



Railway Infrastructure Plan, Karnataka

**Submitted to
INFRASTRUCTURE DEVELOPMENT DEPARTMENT, GOVERNMENT OF KARNATAKA**

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Abbreviations

BG	BROAD GAUGE
BOT	Build-Operate-Transfer
GC	Gauge Conversion
GoK	Government of Karnataka
HMRDC	Hassan Mangalore Rail Development Company Limited
IDD	Infrastructure Development Department
KPI	Key Performance Indicators
KRCL	Konkan Railway Corporation Limited
K-RIDE	Karnataka Rail Infrastructure Development Corporation Limited
MG	Meter Gauge
MoR	Ministry of Railways
NG	Narrow Gauge
NL	New Line
OYWS	Own Your Wagon Scheme
PPP	Public Private Partnership
ROB	Road Over Bridge
RUB	Road Under Bridge
SPV	Special Purpose Vehicle
SWR	South Western Railways
PH	Plan Head

1. Introduction

Railways are one of the most convenient and widely used means of travel in India and the development of railway infrastructure has the potential to significantly enhance the economy of the region. Indian Railways is one of the largest rail networks in the world. The use of rail network for freight and passenger transport has the potential to reduce road congestion, improve safety and reduce environmental impacts.

Karnataka is a fast developing state with growing economy. This development can gain momentum with the advancement of linkages and improved rail connectivity. Karnataka has a number of ports and the rail connectivity with ports can boost the economy of the State and promote industrial development. It is felt that there is considerable scope for improvement in service levels which may require infrastructure investment as well as an improved policy framework. The development of rail infrastructure is very critical for development of hinterland of Karnataka, development of commerce and industry, economic growth as well as promotion of tourism. Hence it is important to fill these infrastructure gaps and address the same in consensus with the environmental and development issues. It is imperative to upgrade the Railway infrastructure in Karnataka and infuse technology to make it world-class.

Numerous efforts have been made by the Central Government as well as the State Government to augment railway infrastructure in terms of developing new lines, gauge conversion, track renewal and upgrading technology for modernization of stations in ticketing, computerization and overall management.

It is essential to formulate a Railway Infrastructure Plan at the state level to understand the gaps in the existing infrastructure and the essential steps to fill the same. This may involve not only fiscal investment but also strategies to develop alliances between various modes to optimize the transport chain all over the state. The Infrastructure Plan can also highlight the projects that can lead to increased opportunities for public and private investment solutions.

With this background the Infrastructure Development Department (IDD) intends to formulate a Railway Infrastructure Plan which shall result in getting more people and freight off the roads and onto rail leading to increased usage, at the same time addressing customer satisfaction by reducing overcrowding and improving punctuality and reliability.

1.1 Scope of work

The scope of work includes the study of the existing condition of railway infrastructure, the current status of railway linkages to urban centers, identification of constraints of railway infrastructure development and assessment of policy support in developing railway infrastructure.

The scope includes identification and prioritization of projects, indicative timelines for implementation and estimation of financial requirements for infrastructure development.

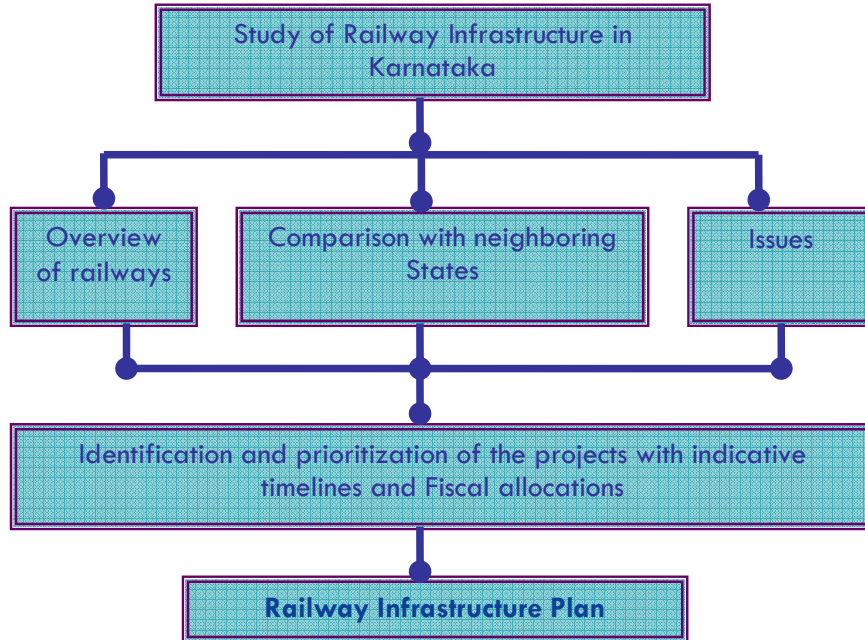


Figure 1: Scope of Work

The approach involves discussions with the stakeholders to understand the present status of rail infrastructure. Secondary studies shall be conducted on the railway policies and programs to comprehend the investments in the pipeline for the development of rail infrastructure. For the study, data has been collected from the official website of the Railways and other government agencies and discussions with Stakeholders.

Overview of Railways in Karnataka

2. Railways in Karnataka

The Indian Railway network is controlled by Railway Board through 16 zonal offices and the Ministry of Railways is the nodal authority for the development and maintenance of rail transport. Karnataka has over 3,250 km of total rail track length. The rail corridors in the state are managed by the following zonal office:

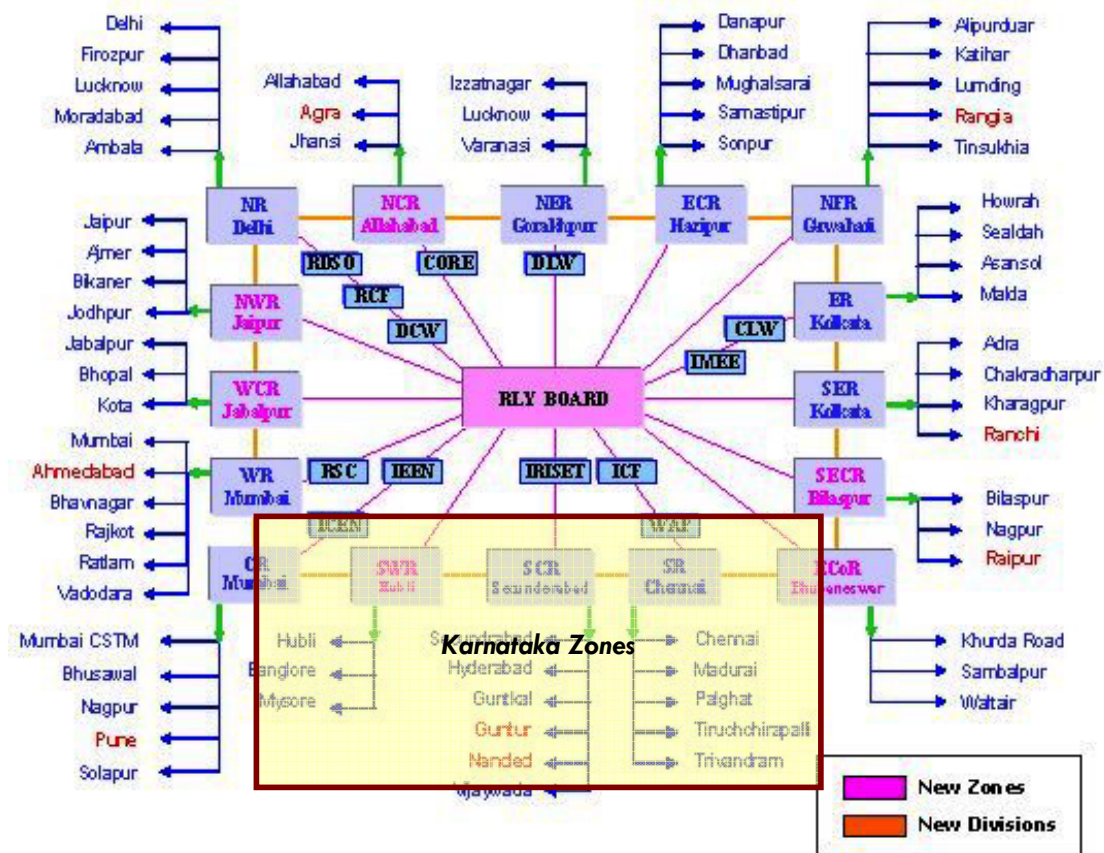


Figure 2: The Indian Railway Network

Rail network in Karnataka falls in three major zones. The following table highlights the various Railway Zones in Karnataka. The details of these zones including their coverage and sections have been provided in **Annexure-2**.

Table 1: Railway Zones in Karnataka

Railway Zones	BG (in km)	MG (in km)	NG (in Km)	Total (in km)
South Central Railways	268	0	0	268
South Western Railways	2516	97	84	2697
Southern Railways	37	0	0	37
Konkan Railways	248	0	0	248
Total	3069	97	84	3250

The key works of the railways in past five years and the ongoing as well as the proposed rail projects in Karnataka are listed in this chapter.

2.1 Summary of key works undertaken (2002-09)

The various works undertaken during the period of 2002 to 2009 for the development of rail infrastructure can be categorized under the following heads.

1. Projects completed (2002-09)

The details of works completed in the period of 2002 to 2009 are listed below.

Table 2: Details of projects completed in the period 2002 to 2009

No.	Particulars	Length (Km)	Year
New Lines			
1	Hassan-Shravanabelagola	46	2005-06
2.	Chikbanavar – Nelamangala (Bangalore)	14	2007-08
	Total (A)	60	
Gauge Conversions			
1.	Baiyappanahalli – Yesvantpur	20	2002-03
2.	Kankanadi-Kabakaputtur	44	2003-04
3.	Kabakaputtur-Subramanya Road	42	2005-06
4.	Sakaleshpur-Subramanya Road	55	2006-07
5.	Bijapur- Bagalkot	97	2006-07
	Total (B)	258	
Doubling			
1.	Bellary-Toranagallu	32	2003-2004
2.	Bangarapet-Kamasamundram	12	2004-2005
3.	Bangalore-Kengeri	12	2006-2007
4.	Toranagallu-Bayaluvoddigerri	14	2006-2007
5.	Kengeri – Bidadi	18	2007-2008
6.	Yesvantpur – Gollahalli	20	2007-2008
7.	Bayaluvoddigeri-Kariganuru	15	2007-2008
8.	Bidadi- Ramanagaram	12	2009-2010
9.	Gollahalli- Tumkur	45	2009-2010
	Total (C)	180	
	Total of All Works (A+B+C)	498	

2. Expenditure on Rail Projects (2002-09)

The year-wise expenditure incurred by the Railways for the development of rail infrastructure for the period 2002-09 has been given in the following table:

Table 3: Expenditure incurred on development of Rail Infrastructure (2002-09)

(Rs. Crores)

P H	Plan Head Description	2002- 03	2003- 04	2004- 05	2005- 06	2006- 07	2007- 08	BG for 2008-09	Total
11	New Line	31.4	74.1	57.9	46.6	73.8	72.1	111.0	466.9
14	Gauge Conversion	29.7	73.9	57.1	36.7	103.8	257.4	151.0	709.6
15	Doubling	32.0	44.8	53.7	31.2	52.7	87.7	241.1	543.2
16	Traffic Facilities	5.5	5.1	7.4	7.7	12.5	12.4	10.4	61.0

30	Road Over / Under Bridges	7.1	8.0	4.5	2.3	8.0	17.9	46.4	94.2
42	Workshops Including PUs	5.0	4.7	3.9	2.5	16.8	11.6	29.941	74.4
64	Other Specified Works	0.03	5.9	9.0	13.8	22.9	22.1	16.0	89.7
	Grand Total	112.27	216.70	193.9	140.8	290.5	481.3	625.0	2060.5

Note: In 2007-08, the amount spent for the development of rail infrastructure has been to the tune of Rs. 481.27 crore against Budget Grant of Rs. 475 crore and GoK deposit of Rs. 110 crore. Similarly the Budget Grant for 2008-09 was Rs. 563.95 crore. The total contribution of GoK towards the Rail projects in the 2008-09 has been Rs.232.47 crores. The details of the same are as follows:

Table 4: Release of funds for Railway Projects by GoK for last six years (2003-09)

(Rs in crore)

SI No	Name of Scheme	2003-04		2004-05		2005-06		2006-07		2007-08		2008-09		Total	
		Allotment	Spent	Allotment	Spent	Allotment	Spent	Allotment	Spent	Allotment	Spent	Allotment	Spent	Allotment	Spent
1	Hassan- Mangalore Gauge Conversion project	10.50	7.00	5.00	5.00	15.00	15.00	15.00	15.00	0.01	0.00	0.01	0.00	45.5	42.0
2	Hsholapur-Gadag Gauge Conversion Project	7.00	3.00	3.00	3.00	8.00	8.00	0.00	0.00	8.00	8.00	1.00	40.00	27.0	62.0
3	K-RIDE - ROB/ RUB Projects	11.65	0.05	1.00	1.00	20.00	20.00	30.00	16.15	26.00	18.27	30.00	20.37	118.7	75.9
4	New Cost Sharing Projects	13.95	8.00	0.00	0.00	20.00	20.00	35.00	74.74	100.00	63.04	100.00	100.00	269.0	265.7
5	Computer Rail Service for bangalore	0.00	0.00	0.00	0.00	2.00	1.50	10.00	10.00	10.00	8.10	1.00	0.10	23.0	19.7
6	Cost Sharing Ramanagarama-Mysore Line Doubling	0.00	0.00	0.00	0.00	0.00	0.00	25.00	0.00	20.00	16.15	30.00	52.00	75.0	68.2
7	Land for Railway Cargo Complex	0.00	0.00	0.00	0.00	0.00	0.00	5.00	5.00	0.01	0.00	0.01	0.00	5.0	5.0
8	Cost haring Bidar-Gulbarga New Railway Line	0.00	0.00	0.00	0.00	0.00	0.00	10.00	5.00	20.00	20.00	42.00	20.00	72.0	45.0
9	Hubli-Ankola Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	5.0	0.0
	Total	43.10	18.05	9.00	9.00	65.00	64.50	130.00	125.89	184.02	133.56	209.02	232.47	640.1	583.5

The contribution of GoK towards the Rail projects in the 2009-10 has been Rs.243.0 crores. The details of the same are as follows:

Table 5: Release of funds for Railway Projects by GoK in 2009-2010

(Rs. crores)

S.No	Name of Scheme	Funds Released in 2009-10
1	Hassan- Mangalore Gauge Conversion project	9.0
2	Hsholapur-Gadag Gauge Conversion Project	28.0
3	K-RIDE - ROB/ RUB Projects	30.0
4	New Cost Sharing Projects	100.0
5	Computer Rail Service for Bangalore	1.0
6	Cost Sharing Ramanagarama-Mysore Line Doubling	25.0
7	Land for Railway Cargo Complex	.01
8	Cost haring Bidar-Gulbarga New Railway Line	50.0
9	Hubli-Ankola Project	.01
	Total	243.0

Comparison of status of Railways in Karnataka with the neighboring States

3. Comparison of Railways in Karnataka with neighboring States

The development of railways in Karnataka has certain geographical limitations. The coastal area is separated from the hinterland of the state by the Western Ghats. These Ghats are afforested and ecologically sensitive and are crossed only by one railway line in the south of the state i.e. the Hassan-Mangalore single line. These limitations have impacted the immense potential of development of ports in the State.

To highlight the requirements of rail infrastructure in Karnataka, the existing status of rail infrastructure has been compared with other neighboring states on pre-defined parameters. These parameters include:

- Length of existing railway lines in Karnataka as compared to neighboring states.
- Route length per unit area and unit population
- Length of electrified route length
- Number of manned and unmanned crossings

The states that have been short-listed for the study are Andhra Pradesh, Gujarat, Kerala, Maharashtra and Tamil Nadu. These states are short-listed mainly because of their proximity to Karnataka. Gujarat has been short-listed as it is comparable to Karnataka in geographical area as well as population. This study has been conducted to highlight the shortfalls in infrastructure and the areas where there is the scope of upgrading.

The following table compares the Karnataka rail network (route length) to other short-listed neighboring states. The table highlights the route length in terms of gauges in each state (Please refer to Annexure 1 for types of railway gauges).

Table 6: Comparison of length of railway lines in Karnataka & neighboring States

State/Gauge-wise Total Length of Railways Lines in Indian Railways					
States	Area (Sq km)	Route length in Kilometers			
		BG	MG	NG	Total
Andhra Pradesh	2,75,045	4904	268	0	5172
Gujarat	1,96,024	3119	1422	787	5328
Karnataka	1,91,791	3069	97	84	3250
Kerala	38,863	933	117	0	1050
Maharashtra	3,07,713	4489	313	733	5535
Tamil Nadu	1,30,058	2507	1624	0	4131

Source: Indiastat and Census, 2001

The above table highlights that Karnataka and Gujarat are comparable in term of area but in terms of rail route length in kilometers, Karnataka has just 56% of route length present in Gujarat. There is a need to address this shortfall by proposing new railway lines and improving inter-state connectivity. The gap in the rail connectivity within the State has been highlighted in the **Annexure 7**.

The following graph represents the existing status of railways in various States in comparison with Karnataka.

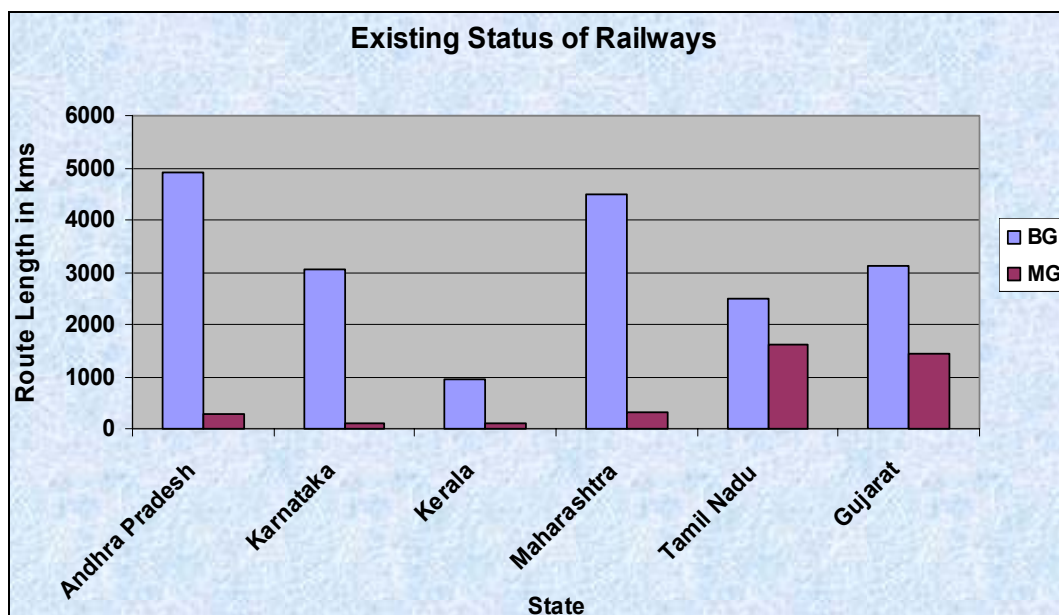


Figure 3: Existing Status of Railways in neighboring states

In the following table, Karnataka is compared with the short-listed States under the following two parameters:

- Existing rail lengths per 1000 sqkm of area to analyze the average network spread in the State.
- Existing rail length per 100,000 population.

Table 7: Comparison in terms of Route Length per unit area and unit population

States	Population (in crores)	Route length per 1000 sqkm area (in Kilometres)		Route length per 100,000 population (in Kilometres)	
		BG	All Type	BG	All Type
Andhra Pradesh	7.62	17.8	18.8	6.4	6.8
Gujarat	5.06	15.9	27.2	6.2	10.5
Karnataka	5.27	16.0	16.9	5.8	6.2
Kerala	3.18	24.0	27.0	2.9	3.3
Maharashtra	9.67	14.6	18.0	4.6	5.7
Tamil Nadu	6.22	19.3	31.8	4.0	6.6

Source: Indiastat and Census, 2001

Karnataka is comparable to Gujarat in terms of population. Though the numbers for Broad Gauge are comparable, the total route length per 1000 sqkm is almost half of the existing figures for Gujarat. This highlights the shortfall in rail connectivity in Karnataka.

