SECTOR OVERVIEW

A. Background

1. Institutional framework. In India, ownership of roads lies with the government, which also has the right to develop and maintain them. Administration of roads is a concurrent subject, with the jurisdiction of the central government limited to national highways and the jurisdiction of the state government limited to state highways, major district roads, village and other roads. The state public works departments and other state agencies maintain all the roads and highways of each state except the national highways, which are maintained by the National Highways Authority of India (NHAI).

2. Road network in India. India has the second largest road network in the world, totaling 5.48 million kilometers (km). Roads are the most common mode of transportation and account for about 86% of passenger traffic and close to 68% of freight traffic. In India, the 120,543 km of national highways constitute a mere 2% of the road network but carry about 40% of the total road traffic. State roads and major district roads are the secondary system of roads. They carry another 60% of traffic and account for 98% of road length. Since fiscal year (FY) 1951, passenger traffic for railways has fallen from 85% to 14% in 2012 while passenger traffic for roads has consistently grown from 15% in FY1951 to 86% in FY2012. Preference for road transport for freight movement is primarily because of large capacity expansions carried out by fleet operators, flexibility, and door-to-door movement. As of FY2016, only 24.9% of the national highway network consisted of four or more lanes.\(^1\)

3. History of public–private partnerships. The importance of private sector partnership in the road subsector in India was recognized relatively early by the NHAI with the adoption of the public–private partnership (PPP) framework in 2001. The main types of PPP contracts awarded were as follows:
   (i) Engineering, procurement, and construction projects. Bids were awarded to private players to construct a section of road. Payments were made during the construction period by the NHAI. The primary bid award criterion is the lowest cost quoted.
   (ii) Build–operate–transfer annuity projects. Bids were awarded to private developers based on lowest annuity quoted. The annuity was recovered during the length of the concession period. The developer had to construct, operate, and maintain the project for the life of the concession. There is no traffic and toll risk on the developer.
   (iii) Build–operate–transfer toll road projects. Various models of build–operate–transfer (BOT) toll road projects were explored. The developer had to construct, operate, and maintain the road during the concession period. The revenue was based on the toll collected for the project after commissioning. The bid award criteria varied from the lowest grant amount (to subsidize the project cost) to be paid to the developer by the NHAI to the highest revenue share or premium amount to be paid by the developer to the NHAI.

4. National highway upgrade projects. The NHAI launched the National Highways Development Project in December 2000 to develop the national highways network. The project consisted of upgrading over 48,589 km of national highways in India at a cost of $31.6 billion, to be implemented in seven phases. As of September 2018, 25,641 km of national highways had

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been upgraded and 9,575 km were under implementation. Projects under the National Highways Development Project have been awarded to private players either on an engineering, procurement, and construction (EPC), BOT, or hybrid annuity model (HAM) basis. In 2018, the Government of India ended the National Highways Development Project and included the national highways that were still under implementation as part of the larger Bharatmala Pariyojana Project. The Bharatmala Pariyojana Project envisages constructing 65,000 km of highways, including national corridors (north–south, east–west, and the “golden quadrilateral”), economic corridors, intercorridor roads, feeder roads, international connectivity, border roads, coastal roads, port connectivity roads, and expressways. The expected investment for phase 1 of the project is $77.0 billion, which includes upgrade of 34,800 km of road network by FY2022.

B. Issues in the Initial Public–Private Partnership Framework

5. **Gaps in the previous concession framework.** The previous concession framework did not have clear remedial measures for delays in land acquisition and in receipt of approvals for projects. Although land acquisition was the responsibility of the NHAI, it invariably faced delays. This led to delays in implementation and projects becoming unviable, resulting in financial stress for the developers. This eventually resulted in reluctance of the private sector to participate in BOT projects and reduction in bank financing available to them.

6. **Inaccurate traffic forecasting.** In the initial years of PPP framework implementation, there was not enough data for accurate traffic forecasting, resulting in traffic being overestimated in many cases. Actual debt service coverage ratios of projects were therefore below projections, resulting in financial stress on the projects. Subsequently, private developers have been wary of taking greenfield traffic risk.

