

### **Brief Note on the project proposal:**

#### **1. Following is the salient features of the project:**

1.	Name of the Project	Detailed Project Report for Rehabilitation and Up-gradation of Pune - Mulshi - Mangaon - Mhalsa - Dighi Port and Indapur (NH-66)-Tala - Mandad - Agardanda -Dighi Port (SH-96 & SH-92) [Section-II : Mangaon -Mahsla - Dighi Port] National Highway from existing km 00+000 (Mangaon) to km 54+750 (Dighi) [Design km.0.000 to km. 54+750] to Two lane with paved shoulders in the state of Maharashtra.
2.	Length of the project	54.750 Km
3.	Major Bridges	1 Nos (1 Retained)
4.	Minor Bridges	14 Nos ( 7 Reconstruction, 7 Widened)
5.	Culverts (Pipe & Box)	(307+18 ) = 325 No
6.	Passenger Underpass	1
7.	VUP	Nil
8.	ROB (LC No. 29 A)	Nil
9.	Major & Minor Road Junctions	(9+59) = 68 Nos
10.	Toll Plaza	1 No.
11.	Base Year Traffic (PCU)-2015	1957 PCU
12.	Projected Average Traffic Growth	5 % per year

#### **2. Improvement Proposals:**

Keeping in view the length of the project, the design parameters and likely facilities to be provided in the project, the NH Division had submitted the Estimate. It is proposed to have rigid pavement for 2 lane carriageway including paved shoulders for this project package. Based on Engineering Surveys, Investigations, Traffic analysis and projections the following design standards have been adopted as per Manual of specifications and standards for 2-laning of Highways with paved shoulder (IRC:SP;73-2015) published by IRC.

Sr. No.	Item	Standards for Plain / Rolling Terrain
1.	Design Speed	80- 100 Kmph
2.	Land width in open / Built-up Area	24 m
3.	Width of Carriageway	7 m
4.	Paved Shoulder	1.5 m both side
5.	Unpaved shoulder	2 m both side
6.	Camber / Cross fall	
i.	Carriageway & Paved Shoulder (Rigid Pavement)	2 %
ii.	Earthen Shoulder	3 %
7.	Total Pavement thickness in mm	1100

### **3. Status of Land Acquisition:**

In section where 2-laning have been accommodated within existing ROW, no land acquisition have been proposed. Land acquisition has been proposed to the extent of 30m in realigned & geometrical improvement sections.

In this package 72.73% of land is available and the balance land will get available as per tender condition. At present Draft 3a and 3A is under preparation by consultant.

Accordingly, MSRDC has proposed provision of 23.12 crore for LA. The details of Land as under:

Total Land required = 81.5218 Ha,

Private Land= 69.6579 Ha.

Forest Land= 11.8639 Ha.

### **4. Last Treatment & DLP:** Being new declared NH, so no DLP for entire stretch.

## 5. Scope of work:

Broadly the Scope of work is defined as under

### A. Main carriageway-

- (i) **Crust Composition (Rigid Pavement)**      Design Life-30 years
- a. GSB –150 mm thick
  - b. DLC - 150 mm
  - c. PQC - 300 mm thick (M-40)
- (ii) **Crust Composition (Flexible Pavement)**      As per Overlay requirement
- a. Bituminous Concrete – 40 mm
  - b. Dense Graded Bituminous Macadam – 95 mm
- (iii) **Length of main carriageway is 54.750 kms comprising of**
- |                       |          |                   |
|-----------------------|----------|-------------------|
| • Concentric Widening | -        | 31.750 kms        |
| • Eccentric widening  | -        | 21.425 kms        |
| • Bypass              | -        | 1.575 kms         |
| <b>Total</b>          | <b>-</b> | <b>54.750 kms</b> |

### (b) Junction Improvements

- **Major Junctions**      - 9 Nos
  - Major + junction @ Km 0+000
  - Major + junction @ Km 10+770
  - Major + junction @ Km 17+400
  - Major + junction @ Km 23+425
  - Major + junction @ Km 28+600
  - Major + junction @ Km 33+450
  - Major + junction @ Km 36+025
  - Major + junction @ Km 39+375
  - Major + junction @ Km 54+750
  -
- **Minor Junction**      - 59 Nos