The numbers for Karnataka seems to be comparable with Maharashtra. Kerala being the smallest state in terms of area among the short-listed states and having the maximum population density shows greater length per 1000 sqkm area and least length per

100,000 population. It is to be noted that the above data does not include the projects incorporated after 2007.

The following chart highlights the ongoing railway projects in the short-listed states. (as per the Pink Books of Year 2007, 2008 and 2009).

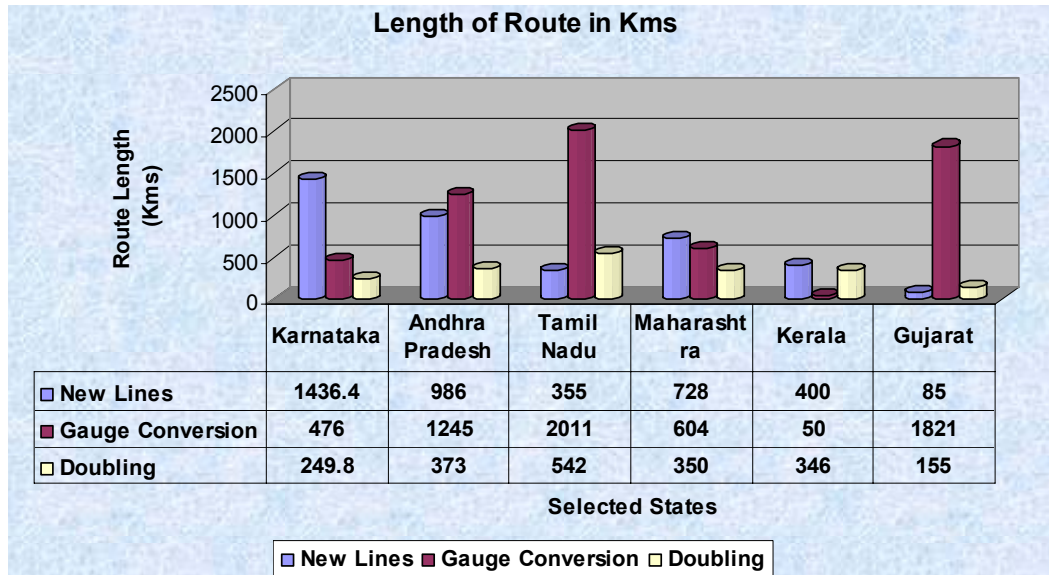


Figure 4: Comparison in terms of projects being implemented in last 3 years

Compared to other neighboring states, though there has been a considerable development in Railways in Karnataka in terms of construction of new lines, still there is a huge gap between the existing facilities and the required facilities.

Please note that all figures are approximate values derived from Pink Books for the last three years of various zones pertaining to short-listed states.

Apart from network of rail-lines, parameter like total route length electrified and manned & unmanned crossings in the Karnataka are compared with other states in the following table.

Table 8: Comparison of states in terms of manned level crossings

States	Total Route Length in km	Total Route km electrified	Electrified Route Length as % of Total length
Andhra Pradesh	5172	2403	46.5%
Gujarat	5328	723	13.6%
Karnataka	3250	138	4.2%
Kerala	1050	540	51.4%
Maharashtra	5535	2065	37.3%
Tamil Nadu	4131	1173	28.4%

It can be seen from the above table that Karnataka is far behind other states when compared to electrification of route of the railway network.

Table 9: Comparison of states in terms of manned level crossings

State-wise Manned and Unmanned Level Crossings					
States	(As on 30.6.2002)		(As on 31.3.2003)		(As on 01.04.2006)
	Manned	Unmanned	Manned	Unmanned	Unmanned
Andhra Pradesh	1233	1478	1232	1380	1363
Gujarat	1493	2849	1445	2895	2746
Karnataka	630	946	615	828	821
Kerala	407	138	399	133	120
Maharashtra	1164	1208	1210	1349	1060
Tamil Nadu	1228	1297	1241	1281	1227

Also the number of manned level crossings in Karnataka is far less than Gujarat, Andhra Pradesh, Maharashtra and Tamil Nadu and the situation has been more or less constant over the period of three years.

3.1 Inference

From the above analysis, it can be concluded that though there has been some development activities in Railways in Karnataka in the past couple of years, still there is a shortfall as compared to other States. There is an immense need for development in terms of inter-state connectivity, laying of new lines, electrification of existing lines and modernization of railways stations and other facilities.

There is a great need felt for providing an efficient rail connectivity to the ports. Presently more than half of the iron ore produced in Karnataka has to travel to the east coast ports of India (Krishnapatnam, Ennore, Chennai) because of absence of proper rail connectivity to Karnataka ports. Because of this absence, a significant quantum of ore ends up being moved on road leading to higher pollution as well as high transportation cost.

The development of rail infrastructure is very critical for development of hinterland of Karnataka, development of commerce and industry, economic growth as well as promotion of tourism. Hence it is important to fill these infrastructure gaps and address the same in consensus with the environmental and development issues.

4. District wise Railway Scenario in Karnataka

Karnataka has 30 districts and very few districts have direct train connectivity. Out of 176 talukas, 81 talukas do not have rail connectivity. District-wise Railway Route length in Karnataka and number of stations in each district are provided in **Annexure 7**.

Bangalore being the state capital does not have suburban rail connectivity in place. The northern part of Karnataka has poor rail connectivity with the rest of the state. To highlight the inter-state rail connectivity gap, a district wise rail connectivity matrix has been prepared and enclosed.

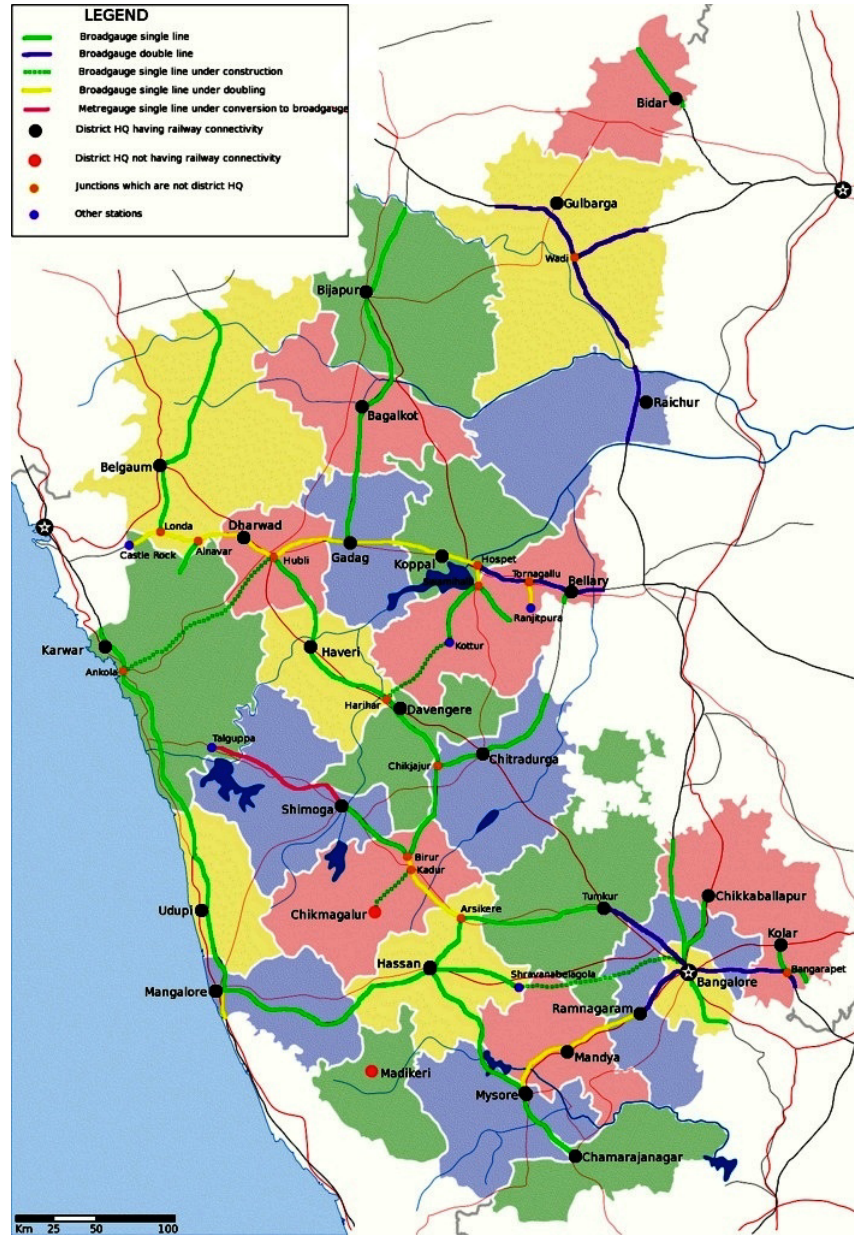


Figure 5: Railway map, Karnataka

Annexure 7 highlights the gap in district wise rail connectivity with reference to Railway Route Length Density as well as Population Density.

In the matrix given below, D stands for Direct Connectivity by rail between the districts. C stands for change which means that though there is some sort of connectivity available but there is a scope for improvement. NC stands for Not Connected and thus those districts with NC are not connected to each other by railways.

There is a need felt for better rail connectivity mainly the northern Karnataka like Gulbarga, Raichur and Bidar and the coastal Karnataka (Ankola to Hubli). The development of these lines can induce rapid industrial development in the region leading to better employment opportunities and overall development of the region.

Table 10: District-wise Rail Connectivity Metrics

District HQ	Bagalkot	B'lore	Belgaum	Bellary	Bidar	Bijapur	Chamrajnagar	Chikaballapur	Chikamagalur	Chitradurga	Davanagere	Dharwar	Gadag	Gulbarga	Hassan	Haveri	Kodagu	Kolar	Koppal	Mandya	Mysore	North Kanara	Raichur	Ramnagar	Shimoga	South Kanara	Tumkur	Udipi
Bagalkot	X	D	C	C	C	D	NC	NC	NC	C	C	D	D	D	C	C	NC	NC	C	C	C	NC	D	C	NC	NC	C	NC
Bangalore	D	X	D	D	D	D	C	D	NC	D	D	D	D	D	D	D	NC	D	D	D	D	NC	D	D	D	D	D	NC
Belgaum	C	D	X	D	NC	C	C	NC	NC	C	D	D	D	C	D	D	NC	NC	D	D	C	D	C	C	C	D	D	NC
Bellary	C	D	D	X	NC	C	C	NC	NC	D	C	D	D	C	C	C	NC	NC	D	C	C	NC	C	C	C	C	D	NC
Bidar	C	D	C	NC	X	NC	C	NC	NC	NC	NC	NC	NC	C	NC	NC	NC	NC	NC	C	C	NC	D	C	NC	NC	C	NC
Bijapur	D	D	C	C	NC	X	NC	NC	NC	NC	NC	D	D	D	NC	NC	NC	NC	NC	C	C	NC	D	C	C	NC	C	NC
Chamrajnagar	NC	C	NC	NC	NC	NC	X	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	D	NC	NC	NC	NC	NC	NC	NC
Chikaballapur	NC	D	NC	NC	C	NC	NC	X	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Chikamagalur	NC	NC	NC	NC	NC	NC	NC	NC	X	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Chitradurga	C	D	C	D	NC	C	NC	NC	NC	X	D	D	C	NC	C	C	NC	NC	C	C	C	NC	NC	C	NC	C	D	NC
Davanagere	C	D	D	C	NC	NC	NC	NC	NC	D	X	D	C	NC	D	D	NC	NC	C	C	C	NC	NC	C	C	NC	D	NC
Dharwar	D	D	D	D	NC	C	NC	NC	NC	D	D	X	D	C	D	D	NC	NC	C	C	D	NC	NC	C	NC	NC	D	NC
Gadag	D	D	D	D	NC	D	NC	NC	NC	C	C	D	X	C	C	C	NC	NC	D	C	C	NC	C	C	NC	NC	C	NC
Gulbarga	D	D	C	C	C	D	NC	NC	NC	NC	NC	C	C	X	NC	NC	NC	NC	C	C	C	NC	D	C	NC	NC	C	NC
Hassan	C	D	D	C	NC	NC	NC	NC	NC	C	D	D	C	NC	X	D	NC	NC	C	D	D	NC	C	C	D	D	C	NC
Haveri	C	D	D	C	NC	NC	NC	NC	NC	C	D	D	C	NC	D	X	NC	NC	C	C	D	NC	NC	C	NC	NC	D	NC
Kodagu	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	X	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Kolar	NC	D	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	X	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Koppal	C	D	D	NC	NC	NC	NC	NC	NC	C	C	C	D	C	C	C	NC	NC	X	C	C	NC	NC	C	C	NC	C	NC
Mandya	C	D	D	D	C	C	NC	NC	NC	C	C	C	C	C	D	C	NC	NC	C	X	D	NC	C	D	D	D	D	NC
Mysore	C	D	C	C	C	C	D	NC	NC	C	D	D	C	C	D	D	NC	NC	C	D	X	NC	C	D	D	D	D	NC
North Kanara	NC	C	D	C	D	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	X	NC	NC	NC	D	NC	D
Raichur	D	D	C	NC	D	D	NC	NC	NC	NC	NC	NC	C	D	C	NC	NC	NC	NC	C	C	NC	X	C	NC	NC	C	NC
Ramnagar	D	D	C	C	NC	C	NC	NC	NC	C	C	C	C	C	C	C	NC	NC	C	D	D	NC	C	X	C	C	C	NC
Shimoga	D	D	C	C	NC	C	NC	NC	NC	NC	C	NC	NC	NC	D	NC	NC	NC	NC	C	D	NC	C	C	X	C	D	NC
South Kanara	NC	D	NC	C	NC	NC	NC	NC	NC	C	NC	NC	NC	NC	D	NC	NC	NC	NC	D	D	D	NC	C	C	X	C	D
Tumkur	D	D	D	C	NC	C	NC	NC	NC	C	D	D	C	C	C	D	NC	NC	C	C	D	NC	C	C	D	C	X	NC
Udipi	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	D	NC	NC	NC	D	NC	X

5. Ongoing Railway Projects in Karnataka

There are several ongoing projects in railways in Karnataka undertaken by various zones. The following map shows the existing network and ongoing projects in Karnataka.



Figure 6: Ongoing projects in Karnataka

The details of the ongoing projects of are as shown in the table below.

Table 11: Ongoing Railway Projects in Karnataka

Particulars	Details			Remarks
	No	Kms	Cost (Rs. cr.)	
A. Under Implementation				
New lines	10	1436.4	7721.8	3 projects are cost sharing by GoK of 361 km of anticipated Rs. 7721.8 cr. is GoK Share. Till date 234.57 cr. Released
Gauge Conversion	2	476.0	847.0	2 projects are cost sharing by GoK of 381 km of Rs.112.5 cr. is GoK Share. Till date 207.36 cr. Released. This also includes the funds released for Gadag- Sholapur line.
Doubling	8	249.8	1219.8	1 project is cost sharing by GoK of km 99 of Rs. 202.90 cr. is GoK Share. Till date 112.8 cr. Released for Bangalore-Mysore project.
Sub Total	20	2162.2	9788.6	
B. Electrification	3	347.0	246.6	1 project is cost sharing by GoK of km 99 of Rs. 202.90 cr. is GoK Share. Till date 112.8 cr. Released for Bangalore-Mysore project including electrification.
C. Surveys				
Completed	11	1335.0	6675.0	With Rly. Board for consideration
Under Progress	15	1386.0	6930.0	Survey under different stages
Sub Total	26	2721.0	13605.0	
Total (A+B+C)	49	5230.2	23640.2	

The details of the projects that are being taken up on the cost sharing basis between the MoR and GoK, GoK's share, the funds released and the status of the same is provided in the table below:

Table 12: Details of projects undertaken on cost sharing basis between MoR & GoK

Name	Length in km	Cost in cr	Sharing Ratio	GoK's share in cr	GoK releases	Status
Sholapur Gadag (GC)	284	335.00	50 : 50 GoK MoR	167.5	157.36	Line opened
Shimoga Talaguppa (GC)	97	220.71	50 : 50 GoK MoR	112.5	50.00	TDC: Dec '09/ Mar '10
Bangalore Mysore (DL)	135	304.36 (sd) 487.00 (ant)	67 : 33 GoK MoR	333.0	112.8	Completed till RMGM TDC : Dec 2012
Kottur Harihar (NL)	67	302.23	GoK :67 % MoR: 33 %	201.5	130.00	TDC : Dec '09/ Mar '10
Munirabad Raichur (NL)	246	497.00	50 : 50	425.0	15.00	Prelim. work on
Bidar Gulbarga (NL)	140	370.00	50 : 50	277.3	65.00	Earthwork & bridges over for 94 km
Total	969	2029		1516.8	530.16	

The above mentioned details on cost sharing projects can be summarized in the following table:

Table 13: Summary of cost-sharing projects between MoR & GoK

S.No	Projects	No. of works	Length (Km)	GoK Share as per anticipated cost (Rs. Crores)
1	New Lines	3	453	903.7
2	Gauge Conversion	2	381	112.5
3	Doubling	1	135	333.0
	Total	6	969	1516.8

The details of above mentioned projects referring to the progress, intermediate stations, estimated cost and estimated time of completion are given in the Annexure 2, 3 and 4.

The details of the projects for which surveys are already completed are provided in the table below:

Table 14: Details of the projects for which the surveys are already been completed.

S.No.	Name	Length in km	Status of Survey	Remarks
1	Alamatti-kuppagal	124	Completed	With Railway Board
2	Bagalko-Kudichi	141	Completed	With Railway Board
3	Gunji-Kulem	80	Completed	With Railway Board
4	Yelahanka – Penkonda	88	Completed	With Railway Board
5	Talaguppa – Honnavara	83	Completed	With Railway Board
6	Dharwad – Belgaum	97	Completed	With Railway Board
7	Tumkur – Davanagere	210	Completed	With Railway Board
8	K.R.Nagar Kushalanagara	100	Completed	With Railway Board
9	Torangallu – Ranjitpura	22	Completed	With Railway Board
10	Bangalore – Nangli	50	Completed	With Railway Board
11	Hospet – Londa – Vasco	340		2127 Cr by RVNL project approved by planning commission Cabinet committee on economic affairs should clear the project
	Total	1335		

The details of the projects for which surveys are under progress are provided in the table below:

Table 15: Details of the projects for which the surveys are in progress.

S. No.	Name	Length in km	Status of Survey	Remarks
--------	------	--------------	------------------	---------

1	Bangalore – Salem	218	Under progress	South Western Railway
2	Kottur – Chitradurga	80	Under progress	South Western Railway
3	Bijapur – Shahabad	140	Under progress	South Western Railway
4	Chikkaballapur – Puttaparthi	90	Under progress	South Western Railway
5	Almatti – Koppal	124	Under progress	South Western Railway
6	Yadgir – Shahapur – Sholapur – Meddebihal – Almatti	150	Under progress	South Western Railway
7	Gadag – Haveri	80	Under progress	South Western Railway
8	Bidadadi – Anekal	30	Under progress	South Western Railway
9	Gadag – Wadi	240	Under progress	South Central Railway
10	Bidar – Nanded	25	Under progress	South Central Railway
11	Dharmavaram – yelahanka – Devanahalli (By-pass)	5	Under progress	South Western Railway
12	Mysore – Hejjala – Gollahalli – Tumkur	35	Under progress	South Western Railway
13	Shimoga – Harihara	71	Under progress	South Western Railway
14	Bangalore whitefiled 4 lines	48	Frozen	South Western Railway
15	Madanapalli – Srinivasapura	50	Under progress	South Western Railway
	Total	1386		

The following map highlights the details of the surveys (completed, in progress and scheduled) for identified railway lines in Karnataka.



Figure 7: Location of lines for which surveys are being undertaken

The details of the projects on electrification of railway lines including the length of the lines cost and status are provided in the table below:

Table 16: Details of the projects on electrification of Lines

Name	Length in km	Cost in cr	Rly outlay in 2009-10 (in cr)	Status
Bangalore – Yashwanthpura via Hebbal and Yelahanka	46	30.59	0.01	Work will be completed by Dec 2009
Bangalore – Mysore	140	100	28.00	Work will be completed along with doubling 2012.
Lingampalli – Wadi	161	116	11.47	Under progress completion by Dec 2010.
Total	347	246.59	39.48	

Following maps show the location of the ongoing projects in Karnataka.

