Project Stellar

Final report

Client: Highway Infrastructure Trust
June 2023
Our ref: 24375002

steer

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Steer developed the relationships in the models used to produce the forecasts for this Project based on data provided by the Client. Since March 2020, the outbreak of the virus known as COVID- 19 has spread throughout the world and has been defined by the World Health Organization as a “pandemic”.

As of the date of distribution of this Report, the COVID-19 outbreak is having a material impact on global economic and political affairs including having a significant impact on all the transportation industries, including toll road traffic, where in particular vehicle volumes have fallen in response to quarantine and self-care measures that governments have imposed. The situation remains dynamic and is subject to significant change.

In this challenging context, Steer has produced forecasts (directly produced from models using a combination of pre-COVID-19 and post-COVID-19 views) with a view on a possible scenario for the traffic forecasts based on an assumption of recovery from the COVID-19-related traffic decrease. For the purposes of these forecasts, we have also incorporated other possible impacts of COVID-19 related scenarios. However, it is important to note that this is only one view, and there continues to remain uncertainty as to the short-term, intermediate or prolonged effects of and responses to the COVID-19 pandemic on the Project.

All of these effects could impact the COVID-19-related aspects of the Report. As a result, no assurance can be provided by Steer that the scenarios and assumptions Steer has identified will prove to be accurate. Given the uncertainty inherent in this unprecedented pandemic, Steer advises that all readers of the Report consider the Report in the context of their own assessment of the COVID-19 outbreak and its current and potential impacts before making final decisions related to this Project.

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Steer project ref	Client reference
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Version	Issue Date
Draft Final Report	06/06/2023

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Contents

0.0 Glossary

2A	2-Axle
3A	3-Axle
AADT	Annual Average Daily Traffic
CAGR	Compound Annual Growth Rate
COD	Commercial Operations Date
CP	Concession Period
CPI	Consumer Price Index
Cr	Crore
ETC	Electronic Toll Collection
EUR	Euro
FY	Financial Year
GDP	Gross Domestic Product
GSDP	Gross State Domestic Product
LCV	Light Commercial Vehicle
LPG	Liquified Petroleum Gas
HCV	Heavy Commercial Vehicle
IE	Independent Engineer
IHMCL	Indian Highway Management Company Limited
INR	Indian Rupee
IAOI	Immediate Area of Influence
IT	Information Technology
KA	Karnataka
KE	Kerala
kms	Kilometres
kph	Kms per hour
MADT	Monthly Average Daily Traffic
MAV	Multi-Axle Vehicle
MIT	Manipal Institute of Technology
MRPL	Mangalore Refinery and Petrochemical Limited
NH	National Highway
NHAI	National Highways Authority of India
NIT	National Institute of Technology
NMPT	New Mangalore Port Trust/ Mangalore Port
NUTPL	Navayuga Udupi Tollway Private Limited/ Vendor
OD	Origin Destination
O&M	Operations & Maintenance
OSV	Over Sized Vehicle
PCOD	Provisional Commercial Operations Date
PCU	Passenger Carrying Unit
POL	Petroleum, Oil, Lubricants
POS	Point Of Sale
QADT	Quarterly average daily traffic
RNP	Registration Number Plate
SCF	Seasonality Correction Factor
TMS	Toll Management System
TP	Toll Plaza
TP1	Toll Plaza 1/ Sasthan
TP2	Toll Plaza 2/ Hejamadi
TP3	Toll Plaza 3/ Talapady
TVC	Traffic Volume Count
UPCL	Udupi Power Corporation Limited
WADT	Weekly Average Daily Traffic
WIM	Weigh In Motion
WPI	Wholesale Price Index
YTD	Year To Date

1. Executive summary

Executive summary (1/4)

Asset lies on strategic corridor NH66

The Asset is an existing ("brownfield") 4-laned road with approx. 5 years of historical traffic data, having opened to traffic in FY17. It forms part of a strategic network **NH66**, which connects Panvel to Kanyakumari, via the states of Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu. It consists of two separate sections in the coastal belt of Karnataka and passes through Udupi and Mangalore. Both sections together are operated as a single concession by NUTPL.

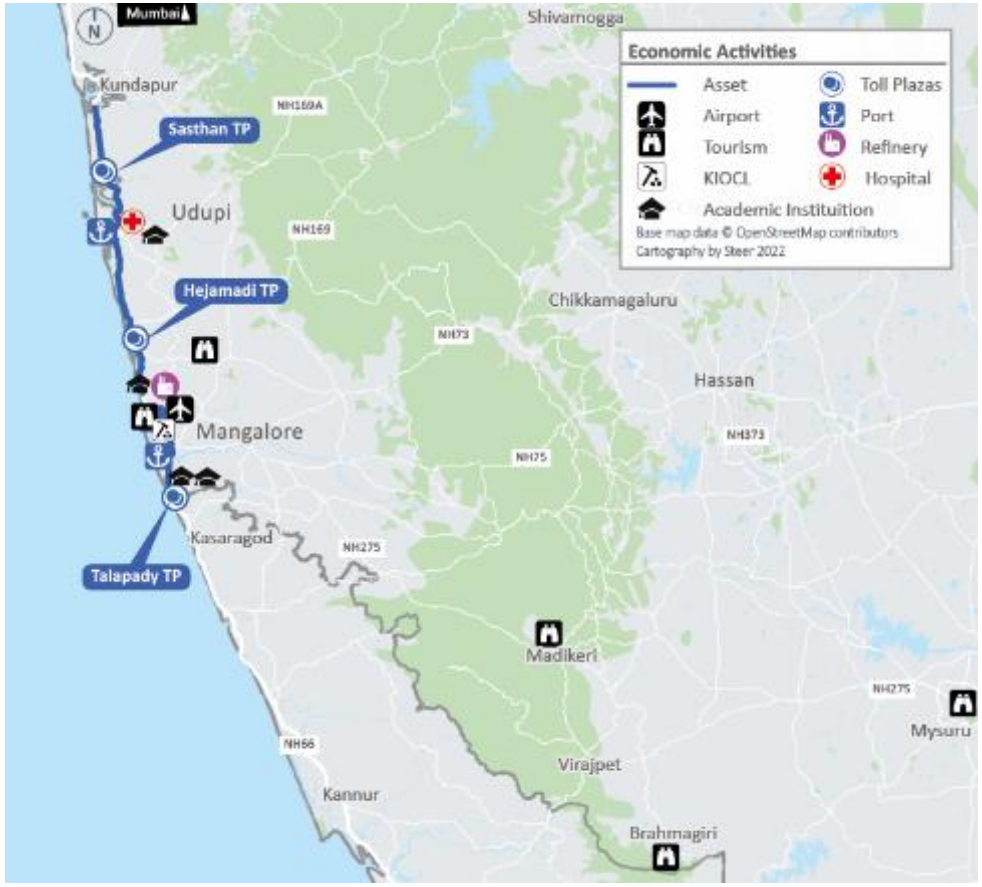
The POCD-1 (for length of 81.955 km) was achieved on 1st Feb 2017, whereas PCOD-2 (for length of 8.33 km) is understood to be achieved at the end of FY23. Accordingly, the tolling is applicable on entire length from FY24 onwards. The concession period will end in FY42.

Traffic on Asset is a good mix of passenger cars and commercial vehicles

The Asset connect the urban centre of Mangalore to Udupi, a popular tourist destination to the North of the Asset, and across the state border to Kerala to the South.

The road serves a mixture of longer distance trips for heavy vehicles servicing Mangalore's fishing and petroleum industry, and leisure trips between Mangalore and the popular tourist destination of Udupi, which hosts some famous temples, renowned beaches and educational/ medical facilities.

Cargo traffic on road is influenced by NMPT (primarily POL, Coal/ Coke). The other commodities in significant proportions include Fishes, Construction material, and miscellaneous goods (parcels, household items).



Source: Steer Cartography

Executive summary (2/4)

Primary analysis concurs with our understanding of traffic movements

Many products are sourced and consumed around the asset. Hence, a larger percentage of local trips are observed across all major vehicle categories. The zonal distribution of trips and the trip lengths within 250 km is largely dominated by CJVs and LCVs, which again point towards local movements.

Apart from Karnataka and Kerala, the major traffic flow is towards/ from Maharashtra and Goa.

FY23 numbers show strong traffic recovery as compared to pre-Covid19 levels

Pre-Covid (FY20) AADT volumes were approx. 13,000 (TP1), 16,100 (TP2) and 12,300 (TP3). CJV's comprised 60% of all traffic at TP1 and TP2, and 67% at TP3. PCU shows a CAGR of 4.0%, 5.1%, and 2.0% at TP1, TP2, and TP3 respectively between FY20 and FY23.

CJV traffic at TP1 and TP2 has shown a stronger recovery to traffic volumes pre- Covid-19. While TP3 has recovered in traffic as compared to FY20, but restrictions began in Kerala due to Covid-19 earlier as compared to the rest of the country. Accordingly, TP3 hasn't recovered as compared to its volumes in FY19 and has witnessed a deeper impact, which we believe might be related to restricted airport operations in Mangalore, and strict lockdowns in Kerala. Regular international operations at the airport resumed in Mar 2022, triggering a growth in CJV traffic.

2A/Bus volumes declined in FY21, FY22 due to reduced bus services during Covid19, and recovered thereafter. Classification issues between LCV/2A post FASTag implementation resulted in some LCV volumes being classified as 2As. Overall LCV-Bus-2A volume have remained around 4,000 (TP1), 4700-5100 (TP2) and 3,000 (TP3).

The fall in **3A/ MAV** traffic post FY20 is potentially linked to a fall in NMPT volumes (during economic downturn in FY20, and Covid related impacts in FY21 and FY22). A recovery has nonetheless been observed in the FY23 traffic. Petroleum, Oil, Lubricants (POL) related traffic comprises a significant portion of total cargo handled at NMPT, and traffic observed on the Asset. The fluctuations in POL traffic clearly impacts the 3A/ MAV traffic on the Asset.

TP2 has been the highest revenue contributor for the Asset

At TP1, 3A/MAVs contribute approx. a third of the revenue. However, at TP2 and TP3, the revenue share of CJV is higher as compared to the share of 3A/ MAV, which highlights the importance of CJV traffic at both these toll plazas. Historically, revenue at TP2 has grown at a CAGR of approx. 11.7%, at TP1 at approx. 8.6% and at approx. 6.9% at TP3 from FY18 to FY23.

We have reconciled the revenues provided by the Vendor. The difference between modelled revenue and the reported revenue yields results within 0.0-0.1%, which gives us confidence in the revenue figures extracted from the Vendor's data.

Executive summary (3/4)

Base year (FY23) numbers, adjusted with TVC-TMS difference

Vehicle category	CJV	LCV	2A	3A/ MAV	Total
TP1 (AADT)	9,694	2,215	1,856	1,418	15,184
TP2(AADT)	14,041	2,613	2,482	1,801	20,939
TP3 (AADT)	8,845	1,186	1,870	1,266	13,169

Growth drivers and elasticities for the Asset traffic

2A, 3A/ MAV, OSV traffic will grow with the GDP and NMPT traffic. NMPT traffic is forecasted based on POL growth forecasts, expansion plans and translated to a factor of GDP using their historical corelation. CJV, LCV traffic will grow with the GSDP of Karnataka for TP1 and TP2 and with GSDP of Karnataka and Kerala both for TP3.

Elasticities with different growth drivers is informed by O-D analysis, regression outputs and experience of working on comparable assets in India.

Vehicle Category	Growth Drivers	TP1	TP2	TP3
CJV	GSDP	1.0	1.0	0.9
LCV	GSDP	0.4 (Ramping up to 0.5 by FY28)	0.6 (Ramping down to 0.5 by FY28)	0.4 (Ramping up to 0.5 by FY28)
Buses	GSDP	0.3	0.3	0.3
2A	GSDP, POL/NMPT	0.4 (Ramping up to 0.5 by FY28), 1.0	0.6 (Ramping down to 0.5 by FY28), 1.0	0.4 (Ramping up to 0.5 by FY28), 1.0
3A	GDP, POL/NMPT	0.6, 1.0	0.6, 1.0	0.5, 1.0
MAV	GDP, POL/NMPT	0.7, 1.0	0.7, 1.0	0.6, 1.0
OSV	GDP	0.7	0.7	0.6

Average of FY23 and FY24 (only Apr) segmentation is adopted for forecasts

For FY24 onwards, we have taken the weighted average of actual segmentation for FY23 and FY24 (Apr). TP3 is likely to witness more FASTag penetration in CJV and LCV category, which would increase the proportion of Return trips. Hence, there's slight adjustment in segmentation for FY25 onwards.

Executive summary (4/4)

Improvement in NH66 corridor and faster growth in passenger traffic at Mangalore Airport will have positive impact on Asset

Improvement in different stretches of NH66 on the north and south of the Asset will have a positive impact on the Asset traffic.

There is a positive impact on CJV traffic on account of accelerated traffic growth expected at Mangalore Airport.

As the stand of NHAI is yet not clear on closure of Surathkal plaza and its merger with TP2 and the Supplementary Agreement provides a safety net to the Concessionaire, we believe that this will not impact the Asset traffic.

PCU traffic at Asset is expected to grow at a CAGR of 4.2% between FY23 – FY42

The traffic PCU at TP1, TP2, and TP3 is expected to grow at a CAGR of 4.2%, 4.3%, and 4.1% respectively from FY23-FY42. The growth is mainly driven by the CJV category. Total traffic in FY42 (AADT/ PCU) is estimated to be 37,499/ 53,618, 52,881/ 73,414, 31,678/ 46,007 at TP1, TP2, and TP3 respectively

The revenue grows at a much higher rate in FY23 and in the subsequent years, the revenue is seen to grow at a rate of 8-9% on an annual basis. The revenue in FY42 is estimated to be INR ~596 Cr (INR 206, 239, 151 Cr from from TP1, TP2, and TP3 respectively).

Vehicle Category	Asset level CAGR from FY23-FY42	Average AADT – FY42
CJV	5.7%	31,249
LCV	2.9%	3,440
Buses	1.7%	1,501
2A	2.8%	1,651
3A	3.2%	657
MAV	3.5%	2,184
OSV	3.9%	3
Total	4.9%	40,686
PCU	4.2%	57,679

2. Introduction

2.1 Introduction

This assignment

Highway Infrastructure Trust (the "Client") has commissioned Steer to develop Traffic and Revenue Forecasts for the Kundapur-Kerala highway sections of the NH66 (the "Asset"), in India. The Client company is an infrastructure investment trust, a 100% subsidiary of Galaxy Investments II Pte. Ltd, which is majority owned by KKR Asia Pacific Infrastructure Holdings Pte. Ltd.

The Client is considering a bid to operate the Asset.

Key issues for this assignment are focussed on addressing the following questions:

- What is the current and historic traffic position of the Asset, vehicle and ticket category-wise trends, and potential factors for traffic variations?
- What are the existing and long-term socio-economic drivers of traffic growth on the Asset?
- Does the road face any network related risks or opportunities?
- What are the drivers and impact for exempt traffic and violations?
- How are traffic forecasts all likely to evolve in the future?

Our scope and approach

The Asset is an existing ("brownfield") road with approx. 5 years of historical traffic data, having opened to traffic in FY17.

Steer's approach in the case of forecasting traffic for brownfield assets focuses mainly on:

- understanding the traffic which is at present using the Assets, and the revenue generated;
- analyzing the historical traffic to determine the key growth drivers and threats for the Asset; and
- identifying how and why that traffic (and revenue) will change in the future, depending on:
  - The growth of 'background' traffic, linked to the on-going socio-economic and demographic development of the area served by the Asset; and
  - The impacts of exogenous factors: the Covid-19 pandemic, network changes, planned new developments etc.

For our analysis, we will use data made available by the Vendor, and publicly available data for socioeconomic indicators sourced by Steer. Further, we will use the data collected through primary surveys (O-D, TVC, RNP) undertaken on the Asset.

This report

This Draft Final Report contains:

- **Asset context and traffic history**: key metrics of the Asset and our summary of the historic and current traffic performance, vehicle composition and seasonality profiles, as well as the impact of the Covid-19 pandemic on traffic;
- **Socioeconomic overview and growth drivers**: covering the historic and forecast evolution of key indicators such as Gross Domestic Product (GDP), Gross State Domestic Product (GSDP), etc., as drivers of long-term traffic growth. We will also discuss the historic and planned changes in the road network and local developments.
- **Steer forecasting assumptions and draft forecasts**: a summary of key assumptions underlying our traffic and revenue forecasts, as well as a summary of key risks and mitigations.

3. Asset context and traffic history

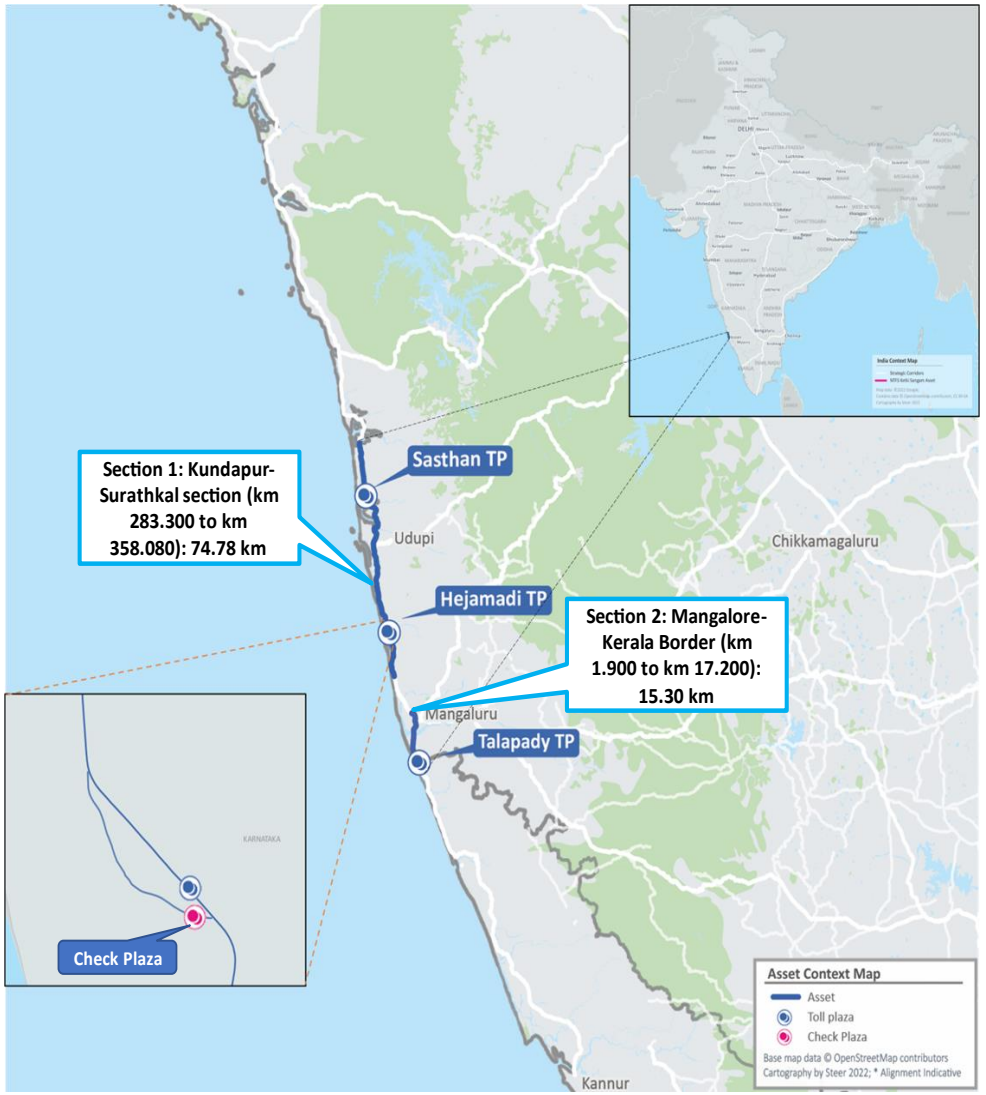
The Asset overview

Overview

The Kundapur-Kerala NH66 highway (the "Asset") consists of two separate 4-laned sections in the coastal belt of Karnataka and passes through Udupi and Mangalore.

Both sections together are operated as a single concession, the key details of which are summarised below.

Particulars	Detail
National Highway	NH66
Section and chainage	Section 1: Kundapur – Surathkal, length: 74.78 km Section 2: Mangalore - Kerala Border, length: 15.30 km
Length (km)	Total length: 90.285 Km
Start of Concession	5th September 2010
End of Concession	4th September 2035, excluding the following extensions: • Delays attributable to Authority: IE has recommended an extension of CP by 640 days vide letter 18 Mar 2016 • Effect of variation in traffic growth: PIU vide letter 16 Sep 2022, recommended 1651 additional days. Including the extensions, the Concession period will end in FY42 (Dec 2041)
COD	PCOD-1 :1st Feb 2017. Tolling of 81.955 km out of 90.285 km was done up to FY23. PCOD-2 for the remaining length was pending, with 2.810 km, 3.420 km, and 2.100 km assigned to TP1, TP2, and TP3 respectively. Currently, the tolling is done for the entire length, got applicable from FY24.



Source: Steer Cartography

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Toll plazas and rates

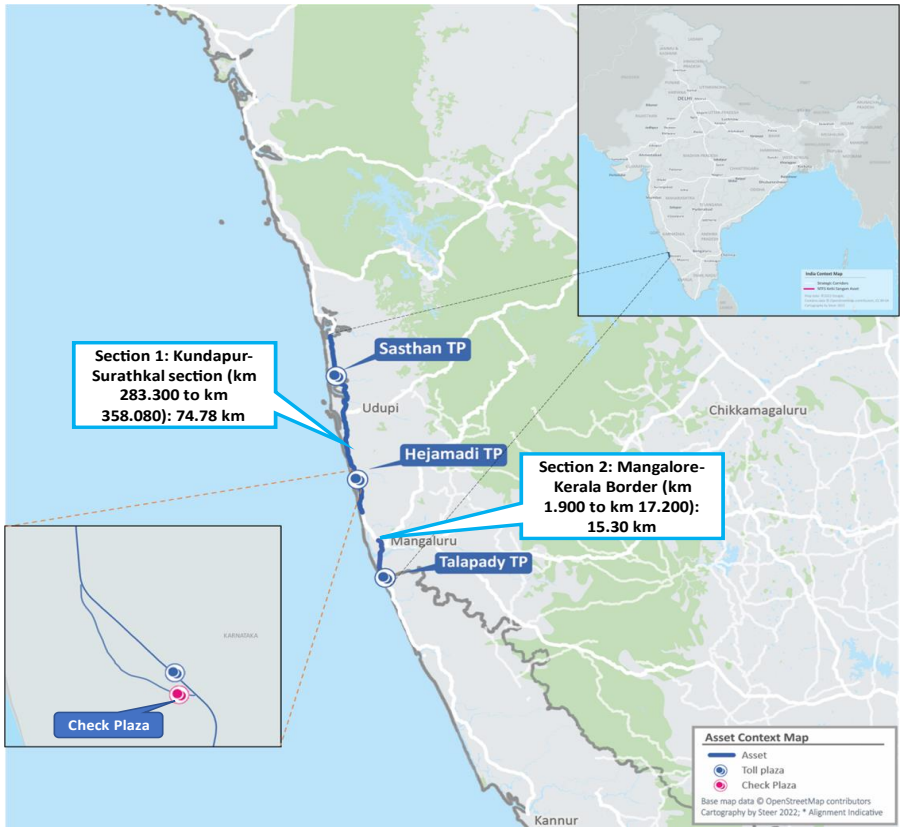
Tolling

The Asset contains 3 toll plazas, two on the northern section i.e., Sasthan (TP1) and Hejamadi (TP2), and one on the southern section namely Talapady (TP3). There is also a 'check plaza' located on TP2.

The independent road section between the two sections of the Asset had a toll plaza at Surathkal. This has been removed in Nov 2022 and we understand based on our discussions with the Vendor and through primary sources that tolling for that is likely to be added to the Asset. However, this is still under the consideration of NHAI, and the allocation of tolling is yet not finalised. As such, in agreement with the Client, we have not assessed the impact of this, in our work.

Tolls are set for 5 vehicle classes, as shown in the table. Tickets are sold for the following categories – the historic evolution of ticket types has been discussed in detail in the following sections:

- **Single**: Allows the vehicle to cross the toll plaza once
- **Return**: Daily pass for crossing the toll plaza multiple times within 24 hours. Charged 1.5 times the single toll
- **Monthly Pass**: Monthly pass issued for 50 or more one-way tickets at a discounted rate of 2/3rd of the fee payable during the period of one month from the date of payment of fee.
- **Local Monthly Pass**: Discounted monthly pass only for private cars of residents within specified km radius of toll plaza;
- **Exemptions:** Officially exempted vehicles e.g., ambulances, police cars, key political personnel, locals, etc.



Source: Steer Cartography

Vehicle Category	TP1	TP2	TP3
CJV (Car, Jeep, Van)	60	50	50
LCV (Light Commercial Vehicle)	95	80	80
2A (2-Axles)	195	165	165
3A/ MAV (3-Axles/ Multi-Axle Vehicle: 3 to 6 axles)	310	260	250
OSV (Over Seven or more Axles)	375	320	320

Source: NHAI, FY24 toll rates

Strategic and regional context

The NH66 runs north-south along the western coast of India, parallel to the Western Ghats. It is an important highway that connects Panvel (Maharashtra) to Kanyakumari (Kerala) and provides faster connectivity between the states. In particular:

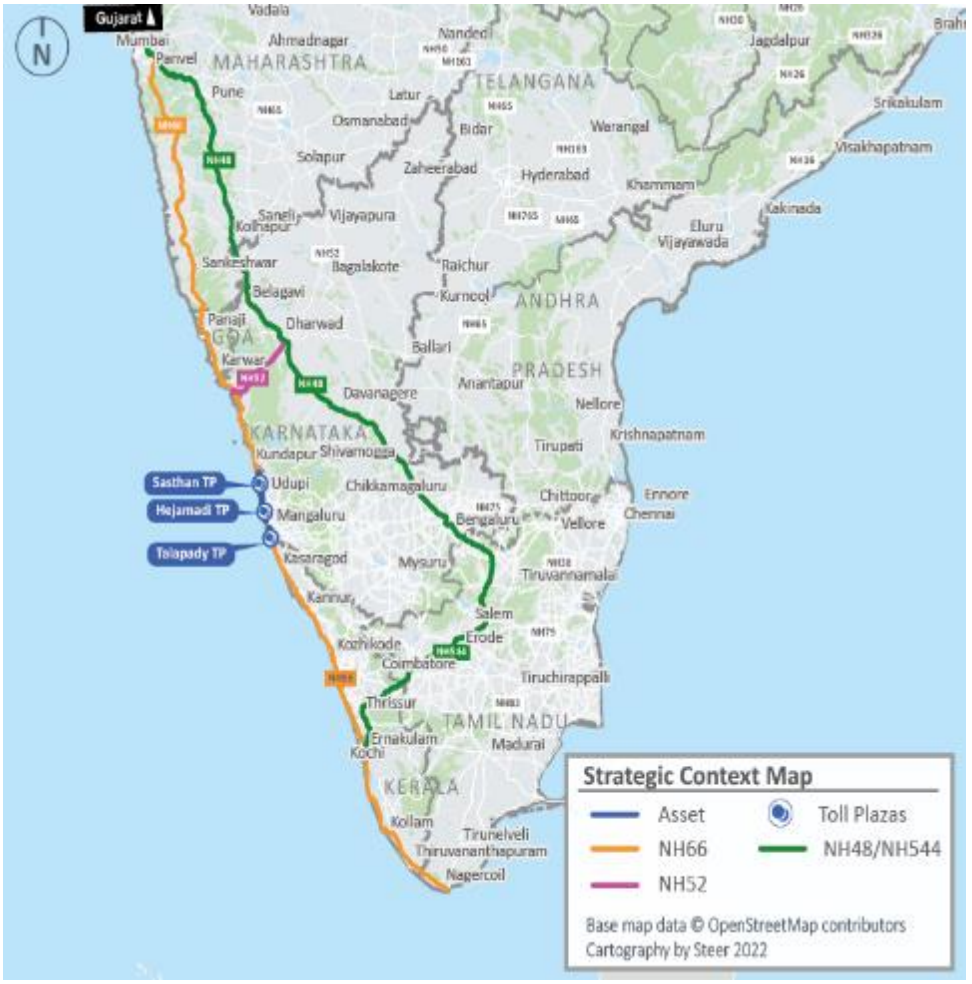
- Traffic from south of the Asset destined to Goa/South Mumbai and vice versa generally uses the Asset.
- Traffic destined to Kerala, at present, uses NH48 till Bangalore or Krishnagiri, and a mixture of other corridors (NH544, 44, and 948) to reach Kochi. An improved carriageway of NH66 could potentially attract this, in the future.

The existing NH66 carriageway has mostly 4-lanes. The sections of NH66 in Kerala are getting upgraded to 6 lanes. The impact on the Asset's traffic has been discussed further in this report.

Local context

The Asset connect the urban centre of Mangalore to Udupi, a popular tourist destination to the North of the Asset, and across the state border to Kerala to the South.

The road serves a mixture of longer distance trips for heavy vehicles servicing Mangalore's fishing and petroleum industry, and leisure trips between Mangalore and the popular tourist destination of Udupi.



Source: Steer Cartography

Historical traffic trends (annual)

Data received

Data from Feb 2017 – Apr 2023 has been provided by the Client. As such, for our analysis: as FY17 only included two tolled months (Feb & Mar), we have commenced our analysis from FY18.

