

Guidelines and Standard Operating Procedure (SOP) for implementation of Bharatmala Pariyojana Program

The Cabinet Committee on Economic Affairs has approved the implementation of an umbrella programme for the National Highway Road Sector – “Bharatmala Pariyojana Phase-1”, spanning over a period of 5 years (2017-2022) at an estimated outlay of Rs. 5,35,000 crore, as communicated by the Cabinet Secretariat vide its No. CCEA/26/2017(i) dated 26th October 2017.

I - OVERVIEW OF THE PROGRAM

1 About the Program:

- 1.1 The objective of the program is to optimize the efficiency of freight and passenger movement across the country by bridging critical infrastructure gaps through **development of Economic Corridors, Inter Corridors and Feeder Routes, National Corridor Efficiency Improvement, Border and International connectivity roads, Coastal and Port connectivity roads and Green-field expressways.**
- 1.2 Identification of the project stretches under the components of the proposed program is based on detailed Origin-Destination (O-D) study, freight flow projections and verification of the identified infrastructure gaps through geo-mapping.
- 1.3 Construction of a total length of about 24,800 kms is being taken up under Phase-I of Bharatmala Pariyojana. In addition, Phase-I would also include about 10,000 kms of residual works of National Highway Development Project (NHDP).

2 Components of the program and fund allocation:

- 2.1 As per the CCEA approval, Phase-I of Bharatmala Pariyojana program is to be implemented over a period of five years i.e. FY 2017-18 to FY -2021-22. The summary of components identified under Phase-I and the approved outlay for the same are as follows:

Sr. No.	Components	Length (in km)	Outlay – (Rs crore)
A.	Bharatmala		
1	Economic corridors development	9,000	1,20,000
2	Inter-corridor & feeder roads	6,000	80,000
3	National Corridors Efficiency improvements:	5,000	100,000
4	Border & International connectivity roads	2,000	25,000
5	Coastal & port connectivity roads	2,000	20,000

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Sr. No.	Components	Length (in km)	Outlay – (Rs crore)
6	Expressways	800	40,000
	Sub-Total	24,800	385,000
B.	Balance road works under NHDP		1,50,000
	Total		5,35,000

Details on the various components and the criteria for selection are given in **Annexure I(a) and Annexure I(b)**.

- 2.2 Minister (RT&H) has been authorized to substitute/ replace up to 15% length of 24,800 kms for Phase-I of the program by other suitable projects, if development of certain identified stretches under the program cannot be taken up on account of issues pertaining to alignment finalization, problems associated with land availability and other unforeseen factors.

3 Project allocation across Implementation Agencies:

- 3.1 Different components of the Bharatmala Pariyojana will be implemented by Ministry of Road Transport and Highways through various implementation agencies viz. the National Highways Authority of India (NHAI), National Highways and Infrastructure Development Corporation Limited (NHIDCL) and State Public Works Departments (PWDs)/ State Road Development Corporations (RDCs) through the Roads Wing of the Ministry.
- 3.2 NHAI shall be responsible for development/ upgradation and maintenance of Economic Corridors, Inter corridor and Feeder Routes, National Corridors (GQ, NS-EW) (including addressing choke points and congestion points), Border and International connectivity roads, Coastal and port connectivity roads and Greenfield expressways in the country except for projects implemented through the Roads Wing and the EAP Cell of Ministry [**Refer Annexure II(a) – II(i)**].
- 3.3 NHAI shall be responsible for development of logistics parks as in **Annexure II(j)**, for improving efficiency of the corridors, in line with the policy issued by the Department of Commerce, Ministry of Commerce and Industry. The NHAI Board (Authority) shall be competent to approve the concession agreement for the Logistics Parks. In the like manner, the NHAI shall be responsible for development of way-side amenities in the corridors.
- 3.4 NHAI shall complete the residual works of NHDP as in **Annexure III(a)**.
- 3.5 NHAI shall also develop other roads, entrusted to it (through letters vide no. NH-24028/01/2016 dated 04.04.2016 and NH-14013/6/2014-P&M(Pt) dated 17.10.2017 [**Annexure III(d)**]) which are not part of Bharatmala Pariyojana or NHDP through NH(O) and follow the extant appraisal and approval process for


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these roads.