### (D) Culverts –

- **Pipe culverts**
  - Reconstruction      - 295 Nos
  - Widening & Rehabilitation      - Nil
  - New Construction      - 12 Nos
  - Retained/Repair      - Nil
- **Slab / Box Culverts**
  - Reconstruction      - 17 Nos
  - Retained/Repair      - Nil
  - New Construction      - 1
  - Widening & Rehabilitation      - Nil
- **Stone / Arch Culverts**
  - Reconstruction      - Nil
  - Retained/Repair      - Nil
  - New Construction      - Nil
  - Widening & Rehabilitation      - Nil

**E) Bridges –**

- **Major Bridge**  
Retained - **NIL**
- **Minor Bridge**  
Reconstruction - **7 Nos.**
  - @ Km 3+250
  - @ Km 4+925
  - @ Km 25+490
  - @ Km 26+750
  - @ Km 31+560
  - @ Km 37+710
  - @ Km 39+780
- Widening - **7 Nos**
  - @ Km 1+140
  - @ Km 2+810
  - @ Km 3+250
  - @ Km 14+160
  - @ Km 16+210
  - @ Km 20+640
  - @ Km 22+510
  - @ Km 43+090

New Construction - **NIL**

**(F) Toll Plaza – 1 No. @ Km 44+700**

**(G) Traffic Control Devices, Road Safety Work and Road Furniture** as per provision of manual have also been taken.

**(H) Miscellaneous Work-**

The provision of slope and shoulder protection, high embankment protection, utility ducts, RCC cover drains with footpath in built up section have also been taken.

**(I) Project Facilities-**

The provision of project facilities in accordance to requirement of manual such as

- (i) Road Boundary, Km and 200 m stones
- (ii) Street lighting in habitation and structure approaches.
- (iii) Bus Bay with Shelter (21 Nos.) and Bus Shelters (19 Nos.)

**(J) Safety and Traffic Management during Construction -**

The provision of traffic management as per clause 112 of Ministry specification during construction shall be maintained by the EPC contractor.

**(K) Utility Shifting:**

As there is Electricity poles are at some places and water supply line at few point found in between ROW, a provision of Rs. 1000 lakh is considered in estimate for shifting of these utilities.

**6. In view of the above, the estimate is as below:**

**(Rs. in crores)**

Sr. No.	Civil Works	Amount	
		Crore	%
1	SITE CLEARANCE	1.65	0.46%
2	EARTH WORK	40.01	11.22%
3	SUB BASE AND BASE COURSES	38.08	10.68%
4	RIGID PAVEMENT / BITUMINOUS COURSES	158.07	44.32%
5	CULVERTS	65.75	18.43%
6	MINOR BRIDGES	1.22	0.34%
7	REPAIR AND REHABILITATION OF BRIDGES AND CULVERTS	5.00	1.40%
8	MAINTENANCE OF ROADS	1.58	0.44%
9	TRAFFIC SIGNS, ROAD MARKINGS AND OTHER ROAD APPURTUNENCES	18.06	5.06%
10	TOLL PLAZA	4.40	1.23%
11	BUS/TRUCKLAY BAY	20.12	5.64%
12	TREE PLANTATION	1.15	0.32%
13	MISCELLANEOUS WORKS (Street Lighting & Highmast)	1.61	0.45%
Grand Total		356.69	
<b>TOTAL CIVIL COST (A)</b>		<b>356.69</b>	
CIVIL COST PER KM ( In Cr.)=		6.51	
a	Add contingencies @ 2.8 % of (A)	9.99	
b	Total Civil Construction Cost (B)	366.68	
c	Agency Charges @ 3% of Civil Construction Cost (B)	11.00	
d	Quality Control Charges @ 0.25% (B)	0.92	

Sr. No.	Civil Works	Amount	
		Crore	%
e	Road Safety Audit Charges at 0.25% (B)	0.92	
f	Supervision Charges @ 3% of Civil Construction Cost (B)	11.00	
g	Maintenance Charges @ 2.5% of Civil Construction Cost (A)	8.91	
h	Price of Escalation 5% per year as per phasing	21.40	
	<b>Total Construction Cost</b>	<b>420.83</b>	
	CIVIL COST PER KM ( In Cr.)=	7.68	
1	Utility relocation(Electric Poles and Pipe lines) and Tree Cutting	10.00	
2	Land Acquisition	23.12	
3	Environmental Impact Mitigation	3.57	
	<b>Total Capital Cost of Project</b>	<b>457.52</b>	
	<b>CIVIL COST PER KM ( In Cr.)=</b>	<b>8.35</b>	

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Project Authority

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