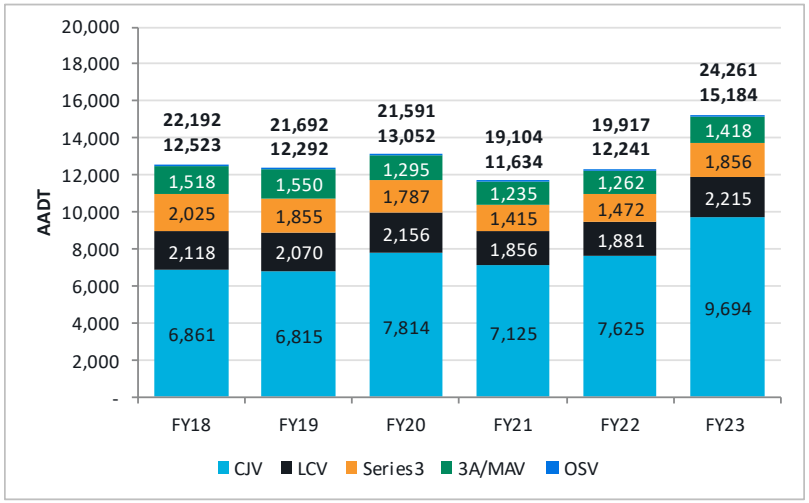
Historical Trends

Pre-Covid (FY20) AADT volumes were approx. 13,000 (TP1), 16,100 (TP2) and 12,300 (TP3). CJV's comprised 60% of all traffic at TP1 and TP2, and 67% at TP3.

The traffic numbers in FY23 shows recovery to pre-Covid19 levels (FY19) at TP1 and TP2. PCU shows a CAGR of 2.8%, 3.5%, and -0.8% at TP1, TP2, and TP3 respectively between FY19 and FY23.

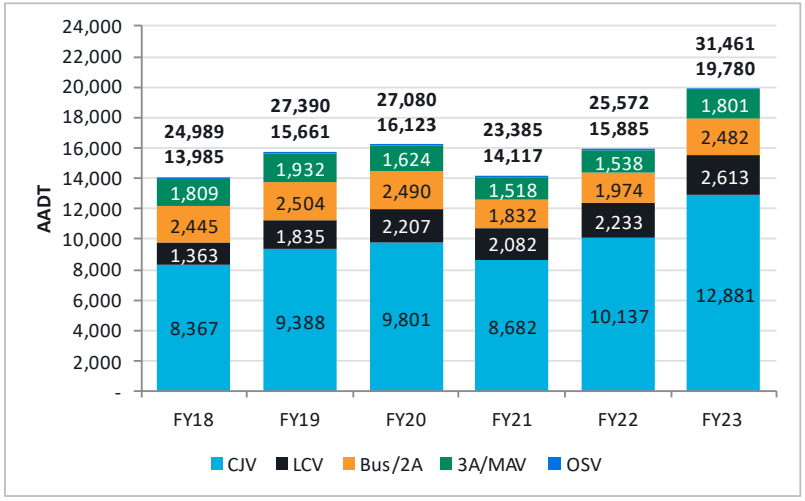
TP1 and TP2 were most impacted due to Covid-19 during FY22, while TP3 was impacted in FY21 and FY22 both, due to restrictions in Kerala. The detailed impacts have been discussed on the following page.

TP1 (PCU, AADT)



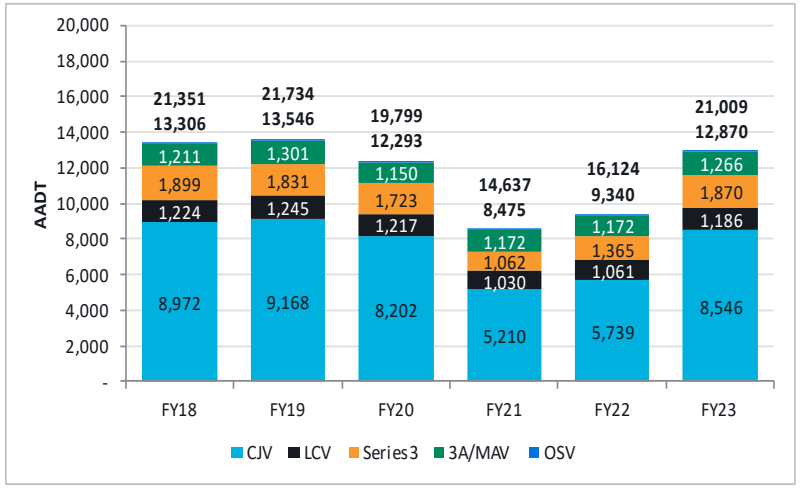
Source: Steer analysis

TP2 (PCU, AADT)



Source: Steer analysis

TP3 (PCU, AADT)



Source: Steer analysis

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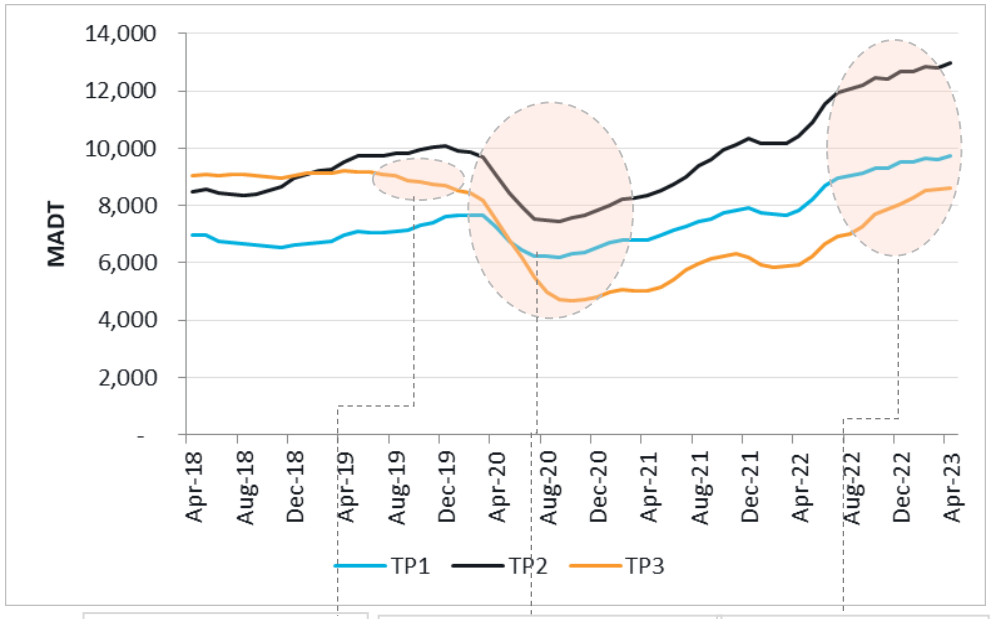
Historical traffic trends (monthly)

CJV



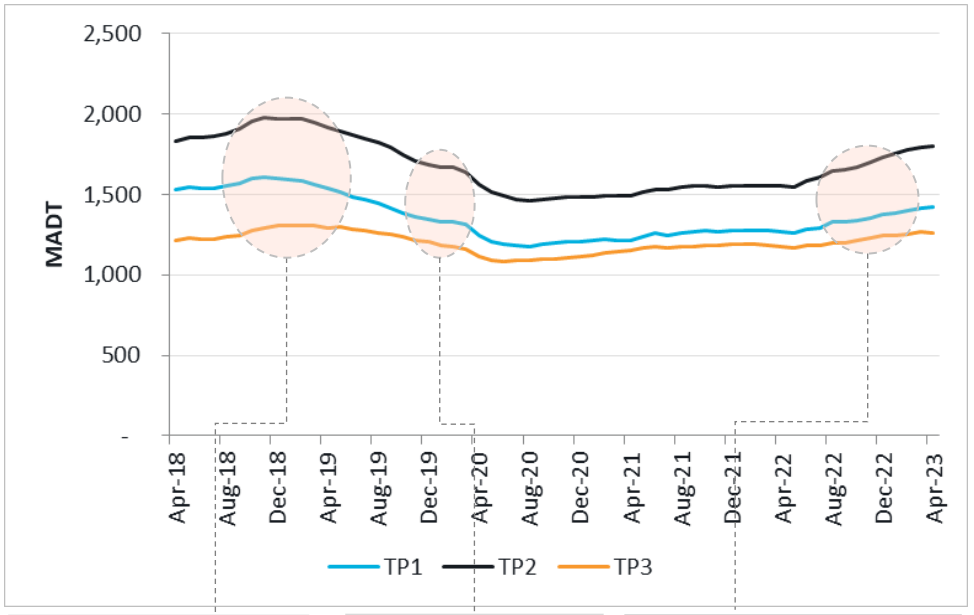
Operationalization of Kannur Airport and disruption in Jet Airways operations in FY20

Affected by Covid19 pandemic and related restrictions/ lockdowns. The impact of Covid19 is presented in detail in Appendix – A

Relaxation in interstate restrictions, festival season, recovery in airport traffic and international flights

Source: Steer analysis

3A/ MAV



Dip in POL: MRPL operations impacted due to acute water scarcity/ drought in Dakshin Kannada - Q1 FY20

Affected by Covid19 pandemic and related restrictions/ lockdowns

Due to rise in POL Traffic: Average monthly POL traffic handled at port is approx. 23% more in FY23 as compared to FY22

Source: Steer analysis

Key observations

CJV traffic at TP1 and TP2 has shown a recovery to traffic volumes pre- Covid. TP3, witnessed a deeper impact, which we believe might be related to restricted airport operations in Mangalore, and strict lockdowns in Kerala. Regular international operations at the airport resumed in Mar 2022, triggering a growth in CJV traffic.

2A/Bus volumes declined in FY21, FY22 due to reduced bus services during Covid19, and recovered thereafter. Classification issues between LCV/2A post FASTag implementation resulted in some LCV volumes being classified as 2As. Overall LCV-Bus-2A volume have remained around 4,000 (TP1), 4700-5100 (TP2) and 3,000 (TP3).

The fall in **3A/ MAV** traffic post FY20 is potentially linked to a fall in NMPT volumes (during economic downturn in FY20, and Covid related impacts in FY21 and FY22). A recovery has nonetheless been observed in the FY23 YTD traffic. Petroleum, Oil, Lubricants (POL) related traffic comprises a significant portion of total cargo handled at NMPT, and traffic observed on the Asset. The fluctuations in POL traffic clearly impacts the 3A/ MAV traffic on the Asset.

Seasonality

Seasonality trends on the Asset

The charts indicate seasonality correction factors, where an SCF >1 means that the traffic for the month is lower than the annual average and vice-versa.

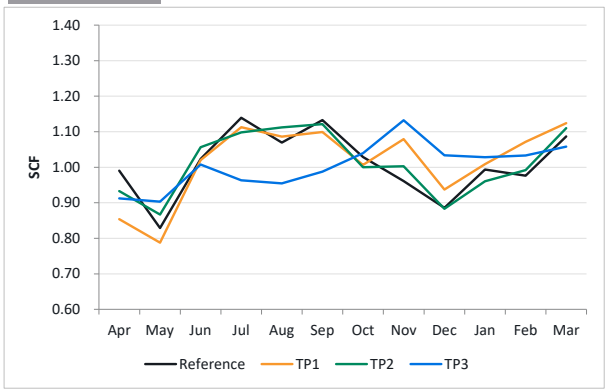
As can be seen, T1 and T2 cater to similar traffic types for CJVs (discussed further in our section detailing our analysis of primary data). The monsoon impacts the Mangalore area between Jun to Sep (which may get extended to Oct/ Nov) and the peak season starts post that. Accordingly, the monthly demand from Jun to Sep is lower than the yearly average for TP1 and TP2.

Southwest Monsoon begins in Kerala in Jun and Northeast in Oct. Hence, the monthly demand is impacted, esp. during these two months, on TP3.

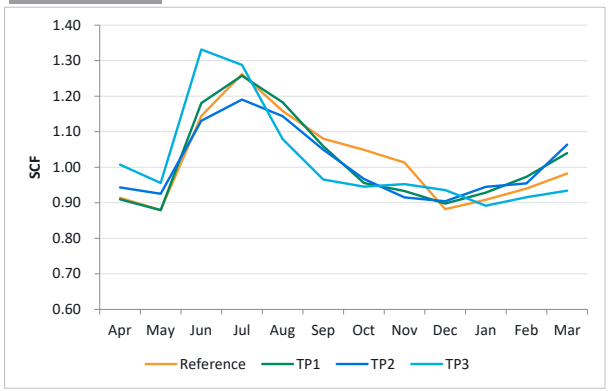
The aforementioned trend is observed on LCVs and 2As as well, while MAV traffic is largely flat throughout the year, as these movements are less local/more long distance.

Details of SCFs assumed for forecasting have been included in Appendix A.

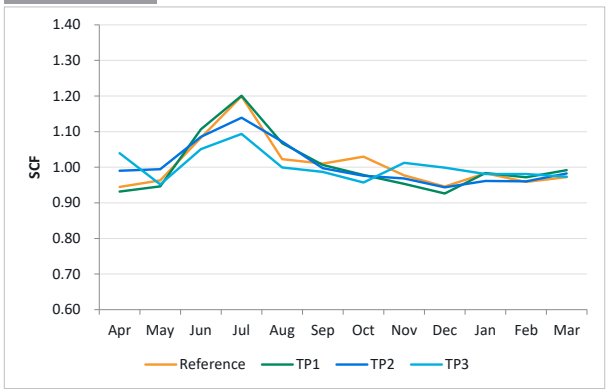
SCF for CJV



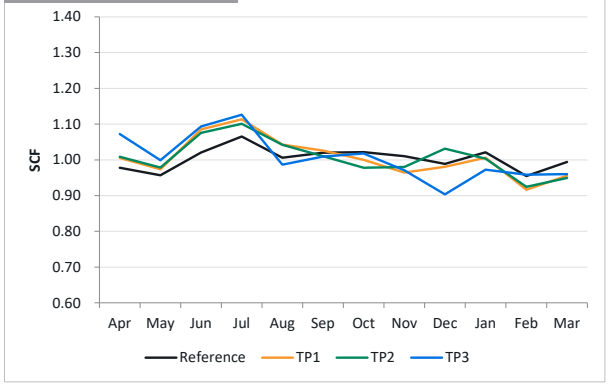
SCF for LCV



SCF for 2A



SCF for 3A/ MAV



Source: Steer analysis

Ticket segmentation (overview)

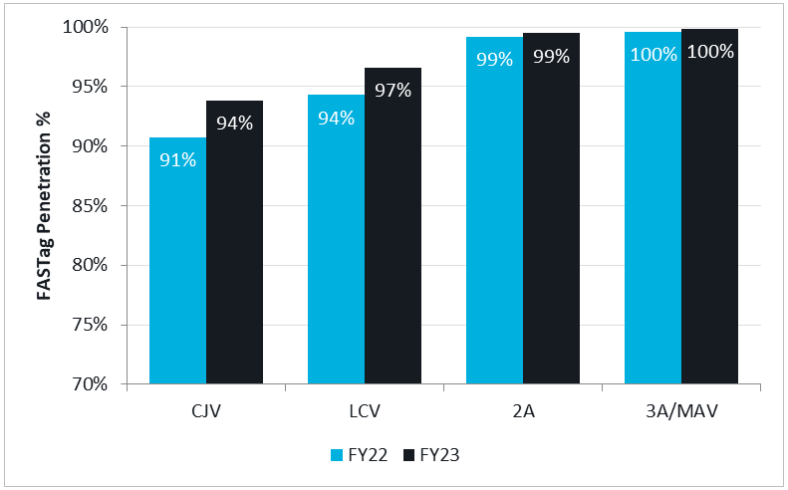
Ticket types and FASTag penetration

Under normal operating conditions, over time, the shares of single/return/monthly tickets tend to stabilise, within 3-4 years of an asset's operations. Only in the situations where trip patterns are expected to change significantly due to urban expansion, do we expect changes in these shares.

In the past, the mandated implementation of FASTag (Feb 2021) resulted in a temporary disruption to the ticket types used on the Asset. At the time, only FASTag users were allowed discounted tickets such as return/monthly tickets, while cash users were only allowed to buy single tickets. This led to a temporary but significant increase in single ticket users. However, with the increased penetration of FASTag, the ticket types bought will largely remain unchanged, esp. at TP1 and TP2 - discussed in detail on the following pages.

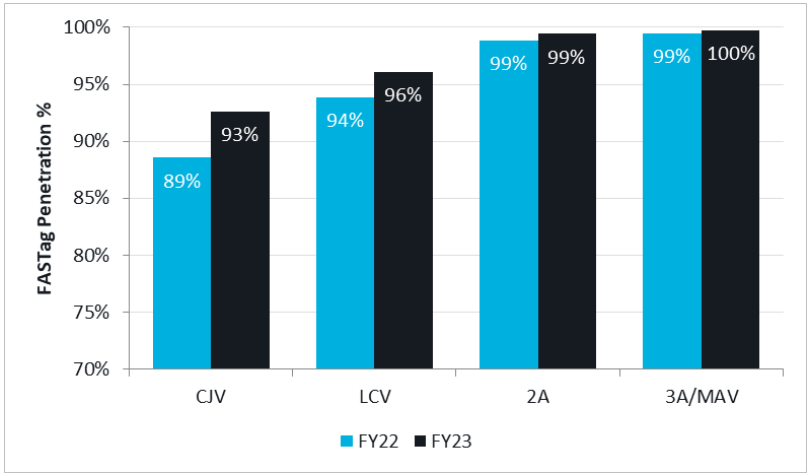
The share of FASTag for 3A/MAVs is over 99.5% and can be assumed to stabilize at this level in the future, as there will always be some volume of traffic not paying via FASTag. CJVs might continue to increase FASTag use, though we do not believe this will reach the same level as 3A/MAV due to larger proportions of occasional CJV users who might continue to pay ad-hoc (vs. 3A/MAV who travel longer distances and need FASTag's for multiple assets).

TP1



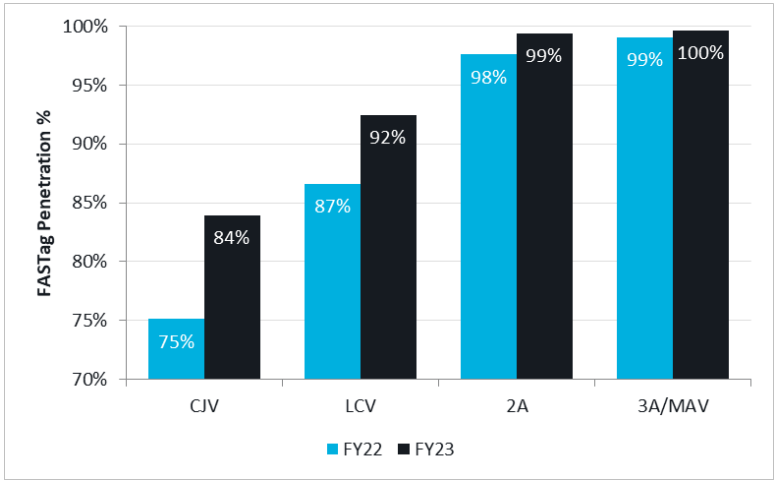
Source: Steer analysis

TP2



Source: Steer analysis

TP3



Source: Steer analysis

Ticket segmentation (CJV)

Observations

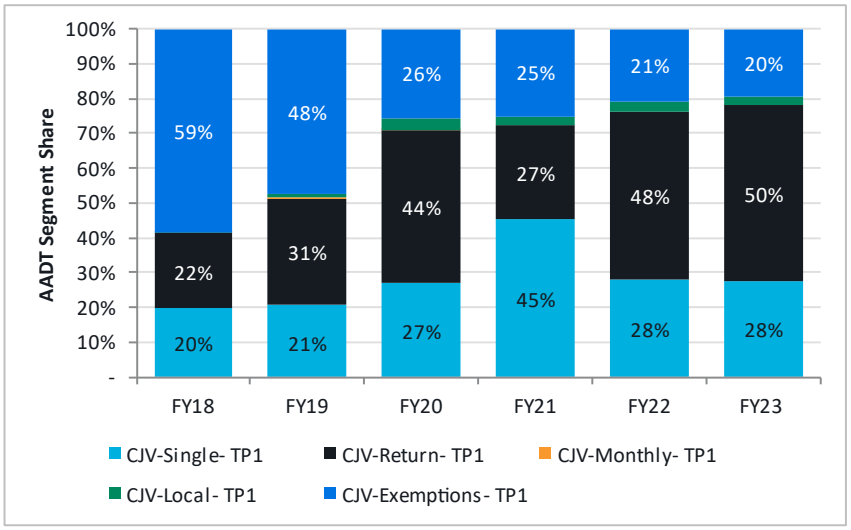
As seen on other assets, with the implementation of FASTag in FY21, the proportion of Return trip tickets has increased on all toll plazas.

We understand from the discussions with the toll plaza manager that due to political pressures, exemptions are high on TP1 (~20% vs. 8-12% on other plazas). We do not envisage this changing in the future.

Looking at the declining trend in ETC Penalty, FASTag penetration at TP3 (for CJV and LCV) would improve, but it is expected to remain lower than its level at TP1 and TP2. The details for volume of traffic paying ETC penalty is provided in Appendix A. Segmentation for 2A and LCVs has also been included in Appendix A.

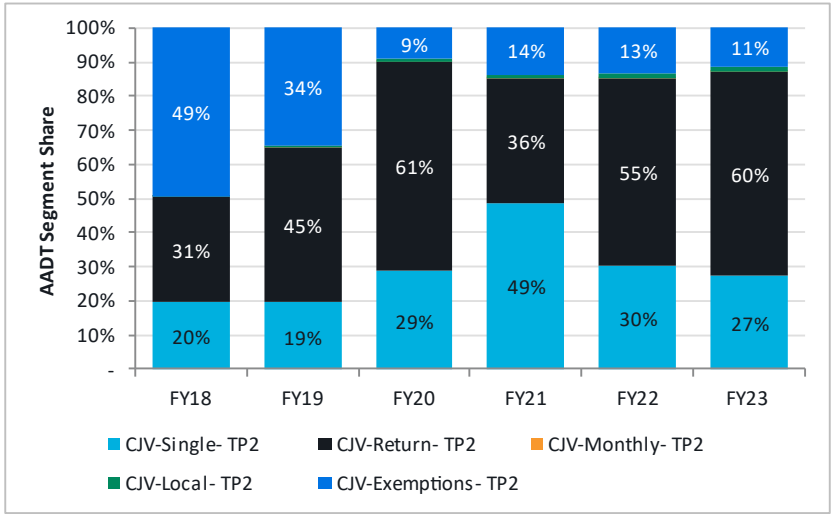
Post implementation of FASTag, the local users which tended towards exempting from paying tolls, could be converted to toll paying category in local pass and return pass categories.

TP1



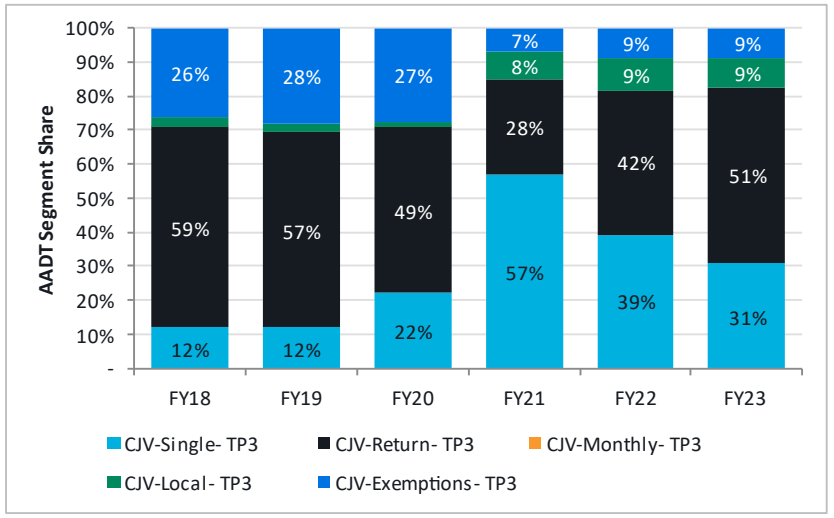
Source: Steer analysis

TP2



Source: Steer analysis

TP3



Source: Steer analysis

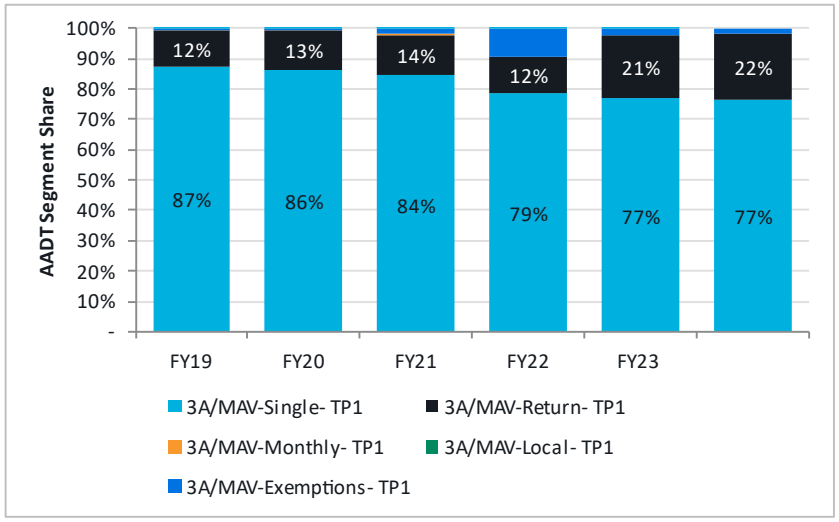
Ticket segmentation (3A/MAV)

Observations

Similar to CJVs, the proportion of return trip tickets for 3A/ MAV has increased on all toll plazas.

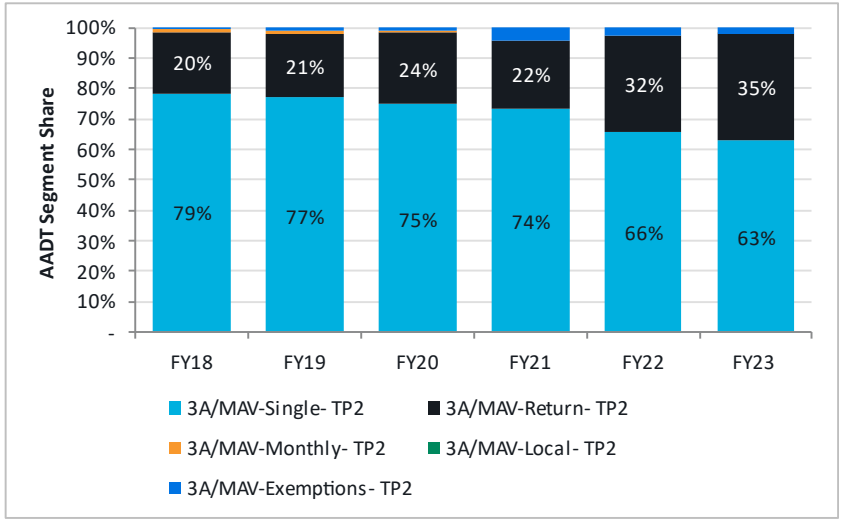
The portion of single trips is lowest at TP2. This is due to higher local movement of 3A/ MAVs as compared to TP1 and TP3, where the movement is either interstate and/ or long haul. This is also seen in the average trip lengths based on the O-D analysis.

TP1



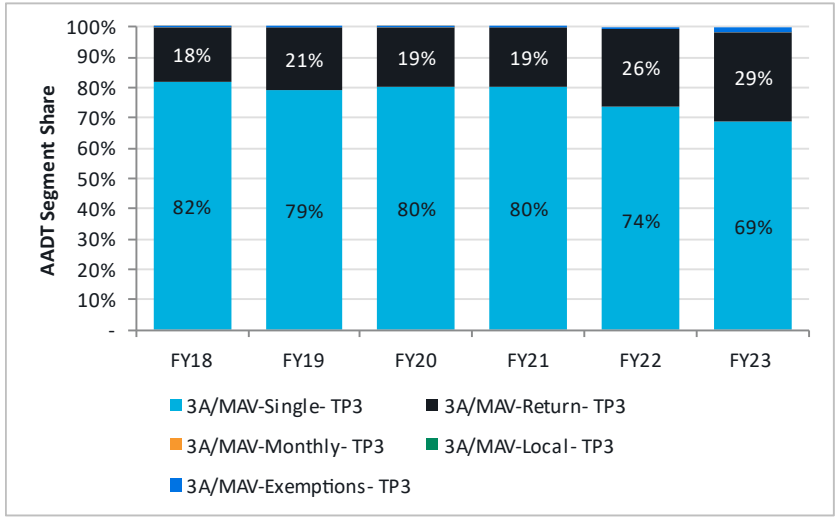
Source: Steer analysis

TP2



Source: Steer analysis

TP3



Source: Steer analysis

Historical revenues

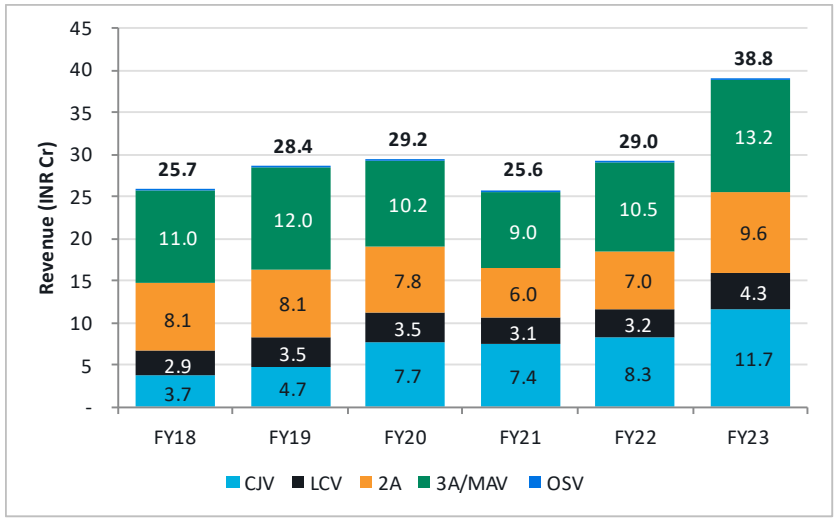
Observations

In FY23, TP2 is the highest revenue contributor with a share of approx. 39%, followed by TP1 (35%) and TP3 (26%) – in line with traffic volumes.

