

Public Works Department Rajasthan

Rajasthan Road Sector Policy and Strategy

Rajasthan Road Sector Modernization Project (RRSMP)




Road Sector Policy

Objective - Develop a comprehensive road sector policy and formulate a road sector strategy for the next 5-10 years

Vision Statement Rajasthan Road Sector Policy

**“To provide Road Infrastructure that is
*well preserved,
fully connected,
safe,
economical,
affordable,
eco-friendly,
user-friendly
and
efficiently delivered”***

Policy Targets for the Road Sector

Objective	Target 2028
1. To provide a well-preserved road network	CRN is in good condition in terms of roughness (<2500) and non-CRN in satisfactory condition with at least in roughness (<4000).
2. To provide a fully connected road network	All habitations with a population >250 (Census 2011) and places of socio economic importance such as industrial, mining, agricultural, religious and tourism are connected through all-weather road.
3. To provide a safe road network	Ensure zero Blackspots by 2020 and rectify accident prone spots by 2028, minimizing fatalities and serious injuries.
4. To provide an economical road network	CRN will have a Level of Service (LoS) of at least “level B” and Non-CRN will have LoS of at least “level C”. 
5. To provide an affordable road network	Costs to the users, from benefits from improvement, will be reduced by at least 20% in comparison with 2018
6. To provide a eco-friendly road network	Carbon footprint of state roads has been reduced by 25% in comparison with 2016
7. To provide an efficient road network	Costs per km for developing and operating the road network have been reduced by 20% in comparison with 2018
8. To provide a user-friendly network	The road-users are, on average, satisfied

Identification - Core Road Network (CRN)

Core Road Network(CRN) Identification

• **Identified Core Road network (CRN)**

- Total State Road Network in the state ~230,000 km
- Identified CRN is 25,767 km
- PWD manages 15,432 km (60%) of the CRN excluding NH and Bharatmala Rd. Network



1 Traffic

- PCU Count 5000 and above

2 Population

- District HQs
- Cities with more than 1 Lakh Population
- Tehsil HQs

3 Economic Nodes

- Industrial Units
- Mining Areas
- Agriculture Mandis

4 Social & Environment

- Tourist Places
- Religious Places
- Wildlife Sanctuaries

1 To provide a well preserved road network

Core Road Networks (CRN) is in good condition with roughness (< 2500) and non-CRN is in satisfactory condition with roughness (<4000).

Preservation Activity	Target up to year 2028 (in km)
<i>Strengthening</i>	82,650 km
<i>Renewal – (Clearing the Renewal Backlog and Timely Renewal thereafter)</i>	82,650 km
<i>Routine Annual Maintenance-with increased promptness</i>	10,00,346 km
<i>Strengthening-Bridges/ CD Works</i>	24,211 nos.
<i>Axle Load Control Check Gates at Border, mining/ industrial area check gates</i>	40 nos.
<i>Development and Implementation of Road Asset Management System (RAMS)</i>	
<i>Smart Sensor Monitoring pavement condition</i>	180 nos.

Total estimated investment to achieve targets of Preservation objective up to year 2028 is Rs. 35,449 Crores

2

To provide a fully connected road network

- By 2028 all villages with a population >250 (Census 2011) and unconnected places of socio economic importance such as industrial, mining, agricultural, religious and tourism will be connected through all-weather road.

Activities for Connectivity	Target up to year 2028 (in km)
Connectivity to Villages (3051 nos.)	8,548
Connectivity to Industrial Area	480
Connectivity to Mining Areas	989
Connectivity for Missing Links	23,084
Grand Total	33,101

Total estimated investment to achieve targets of Connectivity objective up to year 2028 is Rs. 10,679 Crore

3 To provide a safe road network

- Ensure zero Black Spots by 2020 and rectify accident prone spots by 2028, minimizing fatalities and serious injuries.