- 3.6 NHIDCL shall be responsible for development/ upgradation and maintenance of the projects in the North-Eastern States of the country i.e. economic corridors (No. 44), feeder routes (No. 46, 48, 49, 66, 101, 103, 110 and 116), international connectivity routes (No. 12, 14-20) and the border roads (No. 22-28) in the North Eastern states as per **Annexure III(b)**.
- 3.7 EAP Cell in the Ministry shall be responsible for development/ upgradation and maintenance of projects funded through any externally aided scheme including NHIP scheme. The residual works to be undertaken, apart from those indicated under the Bharatmala corridors, are as per **Annexure III(c)**.
- 3.8 The Roads Wing of MoRTH shall be entrusted with the responsibility of development/ upgradation of other roads not entrusted to NHAI or NHIDCL or EAP Cell.
- 3.9 The Roads Wing of MoRTH shall also be responsible for development of roads connecting Backward districts and Religious & Tourist centres (**Annexure III(e)**) through NH(O) and follow the extant appraisal and approval process for these roads.
- 3.10 NHAI is also authorised to develop roads entrusted to it through the State PWDs/ State RDCs for effective implementation. In such cases, an agency fee of a maximum of 1% of the Total Project Cost (which the NHAI gets) shall be paid by NHAI to the executing State PWD/ State RDC.

4 Grand Challenge mechanism

- 4.1 Within the Bharatmala Pariyojana, 10% funds will be kept earmarked to take up projects under the 'Grand Challenge' mechanism on reducing balance basis vis-à-vis annual fund allocation for the Bharatmala Pariyojana to take up projects on fast track basis where sufficient and timely land is made available by the State Governments as per norms of MoRTH.
- 4.2 The detailed process for the Grand Challenge mechanism is given in **Annexure IV**.
- 4.3 In case certain projects are proposed by the States or are otherwise considered necessary and expedient to build, including Ring Roads or Bypasses, which are not part of Bharatmala Pariyojana Phase-I, then such new project(s) shall be taken up for consideration only if the State/ Agency is ready to bear at least 50% cost of the land acquisition.

II - ONLINE SYSTEMS FOR MONITORING AND PROCESS AUTOMATION


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5 Use of Online Systems for Monitoring and Process Automation

- 5.1 The Implementation Agencies shall ensure the use of online systems for monitoring and process automation of various activities involved in preparation and execution of the projects under Bharatmala Pariyojana:
- (i) **Project Monitoring Information System (PMIS)** shall be used for tracking of the status of all projects, preparation of reports and online upload of important project documents like DPRs and contract documents, etc.
 - (ii) **Bhoomi Raashi** system shall be used for preparation and submission of Land Acquisition related notifications.
 - (iii) **Bidder Information Management System (BIMS)** shall be used by all implementation agencies for maintenance of technical information of civil works of contractors/ concessionaires, and for online technical evaluation of civil works bids.
 - (iv) **Performance Management System "Lakshya"** shall be used by NHAI for setting construction and award targets for all technical officers.
 - (v) A **comprehensive ERP system** is being set up across MoRTH, NHAI and NHIDCL, to integrate all the individual systems/tools, to create a consolidated database of information, to digitize documents and records, and to enable electronic workflows. Once it is in place, the workflow shall entirely happen through that system.

III - PRE-PROJECT PREPARATION ACTIVITIES

6 DPR Preparation

- 6.1 Quality of a DPR has an important role in the execution time, cost and quality of the final project highway. Implementation agencies shall ensure that good quality DPRs are prepared for all projects under the Bharatmala Pariyojana program through the following interventions:
- (i) DPRs shall be prepared in two parts - first part relating to determination of alignment, land acquisition details and other pre-construction activities (utility shifting, forest & environment clearance etc.), while the second part shall deal with the designs, cost estimates etc., so as to ensure that work on the pre-construction activities is taken upfront without waiting for the second part.
 - (ii) While finalising the alignment, the DPR consultant shall duly assess the justification for widening of an existing road asset vis-à-vis a Greenfield

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Road keeping in view the comparable costs and time involved in land acquisition, utility shifting and forest related compliances. Wherever a Greenfield alignment is found to be preferable, the same shall be adopted.


