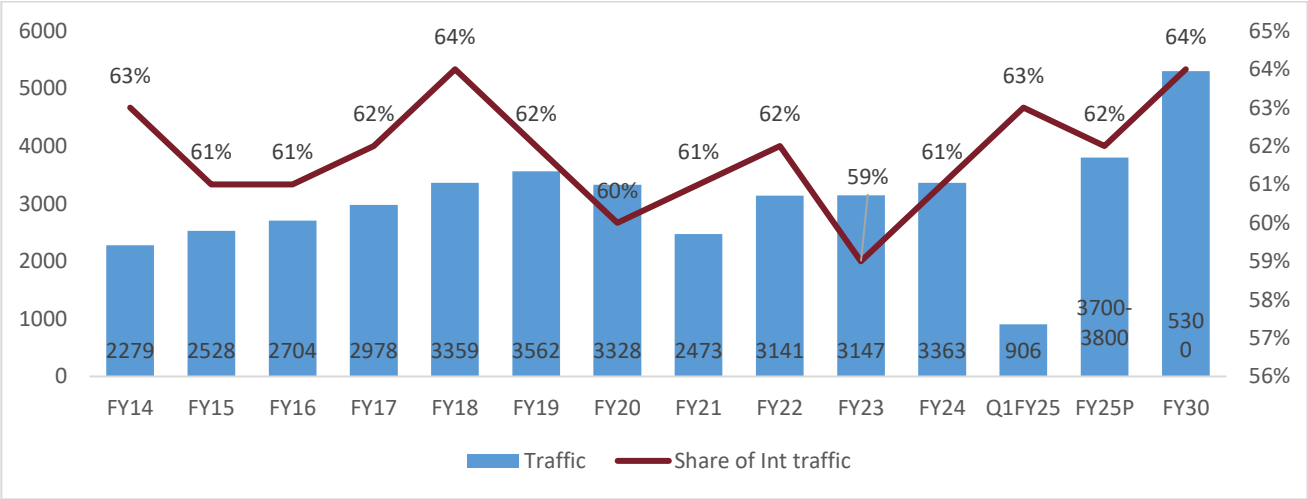
Pax traffic seen recording a 7-10% rise in fiscal 2025 attributable to rising travel demand supported by capacity deployment by airlines coupled with terminal capacity enhancements at major airports.

Airport Passenger Traffic (in millions)



Note: Data for fiscal 2022 includes unscheduled international passenger traffic through the Vande Bharat Mission and air transport bubbles
Source: AAI, CRISIL Intelligence

Airport Freight Traffic (in '000 tons)



Note: Data for fiscal 2022 includes unscheduled international passenger traffic through the Vande Bharat Mission and air transport bubbles
Source: AAI, CRISIL Intelligence

Freight traffic is projected to reach 5.1- 5.3 MT by fiscal 2030 driven by the country's accelerating economic growth post-pandemic and its emerging prominence in global supply chains. The 'China Plus One' strategy adopted by global players is likely to further boost freight demand, as India positions itself as a preferred alternative to China. As cargo-handling capabilities continue to improve, India is poised to develop into a significant trans-shipment hub, with volumes expected to surge in the coming years.

Profitability of PPP airports under pressure attributable to the pandemic

In the second control period, profitability of key PPP airports — Delhi, Mumbai, Bangalore, and Hyderabad — came under pressure due to levy of high tariffs during the first control period even as passenger traffic at airports remained higher than the forecast. This has led to the over-recovery of airports, as per the current 30% hybrid-till model under 'fixed ROE', reducing the aggregate revenue requirement for the second control period.

In the third control period, the charges across airports have risen due to the significant capex being undertaken by the airports and also to make up the revenue shortfall arising out of the Covid-19 pandemic. However, the third control period has also coincided with the multiple outbreak of the covid-19 pandemic which has culled passenger traffic. All airports, AAI and private, have recorded losses in fiscal 2021 attributable to the sharp decline in revenues led by steep drop in pax numbers and fixed outgo of charges. The third control period also has an annual hike in airport charges across the 4 major PPP airports to offset the impact of the pandemic and taking into account the capex ongoing at these airports. The tariff changes in the 4th control period for MIAL and DIAL also shows a healthy rise, nearly doubling on average, would be monitorable as the impact of the pandemic would have waned coupled with the capex of the 3 airports nearing/having completed.