Road Safety Activities	Target up to year 2028
Compliance - Supreme Court Committee	
<i>Speed Management (nos.)</i>	160
<i>Speed Calming Measures (nos.)</i>	800
<i>Improving Road Marking and Signage (km)</i>	4,250
<i>Lighting on Highways near habitation (nos.)</i>	4,000
<i>Development of Model Stretch - SH (km)</i>	900
<i>Junction Improvement (Nos.)</i>	880
<i>Flyovers (nos.)</i>	36
<i>Truck/ Bus lay byes on SHs (Nos.)</i>	150
Safety Audits (km)-(CRN-34,800km & Non-CRN-23,200 km)	58,000
Rectification- Blackspots -	160
Rectification-Accident Prone Spots (CRN 800 & non-CRN 800)	800
Safety of Vulnerable Road Users	
<i>Bypasses (included in Economical) (nos.)</i>	28
<i>Guard Rail and service lanes / Underpass/ foot over bridge (nos.)</i>	155
<i>IRAP based assessment (km)</i>	8,000

Total estimated investment to achieve targets of Safe Road Network objective up to 2028 is Rs. 3,130 Crores

4 To provide an economical road network

- Core road network will have Level of Service of at least level B and non-core network will have Level of Service of at least level C

Upgradation activities	Target up to year 2028
<i>Widening of Roads (Lane Km)</i>	3,412
Others	
<i>Bypasses(in Km)</i>	430
<i>ROBs/ RUBs (Nos)</i>	123
<i>Automatic Vehicle Count Stations (nos)</i>	200

Total estimated investment to achieve targets of Economical Road Network objective up to 2028 is Rs. 10,088 Crores

5

To provide an affordable road network

Target of cutting down the road user cost by at least 20% in comparison to that of year 2018

Project Level

- Engineering Solutions to reduce VOC (Activities included under other objectives i.e. Preservation, Economical and Safety)

Program Level

- Research and Development Cell- focus on reduction of users cost
- Road User Training and Awareness
- Lower Crash Costs

FY	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Program Level Activities										
<i>Baseline study for User Cost</i>		0.50								0.50
<i>R&D Cell</i>		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	24.00
<i>Road User Training</i>		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	2.00
Total Training	0.00	3.75	3.25	3.25	3.25	3.25	3.25	3.25	3.25	26.50

Total estimated investment to achieve targets of Program Level efforts an affordable road network objective up to year 2028 is Rs. 26.5 Crores

6

To provide a eco-friendly road network

- By 2028 the carbon footprint of roads to be reduced by 25% in comparison with 2016
 - 2016 Carbon footprint is 155 million tons of CO2 emissions of which some 10% is under the influence of PWD, will be confirm through baseline study
 - Use of alternate and recycled material, Use of local material (under efficiency)
 - Timely periodic maintenance & Low Carbon surface treatment (under preservation)
 - Greening of highways (plantation)

Eco- Friendly Activities	Target up to year 2028
Tree Plantations (nos.)	5,00,000 no.
Others	
<i>Baseline study for CO2 emission</i>	
<i>Improving the road construction practices</i>	
<i>Structure for Watershed Management- Rain Water Harvesting</i>	
<i>Ambient Air Quality Monitoring</i>	

Total estimated investment to achieve targets of eco-friendly road network objective (other than those already included under other objectives) up to year 2028 is Rs. 105 Crores

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To provide an user-friendly network

- By 2028 the road-users on average should be satisfied
 - To provide way-side amenities on CRN
 - Establish online grievance redressal system
 - Annual road user satisfaction survey

Activities for User-friendly Roads	Target up to year 2028
<i>Way Side Amenities (nos.)</i>	182
<i>Grievance and User Survey (nos.)</i>	34
<i>Intelligent Transport System (no. of stretches)</i>	108

Total estimated investment to achieve targets of an user-friendly network objective up to year 2028 is Rs. 324 crores

8 To provide an efficient road network

Costs per km for developing and operating the road network have been reduced by 20% in comparison with 2018

Planning and Programming	Development of Designs and PS&E	Procurement
<ul style="list-style-type: none"> • Higher focus on project preparation (designing and getting requisite land and approvals) • Phasing of project • Bundle or Split Projects to Reduce Costs and Delays • Standardize designs and provide more design repetition • Manage Material Cost Risks • Outsource Maintenance 	<ul style="list-style-type: none"> • Focus towards Alternative Materials Including Recycled Materials • Innovation, Research and Technology • Accept Equivalent Pavement Designs • Employ Value Engineering • Use Performance-Based Specifications 	<ul style="list-style-type: none"> • Evaluate local market condition for availability of resources to effectively plan construction lettings • Implement formal risk identification and management program • Ease contracting requirements • Relax prequalification requirements for certain projects: • procure based on the availability and capacity of contractors in the region.

