Table 1-1 Traffic Capacity of Railway and Road Transport in 2003/2004

Delhi - Mumbai

Year:

Mode	Res Handi	Railway		Mark State 1	Road Transport				
	Truck	Single	Double	Carriageway			lane(s)		
Specification	Electrification	Electrification	Electrification	Category	Highway, National Road, Secondary Road, Feeder Road				
	Gauge	•	m	Total Width			(m)		
		Passenger	Freight		Bus	Passenger Car	Freight Car		
o :	Formation	car(s)	car(s)		-		-		
Capacity	Capacity	person(s)	ton		person(s)	person(s)	ton		
Headway		minute(s)	minute(s)		minute(s)	minute(s)	minute(s)		
Service per hour		time(s)/hour	time(s)/hour	6	time(s)/hour	time(s)/hour	time(s)/hour		
Capacity per hour		person(s)/hour	ton/hour		person(s)/hour	person(s)/hour	ton/hour		
Capacity per width		person(s)/m	ton/m		person(s)/m	person(s)/m	ton/m		

Table 1-2 Traffic Capacity of Railway and Road Transport in 2003/2004

Delhi - Howrah

Year:

Mode		Railway		A LEGISLATION OF THE SERVICE OF THE	Road	Transport				
	Truck	Single	Double	Carriageway	ageway land					
Specification	Electrification	Electrification	Electrification	Category	Highway, Nation	l, Feeder Road				
	Gauge		m	Total Width	2014		(m)			
		Passenger	Freight		Bus	Passenger Car	Freight Car			
	Formation	· car(s)	car(s)		<u> </u>	/ =	•			
	Capacity	person(s)	ton		person(s)	person(s)	ton			
Specification	Headway	minute(s)	minute(s)		minute(s)	minute(s)	minute(s)			
	Frequency	time(s)/hour	time(s)/hour		time(s)/hour	time(s)/hour	time(s)/hour			
Capacity per hour		person(s)/hour	ton/hour		person(s)/hour	person(s)/hour	ton/hour			
Capacity per width		person(s)/m	ton/m		person(s)/m	person(s)/m	ton/m			

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Table 1-3 Traffic Volume of Railway and Road Transport in Target Year

Delhi - Mumbai

Year:					D	Topografi			
Mode		Railway		Road Transport					
Markey (Made	Truck	Single	Double	Carriageway			lane(s)		
Specification	Electrification	Electrification	Electrification	Category	Highway, National Road, Secondary Road, Feeder Road				
	Gauge	V	m	m Total Width			(m)		
		Passenger	Freight		Bus	Passenger Car	Freight Car		
	Formation	car(s)	car(s)		•	-	, ,=		
	Capacity	person(s)	ton		person(s)	person(s)	ton		
Specification	Headway	minute(s)	minute(s)		minute(s)	minute(s)	minute(s)		
	Frequency	time(s)/hour	time(s)/hour		time(s)/hour	time(s)/hour	time(s)/hour		
Capacity per hour		person(s)/hour	ton/hour		person(s)/hour	person(s)/hour	ton/hour		
Capacity per width		person(s)/m	ton/m		person(s)/m	person(s)/m	ton/m		

Table 1-4 Traffic Volume of Railway and Road Transport in Target Year

Delhi - Howrah

Year:							CITICAL WAS AND A			
Mode		Railway		Road Transport						
	Truck	Single	Double	Carriageway	lane(s					
Specification	Electrification	Electrification	Electrification	Category	Highway, National Road, Secondary Road, Feeder Roa					
	Gauge		m	n Total Width			(m)			
	I A The second	Passenger	Freight		Bus	Passenger Car	Freight Car			
	Formation	car(s)	car(s)		-	; -				
	Capacity	person(s)	ton	8	person(s)	person(s)	ton			
Specification	Headway	minute(s)	minute(s)	118	minute(s)	minute(s)	minute(s)			
	Frequency	time(s)/hour	time(s)/hour	·.	time(s)/hour	time(s)/hour	time(s)/hour			
Capacity per hour		person(s)/hour	ton/hour		person(s)/hour	person(s)/hour	ton/hour			
	Capacity per width		ton/m		person(s)/m	person(s)/m	ton/m			



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Table 2-1 Traffic Volume and Share by Modes in the Past Decade

Delhi - Mumbai

unit: (passenger: million passengers km) (freight: million ton km)