Despite a decline in profitability, the ratings of airports continued to be strong, deriving strength from stable cash flows from regulated aeronautical revenues. Moreover, the current capex by airports will also set the stage for tariff hikes in the third and fourth control periods.

Despite a decline in profitability, the ratings of airports continued to be strong, deriving strength from stable cash flows from regulated aeronautical revenues. Moreover, the current capex by airports will also set the stage for tariff hikes in the third and fourth control periods. However, airports are prone to temporary cash-flow fluctuations during control period deviation, as they are done on a five-year basis to be acutely felt during the pandemic with revenues impacted and fixed costs having to be met, in actual passenger traffic led by exit of airlines, aggressive projections, etc. The Covid-19 pandemic and the subsequent sharp drop in traffic are likely to lead to a shortfall from the planned aggregate revenue projections by Airports economic regulatory authority of India (AERA) and airport operators. For the two brownfield airports — Delhi and Mumbai — AERA has not considered levying a User Development Fee (UDF) to make up for the shortfall in Aggregate revenue requirement, ARR arising due to the pandemic, as the tariff orders were released before the second pandemic wave. However, the space remains a monitorable as these control orders were released without accounting for the ferocious second wave's impact. However, AERA has allowed imposition of UDFs across the three greenfield airports, viz. Bangalore, Cochin and Hyderabad, to make up for the shortfall in ARR arising due to the pandemic (came to a standstill in fiscal 2022). Imposition of UDFs would add to the burden of high air ticket prices, already elevated due to fare caps imposed by the Ministry of Civil Aviation and rising fuel prices. Passengers could avoid flying because of rising air ticket prices, thus impacting the entire aviation ecosystem. Hence, AERA decided to levy UDFs from the second half of fiscal 2022 or fiscal 2023 onwards for the greenfield airports.