At TP1 and TP3, 3A/MAVs contribute approx. a third of the revenue. However, at TP2, the revenue share of CJV is comparable to the share of 3A/ MAV, which highlights the importance of CJV traffic at TP2.

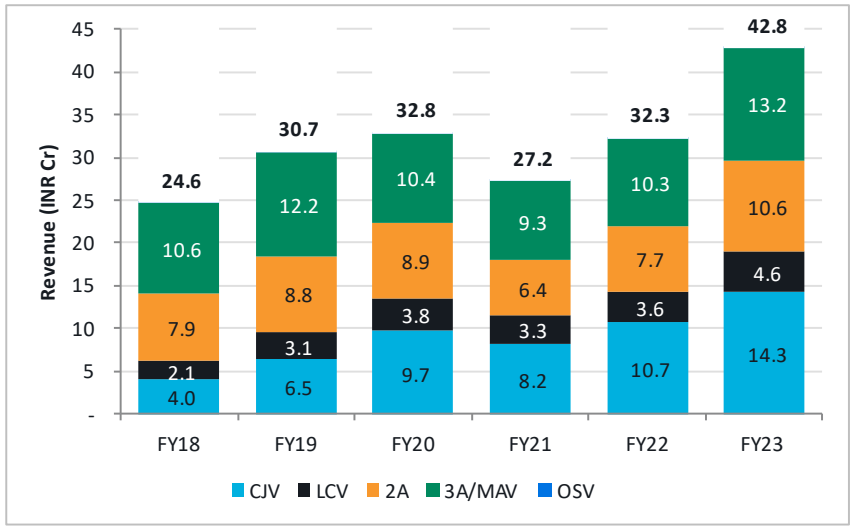
Historically, revenue at TP2 has grown at a CAGR of approx. 7% and at TP1 at approx. 3.1% from FY18 to FY22. Revenues have remained somewhat flat at TP3, with a CAGR of 0.7% during the same period.

TP1



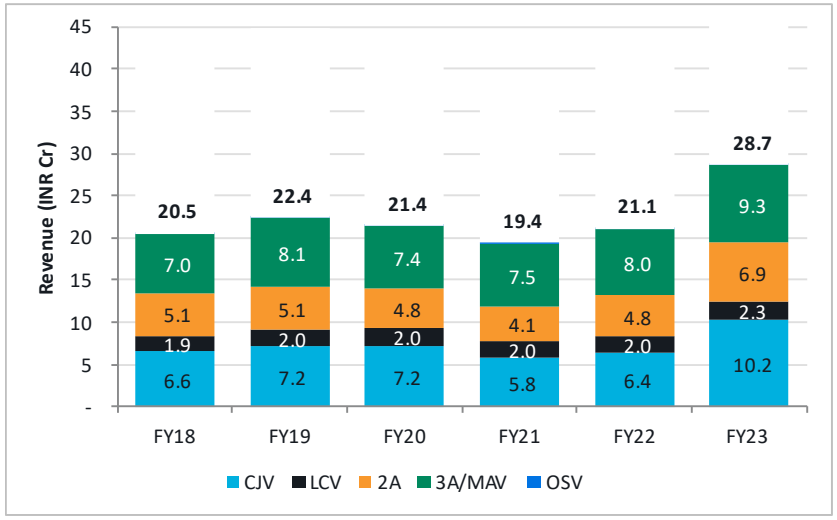
Source: Steer analysis

TP2



Source: Steer analysis

TP3



Source: Steer analysis

3.11 Revenue reconciliation

Methodology

As a part of validating the traffic data provided by the Vendor, as well as our assumptions around toll segmentation and trip factors, we have reconciled the actual reported revenue for the period FY18-FY23 for the Asset.

The Steer revenue calculations have been built up from monthly raw traffic data files, containing monthly transactions and ticket sales information; and the toll notifications – all shared by the Vendor.

To reconcile we have used the reported segmentation, and actual AADT and compared it with the reported revenue (provided in the traffic statistics report and audited Annual Reports).

Due to the mandatory implementation of FASTag, all cash trips had to pay a penalty fare. In our analysis, we have not considered such ETC Penalties, other non-traffic related revenue items like ETC Chargeback Amount, and Excess/ Shortage Adjustments. The reported revenue net-off these items is compared with Steer computed revenue numbers.

The comparison, as shown in the table below, shows the **difference between modelled revenue and the reported revenue yields results within 0.0-0.5%,** which gives us confidence in the revenue figures extracted from the Vendor's data.

Difference between Financial statements (revenue from operations) and modelled revenue

Toll Plaza	FY19	FY20	FY21	FY22
Financial statements (INR Cr)	**81.5**	**83.7**	**72.6**	**82.4**
Modelled revenue (INR Cr)	**81.5**	**83.4**	**2.2**	**82.4**
Difference	0.0%	0.5%	0.7%	0.1%

Reported revenue (INR Cr) excluding penalties and other non-traffic based adjustments

Toll Plaza	FY18	FY19	FY20	FY21	FY22	FY23
TP1	25.7	28.4	29.1	25.6	29.0	38.8
TP2	24.6	30.7	32.7	27.2	32.3	42.7
TP3	20.5	22.4	21.5	19.3	21.1	28.7
Total	**70.8**	**81.5**	**83.3**	**72.1**	**82.4**	**110.2**

Steer modelled revenue (INR Cr)

Toll Plaza	FY18	FY19	FY20	FY21	FY22	FY23
TP1	25.7	28.4	29.2	25.6	29.0	38.8
TP2	24.6	30.7	32.8	27.2	32.3	42.8
TP3	20.5	22.4	21.4	19.4	21.1	28.7
Total	**70.8**	**81.5**	**83.4**	**72.2**	**82.4**	**110.3**

Difference between reported and modelled revenue

Toll Plaza	FY18	FY19	FY20	FY21	FY22	FY23
TP1	0.0%	(0.0%)	0.5%	0.0%	(0.0%)	0.0%
TP2	(0.0%)	0.0%	0.3%	0.0%	(0.0%)	0.2%
TP3	(0.0%)	0.0%	(0.4%)	0.3%	(0.0%)	(0.0%)
Total	**(0.0%)**	**0.0%**	**0.2%**	**0.1%**	**(0.0%)**	**0.1%**

Conclusions

Asset context

Asset forms part of a strategic network (NH66), running almost parallel to Western Ghats, connecting Panvel to Kanyakumari, via the states of Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu. It contains 3 toll plazas, two on the northern section i.e., Sasthan (TP1) and Hejamadi (TP2), and one on the southern section namely Talapady (TP3). It serves a mixture of local short-distance (CJV, 2A) movements, and strategic long distance (3A/MAV) movements.

Traffic

Pre-Covid (FY20) AADT volumes were approx. 13,000 (TP1), 16,100 (TP2) and 12,300 (TP3). CJV's comprised 60% of all traffic at TP1 and TP2, and 67% at TP3. Traffic has largely recovered/surpassed pre-covid traffic volumes on TP1 and TP2, with TP3 lagging behind.

Historically, from FY18-FY23, the total traffic has shown a growth at both TP1 and TP2. AT TP3, the traffic has shown a decline across all vehicle categories during the said period. This is majorly on account of Covid19 related restrictions/ lockdowns and associated economic impact, which impacted both the passenger and commercial traffic movements. It had affected the tourism activity, cargo traffic at NMPT, consumption and disrupted the domestic/ international connectivity at the Mangalore airport.

Revenue

In FY23, TP2 is the highest revenue contributor with a share of approx. 39%, followed by TP1 (35%) and TP3 (26%) – in line with traffic volumes.

As part of validating the traffic data provided by the Vendor, as well as our assumptions around toll segmentation and trip factors, we have reconciled the actual reported revenue for the period FY18-FY23 for the Asset. Our analysis shows the difference between modelled revenue and the reported revenue is 0.0-0.1% for FY23, establishing confidence in the revenue figures extracted from the Vendor's data.

Ticket segmentation

Ticket type segmentations have largely stabilised post disruption due to FASTag implementation (Feb 2021). The share of FASTag for 3A/MAVs is over 99.5% and can be assumed to stabilize at this level in the future, as there will always be some volume of traffic not paying via FASTag. For CJVs the penetration rate is between 86-94% and might show a marginal increase.

4. Primary data analysis

4.1 Data collection and site visits

Overview

In order to validate and inform various inputs used in our forecasting, we undertook primary data collection on the Asset, comprising OD, TVC and RNP surveys. OD, RNP data collection typically involves manual data entry by enumerators based on face-to-face surveys with road users crossing toll plazas. TVC data collection involves video-graphic capture of traffic passing crossing the toll plazas. Key elements of our data collection methodology have been detailed below.

OD and TVC surveys were completed over a week in early November 2022.

Over the following pages we describe:

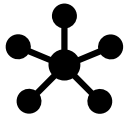
- Key **commodities** transported on the Asset;
- Key **areas of influence**, **trip distances** and **ODs**; and
- Results from the **TVC/TMS** comparison, and **RNP** surveys

Discussion with the **toll plaza manager**

- Key traffic movements, any unusual traffic events
- Toll ticketing, exemptions and violations, FASTag, local passes
- Local issues, most prominent commodities & modes on Asset

Supervising the **surveys**

- Making sure safety guidelines are followed and enumerators should have necessary equipment
- Checking if enumerators are able to identify vehicle categories, if they are asking the right questions
- Monitor sample rates - Decision on additional surveys if required



Understanding the network

- Economic activities and growth drivers
- Potential alternatives/competing routes
- Upcoming developments and road upgrades
- Key OD movements and commodities carried
- Local and strategic diversions

Interviewing **road users**

- Speaking to users about traffic movement and commodities
- Interview truck drivers on which routes they prefer and why

Zonal influence

CJVs, LCVs and Buses

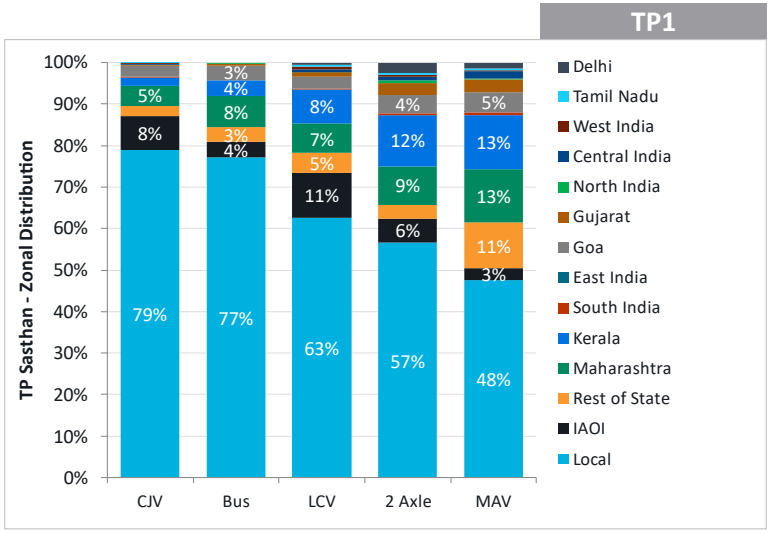
At all toll plazas 80%-90% of CJV and LCV traffic is within the Local, IAOI, and Rest of State zones, indicating a strong local influence on light vehicle traffic, on the Asset.

Buses largely serve the local/Rest of the State market on TP1 and TP2, while on TP3, approx. 25% serve the market in Kerala. We understand that there has been an increased reliance on buses for such movements post Covid-19, related to difficulties in accessing cross border permits for cars. This was observed in our analysis of ticket segmentation and has been adjusted for in our traffic forecasts.

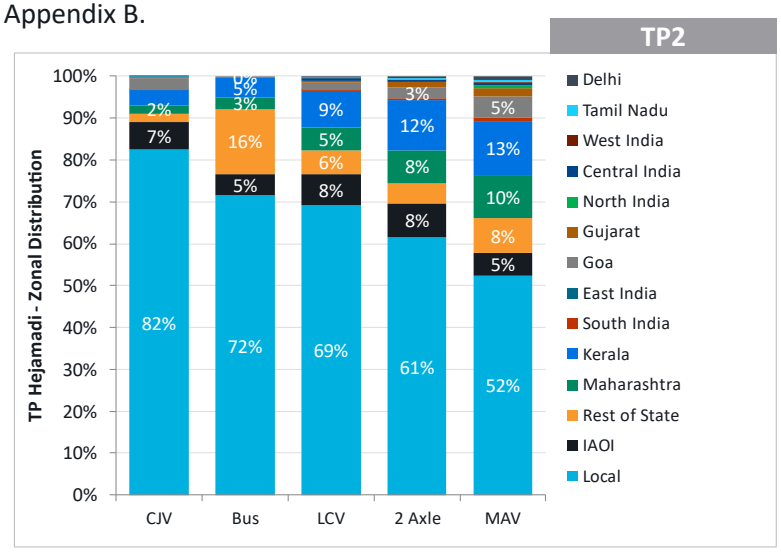
2A/3A/MAVs

50-70% of 2A/3A/MAV movements on TP1 and TP2 are within the Local, IAOI, and Rest of State zones, while on TP3, once again, due to its geographical location, approx. 30% of traffic is originating/destined to Kerala.

Detailed definitions of each zone, top OD pairs, and maps indicating 3A/MAV ODs are provided in Appendix B.



Source: Steer analysis



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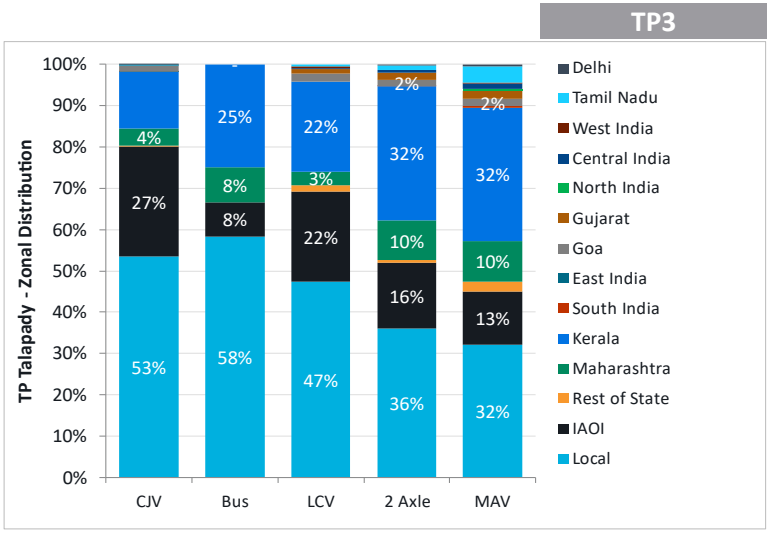


Source: Steer analysis

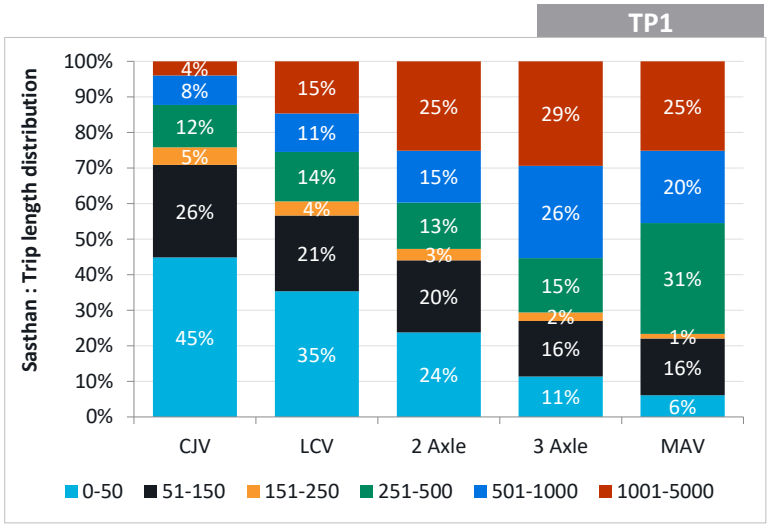
Trip lengths

CJVs and LCVs

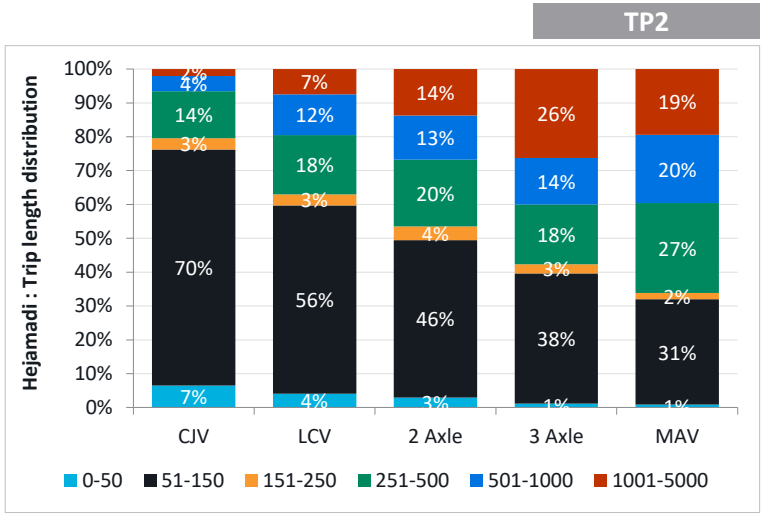
Trip lengths for CJVs and LCVs support the previous analysis around zonal distribution, i.e., are largely local and within 150km in length, at TP1 and TP2. TP3, as mentioned previously, has marginally longer trip lengths, serving the market in Kerala and Southern Mangalore.

2A/3A/MAVs

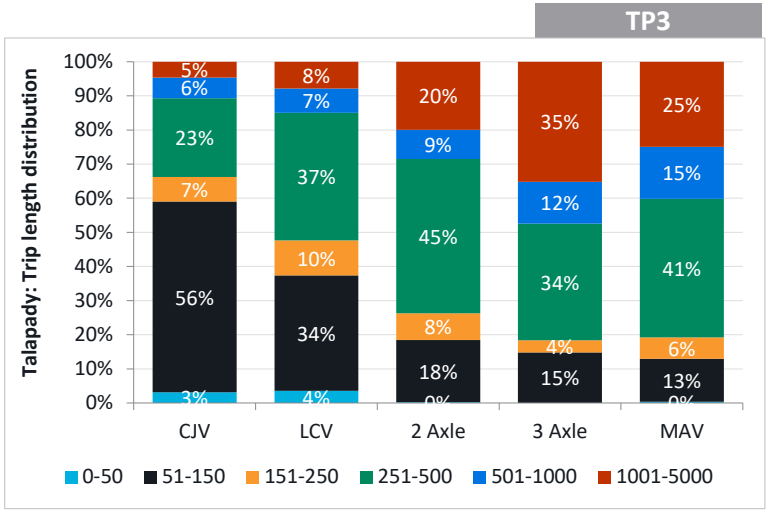
3A/ MAVs show more long-distance trips at TP3 than at TP1 and TP2, consistent with the zonal analysis, indicating traffic movements between Karnataka – Kerala, Kerala – Goa, and Kerala – western Karnataka.



Source: Steer analysis



Source: Steer analysis



Source: Steer analysis

Commodity distribution

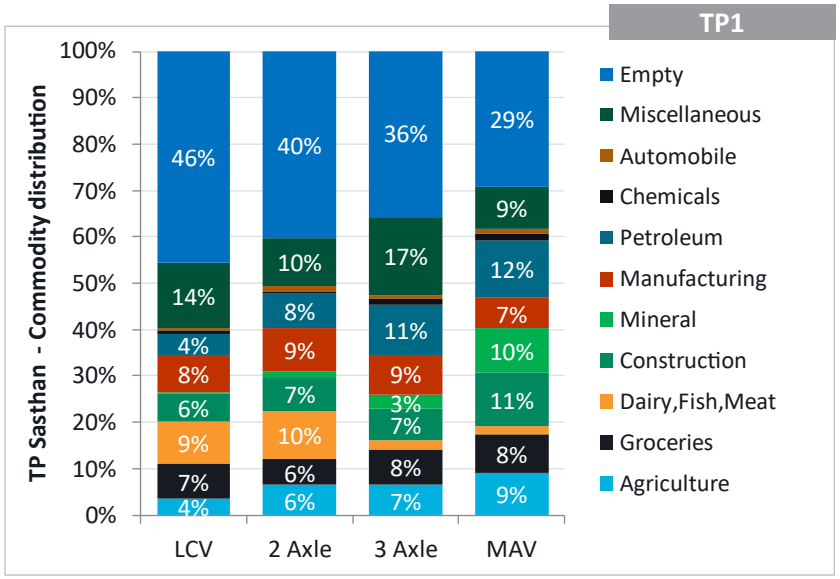
Key commodities

The Asset carries a variety of commodities, with key contribution from **petroleum, minerals, construction**, groceries and miscellaneous commodities (parcels/ household items). On LCVs and 2A trucks, the proportion of fishery products increase, driven by regional fishery ports.

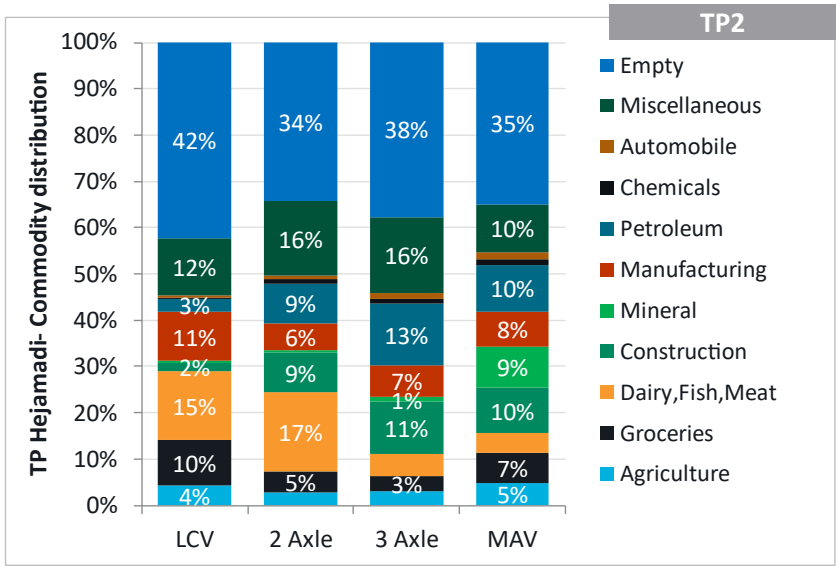
A significant percentage of empty vehicle movements are observed across the Asset, because of activities driven by Mangalore refinery. The supply from Mangalore refinery caters to the regional fuel stations/industries and to other states. Such vehicles can not carry any other commodities on the return leg of their trips. Therefore, the share of these vehicles is nearly double of what the commodity charts present, which appears in the empty share.

TP3 has slightly higher proportions of construction material, and the fishery/meat products, as the traffic on TP3 caters to the demand from Kerala, unlike TP1, and TP2, which are more driven by intrastate movements.

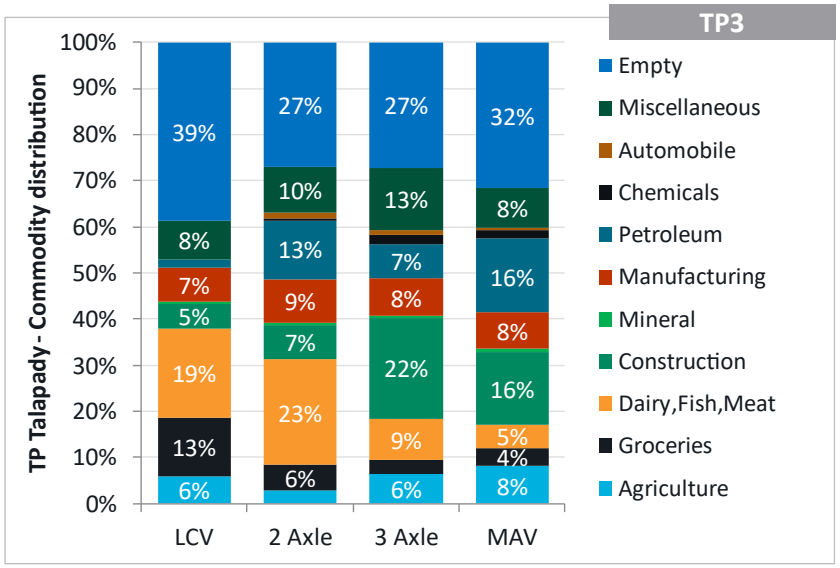
The definitions of commodities and directional distribution are provided in Appendix B.



Source: Steer analysis



Source: Steer analysis

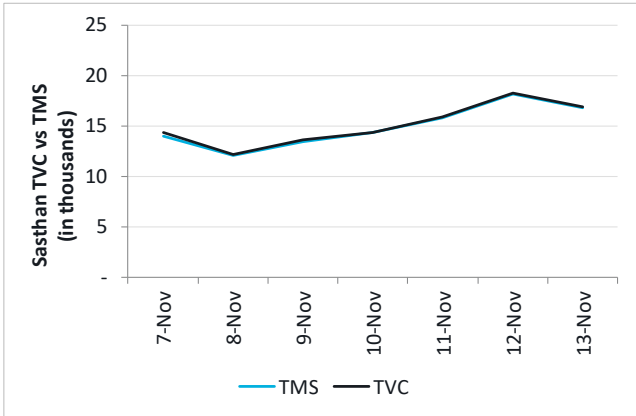


Source: Steer analysis

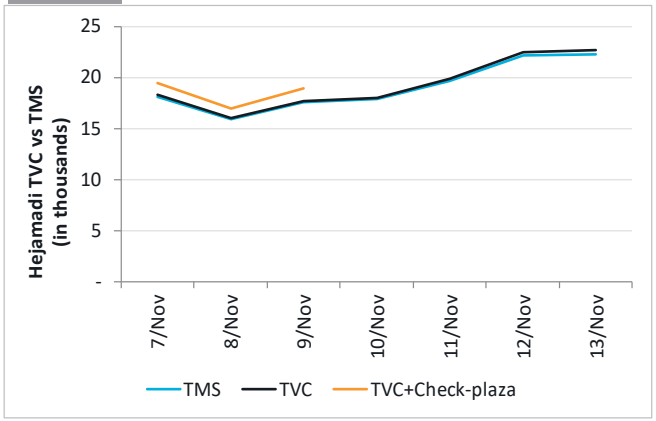
TVC vs TMS reconciliation

TVC and TMS data largely reconciles for TP1. TP2 and TP3 TVC data shows more CJVs (9% and 3.5% respectively), which we have adjusted to include in the "Exempted vehicles" category.

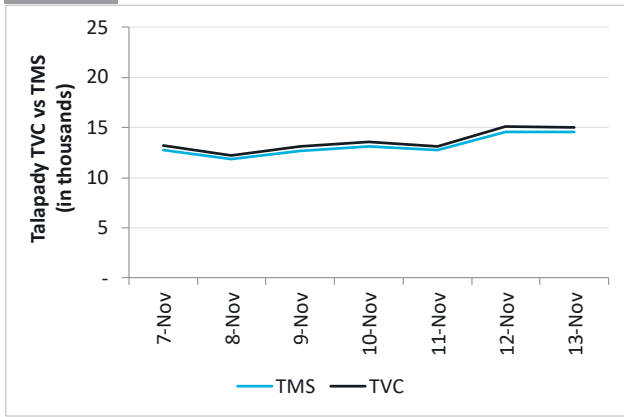
TP1



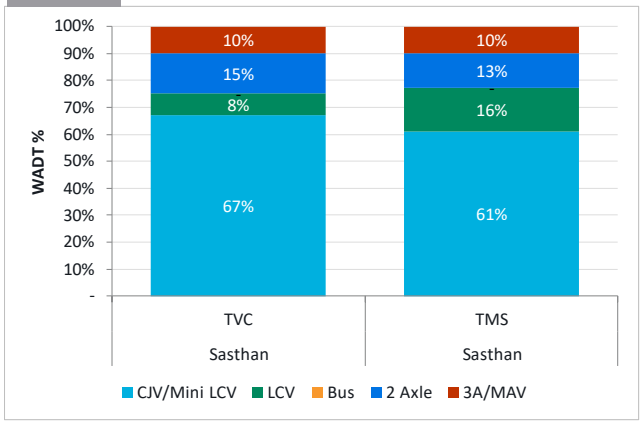
TP2



TP3

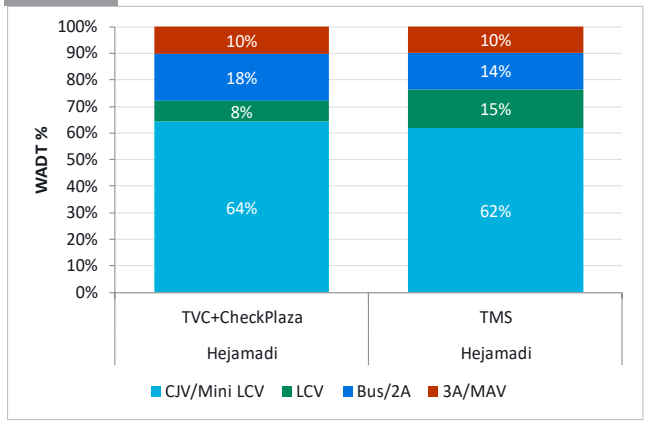


TP1



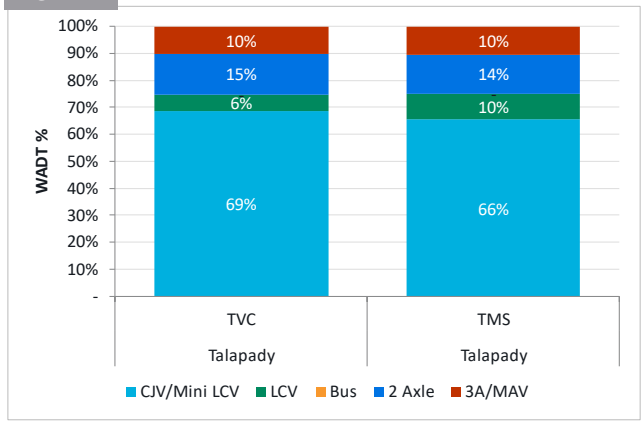
Source: TVC survey, TMS data by Vendor, Steer analysis

TP2



Source: TVC survey, TMS data by Vendor, Steer analysis

TP3



Source: TVC survey, TMS data by Vendor, Steer analysis

Other observations from the site-visit

The site visits were made in Nov-2022 as part of this study.