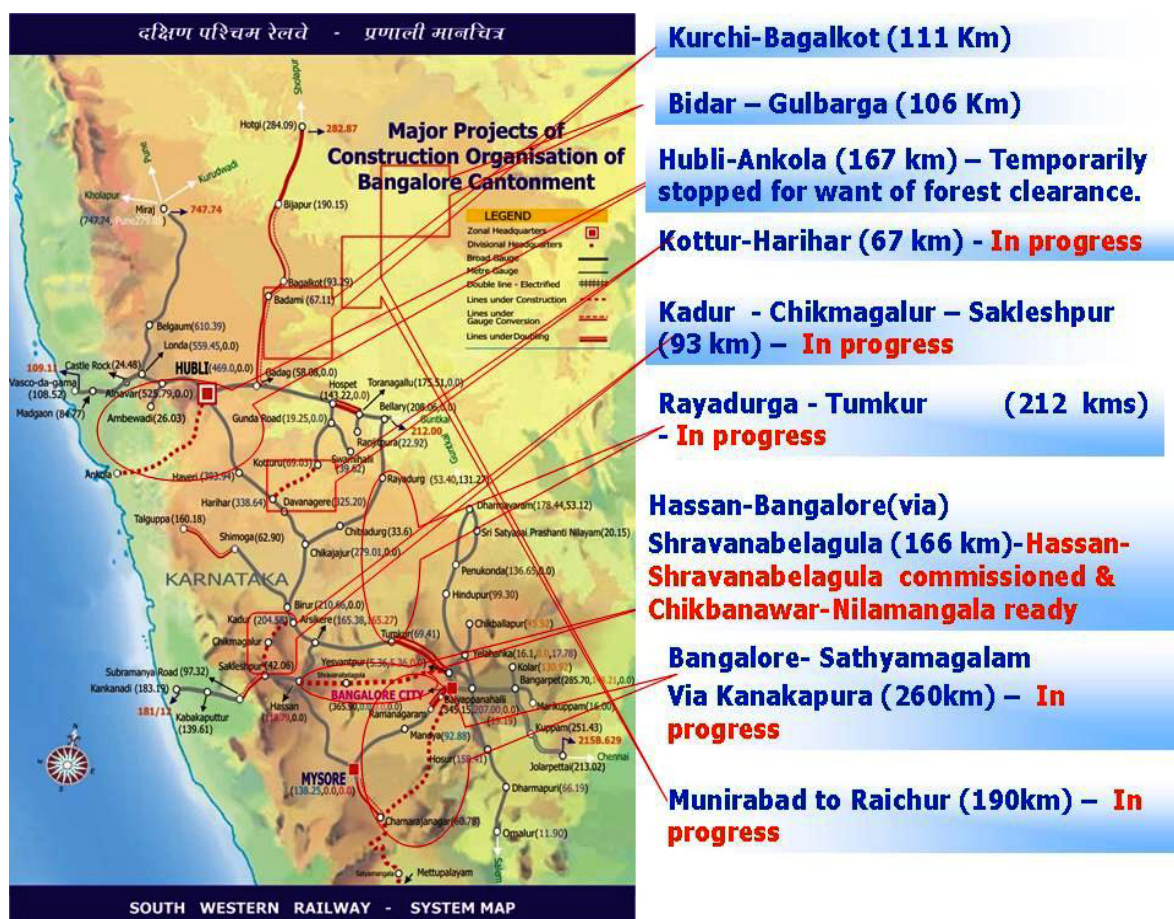


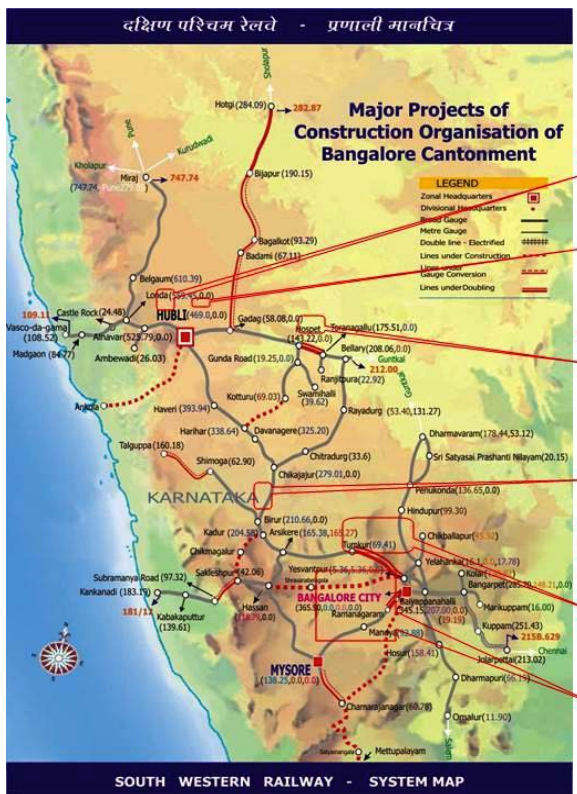
Figure 8: Location of projects on construction of new lines



Shimoga-Talaguppa(97 km) - In progress.

Kolar – Chikballapur (87 km) - In progress

Figure 9: Location of Projects on Gauge Conversion



Dharwad - Kambarganvi (26.68 km) - In progress

Hubli – Hebsur (17.17 km) - In progress

Hospet-Toranagallu (32 km) – Completed & commissioned.

Arsikere – Birur (44.28 km) –In progress.

Yeswantpur-Tumkur (62.92 km)- Yeswantpur-Gollahalli(20 km), Gollahalli-Nidvanda (20 km) completed. Nidavanda – Tumkur (22 km) in progress.

Bangalore - Mysore (135.00 km) - Bangalore-Kengeri(13 km), Kengeri-Bidadi(17.6km) - completed. Bidadi – Ramanagaram(14km) –completed. Ramanagaram-Shettihalli-in progress.

Figure 10: Location of projects on Doubling of existing single lines

Some of the ongoing projects are implemented on **cost sharing** basis between Government of Karnataka and Ministry of Railways.

Road Over Bridges (ROB)s and Road Under Bridges (RUB)s:

The ROB/RUB projects are generally on cost sharing basis between the Railways and the State Government. Karnataka, this sharing is upto an extent of 50:50. There are various other issues related to the construction of ROB)s and RUB)s, apart from the funds which are furnished in the chapter on key issues.

The details of projects for construction of Road Over/Under Bridges (ROB/RUB) are given in the **Annexure 6**.

The following table summarizes the investment in RoB/RuB projects in the last three years.

Table 17: Expenditure in RoB/RuB projects by GoK (2006-09)

(Rs. Crore)

Expenditure on RoB/ RuBs by GoK						
2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
11.6	1.0	20.0	30.0	26.0	30.0	3.9

GoK has released Rs. 122.5 crore in total between 2003 and 2010 for the RoB/RuB projects. The above information is updated till November 30, 2009.

6. Budget Allocation

Railway Ministry is actively engaged in formulation of various policies and looking after the overall functioning of the railway system.

Rapid progress in industrial and agricultural sectors of the country has generated a higher level of demand for rail transport, particularly in core sectors like coal, iron and steel ores, petroleum products and essential commodities such as food grains, fertilizers, cement, sugar, salt, edible oils, etc. In order to strengthen, modernize and expand such a network, the Government of India seeks to attract private capital as well as State funding in several categories of rail projects, like projects for port connectivity, gauge conversion, connectivity to remote/backward areas, laying new lines, electrification, suburban transportation, etc.

Moreover, the budgetary support to the railways has been increasing from year to year. The Ministry has, thus, undertaken several reform measures and initiatives to improve traffic condition, safety as well as introduce high technology, that is, to develop a world-class rail infrastructure in the country. The major initiatives by the government in last three financial years are as listed below.

6.1 Highlights of Indian Rail budget and State Budget

The key points from the Indian Railway Budget and State Budget are listed in the table below.

Table 18: Central and State Budget Highlights

S. No.	Budget	Highlights
1	Indian Rail budget 2008-09	<ul style="list-style-type: none"> • The Annual Plan of Rs.37,500 cr is the largest ever Annual Plan so far. • Thrust areas include enhancement of high density network routes, improvement and expansion of traffic facility and network, construction of flyovers, bypasses and upgradation of goods-sheds, electrification of lines, Metropolitan Transport Projects.
2	Karnataka Budget 2008-09	<ul style="list-style-type: none"> • Gauge conversion of Shimoga-Talaguppa Railway line. • Construction of new Railway Line between Bidar-Gulbarga. • Gauge conversion of Solarpur-Bagalkot Gadag Railway Line. • Doubling of Bangalore-Ramanagar Railway Line.
3	Indian Rail budget 2009-10	<ul style="list-style-type: none"> • The Railways proposes to invest Rs 1,906 crore on gauge conversion and would inject Rs 1,797 crore on machinery and plants. • Rs 2,921.70 crore would be invested for building new lines. • It would also invest Rs 4,247.28 crore on locomotives and Rs 3,616.61 crore on the carriages. • 57 new train services, extension of 27 trains, increase of frequency of 13 trains are envisaged. • Trains for Karnataka in 2009-10 interim Budget: <p>New Trains:</p> <ul style="list-style-type: none"> • Mumbai-Karwar Superfast (Tri-weekly);

		<ul style="list-style-type: none"> • Nizamuddin-Bangalore Rajdhani Express (Tri-weekly), • Mysore Yeshwantpur Express (Daily) • Howra- Bangalore Superfast (weekly Once) • Bangalore- Shimoga- Intercity Express (Daily) • Bangalore- Luknow Superfast (Daily) • Bangalore- Kuchivele (Tri-weekly) • Bangalore- Hubli-Solapur Superfast (Daily) <p>Line Doubling:</p> <ul style="list-style-type: none"> • Yeshwantpur- Yahahankka • Yelahankka- Chennasandra <p>Extension of Train:</p> <ul style="list-style-type: none"> • Jodhpur –Bangalore Express (weekly) to Coimbatore • Bangalore- Mangalore Train to Kannanor (Daily) • Mysore- Thirupathi to Chmrajnagar (Daily) • Bangalore-Hubli-Dharwad Intercity • Chennai- Mangalore Tri-weekly made it daily <p>Survey Sanctioned for Rail Connectivity</p> <ul style="list-style-type: none"> • Almatti-Koppal • Chikabellapur- Puttaparthi • Bidadi-Anekal Bypass Line • Gadag-Haveri • Shiimoga- Harihar • Gadag- Vadi • Alamatti- Yadagiri • Nandeda- Bidar <p>New Lines: Target of 250 Km has been fixed for construction of new lines in 2009-10. Some prominent sections are as follows.</p> <ul style="list-style-type: none"> • Kottur-Harihar <p>Gauge Conversion:</p> <ul style="list-style-type: none"> • Madhanpalli Road – Dharmavaram of Dharmavaram-Pakala <p>Railway Electrification Survey:</p> <ul style="list-style-type: none"> • Guntakal- Guty-Bangalore
4	Karnataka Budget 2009-10	<p>Extension of Railway Network</p> <p>State Government will provide 50% share for laying new railway lines like:</p> <ul style="list-style-type: none"> • New line is sectioned Kuduchi Bagalkot (111 kms) • BARL to implement super fast train to Bangalore International Airport in PPP model.

Key Issues and Constraints

7. Key issues

The rail network is faced with many challenges, including but not limited to the following:

Land Acquisition and Forest Clearance

The land required for the developed of rail infrastructure has to be acquired, which falls in the preview of the State Government. At various instances though there is opposition from the localities for the same, the Government of Karnataka of late has speeded up the land acquisition process.

Limited funds:

The major hindrance faced in the development of rail network that the projects are being implemented on “Scheme mode” and not on “project mode”. Most of the projects in this sector get partial payment as a result leading to delay in the progress in projects that are initiated. The projects are not implemented through Project Management thus leading to delayed timelines and schedules not kept up.



Linkage between Coastal to hinterland:

Development of rail link from coastal to hinterland is faced with environmental hindrances as the rail link needs to be developed cutting across the western Ghat section. As shown in the figure below, the highlighted part is hilly or covered with a forest.

It is imperative to have rail connectivity with the port for the development of identified Industrial Zones hence it is critical to arrive at a balance between environmental concerns and infrastructure development.

Figure 11: Terrain map of Western Ghats, Karnataka

Proposed Railway Projects

8. Recommendations of Government of Karnataka (GoK)

8.1 Development related to Port Connectivity

As discussed before, port connectivity is very critical in Karnataka for the economic growth of the State, particularly the dry Northern Karnataka. To ascertain the same, the railway network is analysed from the perspective of port connectivity and linkages between key industrial zones.

The following map shows existing railway network, ongoing projects, proposed railway lines, ports and identified major industrial zones.

The map highlights that the minor ports along the large coastal line of Karnataka are not connected with the existing rail network of Karnataka. The prime reason for the same is, as stated earlier, that Western Ghat act as a hindrance in connecting the coastal to main land. At the same time this connectivity is critical to expand the industrial potential of the State.

In this case, the rail connectivity of the minor ports to the rest of Karnataka is proposed to be improved in following ways:

- Construction of a new line between Hubli and Ankola
- Doubling the Hassan-Mangalore Line
- Construction of a new line between Honnavar and Talguppa

Hubli-Ankola New Railway Line has been proposed for the development of Uttara Kannada by creating a railway line through the Western Ghats. It is proposed to be 167 km broad gauge single line system estimated to cost about Rs.1000 crores. The project proposal is mainly for transportation of bulk commodities like iron, ore, coal, fertilizers, to Karnataka ports.

The Railways have commenced some construction works but the work was stopped under direction of MoEF as the project is in ecologically sensitive area.

A revised proposal with mitigation measures being submitted to the GoI for consideration.

Surveys are being completed for doubling the Hassan-Mangalore line and construction of a new line between Honnavar and Talguppa.

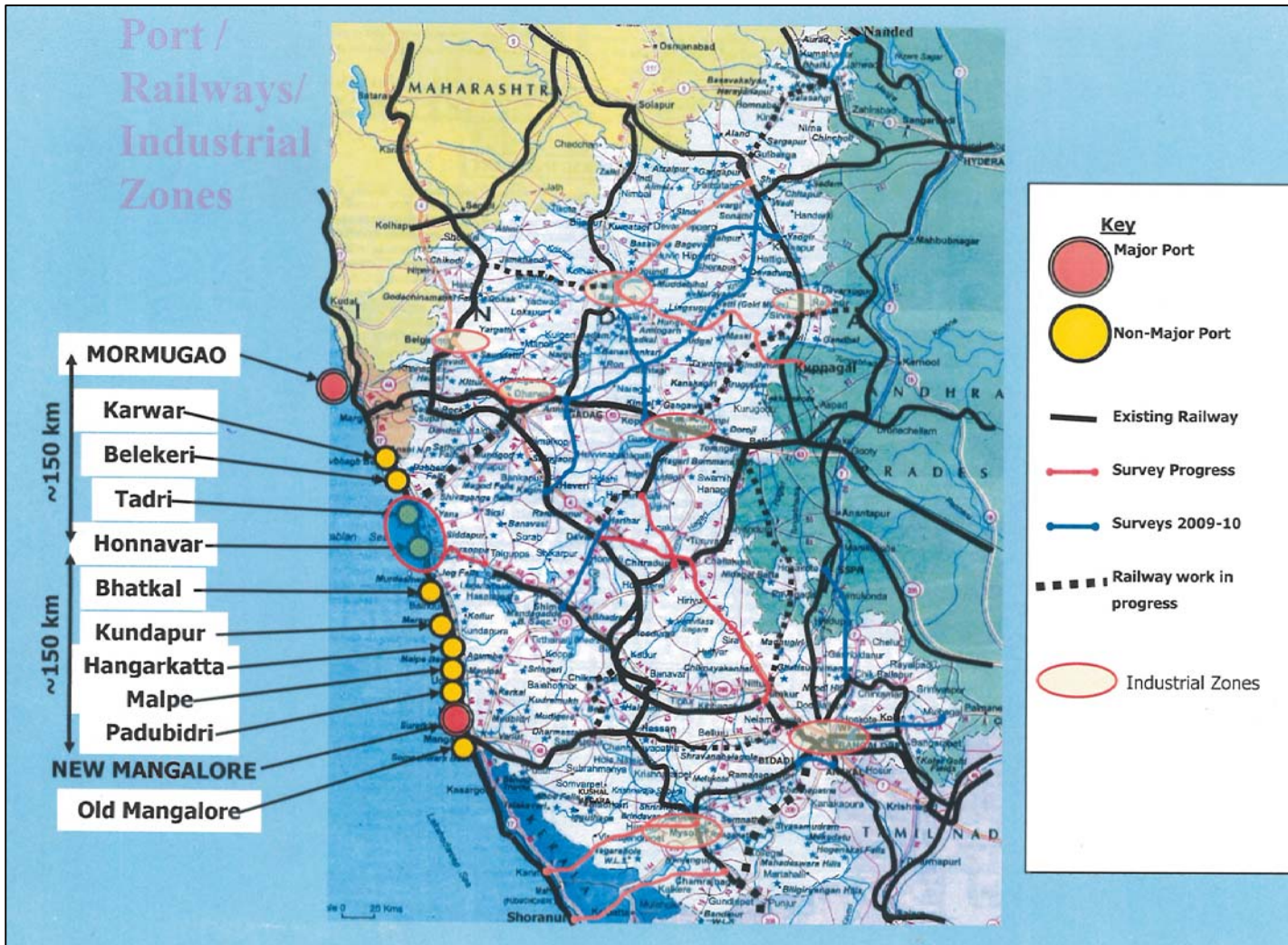


Figure 12: Existing network, proposed lines, ports & major industrial zones

8.2 Connectivity of major industrial zones

In the Industrial Policy '09, following sector specific industrial zones/ corridors have been identified for development, which would help in harnessing the local resources and also optimizing the value addition. These industrial zones are identified in the following region:

- **Steel:** Bellary, Koppal, Bagalkot, Haveri, Gadag and Raichur districts
- **Cement:** Gulbarga, Bagalkot, Chitradurga and Belgaum districts
- **Food Processing:** Bangalore Rural, Kolar and Belgaum districts
- **IT/ BT:** Mysore, Mangalore, Hubli-Dharwad, Belgaum, Shimoga, Gulbarga, Kolar and Mandya districts
- **Automobile:** Ramanagara, Shimoga, Dharwad and kolar districts
- **Readymade Garments:** Bangalore Rural, Tumkur, Koolar, Mandya, Belgaum, Bidar and Dharwad
- **Sugar and co-gen, Power:** Bidar, Belgaum, Begalkot, Shimoga and mandya
- **Pharmaceutical/ Bio-Technology:** Raichur, Bellary, Bijapur and Chitradurga districts
- **Power Generation:** Raichur, Bellary, Bijapur and Chitradurga districts
- **Media & Entertainment:** Bangalore Rural and Ramanagara

The major industrial zones identified and their inter connectivity through Rail network is presented in the subsequent map. The map highlights that, though the industrial nodes are connected by the existing network, there is a considerable scope of reducing travel time by laying new lines to connect nodes directly and thus improving the efficiency of rail network. Certain links has been already identified for improving the connectivity.

