



GOVERNMENT OF INDIA  
MINISTRY OF ROAD TRANSPORT & HIGHWAYS  
(Project Zone-6)

Transport Bhawan,  
1, Parliament Street,  
New Delhi-110 001  
Dated:17<sup>th</sup> November, 2016

NH-12014/29/2016-KNT(P-6)

To,

The Secretary to the Government of Karnataka,  
Public Works Department,  
Vidhana Soudha,  
M.S. Building,  
Bangalore-560 001

Sub: - Estimate for the work of widening to two/four lane with paved shoulders from Km. 34.000 to Km. 70.900 (Chittapur cross to start of Yadgir Bypass) of NH-150 on EPC mode in the State of Karnataka through EPC mode (Package-I).

**(Job No. NH-150-KNT-2016-17- 828)**

Sir,

I am directed to refer to CE (NH), Bangalore letter No. CENH/TA-3/AE-7/NH-50/Pkg-II/Final DPR-2016-17/1151 dated 28.06.2016 forwarding an estimate amounting to Rs 317.46 crore for the above noted work and to say that the estimate has been examined in the Ministry and modified for Rs. 314.90 crore in the light of comments contained in the enclosed Technical Note.

2. I am to convey the technical, administrative and financial sanction of the President of India to the estimate amounting to **Rs. 314.90 crore (Rupees Three hundred fourteen crore & ninety lakh only)**.
3. The work has been assigned **Job No. NH-150-KNT-2016-17-828**. This Job No. may be quoted in all future correspondence regarding this work.
4. The expenditure is debitable to Major Head '5054' Capital Outlay on Roads & Bridges, 01-National Highways (Sub Major Head), 01.337 Road Works (Minor Head), 03 (NH Original Works), 03.01 Works financed from Central Road Fund 03.01.53 Major Works under demand No. '74'- Ministry of Road Transport & Highways NH (O) for the year 2016-17.
5. It is requested that arrangements may be made for the submission of Quarterly progress report in respect of this work by the Executive Engineer concerned to the Director General (Road Development) Government of India.
6. On completion of 50% work if the appraisal of the project shows that it will necessitate revision of the estimate based upon the physical completion of the project vis-à-vis financial expenditure immediate action should be taken to submit the revised estimate so as to ensure that the sanctioned revised estimate is available before necessary for incurring expenditure beyond permissible limits arises.
7. The technical approval and financial sanction may lapse after six months from the date of its issue in case the work is not awarded within that period.

8. The following physical and financial target shall be strictly adhered to. Phasing of expenditure shall be as given below:-

Financial Year	Milestone	Physical %age	Cumulative progress		
			Financial(Rs. in cr.)		
			Construction	Maintenance	Total (Rs. in cr.)
2016-17	Milestone-I	20%	60.8	0.00	60.8
2017-18	Milestone-II	60%	182.39	0.00	182.39
2018-19	Completion	100%	303.98	0.00	303.98
2019-20	Maintenance	100%	0	1.09	305.07
2020-21	Maintenance	100%	0	2.18	307.25
2021-22	Maintenance	100%	0	3.28	310.53
2022-23	Maintenance	100%	0	4.37	314.90

9. This sanction issues with the concurrence of the Finance Wing vide U.O. No. 2993/TF-II/16 dated 01.11.2016.

Yours faithfully,

(S.P. Choudhary)

Under Secretary to the Government of India

Copy with a copy of technical note forwarded to: -

1. The Chief Engineer, National Highways, K.R. Circle, Bangalore-560 001.
2. The Supdt. Engineer, Ministry of Road Tpt. & Highways, PWD Annexe Building, K.R. Circle, Bangalore-560001.
3. The Accountant General, Karnataka, Bangalore-560 001.
4. The Pay & Accounts Officer, Ministry of Road Tpt. & Highways, IDA Building, Jamnagar House, New Delhi.
5. The Pay & Accounts Officer, Ministry of Road Tpt. & Highways, Kandriya Sadan, 1st Floor, 17-Main Road, II-Block, Bangalore-34.
6. The Principal Director of Audit, Economics & Services Ministries, A.G.C.R. Building, New Delhi.
7. CGM, NHAI, Karnataka
8. PF-I Division, Ministry of Finance, North Block, New Delhi.