Local alternatives

There are no major local alternatives present at TP2 and TP3. There are village roads, however they do not act as potential options to avoid the toll plazas, as they only provide access to nearby villages.

At TP1, there is a potential alternative which goes through a village parallel to the Asset. While it is possible to use this to avoid TP1, it adds 10 min/2 km to the journey and is through a local village. It is not suitable for heavy vehicles, and we only observed a very small number of cars using this, which could also have been destined to the village. **As such, we do not consider this to be a credible alternative/significant risk to TP1.**

Regional alternatives

For traffic between Mangalore and Udupi, there is a strategic alternative, which can be used to avoid TP2. However, this route goes through the Western Ghats and based on our experience, **we believe this is not preferred** by truck drivers or passenger taxi drivers.

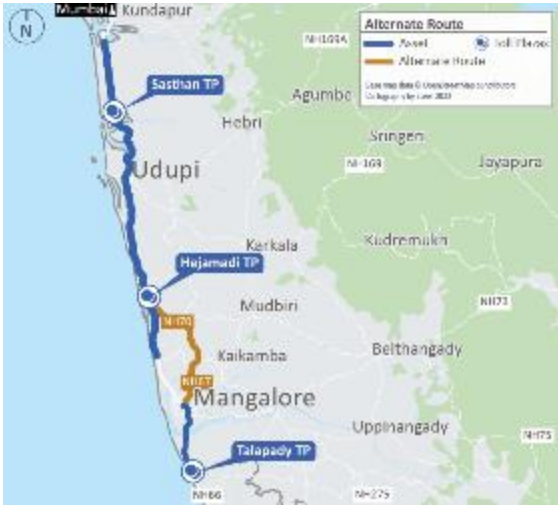
Approach from Kundapur-Udupi direction

Internal path (Narrow and non-bituminous road with sharp turns)

Source: Google Maps and Steer analysis

Route between Kundapur and Udupi, illustrating the bypass at TP1

Regional alternative



Source: Steer Cartography

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Conclusions

Key areas of influence, trip distances and ODs

Traffic on the Asset is largely local, and a majority of the CJV and LCV movement across all three toll plazas is for trip lengths under 150 km. TP3 is influenced by cross-border movements to Kerala.

Key commodities

All three toll plazas see significant local movements driven by the urban towns of Udupi, Mangalore and Kannur, and they have a similar commodity mix across. Major commodities that have been observed are miscellaneous, petroleum, construction, fish, and mineral (coal/ coke).

Results from the TVC/TMS comparison, and RNP surveys

The TVC/TMS comparison indicates that the data largely reconciles for TP1. TP2 and TP3 TVC data shows more CJVs (9% and 3.5% respectively), which we have adjusted to include in the “Exempted vehicles” category.

RNP and OD both show major local traffic movement which is also evident from the trip lengths of all three toll plazas.

5. Socioeconomic overview and growth parameters

GDP and GSDP growth

National GDP

The Indian economy has grown at a CAGR of 6.6% during FY12-20, aided by a strong growth in the services/tertiary sector.

Regional GDP

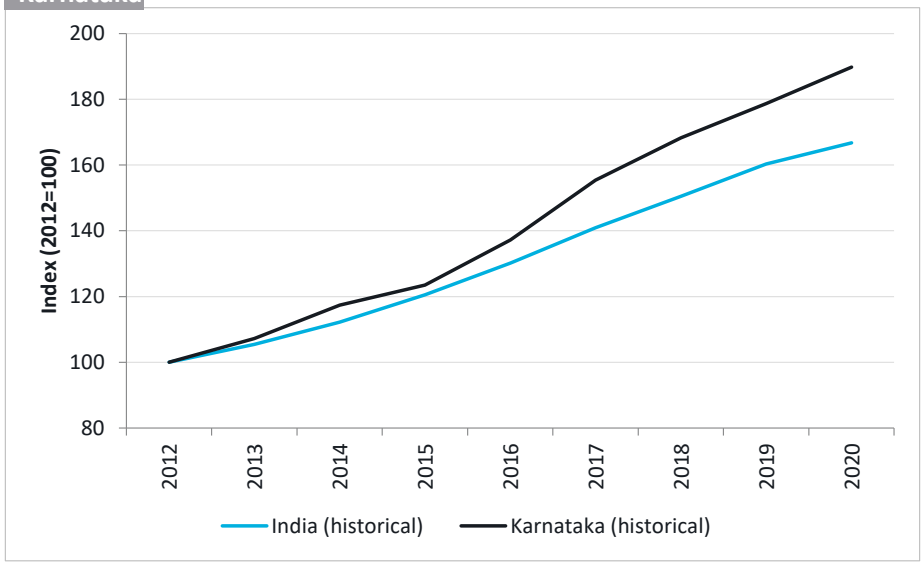
The economic growth of Kerala (GSDP) has been weaker while that of Karnataka has been stronger than the country overall. As per the Ministry of Statistics and Programme Implementation (2019), Kerala and Karnataka each approximately contribute 4% and 8% respectively to the India's GDP.

The growth of **Karnataka** can be attributed to the boom in IT services sector in the region and policies encouraging the establishment of research and development facilities. Karnataka also houses one of the 13 Major Ports in India, the NMPT. In terms of sectoral contribution, the services sector is the biggest contributor (66%), followed by secondary (20%) and primary sector (14%).

The services sector is major contributor (65%) to **Kerala's** economy, followed by secondary (25%) and primary sector (10%). Foreign inward remittance by emigrants from Kerala working in foreign countries (predominantly the Middle East) annually contribute more than a fifth of the GSDP. Resultantly, the per capita income of Kerala is over 1.5 times India's per capita income.

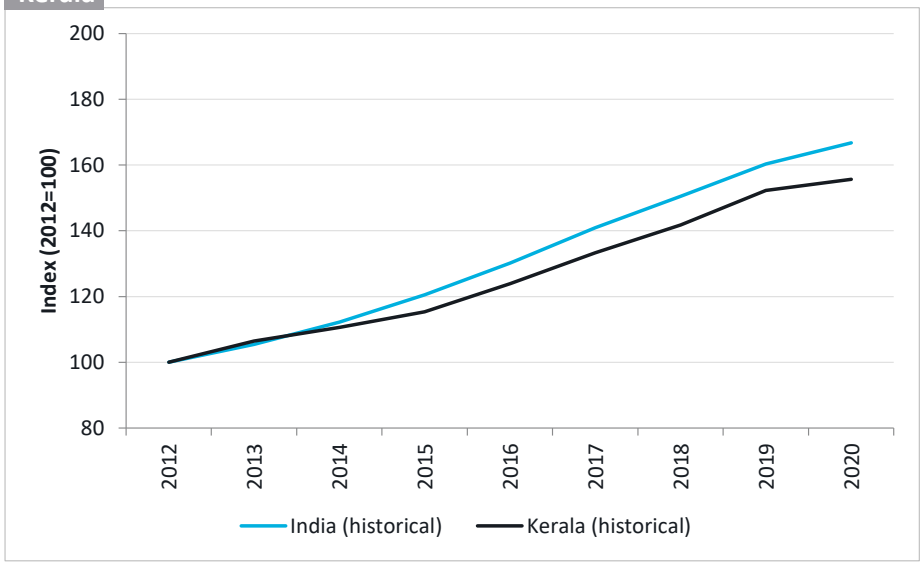
While GDP forecasts for India are available from various reliable sources such as Consensus, GSDP forecasts for the same are not published. However, using the past trends for the relationship between GDP and GSDP, we can develop reasonable GSDP forecasts.

Karnataka



Source: Steer analysis

Kerala



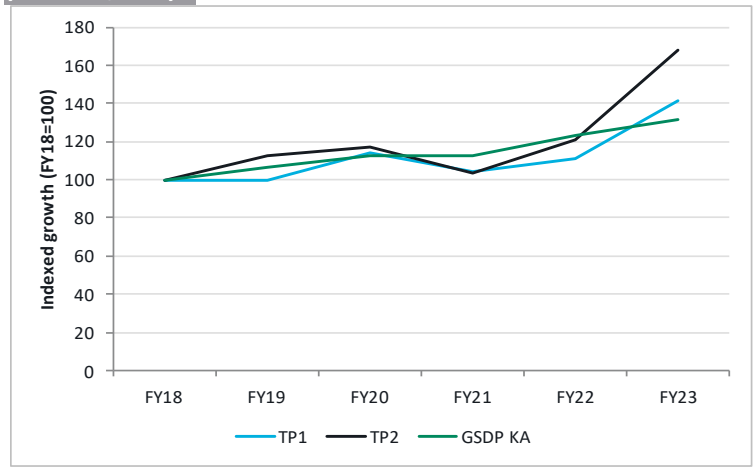
Source: Steer analysis

5.2 Trend analysis: GSDP and CJV traffic

CJV at TP1 and TP2 have historically followed the trend of GSDP KA, while CJVs at TP3 shows better fit with GSDP KE – this is in line with our OD survey data which indicates a stronger relationship to Kerala for TP3.

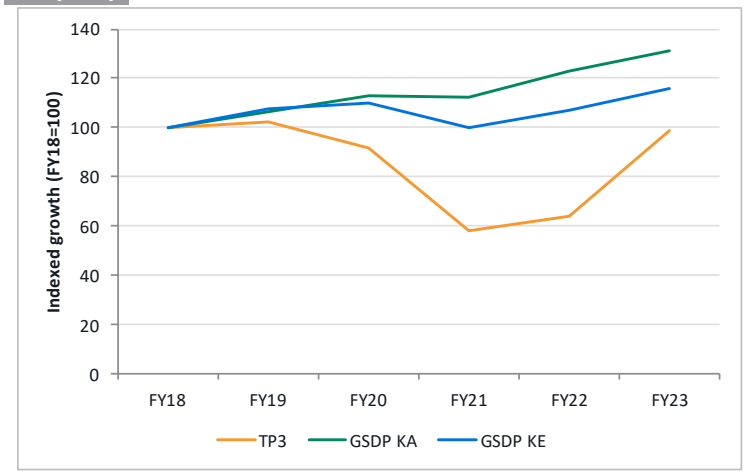
Resulting assumptions around forecast elasticities have been included in section 6.

(CJV TP1, TP2)



Source: Steer analysis

CJV (TP3)



Source: Steer analysis

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5.3 NMPT traffic growth

NMPT, directly or indirectly, contributes traffic on the Asset, in form of two commodities: POL (Crude Oil, POL Products) and Minerals (Coke, Coal). These commodities corresponds to around 65% of the total cargo handled at the port.

Iron Ore including Pellets is another key commodity handled at NMPT. However, we observed based on OD and site visit analysis that Iron Ore transports are not using our Asset.

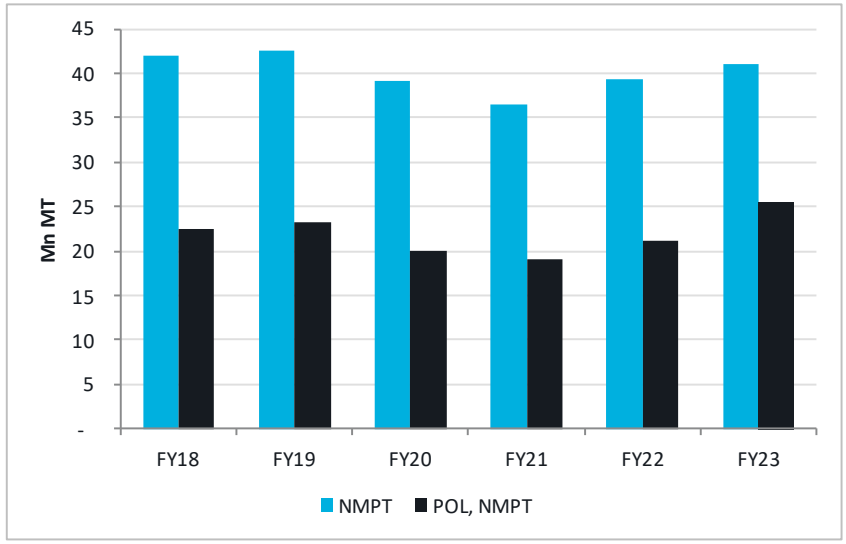
From the FY20 and FY21 data, it is understood that out of the total Coal handled at the port, two-third of Coal is transported by road. While, UPCL imports Thermal Coal (captive cargo) and dispatches using rail.

Crude Oil by MRPL is transported to its refinery using pipeline and the finished products are further distributed to Karnataka, Kerala and other states through a mix of pipelines and bullet tankers via road.

Further, we have found that the trend in overall traffic at Port and POL commodity has been quite similar over the last 5 years.

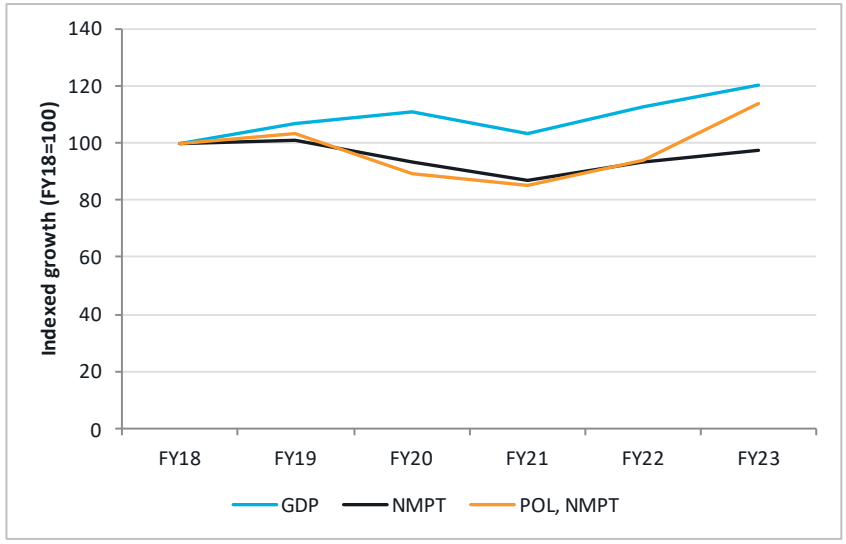
Traffic handled at port (total and POL) follows a similar trend as of the GDP, except for FY19, when there was a dip in POL demand from MRPL.

Total and POL traffic at NMPT



Source: NMPT Annual Reports

Indexed growth of total and POL traffic at NMPT along with GDP



Source: Steer analysis and NMPT Annual Reports

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Trend analysis: Historical GDP/ NMPT traffic with 3A/ MAV

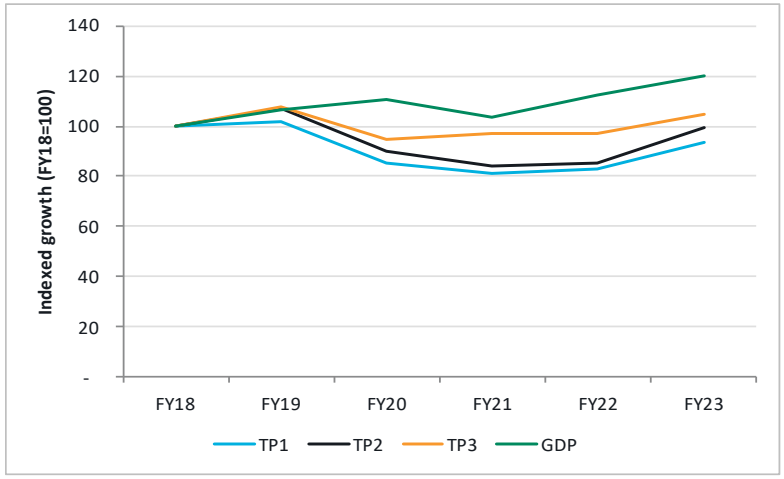
3A/ MAV traffic at TP1 and TP2 indicates better corelation with GDP as compared to its counterpart at TP3. Also, they show a significant relationship with the traffic handled at NMPT and specifically POL.

POL handled at Port has witnessed a heavy surge in demand in FY23 as compared to FY22.

TP1 and TP2 have also shown higher growth than traffic growth at NMPT, signalling a positive effect of increase in POL demand. The growth rates in TP1 and TP2 traffic are between the growth rates for NMPT total traffic and POL, which hints at the corelation with both POL and total traffic handled at NMPT.

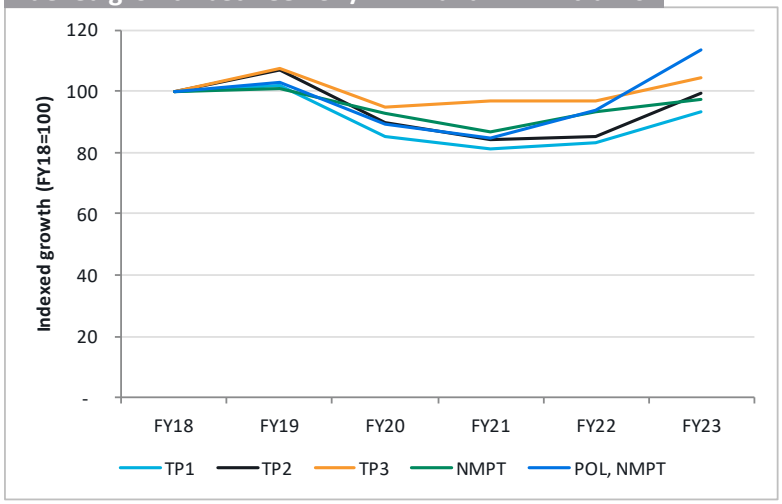
Resulting assumptions around forecast elasticities have been included in section 6.

3A/MAV



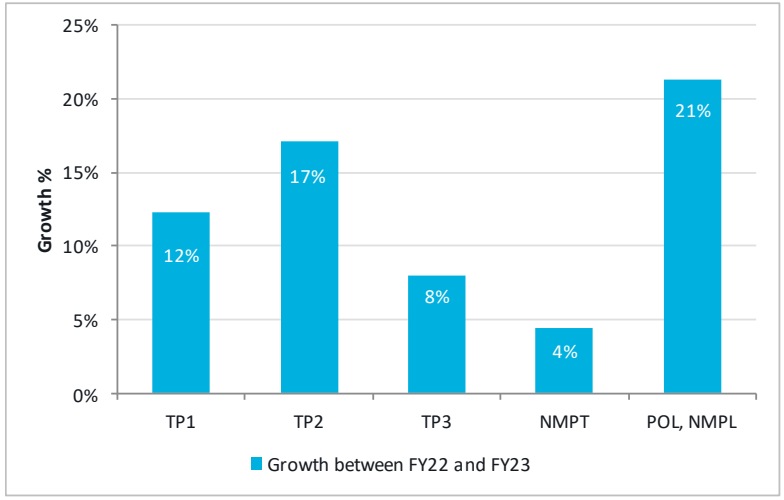
Source: Steer analysis

Indexed growth between 3A/ MAV and NMPT traffic



Source: IPA, NMPT Annual Reports, and Steer analysis

Growth between FY22 and FY23



Source: IPA and Steer analysis

5.5 Conclusions

In this section, we studied the historical trends for socio-economic factors such as GDP, GSDP, among others concerning the Asset.

In addition, we also looked at the traffic variations in relation to these factors. For instance, CJV with GSDP (Karnataka, Kerala), 3A/MAV with GDP, etc. to ascertain the growth drivers for traffic forecasting.

Some of the key findings include:

- 3A/ MAV traffic shows a corelation with GDP and total traffic handled (including POL traffic) at NMPT
- Car registrations have steadily increased from FY18-FY23, despite fluctuations in the GSDP, which hints at the potential growth of CJV traffic on the Asset

For any indicator to be used as a growth driver to forecast traffic, a reliable source of historical and forecast available for that indicator is the key requirement.

Of the key socioeconomic indicators discussed above GDP/GSDP seems to be the only growth driver for which reliable data is available both in terms of historical and forecast data, therefore, to forecast traffic we would be using GDP/GSDP as our key growth drivers.

Along with that, as the Asset traffic shows a strong corelation with NMPT traffic, we will consider port traffic too as a growth driver. The forecast for the same will be made by studying its relationship with India's GDP.

6. Steer forecasting assumptions and draft forecasts

Methodology and base year estimation

6.1 Forecasting methodology and assumptions

Input	Methodology/Source	Output
Base-Year traffic	Base year (FY23) numbers based on TVC-TMS difference	FY23 AADT, PCUs TP1 – 15184, 24509 TP2 – 20939, 32796 TP3 – 13169, 21493
Growth drivers and projection:		
1. GDP	Consensus forecasts	CAGRs: More than 6% till FY28. Between 5-6% during FY28-FY42
2. GSDP Karnataka	Estimated using historical relationship to GDP	CAGRs: Higher than India's GDP for almost next 15 years. Over 6% till FY33 and follows India's GDP from FY38 onwards However, Karnataka's GDP excluding Bangalore, is in line with India's GDP.
3. GSDP Kerala	Estimated using historical relationship to GDP	CAGRs: Higher than India's GDP from FY23-FY25 and then grows at a slower rate. Between 5-6% during FY28-FY42.
4. NMPT-MRPL	Estimated using historical relationship to GDP; Boost given in first 3 years to account for speedy recovery import traffic and higher demand for POL commodity .	CAGRs: About 60% of GDP's growth in in FY24, FY25. Falls after that and settles to 35% of GDP growth from FY27-FY42
Elasticities	Asset characteristics/Benchmarks	Presented in separate slide
Exogenous Impacts:		
1. NH66 improvement	On account of improvement in the following corridors of NH-66 • Mumbai-Goa highway • Goa border to Kundapur • Kasargod - Thiruvananthapuram	About 4% on MAVs at TP1 and TP3 About 5% on CJV at TP3
2. Mangalore airport expansion	• Assessment of incremental traffic on account of taken-over by a private player along with its aggressive growth plan, recovery from Covid-19 • Allocation of increased traffic in terms of impact on CJV category across different Toll Plazas	From FY26 onwards 1.1%-1.4% on TP1 1.5%-1.9% on TP2 2.5%-3.2% on TP3
Revenue parameters:		Base Year (FY23) revenue from asset: INR 110.3 Cr
1. Toll segmentation	As observed; adjustments for ETC penetration	Presented in separate slide
2. Trip Factors	As observed	Presented in separate slide
3. WPI	Consensus	CAGRs: Around 5% in FY24 and then settles around 4-4.5% from FY29 onwards.

6.2 Base year traffic – FY23

Base year is the year upon which long-term background forecast growth rates are applied to derive year-by-year AADT estimates for forecast years. This is an important aspect of our forecasting approach because baseline traffic and, ultimately, revenue forecasts for future years are built on top of base year traffic estimates. For AADT estimates, we have used FY23 as the baseline year. The Vendor provided traffic data for entire FY23. Because there were no disruptions in the FY23 due to events such as Covid19-related restrictions or other weather-related events, the period from Apr-22 to Mar-23 is considered normal.

TVC and TMS data largely reconciles. TP2 and TP3 TVC data shows more CJVs (9% and 3.5% respectively), which we have adjusted in the exempted vehicles. Accordingly, the SCF based numbers after TVC adjustment have been considered as Base Year traffic.

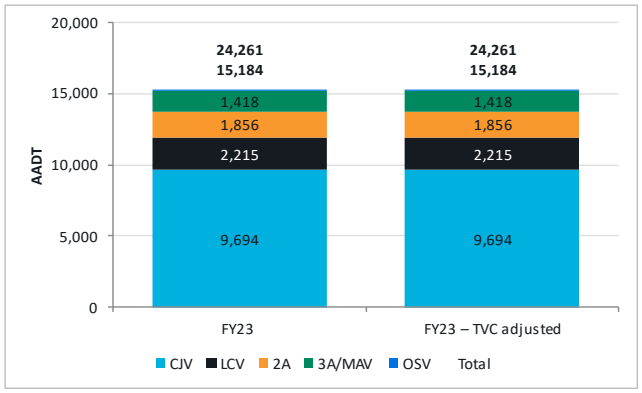
Base Year Traffic for the three Toll Plazas

Sasthan	FY23	FY23 – TVC adjusted
CJV	9,694	9,694
LCV	2,215	2,215
2A	1,856	1,856
3A/MAV	1,418	1,418
OSV	1	1
Total	**15,184**	**15,184**
PCU	**24,261**	**24,261**

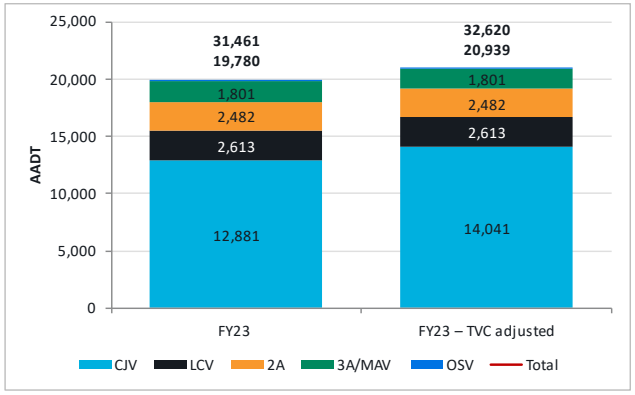
Hejamadi	FY23	FY23 – TVC adjusted
CJV	12,881	14,041
LCV	2,613	2,613
2A	2,482	2,482
3A/MAV	1,801	1,801
OSV	2	2
Total	**19,780**	**20,939**
PCU	**31,461**	**32,620**

Talapady	FY23	FY23 – TVC adjusted
CJV	8,546	8,845
LCV	1,186	1,186
2A	1,870	1,870
3A/MAV	1,266	1,266
OSV	2	2
Total	**12,870**	**13,169**
PCU	**21,009**	**21,308**

Note: 3A/ MAV PCU considered as 4 for this analysis



Source: Steer analysis



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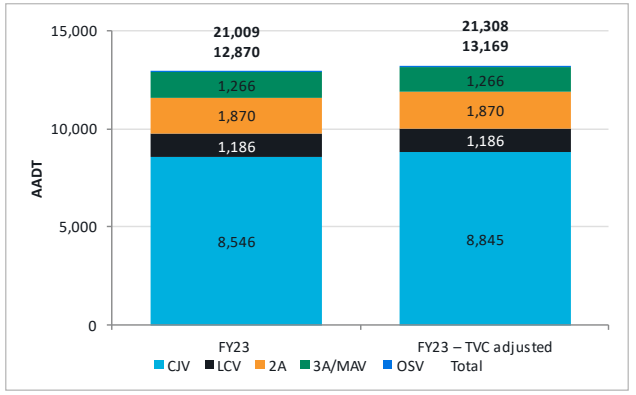

Source: Steer analysis

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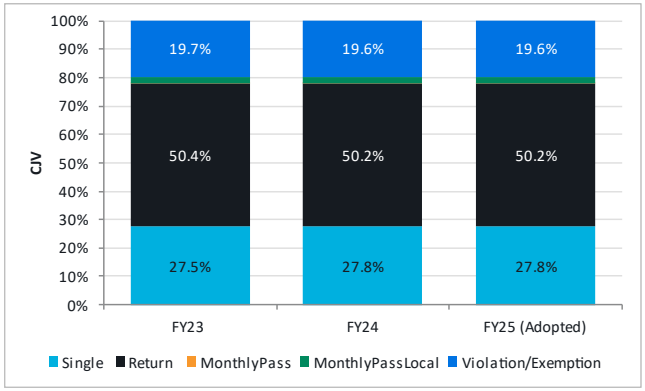
Forecast toll segmentation – CJV and LCV

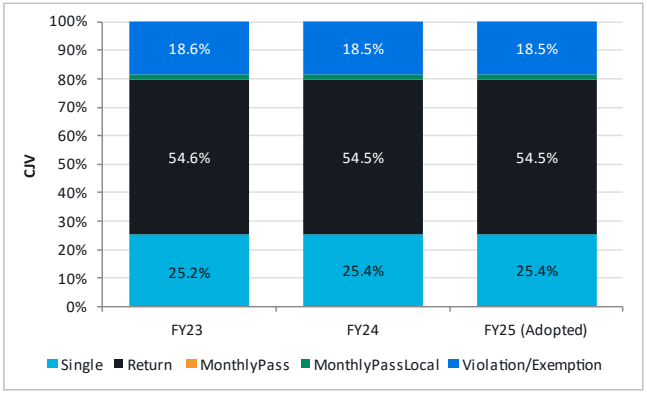
For CJV category, the adopted segmentation has higher proportion for Exemptions for TP2 and TP3. This is on account of TVC adjustment as discussed previously. Further, we have also considered the impact of increased FASTag penetration at TP3, esp. for CJV and LCV category and adjusted its impact on segmentation.