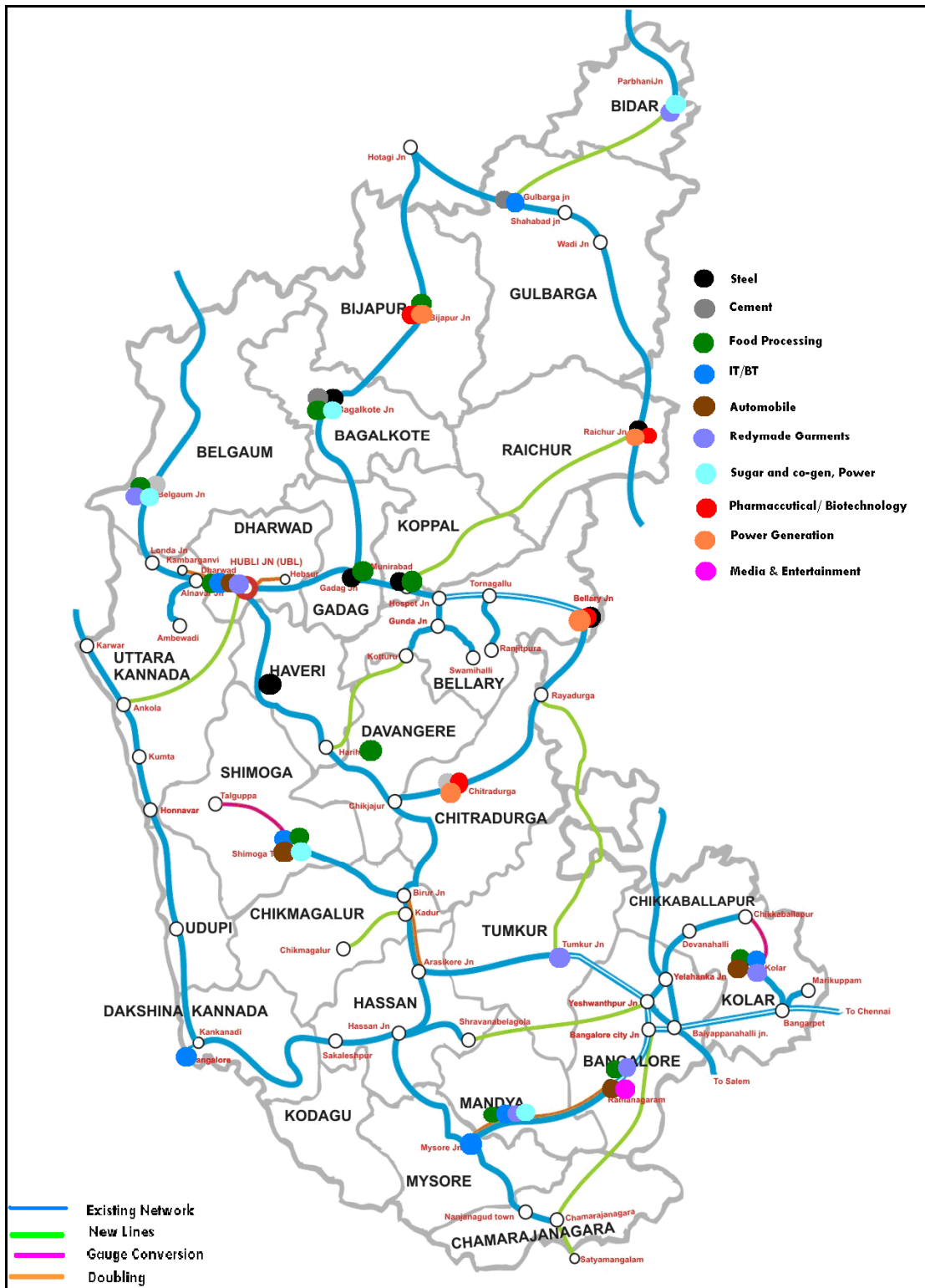


Figure 13: Karnataka map showing rail connectivity between major industrial zones

8.3 Projects recommended by GoK

Apart from the projects related to industrial development and port connectivity, other important projects proposed by the GoK are furnished in the following table.

Table 19: Proposed Projects by GoK

S.No.	Project	Nature of Project	Reference	Approximate Estimate	RoR (Appr.)	Remarks
1	Tumkur – Davangere via Chitradurga (160 km)	New Line	CM 89 Gol 09 dt:10-2-09	640.0	---	Survey done by South Western Railway earlier. Re-survey ordered by South Western Railway to work out latest rate of return (RoR) etc
2	Dharwad – Belgaum (97 km)	New Line / Double Line	CM 83 Gol 2009 dt: 9-2-09 / IDD 63 NSW 08 / CM 89 Gol 09 dt:10-2-09	300.0	14.0	Survey is in Progress, as per DO No.2009/W/1/GENL/CSR on 24/03/09 of Railway Board to GoK
3	Gadag – Haveri (80 km)	New Line	CM 83 Gol 2009 dt: 9-2-09 / IDD 63 NSW 08 / CM 89 Gol 09 dt:10-2-09	320.0	12.0	Issue of taking up survey under consideration by Railway as per DO No.2009/W/1/GENL/CSR on 24/03/09
4	Bijapur – shahbad (140)	New Line	CM 89 Gol 09 dt:10-2-09	560.0	16.0	Letter sent from GoK. Reply from Railways is awaited
5	Dharmavaram – Yelahanka - Devanahalli (5 km)	Bypass	Decision taken in the Meeting with SWR	30.0	---	Letter sent from GoK. Reply from Railways is awaited
6	Mysore – Hejjala – Gollahalli – Tumkur (35 km)	Bypass	Decision taken in the Meeting with SWR	165.0	---	Survey to be taken up by Railways.

Sl. No.	Project	Nature of Project	Reference	Approximate Estimate	RoR (Appr.)	Remarks
7	Talaguppa – Honnavara (90 km)	New Line	CM 89 Gol 09 dt:10-2-09	---	14	Survey done. Project not yet sanctioned.
8	Kushal nagar – Mysore (K.R.Nagar) (100 km)	New Line	CM 89 Gol 09 dt:10-2-09	500.0		Survey done earlier. Project not yet sanctioned.
9	Kottur – Chitradurga (76 km)	New Line	CM 89 Gol 09 dt:10-2-09	350.0	---	Survey is in Progress by Railways.
10	Bangalore – Whitefield (48 km)	Quadrupling	Pink Book Sanctioned Rly. Board	200.0	---	Project is Freezed, Defreezing in the Budget of 2009-10 has to be done.
11	Bidar- Nanded	New Line				Survey under Progress
12	Gadag- Wadi	New Line				Survey under Progress
13	Shimoga- Harihar	New Line				Survey under Progress
14	Alamatti- Koppal	New Line				Survey under Progress
15	Yadagir- Alamatti	New Line				Survey under Progress
16	Wadi- Gadag	New Line				Survey under Progress
17	Anekal- Bidadi bye pass	New Line				Survey under Progress

S. No.	Project	Nature of Project	Reference	Approximate Estimate	RoR (Appr.)	Remarks
18	Chickballapur- Puttapparthylink	New Line				Survey under Progress
19	Davangere- Chitradurga-Tumkur (199.70kms)	New line	CM/242/GOI/2009 dtd.11/06/09	913.03	+13	Survey completed and report is with Railway Board.
20	Bangalore- kanakpura-Chamrajnagara - Satyamangalam(260kms)	New line	CM/242/GOI/2009 dtd.11/06/09	901.62	-0.451 (1997-08)	Year of inclusion in the Budget 1996-07. CCEA cleared by Feb1999. Survey completed between Bangalore – Chamarajnagar and 45kms. Beyond Chamarajnagar.CEC refused to grant permission on the plea of elephant reserves.
21	Hubli-Ankola (167kms)	New line	CM/242/GOI/2009 dtd.11/06/09	1000.0	+14.13(1996)	CEC vide order no. F-No1 - 26/CEC/SC/2005/PT-XVIII dtd.15/09/06 as advised the ministry of railways to stop all works, railways already incurred Rs.70crs.last joint inspection with MOEF CCF(central)was conducted on 04.08.08.(previous inspection was conducted on 6,7,&8 th June2007.)

S. No.	Project	Nature of Project	Reference	Approximate Estimate	RoR (Appr.)	Remarks
22	Kadur-Sakaleshpura-Chikmagalur (93 km)	New line	Railway work 100%	274.29	+4.15 (1986-87)	Work is in progress only between Kadur-chikmagalur(46kms).But between chikmagalur sakaleshpur (47kms) land acquisition not requisitioned. Works not started as it has been frozen by Rly.Board.
23	Mulbagal- Kolar- Hoskote- Whitefield (52 km)	New Line	CM/460/GOI/2009 dated August 26, 2009.	350.0		Request sent to Railway board.

8.4 Priority Projects

The proposal of GoK is to provide rail connectivity to ports and other rail linkages to the Industrial Zones. GoK recommends that the following projects can be taken up by Railways on priority, in addition to the ongoing projects. In the event that the Viability Gap Funding provided by the Central Government is not sufficient, GoK is willing to share the same.

GoK also recommends that of the following projects, five projects can be taken up on a PPP Basis. In such case, the Railways could be moved to permit KRIDE to establish an SPV to undertake the short-listed projects on a PPP Model.

Table 20: Proposed Projects by GoK for the development of Industrial Zones

No.	Name of the Project	Cost (Rs.crores)	Total Kms	Remarks	Purpose	Recommendations
1	Hubli-Ankola	1000	167	Held up on account of CEC on environmental issues.	Port Connectivity.	K-RIDE
2	Bijapur - Shahbad	840	140	The proposal has been sent to MoR from GoK. Response is awaited.	Development of Cement Industrial Zone	K-RIDE
3	Shimoga-Harihara	504	84	Proposal has been sent to MoR through letter No:CM/460/Gol/2009 dated 26/8/2009	Port connectivity and Industrial Development	K-RIDE
4	Gadag - Haveri	350	84	Survey is under progress.	Port connectivity and Industrial Development	K-RIDE
5	Whitefield -Kolar- Mulbagal	350	52	Survey Completed	Industrial Zones (for movement of Labor force)	K-RIDE
6	Kuduchi - Bagalkot	816	142	Surveys completed and report submitted to Railway Board. It is with planning Commission for approval.	Development of Cement Industrial Zone and port connectivity	RAILWAYS
7	Tumkur - Davanagere	913	210	Surveys completed and report submitted to Railway Board.	To reduce traveling time between North and South Karnataka.	RAILWAYS
8	Alamatti - Koppal	600	150	Tender for Survey called on 14-10-09.	Connectivity of Cement and Iron ore Industries to port towards the eastern coast.	RAILWAYS
9	Londa - Goa (Doubling)	436.4	109	24.4 Km lies in Karnataka. Rs.120 cr is for this stretch. Forest clearance is required. RVNL proposes to do the doubling work between Hospet to Goa (Vasco). This proposal is submitted to the Planning Commission for clearance.	Connectivity for port, cement zone and power projects	RAILWAYS/ K-RIDE
	TOTAL	5809	1138			

The development of Talaguppa – Honnavara line (83 Kms) is extremely critical in case the Railways decide not to proceed with the development of Hubli – Ankola line. The cost for development of the same is envisaged as Rs.900 crores.

8.5 Funds committed by Government of Karnataka so far

GoK has committed to share around Rs.1516.8 crore with Railways for the ongoing projects so far.

In addition to the lines recently created/ being created of 2660 kms¹ (as per Table 2 and Table 11), **GoK requests Railways to develop another 1138 Km of rail lines on priority, related to port and industrial development (as given in table 20), at the cost of Rs.5809 crores.**

GoK suggests that the first five short-listed projects could be entrusted to K-RIDE which could form a SPV².

Gol and GoK could share the share capital. Balance amount has to be obtained through floating the SPV. The Guarantors to the loan could be GoK/ Gol or both. The projects for which the construction is about to start, present arrangement of cost sharing could continue.

For projects that are to be entrusted with K-RIDE and for future Railway projects, GoK would provide land free from encumbrance and share 50% of the balance project cost.

¹ GoK has released funds of around Rs. 583.5 crores in the period 2003 to 2009 for these projects.

² A partnership model such as **Special Purpose Vehicle** could be adopted to achieve the above-mentioned objectives. The rail network operates in the core sectors of the economy, and to strengthen, modernize and expand the network it should have adequate resources that needs to be deployed. For the development of rail networks the GoK has constituted special purpose vehicle (SPV) for each of the networks, (K-RIDE, HMRDC). Under this structure, the public sector would continue to retain ownership and oversight of infrastructure and would only transfer the operating responsibility and the delivery of service to the private sector. This would enable the government to retain ultimate control, while private operators can enter the market on a competitive basis, without a large initial investment.

The SPV scheme envisages the participation of the private sector and other beneficiaries and national-level infrastructure funding institutions for the development of railway infrastructure through appropriate concessions. Revenue from commercial operations would accrue to SPV through revenue sharing with Indian Railways or through payment of access charges by the Railways. The land required for development of the project would be made available on lease to SPV and the developers could be allowed to commercially utilize the Railway land.

Of the above projects, which are under construction or prioritized to be completed in the next five years, the fund requirement would be as follows:

Table 21: Summary of ongoing and Priority Projects

Items	Projects	Length in Km	Anticipated cost (Rs. Crore)	Anticipated GOK Share (Rs. Crore)	Land	GOI share (Rs. Crore)
ONGOING PROJECTS	NEW LINES					
	Kottur- Harihar	67.0	302.2	201.5	LAQ required	100.7
	Kadur- Chikmangalur	93.0	465.0	0.0	LAQ required	465.0
	Hassan- Bangalore	166.0	880.0	0.0	LAQ required	880.0
	Hubli- Ankola	167.0	1335.0	0.0	Forest Clearance is pending	1335.0
	Bangalore- Satyamangalam via Kanakpura	260.0	1300.0	0.0	Forest Clearance is pending	1300.0
	Munirabad- Raichur	170.0	850.0	425.0	LAQ required	425.0
	Gadwal- Raichur	22.0	65.0	0.0	no issue with land	65.0
	Cuddapah- Bangalore (Bangarpet)	255.4	1000.0	0.0	LAQ required	1000.0
	Bidar- Gulbarga	106.0	554.6	277.3	LAQ required	277.3
	Raydurga- Tumkur	130.0	970.0	0.0	LAQ required	970.0
	Total New Lines	1436.4	7721.8	903.7		6818.0
	GAUGE CONVERSION					
	Shimoga- Talaguppa	97.0	225.0	112.5	No issue	112.5
	Kolar- Chikabellapur	95.0	287.0	0.0	LAQ required	287.0
	Sholapur Gadag	284.0	335.0	167.5	completed	167.5
	Total Gauge Conversion	476.0	847.0	280.0		567.0
	DOUBLING					
	Dharwad- Kambargani	26.2	104.0	0.0	No issue	104.0
	Hubli- Hebsur	18.7	76.0	0.0	No issue	76.0
	Arsikere- Birur	44.0	185.0	0.0	LAQ required	185.0
	Ramanagaram- Myosre	94.0	497.0	333.0	LAQ required	164.0

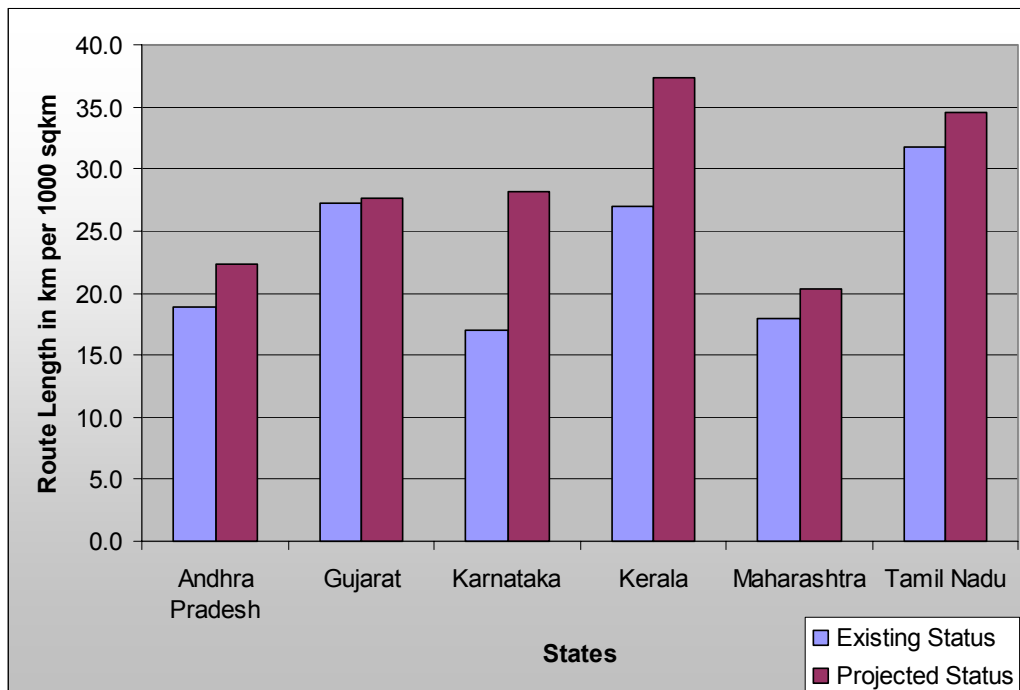
	Bangalore- Krishnarajpuram- White Field	23.0	85.0	0.0	No issue	85.0
	Yelahanka- Channasandra	12.9	65.0	0.0	Railway has not requested	65.0
	Yeshwanthpur- Yelhanka	12.0	60.0	0.0	Railway has not requested	60.0
	Kankanadi- Panamburu	19.0	147.8	0.0	No issue	147.8
	Total Doubling	249.8	1219.8	333.0		886.8
	TOTAL	2162.2	9788.6	1516.8		8271.8
PRIORITY PROJECTS						
SUGGESTED FOR K-RIDE	NEW LINES					
	Hubli- Ankola	167.0	1000.0			
	Bijapur- Shahbad	140.0	840.0			
	Shimoga- Harihar	84.0	504.0			
	Gadag- Haveri	84.0	350.0			
	Whitefield- Kolar- Mulbagal	52.0	350.0			
	TOTAL	527.0	3044.0			
OTHER PROJECTS	NEW LINES					
	Kuduchi- Bagalkot	142.0	816.0			
	Tumkur- Davangere	210.0	913.0			
	Allamatti- Koppal	150.0	600.0			
	Total New Lines	502.0	2329.0			
	DOUBLING					
	Londa - Goa	109.1	436.4			
	TOTAL	611.1	2765.4			
GRAND TOTAL		3300.0	15598.0	1516.7		

8.6 Inference

To ascertain the status of rail infrastructure in Karnataka, after the implementation of the ongoing projects, the State is compared on the pre-defined parameters to analyze the measure taken by the MoR and the State Government to fulfill the railway infrastructure gaps. The details of comparison are provided in the table below.

Table 22: Comparison of Rail network before & after completion of Ongoing Projects

States	Route length per 1000 sqkm area (in Kilometres)		Route length per 100,000 population (in Kilometres)	
	Existing Status	Projected Status	Existing Status	Projected Status
Andhra Pradesh	18.8	22.4	6.8	8.1
Gujarat	27.2	27.6	10.5	10.7
Karnataka	16.9	30.5	6.2	11.1
Kerala	27.0	37.3	3.3	4.6
Maharashtra	18.0	20.4	5.7	6.5
Tamil Nadu	31.8	34.5	6.6	7.2



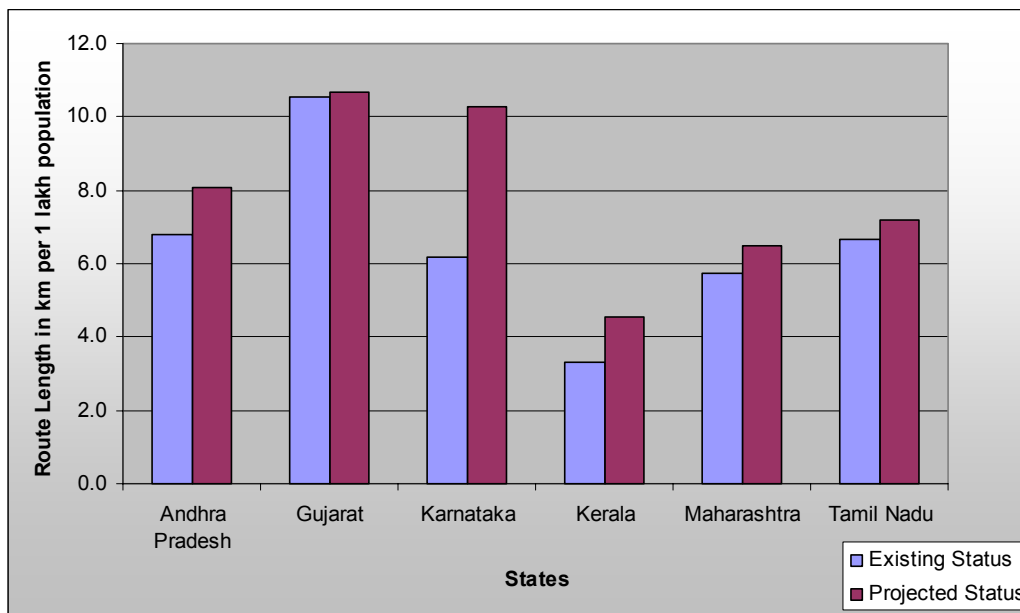


Figure 14: Comparison before and after implementation of Ongoing Projects

The above table and chart highlights that the status of rail infrastructure in Karnataka can be comparable to other states once the projects in the pipeline are completed.

