

CORRIDOR MANAGEMENT USING SERVICE LEVEL BENCH MARKS FOR KHAMMAM TO WARANGAL

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Abstract:

Feasibility studies are normally conducted to justify investments the indispensable significance of attainability ponders in supporting choices identified with open spending on framework ventures, there are no endeavors to assess such investigations after development of offices. An investigation of a past achievability consider for a national interstate (563) path streets association and movement conditions The national highway development in India is carried out by a national highway authority of India (NHAI) . In India and in addition in the entire world transport framework assumes imperative job in the advancement of nation as a financial path and in alternate ways likewise, for example, improvement of farming and enterprises The national interstate (NH 563) improvement and actualized in India is 249 kms is add up to length. It takes from khammam to Warangal the improvement is going on NH563 and its getting to be 4 path streets. A few segments of NH563 thruways are finished by getting to be 4 path parkways yet some part are as yet the under development. The design procedures for flexible pavements based on C.B.R values. The asphalt configuration has joined by the code IRC: 37-2012 and Ministry of State Transportation (MOST) details. In this venture report, the asphalt layers, its endorsed confines by Ministry of State Transportation (MOST) and wellsprings of crude materials required for the laying of asphalt related with laying of 4 paths on National Highway (NH)- 563 between khammam to Warangal. The arrangement of interstate goes through plain landscape for 249 km by and large, the current street is on 0.5-2.5 m high dike aside from at ways to deal with significant extensions the current carriage width is 7.0 m with 1.5 m cleared shoulder at areas of settlements. These include 4 major bridges, 69 minor bridges and 210 culverts.

1.0 INTRODUCTION

Government of India has decided to take up through National Highways Authority of India (NHAI) about 1000Kms of expressways under of the National Highways Development Project (NHDP). NHAI has decided to take up the Bangalore-Chennai Expressway project to facilitate high speed travel in this corridor. The existing National Highway-563 which is running parallel to the proposed turnpike conveys one of the most noteworthy activity conveying passages in India. The proposed road office is to be produced as a completely get to controlled office on another arrangement. as advisors to carryout Consultancy Services for Feasibility Study cum Preliminary Design Report for the Khammam To Warangal way The proposed six path interstate would be a completely get to controlled fast office. Consequently all the passage, ways out and intersections must be arranged appropriately as review isolated offices. Wellbeing in outline, development, and task is of fundamental significance for the office and should be incorporated at the arranging stage itself. The Feasibility cum Preliminary Design Report in this way arranged will contain, between alia, the plan and format of the interstate and the undertaking office, primer outline and costing. The report will shape the premise on which a Financial Consultant and legitimate specialist, named independently will set up a RFP record for welcoming offers from private business visionaries to grant a BOT (Toll) concession. The concession will be on DBFO design, wherein the concessionaire will, as per the model concession assention endorsed by the Government, assume full liability to complete the point by point plan, development, upkeep and activity of the undertaking freeway and the venture offices affirming to the benchmarks indicated in the concession understanding. Concessionaire will get every one of the accounts required for the task, and in the end exchange the venture to NHAI after expiry of the concession time frame in a state as indicated in the concession understanding. The Feasibility cum Preliminary Design report would give all the specialized points of interest, in light of which sensible offers will be gotten from the imminent bidders.

The issues, concerns and specific interventions for these sectors have been discussed. Adaptation interventions have been designed for these sectors such as agriculture, rural development, transportation, tourism, forestry and biodiversity, urban development, health and family welfare,

while mitigation options have also been identified for energy, industry and transport. Research or knowledge development on climate change specific to Telangana has also been identified as a sector which should be developed to support data on mitigation and adaptation for the other 9 sectors. This technical / knowledge support on the subject can be given and facilitated by a cell or division in one of the examination foundations like EPTRI. A demonstrative rundown of group oral concerns, adjustment/relief intercessions and relating challenges has been classified here.

- Advancement of harvest assortments strong to warmth, cool and water pressure including raiser seed generation
- Substitution of inorganic composts by bio-manures
- Guaranteed credit office, including for sharecroppers
- Protection against trim disappointments (not only for the bank credit segment)

OBJECTIVE OF THE STUDY

- To study the research the important role in the development of NH563 highway
- To design a four lane highways to reduce the traffic flows.
- To rupture the travel time.
- To develop easy, short and economic transportation system.
- To compare the economics of the pavements.
- Calculate the project costing

2.0 LITERATURE REVIEW

AGASSIZ (1999) the most recent couple of years the movement in the cities and in addition on the thruways are continuously expanding that is the reason the rate of mischance are additionally expanding. Government are continuously chipping away at the advancement of streets for the security of individuals. Numerous thruways are as of now created and some are going on. One of the creating parkway is NH3. The a few sections of NH3 expressway are as of now formed by changing over into 4 path from 2 path. In any case, some piece of expressway are still under development. The length of parkways in india is 66,590 kms. The NH3 roadway is one of the biggest india national interstate which begins from agra in uttar pradesh and closes in mumbai in maharastra. The roadway is goes through the cities of uttar pradesh , rajasthan , madhya pradesh and maharastra. The NH3 expressway is otherwise called agra – bombay interstate. The length of NH3 roadway is 1,190 kms. At present the street among agra and gwalior is four path.

