



**Consultancy Services for Preparation of Detailed Project Report (DPR) for strengthening including Paved Shoulder of Khayerpur – Amtali (Agartala Bypass) (km 0.00 to km 12.91) of NH-8 (44) in the State of Tripura**



**Khayerpur – Amtali (Agartala Bypass)  
of NH-8 (44)**

**DETAILED PROJECT REPORT**

**VOLUME I :- REPORT & ESTIMATE**



*Submitted To*  
**Public Works Department (NH)  
Government of Tripura**

*Prepared By*

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# REPORT

## CHAPTER -1 EXECUTIVE SUMMARY

### 1.1 Introduction

Public Works Department(NH), Government of Tripura has decided to take up the development of Khayerpur – Amtali road (Agartala Bypass) of NH-8(44) (tentative length 12.91) for carrying out suitable Detailed Project Report and render consultancy services for proper structuring and implementation of following project. To meet the requirement PWD, Tripura appointed C.E. Testing Company Pvt. Ltd. (CETEST) as consultant to prepare the Detailed Project Report for the proposed improvement and strengthening of the roadway.

### 1.2 Project Background

The project road starts from Khayerpur and ends at Amtali which is a bypass road of NH-8 (44) with length of 12.910 Km . The project road runs through West Tripura District of Tripura. The project road passes through village / localities namely Old Agratala, Uttarchampamura, Eastchampamura, Mekhlipara, Nagichhera, Malaynagar, Dukli and Madhuban.

The start point of the project road is Khayerpur at Km 0+000 (design Ch. 0+000) and ends at Km 12+910 (design Ch. 12+678) at Amtali .The existing length of the road is 12.910Km. However, after design the proposed length comes out to be 12.678 km.

### 1.3 Socio Economic Profile of Project Location

Tripura is a state in Northeast India. The third-smallest state in the country, it covers 10,491 km<sup>2</sup> (4,051 sq mi) and is bordered by Bangladesh (East Bengal) to the north, south and west, and the Indian states of Assam and Mizoram to the east. Tripura lies in a geographically disadvantageous location in India, as only one major highway, the National Highway 8(44), connects it with the rest of the country.

Five mountain ranges Boromura, Atharamura, Longtharai, Shakhn and Jampui Hills—run north to south, with intervening valleys; Agartala, the capital, is located on a plain to the west. The state has a tropical savanna climate, and receives seasonal heavy rains from the south west monsoon. Forests cover more than half of the area, in which bamboo and cane tracts are common.

Followings are some facts & figures regarding the state.

<b>Location</b>	:	Approximately lies between 22°56'N to 24°32'N latitude, and between the longitudinal lines 91°09'E to 92°20'E.
<b>Area</b>	:	10491.69 Sq. km.
<b>Capital</b>	:	Agartala (12.8 m from the mean sea level)
<b>District</b>	:	Dhalai, Sipahijala, Khowai, Gomati, Unakoti, North Tripura, South Tripura, west Tripura
<b>Population</b>	:	36,71,032 (According to 2011 census)
<b>Density of Population</b>	:	350 persons per sq.km.
<b>Male</b>	:	18,71,867

<b>Female</b>	:	17,99,165
<b>Sex Ratio</b>	:	961 (Female per 1000 Male)
<b>Main languages</b>	:	Bengali (67%), Tripuri (Kokborok) (27%), Other (6%)
<b>Tribes</b>	:	Bhil, Bhutia, Chaimal, Chakma, Garo, Halam, Jamatia, Khashia, Kuki, Lepcha, Lushai, Mog, Munda, Noatia, Orang, Reang, Santal, Tripuri, Uchui,
<b>Literacy</b>	:	94.65% (According to 2011 census)
<b>Per capita income</b>	:	Rs. 33,493/- (Per Capita Income with 2004-05 Base)
<b>Climate</b>	:	Rainfall 2000 mm to 2300 mm average
<b>Temperature</b>	:	25°C to 35°C in Summer & 10° C to 25° C in Winter
<b>Surfaced Roads Length</b>	:	The overall length of roads in Tripura is 16,931 km. As of 2010, the National Highways make up of 448 km and the State Highways consist of 689 km
<b>Railways (length)</b>	:	220 km
<b>Crops</b>	:	Rice, Potato, Sugarcane, Mesta, Pulses, Jute, coffee etc.
<b>Fruits</b>	:	Pineapple, orange, jack fruit, Mango, Cashew nut, Coconut.
<b>Vegetables</b>	:	Ragi, Jowar, maize, cardamom, Ginger, Turmeric, Potato, chili etc.
<b>Major Minerals</b>	:	Zinc, Lead, Copper, Dolomite, Coal, Quartzite etc.
<b>Forests</b>	:	6292.681 sq.km. (59.98% of the total geographical area of the state).
<b>Industries</b>	:	Rubber, Food processing, Natural Gas, Tea, Bamboo, Handloom, Fabrics, Information Technology, Tourism, Horticulture industries.