Encl: -As above.

(S.P. Choudhary)

Under Secretary to the Government of India

Copy to: -

1. P.S. to Minister (RT&H).
2. CE(NHDP-IV), M/o Road Transport & Highways, New Delhi.
3. CE(EAP), M/o Road Transport & Highways, New Delhi.
4. CE(Mech.), M/o Road Transport & Highways, New Delhi.
5. Senior Technical Director, NIC, M/o Road Transport & Highways, New Delhi.
6. CE (P-6) / SE (P-6) / EE (P-6) / W&A. Section/ FW (TF-II) / Guard file.

(Savita)

Section Officer (P-6)  
Tele No.23321703



**GOVERNMENT OF INDIA  
MINISTRY OF ROAD TRANSPORT & HIGHWAYS**

Transport Bhawan,  
1, Parliament Street,  
New Delhi-110 001

No. RW/NH-12014/29/2016-KNT(P-6)

Dated: 17<sup>th</sup> Nov 2016

**TECHNICAL NOTE**

1.	Name of work	Estimate for the work of Widening to two/four Lane with Paved Shoulders from Km 34.000 to Km 70.900 (Chittapur cross to start of Yadgir Bypass) of NH-150 in the State of Karnataka through EPC mode (Package I).	
2.	State	Karnataka	
3.	NH No.	150	
4.	Estimated Project Completion cost	As proposed by the State PWD (Rs. in cr.) 317.46 (including centages, LA & Utility shifting)	As modified in the Ministry (Rs. in cr.) 314.90 (including centages, LA & Utility shifting)
5.	Length (in km)	36.90	36.90
6.	Cost per km (Rs. in cr.)	7.46 (including centages only)	7.37 (including centages only)
7.	Reference	Letter No. CNH/TA3/AE7/NH50/Pkg II/Final DPR/2016-17/1151 Dated: 28.06.2016 from Chief Engineer, NH, Bangalore	

**COMMENTS**

1. **Scope of the project:** Estimate for the work of Widening to two/four Lane with Paved Shoulders from Km 34.000 to Km 70.900 (Chittapur cross to start of Yadgir Bypass) of NH-150 in the State of Karnataka through EPC mode (Package I).

- 1.1 The summary of cross section details and proposed crust composition are as under:

SL No	Cross Section	Description	Length in m	Lane Configuration	Crust Composition
1	TCS-1	2L+PS open country	29510	2L+PS	Rigid pavement • PQC - 280mm • DLC - 150mm • GSB - 150mm • Subgrade-500 mm
2	TCS-2	2L+PS builtup area	310	2L+PS	
3	TCS-4	2L+PS realignment	4260	2L+PS	
4	TCS-5	4L+PS open area	250	4L+PS	
5	TCS-6	4L+PS divided carriageway with service road in open area	180	4L+PS	
6	TCS-8	4L+PS with slip road on structures approaches	1990	4L+PS	
7	Toll plaza		400	Multi-lane	
	<b>Total</b>		<b>36900</b>		



S. No.	Description of improvement	Chainage (Km)		Length in Kms	Remarks
		From	To		
1	Two lane with paved shoulders	34+000	39+560	5.560	
		41+980	60+500	18.520	
		60+900	70+900	10.000	
				<b>34.080</b>	
2	Four lane section	39+560	41+980	2.420	Wadi Built-up Area
3	Toll Plaza	60+500	60+900	0.400	
				<b>2.420</b>	
	<b>Total</b>			<b>36.900</b>	

## 1.2 Structures:

In the project stretch it is proposed for reconstruction/ new construction / widening of following CDs

Structure	Re-Construction	New Construction	Widening	Total
Culverts	25	18	19	<b>62</b>
Minor Bridges	4	4	5	13
Major Bridges	-	0	0	0
Flyover	-	1	0	1

## 1.3 Intersections & Grade Separators:

In the project stretch it is proposed for improvements of following 34 nos of at grade intersections:

- (a) At-grade intersections- Major Intersection - 6 nos.
- (b) At-grade intersections- Minor Intersection - 28 nos.