- (iii) Technology shall be used wherever possible in DPR preparation, to enable increased accuracy of surveying and project design, as detailed in **Annexure V(a)**.
- (iv) Project preparation shall be monitored at the various sub-stages as per **Annexure V(b)**, using detailed quality checklists that have been prescribed in the RFP document.
- (v) NHAI shall develop a detailed guidance document for DPR consultants to ensure quality design and quality preparation, including topics on use of technology in DPR, standard designs for structures, guidelines for access control.
- (vi) DPR consultants shall update the status of DPR preparation on the Project Monitoring Information System (PMIS) every 15 days. Further, copies of final reports corresponding to various sub-stages shall be uploaded on PMIS. PMIS certificate shall be presented by the DPR consultant when submitting invoices for payment.

7 Land Acquisition

- 7.1 Land Acquisition for National Highways will be governed by The National Highways Act, 1997 (Amended) in conjunction with The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (RFCTLARR) Act, 2013, and the process shall be followed as per the guidelines issued by the Ministry and other implementation agencies.
- 7.2 Land Acquisition shall be closely managed and monitored to ensure that there are no resultant delays on the project implementation schedule, through the interventions listed in **Annexure V(c)**.
- 7.3 Bhoomi Raashi system shall be used by all field offices and HQ for preparation, review and approval of land notifications.

8 Clearances

- 8.1 Various projects under the Program will require certain clearances, depending on the alignment of the highway, including, Railways, Utilities, Environment, Forest and Wildlife Clearances.
- 8.2 Each clearance shall be obtained by the respective implementing agencies as per the extant guidelines.


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- 8.3 Timely approval of Utility estimates by the implementation agencies shall be ensured by suitable delegation of powers.
- 8.4 To ensure accelerated approval of Railway clearances, the DPR consultant shall be mandated to use standard GADs prescribed by RDSO. The DPR consultant shall recommend non-standard design only in case of exception, and shall provide a detailed justification for the same.

IV - PROJECT APPRAISAL, APPROVAL AND CONTRACTING

9 Appraisal and approval of projects under the Program

- 9.1 NHAI and other implementation agencies shall decide the modal mix of the projects under Bharatmala Phase-I in line with the investment plan approved by CCEA as in **Annexure VI(a)**.

9.2 Project Appraisal and Approval by NHAI

- (i) The NHAI Board (Authority) shall approve the mechanism for mode selection of projects under its purview.
- (ii) NHAI's Board (Authority) shall have the discretion to modify the project implementation mode for projects under its purview subject to availability of funds and other required conditions.
- (iii) All EPC projects implemented by NHAI under this program are to be approved by NHAI Board (Authority) after proper appraisal within the budgeted financial resources approved under this program.
- (iv) All PPP BOT (Toll) projects, irrespective of the size and cost, where no grant (or VGF) is given to the concessionaire and the construction and maintenance is financed by toll revenues, shall be appraised and approved by the Board of NHAI (Authority).
- (v) All PPP projects, which entail VGF grants from Government, are to be appraised and approved as per extant guidelines of DEA applicable for VGF support.
- (vi) All PPP {BOT (Annuity) or BOT (HAM)} projects costing up to Rs. 2000 crore (TPC excluding land cost) are to be appraised by the SFC chaired by Secretary, MoRTH and approved by Minister (MoRTH).
- (vii) All PPP [BOT (Annuity) or BOT (HAM)] projects costing more than Rs. 2000 crore (TPC excluding land cost) are to be appraised by PPPAC chaired by Secretary, DEA and approved by the CCEA.
- (viii) The NHAI Board (Authority) is authorized to delegate its powers on

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appraisal and approval of projects within NHAI, as deemed appropriate, for categories of projects where NHAI Board (Authority) is empowered to appraise and approve projects.