#### 1.4 Salient Features

This relates to the most suitable alignment for 2-laning of road sections and for optimum upgrading of existing road based on field data and detail study involving traffic, geo-technical, topographic, pavement and road condition and socio-economic aspects. Special attention has been given for augmentation of capacity for intended level of service in design period. A few appropriate design applications have been considered for operational efficiency and road safety.

Road side religious structures have been mostly avoided by adjusting the alignment suitably and/or by eccentric widening.

Salient features of the improvement proposal in comparison to the existing conditions are mentioned below.

#### Salient Features of the Proposed Road

Sl.	Features	Existing	Proposed
1	Start and End	Starts from Khayerpur and ends at Amtali .	Starts from Khayerpur and ends at Amtali .
2	Terrain	Plain,Rolling	Plain,Rolling
3	Length	12.91 km	12.678 Km
4	Design Speed	Varying from 40kmph to 65kmph	In general, design speed is 80 kmph. However, at some places design speed is reduced to 40 kmph due to site constraints and to accommodate proposal within available right of way
5	Cross-Section	Carriageway Width varies from 6.0m – 10.0m Earthen Shoulder varies from 1.0-2.0m (Each Side) Total Formation Width varies from 8.5-12.0m	<b>TCS-1 (open area)</b> <ul style="list-style-type: none"> <li>a) Two Lane Carriageway Width -7.00m</li> <li>b) Paved Shoulder Width -2 x 1.5m</li> <li>c) Hard Shoulder Width -2 x 1.0m</li> <li>d) Roadway Width-12.0 m</li> </ul> <b>TCS-2 (Built up area with bothside drain)</b> <ul style="list-style-type: none"> <li>a) Two Lane Carriageway Width-7.00m</li> <li>b) Paved Shoulder Width -2 x 1.5m</li> <li>c) Hard Shoulder Width -2 x 1.0m</li> <li>d) RCC Open Drain – 2 x 1.0m</li> <li>e) Roadway Width-13.0 m</li> </ul> <b>TCS-3 (Built up area with oneseide drain)</b> <ul style="list-style-type: none"> <li>a) Two Lane Carriageway Width-7.00m</li> <li>b) Paved Shoulder Width -2 x 1.5m</li> <li>c) Hard Shoulder Width -2 x 1.0m</li> <li>d) RCC Open Drain – 1 x 1.0m</li> <li>e) Roadway Width-14.0 m</li> </ul>

Sl.	Features	Existing	Proposed
6	Major Junction	2Nos.	2 Nos. (At start ch. Khayerpur market & End ch. Amtali )
7	Minor Junction	37Nos.	37 Nos.
8	Major Bridges	2 nos. Steel Truss Bridge- 2 x 36.0m RCC Bridge- 2 X 30.0m	2 nos No requirement of new proposal. Existing Bridges are retained due to good condition.
9	Culverts	43 nos. (1no HP, 42nos Box culvert)	43 nos. Existing Culverts are retained due to good condition.
10	ROB	1No. Span = 2 x 6.0m Box culvert	1No. Existing ROB is retained due to good condition. Hence, alignment will follow the existing ROB.
11	RUB	1No. Span - 1 X 21.5m	1No. Existing RUB is retained.
12	Bus Bay	Nil	Nil
13	Truck lay bye	2 nos	2nos (Existing truck lay bye is retained)
14	Base Year Traffic (May, 2017)	At Km 3+000 Total Traffic in Numbers = 4418 Total Traffic in PCU= 5276	-
15	Traffic Growth Rate	-	5%
16	Design Life	-	15 Years
17	Projected Traffic (Year 2035)	-	At Km 3+000 Total Traffic in Numbers = 10633 Total Traffic in PCU= 12698
18	Design MSA	-	Km 0+000 to Km 12+678 = 18 msa. <b>Adopted = 20 msa</b>

## 2.1 Cost Estimates

Schedule of Rates for PWD, Tripura – 2011 and based on this item rates civil cost has been determined. However, civil cost has been escalated 18% as per Govt. of Tripura vide Memorandum no. F.2(1)/CE/PWD(NH)/2015/1545-51, dated 03/02/2016.

Civil Construction cost including 2.8% contingency of the project comes out as **55.24 Crores** with per km construction cost is **4.36 Crores**.

Abstract of Cost Estimate is presented below