TP1 – CJV



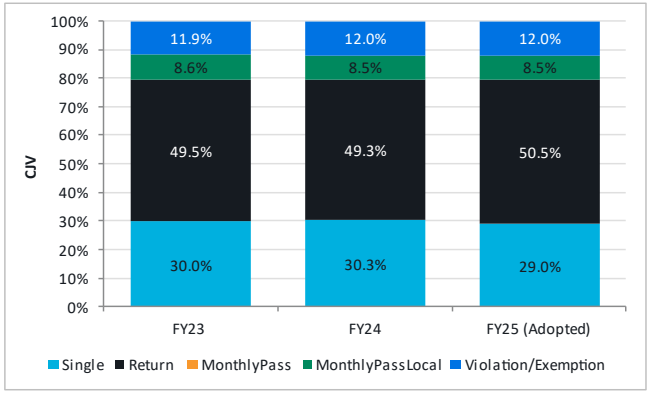
Source: Steer analysis

TP2 – CJV



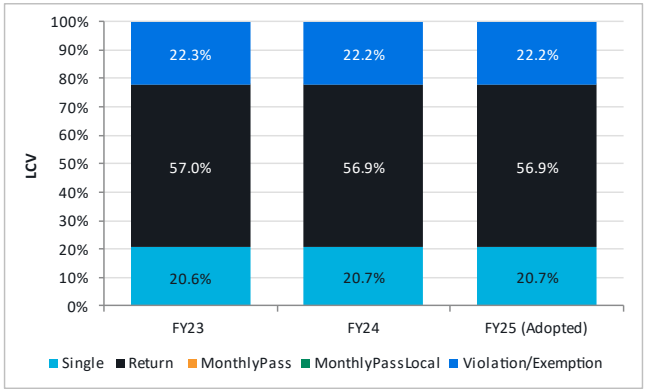
Source: Steer analysis

TP3 – CJV



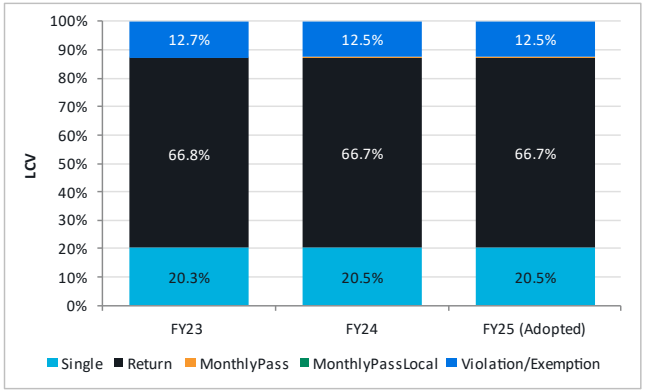
Source: Steer analysis

TP1 – LCV



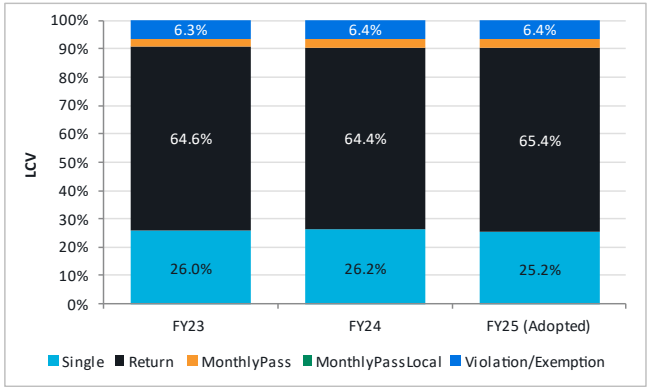
Source: Steer analysis

TP2 – LCV



Source: Steer analysis

TP3 – LCV

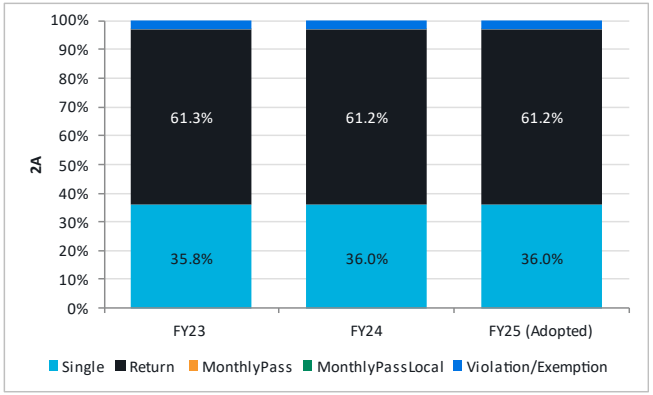


Source: Steer analysis

Forecast toll segmentation - 2A and 3A/ MAV

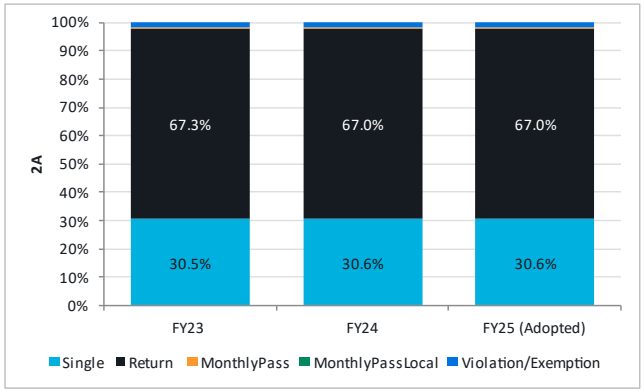
For TP3, there has been a significant increase in the Bus traffic in FY23 driven by recovery from Covid19. Bus proportion in the 2A category is close to 53%, due to which the Monthly Pass proportion has increased considerably. For forecasting purposes, we have averaged out the segmentation for Bus for FY22 and FY23 YTD and accordingly, computed the adopted segmentation for 2A category.

TP1 – 2A



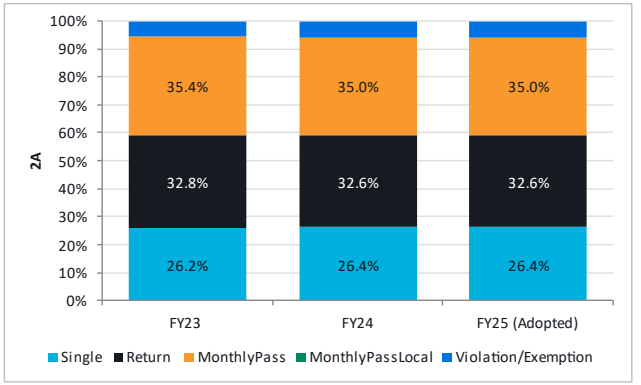
Source: Steer analysis

TP2 – 2A



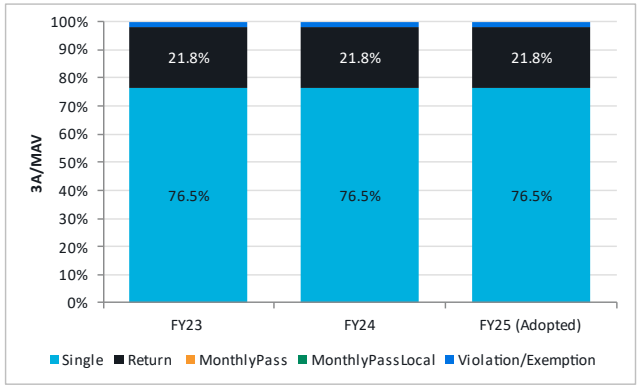
Source: Steer analysis

TP3 – 2A



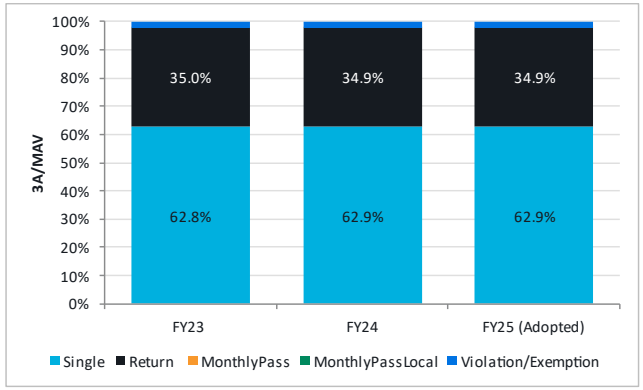
Source: Steer analysis

TP1: 3A/ MAV



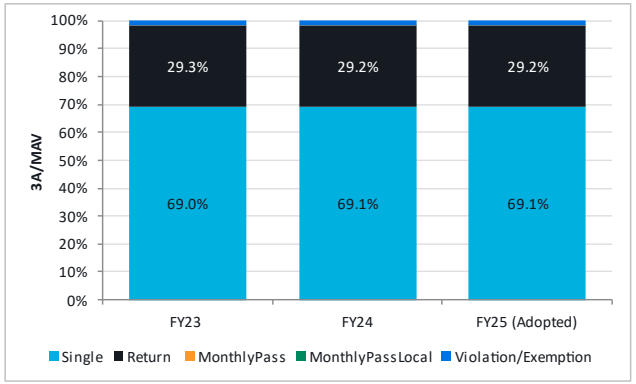
Source: Steer analysis

TP2: 3A/ MAV



Source: Steer analysis

TP3: 3A/ MAV



Source: Steer analysis

6.4 Trip factors

To forecast the revenues for a particular financial year, the traffic forecast for each vehicle type is converted into tickets sold, which is then multiplied with the corresponding toll rate, which grows over the years as defined in the Concession Agreement. While "trip factors" provide the conversion factor to the former, i.e. traffic (trips) to tickets sold, "toll segmentation" provides the latter i.e. the breakup of trips paying each ticket type.

Apart from the Single trips, trips such as Return, Monthly, Local Monthly are discounted tickets that are offered to the users. The revenue realised from these discounted trips is lower than a single trip fare. Therefore, in order to calculate the revenue for the trips made on discounted tickets (or passes) a trip factor is applied to calculate revenue realised from that particular pass sold.

Weighted average of trip factors for FY23 and FY24 (Apr) is considered for FY24 onwards.

TP1: Sasthan – Adopted Trip Factors

Ticket category	CJV	LCV	2A	3A	MAV	OSV
Single	1.0	1.0	1.0	1.0	1.0	1.0
Return	2.0	2.0	2.0	2.0	2.0	2.0
Monthly Pass	1.0	39.9	36.9	45.0	45.0	45.0
Local Personal – Pass	26.8	45.0	45.0	45.0	45.0	45.0
Violation/Exemption	1.0	1.0	1.0	1.0	1.0	1.0

TP2: Hejamadi – Adopted Trip Factors

Ticket category	CJV	LCV	2A	3A	MAV	OSV
Single	1.0	1.0	1.0	1.0	1.0	1.0
Return	2.0	2.0	2.0	2.0	2.0	2.0
Monthly Pass	11.0	5.1	18.6	44.5	44.5	45.0
Local Personal – Pass	33.3	45.0	45.0	45.0	45.0	45.0
Violation/Exemption	1.0	1.0	1.0	1.0	1.0	1.0

TP3: Talapady – Adopted Trip Factors

Ticket category	CJV	LCV	2A	3A	MAV	OSV
Single	1.0	1.0	1.0	1.0	1.0	1.0
Return	2.0	2.0	2.0	2.0	2.0	2.0
Monthly Pass	45.0	76.1	64.7	90.7	90.7	45.0
Local Personal – Pass	31.2	45.0	45.0	45.0	45.0	45.0
Violation/Exemption	1.0	1.0	1.0	1.0	1.0	1.0

Traffic growth parameters

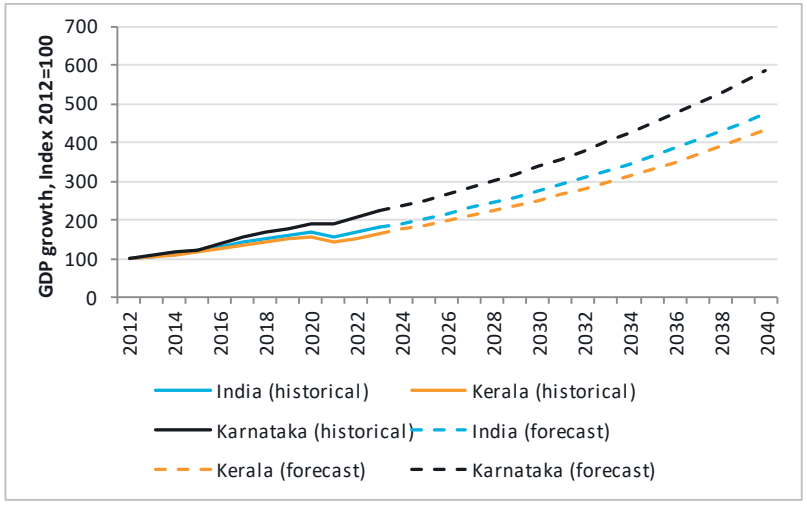
Growth drivers – GDP/GSDPs

GDP and GSDP forecasts

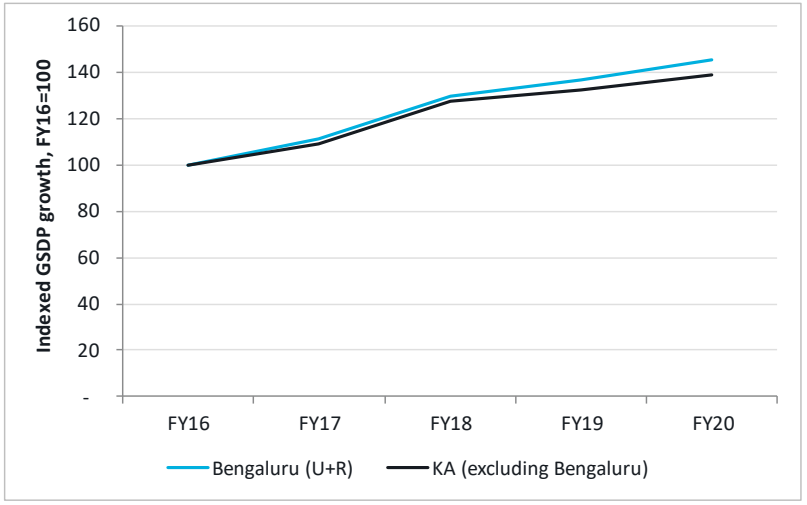
Growth Driver	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36	FY37	FY38	FY39	FY40	FY41	FY42
GDP	5.8%	6.3%	6.4%	6.4%	6.2%	6.0%	5.6%	5.6%	5.6%	5.6%	5.6%	5.5%	5.4%	5.4%	5.3%	5.2%	5.1%	5.0%	5.0%
GSDP – Karnataka	5.8%	6.3%	6.4%	6.4%	6.2%	6.0%	5.6%	5.6%	5.6%	5.6%	5.6%	5.5%	5.4%	5.4%	5.3%	5.2%	5.1%	5.0%	5.0%
GSDP – Kerala	6.9%	6.7%	6.2%	6.2%	6.0%	5.8%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.4%	5.3%	5.3%	5.2%	5.1%	5.0%	5.0%

Source: Consensus, Steer analysis

GDP India and GSDP of Karnataka and Kerala



GSDP Karnataka growth split by Bengaluru and rest of the state



Source: Consensus, Steer analysis

The traffic on the Asset is driven by the regional economies of Karnataka and Kerala which have been have projected in-line with their historical relationship to the GDP of India.

Historically, the GSDP of Karnataka has been growing with two distinct trends: higher growth due to Bangalore (~40% of the GSDP), and a lower growth in the rest of the state. As the traffic on the Asset is not influenced by Bangalore, we have employed a suppression factor on Karnataka's GSDP, to take this into account.

Growth drivers – NMPT traffic

NMPT is one of the key drivers influencing commercial traffic on our Asset. Of all commodities handled at Port, the ones making considerable contribution are POL (Crude Oil, Products, etc.) and Minerals (Coke/ Coal).

For the NMPT growth forecast, we have studied its relationship with GDP India over the past decade. For the period FY13-FY18, there were no disruptions on account of any one-off event and abnormal conditions. Hence, the elasticity (0.35) during this period between GDP and NMPT growth is considered for long term forecasts.

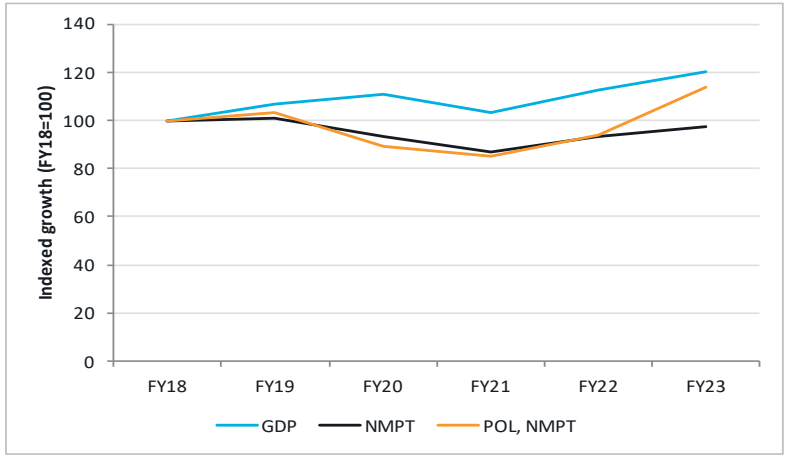
Owing to surge in demand for POL (including MRPL expansion), port expansion activities, and recovery of economy from Covid-19 impact, the NMPT is forecasted to witness strong growth over the FY23-FY26. As the capacity expansion status for MRPL is yet not clear, we have assumed a slow growth POL scenario including the expansion taking place in next 2-3 years.

Growth forecasts for NMPT

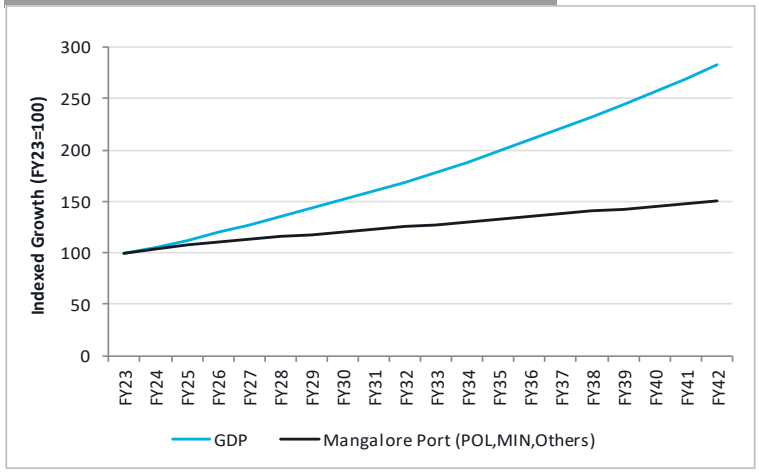
Growth Driver	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36	FY37	FY38	FY39	FY40	FY41	FY42
GDP	5.80%	6.30%	6.40%	6.40%	6.20%	6.00%	5.60%	5.60%	5.60%	5.60%	5.60%	5.52%	5.44%	5.36%	5.28%	5.19%	5.11%	5.03%	4.95%
NMPT	3.48%	3.78%	3.20%	2.24%	2.17%	2.10%	1.96%	1.96%	1.96%	1.96%	1.96%	1.93%	1.90%	1.87%	1.85%	1.82%	1.79%	1.76%	1.73%

Source: Consensus, Bharatmala Report (FY2021), Steer analysis

Correlation between GDP and NMPT traffic



Indexed NMPT traffic forecasts vis-à-vis GDP



Source:

- POL consumption expected to be 17.8% higher in FY23 as compared to FY22 (Industry Consumption Report – POL & NG, Aug 2022)
- Maritime India Vision 2030, Feb 2021

Elasticities for the Asset

Following elasticities along with the growth drivers have been considered for traffic forecasting on our Asset

Vehicle Category	Adopted	Growth driver	Comments
CJV	TP1: 1.0 TP2: 1.0 TP3: 0.9	TP1 and TP2: GSDP KA (100%) TP3: GSDP KA (50%) and GSDP KE (50%)	Car traffic is largely driven by the tourism (temple/ beaches) and urbanization around the asset – medical facilities, educational institutes, airport, among others. Looking at the historical trend, regression with car registration data, and benchmarking with other comparable assets, for TP1 Sasthan and TP2 Hejamadi, the CJV traffic is expected to grow at an elasticity of 1.0 with the Karnataka GSDP. For TP3 Talapady, owing to its proximity with the Kerala border (resulting in state border regulations) and evolution of CJV traffic vis-à-vis TP1 and TP2, the traffic is expected to evolve at an elasticity of 0.9.
LCV	TP1: 0.4 TP2: 0.6 TP3: 0.4	TP1 and TP2: GSDP KA (100%) TP3: GSDP KA (50%) and GSDP KE (50%)	LCV have been observed to carry a mix of commodities, mostly catering to local demand. As the region grows, we expect the consumption of these to also increase, combined with an increase in demand due to tourism industry. Due to its location being in the centre of two major urban centres – Udupi and Mangalore, TP2 has witnessed strong LCV movement. Therefore, LCV traffic at TP2 is expected to grow at an elasticity of 0.6 and TP1/ TP3 at 0.4. With time (in next 05 years), the elasticities at all TPs are expected to converge at 0.5.
Buses	All TPs: 0.3	TP1: GSDP KA (100%) TP2: GSDP KA (100%) TP3: GSDP KA (50%) and GSDP KE (50%)	Buses are primarily a mix of public and private inter-city buses. Currently these buses serve the local movement and religious and recreational tourist demand.
2A	TP1, TP3: 0.4 and TP2: 0.6 with GSDP All TPs: 1.0 with MP	TP1: GSDP KA (82%), MP (18%) TP2: GSDP KA (81%), MP (19%) TP3: GSDP KA (37%), GSDP KE (37%), MP (27%)	2As are primarily catering to movement of goods such as parcels, household items, fishes, etc. and some of the movement related to POL. This category has shown slow growth over the last years and therefore, an elasticity of 0.4-0.6 would be reasonable. Over the next 05 years, it will converge to 0.5 for all the toll plazas.
3A	TP1, TP2: 0.6 and TP3: 0.5 with GDP All TPs: 1.0 with MP	TP1: GDP (71%), MP (29%) TP2: GDP (71%), MP (29%) TP3: GDP (84%), MP (16%)	From the O-D analysis, it can be seen that a considerable proportion of 3A/MAVs traffic is influenced by port traffic. Accordingly, the growth in traffic for this vehicle category shall be dependent upon the growth in Port traffic. The remaining movement is either local or to neighbouring states such as Kerala, Maharashtra, Goa, hence, an elasticity of 0.6-0.7 is reasonable for this asset.
MAV	TP1, TP2: 0.7 and TP3: 0.6 with GDP All TPs: 1.0 with MP	TP1: GDP (56%), MP (44%) TP2: GDP (62%), MP (38%) TP3: GDP (66%), MP (34%)	
OSV	TP1, TP2: 0.7 and TP3: 0.6	All TPs: GDP (100%)	

NOTE: KA is Karnataka, KE is Kerala, MP is Mangalore Port

Exogenous impacts

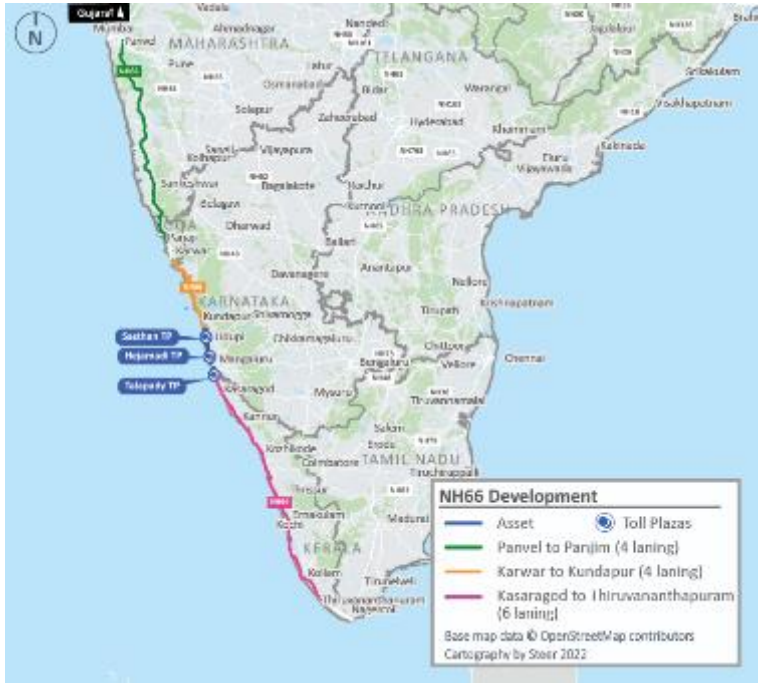
Factor 1: Improvement of the NH66 corridor

The following stretches of NH-66 are under development (4 laning/ 6 laning), which is likely to induce increased traffic on NH-66, thus, benefitting the Asset:

- Mumbai-Goa highway
- Goa border (Karwar) to Kundapur
- Kasargod - Thiruvananthapuram

An approach based on comparison of Generalised Journey Costs (GJC) is taken to estimate induced traffic due to LOS improvement.

Alignment of NH66 corridor under improvement



Source: Steer Cartography

Corridor development and status

Section	State	Status	Expected completion date
Kasargod - Thiruvananthapuram	Kerala	Almost 100% land acquired	2025
Mumbai-Goa highway	Maharashtra	67% construction completed	2024
Goa border to Kundapur	Karnataka	To be 4-laned by Dec 22	2023

GJC Comparison: NVE Impact

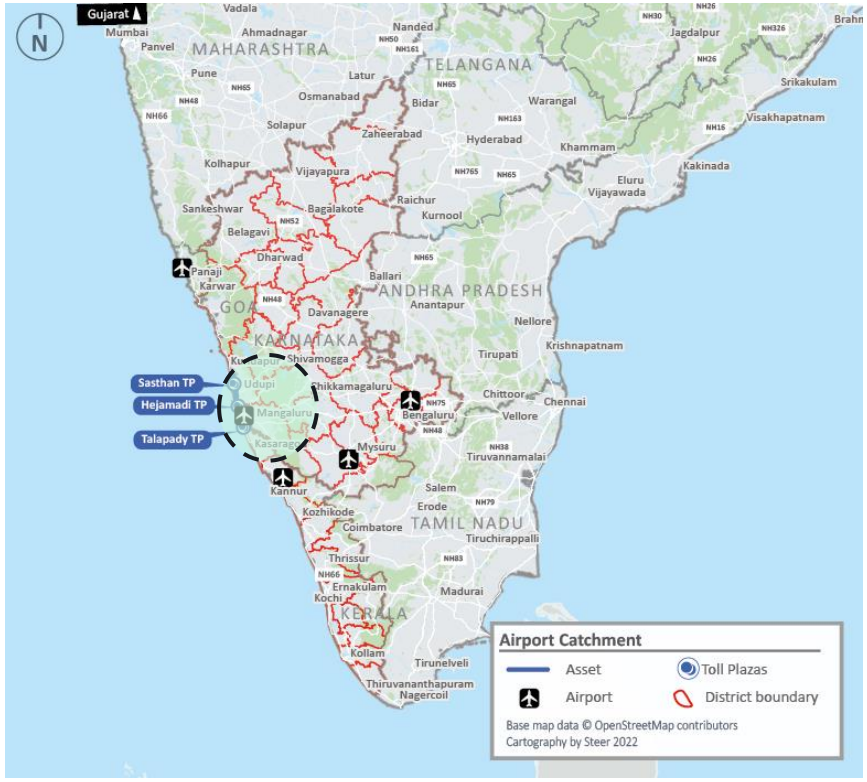
	CJV	LCV	2A	3A	MAV
Current					
Toll rates	420	675	1,395	1,535	2,160
Length	1,363	1,363	1,363	1,363	1,363
Time (hrs)	40	47	47	61	61
Post Improvement					
Toll rates	2,131	3,372	6,975	7,673	10,816
Length	1,363	1,363	1,363	1,363	1,363
Time (hrs)	31	36	36	46	46
Outputs (phased over FY24-FY26)					
Impact % (TP1)	1.3%	2.4%	2.3%	3.4%	5.4%
Impact % (TP2)	1.6%	1.0%	1.9%	1.0%	3.1%
Impact % (TP3)	4.8%	0.8%	2.6%	1.4%	3.9%

Factor 2: Mangalore airport expansion

Mangalore Airport is the 2nd busiest airport and one of the two international airports in Karnataka (after Kempegowda International Airport, Bengaluru).

It provides strong connectivity to Middle-Eastern destinations for the coastal Karnataka and norther Kerala region. In pre-Covid years, international traffic contributed approx. 33% to the overall traffic handled at Mangalore Airport. Adani (a private operator) has recently taken over airport operations in FY21 on a 50-year lease and has strong plans for its growth and market development (planned to raise the airport capacity to 22.5 MPPA). As such, we believe that the airport will experience above normal growth in the initial years and would have an impact on CJV traffic across all three toll plazas (though predominantly TP3).

Illustrative catchment area of Mangalore Airport



Source: Steer Cartography

Methodology

I. Traffic forecasts and incremental growth

Traffic projections till FY26 are available in public domain (given by airport operator and regulator) is considered for 'Growth Scenario'. For the 'Normal Scenario', CAGR from FY11-FY19 is taken. In the long term, the expected growth rate for Indian aviation sector is considered for both scenarios.