At the same time it is critical to address issues related to port connectivity and linkages between existing/proposed industrial zones in Karnataka.

PPP in Railways in Karnataka

9. Public Private Partnership in Railways

The investment requirement for development of an efficient rail network in the state is huge, leading to the obvious question of how to finance the same. The governments worldwide are accepting the fact that Public Sector Participation, including foreign investment, is needed to meet these enormous challenges. The Public Sector Participation is expected not only to meet the financing requirement but also make the rail sector more efficient and cost-effective, through innovations and productivity gains.

The role of the government is evolving from that of owner and sole provider, to that of a facilitator and regulator. In this capacity, the emphasis of government is on safeguarding the interests of the vulnerable segments of the community through effective legal and institutional frameworks.

Since the State funding (GoI+GoK) in Rail Infrastructure is limited, it is true that Railways could open up development of some new lines on PPP Model to fulfil the following objectives:

- Supplementing government resources in railway infrastructure projects by private capital flows;
- Involving GoK in the creation/development of railway infrastructure for the common public good; and
- Enhancing the capacity of rail transport to avoid supply- demand mismatch.

Annexure

Annexure-1 Railway Gauges

Broad Gauge - 5'6" (1676mm)

All major passenger and freight routes are now broad gauge in India. This is the widest gauge in regular use anywhere in the world. (In the past, though, an 8' gauge was used in Oregon, USA, and a 7¼" gauge was used for the Great Western Railway in the UK.) Outside India, the 5'6" gauge is found in Pakistan, a spur from Pakistan into Iran, Sri Lanka, Bangladesh, Argentina, Chile, and the BART rapid transit system in the USA. The decision to use a gauge wider than the one in use in Great Britain was made with an eye towards economies in freight movement, and also to ensure stability in the face of Indian weather and the perceived threat of cyclonic winds. About 42,000 route km of IR's network are broad-gauge.

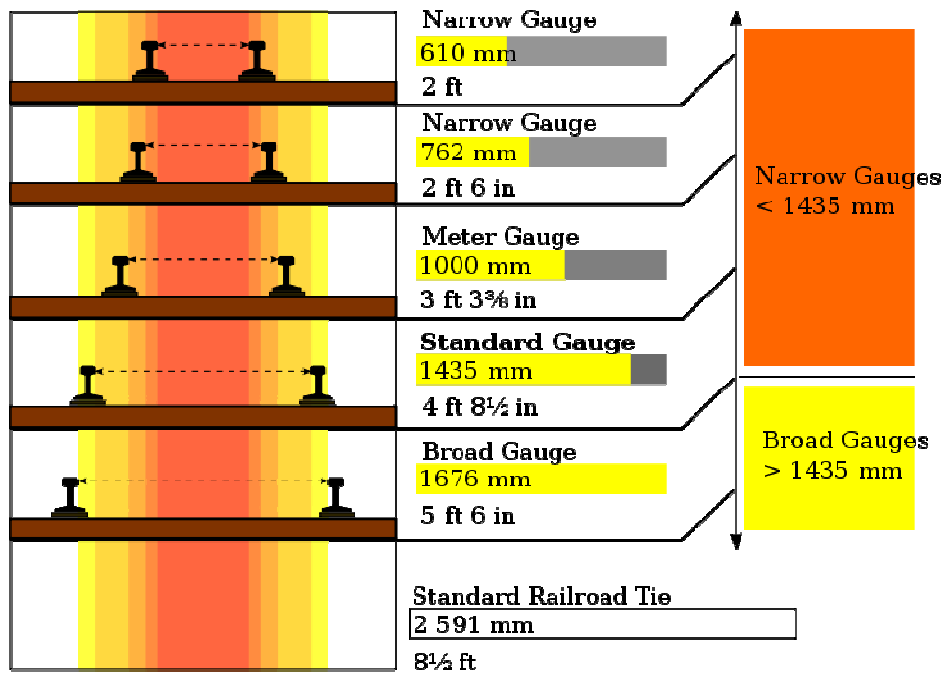


Figure 15: Comparison of Gauges in railways

Meter Gauge - 1m

This is still found in a lot of places, despite the push to convert everything to broad gauge. About 14,500 route km of IR's network are meter-gauge. By 2014, MG route-kilometerage is expected to drop to 5,000km or less. The MG network was especially dense in the west (around Vadodara, and in Rajasthan), in the east / north-east (West Bengal, Assam) and, before Independence, the areas in what is now Bangladesh), and in much of the south of India. Until the late 1980s, the North-Eastern Railway had a completely MG network. The MG networks of northern India (including the north-east via the Assam Rail Link) and southern India (16,690 and 7940 route kms, respectively) remained separate until 1960, when the completion of the Khandwa - Hingoli section

connected the two. This link went through Akot, Akola, and Basim, across the Tapti and Purna rivers and had 2 tunnels and 50 major bridges, and a spectacular spiral. This made possible the transit of freight from any MG station in India to any other (except, of course, the Nilgiri line which was always an isolated MG section), which was important even though MG's share of freight was never very large (about 12% before the Unigauge project started). The last MG line to be built in India was probably the Himmatnagar - Udaipur line.

Because of the push to convert MG to BG, IR has practically stopped all MG track renewals and acquisition of MG wagons and coaches since several years ago.

Narrow Gauge - 2'6" (762mm)

This gauge was adopted in various parts of the British Empire. There were (still are) considerable networks of these, for example in Gujarat around Vadodara (mostly from the old Baroda State Railway) and in MP (centred around Gondia on the S.E.R.). (Gondia-Jabalpur Satpura NG railway lines were closed in 2003 and converted to BG.) The most well-known line is probably the Kalka–Shimla route. The rationale for the narrower gauges was economy in building the lines — they could be laid much faster than broad gauge lines and in more difficult terrain. It was envisioned that narrow gauge lines would act as feeder lines to the broad gauge and meter gauge lines, but many became important railway routes in their own right.

Annexure-2 Zone wise Details

The detail of the zones is as follows:

1. Southern Railway:

The Southern Railway is the oldest of the 16 zones of the Indian Railways created in independent India. Southern Railway has its headquarters in Chennai and has the following six divisions:

- Chennai
- Tiruchirapalli
- Madurai
- Salem
- Palakkad and
- Thiruvananthapuram

It covers the states of Tamil Nadu, Kerala, Puducherry and small portions of Andhra Pradesh and Karnataka.

Table 23: Southern Railways Route Length in various States

State/UT	BG (in km)	MG (in km)	Total (in km)
Tamil Nadu	2467	1474	3941
Pondicherry	11	0	11
Andhra Pradesh	121	0	121
Kerala	933	117	1050
Karnataka	37	0	37
Total	3569	1591	5160

More than 500 million passengers travel on the network every year. This zone of the Indian Railways is different from the other zones of India as its revenue is derived from passengers and not from freight. The maximum profit of the Southern Railways comes from Chennai - Tirunelveli - Nagercoil section (via Villupuram, Trichy, Madurai). The next profitable section is Chennai - Coimbatore and Chennai Central - Trivandrum section ranking third. For better administrative control and improved development and operational reasons, the Railway Board approved the creation of a new Railway Division with Salem as headquarters in 2005. It is now the fourth largest of all the six divisions of the Southern Railway and was carved out of the Palakkad and Tiruchirapalli divisions. The map of Southern Railways is as shown below.



Figure 16: Southern Railway System Map

A large section of this railway zone had meter gauge lines till late, compared to most of Indian Railways having broad gauge lines. The main improvements currently in this railway zone are to convert all lines to broad gauge, improvement of stations, platform covering, better catering stalls and an automated signaling system to avoid accidents.

2. South Central Railway:

The South Central Railway is headquartered at Secunderabad and has the following divisions:

- Reorganized Secunderabad
- Hyderabad
- Guntakal (including Bellary-Guntakal (MG))
- Vijayawada
- Guntur and
- Nanded.

Area wise it covers Telangana, Rayalaseema and Coastal parts in state of Andhra Pradesh and also parts of Karnataka, Madhya Pradesh and Maharashtra.

Hubli is the headquarters of one of the five divisions of South Central Railway. Besides Hubli, Bellary and Raichur are the other major centers of SCR falling in Karnataka.

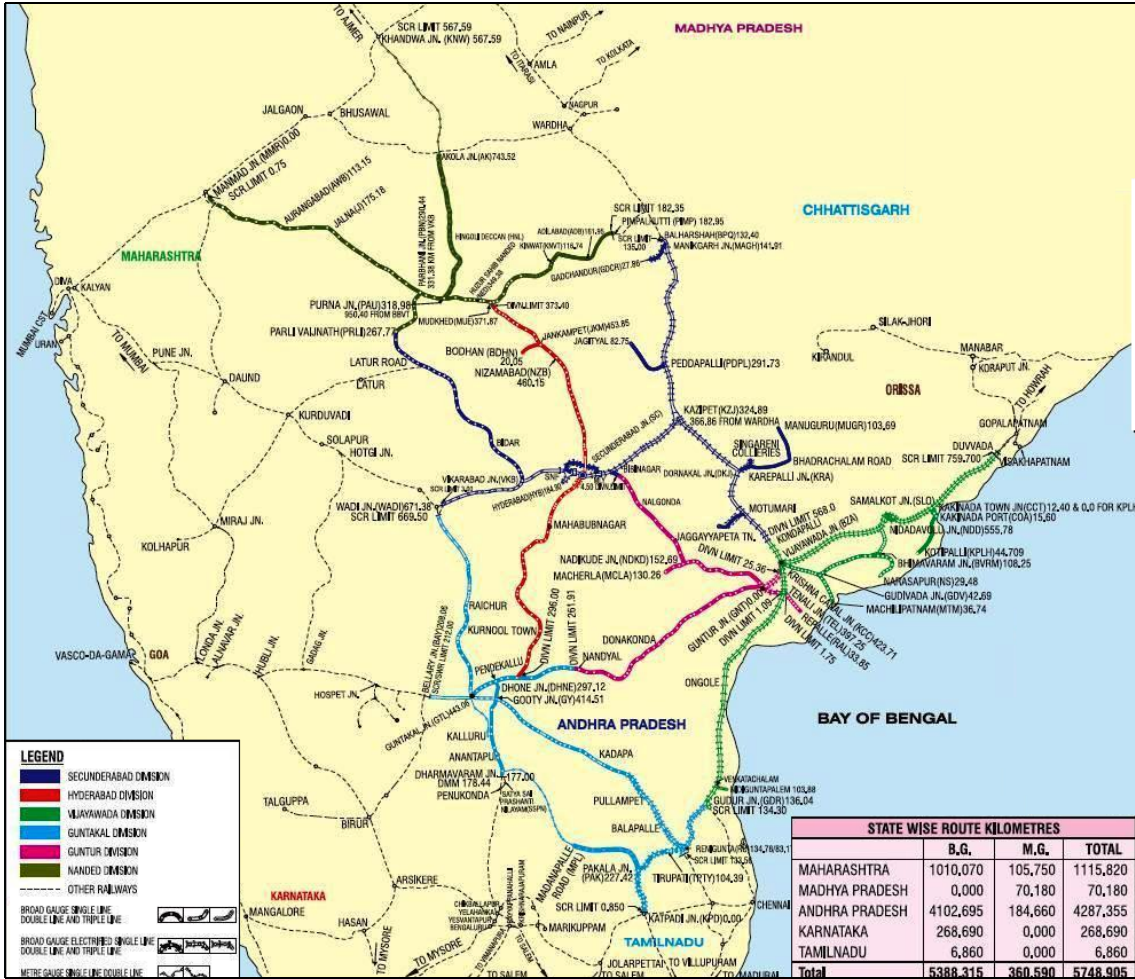


Figure 17: South Central Railway System Map

Table 24: South Central Railways Route

State	Route Length in kilometers		
	Broad-gauge	Meter-gauge	Total
Andhra Pradesh	4102	185	4287
Maharashtra	1010	105	1115
Karnataka	268	--	268
Madhya Pradesh	--	70	70
Tamil Nadu	7	--	7
TOTAL	5387	350	5747

Source: South Central Railways

As shown in the above table, South Central Railway mainly covers Andhra Pradesh and some part of Maharashtra. Only a portion of the total route passes through Karnataka.

3. South Western Railway:

The South Western Railway is headquartered at Hubli and comprises Bangalore and Mysore divisions of the erstwhile Southern Railway and reorganized Hubli division of the erstwhile South Central Railway including Hospet-Bellary.

Table 25: South Western Railways Route Length

State	BG (in km)	MG (in km)	Total (in km)
Karnataka	2179	399	2578
Andhra Pradesh	212	0	212
Tamil Nadu	173	0	173
Maharashtra	39	0	39
Goa	69	0	69
Total	2672	399	3071

The South Western Railways is an amalgamation of three divisions comprising Hubli division of south central railway, Bangalore and Mysore divisions of Southern Railway.

The network comprises 3071 route Kms and 3181 Kms of track length carved out from southern and south central railway Zones. It encompasses railway routes passing through Karnataka and part of Tamil Nadu, Andhra Pradesh, Goa and Maharashtra. The end points of this network are Miraj & Hotgi (border of Maharashtra) in Northern part, while Bellary (Karnataka) and Dharmavaram (Andhra Pradesh) in Western part, Chamarajanagar (Karnataka), Jolrpettai and Salem (Tamil Nadu) in Southern part and Talaguppa and Kankanadi (Karnataka) and Vasco (Goa) in Eastern end points. The network has 395 major and minor stations including halt stations. The important freight centers are: Hospet, Tornagallu, Ranjitpura, Bannihatti, Vysanakere and Swamihalli on Hubli Division, Krishnarajapuram, Bangalore, Whitefield, Mandya, Kolar and Malure on Bangalore Division as well as Mysore, Bhadravathi, Sasalu, Davanagere and Ranibennur on Mysore Division.

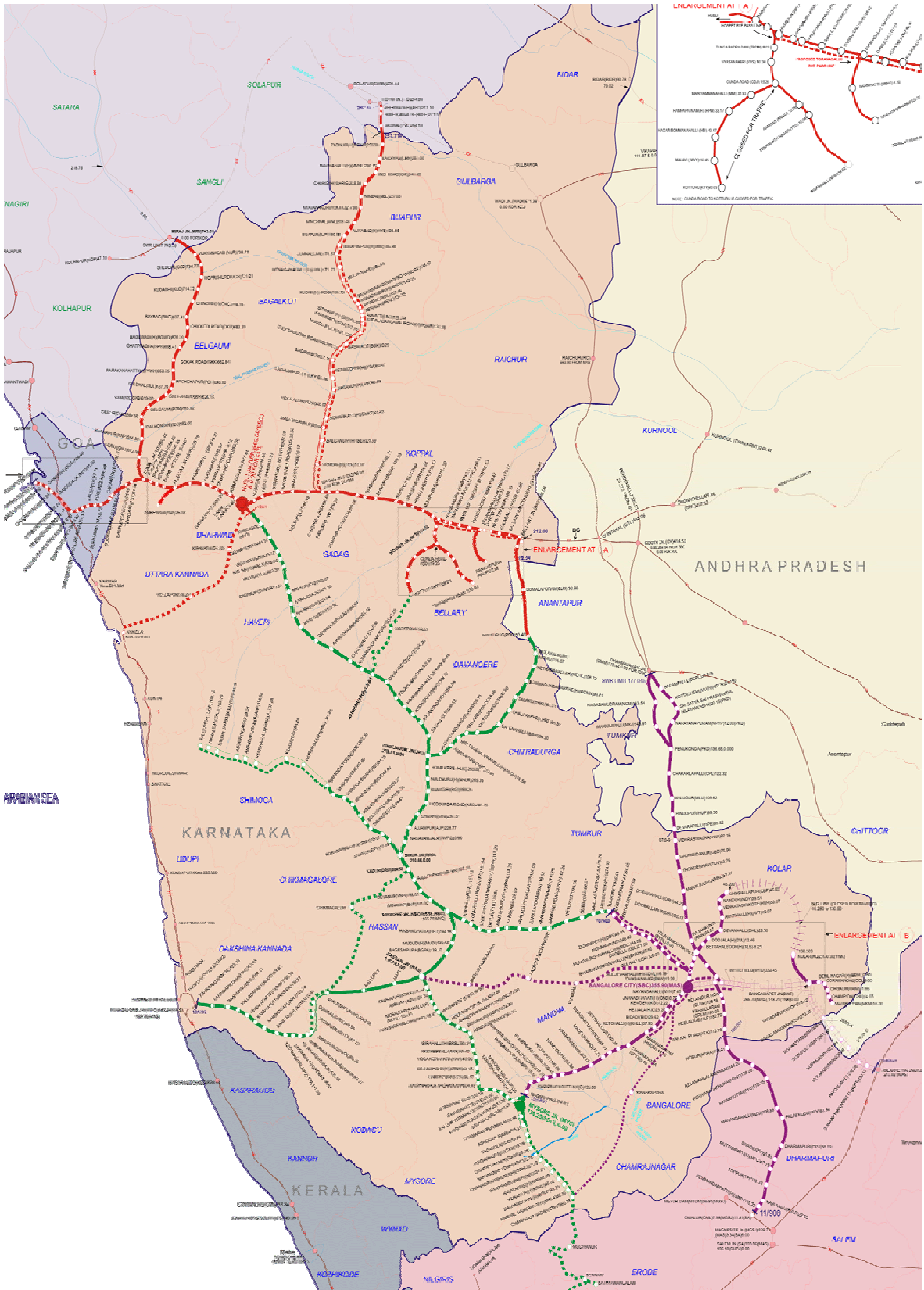


Figure 18: South Western Railway Network in Karnataka

The route kilometers for broad gauge section in the state are listed below.

Table 26: Route Kilometer of Broad Gauge Section of SWR

Section	Value in Kilometers
Jolarpetta - Bangalore City	140
Baiyyappanahalli – Dharmavaram	174
Yeswanthpura – Yelahanka	18
Baiyyappanahalli –Omalur	193
Bangalore - Arsikere – Hubli	469
Bangalore – Mysore	138
Kankanadi – Kabakaputtur	42
Mysore - Hassan – Arsikere	165
Hassan – Saklespur	42
Mysore – Ashokpuram	4
Hubli – Miraj	276
Hubli – Hospet	139
Bellary – Tornagallu	70
Perukonda – Dharmavaram	52
Bangarpet – Marikuppam	16
Kolar – Bangarpet	18
Yelahanka – Chickballapur	46
Birur – Shimoga	63
Chikjajur – Bellary	184
Hotgi – Bijapur	93
Tornagallu – Ranajitpura	23
Hospet – Swamimalai	59
Londa - Vasco da gama	99
Gunda road – Kottur	50
Yeswanthpura – Baiyyappanahalli	20
Alnawar – Ambewadi	26
Saklespur – Kabakaputtur	98
Gadag – Bijapur	190
Bellary – Guntakal	4
Baiyyappanahalli – Vimanapura	2
Total	2913

Source: South Western Railways

During the year 2006-07, a total of 1082 Kms of track was converted from MG/NG to BG. About 52 Kms of the Basawana Bagewadi-Bagalkot stretch was a part of the conversion. The route kilometers for meter gauge section in the state are listed below.

Table 27: Route Kilometer of Meter Gauge Section of SWR

Section	Value in Kilometers	Status
Mysore – Nanjangud	25	Conversion Done
Shimoga - Sagar Jambagaru	82	Under Conversion
Sagar Jambagaru – Talaguppa	15	Under Conversion
Nanjangud – Chamarajanagar	36	Conversion Done
Total	158	

Source: South Western Railways

Note: There is no meter gauge at present in Karnataka.