	. Railway		Road Tra	ansport	Ai	r	Total		
Mode	Passenger	Freight	Bus	Freight	Passenger	Freight	Passenger	Freight	
1995	()	()	()	()	()	()	(100)	(100)	
1996	()	()	()	()	()	()	(100)	(100)	
1997			()	()	()	()	(100)	(100)	
1998	()		()	()	()	()	(100)	(100)	
1999	()		()	()	()	()	(100)	(100)	
2000	()	()	()	()	()	()	(100)	(100)	
2000	()	()	()	()	()	()	(100)	(100)	
2001	()	()	()	()	()	()	(100)	(100)	
2002	()	()	()	()	()	()	(100)	(100)	
2003	()	()	()	()	()	()	(100)	(100)	

Table 2-2 Traffic Demand Forecast by Modes

Delhi - Mumbai

unit: (passenger: million passengers km) (freight: million ton km)

Total Air Road Transport Railway Mode Freight Passenger Freight Freight Passenger Bus Passenger Freight (100)(100)2005 (100)(100)2010 (100)(100)2015 (100)(100)2020 (100)(100)(100)(100)(100)(100)(100)(100)(100)(100)(100)(100)

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Table 2-3 Traffic Volume and Share by Modes in the Past Decade

Delhi - Howrah

unit: (passenger: million passengers km) (freight: million ton km)

	Railway		Road Tr	ransport	Ai	r	Tota	
Mode	Passenger	Freight	Bus	Freight	Passenger	Freight	Passenger	Freight
4005	/ N	/ \	()	()	()	()	(100)	(100)
1995	()	. ()	()	()	()	()	(100)	(100)
1996	()	()	()	()	()	()	(100)	(100
1997	()	()	()	()	()	()		
1998	()	()	()	()	()	(_)	(100)	(100)
1999	()	()	()	()	()	()	(100)	(100)
		()	()	()	()	()	(100)	(100
2000			()	()	()	()	(100)	(100
2001	()	()	()	()			(100)	(100
2002	()	()	()	()	()			
2003	()	()	()	()	()	()	(100)	(100)
2004	()	()	()	()	()	()	(100)	(100)

Table 2-4 Traffic Demand Forecast by Modes

Delhi - Howrah

unit: (passenger: million passengers km)

(freight: million ton km)

							In orgine, minion con in	/
	Railw	/av	Road Tra	ansport	Ai	f	Total	
Mode	Passenger	Freight	Bus	Freight	Passenger	Freight	Passenger	Freight
2005	rassenger	/)	()	()	()	()	(100)	(100
2005	()	()	()	()	()	()	(100)	(100
2010	()	()	()	()	()	()	(100)	(100
2015	()		()	()	()	()	(100)	(100
2020	()	()	()	()	()	()	(100)	(100
	()	()	()	()	()	()	(100)	(100
MERCHAN	()	()	()	()	()	()	(100)	(100
	()	()	()	()	()	()	(100)	(100
	()	()	()	()	()	()	(100)	(100
	()	()	()	()	()	()	(100)	(100

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Table 3-1 Freight Volume by Freight Modes in the Past Decade

unit: 1,000ton

from Mumbai to	Delni						0000	0004	2002	2003	Total
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Railway											
Container											
Balk		11									
Others											
Road Freight											
Total											

Table 3-2 Freight Volume by Freight Modes in the Past Decade

unit: 1,000ton

from Howrah to	Delhi						0000	0004	2002	2003	Total
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Tota
Railway											
Container											
Balk											
Others											
Road Freight											
Total											

Table 3-3 Passenger Volume by Freight Modes in the Past Decade from Mumbai to Delhi

unit: 1,000persons

from Mumbai to De	elhi						10.200		0000	0000	Total
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Railway											
Road Transport (Bus)											
Total											

Table 3-4 Freight Volume by Freight Modes in the Past Decade

unit: 1,000persons

from Howrah to De	ını					1000	0000	2004	2002	2003	Total
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Railway											
Road Transport (Bus)											
Total											



Table 3-5 Freight Demand Forecast by Freight Modes in the Decade Ahead

unit:	1	00	0	tor
CE	* 1		•	

from Mumbai to	Deini							T	otal
	2005	2010	2015	2020				1	Otal
Railway									
Container									
Balk							 		
Others									
Road Freight Total					- X				
Total									

Table 3-6 Freight Demand Forecast by Freight Modes in the Decade Ahead

unit: 1,000ton

from Howran to	Dellili							1	Total
	2005	2010	2015	2020					Otal
Railway									
Container			2						
Balk									
Others						-			
Road Freight									
Total									

Table 3-7 Passenger Demand Forecast by Freight Modes in the decade ahead

unit: 1,000persons

from Mumbai to De	eini				Total
	2005	2010	2015	2020	Total
Railway					
Road Transport (Bus)					
Total					