Difference between growth rates in these two scenarios is taken as incremental growth. Then, this incremental growth is allocated to the Toll Plazas (CJV only).

II. Impact on Toll Plazas

Identification of catchment area for the Mangalore Airport and respective contribution of different areas to the overall airport traffic (based on population and per capita income)

Assessment of proportion of this traffic resulting on the Asset and impact on respective toll plazas.

Impacts for each year in CJV

Toll Plazas	FY24	FY25	FY26	FY27	FY28
TP1	0.48%	0.39%	0.28%	0.19%	0.09%
TP2	0.62%	0.51%	0.36%	0.24%	0.12%
TP3	1.05%	0.85%	0.61%	0.41%	0.21%

6.10 Factor 3: Closure of Surathkal Plaza – no impact

The independent road section between the two sections of the Asset has a toll plaza at Surathkal.

NHAI had removed tolling at Surathkal Plaza in Nov 2022 and accorded approval for merging Surathkal toll plaza with TP2 (as per the Supplementary Agreement signed with NUTPL on 4 Nov 2022). Few important clauses from this agreement are reproduced below:

i. User fee rates for each category of vehicles shall be calculated and rounded off individually for the Surathkal asset and summed up with TP2 toll rates to arrive at the final rate to be tolled at TP2. The existing rates for both the toll plazas are provided in the table below.

ii. The collection charges @2.4% of the total NHAI share of collection plus applicable direct/ indirect taxes from FASTag and cash collections shall be deducted by Concessionaire and balance to be paid to the NHAI.

iii. Concessionaire shall not be responsible for the operation and maintenance of the stretch associated with Surathkal toll plaza.

iv. In the event Concessionaire suffers any financial loss including but not limited to revenue loss due to merger of toll plaza or local opposition/ protest for payment of toll fee, NHAI shall unconditionally and irrevocably liable to pay such loss to Concessionaire. Further, in case of local opposition/ resistance occurring at toll plaza on account of this merger, Concessionaire will immediately suspend collection of additional toll for Surathkal plaza.

We understand based on our discussions with the Vendor that the tolling rights allocation are under consideration of the NHAI as on date and no decision has been provided yet. There are multiple options under evaluation such as merger of Surathkal toll plaza with TP3 as both Surathkal and TP3 falls in Mangalore district; merger with TP2 and Brahamarakotlu (also operated by New Mangalore Port Road Company Ltd.).

Based on the latest news articles in FY23, if there is any increase in toll rates at TP2 on account of complete or partial merger with Surathkal toll plaza, the protests/ increased exemptions could be a likely scenario, thus, resulting in loss of revenues. However, the Supplementary Agreement protects the Concessionaire from any long-term/ continued revenue loss.

As the stand of NHAI is yet not clear and the Supplementary Agreement provides a safety net to the Concessionaire, **we have not considered any impact of this development as part of our traffic and revenue forecasts.**

Toll rates for Single journey in INR (FY23)

Vehicle Category	TP2	Surathkal toll plaza
CJV (Car, Jeep, Van)	40	60
LCV (Light Commercial Vehicle)	70	100
2A (2-Axles)	145	210
3A/ MAV (3-Axles/ Multi-Axle Vehicle – three to six axles)	225	225-325
OSV (Over Seven or more Axles)	275	400

Source: https://tis.nhai.gov.in/

Factor 4: Other developments – Mining and GAIL plant (1/2)

Mining and export ban on iron ore relaxed in Bellari, Chitradurga

The iron ore mining restrictions imposed in the Bellari, Chitradurga (near Shivamoga) and Tumkaru districts in 2011, due to uncontrolled illegal mining, was recently relaxed by the Supreme Court of India[1]. The limit was raised from 28MMT to 35 MMT in Bellary district and 7 MMT to 15 MMT in other two districts.

Further, the apex court also lifted the ban on the export of iron ore from these districts and instructed direct sale of iron ore instead of e-auction[2]. Most of the iron ore exports from Karnataka are traded through the Mangalore port.

These developments are a potential upside however, they are often uncertain and subject to political changes. As such, they have not been included in our base forecasts.

JBF/GAIL PTA Plant development

JBF Petrochemicals Ltd. had commissioned the development of PTA in Mangalore SEZ in 2017[3]. Purified Terephthalic Acid (PTA) is a crucial raw material used to make various products, including polyester fabrics. However, due to financial reasons, the project came to a standstill for 5 years. GAIL has now acquired JBF Petrochemicals and has once again revived the plans to develop the plant[4].

The plant is planned to have a 1.25 MMT p.a. capacity, which will be amongst the largest of its kind in India. This could therefore boost the regional petrochemical industry and potentially increase the traffic related to the Mangalore refinery on the Asset.

Again, due to the uncertainties around such plans, and historical cancellations, we consider this a potential upside and have not included it in our base forecasts.

1: https://indianexpress.com/article/india/sc-relaxes-iron-ore-mining-limit-for-bellary-2-other-karnataka-districts-8114198/
2: https://indiaseatradenews.com/karnataka-sees-boom-in-iron-ore-production/
3: https://www.fibre2fashion.com/news/textile-news/jbf-petrochemicals-commissions-pta-plant-at-mangalore-sez-205003-newsdetails.htm
4: https://economictimes.indiatimes.com/industry/energy/oil-gas/gail-makes-highest-bid-for-jbf-petro-at-1-8k-cr/articleshow/93958080.cms

Regional context map

Source: Steer Cartography

Location of JBF/GAIL PTA plant

Source: http://www.jbfindia.com/project.htm

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Factor 4: Other developments – KIOCL and JSW container terminal (2/2)

KIOCL development

KIOCL used to have a captive mine at Kudremukh. However, all the mining activities were stopped there, following a Supreme Court order in Dec 2005. Since then, it has been obtaining its requirement of iron ore from Chhattisgarh, at a higher cost. As per recent developments, KIOCL has obtained stage 1 a mining license in Bellari and the final approval is expected soon[1].

This could relieve the iron ore industry in Kerala, as before this approval, KIOCL had to obtain iron ore from Chhattisgarh despite both pellet plant and iron ore mines being present in Karnataka. KIOCL is also expected to invest in its infrastructure and set-up new pellet plant near the mines.

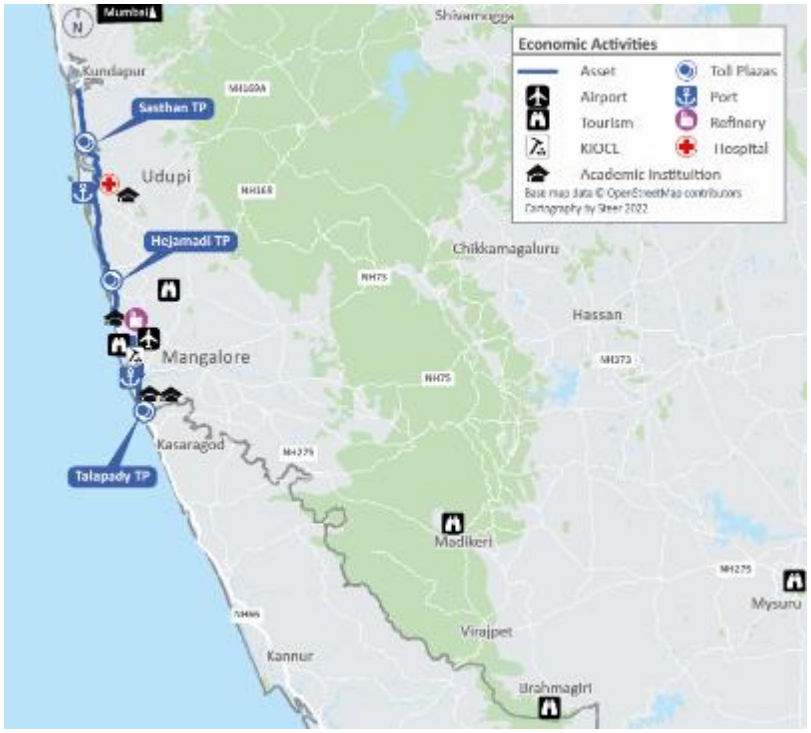
KIOCL may also consider transporting the excess demand via road, which is currently undertaken through slurry pipelines to save expenses. **While this could boost traffic on the Asset, due to inherent uncertainties, we have not included this in our base forecast.**

JSW Container Terminal

JSW Infrastructure Limited has signed a Concession Agreement with New Mangalore Port Trust (NMPT) to develop and operate its first container terminal project at the Port for 30 years on PPP model. The terminal on commissioning will have a capacity of 6 MMTPA and will handle containers including fertilisers, limestone, and gypsum cargo. This container terminal will have a quay length of 350 meters and accommodate vessels up to 9000 TEUs. It will have a backup storage area of 15.5 hectares (for storage of containers)[2].

JSW Infrastructure's mechanised container terminal at NMPT is expected to support inland water-based infrastructure and regional development of Mangalore SEZ, besides promoting the growth of cargo business in Karnataka's hinterland regions including Hassan, Shimoga, Mysuru, Bengaluru, and surrounding industrial hubs. **While this could boost traffic on the Asset, due to inherent uncertainties, we have not included this in our base forecast.**

Regional context map



Source: Steer Cartography

1: https://www.sinceindependence.com/economy/kiocl-stock-rises-over-12-on-government-plan
2: https://www.jsw.in/infrastructure/mangalore-container-terminal-private-limited

Impacts: Summary

Type of development	Nature of development	Direction	Impact on Asset			Expected year of impact
			TP1	TP2	TP3	
Road network development	Improvement in NH66 corridor: 4 laning and 6 laning of different sections of the corridor	↑	CJV: 1.3% LCV: 2.4% 2A: 2.3% 3A: 3.4% MAV: 5.4%	CJV: 1.6% LCV: 1.0% 2A: 1.9% 3A: 1.0% MAV: 3.1%	CJV: 4.8% LCV: 0.8% 2A: 2.6% 3A: 1.4% MAV: 3.9%	FY23-FY25
Airport growth	Aggressive growth in airport traffic on account of take-over by the private player and speedy recovery from Covid19: Expansion and growth plans in progress for the airport	↑	CJV: 0.09-0.48%	CJV: 0.12-0.62%	CJV: 0.21-1.05%	FY24-FY26
Merger of Surathkal toll plaza with TP2	After continued public protest/ objective to the effect that within a short distance of 10.862 km, NHAI has established two toll plazas – Surathkal and TP2, NHAI has decided to merge Surathkal toll plaza with TP2.	—	No impact	No impact	No impact	----
Mining, GAIL plant, KIOCL and JSW container terminal	Planned developments of mining, petrochemical plants, container terminals. All considered uncertain and not included in our forecasts	—	No impact	No impact	No impact	----

Source: Steer analysis

Steer forecasts

6.14 Traffic forecasts: TP1 Sasthan

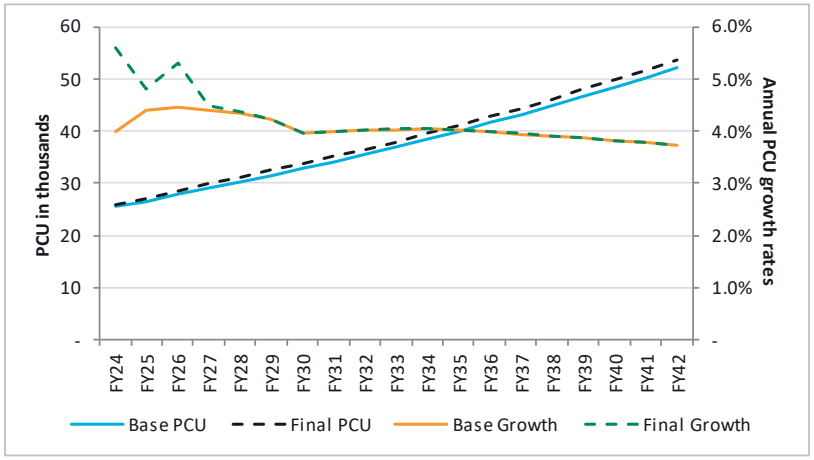
AADT

Vehicle category	FY23	FY24	FY25	FY29	FY34	FY38	FY42
CJV	9,694	10,392	11,089	14,278	18,752	23,141	28,206
LCV	2,215	2,305	2,367	2,684	3,081	3,427	3,788
Bus	1,038	1,056	1,076	1,159	1,260	1,343	1,427
2A	818	851	876	989	1,128	1,248	1,372
3A	308	326	339	390	452	506	564
MAV	1,111	1,184	1,246	1,453	1,694	1,910	2,141
OSV	1	1	1	1	1	1	1
Total	**15,184**	**16,115**	**16,994**	**20,955**	**26,368**	**31,578**	**37,499**
PCU	**24,509**	**25,880**	**27,124**	**32,464**	**39,521**	**46,176**	**53,618**

Growth rates (CAGR)

	FY22-FY23	FY23-FY24	FY24-FY25	FY25-FY29	FY29-FY34	FY34-FY38	FY38-FY42	FY23-FY42
CJV	27.1%	7.2%	6.7%	6.5%	5.6%	5.4%	5.1%	5.8%
LCV	17.8%	4.1%	2.7%	3.2%	2.8%	2.7%	2.5%	2.9%
Bus	(29.5%)	1.7%	1.9%	1.9%	1.7%	1.6%	1.5%	1.7%
2A		4.0%	2.9%	3.1%	2.7%	2.6%	2.4%	2.8%
3A	(75.6%)	5.8%	4.2%	3.6%	3.0%	2.9%	2.7%	3.2%
MAV		6.6%	5.2%	3.9%	3.1%	3.0%	2.9%	3.5%
OSV	(38.1%)	6.9%	5.5%	4.8%	3.9%	3.8%	3.6%	4.2%
Total	**24.0%**	**6.1%**	**5.5%**	**5.4%**	**4.7%**	**4.6%**	**4.4%**	**4.9%**
PCU	**31.4%**	**5.6%**	**4.8%**	**4.6%**	**4.0%**	**4.0%**	**3.8%**	**4.2%**

PCU



Source: Steer analysis

The overall PCU traffic is estimated to grow at a CAGR of 4.2% from FY23 to FY42., where the CJV would grow by 5.8% and 3A/MAV by 3.2%-3.5%.

The traffic numbers for all the vehicles categories are given in Appendix-C.

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6.14 Traffic forecasts: TP2 Hejamadi

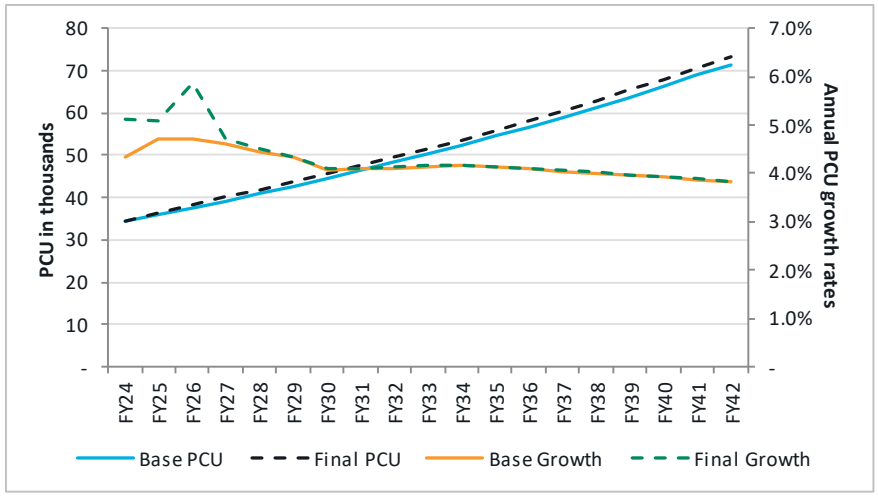
AADT

	FY23	FY24	FY25	FY29	FY34	FY38	FY42
CJV	14,041	15,024	16,050	20,812	27,333	33,732	41,114
LCV	2,613	2,713	2,811	3,214	3,690	4,105	4,538
Bus	1,247	1,268	1,292	1,392	1,513	1,613	1,714
2A	1,236	1,285	1,332	1,525	1,738	1,923	2,115
3A	483	501	521	598	693	776	864
MAV	1,318	1,382	1,451	1,697	1,989	2,252	2,534
OSV	2	2	2	2	3	3	4
Total	**20,939**	**22,174**	**23,459**	**29,240**	**36,959**	**44,404**	**52,881**
PCU	**32,796**	**34,481**	**36,239**	**43,825**	**53,663**	**62,974**	**73,414**

Growth rates (CAGR)

	FY22-FY23	FY23-FY24	FY24-FY25	FY25-FY29	FY29-FY34	FY34-FY38	FY38-FY42	FY23-FY42
CJV	38.5%	7.0%	6.8%	6.7%	5.6%	5.4%	5.1%	5.8%
LCV	17.0%	3.8%	3.6%	3.4%	2.8%	2.7%	2.5%	2.9%
Bus	(36.9%)	1.7%	1.9%	1.9%	1.7%	1.6%	1.5%	1.7%
2A		4.0%	3.7%	3.4%	2.6%	2.6%	2.4%	2.9%
3A	(68.6%)	3.7%	4.0%	3.5%	3.0%	2.9%	2.7%	3.1%
MAV		4.8%	5.0%	4.0%	3.2%	3.2%	3.0%	3.5%
OSV	(15.6%)	5.0%	5.2%	4.7%	3.9%	3.8%	3.6%	4.1%
Total	**31.8%**	**5.9%**	**5.8%**	**5.7%**	**4.8%**	**4.7%**	**4.5%**	**5.0%**
PCU	**36.5%**	**5.1%**	**5.1%**	**4.9%**	**4.1%**	**4.1%**	**3.9%**	**4.3%**

PCU



Source: Steer analysis

The overall PCU traffic is estimated to grow at a CAGR of 4.3% from FY23 to FY42, where the CJV would grow by 5.8% and 3A/MAV by 3.1%-3.5%.

The traffic numbers for all the vehicles categories are given in Appendix-C.

Traffic forecasts: TP3 Talapady

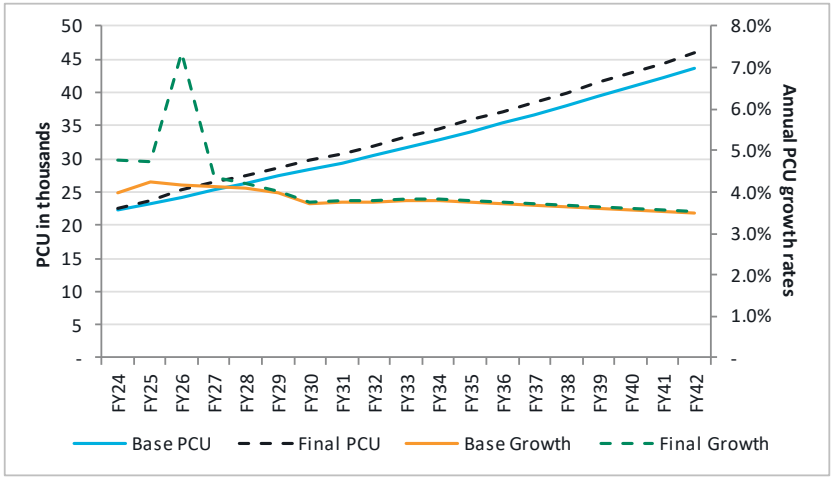
AADT

	FY23	FY24	FY25	FY29	FY34	FY38	FY42
CJV	8,845	9,492	10,133	13,254	16,911	20,434	24,428
LCV	1,186	1,217	1,250	1,416	1,623	1,805	1,995
Bus	990	1,009	1,029	1,107	1,202	1,282	1,362
2A	880	906	934	1,068	1,212	1,337	1,466
3A	299	308	319	369	431	486	544
MAV	968	1,005	1,050	1,248	1,468	1,666	1,878
OSV	2	2	2	2	3	3	4
Total	**13,169**	**13,939**	**14,718**	**18,465**	**22,851**	**27,012**	**31,678**
PCU	**21,493**	**22,520**	**23,589**	**28,637**	**34,500**	**39,965**	**46,007**

Growth rates (CAGR)

	FY22-FY23	FY23-FY24	FY24-FY25	FY25-FY29	FY29-FY34	FY34-FY38	FY38-FY42	FY23-FY42
CJV	54.1%	7.3%	6.8%	6.9%	5.0%	4.8%	4.6%	5.5%
LCV	11.8%	2.6%	2.8%	3.2%	2.8%	2.7%	2.5%	2.8%
Bus	(27.4%)	1.9%	2.0%	1.8%	1.7%	1.6%	1.5%	1.7%
2A		3.0%	3.0%	3.4%	2.6%	2.5%	2.3%	2.7%
3A	(74.5%)	3.2%	3.6%	3.7%	3.1%	3.0%	2.9%	3.2%
MAV		3.9%	4.4%	4.4%	3.3%	3.2%	3.0%	3.6%
OSV	(26.1%)	3.9%	4.3%	4.5%	3.4%	3.2%	3.0%	3.6%
Total	**41.0%**	**5.8%**	**5.6%**	**5.8%**	**4.4%**	**4.3%**	**4.1%**	**4.7%**
PCU	**43.7%**	**4.8%**	**4.7%**	**5.0%**	**3.8%**	**3.7%**	**3.6%**	**4.1%**

PCU



Source: Steer analysis

The overall PCU traffic is estimated to grow at a CAGR of 4.1% from FY23 to FY42., where the CJV would grow by 5.5% and 3A/MAV by 3.2%-3.6%.

The traffic numbers for all the vehicles categories are given in Appendix-C.

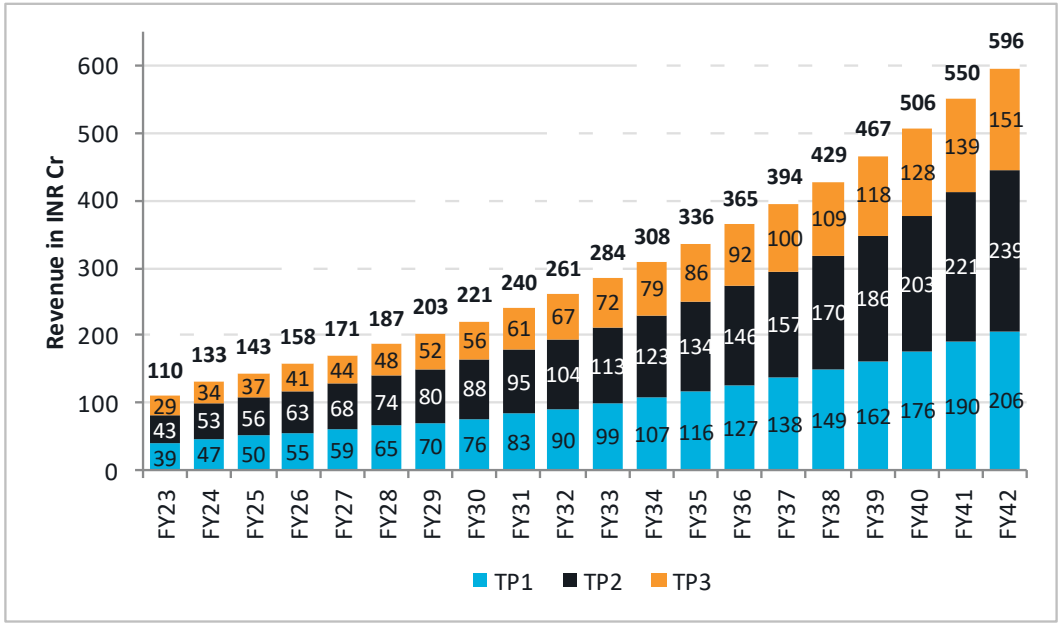
Revenue forecasts

The revenue grows at a much higher rate in FY23 and FY24 primarily on account of an increase in traffic in FY23 and tolling on additional length of about 8.33 km (PCOD-2) in FY24 respectively. In subsequent years, the revenue is seen to grow at a rate of 8-9% on an annual basis.

Tollable lengths and toll evolution is included in Appendix C. Forecasted year-wise revenue numbers for all the vehicles categories are given in Appendix-C.

Revenues (in INR Cr) across all toll plazas

	FY23	FY24	FY25	FY29	FY34	FY38	FY42
TP1	39	47	50	70	107	149	206
TP2	43	53	56	80	123	170	239
TP3	29	34	37	52	79	109	151
Total	**110**	**133**	**143**	**203**	**308**	**429**	**596**



Source: Steer analysis

6.16 ETC penalty revenue forecasts

We believe that as ETC grows in time, more and more people will adopt FASTag mode of payment at toll plazas. In a few years, a majority of traffic is expected to use FASTag and avoid cash payments and associated ETC penalties. However, occasional users might continue to pay ad-hoc (CJVs would be higher vs. 3A/MAV as the latter travel longer distances and need FASTag's for multiple assets).

In our analysis, we have considered that the volume of traffic paying ETC penalties will reduce to 25% from its present numbers (in FY23) by FY28 and by FY33, almost entire traffic (99.9%) will be using FASTag. For TP3, there is a much scope of FASTag penetration, hence, we expect it will touch 90% and 95% for CJV and LCV respectively in next two years and then gradually improve over the next 08 years.

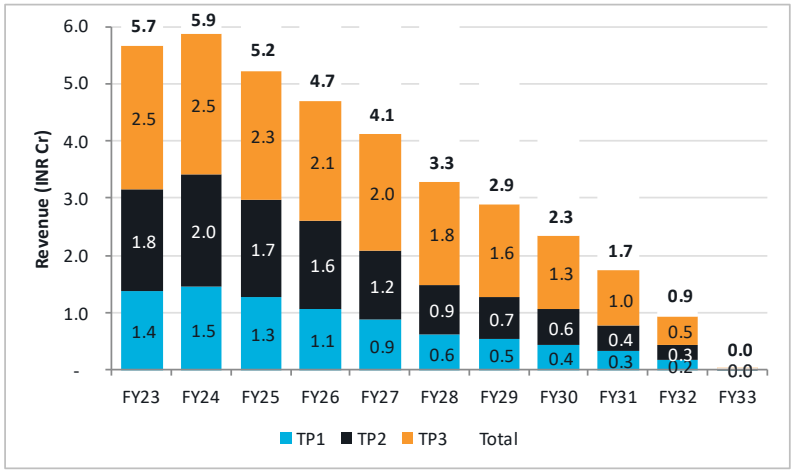
Percentage shares of vehicles paying ETC Penalty (FY23)

Vehicle Category	TP1	TP2	TP3
CJV	6.1%	7.0%	15.2%
LCV	3.3%	3.4%	7.1%
2A	0.4%	0.5%	0.6%
3A/ MAV	0.2%	0.2%	0.4%
OSV	0.5%	0.8%	0.0%

ETC Penalty Revenue (INR Cr)

Vehicle category	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
TP1	1.4	1.5	1.3	1.1	0.9	0.6	0.5	0.4	0.3	0.2	0.0
TP2	1.8	2.0	1.7	1.6	1.2	0.9	0.7	0.6	0.4	0.3	0.0
TP3	2.5	2.5	2.3	2.1	2.0	1.8	1.6	1.3	1.0	0.5	0.0
Total	**5.7**	**5.9**	**5.2**	**4.7**	**4.1**	**3.3**	**2.9**	**2.3**	**1.7**	**0.9**	**0.0**

Revenue



Source: Steer analysis

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6.17 Summary

Base year traffic is determined by applying the seasonality correction factors on the traffic data from Apr 2022 to Nov 2022. Further, we observed higher CJV traffic volumes at TP2 and TP3 based on TVC survey. Therefore, we have adjusted the exempted traffic under the CJV category. Accordingly, the adjusted segmentation is considered for the forecasting purposes. Base year traffic (FY23 AADT) is:

Vehicle category	CJV	LCV	2A	3A/ MAV	Total
TP1	9,694	2,215	1,856	1,418	15,184
TP2	14,041	2,613	2,482	1,801	20,939
TP3	8,845	1,186	1,870	1,266	13,169

Revenue estimated in **FY23 is INR 110.3 Cr** (INR 39 Cr, 43 Cr, and 29 Cr from TP1, TP2, and TP3 respectively).

GDP, GSDP (Karnataka and Kerala), and NMPT traffic growth are the growth drivers. The GSDP of Kerala is expected to be weaker while that of Karnataka to be stronger than the country overall. We have made the forecasts for NMPT traffic growth by studying the historic relationship between it and GDP. In the short term, the NMPT traffic including POL is expected to grow at a higher rate than GDP, which will slow down after 5 years from now.

Based on the O-D analysis, regression exercise and benchmarking with comparable asset, we identified the respective dependence on different growth drivers for various vehicles categories at each toll plaza and the elasticities.

We also evaluated the impact of exogenous factors on the Asset. Improvement in different stretches of NH66 on the north and south of the Asset will have a positive impact on the Asset traffic. In addition, we also observed a positive impact on CJV traffic on account of accelerated traffic growth expected at Mangalore Airport. At this stage, we haven't considered the impact due to closure of Surathkal plaza and expected merger with TP2. As the stand of NHAI is yet not clear on this and the Supplementary Agreement provides a safety net to the Concessionaire, we believe that this will not impact the Asset traffic.

The traffic PCU CAGR from FY23-FY42 are:

- TP1: 4.2%
- TP2: 4.3%
- TP3: 4.1%

The growth is mainly driven by the CJV category. Total traffic in FY42 (AADT/ PCU) is estimated to be:

- TP1: 37,499 (AADT) & 53,618 (PCU)
- TP2: 52,881 (AADT) & 73,414 (PCU)
- TP3: 31,678 (AADT) & 46,007 (PCU)

Only TP2 Hejamadi is expected to breach the design capacity of 60,000 PCUs by FY38, this will not trigger the expansion procedure, since the other plazas will not be reaching the limit. However, there could be some congestion observed on TP2 by the end of the concession.

