

JUSTIFICATION FOR LOCATING THE SELECTED SITE

- The proposed National Highway Authority of India is a part of an exclusive transportation road for construction of 4-lane of the existing 2 lane road from Parsarma to Araria NH-327E in the State of Bihar.
- The proposed diversion area is minimum and minimum no. of trees to be cut in proposed area.
- The road will dispense overall development, of entire region. It would act as the prime artery for economic flow of region.
- Will enhance economic development, provide employment opportunities to locals, strengthen tourism development ensure road safety and provide transportation facilities and other way side amenities.
- Based on study and survey carried out this is the only suitable and feasible location for proposed project.
- Have alternate for increasing traffic, easy accessibility, faster transportation and communication, reduction in distance and travel time.
- The proposed road for construction of 4-lane of the existing 2 lane road from Parsarma to Araria NH-327E in the State of Bihar. It would also provide ease of dispense of various basic amenities such as health care facilities, educational facilities etc. to connecting village.
- It will facilities better socio-economic Up-liftment, road junction having good connectivity with important industrial locations and highways.

EVALUATION OF ALIGNMENT OPTIONS

After detailed evaluation, it is resulted that more than 50% of the existing road need to be re-aligned for by-passes in greenfield, accordingly 3 options have been explored where two nos. alignment options are greenfield considering less Tree cutting, R&R issues, Utility shifting and maximum connectivity for various habitation for development. Hence, Greenfield option north of the existing road option has been finalized.

The selected alignment based on the comparative techno-economic study considering less environment impact, less R&R issues, less utility shifting, higher development potential and techno-economically competent.

The method of evaluation of the alignment alternatives against various aspects viz. engineering, socio-economic, environmental, cost and safety. Each aspect is subdivided into various parameters of equal weightage i.e. 1 mark each. Details of each alignment are noted against each parameter,

and the individual score is calculated for that parameter, by assigning 1 to the least value/best option, and proportionate value to the others.

The individual scores are then summarized for each aspect and the final score is calculated by applying the weightages given to each aspect as below, after considering the relative importance and impact of each criterion. After evaluation of each alternative, the one which scores higher will be the preferred alternative.

- Engineering Aspects: 25%
- Socioeconomic Aspects: 20%
- Environmental Aspects: 20%
- Cost Aspects: 15%
- Safety Aspects: 20%

The evaluation of alignment options detail shown in the below tables

Table: Evaluation of Alignment Options

S. No.	Description	Unit	Maxi-Score	Option-1		Option-2		Option-3	
				Detail	Score	Detail	Score	Detail	Score
Engineering Aspects									
1	Physical location away from city	Km	1	1.00	1.00	7.33	0.14	2.95	0.34
2	Terrain	-	1	Plain	1.00	Plain	1.00	Plain	1.00
3	Gradient	-	1	Flat	1.00	Flat	1.00	Flat	1.00
4	Proposed length of green field alignment/bypass/realignment	Km	1	64.02	1.00	113.80	0.56	113.07	0.57
5	Utilization of existing road by widening/ strengthening (1 mark for the highest)	Km	1	44.58	1.00	0.50	0.01	0.50	0.01
6	Length of Service/slip Road	Km	1	45.00	0.78	35.00	1.00	44.00	0.80
7	Horizontal curves	no	1	112	0.46	58	0.90	52	1.00
8	Number of Interchanges	no	1	1	1.00	1	1.00	1	1.00
9	ROBs	no	1	3	1.00	5	0.60	3	1.00
10	VUPs/LVUPs/SVUPs	no	1	41	1.00	51	0.80	50	0.82
11	PUPS	no	1	0	0.00	0	0.00	0	0.00
12	MJBs	no	1	10	0.80	8	1.00	8	1.00