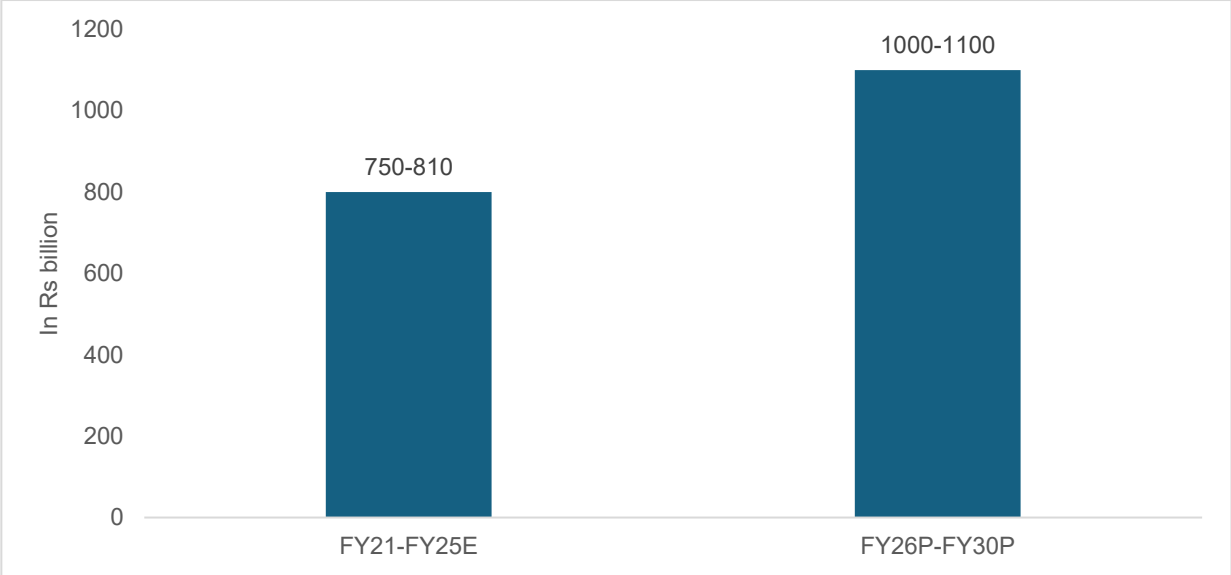
6.2 Investments in airport sector

According to CRISIL, airport investments are projected to surpass Rs 1 trillion between FY26 and FY30—significantly higher than the Rs 750-810 billion estimated for FY21–25. The upcoming capex will be divided between greenfield projects (such as the Navi Mumbai, Jewar, and Bhogapuram airports) and major brownfield expansions which include Mumbai airport's Terminal 1 redevelopment, as well as work at Hyderabad (Phase 3), Ahmedabad, and Pune airports.

In addition, new terminal works are expected to begin in Bengaluru, Chennai, and Mangaluru, further contributing to the growth in airport infrastructure.

Ongoing expansion projects drive capex surge till fiscal 2025, FY26-FY30 to see further increase with 25 airports up for privatization. CRISIL expects that the aviation industry and infrastructure development related to it will increase in the foreseeable future due to Government's long-term capex plans in the aviation sector in India.

Airport capex projected to cross 1 trillion over fiscals 2026-30 driven by healthy passenger and investor demand



Source: CRISIL Intelligence

Major upcoming projects

Project name	Promoter	Start	Completion as per CRISIL's estimate	Project cost (Rs billion)	Scope of work	Remarks
Delhi airport	DIAL	Completed	FY25	105	Terminal 1 (Expansion) Fourth runway taxiways/apron	Fourth runway operational. Terminal 1 operational
Navi Mumbai airport	NMIAL	Towards Completion	FY25 (Phase 1) FY30 (Phase 2)	180 (Phase 1) 350 (Phase 2)	Greenfield	Phase 1 Expected to commence operation in September 2025 Second phase expected to start this year. Phase 2 - additional capital investment
Bengaluru airport - Stage 2 expansion	BIAL	Under construction	FY26	135	Second runway Phase 1 terminal Two aprons and taxiway	Runway completed, Terminal 2 completed, Terminal 1 to commence revamp
Hyderabad airport expansion	GHIAL	Under construction	FY30	140	Terminal 2	Expenditure plan to be implemented by 2030–31 (FY31) for Phase 3
Jewar airport	YIAPL	FY22	FY25 (Phase 1)	57 (Phase 1)	Greenfield	Works in Progress. Phase one completion deferred. Expected completion in Q2FY2026
Bhogapuram airport	GMR group	FY23	FY26	24 (Phase 1)	Greenfield	Under construction (36% completion). Expected to commence operations in June 2026
Nagpur airport	GMR group	-	-	25 (Phase 1 expansion)	Terminal apron	Supreme Court closes Centre's curative plea against order allowing GMR to operate Nagpur airport
Pune airport	MADC	-	-	75	Greenfield	Planning
Mumbai Airport	Adani Airports || MIAL	Planning	FY31	85	Redevelopment	Planning. Works to commence post opening of Navi Mumbai airport
Mangalore Airport	Adani Airports	Planning	-	180	New terminal	EC applied

Note: MADC – Maharashtra Airport Development Co Ltd; MoCA – Ministry of Civil Aviation
NA – Not applicable

Source: CRISIL Intelligence

Airport investments can broadly be classified as Greenfield and brownfield. While the major investment in a Greenfield airport is towards land preparation, construction of new runways, taxiways, terminal etc., whereas the major investment in a brownfield airport is towards expanding/upgrading the existing facilities such as terminal, runway as per need basis to increase the handling capacity of the airport.

