

EXECUTIVE SUMMARY

1.1 General Background

Transport plays a vital role in the economic and social development of a country. The demand for inter-city freight transport in India is expected to double every 12 years while the demand for passenger transport is expected to double every eight or nine years. With high growth of traffic, congestion becomes inevitable and loss due to accidents also increases. Additional capacity has to be created by widening the roads to multi-lane standards and/or by strengthening the existing pavement crust. The Government of India aims at improving and developing the road infrastructure of the National Highway in the State of Mizoram for MORT&H, Government of India.

The Ministry of Road Transport and Highway has decided to take up the development of existing NH-54 section from Km 125.00 to 250.00 to 2-lane with paved shoulders National Highway Standards.

The consultancy assignment has been awarded to Holtec consulting Pvt. Ltd for preparation of Detailed Project Report for up-gradation of the above highway sector.

The consultant had submitted the detail design report of project road vide letter No. 09526 dated 23 Nov 2011. The project has now handed over to NHIDCL vide letter No. NH-12037/182/2015/SARDP-NE dated 16th April 2015 and project to be funded by Japan International Corporation Agency (JICA). There after JICA team has been checking the DPR. The JICA team has proposed modifications in DPR with some revised policy decisions and updated IRC codes.

1.2 Project Location

The project road lies in Serchhip, Lunglei and Lawngtlai district of Mizoram. Project road starts from Km 125/0 (design ch 125+000) at Keitum village of NH-54 & ends after Thualthu village at km 250/0 (Design ch. 243+300). Length of project road is 125 km (Design Length 118.320 Km), Existing road is single lane and passes through Keitum, Pangzawl, Hnahthial, Zobawk, Hrangchalkawn, Thualthu town.

Existing alignment traverses through Hill, and built-up areas. Project road has been designed for 40 kmph speed.

The existing length of the project road is 125.00 kms. The Index Map of project road is shown in fig below:

Fig: 2.1 – Index Map



1.3 Existing Project details

The present condition of existing road is not good. Details of existing alignment are mentioned below:

a) Terrain : The project road passes through hilly and mountainous terrains

b) Lane Configuration: Single lane road

c) Existing ROW: 7m to 12m

d) Pavement Condition: The existing road condition is fair to poor from km 125 to Km 215 and poor to very poor from Km 215 to Km 250.

e) Junctions / Intersections:

There are three major Junctions and three minor junctions along the project road. Details of junctions are shown in table below.

Table 1: Junctions

S.No	Location	Type of Junction	Name of Road	Remarks
1	174.020	Y	Aizwal -Lunglei-Sangau	Major
2	201.070	Y	Aizwal -Lunglei-Thenzawl	Major
3	214.700	Y	Aizwal -Lawngtlai--Lunglei	Major
4	137.600	T	Village road	Minor
5	143.670	Y	Village road	Minor
6	149.285	T	Village road	Minor

f) Settlements :

Followings are the list of settlements along the project road.

Table 2: Village/Town list

Sr no.	Village Name	Existing Location (Km)		Length (Km)
		From	To	
1	KEITUM	125.000	126.280	1.280
2	BUNGTLANG	132.000	134.900	2.900
3	RAWPUI	138.100	139.650	1.550
4	PANGZAWL	149.400	153.900	4.500
5	THILTLANG	161.460	162.650	1.190

Sr no.	Village Name	Existing Location (Km)		Length (Km)
		From	To	
		164.100	164.500	0.400
6	HNAHTHIAL	170.460	173.400	2.940
7	LEITE	184.400	186.200	1.800
8	MAUDARH	193.200	193.500	0.300
9	DAWN	208.600	209.400	0.800
10	ZOBAWK	216.900	222.300	5.400
11	HRANGCHALKAWN	223.400	224.200	0.800
12	THAIZAWL	228.200	228.500	0.300
13	BUALTE	233.050	235.100	2.050
14	THUALTHU	244.500	245.900	1.400

g) Traffic : AADT on the project road is as follows:

Table 3: Traffic data

S. No	Traffic Count Location	PCU	CVPD
1	Km Stone 179.00	662	210
2	Km Stone 209.00	1322	354
3	Km Stone 225.00	1244	324

354 CVPD (Km 209) has been considered for traffic projection and MSA calculation.

Project road will cater the traffic of Multi Modal Transit Transport Project as well. Therefore, the design traffic will be $354+472= 826$ CVPD (in year 2010).

h) Pavement Design

Following table shows the pavement design for the project road:

Table 4: Pavement layer thickness details

Particulars	Pavement value
CBR	5%
Projected MSA	20
BC	40 mm
DBM	100 mm
WMM	250 mm
GSB	300 mm
Total	690 mm

1.4 Proposals for the project road:**a) Proposed Cross section :**

(i) Carriageway	2x3.50 = 7.00 m
(ii) Paved shoulder	2x1.5 m
(iii) Earthen shoulder	<ul style="list-style-type: none"> • Earthen Shoulder hill side (including drain) -1x1.0m • Earthen Shoulder Valley side – 1x1.0m including parapet wall
(iv) Angle of Hill cutting	1 : 0.2 to 1 : 1.3
(v) Slope/cross fall	
- Main carriageway and Paved shoulder	2.50%
- Earthen shoulder	3.0%
(vi) Super elevation	7.00% max.
(vii) Widening	Concentric & Eccentric

b) DRAINAGE

Lined drain has been proposed along the project road on hill side. Sub surface drain



(Perforated pipe with filter material) has been provided below the lined drain. Catch water drain on hill slope and ground water pipe across the road has been provided in the project road.

c) PROTECTION WORKS

Project road will be widened on hill side as well as on valley side. Breast walls, rock protection wall, and rock fill prevention fence has been proposed on the hill side. Toe wall, Retaining walls gabion walls, reinforced earth walls and rock anchors are proposed on valley side for stability of embankment.

- Breast Wall 83940 m
- Retainning wall 42470 m
- RE Wall 4760 m
- Gabion wall 5578 cum
- Rock fill prevention wall 4900 m

d) Culverts

There are 760 culverts proposed for new construction/reconstruction on the project road. Out of which 36nos are box culverts and 724 are pipe culverts. List of culverts are presented in chapter 6 of this report.

e) Bridges

There are 4 nos of bridges proposed on project road. Out of four bridges three MNB (minor bridge) are to be reconstructed and one major bridge is to be retained. Following major and minor bridges form part of the Project Road:

Table 5: Bridge Details

Sn	Str Type	River Name	Design Chainage (km)	No of Span	Proposed span	Deck width (m)	Remarks
1	Minor Bridge	Maudarh Lui	190.190	1	16	12.9	Reconstruction
2	Major Bridge	Mat River	193.425	3	16.7+45.1+31.2	7.5	Retain

3	Minor Bridge		198.425	1	8	12.9	Reconstruction
4	Minor Bridge		216.460	1	8	12.9	Reconstruction

f) Bus bays/Shelter

At 12 locations bus shelter have been proposed.

Table 6: Bus stop locations

SI No	Chainage (Km)	Village/Town
1	125575	KEITUM
2	132750	BUNGTLANG
3	137730	RAWPUI
4	149350	PANGZAWL
5	158150	THILTLANG
6	173100	HNAHTHIAL
7	179315	LEITE
8	201460	DAWN
9	210200	ZOBAWK
10	214685	HRANGCHALKAWN
11	223475	BUALTE
12	233650	THUALTHU

g) Traffic Projection & Capacity Analysis

As per traffic projection there is requirement for 2 lane road. Consultant has proposed widening to 2 lane in whole project road section.

1.5 CONSTRUCTION PACKAGING

Project road is divided in 3 packages. Length of each package is as detailed below:

Package 1 Km 125.00 to Km 166.00 41 Kms



Package 2	Km 166.00 to Km 208.00	42 Kms
Package 3	Km 208.00 to Km 243.300	35.3 Kms

1.6 CONSTRUCTION PROGRAMME

Construction period of the project is 36 months for each package.