Investment requirement included in policy objective of affordable to institute a R&D Cell

Financial Requirement – Summary 2019-28

In Rs. Crore

Objective/ FY	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Preservations	2,304	3,985	4,248	4,337	4,114	3,798	4,116	4,222	4,325	35,449
Upgrade	2,140	766	816	766	816	644	1,293	1,393	1,453	10,088
Connectivity	1,317	1,053	1,109	1,279	1,291	1,823	1,035	989	782	10,679
Safety	49	505	399	391	366	366	351	351	351	3,130
Eco-Friendly	0	16	16	17	17	11	11	7	7	105
Affordability	0	3.75	3.25	3.25	3.25	3.25	3.25	3.25	3.25	26.5
User-Friendly	0	24	24	34	56	66	66	26	27	324
Grand Total	5,810	6,354	6,616	6,828	6,664	6,711	6,877	6,993	6,949	59,800

Total estimated Investment - Rs. 59,800 Crores- (2017-18 prices)
Rs. 73,666 Cr. On current prices

Base Case Funding of Investment Plan and Gap

(In Rs Crore, at 2017-18 prices)

FY ending March 31st,	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	10-Yr Total
PMGSY	333	668	705	744	785	828	874	922	973	6832
NABARD	628	751	792	836	882	931	982	1036	1093	7931
Central Road Fund	750	780	823	868	916	966	1019	1075	1134	8331
Other Funding through State Budget Including Externally Aids	2728	1869	1972	2080	2194	2315	2442	2576	2718	20894
Road Safety Fund	21	22	23	24	25	26	27	28	30	226
PPP (Private Sector Share Under RSHDP)	680	650	650	630	170	0	0	0	0	2780
National Capital Region	250	0	0	0	0	0	0	0	0	250
Total Projected Funding Available for Investment Plan	5390*	4740	4965	5182	4972	5066	5344	5637	5948	47244

FY ending March 31st,	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	10-Yr Total
Total Investment Required	5,810	6,354	6,616	6,828	6,664	6,711	6,877	6,993	6,949	59,800
Projected Funding Available (Base Case)	5390*	4740	4965	5182	4972	5066	5344	5637	5948	47244
Funding Gap (Base Case)	-420	-1614.1	-1650.7	-1645.8	-1691.7	-1645.2	-1532.7	-1355.5	-1000.7	-12556

* This is exclusive of pending liabilities of Rs. 2280 Cr.

Base case gap in funding the investment plan is assessed as Rs. 12,556 Cr.

Scenario 1 for plugging gap: Additional Funding from SRF

- As the first scenario, for bridging the base case funding gap, additional funding of **Rs 1000 crore** per year from SRF has been factored in to create Scenario

(In Rs Crore, at 2017-18 prices)

FY ending March 31 st ,	2020	2021	2022	2023	2024	2025	2026	2027	2028	10-Yr Total
Total Investment Required	5,810	6,354	6,616	6,828	6,664	6,711	6,877	6,993	6,949	59,800
Projected Funding Available	5810	5790	6015	6232	6022	6116	6394	6687	6998	56064
Funding Gap (Scenario 1)	0	-564	-601	-596	-642	-595	-483	-306	49	-3,736

After inclusion of additional funding from SRF, the funding gap has reduced to Rs. 3736 Crore from Rs.12,556 Crore

Scenario 2: Scenario 1 Plus Increased Cess for SRF

- It is proposed that the cess on diesel to be increased by Rs. 1 per litre and on petrol to be increased by Rs. 0.75 per litre with effect from 1st April, 2020
- With the additional accruals assumed to be fully available to PWD

{In Rs Crore, at 2017-18 prices}

FY ending March 31 st ,	2020	2021	2022	2023	2024	2025	2026	2027	2028	10-Yr Total
Total Investment Required	5,810	6,354	6,616	6,828	6,664	6,711	6,877	6,993	6,949	59,800
Projected Funding Available	5,810	6,662	6,910	7,150	6,964	7,083	7,387	7,707	8,047	63,720
Funding Gap (Scenario 2)	0	308	294	322	300	372	510	714	1,098	3,920