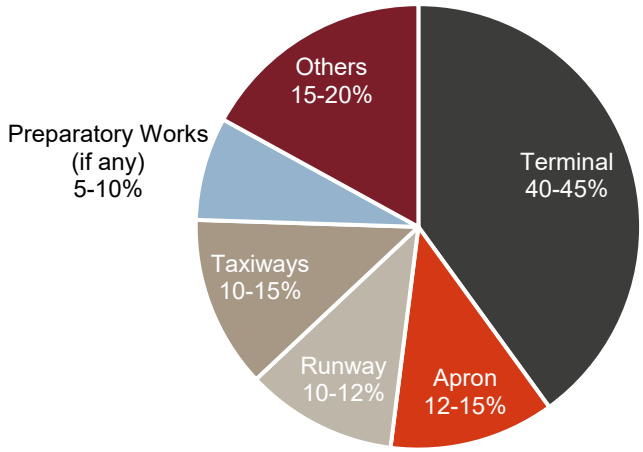
Investments in airports can broadly be classified as airside and landside investments. Airside investments are channeled towards terminals, runways, aprons, taxiways etc., and landside investments towards airport approach roads, car parks etc. Roughly 65-70% of airport investments are airside as these involve crucial, construction intensive work, while the remainder 30-35% are landside investments and towards other equipment such as air conditioners (ACs), Car park, lighting etc at airports.

Investment amounts vary significantly across airports depending on various factors, including the type of surface and aircraft handled at the airport, number of existing aero bridges, planned passenger handling capacity, etc. During the past few years, major investments were made in expanding existing capacities in New Delhi and Mumbai airports, and creating new airports in Bengaluru and Hyderabad.

While Delhi International Airport Limited (DIAL) invested about Rs.129 billion, primarily towards the construction Terminal T3 and a third runway, Mumbai International Airport Limited (MIAL) invested about Rs.124 billion towards the construction of Terminal T2, the refurbishment of Terminal T1, the extension of the existing runway and the construction of 2 parallel taxiways.

Among Greenfield airports, the investment by Bangalore International Airport Limited (BIAL) was close to Rs 25 billion for a terminal, a runway, and 2 parallel taxiways, among others, while the corresponding figure stood at Rs 29 billion for GMR Hyderabad International Airport Limited (GHIAL) for a similar setup, albeit with a lower capacity.

Typical segment-wise investments across key segments for major airports



Source: CRISIL Intelligence

6.3 Government Schemes/plans

6.3.1 UDAN Scheme: Enhancing Regional Connectivity in India

The UDAN (Ude Desh ka Aam Nagrik) scheme, launched by the Ministry of Civil Aviation in October 2016 under the National Civil Aviation Policy (NCAP), aims to make air travel affordable and improve air connectivity to underserved and unserved regions across the country. The first UDAN flight was inaugurated on April 27, 2017, connecting Shimla to Delhi.

Key Milestones and Achievements

- Operational Routes: Over 619 routes have been operationalized under the scheme as of 2024.
- Airports Connected: 88 airports, including 13 heliports and 2 water aerodromes, have been made operational under various UDAN phases.
- Passenger Impact: More than 1.44 crore passengers have benefited from affordable regional air travel.
- Airline Development: UDAN has facilitated the growth of new regional airlines such as Flybig, Star Air, IndiaOne Air, and Fly91.
- Regional Coverage: Enhanced connectivity to remote and strategic areas including Pasighat, Ziro, Tezu, and Hollongi in the North-East, and tourism/religious destinations like Khajuraho, Deoghar, Amritsar, and Kishangarh.
- Passenger Amenities: The scheme has introduced UDAN Yatri Cafés at select airports (e.g., Kolkata and Chennai) to provide affordable food and improved travel experience.

Funding Mechanism

UDAN operates through a Viability Gap Funding (VGF) model, supported by a levy on major routes. This enables airlines to serve routes that may not be commercially viable otherwise, while keeping ticket prices affordable (e.g., ₹2,500 for a one-hour flight).

Way Forward

The Ministry of Civil Aviation continues to expand the scheme under newer phases (like UDAN 5.0 and 5.1), focusing on enhancing connectivity in underserved regions and improving the sustainability of awarded routes.

7 Competitive landscape for EPC players

7.1 Operational Parameters

In the intensely competitive landscape of India's road infrastructure sector, operational efficiency and execution prowess are the primary differentiators among major players. This analysis provides a comparative review of the leading EPC companies, focusing on their operational strengths as evidenced by key metrics. By examining factors such as the total number of projects completed, number of ongoing projects, this section aims to highlight the execution capabilities and market dominance of each company, thereby offering a comprehensive understanding of their operational footprint and track record in driving the nation's road development agenda.