## 1.4 Truck lay-byes:

Truck Lay bye shall be provided at below mentioned locations.

Design Chainage	Side
37.500	RHS
54.800	LHS

## 1.5 Bus Bay & Bus Shelter:

Bus Lay bye shall be provided at below mentioned locations

Sl. No.	Design Chainage		Village Name
	Left	Right	
1	39.200		Sevalal Nagar
2	40.700	40.700	Wadi
3	43.500	44.000	Halkatta
4	48.100	49.000	Ladlapur
5	53.200	54.600	Nalwar
6	57.400	60.400	Yergol
7	64.600	64.900	Alipur Tanda

#### 1.6 **Toll Plaza:**

Toll Plaza location is mentioned below

Sl. No.	Existing Chainage(m)			Design Chainage(m)		
	From (Km)	To (Km)	Length (Km)	From (Km)	To (Km)	Length (Km)
1	61.890	62.290	0.400	60.500	60.900	0.400

#### 1.7 **Road furniture:**

Roadside furniture has been proposed in accordance with section 9 of Manual.

- Traffic signs
- Pavement markings
- Traffic blinker
- Crash barrier
- Road boundary stones
- Kilometre and 200m stones
- Road side railings/Pedestrian Guard Rails
- Road delineators

#### 1.8 **LA & Utility Shifting:**

The following Provision has been made in the estimate for LA and shifting of Utilities along the project stretch.

- Land Acquisition charges - Rs 36.70 crore
- Shifting of electrical lines - Rs 2.67 crore
- Shifting of water supply and sanitary lines - Rs 1.43 crore
- Afforestation charges - Rs 2.18 crore

- 1.9 The State PWD has certified that 81.98% land for the project is already in its possession and only 18.02% land is required to be possessed.

Status of availability of land and LA notification is as under:

Total length of the project	36.900 Kms
Length available for the project	30.250 Kms
Length for which Land to be acquired	6.650 Kms (18.02%) (3a and 3A have been prepared)

#### 1.10 **Pavement Design:**

**New Rigid pavement:** As per finding of DPR, Rigid pavement has been proposed in the entire length 36.90 km. of the project road and the same has been designed for 30 years (one time construction). The parameters considered for design are 8077 CVPD in nos. (At the end of design life) and the CBR value of 8%. Based on the above parameters the crust composition is proposed as per IRC 58-2015 viz. Sub Grade 500 mm + GSB 150 mm + DLC 150 mm + PQC 280 (Total thickness 1080 mm).

- 1.11 **EPC Schedules:** State PWD shall finalize the EPC schedules in consultation with RO Bengaluru.

**2. Observations of Roads Wing & Design Specifications including deviations if any:**

- a. The feasibility study has been carried out by empaneled consultant. As the work is to be taken up on EPC mode, the agency shall be given the responsibility of providing a full design and proof checking of the design of structures before implementing the work.
- b. The agency responsible for construction shall be responsible for submission of a detailed design as per IRC standards.
- c. The state PWD shall acquire balance land for construction for smooth implementation of the project for which 3a and 3A notifications are under preparation.
- d. The charges for plantation and afforestation have been combined to 1% of the total civil cost and the additional provision of plantation with tree guard and their 1 year maintenance have been disallowed.
- e. The provision of rainwater harvesting system is restricted to 1 no. per kilometer in place of 1 no. per 500m.

**3. Clearance from MOEF: not required.**

**4. Construction period**

Construction period for this work has been proposed as **24 months** including the rainy period. Defects liability period and maintenance period has been considered as **4 years** as specified in the Model EPC Document approved by the Ministry.