7. **Delays in project execution resulting in cost overrun.** Delays in project execution have been one of the major hurdles facing road development in India. Delays lead to significant cost overruns, which lower the returns for the developer and adversely affect their debt servicing ability. The reasons for the delays are numerous and include difficulties in land acquisition; delay in receipt of environmental clearances, forest clearances, and railway clearances; and delay in approvals for shifting utilities, religious structures, and encroachments. These require coordination with various government departments, leading to time overruns.

8. **Poor construction and maintenance of roads.** Most developers were EPC contractors and did not have an asset management mindset. This, along with the financial stress faced by the developers (because of issues described in paras. 5–7), resulted in increased maintenance costs of the projects.

9. **Twin balance sheet problem.** During 2007–2011, road developers bid aggressively to win more BOT toll projects. Since the PPP framework did not allocate risks appropriately, several projects got stuck midway and became unviable. Issues pertaining mainly to delayed execution have stressed the balance sheets of the developers and banks. As per the economic survey 2017–18, 10.2% of the total loans in the Indian banking system were nonperforming assets. This has resulted in developers not undertaking new projects, and banks not financing infrastructure projects. Hence, this is hindering fresh infrastructure capacity creation.

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3 The 5,846-kilometer Golden Quadrilateral refers to the national highway network that connects India’s four major metropolitan areas of Delhi in the north, Mumbai in the west, Chennai in the south, and Kolkata in the east.
10. **Impact on bidding.** There has been a significant shift in the NHAI awarding patterns, with BOT toll road projects declining as a percentage of lane-km awarded by the NHAI. PPP toll projects are now unable to attract any further bidders because of the stressed balance sheet of the developers resulting from unavailability of financing from banks and stuck equity of the developers in the existing projects.

![Figure 1: National Highways Authority of India Public–Private Partnership Awarding Pattern](image)

C. **Key Policies and Initiatives**

11. **Introduction of hybrid annuity model.** In January 2016, the Government of India approved the HAM to increase the pace of award and construction of national highways, as well as to reduce the risk for developers and lenders from existing issues in the PPP framework. The key features of the HAM projects are as follows:
   
   (i) Forty percent of the total project cost is funded by the government and the remainder by the developer.
   
   (ii) The project cost is linked to inflation (70% to increase in the wholesale price index and 30% to increase in the consumer price index).
   
   (iii) The “construction support” is to be disbursed in five equal installments of 8% each and the timing of each such payment shall be linked to the percentage of project cost spent by the concessionaire.
   
   (iv) Traffic risk is borne by the government with developers receiving fixed annuities.
   
   (v) Annuities will be linked to the bank rate plus 3%. Inflation-linked operations payment are paid by the NHAI (based on the amount quoted by the developer).
   
   (vi) Eighty percent of land has to be provided prior to the appointed date.

12. The construction risk in HAM projects is lower (as compared to previous BOT projects) with the land being acquired and other clearances already in place before the appointed date. Concession agreements provide clear remedial measures. If the remaining 20% of the land is not provided within 180 days, then the project scope can be reduced.

13. **Toll operate transfer.** Through monetization of existing operating roads, a bundle of operational toll road projects with 2–3 year traffic and toll collection histories are being monetized. The private player pays the NHAI an upfront concession fee for the right to toll, operate, and
maintain the assets for a 30-year period. The NHAI awarded the first toll operate transfer bundle of nine operating road stretches in March 2018 for $1.4 billion. This scheme will result in eliminating the construction risk for investors and freeing up capital for the NHAI to invest in additional capacity creation.

14. **Repayment of 75% of arbitration claims.** In August 2016, the Ministry of Road Transport and Highways introduced a policy with regards to payment of 75% of arbitration claims to the concessionaires if an arbitration claim has been awarded in favor of a private concessionaire in a lower court or tribunal and the government agency has appealed against it in a higher court or tribunal. The concessionaire will have to provide a bank guarantee of an equivalent amount to the government agency. This policy will help the private players that have a substantial number of claims pending with the NHAI. This is expected to help stalled projects because of fund infusion by developers (including for debt service).