S. No.	Description	Unit	Maxi-Score	Option-1		Option-2		Option-3	
				Detail	Score	Detail	Score	Detail	Score
13	MNBs	no	1	62	0.79	49	1.00	55	0.89
	Subtotal		13		10.83		9.01		9.42
Socio-Economic Aspects									
1	Total land acquisition required	Hct.	1	560.2	1.00	643.2	0.87	682.9	0.82
2	Agriculture Land	%	1	37.02	1.00	83.35	0.44	83.39	0.44
3	Residential Land	%	1	34.00	0.04	3.50	0.43	1.50	1.00
4	Commercial Land	%	1	8.50	0.12	1.20	0.83	1.00	1.00
5	Industrial Land	%	1	4.00	0.00	0.40	0.03	0.01	1.00
6	Open/barren Land	%	1	0.01	1.00	0.01	1.00	0.01	1.00
7	Garden/Plantation Land	%	1	6.02	1.00	7.95	0.76	10.27	0.59
8	Forest Land	%	1	8.03	0.17	2.34	0.57	1.33	1.00
9	Recreational Development	%	1	1.00	1.00	1.00	1.00	1.00	1.00
10	Pond/Ditch/Water body	%	1	1.42	0.18	0.25	1.00	1.49	0.17
11	Demolition of small type houses	no	1	322	0.11	56	0.63	35	1.00
12	Demolition of important buildings/ houses	no	1	175	0.10	33	0.55	18	1.00
	Sub Total		12		5.72		8.10		10.02
Environmental Aspects									
1	Alignment Length (MCW + Spur)	km	1	108.6	1.00	113.8	0.95	113.1	0.96
2	Cross roads	no	1	74	0.57	54	0.78	42	1.00
3	Canal/river crossings	no	1	72	0.72	52	1.00	62	0.84
4	Use of existing Road	km	1	44.58	0.00	0.00	1.00	0.00	1.00
5	Damage of Agriculture land	%	1	36.02	1.00	83.35	0.43	83.39	0.43
6	Damage of residential and commercial land	%	1	43.5	0.06	4.7	0.53	2.5	1.00
7	Damage of Garden/Plantation	%	1	6.02	1.00	7.95	0.76	10.27	0.59
8	Use of pond/ Ditch/ Barren	%	1	1.42	0.18	0.25	1.00	1.49	0.17
9	Length through Habitation	km	1	41.2	0.04	2.5	0.72	1.8	1.00

S. No.	Description	Unit	Maxi-Score	Option-1		Option-2		Option-3	
				Detail	Score	Detail	Score	Detail	Score
10	Presence of sensitive locations		1	1	1.00	1	1.00	1	1.00
10	Reserve forest/ Protect forest/ Breeding centre etc.	Hct.	1	45	0.19	15	0.58	8.77	1.00
10	School,College, Religious structures and Hospitals	no	1	56	0.20	12	0.92	11	1.00
	Sub Total		12		5.96		9.67		9.99
Cost Aspects									
1	Civil Cost (Rs Crores)	Rs.	1	3664	0.79	3372	0.85	2877	1.00
2	Overall Cost including maintenance, LA etc. (Rs Crores)	Rs.	1	5968	0.82	5343	0.92	4890	1.00
	Sub Total		2		1.60		1.77		2.00
Safety									
1	Road Geometry	-	1	Good	1.00	Good	1.00	Good	1.00
2	No. of Intersections	no	1	1	1.00	1	1.00	1	1.00
3	Road Safety	-	1	Safe	1.00	Safe	1.00	Safe	1.00
	Subtotal		3		3.00		3.00		3.00
Total Score			41		27.11		31.55		34.43
Final Summary									
1	Engineering Aspects				2.71		2.25		2.36
2	Socio-economic Aspects				1.14		1.62		2.00
3	Environmental Aspects				1.19		1.93		2.00
4	Cost Aspects				0.24		0.27		0.30
5	Safety Aspects				0.60		0.60		0.60
	Weighted Average Score				5.88		6.67		7.26
	Rank				3		2		1

Note: In the above alignment options, Alignment Option 3 is the preferred option.