- 9.3 **Project Appraisal and Approval by NHIDCL and State PWDs, and for non-Bharatmala projects under NHAI**
- (i) For EPC projects to be implemented by MoRTH through State PWDs or other agencies, the extant guidelines will be followed i.e. all projects having civil cost (TPC excluding land cost) between Rs 100 crore to Rs 1,000 crore will be appraised by the SFC/EFC, chaired by Secretary (RT&H), and approved by the Minister (RT&H). Projects having civil costs beyond Rs 1000 crore (TPC excluding land cost) shall be appraised by the PIB chaired by Secretary, Expenditure (MoF) and approved by CCEA.
 - (ii) For projects to be implemented in the North-East, the appraisal and approval mechanism will be the same as that applicable for projects under on-going SARDP-NE programs i.e. through the High Powered Committee (HPC) under the chairmanship of Secretary (RT&H).
- 9.4 All decisions regarding mode of execution will be taken by the Board of NHAI (Authority) or MoRTH, for their respective road projects subject to availability of funds and other required conditions.
- 9.5 Individual Projects under the program that involve Revised Cost Estimates shall be considered and approved by the concerned Authority which has accorded approval to the project as per above guidelines, subject to the cumulative financial commitments of all such projects remaining within the allocation approved for this program.
- 9.6 All projects implemented under the program, either by NHAI or MoRTH, shall be technically, financially and economically appraised by an empowered and well-equipped Project Appraisal & Technical Scrutiny Committee to be setup in NHAI and MoRTH. The Project Appraisal & Technical Scrutiny Committee for appraising projects under Bharatmala Pariyojana would comprise experts from NITI Aayog, Project and Finance Division and would be a dedicated unit which would place its recommendations on appraisal of projects to NHAI Board or Secretary, MoRTH, as the case may be, for approval.
- (i) Composition of the Project Appraisal & Technical Scrutiny mechanism shall be decided and approved by the NHAI Board (Authority).
 - (ii) Composition of the Project Appraisal & Technical Scrutiny Committee at MoRTH - existing PPP Cell under Highways Wing shall continue with reinforcement through addition of Financial Consultant and such other

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experts as may be required. As per extant mechanism, the PPP Cell solicits views/ comments of NITI Aayog on project proposals.

- 9.7 Guidelines for scrutiny of individual projects which may be followed by all implementing agencies are at **Annexure VI(b)**.
- 9.8 The final approval to any project under Bharatmala shall be subject to full DPR being provided to the bidders while floating the Project RFP in accordance with the extant guidelines.


10 Project award, contracting and appointment

- 10.1 No project should be awarded without confirming availability of 80% of the Right of Way for PPP projects and 90% for EPC projects.
- 10.2 All implementation agencies shall be required to ensure that the conditions precedent regarding Right of Way are met prior to issuing the 'Appointed Date' for any project under their purview.
- 10.3 In order to ensure an efficient and transparent Bidding Process, the online Bidder Information Management System (BIMS) shall be used for management of bidder information and technical evaluation by all implementation agencies.

V - PROJECT IMPLEMENTATION

11 Monitoring of Projects

- 11.1 Project progress for all projects shall be monitored electronically through the Project Monitoring Information System (PMIS). Reports on project progress shall be prepared on a monthly basis through the system and submitted to the Ministry of Road Transport & Highways.
- 11.2 To ensure that latest project information is available in PMIS, all officers are directed to ensure the following latest by **5th of every month** -
- (i) Completion of updation of all PMIS projects associated with the field office, and certification of the same.
 - (ii) Upload of associated monthly IE/ AE/ SC reports for the projects, as per standard format including the detailed strip plans.
 - (iii) Updation of the stage of the project, when a project is appraised and approved/ awarded/ appointed/ completed.
 - (iv) Addition of any new project, where DPR has been initiated, which was not previously in the PMIS.


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- 11.3 Between the 5th and 10th of each month, all **ROs and CGMs shall validate and verify all data** fed into the PMIS by the respective PIUs.
- 11.4 **Reviews using PMIS:** Progress reviews shall be at regular pre-defined intervals using PMIS by the respective implementation agencies.