**5. Specifications**

(i) The nomenclature and clause numbers of the items shall be specified as per MORTH Specifications for Roads and Bridges works (fifth Revision) and all the works shall be executed strictly as per Ministry's specifications/ Ministry's circular/ guidelines issued from time to time.

(ii) Road Marking, traffic sign boards, road side furniture, road safety works, crash barriers, delineators, boundary/ kilometer stones, pedestrian facilities, highway lighting etc. have been considered in the estimated cost.

**6. Contract Documents:**

6.1 Single stage two-cover bidding is to be adopted as per instructions conveyed vide Ministry's letter no. RW/NH-37010/4/2010/PIC dated 06.09.13. RFP and draft contract documents shall be as per the Model RFP circulated vide Ministry's letter no. RW/NH-37010/4/2010-PIC (Pt-RFP) dated 27.05.2014 and other amendment issued till date.

6.2 Construction period for this work shall not be more than 24 months including the rainy period. Defects liability period and maintenance period shall be 4 years as specified in the amendments to Model EPC Document issued vide Ministry's letter no. RW/NH-37010/4/2010/PIC dated 15.01.14.

**7. Invitation of tenders and award of works:**



- 7.1 As the estimated cost of work is more than Rs. 300 cr. therefore, to award the work, procedure as per instructions conveyed vide Ministry's letter no. RW/NH-24035/4/2008/P&M/PIC-EAP dated 31.03.16 is to be adopted.
- 7.2 LoA will be issued by CE, MORTH, New Delhi to the lowest qualified bidder after approval of the lowest quoted qualified bid by the Competent Authority. Thereafter, Contract Agreement will be signed by CE (NH), State PWD after conforming to the EPC bidding document.
- 7.3 The time limit for awarding of this work is 6 months from the date of sanction and should be strictly followed as per the instructions communicated to all State PWDs vide this Ministry's letter no. RW/NH-15015/29/2001-PL dated 05.07.2001 and compliance reported to the Ministry. If the work is not awarded within the stipulated time, it may lead to de-sanction of the work unless Ministry's prior approval to extension of the time limit is obtained.
- 7.4 CE (NH), State PWD will intimate this ministry about award of contract/commencement of work immediately as per instructions contained in this Ministry's letter no. RW/NH-11060/1/98-(DO-I) dated 05.11.1998.
- 7.5 E procurement must be adhered to while inviting tender for the work.
- 7.6 The tenders for the work shall be invited on EPC mode as per guidelines issued by this Ministry vide circular letter No. RW/NH-24035/4/2008-P & M/PIC dated 21.05.2011. in addition to guidelines issued by this Ministry vide circular letter No. RW/NH-11024/3/99-US (D-1) DATED 9.3.2000, No. RW/NH-24035/4/2008-P&M dtd. 21.05.2010 and No. NH-12037/67/2010/LWE dated 2.8.2010. The work shall be awarded as per guidelines issued by the Ministry vide letter No. NH-15015/29/2001-PL dated 05.07.01.
- 7.7 While accepting tenders that the overall cost of estimate at tender rates including contingencies, work charge establishment and agency charges does not exceed by more than 5% of sanctioned cost.
- 7.8 Excess in tender cost is caused only by routine factors such as increase in cost of labour or material.
- 7.9 Excess due to change of scope or enlargement / reduction of work or specifications as already approved in the sanctioned estimate would require prior approval of Ministry.