7.1.1 Ceigall India Limited

Ceigall India Limited is a leading player in the infrastructure and construction sector, known for delivering complex engineering, procurement, and construction (EPC) projects across India. The company specializes in creating critical transportation infrastructure, including highways, expressways, bridges, flyovers, railway over bridges (ROBs), tunnels, and runways. With a strong presence across the country, Ceigall India has made significant contributions to improving connectivity and transportation networks. As of 2025, the company has successfully completed 34 projects and is actively working on 19 ongoing projects.

7.1.2 GR Infra Projects Limited

G R Infra projects Limited (GRIL) is a prominent player in India’s infrastructure sector, specializing in engineering, procurement, and construction services. With over 25 years of experience, the company focuses on developing highways, bridges, airport runways, railways, metro projects, power transmission lines, and tunnels. The company has a presence in 23 states and has 8 manufacturing units. As of 2025, their highways and bridges portfolio includes 63 projects, and have an ongoing pipeline of 16 projects.

7.1.3 HG Infra Engineering Limited

HG Infra Engineering Limited (HGIEL), established in 2003, is a prominent Indian infrastructure company specializing in engineering, procurement, and construction (EPC) services. The company focuses on developing and executing projects in sectors such as roads and highways, bridges, flyovers, and other civil construction works. Operating across various states in India, HGIEL has significantly contributed to the nation’s infrastructure development. As of 2024, the company has completed numerous projects and continues to work on several ongoing developments, enhancing connectivity and supporting economic growth. Their roads and highways portfolio includes over 44 completed projects as of Sep 2025.

7.1.4 KNR Construction Limited

KNR Constructions Limited (KNRCL), founded in 1995, is a leading infrastructure development company in India, specializing in engineering, procurement, and construction (EPC) services. The company operates across various sectors, including roads and highways, irrigation, and urban water infrastructure. With a strong presence in multiple states, KNRCL has successfully completed numerous projects, contributing significantly to India’s infrastructure landscape. As of 2025, the company continues to execute several ongoing projects, further enhancing the nation’s

connectivity and water management systems. Their roads and highways portfolio includes 13 ongoing projects, almost 39 completed projects.

7.1.5 PNC Infratech Limited

PNC Infratech Limited, incorporated in 1999, is a leading Indian infrastructure development, construction, and management company. The company specializes in executing projects across sectors such as highways, bridges, flyovers, airport runways, industrial area development, and water supply infrastructure.

7.1.6 J Kumar Infraprojects Limited

J. Kumar Infraprojects Limited, founded in 1980, has emerged as a premier Indian infrastructure player specializing in complex urban projects, metros (both underground and elevated), bridges, flyovers, tunnels, canals, and dams. With end-to-end capabilities in planning, engineering, procurement and construction, it partners with major government bodies like DMRC, NHAI, MMRDA, and state corporations to deliver high-quality, sustainable projects. The company emphasizes safety, excellence, and innovation, backed by a skilled workforce and modern equipment. It also maintains strong ESG policies and corporate governance frameworks. As of 2025, they have worked on 11 road projects, 13 bridges, 30 flyover projects.

7.1.7 Ashoka Buildcon Limited

Ashoka Buildcon Limited, is a Fortune India 500 infrastructure conglomerate, has been a major player in highway and bridge construction since 1976. Operating as an integrated EPC, BOT, and HAM contractor, it executes large-scale projects across highways, bridges, railways, power, buildings, and water infrastructure, both in India and abroad. Known for its strong quality, safety, and environmental standards, Ashoka has extensive experience in power transmission, railway electrification, and urban development.

7.1.8 RKCPL Limited

RKCPL is a civil construction and infrastructure development firm with extensive experience in executing specialized structural works across India. Their portfolio includes, elevated roads, flyovers, bridges, roads over bridges, highways, expressways, drainage systems, canal systems, and aqueducts. The company's principal business operations are broadly divided into EPC ("Engineering, Procurement and Construction") projects and hybrid annuity model ("HAM") projects. As a structural civil engineering-focused EPC (Engineering, Procurement, and Construction) company with a pan-India presence, they are known for delivering technically demanding projects with precision and quality. To ensure rigorous quality control, the company has set up a desk lab featuring advanced equipment. Notably, the company is executing the Dehradun Ganeshpur Package 2 project, which features one of the longest elevated wildlife corridors in India, designed to enable free and safe movement of animals beneath the flyover.