After inclusion of (i) additional funding from SRF and (ii) Increased Cess for SRF, there is no funding gap

Achievement of Manifesto points

All the Manifesto points related to roads are covered in this proposed Road Sector Policy

1. To improve the layout of accident prone junctions/ roads and curves
2. To connect balance unconnected small villages in 5 years
3. Special package for renewal and strengthening of road in Tribal and desert areas
4. After the required survey, construction of RoBs and RUBs should be taken up at heavy traffic volume roads
5. Missing links to be taken up on priority in rural areas
6. Proposals to be submitted new National highways
7. Extension of road network for Religious and tourist places
8. Construction of flyover, under passes, bypasses and elevated roads
9. Strengthening of roads connecting tourist/ religious places



THANK YOU

Core Road Network (CRN)

Length in kms

Road	Total CRN	NHA/ MORTH			Total Non PWD CRN	PWD as Authority				Total PWD CRN
		Bharat mala	Provisional NH	NHs		RIDCOR Roads	RSRDC Roads	PWD PPP	PWD	
NH	8,202	0	0	8,202	8,202	0	0	0	0	0
SH	13,021	461	597	0	1,058	1,348	2,166	253	8,196	11,963
MDR	3,014	245	123	0	368	104	223	11	2,308	2,646
ODR	1,560	703	34	0	737	176	160	28	459	823
Total	25,797	1,409	754	8,202	10,365	1,627	2,550	292	10,963	15,432


Out of ~230,000 km of State road network, the CRN is **25,767 km (10%)**
PWD manages 15,432 km (60%) of the CRN



Comparison of the Requirements in Manifesto and Provisions Of The Road Sector Policy And Strategy

Sl. No.	Description of the Manifesto	Aspect of the Policy and Strategy Document
1	To improve the layout of accident prone junctions/roads and curves after their inspection	880 junctions are proposed to be improved.
2	To connect balance unconnected small villages in 5 years	Connectivity of all villages of population of 250 and above (2011 census) is proposed
3	Special package for renewal and strengthening of road in Tribal and desert areas	Renewal of entire networks and strengthening all road requiring the same has been included. The roads of Tribal and desert areas will be taken up on priority so that these can be completed in next 5 years
4	After the required survey, construction of RoBs and RUBs should be taken up at heavy traffic volume roads	Overall 123 ROBs/RuBs have been proposed. The construction of RoBs/RuBs in heavy traffic corridor will be taken up in first 5 years

Comparison of the Requirements in Manifesto and Provisions Of The Road Sector Policy And Strategy

Sl. No.	Description of the Manifesto	Aspect of the Policy and Strategy Document
5	Missing links to be taken up on priority in rural areas	A substantial length i.e. 23,084 km for missing links have been proposed. The rural area missing links can be completed in first 5years.
6	Proposals to be submitted new National highways	The GoI has given formal in principle approval of converting 4,772 km of 50 state roads to National Highway.
7	Extension of road network for Religious and tourist places	These can be covered under substantial length of missing links
8	Construction of flyover, under passes, bypasses and elevated roads	30 nos. of bypasses have been proposed in the policy. Underpasses (including FoB- 155 nos.) and flyovers 36 nos. included under under road safety.
9	Strengthening of roads connecting tourist/ religious places	Strengthening of about 82,650 km of roads have been proposed. The Strengthening of roads connecting tourist/ religious places can be taken up on pr  5 years

Level of Service (LoS)

Level of service A: (Volume/ Capacity Ratio- 0.35)

- Free flow condition

Level of Service B : (Volume/ Capacity Ratio- 0.55)

- A zone of stable flow, with drivers still having reasonable freedom to select their desired speed and manoeuvre within the traffic stream.
- Average travel speeds are usually about 70 per cent of the free flow speed.
- Level of comfort and Convenience is somewhat less than LoS A

level of Service C : (Volume/ Capacity Ratio- 0.77)

- This also is zone of stable flow,
- The selection of speed is now affected by presence of others
- The general level of comfort and convenience declines noticeably.
- Average travel speed is about 50 % of av. Free flow speed.