## **8. General**

- 8.1 The provision of contingencies should be utilized as per Ministry's circular letter no. RW/G-20011/8/98-WA(R) dated 16.08.2002 with the approval of the Ministry. The estimates for carrying out the activities under the provision of contingencies including change in scope of work will be approved by Ministry on assurance/certification by Authority's Engineer/CE (NH), Department that the amount provided against contingencies is available and the same has not been indirectly utilized by accepting higher tender rates. Authority's Engineer/ENC/CE (NH), Department shall also certify that approval of estimates to be charged to contingencies will not cause revision of the sanctioned estimate.
- 8.2 Collection of material on the roadside should be so planned that it should commensurate with the physical progress of work and the collected material should not cause any hindrance to the traffic. It must be ensured that the contractor arranges for separate land for storage of road construction material and machinery and these shall not be allowed to be stacked on roadside.
- 8.3 No work beyond the scope of the sanctioned estimate leading to increase in the scope of the work or change in specification should be undertaken without obtaining prior written approval of the Ministry. In case, the estimate needs revision due to change in rates/tender rates for any reasons, the revised estimate shall be submitted immediately for Ministry's approval. No expenditure beyond

- permissible In this connection, this Ministry's letter No. RW/NHIII/Coord/32/84 dated 19.5.84 and NH-11026/2/99-US (DI) dated 29.10.2001 may be referred.
- 8.4 In order to ensure that there is no slippage in achieving the targets, the progress may be closely monitored by ENC/CE (NH), Departmental quarterly status report is to be furnished to the Ministry in the prescribed proforma.
  - 8.5 During the course of execution, the traffic may be regulated in accordance with guidelines laid down vide Ministry's letter no. NHIII-33 (126)/72 dated 20.03.1973 and letter No.RW/NH-11060/1/1998-D.O.1 dated 07.10.1987. Smooth flow of the traffic may be ensured by providing adequate traffic control devices in accordance with stipulation of IRC: SP: 55:2001 "Guidelines on Safety in construction Zone".
  - 8.6 It is observed that simultaneous working at large number of work fronts in long stretches is causing severe inconvenience to traffic during construction. Therefore, it is suggested that fronts may not be operated in more than 3 km length simultaneously, without completing the bituminous surfacing in the stretches where excavation/granular layers are carried out. Suitable provisions in the contract shall be incorporated for proper traffic management.
  - 8.7 The display boards on development activities of the work shall be made as per guidelines issued vide Ministry's letter no. RW/NH-33044/10/2002-S&R (R) dated 26th May, 2003. The cost of the same will be met out of the provision of contingencies allowed in the estimate.
  - 8.8 The provision for centages (contingencies, quality control etc) should be utilized as per Ministry's circular Letter No.RW/G-20011/8/98-WA dated 16th August 2002. For any other item, which is not covered in paras 1.1.1 to 1.1.7 of above circular letter, necessary approval of Ministry (in principle) with the recommendation of RO (Bengaluru) should be taken before execution. However, sub-estimate for the same should be got approved from RO (Bengaluru) before execution.
  - 8.9 Provision for quality control @ 0.25% has been allowed. The work is to be carried out in accordance with the "Hand Book of Quality control for construction of Roads and Runways (Second Revision)-IRC SP:11-1988", observing strict quality control instructions contained in the Ministry's letter No. NH-III/P/I/83 dated 19 April 1984 and permanent records maintained thereof.
  - 8.10 The independent quality control tests of all items from any of the accredited laboratories as per IRC: SP:94-2011 shall be carried out from the quality control provision in estimate to ensure the quality of work.
  - 8.11 Neither the work nor any item of work shall be split into small parts for awarding the work to a number of contractors. In this regard, instructions issued in this Ministry's letter No.NH-III/P/25/84 dated 4/8/1984 may be referred
  - 8.12 Guidelines for Road Safety vide Ministry's letter No. RW/NH-33072/04/2004-S&R(R) dated 27.04.2012 shall be followed wherever applicable.

