

Diversion of forest land for development of 8 lanes (Greenfield Highway) from (Ch. 392.800 Km) Bhenda Hera village to (Ch. 452.425 Km) Moondiya village Section of NH-148N (Total length 59.625 Km), Under BHARATMALA PRIYOJANA Lot-4/Pkg-4 in the state of Rajasthan.

Criteria for Fixing Alignment for Greenfield Green field highway

The Greenfield alignment between two terminal stations should be short and straight as far as possible, but due to engineering, social and environmental considerations some deviations may be required.

The project should be constructible and easy to maintain; the Greenfield project should reduce the vehicle operation cost with respect to the existing alternative already available *i.e.* using the NH/SHs in combination to reach from point A to point B.

It should be safe at all stages *i.e.* during design, construction and operation stages. Safety audits at each stage should confirm the same.

The project initial cost, maintenance cost, and operating cost should be optimum so as to be considered economical with respect to its alternatives.

The Greenfield alignment should be finalised giving due consideration to siting/location of major structures including Major/Minor Bridges, Interchanges and ROBs. The space requirement of interchanges to be kept into consideration to avoid major resettlement.

The alignment should follow the unused / barren land to the extent possible to reduce the cost of land acquisition.

The proposed alternatives in the present case connects the under developed regions of the state which would lead to the development of new growth centres along the proposed highway *i.e.* paving the way for economic development of the region.

Obligatory points through which Greenfield alignment alternatives should not pass are detailed below:


Habitations: Proposed alignment is fixed in such a way that traverses at a minimum distance of 150m from built up areas and avoiding important buildings and structures. However, few isolated buildings falling along the alignment cannot be avoided due to Geometric requirements.

Wildlife Sanctuaries, National Parks, Reserve Forest and other Eco Sensitive Zones: Utmost care is taken while fixing the alignment near wildlife sanctuaries and national parks. The MOEF guidelines have been adhered to and the alignment has been fixed keeping it away from WLS, Sanctuaries and Tiger Reserves. It was not possible to completely avoid the protected and reserve forest areas. However, every effort has been made to reduce the acquisition of forest area.

Water Bodies: The Greenfield alignment has been fixed taking due consideration & importance of retaining the existing water bodies as far as feasible.

Railway Crossings and Important Structures: The components which increases the project cost are the presence of the Major bridges, ROBs and other structures. In order to reduce the project cost number of structures and its length were given due consideration while finalising the Greenfield Option.

Based on above criteria, 3 nos. of alignment options were analysed for techno-commercially viability and sustainable development option.

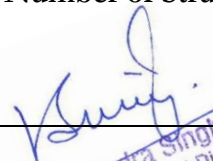

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The Comparative Statement for proposed alignment is given in below table:

Alternative Option Analysis

S. No	Description	Option I	Option II (Existing)	Option III (Existing)
1	Length, Km	59.625	71.279	65.803
2	Start Point	Ch. 392+800- Bhandra Hera	CH. 392+800- Bhandra Hera	CH. 392+800- Bhandra Hera
3	End point	Ch. 452+425- Moondiya	Ch. 464+079- Moondiya	Ch. 458+603- Moondiya
4	Districts	Kota	Kota	Kota
5	Connecting Highways	NH-52(old NH-12), SH-51, SH-9A	NH-52 (old NH-12), MDR 55 SH-51, SH-9A	NH-52 (old NH-12), SH-51, SH-9A
6	Design Speed, Kmph	120	Varying Speed 60-100 KMPH	Varying Speed 60-100 KMPH
7	Lane Configuration	8-Lane Access Controlled	4-Lane / 8-Lane	4-Lane / 8-Lane Access Controlled
8	Right of Way, m	100	60-100	60-100
9	Approx Travel Time (Hrs/Mins)	30 Mins	45 Mins	41 Mins
10	No of NH Crossings	1	1	1
11	No of SH Crossings	2	2	2
12	Access Control	Access Control	No Access Control	No Access Control
13	Number of Structures	MJB 5	MJB 5	MJB 5
		MNB18	MNB 20	MNB 19
		FLYOVER –Nil	FLYOVER –Nil	FLYOVER –Nil
		INTERCHANGE-3	INTERCHANGE- 6	INTERCHANGE- 4
		VUP-4	VUP-4	VUP-4


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		LVUP-7	LVUP-7	LVUP-7
		ROB-1	ROB-1	ROB-1
		Tunnel:-Ch. 422+200 to Ch. 425+750 (Length-3.550 Km)	Tunnel-Nil	Tunnel-Nil
14	Number of settlements shall be affected	Nil	3	1
15	Approximate affected Forest Area (Ha)	148.467	103 Ha	191.5
16	Eco-Sensitive / Protected Area	Darra WLS/Mukundra Hills Tiger Reserve	Darra WLS /Mukundra Hills Tiger Reserve	Darra WLS /Mukundra Hills Tiger Reserve
17	Merits  Veerendra Singh GM (T) Cum Project Director N.H.A.I. PIU, Kota	<ol style="list-style-type: none"> Design speed is 120 kmph throughout hence road user will enjoy the ride without any hindrance. This option is having fewer curves and hence highway is more safer It is not effecting the habitation as it is passing through open area Option is not affecting the Mukundra Hills Tiger Reserve 	<ol style="list-style-type: none"> Existing Highways are used hence Land Acquisition is Comparatively less at those locations Tunnel is not required. 	<ol style="list-style-type: none"> Existing Highways are used hence Land Acquisition is Comparatively less at those locations Tunnel is not required
18	Demerits	<ol style="list-style-type: none"> Land Acquisition is required throughout the reach 	<ol style="list-style-type: none"> Design speed is compromised therefore the travel time will increase Width of the expressway is reduced 	<ol style="list-style-type: none"> Design speed is compromised therefore the travel time will increase Width of the expressway is

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			<p>in the Darrah (WLS) which will further reduced the speed and will not cater the traffic in future</p> <ol style="list-style-type: none"> 4. 5 Km of SH-51 is used and there will 2 interchanges 5. MDR-55 from Ch. 422+500 to Ch. 430+900 is used and there will 1 interchange over it 6. NH-52 from Ch. 433 + 800 to Ch. 439+200 is used and there will 2 interchanges over it. 7. It is affecting Takli dam 8. It also affects Mangalam Cement area. 9. Length is increased by 12 Km when compared with option-1 10. Traffic Management scheme to be given wherever existing highway is used 11. Width of expressway will reduce on existing highways 	<p>reduced in the Darrah (WLS) which will further reduce the speed and will not cater the traffic in future</p> <ol style="list-style-type: none"> 3. NH-52 from Ch. 417+900 to Ch. 433+700 -2 interchange over it 4. It is affecting Takli dam 5. It also affects Mangalam Cement area. 6. Length is increased by 6 Km when compared with option-1 7. Traffic Management scheme to be given wherever existing highway is used 8. Width of expressway will reduce on existing highways
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Option I is best suitable due to following reasons:-

- It is not effecting the habitation as it is passing through mostly open area
- Least impact on Darrah WLS /Mukundra Hills Tiger Reserve
- Better connectivity to major towns through existing State & National Highways.
- Design speed is 120 kmph throughout hence faster connectivity with major towns in Rajasthan & Madhya Pradesh
- Shorter length in comparison with other options


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