The revenue grows at a much higher rate in FY23 and in the subsequent years, the revenue is seen to grow at a rate of 8-9% on an annual basis. The revenue in FY42 is estimated to be **INR 596 Cr** (INR 206, 239, 151 Cr from from TP1, TP2, and TP3 respectively).

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Appendix A – Underlying analysis (historical)

Historical traffic growth rates

TP1

Vehicle	FY19	FY20	FY21	FY22	FY23	FY18-FY23 CAGR
CJV	(0.7%)	14.7%	(8.8%)	7.0%	27.1%	7.2%
LCV	(2.2%)	4.1%	(13.9%)	1.3%	17.8%	0.9%
Bus/2A	(8.4%)	(3.7%)	(20.8%)	4.1%	26.1%	(1.7%)
3A/MAV	2.1%	(16.5%)	(4.6%)	2.2%	12.3%	(1.4%)
Total	(1.8%)	6.2%	(10.9%)	5.2%	24.0%	3.9%
PCU	(2.3%)	(0.5%)	(11.5%)	4.3%	31.4%	1.8%

TP2

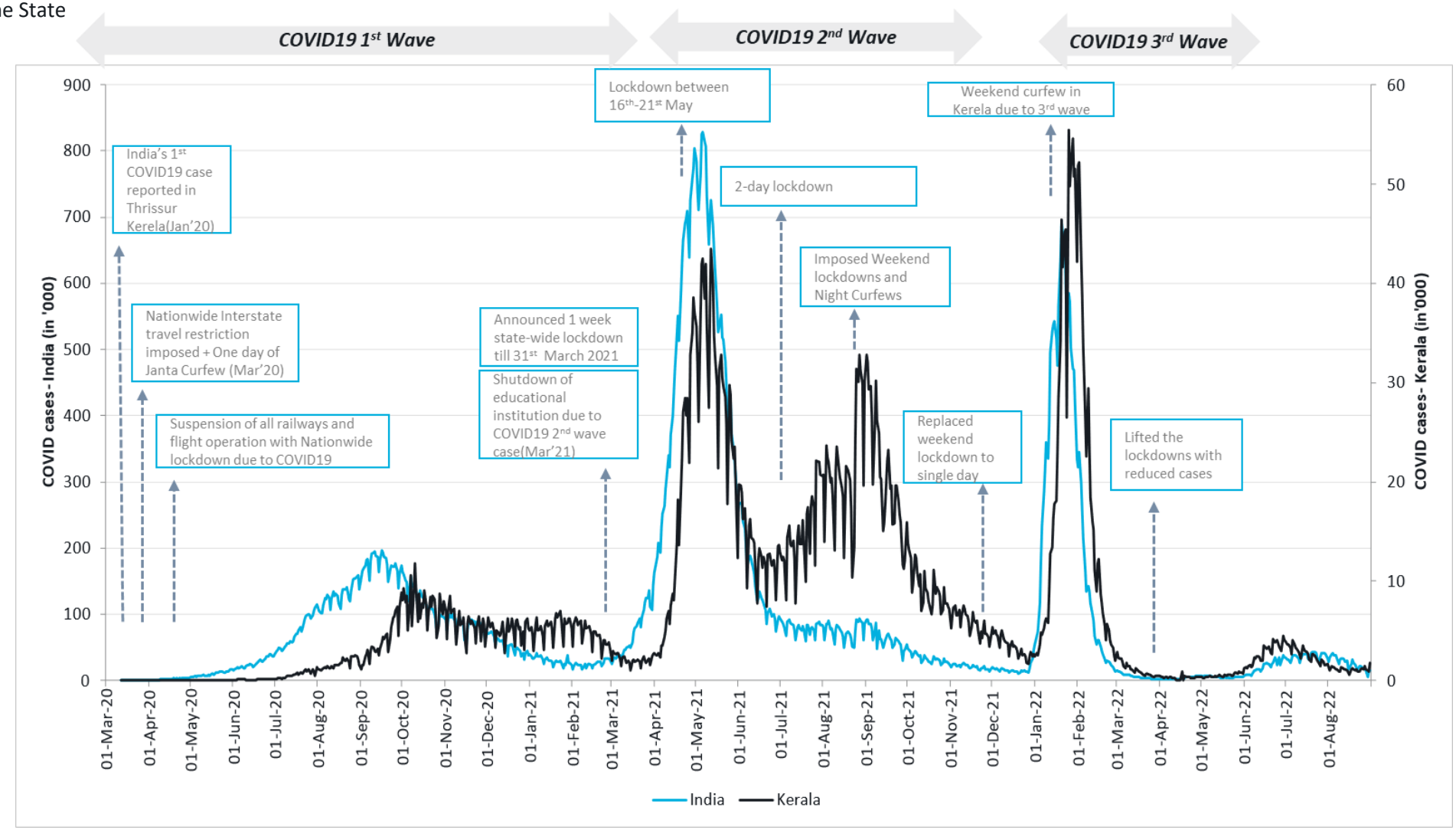
Vehicle	FY19	FY20	FY21	FY22	FY23	FY18-FY23 CAGR
CJV	12.2%	4.4%	(11.4%)	16.8%	27.1%	9.0%
LCV	34.6%	20.3%	(5.7%)	7.3%	17.0%	13.9%
Bus/2A	2.4%	(0.6%)	(26.4%)	7.8%	25.7%	0.3%
3A/MAV	6.8%	(16.0%)	(6.5%)	1.3%	17.1%	(0.1%)
Total	12.0%	2.9%	(12.4%)	12.5%	24.5%	7.2%
PCU	9.6%	(1.1%)	(13.6%)	9.4%	23.0%	4.7%

TP3

Vehicle	FY19	FY20	FY21	FY22	FY23	FY18-FY23 CAGR
CJV	2.2%	(10.5%)	(36.5%)	10.2%	48.9%	(1.0%)
LCV	1.7%	(2.3%)	(15.4%)	3.0%	11.8%	(0.6%)
Bus/2A	(3.6%)	(5.9%)	(38.4%)	28.6%	37.0%	(0.3%)
3A/MAV	7.5%	(11.6%)	1.9%	(0.0%)	8.1%	0.9%
Total	1.8%	(9.3%)	(31.1%)	10.2%	37.8%	(0.7%)
PCU	1.8%	(8.9%)	(26.1%)	10.2%	30.3%	(0.3%)

Impact of Covid19 on Kerala in comparison with India as a whole (1/2)

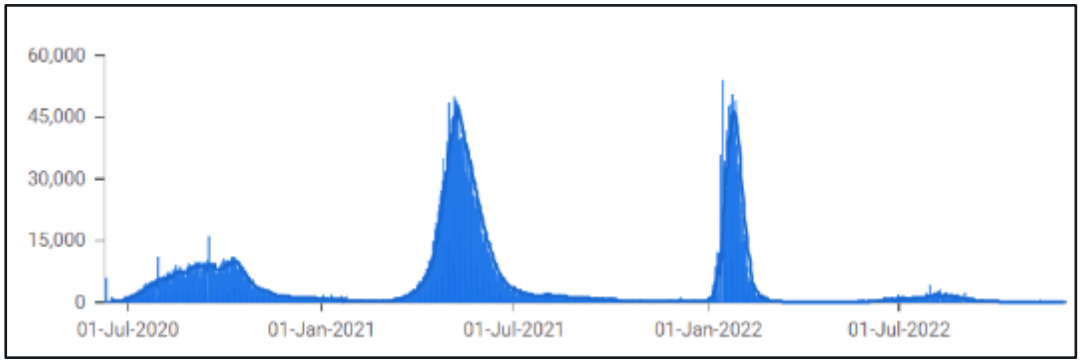
Kerela had witnessed comparatively prolonged lockdowns due to COVID19 than observed in other parts due to higher number of average COVID19 cases recorded in the State



Source: GoK Dashboard | Official Kerala COVID-19 Statistics

Number of Covid19 cases in Karnataka (2/2)

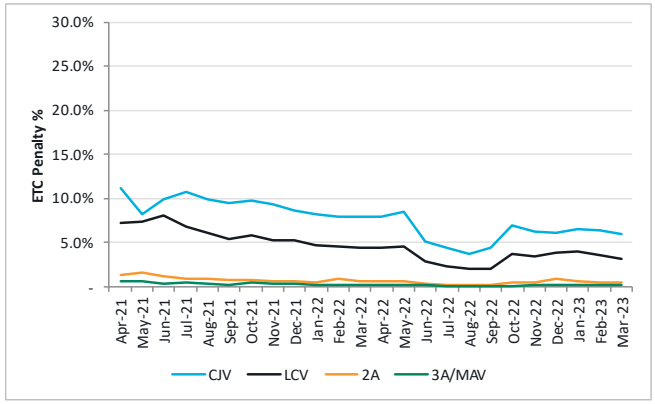
Total number of reported COVID cases every month since April 2020 in Karnataka



ETC penalties and FASTag penetration

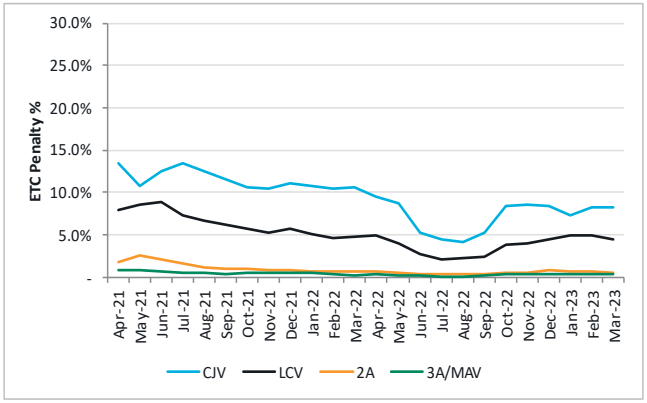
Looking at the declining trend in ETC Penalty, FASTag penetration at TP3 (for CJV and LCV) would improve, but it is expected to remain lower than its level at TP1, TP2.

ETC Penalty % - TP1



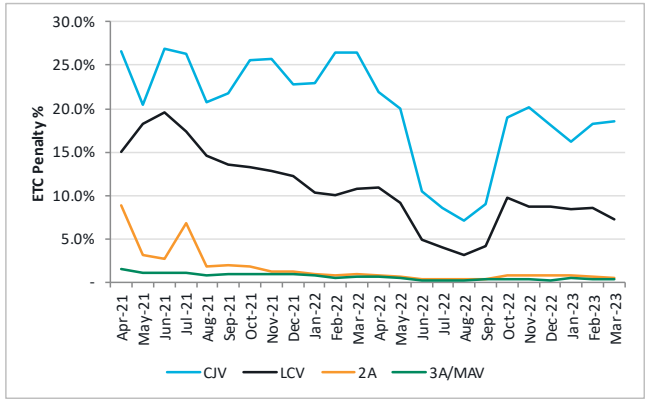
Source: Steer analysis

ETC Penalty % - TP2



Source: Steer analysis

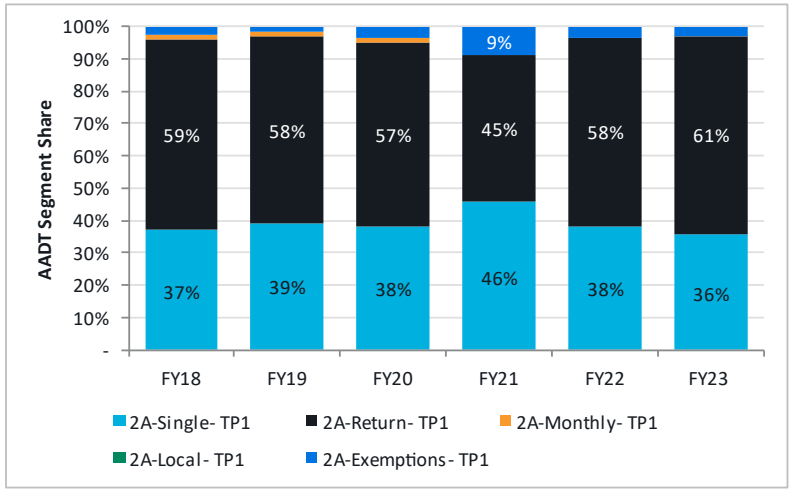
ETC Penalty % - TP3



Source: Steer analysis

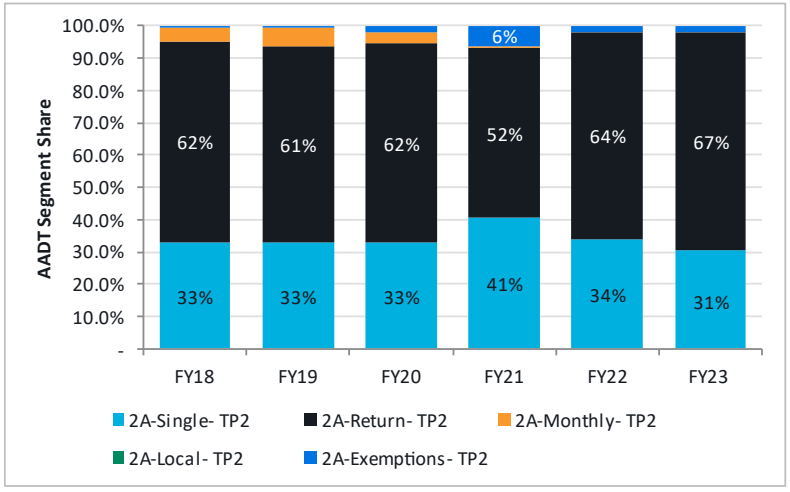
Historical Segmentation: 2A (1/2)

Historical Segmentation for 2A– TP1



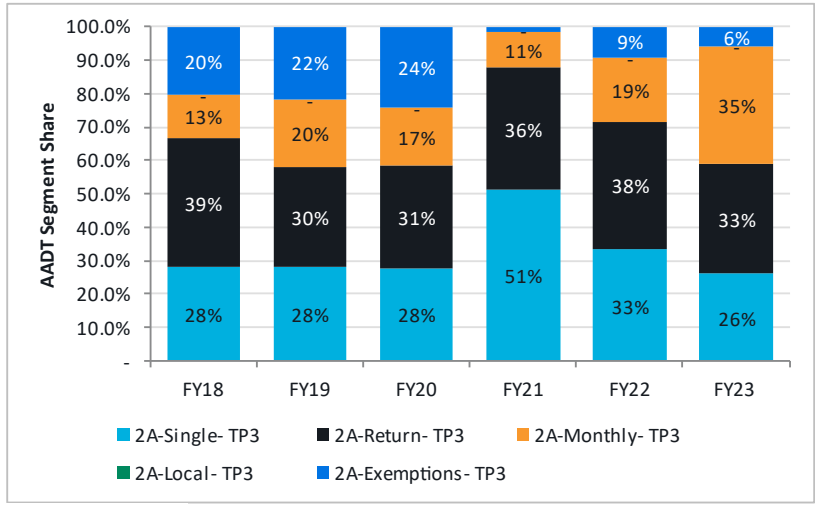
Source: Steer analysis

Historical Segmentation for 2A– TP2



Source: Steer analysis

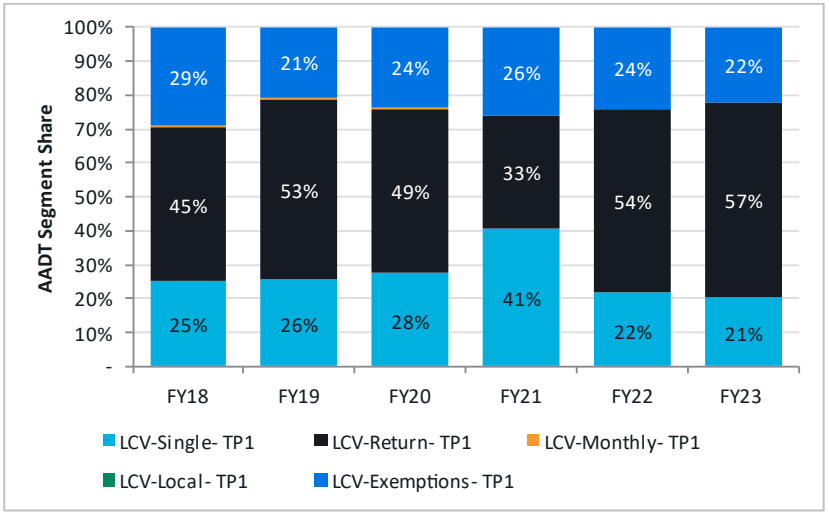
Historical Segmentation for 2A– TP3



Source: Steer analysis

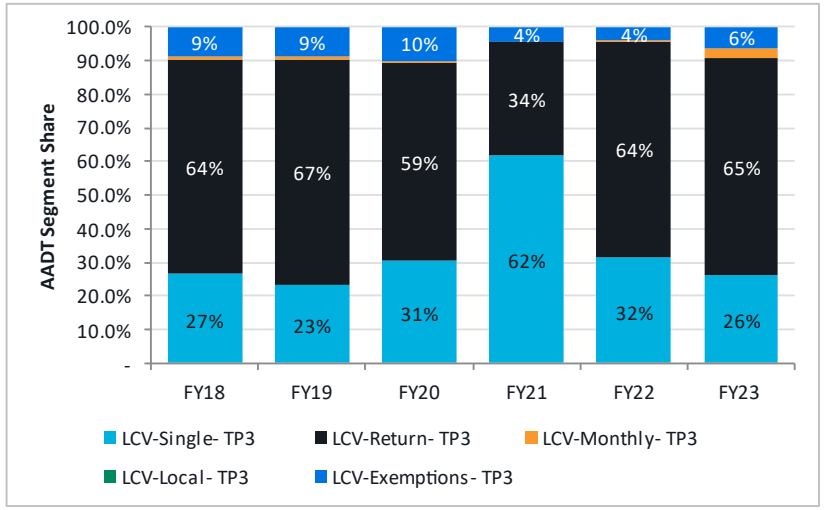
Historical Segmentation: LCV (2/2)

Historical Segmentation for LCV- TP1



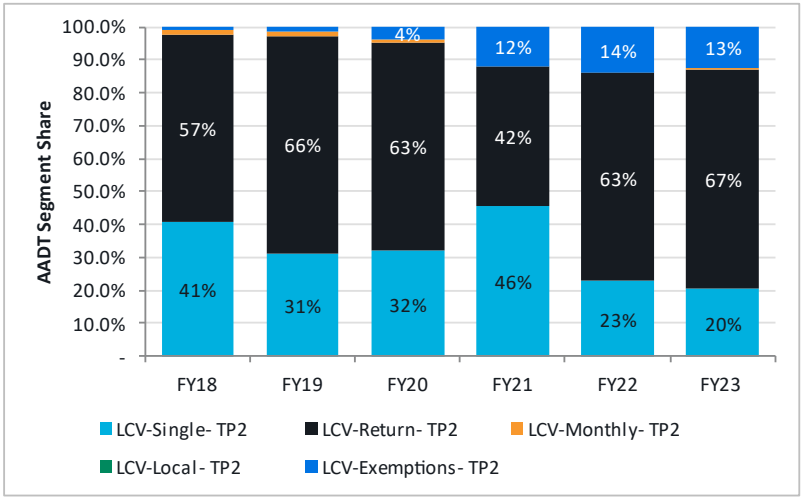
Source: Steer analysis

Historical Segmentation for LCV– TP3



Source: Steer analysis

Historical Segmentation for LCV– TP2



Source: Steer analysis

Appendix B – Primary data analysis

O-D Zone definitions

To facilitate better interpretation of key regional drivers of traffic as determined by their OD zones, and influenced by various towns, cities, states and regions in the vicinity of the Asset, we have aggregated zonal data as described in the table below.

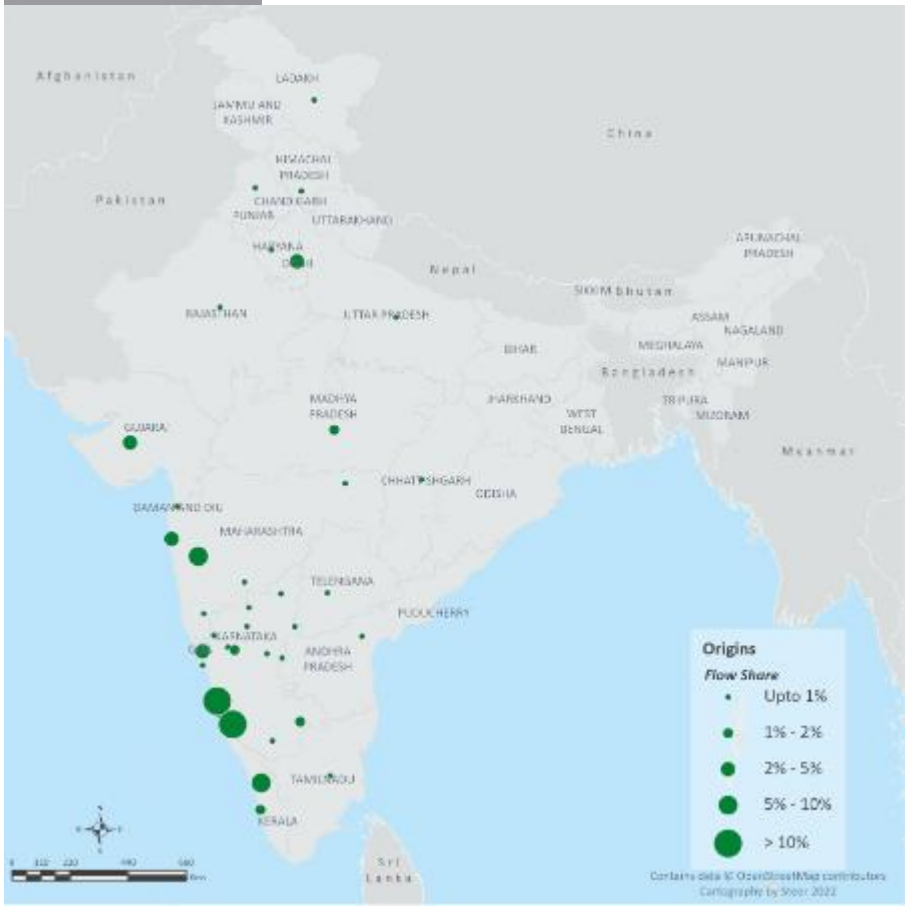
Zone aggregations for zonal influence analysis

Aggregate Zone	Description
Local	On or very close to the Asset (5km)
Immediate area of influence (IAOI)	Within two districts from the Asset, roughly up to about 75-150 km from the Asset.
Rest of State (Karnataka)	Rest of the cities/Districts in the state that Asset lies in (other than Local/IAOI)
Maharashtra	State of Maharashtra
Kerala	Mostly all districts of Kerala that fall beyond Local and IAOI
South India	States of Andhra Pradesh, Telengana
East India	States of West Bengal, Bihar, Chhattisgarh, Jharkhand, Odisha, Assam, Meghalaya, Tripura, Nagaland, Arunachal Pradesh, Sikkim, Mizoram
Goa	State of Goa
Gujarat	State of Gujarat
North India	States of Haryana, Himachal Pradesh, Punjab, Uttarakhand, Uttar Pradesh, Union Territories of Chandigarh and Jammu & Kashmir
Central India	State of Madhya Pradesh
West India	States of Rajasthan, Union Territories of Dadra and Nagar Haveli, Daman and Diu
Tamil Nadu	State of Tamil Nadu
Delhi	NCT of Delhi

Source: Steer analysis

Origins and Destinations of 3A/MAV (TP1)

Origins of 3A/MAV



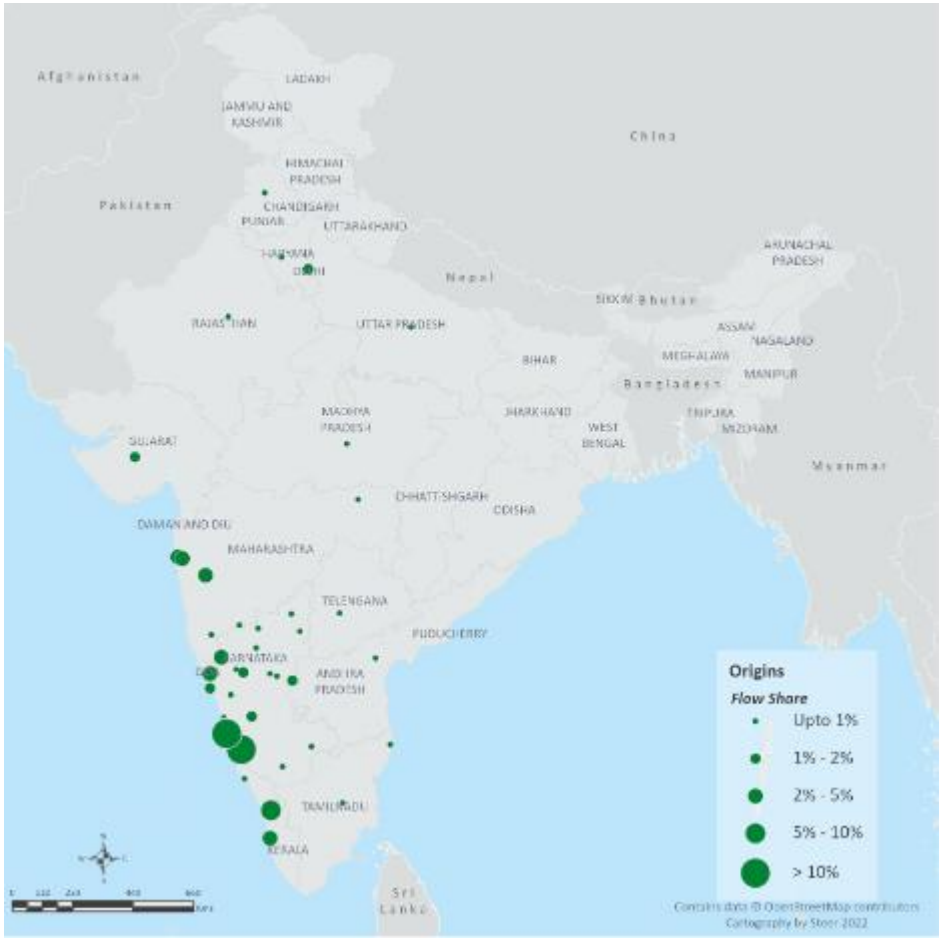
Source: Steer Cartography

Destination of 3A/MAV

Source: Steer Cartography

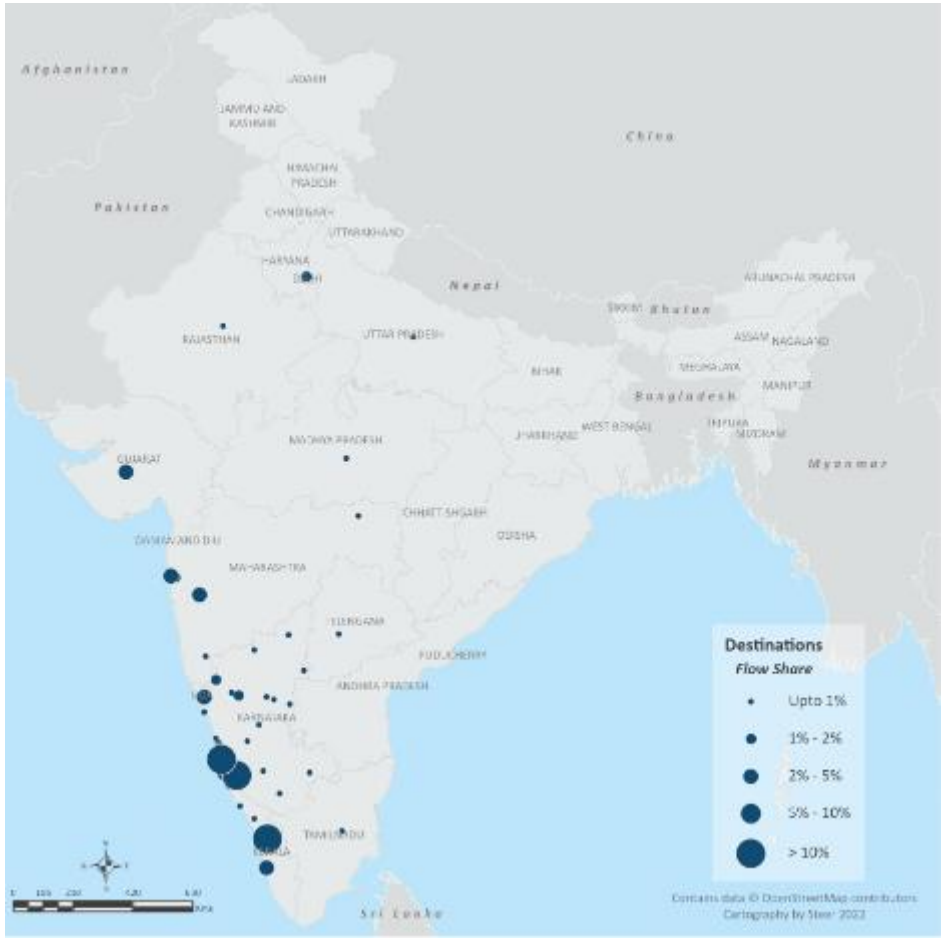
Origins and Destinations of 3A/MAV (TP2)