## 9. Cost estimates:

- 9.1 The estimate is based on the Ministry's Standard Data Book and latest State Schedule of Rates, 2015-16 of NH Circle, Bangalore.
- 9.2 The Centages has been considered in the estimate as per Ministry's circular no11014/7/2013-P&M dated 14.08.2013 for project costing more than 100crore.
- 9.3 State PWD has proposed maintenance period of four year as per circular no RW/NH-37010/4/2010/PIC dated 15.01.2014. The corresponding maintenance charges is modified to at 0.5%, 1.0%, 1.5% & 2.0% for 1st, 2nd, 3rd & 4<sup>th</sup> year respectively, total 5.0% for 4 years maintenance period.
- 9.4 The estimated total project completion cost works out to **Rs. 314.90 cr.** in the light of above observations and as per details given below:



Sl No	Item	Amount Rs in Rs(in crore)	% of total constructi on cost
<b>I</b>	<b>Road Works</b>		
1	Site Clearance and Dismantling	0.86	0.39%
2	Earthwork	26.56	12.16%
3	Granular Sub-Base & Base Courses	16.30	7.46%
4	Pavement Works		
	4a) Flexible Pavement	0.00	0.00%
	4b) Rigid Pavement	108.39	49.62%
5	Drainage and Protection Works		
	5a) Longitudinal Drains, Median Drains, Chutes etc.	4.61	2.11%
	5b) Retaining Wall / Toe Wall	0.00	0.00%
	5c) Pitching / Turfing	1.70	0.78%
	5d) RE Walls	20.53	9.40%
6	Traffic Signs, Markings & Other Road Appurtenances	4.27	1.95%
7			
8	Other Miscellaneous Works	6.06	2.77%
	<b>Sub - Total</b>	<b>189.29</b>	<b>86.65%</b>
<b>II</b>	<b>Structure Works</b>		
9	Cross Drainage Works		
	9a) Pipe Culverts	4.91	2.25%
	9b) Box Culverts	1.08	0.49%
10	Bridges		
	10a) Minor Bridges	13.37	6.12%
	10b) Major Bridges	0.00	0.00%
	10c) Rehabilitation of existing bridges	0.41	0.19%
11	Grade Separated Structures		
	11a) Underpasses (VUP)	0.00	0.00%
	11b) Flyovers - 1 no.	1.47	0.67%
12	RoBs		
	<b>Sub - Total</b>	<b>21.24</b>	<b>9.72%</b>
<b>III</b>	<b>Toll Plaza ( 0.40 km length)</b>	<b>7.91</b>	<b>3.62%</b>
A	<b>Total Civil Cost (A) (Rs. Crs.)</b>	<b>218.44</b>	<b>100%</b>
13	<b>Add contingencies @ 2.8 % of (A)</b>	<b>6.12</b>	
B	<b>Total Cost (B)</b>	<b>224.55</b>	
14	Agency charges @ 3% of (B)	6.74	
15	Quality Control charges @ 0.25% of (B)	0.56	
16	Road Safety charges @ 0.25% of (B)	0.56	
17	Supervision charges @ 3% of (B)	6.74	
18	Escalation @ 5% per annum for 2 years i.e. 10% of (A)	21.84	
19	Maintenance charges @ 5% of (A) for 4 years	10.92	
20	<b>Total Project Cost including centages</b>	<b>271.92</b>	
21	<b>Project road length (km.)</b>	<b>36.90</b>	
22	<b>Total project Cost Per Km (Rs. Crs.)</b>	<b>7.37</b>	
	<b>LA &amp; Utility Shifting</b>		
23	Shifting of Electrical lines	2.67	
24	Shifting of Water supply Lines	1.43	
25	Afforestation charges/ Plantation work and its maintenance @ 1 % of (A)	2.18	
26	Land Acquisition charges	36.70	
27	<b>Total Project Completion cost (D) (20+23+24+25+26)</b>	<b>314.90</b>	

**9.5 Phasing of expenditure:** Phasing of expenditure is as under:

(Rs.in cr.)

Year	Milestone	Cumulative progress			
		Physical	Financial (Rs. in Cr.)		
			Construction	Maintenance	Total
2016-17	Milestone I	20%	60.8	0	60.8
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*Rahul Meena*  
(Rahul Meena)

Assistant Executive Engineer  
For Director General (RD) & Special Secretary