Table 3-8 Passenger Demand Forecast by Freight Modes in the decade ahead

unit: 1,000persons

from Howrah to De	ını				Total
	2005	2010	2015	2020	TOtal
Railway					
Road Transport (Bus)					
Total					



Table 4-1 Freight Volume by Commodities in the Past Decade
(1) from Mumbai to Delhi

unit: 1,000ton

(1) from Mumbai to De					1000	4000	2000	2001	2002	2003	Total
Main commodities	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Tota
									·		
	100										
Sub-total											
Container				14							
Road Freight											
Total											

Table 4-2 Freight Volume by Commodities in the Past Decade

(2) from Howrah to Delhi

unit: 1,000ton

(2) from Howran to De			1000	1007	4000	1999	2000	2001	2002	2003	Total
Main commodities	1994	1995	1996	1997	1998	1999	2000	2001	2002	2000	10.0.
Sub-total									7.7		
Container											
Road Freight											
Total			1.4								

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Table 5-1 Specification of Main Diesel Locomotive

	example	current state	current state	current state	future	future	future
	DD51		,				
Use Application	Main Line			2			
Wheel Arrangement	B-2-B						
Weight in Working Order	84.0						
Engine							
- Type	DML61Z						
- Power (PS)	1,100 x 2						
- Redline (rpm)	1,500						
Transmission Gear Type	Hydraulic						
Steam Generator	Equipped						
Max Speed (km/h)	95						
Power per Weight (ps/t)	26.2						
Year of Manufacture	1962						

Table 5-2 Specification of Main Electric Locomotive

	example FE200	current state	current state	current state	future	future	future
Use Application	Main Line						
Electric Type	DC1.5kV	for the second second		/			
Wheel Arrangement	B-B-b						
Weight in Working Order	100.8						
Max length (m)	19.4						
Traction wheel Diameter(1,120			4			
Max Speed (km/h)	120						
Rated Power(kw)	6000						
Rated Tractive Effort	26.6				J-1		
Rated Speed(km/h)	81.2						
Traction Moter Type	DC						
Energy Transmission Syste	Movable						
Regenerative Brake							
Year of Manufacture	1990		×				



Table 6 Specification of Main Freight-train Car

	example KOKI-100	current state	current state	current state	future	future	future
Туре	Container						
Wheel Arrangement	Two-axle Bogie Car	×					
Empty Weight (ton)	17.8						
Loading (ton)	40.5						
Maximum Length (m)	19.9						
Running Part	Air Suspension Typ	е					
Maximum Speed (km/h)	110						
Loading/Empty Weight	2.3						
Year of Manufacture	1988						

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Table 7-1

Table-the construction unit cost per km of each structures

The construction unit cost per km of each structures the existing lines between Munbai and Delhi, Delhi and Howrah and the total length and ratio of each structure. The construction unit cost per km of each structure means the average unit cost of each structure with consideration long and short structure, big and small structure, or like this.

1. Munbai - Delhi

Sort of	1	Total	2	3=1)×2	Ratio of	Standard	Remarks
structure	length	of	Construction	each	each	design	3339 53
	each		unit cost per	construction	structure	NO	
	structure	e(Km)	U\$/ km	cost (U\$)			
1.Embankment							
2.Cutting							
3.Elevated							
Track							
4.Brige	=		13				
5.Tunnle				The state of the s			
6.Truck						- 0	
7.Station *							
8.All Electric							
Facility							
9.Right of way							
Total	P 9						(3)

^{*} Station includes architecture. Each structure includes site manage expenditure and all kinds manage expenditure.

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^{**} All Electric Facility includes signaling, telecommunication, substation, feeder, mast, etc.

Table 7-2 2. Howrah - Delhi

Sort of	① Total	2	3=1)×2	Ratio of	Standard	Damed
structure	length of	Construction	each		2025244400011-002 -000	Remarks
ondotare	each	1		each	design	
		unit cost per	construction	structure	NO	
	structure(Km)	U\$/ km	cost (U\$)			
1.Embankment						
2.Cutting						
3.Elevated						
Track						
4.Brige						
5.Tunnle						
6.Truck						
				-		
7.Station *	-					
	1					
8.All Electric						
Facility						
**						
9.Right of way						
Total						
					İ	

^{*} Station includes architecture. Each structure includes site manage expenditure and all kinds manage expenditure.

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^{**} All Electric Facility includes signaling, telecommunication, substation, feeder, mast, etc.