Table 28: Route Kilometer of Narrow Gauge Section of SWR

Section	Value in Kilometers	Status
Yelahanka – Chikbellapur	45	Conversion Done
Chikbellapur – Kolar	89.5	Under Conversion
Kolar- Bengarpet	18	Conversion Done
Total	152.5	

Source: South Western Railways

4. Konkan Railway Corporation Limited (KRCL):

This is a Public Sector Undertaking incorporated as a public limited company under the Companies Act, 1956. The Government of India has made the four beneficiary provinces of Maharashtra, Goa, Karnataka and Kerala partners in the autonomous corporation. The entire project length is of 760 Km divided in seven sectors, each approximately 100 Km. long. The sectors are Mahad, Ratnagiri (north), Ratnagiri (south), Kudal, Panaji, Karwar and Udupi. Konkan Railways pass through Karnataka linking some of the coastal part of the state. Konkan Railway has become a very popular mode of transport throughout the west coast connecting Kanya-kumari to all the cities in the north, through Mumbai. The 760-kilometre line connects Maharashtra, Goa and Karnataka States.

Table 29: Konkan Railways Route Length

State/UT	BG (in km)	MG (in km)	Total (in km)
Maharashtra	382	0	382
Goa	105	0	105
Karnataka	273	0	273
Total	760	0	760

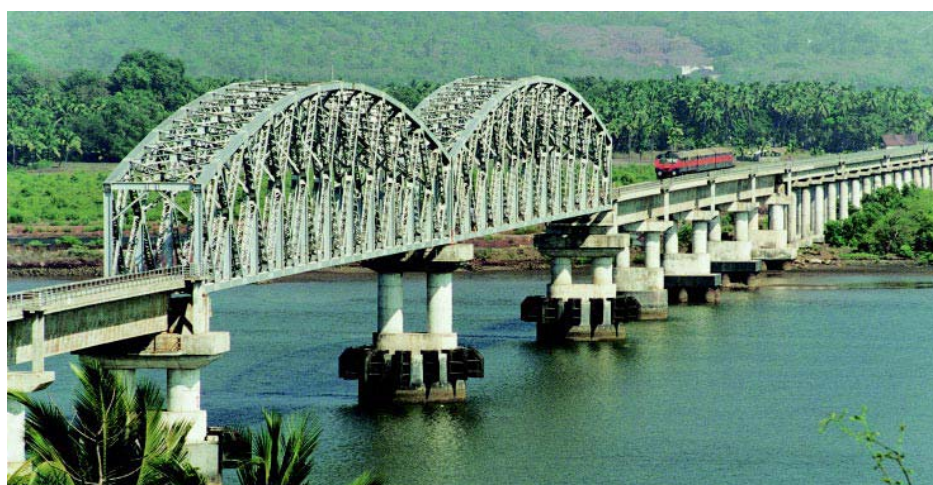


Figure 19: Zuari Bridge at Goa

The Konkan Railways is spread in the length of around 248 kms in Karnataka. The Konkan railways route map is shown in the map below.



Figure 20: Konkan Railway Network in Karnataka

Annexure-3 Proposed New Lines under Plan Head 11

KOTTUR – HARIHAR NEW LINE (65 kms)
TARGET – KOTTUR – HARHAR (65kms)
 Year of sanction-1999, Estimated cost- Rs 124.13 cr, Revised Estimate Rs.281.21
 Exp so far: Rs. 117.64 cr, Outlay Rs: 30.00 cr, Exp in 2008-09: Rs. 34.80 Cr



Item	Kottur – Harpanahalli		Harpanahalli-Harihar	
	Scope	Compl	Scope	Compl
Land acquisition acres	503	484.5	591	550
Earthwork (Lakh cum)	20.69	19.31	31.55	29.75
Major Bridges (Nos)	9	4	8	8
Minor Bridges (Nos)	32	32	49	31
Blanket(Lac.cum)	2	1.81	3.25	1.64
Ballast (Lakh cum)	0.97	0.97	1.38	1.22
Track Linking (km)	40	19	41	2
S&T	3		2	
Elect. PL Xing	9	3	7	-

Remarks: 27000 sleepers yet to be supplied.. Rails for 10km yet to be supplied. 60kg layout sleepers yet to be arranged. Steel price hike in March 2008 has held up the project badly, major bridge contracts are terminated and awarded in Nov08.

Board TDC: 28.02.09: Likely completion for Goods by 30. 06.09 and Passengers by 30.09.09

Critical items	Qty	status
1.Major bridges	18	Just started.
2.Ballast tender	1	To be called – 35000 cum
3.Blanketting	45 km	Slow progress
4.Layout sleepers	48	1 in 81/2 not being supplied
5.PSC slabs	sets	Supply just commenced

HASSAN – BANGALORE via SHRAVANABELAGOLA (166kms)
Target:Nil
 Year of sanction-1997, Estimated cost- Rs 412.91 Cr, Exp so far- Rs 288.21 Cr,
 Outlay-Rs.55.00 Cr, Exp in 2008-09 – Rs. 37.02 Cr.



Nelamangala – Shravanabelagola (110 km)		
Item	Scope	Completed
Land Acquisition (Acres)	1175	408
Earthwork (Lakh cum)	95	37
Major Bridges	6	0
ROBs/RUBs	36	15
Tunnels	1 (400m length)	0
Minor Bridges (No)	52	17
Ballast (Lakh cum)	0.84	0.81
Linking (Km)	42	0
S&T (No. of Stns.)	6	0

Remarks: BAW-NMGA(14km) awaiting CRS Inspection. Final tamping required. Only EW, Br, Ballast and Station buildings are planned. Track, S&T, Electrical will be taken up later. Works are in progress between Nelamangala – Solur(19 km) and Hirsave & Shravanabelagola(19 km).

NOTE
 1. EXISTING RAILWAY LINES SHOWN THUS ———
 2. TARGETED SECTION SHOWN THUS ———
 3. WORK IN PROGRESS SHOWN THUS ———
 4. WORK COMPLETED SHOWN THUS ———

HAS-SBGA & BAW-NLM(56km) completed

Board TDC: Not fixed
Likely TDC: 3 years

Critical items	Qty	status
1. Land acquisition very slow.	68ha in TK dt	6(1) not issued.
2. Revised estimate sanction.	In Board	Pending.
3.Mega tenders calling delayed.	2 nos	Land.

KADUR CHIKMAGALUR (Via) SAKLESHPUR (93 km)

Year of sanction - 1996, Estimated cost- Rs 450 cr,
Exp so far- Rs 67.80 cr, Outlay-Rs. 10.00 cr, Exp in 2008-09 – Rs. 2.74 Cr



Item	Kadur - Chikmagalur		Chikmagalur - Sakleshpur	
	Scope	Compl	Scope	Compl
Land acquisition (acres)	280	242	0	0
Earthwork (Lakh cum)	62	55.75	-	-
Major Bridges (No)	4	0	-	-
ROBs/RUBs	25	14	-	-
Tunnels	-	-	-	-
Minor Bridges (No)	79	44	-	-
Ballast (Lakh cum)	1.20	0	-	-
Linking (Km)	55	0	-	-
S&T (No. of Stns.)	5	0	-	-

Remarks: Kadur - Chikmagalur - Only earthwork & bridges DE sanctioned. Chikmagalur - Sakleshpur - Not sanctioned & work not authorised by Board.

Critical items	Qty	status
1.Land acquisition .		Very slow Not sanctioned Contract failed
2. Detailed estimate sanction from Board.		
3.Viaduct bridges-2 nos .		

Board TDC: Not fixed
Likely TDC: 5 years

BANGALORE - SATHYAMANGALAM NEW LINE

Year of sanction - 2007, Estimated cost- Rs 901.62 cr,
Exp so far- Rs 0.28 cr, Outlay-Rs. 1.00cr, Exp in 2008-09 Nil,



Item	Scope	Completed
Land Acquisition (ha)		
Earthwork (lac. Cum)	-	-
Major Bridges(Nos)	-	-
Minor Bridges(Nos)	-	-
Ballast (Lakh cum)	-	-
Track Linking (km)	-	-
S&T No. of stations.	-	-

Remarks: -
Final Location Survey in full section yet to be completed as forest land is involved and survey has not been permitted. CEC has refused to recommend the project to Supreme Court in April 2008.

Critical items	Qty	status
Forest clearance in Tamilnadu area. FLS	-	CEC rejected in May08 and Board has been requested to take up in appeal.

Board TDC: Not fixed
Likely TDC: 10 years

HUBLI - ANKOLA (167 km) NEW LINE
 Year of sanction - 2007, Estimated cost- Rs 887.31 cr,
 Exp so far- Rs 94.45 cr, Outlay-Rs.10.00 cr, Exp in 2008-09 – Rs. 0.078 Cr



Items- Upto Kalgatgi only	Scope	Completed
Land Acquisition (ha)	43	5.35
Earthwork (lac. Cum)	3.5	2.75
Major Bridges(Nos)	2	1
Minor Bridges(Nos)	32	24
Ballast (Lakh cum)	1.10	0.28
Track Linking (km)	35	0
S&T No. of stations.	5	0

Remarks: Upto Kalgatgi in progress and Rs. 45 Cr spent. All works are in advanced stages, can be completed in 12 months. Work held up due to CEC orders and forest land of 5.07 ha in Dharwad division not transferred. **Full section-** Final Location Survey yet to be completed as MOEF has not approved the project as forest land is involved. GM met GOK Advisor on 23.03.08. Meetings with DC/Sirsi held on 22.3.08, 01.04.08 and 06.05.08. CCF/MOEF again inspected in Aug08. GoK has agreed to forward recommendations for 683 ha to CCF/MoEF/Bangalore who has to forward to MoEF, New Delhi. CEC held 2nd hearing in Sept08 but not decided. Affidavits yet to be filed by GOK and MOEF. CEC to hold hearing and recommend to Supreme Court. Board are also pursuing.

Board TDC: Not fixed
Likely TDC: 8 years

Critical items	Qty	status
GOK recommendation to MOEF. MOEF approval for use of forest land. CEC recommendations to Supreme Court and Supreme Courts final clearance.	...	Pending .

RAYADURGA – TUMKUR VIA KALAYANDURG (213 KM) NEW LINE
TARGET : Nil
 Year of sanction - 2007, Estimated cost- Rs 887.31 cr,
 Exp so far- Rs Nil cr, Outlay-Rs. 15.00 cr, Exp in 2008-09 - Rs Nil cr



Item	Scope	Progress
Land acquisition (ha)	950	0
Earthwork (Lakh cum)	200	0
Major Bridges (No) & ROBs	38	0
Minor Bridges (No) & ROB	226	0
Ballast (Lakh cum)	57	0
Linking (Km)	245	0
S&T (No. of Stns.)	20	0

Remarks: Full Detailed Estimate & FLS report sent to Railway board on 11.11.08. Land application not filed. Tenders have not been called. Soil survey and designs to be taken up on sanction of estimate.

Board TDC: Not fixed.
Likely TDC: 6 years

Critical items	Qty	status
Detailed estimate sanction by Board		Detailed Estimate sent to Board on 11.11.08.

MUNIRABAD (GINIGERA) – RAICHUR (190 km)

(SOUTH WESTERN RAILWAY PORTION)

PART OF MUNIRABAD - RAICHUR (165 km) – MUNIRABAD (246 km)
(SANCTIONED UNDER S.C.RAILWAY)

Year of sanction- 2007, Estimated cost- Rs 330.00 Cr, Exp so far- Rs 0.00 Cr,
 Outlay-Rs. 64.00 Cr, Exp in 2007-08- Rs 0.00 Cr



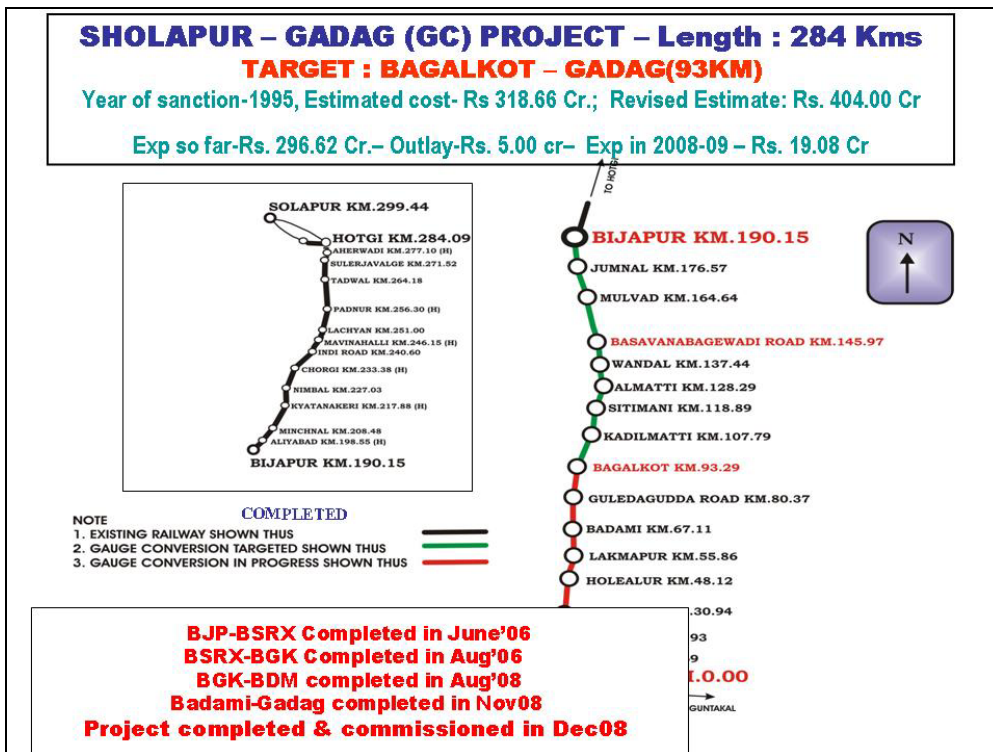
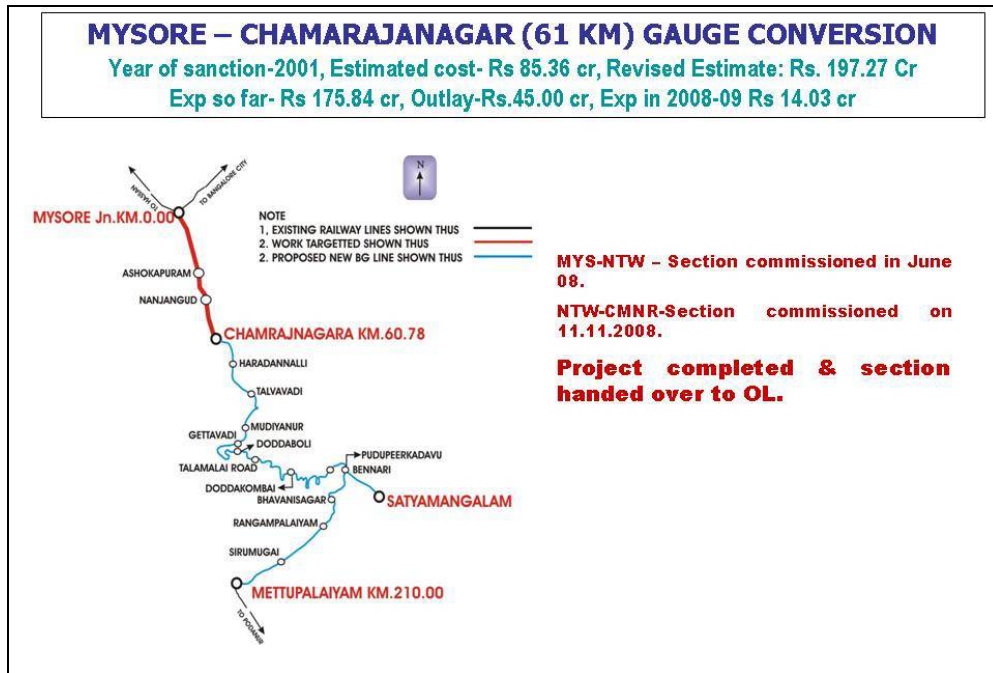
Item	Scope	Progress
Land Acquisition (ha)	921	-
Earthwork (lac. Cum)	70	-
Major Bridges(Nos)	55	-
Minor Bridges(Nos)	103	-
Ballast (Lakh cum)	3.7	-
Track Linking (km)	195	-
S&T No. of stations.	12	-

Remarks: Work handed over to SWR in 2008-09.
 Survey for Y-connection at Ginigera completed.
 Tender for one block section called.

Board TDC: Not fixed
 Likely completion : 5 years

Critical items	Qty	status
1.Land acquisition	921 ha	In process.
2.Y connection MM	Rs.50cr	Under vetting.

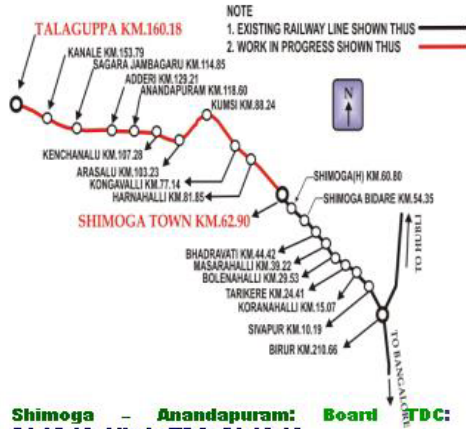
Annexure-4 Proposed Gauge Conversions under Plan Head 14



SHIMOGA – TALAGUPPA (97 KM) GAUGE CONVERSION

TARGET: SHIMOGA – TALAGUPPA GC (97 km)

Year of sanction-1992, Estimated cost- Rs 158.95 cr,
Exp so far- Rs 71.54 cr, Outlay-Rs.40.00 cr, Exp in 2008-09 - Rs 10.86 Cr



Shimoga – Anandapuram: Board TDC: 31.03.09. Likely TDC: 30.09.09.

Anandapuram – Talaguppa: Board TDC: 31.03.09. Likely TDC: 31.12.09.

Item	Shimoga – Anandapuram		Anandapuram – Talaguppa	
	Scope	Completed	Scope	Completed
Land Acquisition	45.33	45.33	4	4
Earthwork (lac. Cum)	7.67	7.20	6.93	6
Major Bridges(Nos)	5	5	3	3
Minor Bridges(Nos)	116	116	132	118
Ballast (Lakh cum)	1.22	0.94	0.92	0.20
Track Linking (km)	57	7.5	41	0

Remarks: Only 67000 PSC sleepers arranged so far. Sleepers diverted to other projects. Another 90000 sleepers required.

Critical items	Qty	Status
1. Blanketting & cess widen	25km.	Slow progress.
2. Ballast collection	200000 cum.	Poor progress.
3. Major bridges	4 nos	Poor progress.