Origins of 3A/MAV



Source: Steer Cartography

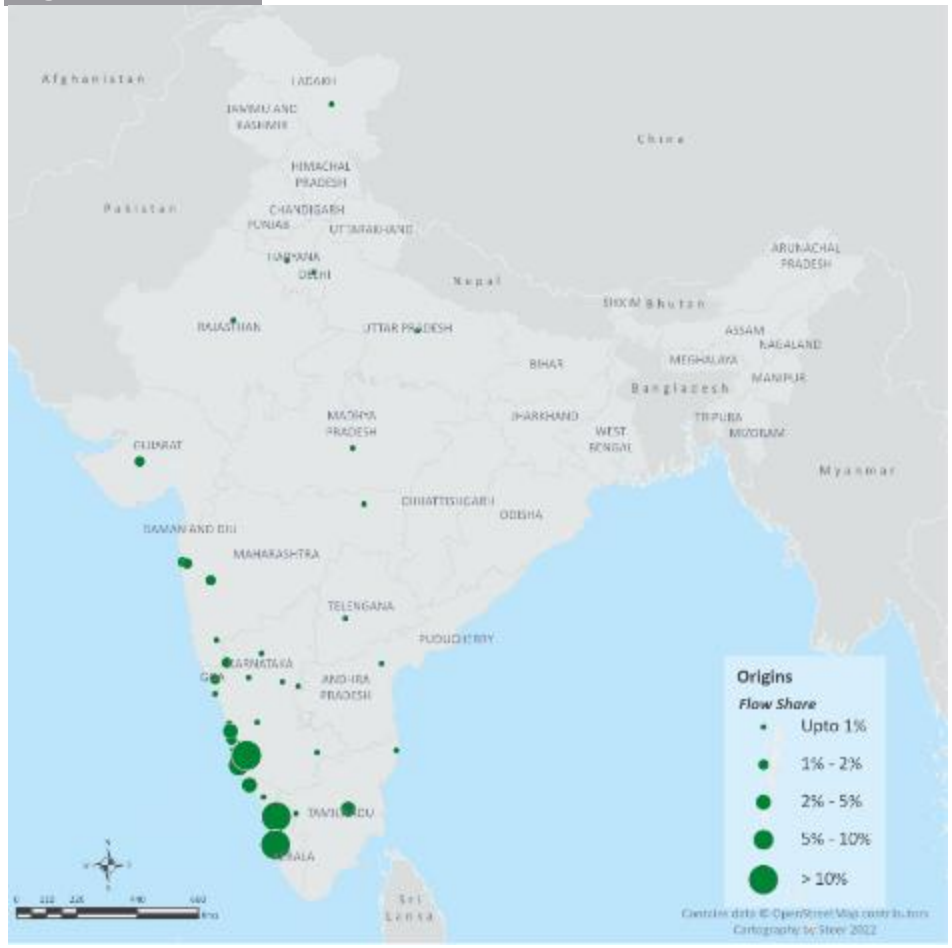
Destination of 3A/MAV



Source: Steer Cartography

Origins and Destinations of 3A/MAV (TP3)

Origins of 3A/MAV



Source: Steer Cartography

Destination of 3A/MAV

Source: Steer Cartography

Top OD Pairs

TP1:Sasthan - CJV

Origin	Destination	% of grand total
Kundapur	Udupi	32.78%
Kundapur	Mangalore	18.87%
Udupi	Thenka Bettu	3.86%
Thenka Bettu	Mangalore	3.22%
Udupi	Goa	2.19%
Mangalore	Goa	2.06%
Udupi	Mumbai	2.00%
Udupi	Udupi district	1.87%
Kundapur	Manipal	1.55%
Sasthan	Udupi district	1.35%

TP1:Sasthan - LCV, 2A, Mini LCV

Origin	Destination	% of grand total
Kundapur	Udupi	17.41%
Kundapur	Mangalore	14.06%
Thenka Bettu	Mangalore	3.13%
Udupi	Thenka Bettu	3.13%
Mumbai	Kerala	2.68%
Mangalore	Goa	2.68%
Mangalore	Bhatkal	2.23%
Kundapur	Udupi district	2.12%
Udupi	Udupi district	2.12%
Mangalore	Pune	2.12%

TP1:Sasthan - 3A, MAV, OSV

Origin	Destination	% of grand total
Kundapur	Mangalore	12.08%
Kundapur	Udupi	5.94%
Mangalore	Goa	5.63%
Mangalore	Pune	5.02%
Pune	Kerala	4.09%
Mangalore	Hubli	4.09%
Mumbai	Kerala	3.79%
Mangalore	Mumbai	3.58%
Mangalore	Belgaum	2.87%
Kerala	Goa	2.46%

TP2:Hejamadi - CJV

Origin	Destination	% of grand total
Udupi	Mangalore	41.55%
Kundapur	Mangalore	8.31%
Manipal	Mangalore	4.62%
Mangalore	Goa	3.45%
Padubidri	Mangalore	3.26%
Udupi	Surathkal	2.87%
Udupi	Kerala	2.72%
Udupi	Dakshina Kannada	1.99%
Mangalore	Shimoga	1.51%
Mangalore	Karkala	1.46%

TP2:Hejamadi - LCV, 2A, Mini LCV

Origin	Destination	% of grand total
Udupi	Mangalore	21.73%
Malpe	Mangalore	7.85%
Kundapur	Mangalore	6.91%
Mumbai	Kerala	3.29%
Malpe	Kerala	3.22%
Mangalore	Goa	2.88%
Manipal	Mangalore	2.48%
Mangalore	Karkala	2.28%
Mangalore	Shimoga	2.08%
Udupi	Kerala	1.95%

TP2:Hejamadi - 3A, MAV, OSV

Origin	Destination	% of grand total
Udupi	Mangalore	17.79%
Kundapur	Mangalore	5.15%
Mangalore	Goa	4.87%
Pune	Kerala	3.09%
Mangalore	Pune	2.90%
Mangalore	Mumbai	2.81%
Mumbai	Kerala	2.72%
Udupi	Kerala	2.72%
Mangalore	Belgaum	2.34%
Kerala	Goa	2.25%

TP3:Talapady - CJV

Origin	Destination	% of grand total
Mangalore	Kasaragod	29.97%
Mangalore	Manjeshwar	13.89%
Mangalore	Kerala	13.30%
Mangalore	Kannur	4.33%
Surathkal	Kasaragod	2.67%
Udupi	Kasaragod	2.40%
Udupi	Kerala	2.14%
Kasaragod	Mumbai	2.03%
Surathkal	Manjeshwar	1.82%
Mumbai	Kerala	1.82%

TP3:Talapady - LCV, 2A, Mini LCV

Origin	Destination	% of grand total
Mangalore	Kerala	22.73%
Mangalore	Kasaragod	14.33%
Mangalore	Kannur	5.10%
Mangalore	Manjeshwar	3.72%
Mangalore	Kochi	3.17%
Malpe	Kerala	3.03%
Pune	Kerala	2.75%
Pune	Kochi	2.34%
Udupi	Kerala	2.34%
Mangalore	Talapady	2.20%

TP3:Talapady - 3A, MAV, OSV

Origin	Destination	% of grand total
Mangalore	Kerala	19.38%
Mangalore	Kasaragod	7.80%
Mangalore	Kochi	7.15%
Mumbai	Kerala	4.81%
Pune	Kerala	3.25%
Mangalore	Kannur	3.25%
Pune	Kochi	2.99%
Mumbai	Kochi	2.47%
Mangalore	Tamil Nadu	2.47%
Mangalore	Manjeshwar	2.08%

Source: Steer analysis

Commodity definitions

Various commodities have been grouped into aggregate categories for ease of interpretation, as shown in the table below. OD survey data was cleaned and analysed to determine the key commodity drivers of the traffic on the Asset. This information was further utilised in developing the views on the forecasts of traffic on this corridor.

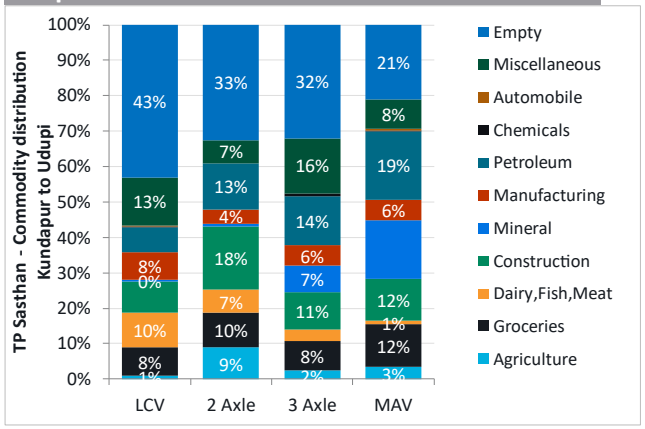
Aggregate commodity categories

Commodity Category	Category Code
Agriculture Products / Cash crops (Wheat, Rice, Sugar cane,Maize etc.)	AGR
Perishable Items (Fruits, vegetables)	PER
Animal Products/Dairy/Eggs/Fish/Meat/Animals	DFM
Building Material / Construction (Cement, Lime, Brick, fly ash, etc)	CNS
Sand/Clay	SND
Stone (kota stone, marble, Granite, Aggregate stone etc.)	STN
Groceries / Food items (Soap, Salt, Sugar, Pulses, Spices, Biscuits, bread,cool drinks, beer etc.)	GRO
Cattle Food / Live Stock (sheep, ghoat, cow,cattle food etc)	LIV
Mining Minerals (Coal, Gypsum, Cobalt etc.)	MIN
Ceramic	CRM
Petroleum Products (Oil, LPG, CNG, etc.)	PET
Chemicals / Fertilizers (Acids,Fertilizers etc.)	CHM
Electrical/Manufacturing items (Electronic items, Medicine, Leather, Wine, Rubber/ Tyre, Plastics, Cloth, Paper etc.)	MAN
Automobiles (Finished products, auto parts, Car/bike manufacturing)	AUT
Miscellaneous (Parcel, Courier, House hold items etc.)	MSC
Basic / Fabricated Metals (Iron, Steel / Metal)	MET
Machinery / Spare parts	MAC
Raw Wood,Cork & Wood Products, Furn	WUD
Container	CTR
Empty	EMT
Passengers	PAS
Scrap	SCR

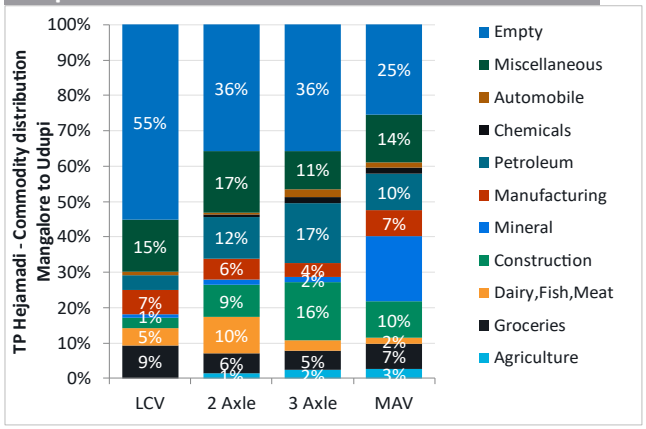
Source: Steer analysis

Directional commodity distribution

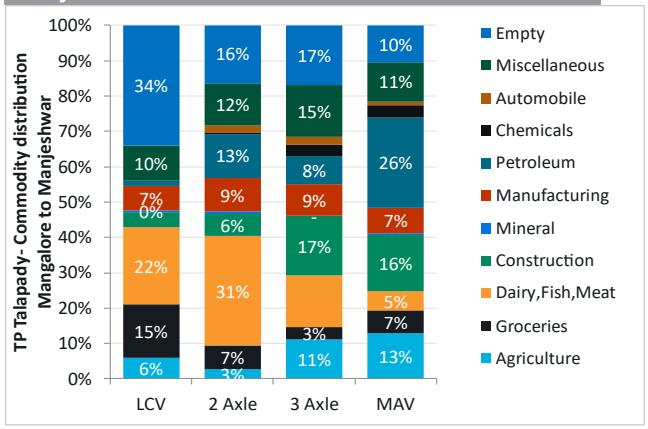
TP1 : Commodity distribution for Kundapur to Udupi



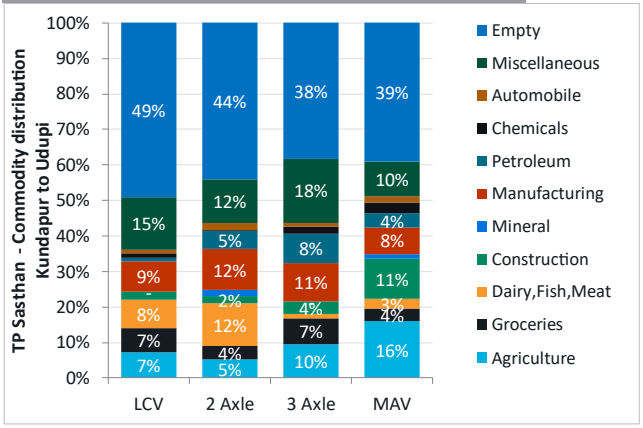
TP2 : Commodity distribution for Mangalore to Udupi



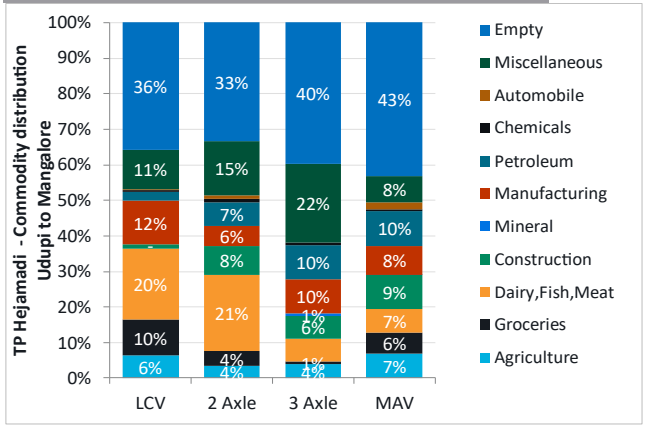
TP3 : Commodity distribution for Mangalore to Manjeshwar



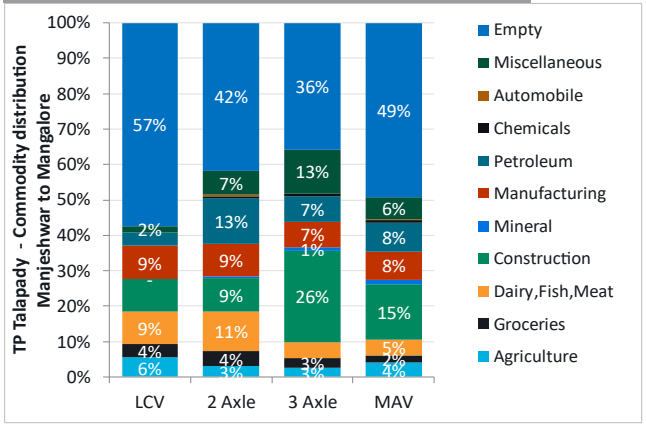
TP1 : Commodity distribution for Udupi to Kundapur



TP2 : Commodity distribution for Udupi to Mangalore



TP3 : Commodity distribution for Udupi to Mangalore

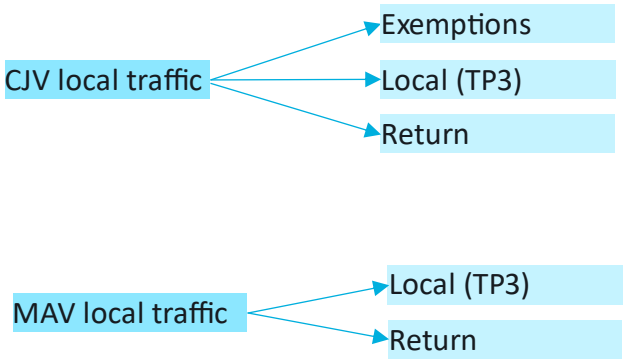


Source: Steer analysis

Local traffic shares: OD and RNP surveys

OD analysis: The local share of traffic, in terms of trip ends, is similar to that from registration data for smaller vehicles.

However, for MAVs, the local registration share is lower than actual trip share.



TP1:Sasthan	CJV	LCV	2 Axle	3 Axle	MAV
Local	77%	57%	47%	30%	24%

TP2:Hejamadi	CJV	LCV	2 Axle	3 Axle	MAV
Local	81%	58%	54%	44%	35%

TP3:Talapady	CJV	LCV	2 Axle	3 Axle	MAV
Local	66%	47%	24%	20%	18%

Source: Steer analysis

TP1:Sasthan

RTO Code	CJV	Bus	LCV	2 Axle	3 Axle	MAV
KA20 (Udupi)	52%	39%	44%	36%	20%	5%
KA19 (Dakshin Kannada)	12%	15%	11%	11%	10%	9%

TP2:Hejamadi

RTO Code	CJV	Bus	LCV	2 Axle	3 Axle	MAV
KA20 (Udupi)	28%	25%	22%	25%	12%	2%
KA19 (Dakshin Kannada)	35%	32%	19%	23%	22%	14%
KA14 (Shimoga)	1%	1%	1%	2%	1%	0.5%

TP3:Talapady

RTO Code	CJV	Bus	LCV	2 Axle	3 Axle	MAV
KA19 (Dakshin Kannada)	22.9%	56.3%	18.9%	11.6%	9.8%	3.4%
KL14 (Kasargod)	34.3%	1.6%	16.8%	7.2%	1%	0.5%

Source: Steer analysis

Appendix C – Forecasts

Tollable lengths and WPI factor

Toll evolution, which is the annual revision in toll rates, considers base rates for respective vehicle category and applies a fixed increase of 3% and 40% of increase in WPI to arrive at the revised base rates for the year toll rates are being computed. The revised base rate is then multiplied with the length of structure and rounded off to nearest 5 to determine the toll rates for respective vehicle categories.

Tollable road length

Toll Plaza	PCOD 1 - Tollable Length (km)	PCOD 2 - Tollable Length (km)	Current tollable length
Status	Existing	From FY24 onwards	Current
TP1: Sasthan	37.720	2.810	40.53
TP2: Hejamadi	31.035	3.420	34.455
TP3: Talapady	12.396	2.100	15.3
Total (excluding structure)	**81.151**	**8.330**	**90.285**

Structure/ bridge length

Toll Plaza	PCOD 1 - Tollable Length (km)	PCOD 2 - Tollable Length (km)	Current
Status	Existing	-	Current
TP1: Sasthan		-	
TP2: Hejamadi		-	
TP3: Talapady	0.804	-	0.804
Total (structure only)	**0.804**	**-**	**0.804**

Source: Vendor data

WPI Forecasts

Year	WPI
FY24	5.0%
FY25	2.2%
FY26	2.9%
FY27	3.6%
FY28	4.2%
FY29	4.6%
FY30-FY36	4.5%
FY37-FY40	4.3%
FY41-44	4.2%

Source: Consensus

Toll evolution

The historical toll rates are available in the Toll notification provided by Vendor. For FY23 toll rates, we referred the Toll Information System hosted by NHAI.

For future toll rates, we have made calculations based on methodology considered by NHAI and our assumption of WPI forecasts.

As per "National Highways Fee (Determination of Rates & Collection) Amendment Rules, 2008:

- Base rate of fee provided for FY08
- The base rates for FY08 are increased without compounding by 3% each year with effect from the 1st day of April 2008 and such increased rate shall be deemed to be the base rate for the subsequent years.
- The applicable base rates are revised annually with effect from April 1 each year to reflect the increase in WPI, but such revision is to be restricted to 40% of the increase in WPI.
- The rates so computed are then rounded off to nearest 5.

Provided below are the computed toll rates (in INR) for all three toll plazas

TP1: Sasthan

	FY24	FY25	FY30	FY35	FY42
	Single journey				
CJV	60	60	75	95	130
LCV	95	95	120	150	210
2A	195	205	250	315	440
3A/MAV	310	320	395	495	685
OSV	375	385	480	605	835
	Monthly Pass				
CJV	1,930	1,995	2,475	3,120	4,320
LCV	3,120	3,225	4,000	5,040	6,975
2A	6,540	6,760	8,385	10,560	14,615
3A/MAV	10,255	10,600	13,145	16,560	22,915
OSV	12,485	12,905	16,005	20,160	27,900

Source: Steer analysis

TP2: Hejamadi

	FY24	FY25	FY30	FY35	FY42
	Single journey				
CJV	50	50	65	80	110
LCV	80	80	100	130	180
2A	165	170	215	270	375
3A/MAV	260	270	335	420	585
OSV	320	330	410	515	710
	Monthly Pass				
CJV	1,640	1,700	2,105	2,650	3,670
LCV	2,655	2,745	3,400	4,285	5,930
2A	5,560	5,745	7,125	8,975	12,425
3A/MAV	8,720	9,010	11,175	14,075	19,480
OSV	10,615	10,970	13,605	17,140	23,715

Source: Steer analysis

TP3: Talapady

	FY24	FY25	FY30	FY35	FY42
	Single journey				
CJV	50	55	65	85	115
LCV	80	80	100	130	180
2A	165	170	210	265	365
3A/MAV	250	255	315	400	555
OSV	320	330	410	515	710
	Monthly Pass				
CJV	1,720	1,775	2,200	2,775	3,840
LCV	2,655	2,745	3,405	4,290	5,935
2A	5,420	5,600	6,945	8,750	12,110
3A/MAV	8,250	8,530	10,580	13,325	18,440
OSV	10,625	10,985	13,620	17,160	23,745

Source: Steer analysis

Traffic and revenue forecasts – TP1: Sasthan (1/3)

AADT

	CJV	LCV	Bus	2A	3A	MAV	OSV	Total	PCU
FY24	10,392	2,305	1,056	851	326	1,184	1	16,115	25,880
FY25	11,089	2,367	1,076	876	339	1,246	1	16,994	27,124
FY26	11,888	2,453	1,097	909	354	1,314	1	18,015	28,563
FY27	12,672	2,527	1,118	935	366	1,360	1	18,979	29,844
FY28	13,470	2,605	1,139	962	378	1,407	1	19,962	31,149
FY29	14,278	2,684	1,159	989	390	1,453	1	20,955	32,464
FY30	15,078	2,759	1,178	1,016	402	1,498	1	21,932	33,751
FY31	15,923	2,836	1,198	1,043	414	1,545	1	22,960	35,098
FY32	16,815	2,915	1,218	1,070	426	1,593	1	24,039	36,506
FY33	17,757	2,997	1,239	1,099	439	1,643	1	25,174	37,980
FY34	18,752	3,081	1,260	1,128	452	1,694	1	26,368	39,521
FY35	19,787	3,166	1,281	1,157	465	1,747	1	27,604	41,112
FY36	20,863	3,252	1,301	1,187	479	1,800	1	28,884	42,751
FY37	21,981	3,339	1,322	1,217	492	1,855	1	30,209	44,439
FY38	23,141	3,427	1,343	1,248	506	1,910	1	31,578	46,176
FY39	24,343	3,516	1,364	1,278	520	1,967	1	32,991	47,963
FY40	25,588	3,606	1,385	1,309	535	2,024	1	34,449	49,798
FY41	26,875	3,697	1,406	1,341	549	2,082	1	35,951	51,683
FY42	28,206	3,788	1,427	1,372	564	2,141	1	37,499	53,618

Revenue (INR Cr)

	CJV	LCV	Bus	2A	3A	MAV	OSV	Total
FY24	15	5	6	5	3	12	0	47
FY25	16	5	7	5	4	13	0	50
FY26	18	6	7	6	4	15	0	55
FY27	20	6	7	6	4	16	0	59
FY28	22	7	8	7	5	17	0	65
FY29	24	7	8	7	5	18	0	70
FY30	27	8	9	8	5	20	0	76
FY31	30	8	9	8	6	22	0	83
FY32	32	9	10	9	6	23	0	90
FY33	37	10	11	10	7	25	0	99
FY34	41	10	11	10	7	27	0	107
FY35	45	11	12	11	8	29	0	116
FY36	49	12	13	12	8	32	0	127
FY37	55	13	14	13	9	34	0	138
FY38	60	14	15	14	10	37	0	149
FY39	67	15	15	15	11	40	0	162
FY40	73	16	17	16	11	43	0	176
FY41	80	17	18	17	12	46	0	190
FY42	88	18	19	18	13	50	0	206

Traffic and revenue forecasts – TP2: Hejamadi (2/3)

AADT

	CJV	LCV	Bus	2A	3A	MAV	OSV	Total	PCU
FY24	15,024	2,713	1,268	1,285	501	1,382	2	22,174	34,481
FY25	16,050	2,811	1,292	1,332	521	1,451	2	23,459	36,239
FY26	17,314	2,929	1,317	1,397	543	1,529	2	25,030	38,366
FY27	18,465	3,027	1,342	1,441	561	1,584	2	26,423	40,178
FY28	19,633	3,121	1,367	1,483	580	1,640	2	27,827	41,997
FY29	20,812	3,214	1,392	1,525	598	1,697	2	29,240	43,825
FY30	21,978	3,305	1,415	1,566	616	1,751	2	30,633	45,616
FY31	23,209	3,397	1,439	1,607	634	1,808	2	32,097	47,491
FY32	24,509	3,492	1,463	1,650	653	1,866	2	33,636	49,454
FY33	25,883	3,590	1,488	1,693	672	1,927	3	35,255	51,510
FY34	27,333	3,690	1,513	1,738	693	1,989	3	36,959	53,663
FY35	28,842	3,792	1,538	1,784	713	2,053	3	38,725	55,885
FY36	30,411	3,895	1,563	1,830	734	2,118	3	40,554	58,177
FY37	32,041	4,000	1,588	1,876	755	2,184	3	42,447	60,540
FY38	33,732	4,105	1,613	1,923	776	2,252	3	44,404	62,974
FY39	35,484	4,212	1,638	1,970	798	2,321	3	46,426	65,477
FY40	37,298	4,319	1,664	2,018	819	2,391	3	48,512	68,052
FY41	39,175	4,428	1,689	2,066	842	2,461	3	50,664	70,697
FY42	41,114	4,538	1,714	2,115	864	2,534	4	52,881	73,414

Revenue (INR Cr)

	CJV	LCV	Bus	2A	3A	MAV	OSV	Total
FY24	18	6	6	6	4	12	0	53
FY25	20	6	7	7	5	13	0	56
FY26	23	7	7	8	5	14	0	63
FY27	25	7	7	8	5	15	0	68
FY28	28	8	8	9	6	16	0	74
FY29	30	8	8	9	6	18	0	80
FY30	34	9	9	10	7	19	0	88
FY31	37	10	10	11	7	21	0	95
FY32	42	10	10	12	8	22	0	104
FY33	47	11	11	12	8	24	0	113
FY34	51	12	12	13	9	26	0	123
FY35	56	13	12	14	10	28	0	134
FY36	62	14	13	15	11	30	0	146
FY37	67	15	14	17	11	33	0	157
FY38	74	16	15	18	12	36	0	170
FY39	83	17	16	19	13	38	0	186
FY40	91	19	17	21	14	41	0	203
FY41	101	20	18	22	15	45	0	221
FY42	110	21	19	24	16	48	0	239

Traffic and revenue forecasts – TP3: Talapady (3/3)

AADT

	CJV	LCV	Bus	2A	3A	MAV	OSV	Total	PCU
FY24	9,492	1,217	1,009	906	308	1,005	2	13,939	22,520
FY25	10,133	1,250	1,029	934	319	1,050	2	14,718	23,589
FY26	11,222	1,296	1,048	984	334	1,123	2	16,009	25,325
FY27	11,905	1,335	1,068	1,011	345	1,163	2	16,830	26,426
FY28	12,584	1,375	1,088	1,040	357	1,205	2	17,652	27,536
FY29	13,254	1,416	1,107	1,068	369	1,248	2	18,465	28,637
FY30	13,914	1,455	1,126	1,095	381	1,289	3	19,262	29,712
FY31	14,608	1,495	1,144	1,123	393	1,331	3	20,098	30,834
FY32	15,338	1,537	1,163	1,152	405	1,375	3	20,973	32,004
FY33	16,105	1,580	1,183	1,182	418	1,421	3	21,890	33,225
FY34	16,911	1,623	1,202	1,212	431	1,468	3	22,851	34,500
FY35	17,747	1,668	1,222	1,243	444	1,516	3	23,843	35,811
FY36	18,613	1,713	1,242	1,274	458	1,565	3	24,867	37,159
FY37	19,508	1,759	1,262	1,305	472	1,615	3	25,924	38,544
FY38	20,434	1,805	1,282	1,337	486	1,666	3	27,012	39,965
FY39	21,389	1,852	1,302	1,369	500	1,718	3	28,133	41,423
FY40	22,373	1,899	1,322	1,401	515	1,770	3	29,284	42,917
FY41	23,386	1,947	1,342	1,434	529	1,824	4	30,465	44,444
FY42	24,428	1,995	1,362	1,466	544	1,878	4	31,678	46,007

Revenue (INR Cr)

	CJV	LCV	Bus	2A	3A	MAV	OSV	Total
FY24	12	3	4	4	3	8	0	34
FY25	14	3	4	4	3	9	0	37
FY26	16	3	5	4	3	10	0	41
FY27	17	3	5	5	3	11	0	44
FY28	19	4	5	5	3	12	0	48
FY29	21	4	6	5	4	13	0	52
FY30	23	4	6	6	4	14	0	56
FY31	26	4	6	6	4	15	0	61
FY32	28	5	7	7	5	16	0	67
FY33	31	5	7	7	5	17	0	72
FY34	34	6	8	8	5	19	0	79
FY35	37	6	8	8	6	20	0	86
FY36	40	6	9	9	6	22	0	92
FY37	44	7	9	9	7	24	0	100
FY38	49	7	10	10	7	25	0	109
FY39	54	8	10	11	8	27	0	118
FY40	59	9	11	12	9	30	0	128
FY41	65	9	12	12	9	32	0	139
FY42	71	10	12	13	10	35	0	151

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