7.2 Financial Parameters (FY 2023-25)

Beyond operational success, the financial health and stability of EPC companies are crucial indicators of their long-term viability and growth potential. This competitive analysis delves into the financial performance of key players in the Indian road infrastructure industry, using a range of critical financial metrics.

7.2.1 Ceigall India Limited

Parameters	2023	2024	2025
Revenue from Operations	20681.68	30293.52	34367.32
EBITDA	2956.29	5176.62	5183.78
EBITDA Margin %	14.29%	17.09%	15.08%
PAT	1672.72	3043.07	2865.74
PAT Margin %	8.09%	10.05%	8.34%
ROE%	28.20%	33.57%	15.54%
ROCE%	28.67%	31.98%	19.22%

Note: All the values are in millions

Note: Consolidated financial data has been used

Note: Formulas used for the KPIs:

1. *EBITDA is calculated as Restated profit before exceptional items and tax minus Other Income plus Finance Costs, Depreciation and Amortization Expense*
2. *EBITDA Margin (%) is the percentage of EBITDA divided by Revenue from Operations.*
3. *PAT Margin (%) is calculated as Restated profit (after tax) for the period/year as a % of Revenue from Operations.*
4. *ROE is calculated as PAT as a % of Total Equity.*
5. *ROCE is calculated as EBIT as a % of Capital employed wherein capital employed refers to the difference of Total Assets and Current Liabilities.*

Source: Company Reports, Crisil Intelligence

7.2.2 GR Infra Projects Limited

Parameters	2023	2024	2025
Revenue from Operations	94815.15	89801.50	73947.04
EBITDA	25537.02	21287.58	18460.53
EBITDA Margin %	26.93%	23.71%	24.96%
PAT	14544.27	13229.66	10153.95
PAT Margin %	15.34%	14.73%	13.73%
ROE%	23.21%	17.40%	11.94%
ROCE%	20.71%	18.05%	13.58%

Note: All the values are in millions

Note: Consolidated financial data has been used

Note: Formulas used for the KPIs:

1. *EBITDA is calculated as Restated profit before exceptional items and tax minus Other Income plus Finance Costs, Depreciation and Amortization Expense*
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5. *ROCE is calculated as EBIT as a % of Capital employed wherein capital employed refers to the difference of Total Assets and Current Liabilities.*

Source: Company Reports, Crisil Intelligence

7.2.3 HG Infra Engineering Limited

Parameters	2023	2024	2025
Revenue from Operations	46220.08	53784.79	50561.82
EBITDA	8964.95	10621.53	10597.15
EBITDA Margin %	19.40%	19.75%	20.96%
PAT	4931.91	5385.86	5054.01
PAT Margin %	10.67%	10.01%	10.00%
ROE%	25.66%	21.94%	17.13%
ROCE%	23.60%	25.57%	14.65%

Note: All the values are in millions

Note: Consolidated financial data has been used

Note: Formulas used for the KPIs:

1. *EBITDA is calculated as Restated profit before exceptional items and tax minus Other Income plus Finance Costs, Depreciation and Amortization Expense*
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4. *ROE is calculated as PAT as a % of Total Equity.*
5. *ROCE is calculated as EBIT as a % of Capital employed wherein capital employed refers to the difference of Total Assets and Current Liabilities.*

Source: Company Reports, Crisil Intelligence

7.2.4 KNR Construction Limited

Parameters	2023	2024	2025
Revenue from Operations	40623.60	44294.86	47531.66
EBITDA	9165.02	10662.75	16066.37
EBITDA Margin %	22.56%	24.07%	33.80%
PAT	4394.09	7522.97	10018.74
PAT Margin %	10.82%	16.98%	21.08%
ROE%	15.99%	21.51%	22.06%
ROCE%	23.59%	22.42%	25.31%