KOLAR – CHINTAMANI – CHIKBALLAPUR (89.5 KM)

Year of sanction-2007, Estimated cost- Rs 99.42 Cr,
Exp so far- Rs. 32.83 Cr, Outlay-Rs. 70.00 Cr, Exp in 2008-09 – Rs. 11.03 Cr



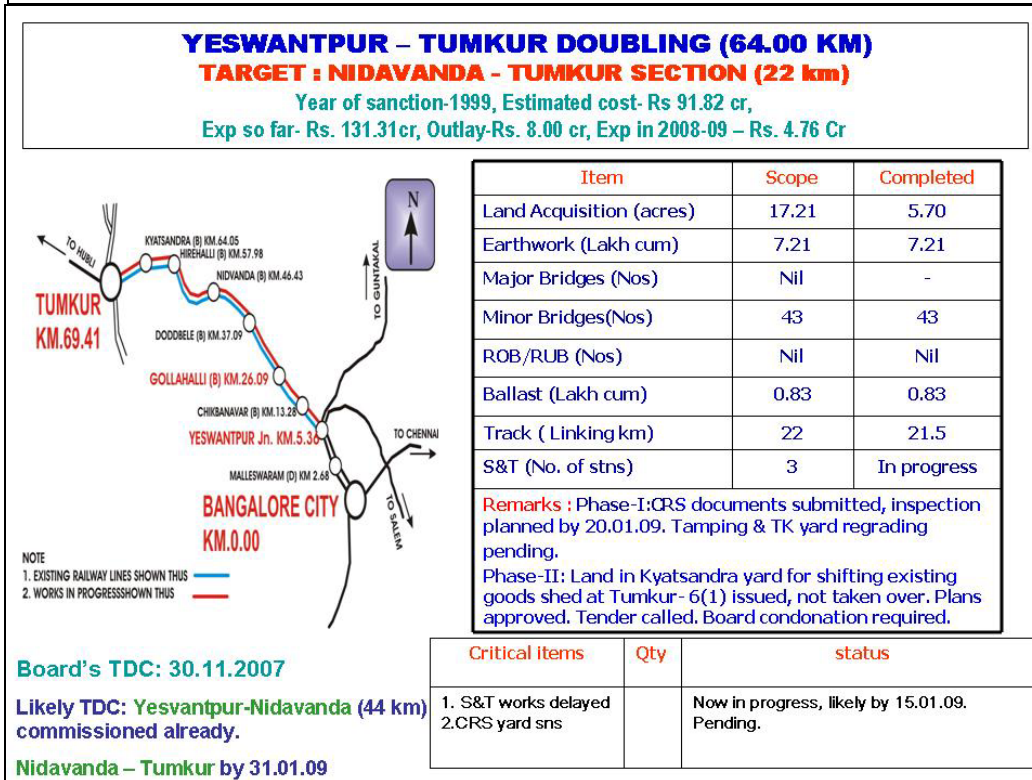
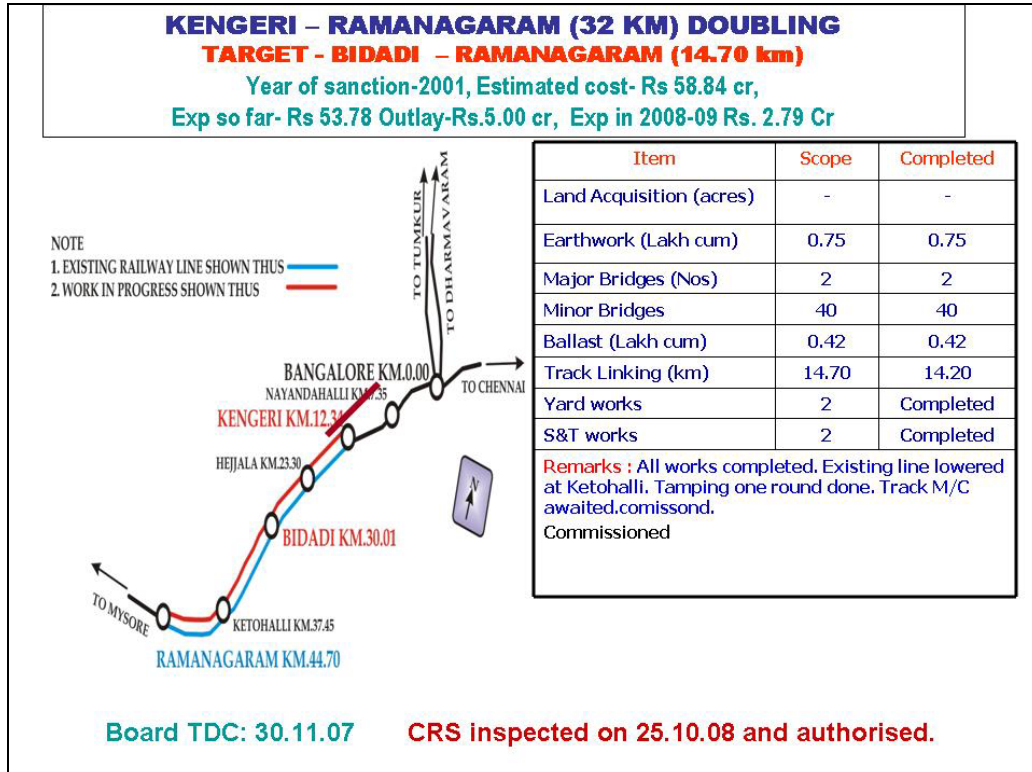
Board TDC: Not Fixed
Likely completion: 31.03.10.

Item	Chikballapur – Chintamani		Kolar - Chintamani	
	Scope	Progress	Scope	Progress
Land Acquisition (ha)	25	0	12	0
Earthwork (lac. Cum)	9.32	8.3	5.2	4.21
Major Bridges(Nos)	2	1	10	2
Minor Bridges(Nos)	82	79	76	64
RUBs	4	0	3	0
Ballast (Lakh cum)	0.97	0.8	1.05	1.04
Track Linking (km)	43.5	Nil	47	Nil

Remarks: Estimate sanctioned in December 2006. EW & minor bridges in progress. Ballast collection also in progress. Tenders for major bridges, buildings, transportation, linking, S&T to be finalised.. P.Way materials not planned.

Critical items	Qty	status
1.Tender for major bridges and buildings	2	To be called.
2.Blanketting tenders	2	To be called.
3.ROBs sanction	8	State Govt requested, not agreeing.

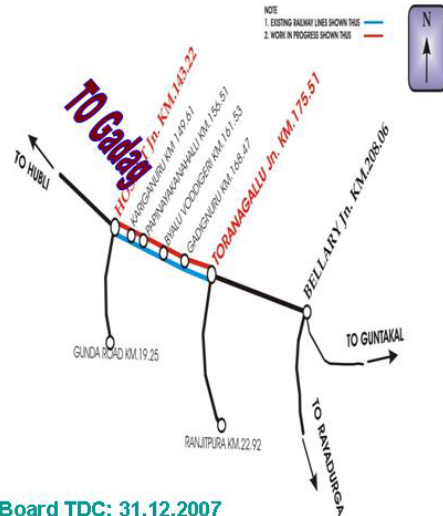
Annexure-5 Proposed Doubling under Plan Head 15



HOSPET – TORANAGALLU DOUBLING(32 KM)

TARGET : BAYALUVODDIGERI - HOSPET (18.00 km)

Year of sanction-1999, Estimated cost- Rs 154.14 cr,
Exp so far- Rs 92.55 cr, Outlay-Rs. NIL – Exp in 2008-09 - Rs. 3.54 cr



Status

1. Section completed and commissioned on 05.10.08.
2. Complete project section from Bellary to Hospet completed.

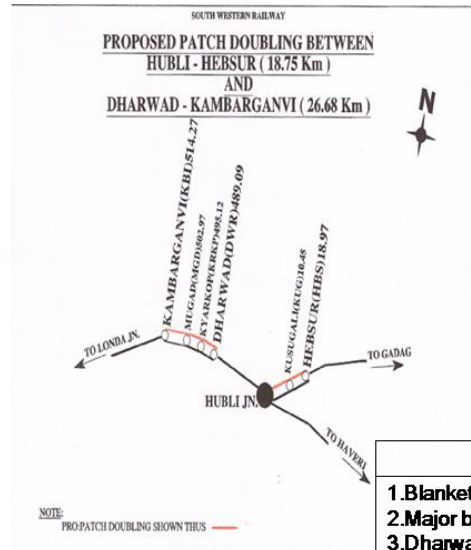
Section handed over to OL

Board TDC: 31.12.2007

Likely TDC: GNR commissioned in May 2008.
BYO-KGW (14 km) commissioned on 17.02.08.
KGW-HPT commissioned on 05.10.08.

DHARWAD - KAMBARGANVI (26.15 KM) DOUBLING

Year of sanction - 2007, Estimated cost- Rs 87.48 cr,
Exp so far- Rs 30.79 cr, Outlay-Rs. 50.00 cr, Exp in 2008-09 – Rs. 5.73 Cr



Item	Scope	Completed
Land Acquisition (ha)	97	Notification under 4(i) issued. Joint measurement for land completed. 6(i) awaited.
Earthwork (lac. Cum)	9	2.24
Major Bridges(Nos)	3	Tender opened, pending finalisation.
Minor Bridges(Nos)	56	19 bridges completed, 18 in progress.
Ballast (Lakh cum)	0.80	0.25
Track Linking (km)	27	Tender under finalisation.
S&T No. of stations.	4	Tender yet to be called.

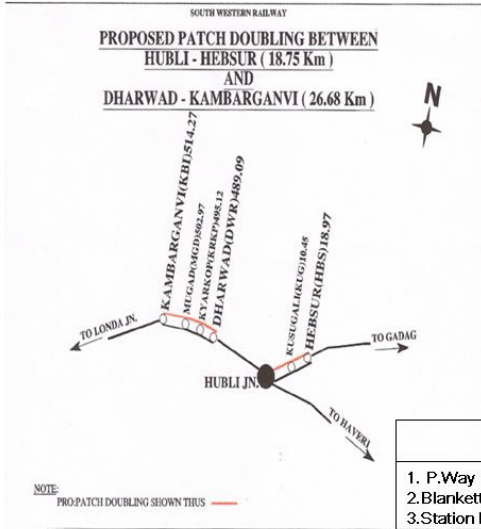
Remarks: - All tenders awarded except S&T. Bridge works delayed by steep increase in steel prices. Blanketting slow.. Yard works held up

Critical items	Qty	status
1. Blanketting delayed, contracts failing	27k m	Slow.
2. Major bridges	3 nos	Just started.
3. Dharwad & Mugad yard plans	-	Pending appl.
4. Land at DWR & Mugad	-	4(i) not issued. By DC. 82 huts involved.

Board TDC: Upto Mugad by 28.02.09.
Likely TDC: 31.05.09.

HUBLI - HEBSUR (18.74 KM) DOUBLING

Year of sanction - 2007, Estimated cost- Rs 56.99 cr,
Exp so far- Rs. 5.13 cr, Outlay-Rs. 40.00 cr, Exp in 2008- Rs. 2.52



Item	Scope	Completed
Land Acquisition (ha)	32	Notification not issued. JMC in progress
Earthwork (lac. Cum)	1.85	0.6
Major Bridges(Nos)	Nil	-
Minor Bridges(Nos)	8	7
Ballast (Lakh cum)	0.61	0.48
Track Linking (km)	20	0
S&T No. of stations.	3	0

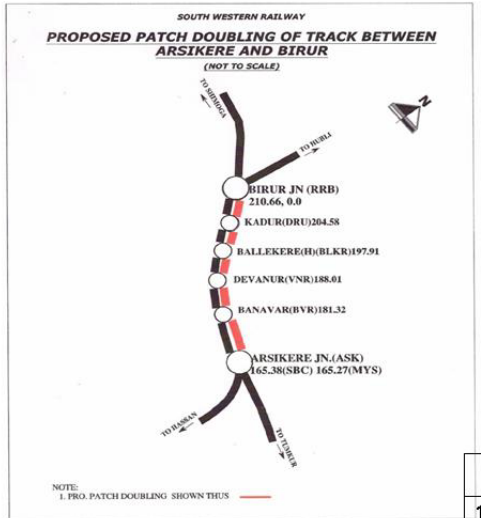
Remarks: - Earthwork, Bridges, ballast in progress. Blanketting slow.

Board TDC: 28.02.09
Likely TDC: 30.04.09

Critical items	Qty	status
1. P.Way materials- sleepers	18000	Required.
2. Blanketting	18km	Slow progress.
3. Station bldg works	3	In progress
4. S&T works	3	Tender not called

ARSIKERE - BIRUR DOUBLING (44.28 KM)

Year of sanction- 2007, Estimated cost- Rs 98.21 Cr,
Exp so far- Rs 0.41 Cr, Outlay-Rs. 50.00 Cr, Exp in 2008- 0.11



Item	Scope	Completed
Land Acquisition (ha)	Requisition placed	
Earthwork (Lakh cum)	10.80	0
Major Bridges (No)	8	0
Minor Bridges (No) & ROB	56	0
Ballast (Lakh cum)	1.37	0
Linking (Km)	60	0
S&T (No. of Stns.)	6	0

Remarks: Detailed Estimate for Engg. sanctioned by Board in Sep08, S&T/Elect. not sanctioned. One combined tender awarded for 22 km.

Board TDC: No target by Board.
Likely completion: upto Devanur by 31.08.09 and upto Birur by 31.03.10.

Critical items	Qty	status
1. Major br design (DFC)	8	RDSO designs awaited
2. Land for yards	12 ha	4(?) yet to be issued.
3. Yard plan approval	3	Plans with HQRS.

RAMANAGARAM - MYSORE DOUBLING (91.50 KM)

Target: RAMANAGARAM – SETTIHALLI (18 KM)

Year of sanction- 2007, Estimated cost- Rs 342.18 Cr, Exp so far- Rs. 8.80 Cr,
Outlay-Rs. 50.00 Cr, Exp in 2008-09 – Rs. 8.38 Cr

SOUTH WESTERN RAILWAY
**PROPOSED DOUBLING OF TRACK BETWEEN
RAMANAGARAM AND MYSORE**
(NOT TO SCALE)



Board TDC: Not fixed
Likely completion: 30.09.09.

Item	Scope	Progress
Land Acquisition (ha)	Registered for 23 ha. Revenue survey pending. 4(i) not issued.	
Earthwork (Lakh cum)	22.2	0.90
Major Bridges (No)	5	1 in progress
Minor Bridges (No) & ROB	44+4	4+0 in progress
Blanketting	18km	Not started
Ballast (Lakh cum)	0.45	0.18
Linking (Km)	22	-
S&T (No. of Stns.)	2	-

Remarks: Detailed Estimate submitted to Railway Board and sanction awaited. Land requisition placed. Tenders for earthwork & minor & major bridges and ballast finalised for 3 block sections only. Alignment issue at Srirangapatna for Cauveri bridges.

Critical items	Qty	status
1. Major br design	-	RDSO's designs awaited.
2. Encroachment Hutments removal at RMGM	42nos	Division advised.
	-	

RAMANAGARAM - MYSORE DOUBLING (91.50 KM)

Target: SETTIHALLI – MANDYA-Mysore (63 km)

Year of sanction- 2007, Estimated cost- Rs 343.20 Cr, Exp so far- Rs. 8.80
Outlay-Rs. 50.00Cr, Exp in 2008-09 Rs. 8.38

SOUTH WESTERN RAILWAY
**PROPOSED DOUBLING OF TRACK BETWEEN
RAMANAGARAM AND MYSORE**
(NOT TO SCALE)



Board TDC: Not fixed
Likely completion: Likely by 2011.

Item	Scope	Progress
Land Acquisition (in ha)		-
Earthwork (Lakh cum)	22.2	-
Major Bridges (No)	5	-
Minor Bridges (No) & ROB	56	-
Ballast (Lakh cum)	0.7	-
Linking (Km)	34	-
S&T (No. of Stns.)	5	-

Remarks: Tenders called but cancelled as Estimate not sanctioned. LS/Bridge plans under finalisation.

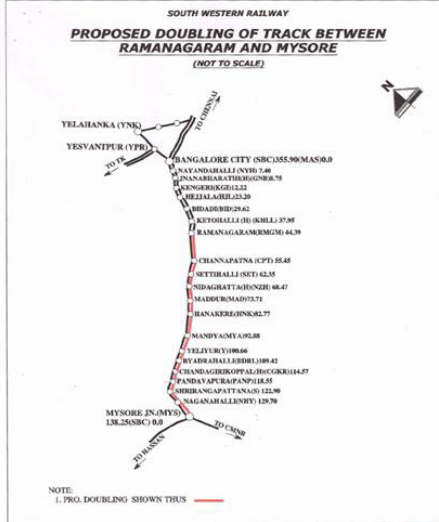
• Important bridge across Cauveri- Tender could not be called as alignment could not be finalised due to presence of a monument-Required time for completion=2 years.

• Detailed estimate not sanctioned by Board.

RAMANAGARAM - MYSORE DOUBLING (91.50 KM)

Target: NAGANAHALLI – MYSORE(12km)

Year of sanction- 2007, Estimated cost- Rs 343.20 Cr, Exp so far- Rs. 8.80
Outlay-Rs. 50.00Cr, Exp in 2008-09 Rs. 8.38



Item	Scope	Progress
Land Acquisition (ha)	14.53 ha	Survey completed
Earthwork (Lakh cum)	2.65	0.5
blanketting	12	Not started
Major Bridges (No)	3	Not started
Minor Bridges (No) & ROB	18	In progress
Ballast (Lakh cum)	1.60	In progress
Linking (Km)	41	-
S&T (No. of Stns.)	6	-
Remarks: Earthwork and minor bridges and ballast collection started in MYS-Nayandanahalli section.		

Board TDC: Not fixed.
Likely completion: 30.09.09.

Critical: 3Major bridges and Mysore yard remodelling

Annexure-6 Details of projects for Road Over/Under Bridge

ROB/RUB projects completed under Plan Head 30 during the period of 2002 to 2007:

Sl.No	Year	Expenditure	Completed
1.	2002 - 2003	Rs. 7.08 Crores	1. Krishnarajapuram Cable Stayed ROB. 2. Mysore-Ashokapuram LC No. 2.
2.	2003 – 2004	Rs. 8.02 Crores	1. Mysore – Naganahalli LC No. 109. 2. Mysore – Naganahalli LC No. 110.
3.	2004 – 2005	Rs. 4.48 Crores	1. Mandya LC No. 74. 2. Kuppam LC No. 101. 3. Hebbal LC No. 146.
4.	2005 – 2006	Rs. 2.23 Crores	1. Lingarajapuram on Hennur-Banaswadi Road. 2. Ramanagaram at LC No. 36 & 37 (Railway portion completed.)
5.	2006 – 2007	Rs. 8.00 Crores	1. Banaswadi on Maruthisevanagar.

Total Number of projects completed in the period of 2002 to 2007: 10

Amount spent: Rs. 29.81 crore

Details of projects in Plan Head 30:

No.	Particulars	Remarks
1.	Total number of ROB/RUBs Completed during 2002 to 2009	13
2.	Total no. of sanctioned works as per Pink Book 2008-09	38
3.	Total number of projects Targeted in 2008-09.	10
3.	Total number of projects completed in 2008-09 (as of December 2008)	3 (and 2 in final stages) o Maddur, Nanjangud and Mathikere completed. o Chamarajanagar & ITC(BNCE) were expected to be ready by December '09.
4.	Total Number of projects targeted for completion in 2009-10	11 o 5 more in progress-Whitefield-132, Tumkur-41/42, Shimoga-48, Tolhuse-197, Bhadravati-32. 6 to be taken up- Mysore-1, Bapujinagar-5, RPC Layout-4, Belgaum-388A, Krishnarajapuram-134B, Koppal-62 o All waiting for final clearance of GAD by GOK
5.	Number of bridges to be constructed by NHAI/NH.	4 o LC No. 2 Birur, LC No. 237 Byadgi, LC No. 234 Haveri, LC No. 222 Devaragudda)
6.	Number of projects yet to be planned.	10
7.	Railway's Budget outlay (2008-09)	Rs. 41.36 Cr
8.	State Funds available with Railway	Rs. 5.00 Cr

For following projects of ROBS, the Railway Portion is completed but the Approaches are pending,

No.	Particulars	Remarks
1.	Pandavapura	Railway completed in April 2007, PWD yet to take up.
2.	Ramanagaram	Railway completed in December 2006, PWD yet to take up.
3.	Devanahalli (BAIL)	Railway completed 90%. (TDC: 15.11.08). NH yet to start.
4.	Tumkur	Railway completed 60%. (TDC: 31.03.09). PWD yet to acquire land.
5.	Limited use RUBs	2 in SBC division.

Following ROB works are in progress.

No	Particulars	Remarks
1.	Whitefield LC 132	65%. Steel girder fabrication delayed, 125 t steel yet to arrive, erection scheme to be approved by CBE. Contractor failing. TDC-31.03.10.
2.	ITC LC138	60%. Track span design/ staging to be approved by CBE, 5spans pending, contractor slow. TDC-31.12.09.
3.	Chamarajnagar LC 53	50%. 2 track spans & approaches pending, contractor failing. Tender finalized but in High Court
4.	Tumkur LC 41/42	30%. Top course of abutments and girders pending, contractor failing. TDC-30.06.08.
5.	Shimoga LC 48	5%. Design approved, erection to be approved. TDC-30.06.09.
6.	Tolahuse LC 197	30%. CRS application submitted and clarification under compliance.
7.	Bhadravati LC 32	Just started. TDC-31.12.09. Railway portion approached by PWD. The tender is not called yet.

[Note: The details are provided by personnel of Railways department and Infrastructure Development Department (IDD) and are updated till December, 2008.]