15. **Exit policy.** In 2015 the Government of India allowed 100% equity divestment after 2 years of completion for all BOT projects. The previous policy restricted the end use of funds obtained through such divestments to be used only for completion of the concessionaire’s or promoter's other pending BOT road projects. The new policy allows the proceeds to be used to complete any highway projects or power sector projects or to retire debt in any other infrastructure projects. This policy along with allowing 100% foreign direct investment in the sector has helped to close stake sale transactions and free up capital of developers which can be used to repay debt or invest in new projects.

16. **Premium rescheduling.** In March 2014 the NHAI announced premium rescheduling for projects with delays or lower than expected traffic. This helped players to manage cash flow mismatches specifically for aggressively bid projects where premium payments amounted to a very large portion of the total cost.

D. **Positive Impact of the Policy Initiatives**

17. **Increase in asset sales.** Asset monetization of $4.0 billion has taken place since 2014. Broad reasons that are driving asset sales in the roads subsector are (i) the emergence of institutionally funded, professionally managed platforms looking to acquire operating or near-operating assets; (ii) BOT players, which are also EPC companies, looking to sell operating or under-construction assets to reduce their total debt burden and free up equity to undertake their core EPC business; and (iii) the EPC companies present in the HAM space currently selling off HAM assets to free up equity, which will enable them to participate in upcoming HAM projects.

18. **Other positive impacts.** The other impacts include (i) an increase in lane-km constructed annually (Figure 2), (ii) over 108 HAM projects with more than 7,000 km of upgrades have been bid out since FY2016, and (iii) one toll–operate–transfer bundle of 680 km has been successfully bid out at 1.5 times the price expected by the NHAI. Macquarie was awarded the project at a price of $1.4 billion. Additional bids are expected soon. Keen interest has been expressed by financial investors such as Global Infrastructure Partners, Brookfield Asset Management, and Cube Highways.
E. Investment Requirement

19. Private sector to play a big role. The NHAI is expected to award 20,688 km of projects for upgrading by FY2023. This will require an investment of $78.6 billion in the national highway network. The private sector will need to play an important role in achieving these estimated growth rates. The financing needs for this amount of upgrade create vast investment opportunities, including for international financial institutions, in augmenting the capacity of developers, helping to monetize assets, and freeing up the capital of developers or financing the construction of the projects. See Tables 1 and 2.

### Table 1: Investment in the Road and Highway Subsector ($ billion)

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<td>National highways</td>
<td>3.0</td>
<td>4.2</td>
<td>3.0</td>
<td>2.7</td>
<td>4.5</td>
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<td>9.6</td>
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<tr>
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<td>1.2</td>
<td>2.1</td>
<td>2.4</td>
<td>2.4</td>
<td>2.3</td>
<td>2.4</td>
<td>2.6</td>
<td>2.7</td>
<td>2.8</td>
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<td><strong>Total</strong></td>
<td><strong>10.9</strong></td>
<td><strong>13.6</strong></td>
<td><strong>14.1</strong></td>
<td><strong>15.8</strong></td>
<td><strong>19.0</strong></td>
<td><strong>23.6</strong></td>
<td><strong>28.0</strong></td>
<td><strong>32.2</strong></td>
<td><strong>39.3</strong></td>
<td><strong>46.6</strong></td>
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P = projected.

### Table 2: Total Road Length Awarded and Constructed by National Highways Authority of India (kilometers)

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<tr>
<td>Awarded</td>
<td>1,522</td>
<td>3,091</td>
<td>4,350</td>
<td>4,337</td>
<td>7,397</td>
<td>4,500</td>
<td>4,888</td>
<td>5,000</td>
<td>5,300</td>
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<tr>
<td>Constructed</td>
<td>1,591</td>
<td>1,551</td>
<td>2,188</td>
<td>2,625</td>
<td>3,070</td>
<td>4,301</td>
<td>5,581</td>
<td>6,269</td>
<td>5,885</td>
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P = projected.