12 Supervision of projects

- 12.1 Bids for selection of the IE/ AE for Under Construction projects shall be floated along with the bids for civil works. The IE/ AE shall be appointed within 3 months of issue of Letter of Award (LOA) to the successful bidder for civil works.
- 12.2 IE/ AE shall use latest technology for carrying out completion tests, since completion certificate is issued on the basis of results of these tests. IE/ SC shall similarly use latest technology for carrying out half-yearly inspections. Technology shall include but not limited to using Network Survey Vehicle (NSV) including laser profilometer for roughness, Falling Weight Deflectometer (FWD) for pavement strength, and Retro reflectometer to test effectiveness of signages.
- 12.3 The IE/ SC shall upload half-yearly reports on the Road Asset Management System (RAMS) and Indian Bridge Management System (IBMS).
- 12.4 The IE/ AE/ SC shall upload monthly progress reports as per the standard format specified in the RFP. PMIS certificate shall be presented by the IE/ AE/ SC when submitting invoices for payment.

13 Financial management at NHAI and NHIDCL

- 13.1 Given the scale of investment and consequent asset base creation, prudence in accounting and financial planning/ management is essential to meet fund requirements of current and future projects to be undertaken by NHAI & NHIDCL.
- 13.2 The system of **project-based accounting** shall be put in place to ensure that all costs incurred at all times during the life-cycle of the project are accurately captured:
- (i) The costs include but are not limited to (a) Civil construction cost including expenses such as mobilization advance, delays and damages, retention money, (b) Land acquisition cost, (c) Utility shifting costs, (d) Operation and Maintenance costs, (e) Debt costs and other interest expenses.
 - (ii) Sources of revenue include but are not limited to (a) Toll fee collection – monthly, (b) Premium or negative grant, (c) Damages or penalty collected

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from the concessionaire.

- 13.3 The field offices shall ensure that all costs incurred and revenues received from any project are maintained as part of the Project based accounting system so as to assess the financials of any such project stretch. Profit-centres shall be defined and monitored at a project / stretch level, sub-corridor level, corridor level and network level.
- 13.4 A detailed twenty-year financial model shall be maintained by NHAI based on project-level accounting. The model shall calculate and project the funds generated from projects and fund requirements for projects over twenty years.
- 13.5 The model shall be updated every six months with the updated list of projects and revised assumptions for projecting future revenues and costs.

VI - ORGANIZATION

14 Staffing of field offices of NHAI

- 14.1 Since a majority of the program is to be implemented by NHAI, guidelines are being provided to ensure adequate staffing of field offices for proper project execution and management.
- 14.2 **Standard Organization Structure and Manpower Requirements at Project Implementation Unit (PIU):**
 - (i) A PIU shall be headed by a Project Director (PD) of General Manager (GM) or Deputy General Manager (DGM) level officer;
 - (ii) The number of Technical officers (apart from the PD) required at the PIU shall be assessed based on the total work-load handled by the PIU in terms of 'number of packages' and 'length of packages'.
- 14.3 **Standard Organization Structure and Manpower Requirements at Project Implementation Unit (PIU):**
 - (i) Every State with 3 or more PIUs should have at least one Regional Office. Exceptions may be considered for reasons to be recorded. To maintain optimum span of control, a Regional Office may have no more than 9 PIUs under it and additional Regional Office may be setup in case there are more than 9 PIUs.
 - (ii) Each Regional Office shall be headed by a Regional Officer of the level of Chief General Manager (CGM) or General Manager (GM).
 - (iii) Apart from the Regional Officer, the number of Technical officers (GM/ DGM/ Manager/ Deputy Manager) at the Regional Office shall be


Project Director
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determined by the number of PIUs handled.

15 Monitoring of annual targets for award and construction

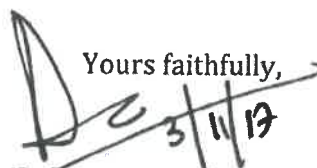
- 15.1 NHAI, NHIDCL and various State PWDs involved in the implementation of Bharatmala Pariyojana program, shall be required to further divide the agency-wide annual award and construction targets into field office targets, so that each field officer at his respective field office shall have clarity about his annual and monthly award and construction targets. This exercise shall be completed within a period of 60 days of issue of these guidelines.