Note: All the values are in millions

Note: Consolidated financial data has been used

Note: Formulas used for the KPIs:

1. *EBITDA is calculated as Restated profit before exceptional items and tax minus Other Income plus Finance Costs, Depreciation and Amortization Expense*
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5. *ROCE is calculated as EBIT as a % of Capital employed wherein capital employed refers to the difference of Total Assets and Current Liabilities.*

Source: Company Reports, Crisil Intelligence

7.2.5 PNC Infratech Limited

Parameters	2023	2024	2025
Revenue from Operations	79560.83	86498.68	67686.84
EBITDA	16000.48	20045.28	20660.61
EBITDA Margin %	20.11%	23.17%	30.52%
PAT	6584.51	9094.21	8154.18
PAT Margin %	8.28%	10.51%	12.05%

Parameters	2023	2024	2025
ROE%	15.37%	17.54%	13.62%
ROCE%	13.30%	14.29%	13.02%

Note: All the values are in millions

Note: Consolidated financial data has been used

Note: Formulas used for the KPIs:

1. *EBITDA is calculated as Restated profit before exceptional items and tax minus Other Income plus Finance Costs, Depreciation and Amortization Expense*
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5. *ROCE is calculated as EBIT as a % of Capital employed wherein capital employed refers to the difference of Total Assets and Current Liabilities.*

Source: Company Reports, Crisil Intelligence

7.2.6 J Kumar Infraprojects Limited

Parameters	2023	2024	2025
Revenue from Operations	42031.43	48792.05	56934.88
EBITDA	5970.72	7040.62	8264.00
EBITDA Margin %	14.21%	14.43%	14.51%
PAT	2743.91	3285.93	3904.49
PAT Margin %	6.53%	6.73%	6.86%
ROE%	11.73%	12.43%	12.98%
ROCE%	18.62%	19.18%	20.31%

Note: All the values are in millions

Note: Consolidated financial data has been used

Note: Formulas used for the KPIs:

1. *EBITDA is calculated as Restated profit before exceptional items and tax minus Other Income plus Finance Costs, Depreciation and Amortization Expense*
2. *EBITDA Margin (%) is the percentage of EBITDA divided by Revenue from Operations.*
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4. *ROE is calculated as PAT as a % of Total Equity.*
5. *ROCE is calculated as EBIT as a % of Capital employed wherein capital employed refers to the difference of Total Assets and Current Liabilities.*

Source: Company Reports, Crisil Intelligence

7.2.7 Ashoka Buildcon Limited

Parameters	2023	2024	2025
Revenue from Operations	81004.82	97984.62	100366.28
EBITDA	19704.59	22332.39	29210.07
EBITDA Margin %	24.33%	22.79%	29.10%
PAT	2939.44	5212.25	17335.69
PAT Margin %	3.63%	5.32%	17.27%
ROE%	14.88%	21.50%	41.68%
ROCE%	14.95%	16.08%	17.78%

Note: All the values are in millions

Note: Consolidated financial data has been used

Note: Formulas used for the KPIs:

1. *EBITDA is calculated as Restated profit before exceptional items and tax minus Other Income plus Finance Costs, Depreciation and Amortization Expense*

2. *EBITDA Margin (%) is the percentage of EBITDA divided by Revenue from Operations.*
3. *PAT Margin (%) is calculated as Restated profit (after tax) for the period/year as a % of Revenue from Operations.*
4. *ROE is calculated as PAT as a % of Total Equity.*
5. *ROCE is calculated as EBIT as a % of Capital employed wherein capital employed refers to the difference of Total Assets and Current Liabilities.*

Source: Company Reports, Crisil Intelligence

7.2.8 RKCPL Limited

Parameters	2023	2024	2025
Revenue from Operations	8617.23	10933.27	12706.61
EBITDA	1332.23	2203.05	2740.06
EBITDA Margin %	15.46%	20.15%	21.56%
PAT	965.22	1569.48	1645.81
PAT Margin %	11.20%	14.36%	12.95%
ROE%	39.26%	38.80%	28.92%
ROCE%	46.36%	45.89%	25.13%

