

## Cost estimation for widening of the existing 4-lane divided carriageway to 6-lane divided carriageway for 15 Km Length of Gurgaon Jaipur section of NH-8

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**Introduction** : The cost estimation have been prepared for the project corridor, for widening of the existing 4-lane divided carriageway to 6-lane divided carriageway for 15 Km Length of Gurgaon Jaipur section of NH-8 in the state

of Haryana including dismantling, site clearance, strengthening the existing pavement of main carriageway and service roads, new construction for widening of pavement, construction/ widening of cross drainage structures, Provision of new underpasses, retaining structures, covered RCC longitudinal drains, utility chambers, road furniture, street lighting, bus bays etc. The cost for land acquisition, rehabilitation and environmental costs and Independent Consultant's fees have also been considered.



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### Existing Cross Section

- The entire project highway between NH 8 is four lane divided carriageway . Service roads on either side of highway exist only in urban areas. Based on an existing cross section elements and composition of pavement, the details of entire length are described in the following paragraphs:
- Widening of this section from existing 2 lane single carriageways to 4 lane divided carriageway was completed in the year 2005. The existing cross section in this stretch comprises of
- The width of the central median is highly varied and ranges between 4.5m to 2.0m.
- The carriageway width in 4 lane sections is 7.0m with shyness of 250 mm.Paved shoulder of 1.5m and earthen shoulder of 2.0m are provided on both sides. Wherever service roads are provided the earthen shoulder is replaced by separators of 1.0m width.
- In 6 lane sections, the carriageway width is 10.5m with shyness of 250 mm.At some locations, paved shoulder of 1.5m and earthen shoulder of 2.0m are provided on both sides. At locations of structures (Underpass/ROBs), paved shoulder is missing.
- Service roads wherever provided are either 7 .0m or 5.5m width with covered drains.
- The use of fly ash for construction of embankment is not considered as per IRC



widening on NH 8.

- c. New Construction of 1major bridges (Two lane), 1minor bridge (three lane) reconstruction,4 service road bridges new construction,2 vehicular underpasses ( six lane) and 1flyover (six lane) new construction on NH 8.
- d. Construction of 18.0 km service road (Both side) on NH 8.
- e. Demolition of existing structures
- f. Installation of crash barriers, kerbs stones, drains, traffic signs, street lighting, HTMS and Reconstruction of toll plaza by adding additional lanes.

### Conclusion / Abstract Of Cost Estimates:

#### Up Gradation of NH- 8 from 4-lane to 6-lane

Bill No.	Description	Cost in Rs.
A	Civil Works	NH- 8
1	Site Clearance	4,256,964
2	Earthworks	72,870,452
3	Sub-Base and Base Courses	229,104,439
4	Bituminous Courses	602,488,210
5	Cross Drainage Works (Culverts)	43,234,662
6	Bridges	163,082,798
	Widening/Repairs/Rehabilitation	730,000
7	Drainage and Protection Works	113,196,233
8	Traffic Signs, Markings & Road Appurtenances	81,586,034
9	Reinforced Earth Retaining Structures	63,118,545
10	Toll Plaza	84,848,729
11	Highway Traffic Management System (HTMS)	21,397,250
	Sub Total (A)	1,479,914,316
	Rate"Per km fot Civil works"(Sub Total A/15)	98,660,954
B	Non Civil Works (Except Environment)	
12	Land and Structure Acquisition	28,125,000
13	Rehabilitation and Social Costs	1,072,254
14	Utility Relocation	22,297,406
	Sub Total(B)	51,494,660
c	Environmental Works	
15	Environmental Management Plan	6,750,831
	Sub Total(C)	6,750,831
	Total D = (A+ B +C)	1,538,159,807
	Rate Per km (Total D/15)	102,543,987



The Total Project Cost works out to be Rs. 153.82 Crores where civil works cost is Rs. 147.99 Crores.

**References :**

- [1]. <http://www.nhai.org/report99-00.pdf>
- [2]. <http://mpcb.gov.in/notices/Summary/Exe.SummaryBhandara.pdf>
- [3]. <http://environmentclearance.nic.in/writereaddata/EIA/10122015DN7WV8AZEIAReport.pdf>
- [4]. The Theory and Measurement of Private and Social Cost of Highway Congestion .  
A. Walters
- [5]. COST ESTIMATION OF HIGHWAY PROJECTS IN DEVELOPING COUNTRIES: ARTIFICIAL NEURAL NETWORK APPROACH
- [6]. Jamshid SODIKOV1)
- [7]. Quantity-Based Approach to Preliminary Cost Estimates for Highway Projects  
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