VII – EXTERNAL MONITORING AND AUDIT

16 Monitoring & Audit Mechanism

- 16.1 PIB will review the progress of this program once in six (6) months with a view to avoid cost and time overruns.
- 16.2 MoRTH, in consultation with NHAI and NHIDCL, will bring out a consolidated Progress Report for all sub-projects contained in the approved Bharatmala Phase-I before the PIB (every December and June).
- 16.3 The Progress Report will include details of the variation in the parameters of the sub-projects, which increase the overall cost of the sub-projects or their financing patterns.
- 16.4 The Progress Report along with the Review Report of the PIB shall be placed before the CCEA for its information and guidance.
- 16.5 NHAI shall lay down outcome parameters like reduction in time of travel, fuel efficiency, accident reduction, riding comfort and user satisfaction, and periodically monitor the same for every corridor.
- 16.6 Audit of physical and technical parameters will be ensured for all such projects by MoRTH through appropriate independent agencies.
- 17 This issues with the approval of the Competent Authority.


Project Director
NHAI, PIU-Harda (M.P.)

Yours faithfully,

(Debjani Chakrabarti)
Director (Highways)

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Sr. No.	Economic Corridor	Alignment	Length (km)	Implementation Agency
18	Indore-Nagpur	Indore - Harda - Betul - Nagpur	464	NHAI
19	Chennai - Madurai	Chennai - Tindivanam - Trichy - Madurai	464	NHAI
20	Mangalore-Raichur	Mangalore - Chitradurga - Bellari - Raichur	461	NHAI
21	Tuticorin - Cochin	Tuticorin - Aruppukottai - Madurai - Usilampatti - Theni - Bodi - Muvattupuzha - Cochin	443	NHAI
22	Solapur - Bellary - Gooty	Solapur - Bijapur - Kushtagi - Hospet - Bellary - Gooty	434	NHAI
23	Hyderabad - Aurangabad	Aurangabad-Jalna-Nanded-Degloor-Sangareddy-Hyderabad	427	NHAI
24	Delhi - Kanpur	Delhi - Ghaziabad - Aligarh - Kannauj - Kanpur	424	NHAI
25	Tharad-Phalodi	Phalodi - Balotra - Tharad	394	NHAI
26	Nagaur - Mandi Dabawli	Nagaur - Sujargarh - Ratargarh - Pallu - Rawatsar - Hanumangarh - Mandi Dabwali	387	NHAI
27	Sagar-Lucknow	Sagar - Banda - Chhatarpur - Mahoba - Kabrai - Hamirpur - Kanpur - Lucknow	361	NHAI
28	Sambalpur-Paradeep	Sambalpur - Angal - Dhenekal - Cuttack - Paradeep	360	NHAI
29	Amreli - Vadodra	Amreli - Bhavnagar - Tarapur - Borsad - Vadodara	341	NHAI
30	Godhra - Khargone	Godhra - Halol - Chote Udepur - Khargone	337	NHAI
31	Sambalpur-Ranchi	Sambalpur - Jharsuguda - Sundargarh - Rourkela - Simdega - Kalebira - Khunti - Ranchi	329	NHAI
32	Bangalore - Mallapuram	Bangalore - Mandya - Mysore - Nilgiri - Mallapuram	323	NHAI
33	Raisen - Pathariya	Raisen - Raisen - Udaipura - Shahpura - Jabalpur - Lakhnadaon - Pathariya	320	NHAI
34	Bangalore-Mangalore	Bangalore - Kunnigal - Hasan - Mangalore	319	NHAI
35	Chittaurgarh - Indore	Chittaurgarh-Pratapgarh-Ratlam-Indore	303	NHAI
36	Bilaspur - New Delhi	Bilaspur - Jagadhri - Yamunanagar - Saharanpur - Roorkhe - Muzzafarnagar - Meerut - Ghaziabad - Delhi	302	NHAI
37	Solapur - Mahabubnagar	Solapur-Akkalkot-Kalaburagi-Mahabubnagar	290	NHAI
38	Bangalore - Nellore	Bangalore-Kolar-Chittoor-Tirupati-Naidupeta-Nellore	286	NHAI
39	Ajmer - Udaipur	Ajmer - Beawar - Rajsamand - Udaipur	286	NHAI
40	Sirsa - Delhi	Sirsa - Hissar - Rohtak - Delhi	278	NHAI
41	Sirohi - Beawar	Sirohi - Sumerpur - Pali - Beawar	255	NHAI