Note: All the values are in millions

Note: Consolidated financial data has been used

Note: Formulas used for the KPIs:

1. *EBITDA is calculated as Restated profit before exceptional items and tax minus Other Income plus Finance Costs, Depreciation and Amortization Expense*
2. *EBITDA Margin (%) is the percentage of EBITDA divided by Revenue from Operations.*
3. *PAT Margin (%) is calculated as Restated profit (after tax) for the period/year as a % of Revenue from Operations.*
4. *ROE is calculated as PAT as a % of Total Equity.*
5. *ROCE is calculated as EBIT as a % of Capital employed wherein capital employed refers to the difference of Total Assets and Current Liabilities.*

Source: Company Reports, Crisil Intelligence

8 Threats and Challenges

The following section frames out some of the threats and challenges in the industry.

8.1.1 Market and Economic Challenges

- **Economic Slowdowns:** A slowdown in the broader economy can lead to a reduction in government spending on infrastructure projects, fewer new tenders being floated, and a general tightening of credit, all of which adversely impact the civil construction sector.
- **Commodity Price Volatility:** The civil construction sector is highly dependent on key raw materials like steel, cement, bitumen, and aggregates. Fluctuations in the prices of these commodities can significantly impact a company's project costs and profitability.
- **Intense Competition and Bid Price Pressure:** The Indian Road construction sector is highly competitive, with many domestic and international players vying for projects. This leads to aggressive bidding and can compress profit margins. Companies might be forced to bid for projects at lower-than-ideal margins just to secure a healthy order book and maintain market share.
- **Funding and Liquidity Issues:**
    - Delayed Fund Disbursement: In case of any delays in payment from government agencies and state road development corporations, it can strain a company's working capital and cash flow. This often leads to increased borrowing and higher interest costs.
    - Capital-Intensive Nature: Road projects require significant initial capital for equipment, manpower, and materials. Companies must have access to adequate funding, both from banks and from their own cash flows, to sustain operations.

8.1.2 Operational and Execution Challenges

- **Land Acquisition Delays:** This remains one of the most significant and persistent challenges. The process of acquiring land for new road alignments is often slow, complex, and can be mired in legal disputes and community resistance. Delays in land acquisition directly affect project timelines, leading to cost overruns and financial penalties.
- **Regulatory and Environmental Hurdles:** Obtaining various statutory clearances, including environmental, forest, and wildlife approvals, can be a time-consuming and bureaucratic process. This can cause significant project delays.
- **Inconsistent Policies:** Changes in government policies, tax regimes (e.g., GST), and regulatory frameworks can create uncertainty and impact project economics.
- **Shortage of Skilled Labor and Manpower Management:** The road construction sector heavily relies on a large workforce, including skilled engineers, technicians, and migrant laborers. Challenges include a shortage of skilled personnel, high labor turnover, and managing a dispersed workforce across multiple project sites.
- **Project Management and Execution Risks:**

- Lack of Timely Approvals: Projects often get delayed due to slow approval processes for design changes, material specifications, or other on-site issues.
- Sub-Contractor and Supply Chain Risks: Over-reliance on sub-contractors can introduce risks related to quality control, project timelines, and contractual disputes. Disruptions in the supply chain for key materials can also lead to delays.

8.1.3 Technology and Innovation Threats

- **The Need for Technology Adoption:** The industry is experiencing a rapid shift towards new technologies, and companies that fail to adapt risk falling behind.
- **Automation and Robotics:** The use of robotics, drones for site monitoring, and other forms of automation is improving speed, precision, and safety. A lack of investment in these technologies can impact a company's competitiveness.
- **Sustainability and Green Technologies:** Growing concerns about environmental impact are driving a demand for more sustainable construction methods and materials. Companies that are not prepared to integrate green building materials and eco-friendly practices may face regulatory pressures and lose out on projects where sustainability is a key criterion.
- **Data and Digital Transformation:** The future of infrastructure lies in 'smart' roads and digital project management. Companies need to invest in data analytics, IoT sensors for monitoring road conditions, and digital platforms for real-time project tracking. This requires a significant cultural and technological shift, which can be a major challenge for traditional players.

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