List of ongoing projects for Road Over/Under Bridge (as per the SWR Pink Book 2009-10)

(Rs. In Lakhs)

S. No	Name	S Fund	Deposit	Outlay in 2009-10
	Work In Progress			
1	Belandur Road - Banaswadi - Road over bridge in lieu of level crossing No 138 (IOC gate)	395.6	395.6	23.8
2	Kuppam - Road over bridge in lieu of level crossing No 101	449.5	449.5	110.0
3	Belgaum - Road over bridge in lieu of level crossing	3000.0	860.1	110.0

	No 388-A			
4	Jolarpettai - Bangalore - Road over bridge near Wheelers Road in lieu of level crossing No 138	596.6	949.6	0.0
5	Krishnarajapuram - Whitefield - Road over bridge in lieu of level crossing No 132	375.0	436.0	20.0
6	Pandavapura - Road over bridge in lieu of level crossing No 95-A	398.5	414.8	51.7
7	Jolarpettai-Bangalore City - Road over bridge in lieu of level crossing No 136-A	538.6	0.0	51.7
8	Birur - Shimoga Town - Road over bridge in lieu of level crossing No 2	538.4	0.0	1.7
9	Birur - Shimoga Town - Road under bridge in lieu of level crossing No 34	538.4	450.0	1.7
10	Hebbal - Yeshwantpur - Road over bridge in lieu of level crossing No 6	1748.3	512.8	41.9
11	Mysore - Chamarajanagar - Road over bridge in lieu of level crossing No 3	538.4	0.0	166.7
12	Maddur - Hanakere - Road over bridge on lieu of level crossing No 59	516.8	622.1	66.7
13	Krishnarajapuram - Baiyappanahalli - Road over bridge in lieu of level crossing No 134-B	603.0	0.0	133.3
14	Mysore - Chamarajapuram - Road over bridge in lieu of level crossing No 1	319.4	0.0	133.3
15	Shimoga - Shimoga Town - Road over bridge in lieu of level crossing No. 48	863.0	731.1	233.3
16	Masarahalli - Bhadravati - Road over bridge in lieu of level crossing No 32	603.0	0.0	128.8
17	Bhadravati - Shimoga - Bidare - Road under bridge in lieu of level crossing No 33	603.0	0.0	128.8
18	Mysore - Belagula - Road over bridge in lieu of level crossing No 5	503.0	0.0	133.3
19	Byadgi - Haveri - Road over bridge in lieu of level crossing No 234	603.0	0.0	33.3
20	Marayal Gangavadi - Chamarajanagar - Road over bridge in lieu of level crossing No 53	603.0	448.6	33.3
21	Devargudda - Byadgi - Road over bridge in lieu of level crossing No 222	603.0	0.0	210.0
22	Davanagere - Harihar - Road over bridge in lieu of level crossing No 207	603.0	0.0	210.0
23	Tolahunse - Davangere - Road under bridge in lieu of level crossing No 197	433.2	546.1	179.1
24	Davangere - Harihar - Road over bridge in lieu of level crossing No 208	301.5	301.5	50.0
25	Nanjangudu Town - Chinnadangudihundi - Road under bridge in lieu of level crossing No 19	603.0	0.0	10.0
26	Haranahalli - Shimoga Town - Road over bridge in lieu of level crossing No 49	603.0	0.0	200.0
27	Belgaum - Sambre - Road over bridge in lieu of level crossing No 385	280.0	338.1	200.0
28	Bellary - Haddinagundu - Road over bridge in lieu of level crossing No 114	351.0	373.5	200.0
29	Tumkur Yard - Road over bridge in lieu of level crossing No 40 & 41	352.0	451.0	200.0

30	Banasandra - Hebbal - Road over bridge in lieu of level crossing No 142	330.0	450.0	100.0
31	Bangalore - Tumkur - Road over bridge in lieu of level crossing No 4	330.0	450.0	130.0
32	Bangalore - Mysore - Road over bridge in lieu of level crossing No 5	330.0	177.3	100.0
33	Bangalore - Nayandahalli - Road over bridge in lieu of level crossing No 4	330.0	450.0	160.0
34	Bangalore Division - Road under bridge with reinforced concrete cement box in accident prone crossings (12 Nos)	837.9	0.0	50.0
35	Hubli - Chikjajur - Bangalore - Road over bridge at Haveri Town in lieu of level crossing No.237	579.8	579.8	33.3
36	Koppal - Ginigera - Road over bridge in lieu of level crossing Nos.62, 64 & 66 (at level crossing No.62)	402.8	402.8	33.3
37	Works costing below Rs.2.5 crore each	0.0	0.0	0.0
	New Work Undertaken			
38	Chennasandra - Yelahanka - Road over bridge in lieu of level crossing No.11 with sub way	493.3	493.3	10.0
39	Rajankunti - Doddaballapur - Road over bridge in lieu of level crossing No.27 with sub way	517.0	517.0	10.0
40	Dodballapur - Oddarahalli - Road over bridge in lieu of level crossing No.32 with sub way	773.5	773.5	10.0
41	Bangarapet - Maralahalli - Road over bridge in lieu of level crossing No.116 with sub way	725.5	725.5	10.0
42	Devanagonthi - Whitefield - Road over bridge in lieu of level crossing No.130 with sub way	561.8	561.8	10.0
43	Whitefield - Krishnarajapuram - Road over bridge in lieu of level crossing No. 133 with sub way	561.8	561.8	10.0
44	Nayandahalli - Kengeri - Road over bridge in lieu of level crossing No.10 with sub way	803.0	803.0	10.0
45	Kengeri - Hejjala - Road over bridge in lieu of level crossing No.16 with sub way	515.6	515.6	10.0
46	Ramanagaram - Chennapatna - Road over bridge in lieu of level crossing No.37 with sub way	532.8	532.8	10.0
47	Srirangapattana - Naganahally - Road over bridge in lieu of level crossing No.101 with sub way	561.8	561.8	10.0
48	Yeshvantpur - Yelahanka - Road over bridge in lieu of level crossing No.11 with sub way	637.6	637.6	10.0
49	Ginigera - Hitnal Halt - Road over bridge in lieu of level crossing No.75- A with sub way	561.9	561.9	10.0
50	Bellary Cantt - Bellary Jn - Road over bridge in lieu of level crossing No.111 with sub way	631.6	631.6	10.0
51	Bellary Cantt- Bellary Jn - Road over bridge in lieu of level crossing No.112 with sub way	627.2	627.2	10.0
52	Hospet -Tungabhadra Dam - Road over bridge in lieu of level crossing No.111-A with sub way	626.0	626.0	10.0
53	Tungabhadra Dam - Vyasanakeri - Road over bridge in lieu of level crossing No.13 with sub way	602.8	602.8	10.0
54	Desur - Belgaum - Road over bridge in lieu of level crossing No.382 with sub way	633.0	633.0	10.0
55	Desur - Belgaum - Road over bridge in lieu of level crossing No.383 with sub way	635.5	635.5	10.0

56	Belgaum - Sambre - Road over bridge in lieu of level crossing No.386 with sub way	637.4	637.4	10.0
57	Tinaighat - Castle Rock - Road over bridge in lieu of level crossing No.8 with sub way	559.8	559.8	10.0
58	Hubli Jn - Kusugal - Road over bridge in lieu of level crossing No.1 with sub way	574.2	574.2	10.0
59	Bellary Jn - Bellary Cantt - Road over bridge in lieu of level crossing No.110 with sub way	480.6	480.6	10.0
60	Works costing below Rs.2.5 crore each	0.0	0.0	290.0

Annexure-7 Details of District wise Projects

DISTRICT WISE RAILWAY TRACK KM's IN COMPARISON WITH NAJUNDAPPA COMMITTEE REPORT

Identification of Regional Backwardness based on the comprehensive composite development Index, 2001

* MSB - Most Backward , *MRB - More Backward, *B - Backward

Sl.No.	Taluk Name	Presence of Railway	Rail Kms. Appx.	Status	Total Km	Total Area (Sq.km.)	Total population	* RRLD	** PD
BANGALORE URBAN DISTRICT					226	2190	6540000	103.1	3.4
1	Bangalore (North)	Yes	136						
2	Bangalore (South)	Yes	40						
3	Anekal	Yes	20	* B					
4	Bangalore(East)	Yes	30						
BANGALORE RURAL DISTRICT					130	5815	1880000	22.3	6.9
5	Hoskote	Yes	20	B					
6	Devanahally	Yes	20						
7	Doddaballapura	Yes	40						
8	Nelamangala	Yes	50						
RAMANAGARA DISTRICT					40	3555	553777	11.2	7.2
9	Magadi	No	0	* MSB	0		112412		0
10	Chennapatana	Yes	20	B	20		138883		14.4
11	Ramanagara	Yes	20		20		134910		14.8
12	Kanakapura	No	0	MSB	0		167572		0
MYSORE DISTRICT					96	6854	2640000	14.0	3.6

13	Mysore	Yes	31						
14	Nanjanagudu	Yes	30	* MRB					
15	Krishnarajanagara	NO	35	B					
16	Hunsur	No	0	MRB					
17	T.Narasipura	No	0	MRB					
18	Periyapatna	No	0	B					
19	Heggade devana kote	No	0	MSB					
HASSAN DISTRICT					181	6814	1720000	26.5	10.5
20	Hassan	Yes	38						
21	Arasikere	Yes	50	B					
22	Belur	No	0	B					
23	Sakaleshpura	Yes	41						
24	Alur	Yes	21						
25	Channarayapatna	No	0	B					
26	Arakalagudu	No	0	MRB					
27	Holenarasipura	Yes	31	B					
HAVERI DISTRICT					78	4823	1440000	16.1	5.4
28	Haveri	Yes	16	B					
29	Hangal	No	0	B					
30	Savanoor	Yes	18	MRB					
31	Byadgi	Yes	11	B					
32	Rannebennur	Yes	33						
33	Hirekerur	NO	0	MRB					
34	Shiggaon	No	0	MRB					
CHAMARAJA NAGARA DISTRICT					12	5101	970000	2.3	1.2
35	Yalandur	No	0						
36	Chamarajanagara	Yes	12	MSB					
37	Gundlupete	No	0	MRB					
38	Kollegala	No	0	MRB					
SHIMOGA DISTRICT					126	8477	1640000	14.8	7.6

39	Shimoga	Yes	45						
40	Soraba	No	0	MRB					
41	Sagara	Yes	45						
42	Hosanagara	Yes	10						
43	Thirthahalli	No	0						
44	Shikaripura	No	0	B					
45	Bhadravathi	Yes	26						
MANDYA DISTRICT					95	4961	1760000	19.1	5.3
46	Mandya	Yes	27						
47	Madduru	Yes	18	B					
48	Malavalli	No	0	MRB					
49	Srirangapatna	Yes	27	B					
50	Pandavapura	Yes	5	B					
51	Krishnarajapet	Yes	18	MRB					
52	Nagamangala	No	0	MRB					
BELLARY DISTRICT					228	8450	2030000	26.9	11.2
53	Bellary	Yes	80						
54	Sandur	Yes	35	MSB					
55	Shiraguppa	No	0	MRB					
56	Hospet	Yes	41						
57	Hadagali	No	0	MRB					
58	Hagaribommanahalli	Yes	47	MRB					
59	Kudligi	Yes	25	MSB					
CHIKKABALLAPURA DISTRICT					40	4043	1149007	9.8	3.4
60	Chintamani	No	0	B	0	866	271284	0	0
61	Shidlagatta	No	0	B	0	638	193965	0	0
62	Chikkaballapura	Yes	10		10	556	191122	17.9	5.2
63	Gudibande	No	0	MRB	0	216	51828	0	0
64	Bagepalli	No	0	MSB	0	900	169689	0	0
65	Gowribidnur	Yes	30	MRB	30	867	271119	34.6	11.0

KOLAR DISTRICT					112	4180	2540000	26.7	4.4
66	Kolar	Yes	9						
67	Mulbagal	No	0	MRB					
68	Bangarpet	Yes	70	B					
69	Malur	Yes	33	B					
70	Srinivasapura	No	0	B					
CHIKMANGALUR DISTRICT					105	7201	1140000	14.5	9.2
71	Tarikere	Yes	65	B					
72	Kadur	Yes	40	MRB					
73	Narasimharajapura	No	0						
74	Koppa	No	0						
75	Shringeri	No	0						
76	Chickmangalur	No	0						
77	Mudigere	No	0						
KODAGU DISTRICT					0	4102	550000	0	0
78	Madikeri	No	0						
79	Somavarapete	No	0						
80	Virajpete	No	0						
GULBARGA DISTRICT					210	16224	3130000	12.9	6.7
81	Gulbarga	Yes	34	B					
82	Aland	Yes	30	MSB					
83	Chinchole	No	0	MSB					
84	Afzalpur	No	0	MSB					
85	Chitapur	Yes	61	MSB					
86	Sedum	Yes	29	MSB					
87	Yadgir	Yes	56	MSB					
88	Shahapur	No	0	MSB					
89	Shorapur	No	0	MSB					
90	Jevargi	No	0	MSB					
TUMKUR DISTRICT					84	10597	2580000	7.9	3.2

91	Pavagada	No	0	MSB					
92	Tumkur	Yes	26						
93	Sira	No	0	MSB					
94	Madhugiri	No	0	MSB					
95	Kortagere	No	0	MRB					
96	Chiknayakanahalli	No	0	MRB					
97	Tiptur	Yes	28						
98	Thuruvekere	Yes	13	MRB					
99	Gubbi	Yes	17	MSB					
100	Kunigal	No	0	MSB					
DAVANGERE DISTRICT					53	5924	1790000	8.9	2.9
101	Harapanahalli	No	0	MSB					
102	Harihara	Yes	11						
103	Jagalur	No	0	MRB					
104	Davanagere	Yes	42						
105	Honnali	No	0	MRB					
106	Channagiri	No	0	MSB					
CHITRADURGA DISTRICT					83	8440	1520000	9.8	5.4
107	Molkalnuru	Yes	21	MRB					
108	Chalkere	Yes	45	MRB					
109	Hiriyuru			MRB					
110	Chitradurga	Yes	42						
111	Holalkere	Yes	41	MRB					
112	Hosadurga	No	0	MSB					
RAICHUR DISTRICT					65	6827	1670000	9.5	3.8
113	Raichur	Yes	65	B					
114	Sindanur	No	0	MSB					
115	Devedurga	No	0	MSB					
116	Lingsugur	No	0	MSB					
117	Manvi	No	0	MSB					

KOPPAL DISTRICT					34	7189	1200000	4.7	2.8
118	Koppal	Yes	23	MRB					
119	Kushtagi	No	0	MSB					
120	Gangavathi	No	11	B					
121	Yelburga	Yes	0	MSB					
BIDAR DISTRICT					69	5448	1500000	12.6	4.6
122	Bidar	Yes	20						
123	Bhalki	Yes	35	MSB					
124	Aurad	Yes	14	MSB					
125	Basavakalyan	No	0	MSB					
126	Humnabad	No	0	MSB					
BELGAUM DISTRICT					183	13415	4210000	13.6	4.3
127	Belgaum	Yes	45						
128	Athani	Yes	28	MRB					
129	Rayabhag	Yes	40	B					
130	Chikkodi	Yes	6						
131	Hukkeri	Yes	10	B					
132	Gokak	Yes	22	MRB					
133	Bylahongala	No	0	B					
134	Rayadurga	No	0	B					
135	Savadatti	No	0	MRB					
136	Khanapura	Yes	32						
BIJAPUR DISTRICT					120	10494	1810000	11.4	6.6
137	Bijapur	Yes	54	B					
138	Indi	Yes	30	MSB					
139	Sindagi	No	0	MSB					
140	Basavanabadevadi	Yes	36	MSB					
141	Muddebihal	No	0	MSB					
BAGALKOT DISTRICT					108	6575	1650000	16.4	6.5
142	Bagalkot	Yes	48						

143	Jamakhandi	No	0						
144	Bilagi	No	0	MSB					
145	Mudhol	No	0						
146	Badami	Yes	60	MRB					
147	Hunagund	No	0	MRB					
DHARWAD DISTRICT					146	4260	1600000	34.2	9.1
148	Dharwad	Yes	55						
149	Hubli	Yes	36						
150	Kalghatagi	No	0	MRB					
151	Kundagol	Yes	39	B					
152	Navalgund	Yes	16	B					
UTTAR KANNADA DISTRICT					127	10291	1350000	12.3	9.4
153	Karwar	Yes	22						
154	Ankola	Yes	35	B					
155	Kumuta	Yes	20						
156	Honnavara	Yes	20						
157	Bhatkal	Yes	20	MRB					
158	Siddapura	No	0	B					
159	Sirsi	No	0						
160	Mundagod	No	0						
161	Yellapura	No	0						
162	Haliyal	No	0						
163	Supa	Yes	10	MRB					
UDUPI DISTRICT					92	3880	1110000	23.7	8.2
164	Kundapur	Yes	48						
165	Udupi	Yes	44						
166	Karkal	No	0						
DAKSHINA KANNADA DISTRICT					160	4560	1900000	35.0	8.4
167	Mangalore	Yes	60						
168	Bantwala	Yes	21						

169	Beltangadi	No	0						
170	Puttur	Yes	26						
171	Sulya	Yes	53						
GADAG DISTRICT					95	4656	970000	20.4	9.7
172	Gadag	Yes	70						
173	Naragund	No	0						
174	Ron	Yes	25	B					
175	Mundargi	No	0	MRB					
176	Shirahatti	No	0	B					
* RAILWAY ROUTE LENGTH DENSITY (RRLD) = (Total Km/Total Area) X 1000									
** POPULATION DENSITY (PD) = (Total km/Total population) X 100000									
	Name of the Division	Railway Kms.							
	Belguam Division	730							
	Gulbarga Division	606							
	Total	1336							
	Bangalore Division	894							
	Mysore Division	729							
	Total	1588							

Annexure 8 - Railway Key Performance Indicators

The main idea behind railway capacity assessment is to identify the (future) bottlenecks of railway infrastructure. The primary reason why Karnataka Railways need to undertake benchmarking is to achieve performance improvement, the other reasons include:

- Explaining the situation to stakeholders (e.g. regulator, financiers, government).
- Justifying an appropriate level of financing from the government.
- Justifying an appropriate level of track charges from the regulator.
- Providing a better understanding and forecasting of costs and revenues, leading to better project predictability.
- Setting target cost levels.
- Monitoring contractual performance (e.g. train operating companies, maintenance suppliers, etc.).

The benchmarking process starts by defining ‘Success Dimensions’ which enables the Railways to view success not in terms of functional output, but in terms of an integrated aim such as delivering service quality or a safe railway. Factors that are critical to delivering success are then defined, and Key Performance Indicators (KPIs) are developed to describe these.

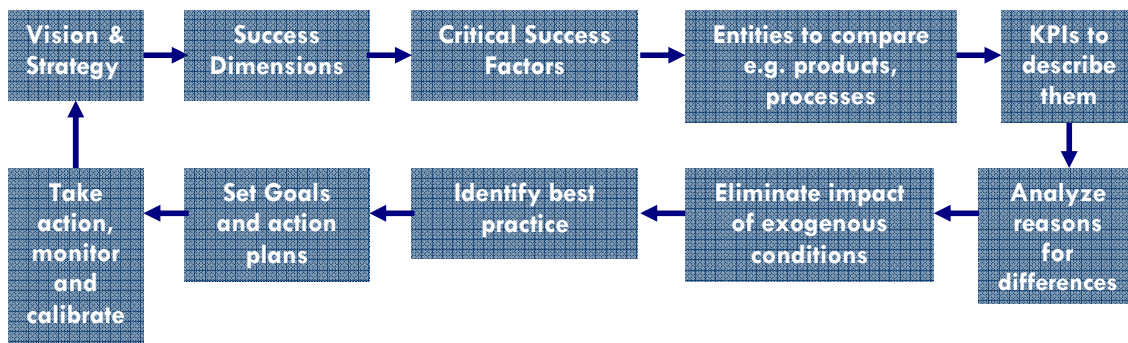


Figure 21: System of Benchmarking Railways

The purpose of development of a set of Key Performance Indicators (KPIs) for railways includes the following:

- To identify priority areas for improvement within each zones/ divisions.
- To identify the best performing zones/ divisions in the different success dimensions and critical success factors.
- To help determine how much improvement is possible.
- To monitor progress over time: if performance has improved, what practices have led to the improvement?
- To estimate the effect of differences in processes and practices on actual outcomes.
- To set targets for improvement.

A set of the matrices/KPIs for achieving the same, as used by railways, are furnished below:

- Profitability/ Return on investment
- Reliability of trains

-
- Reducing the travel time between two destinations
 - Efficient spending of the available capital and optimising investment pan

Extension of the existing network: Presently the Railways target to extend the existing rail network by 200 kms annually. This may include the construction of new lines, doubling or even gauge conversion.