JAMIESON (2003) connected to Lochaber the much enhanced comprehension of frosty stream (that ice all at once goes about as a gooey liquid) that Alpine geologists had in the interim been creating. He made another and more exhaustive study of the Roads and different highlights, especially scratched bedrock surfaces, moraines and erratics, which empowered him to recreate previous ice sheets that could have dammed the vanished "Loch Gloy", "Loch Roy" and "Loch Spean" in a mind boggling succession of stages that represented all classes of proof: Roads, flood cols, scratched bedrock, moraines and so on (1863). Darwin at that point deserted his marine clarification, however with extraordinary hesitance. Yet, at this point his species hypothesis had long overwhelmed his worldwide structural hypothesis as the focal point of his examination, and at any rate the previous never again required the biogeographical model that had to some degree spurred the last mentioned.

Chiou, Y.-C.; Lai, Y.-H (2008) the street system will be effectively blocked when a seismic tremor happens. Along these lines, it is important to think about the association dependability of the street organize hubs and to pass judgment on the key areas and improve the crisis therapeutic protect way trust that calamity readiness is viewed as the foundation of crisis administration. From the perspective of the entire nation, a nation needs to set up a national catastrophe counteractive action structure and an entire network debacle aversion framework. Then again,

the state ought to set up crisis administration schools to advance catastrophe counteractive action at the network level and do suitable crisis preparing. As a supplement to government powers, endeavors and non-administrative associations ought to likewise act to react to crises. Numerous analysts have contemplated the street arrange strength and the adjustments in the rush hour gridlock stream in crises. focused on organize security after calamities and gave a proficient and snappy street arrange execution evaluation technique. assembled an execution recreation display for activity organizes in crises, and it can give choices to crises in various situations. These creators additionally confirmed the advantages of system administration with precedents, for example, Boston, Massachusetts explained upon the execution of transportation framework amid a fiasco, including the hazard, helplessness, unwavering quality and adaptability

Haddow, G.D.; Bullock (2017) A balanced temporary traffic control strategy can help meet the demands of the emergency rescue time and minimize the negative impact on society. The proposed PD-TCM model and relevant algorithms give full consideration to the optimization determination method of the emergency paths and control domain. To make full use of the road capacity and reduce the change in the network connectivity, a variety of control types with changeable control intensities are proposed, methods for the diverging domain to attract and distribute the traffic flow spillover from the control domain are used, and adjustments of the BPR function according to different road areas is improved. We also obtained the following management insights: (i) strengthen the daily information propaganda and constantly improve public awareness of the crisis and the authorities' ability to respond to it. If people have enough coping capacity, the blindness of post-disaster traffic would significantly reduce; (ii) accelerate the construction of an emergency rescue linkage mechanism to ensure that the emergency management department and people can obtain enough real-time and correct information to avoid the adverse effects of information asymmetry; and (iii) conduct risk assessments, implement early warnings of the risk and develop emergency and rescue plans. Frequent emergency rescue drills should be carried out to improve the government and the public's emergency response capability.

3.0 METHODOLOGY

Feasibility Studies Based on Data and information the project preparation support team (PPST) has examined feasibility of roads under the screening by assessing institutional capacity of APRDC, Alternative alignments, road safety and indigenous people and preliminary cost and budget. For institutional arrangements requirements, capacity building approach is adopted. Role of important stakeholders are identified. Existing roads have been examined in terms of congestion, geometry, and availability of Row and accordingly improvement proposals for like alternative alignments/bypasses and geometric improvements are made. Decisions taken during consultation, and suggestion of local engineers have been given due weightage. Consequently these socially acceptable improvement proposals have been shared with technical team to finalize design of the road. To understand impact of road improvement on road users and road side communities in terms of road safety. Secondary data support from (APSACS) and stakeholders' consultation have been given importance. Elaborate consultations with various stakeholder groups have been carried out that helped to develop insight for building up strategy of intervention process. Road safety strategy for community awareness has been formulated based on information collected from secondary sources from concerned department and to ensure participation. Major junctions and important curves have been considered as hot spots for road design. These locations will be considered to generate road safety awareness. Indigenous people are perhaps the most vulnerable section of the society. Finally strategy for Scheduled Tribe was formulated based on secondary level data, field observation and consultation.

Hwy 563 Improvements

- Planned development and roadway improvements will, over time, result in Hwy 563 ceasing to function as a Provincial Highway corridor.
- It is considered prudent for the Province to have discussions with the County to affect the transfer of the Hwy 563 corridor to the local municipal jurisdictions in advance of the initial Hwy 1/RR-31 interchange improvements.

- This study suggests a future function and form for the various segments of the Hwy however most infrastructure requirements along the majority of the length of the corridor will, for the most part, be driven by adjacent development initiatives

Non-Motorized Traffic Survey:

During traffic surveying it is important to consider non-motorized traffic in addition to motorized traffic since it will benefit from construction of the project. The benefit to non-motorized traffic is quantified and included in the benefit streams of the project. Therefore, the volume and composition of non-motorized traffic currently using the project road was surveyed for 7 days during 12-hours of daytime where pedestrians, pack animals, animal drawn carts and motor cycles were recorded

Along The Road Width We Taken The Levels Using The Instrument Dumpy Level Up To Length Of 330 M

TABLE THE LEVELING OF THE ROAD UP TO THE 3KM 30 M LENGTH AT AN INTERVAL OF 30M

ST.NO	DISTANCE	BEARING	B.S	I.S	F.S	H.I	R.L	REMARKS
1	0		0.585			100.585	100	B.M on A
2	30			0.935			99.65	
3	60			1.955			98.63	
4	90			2.845			97.74	
5	120			3.645			96.94	
6	150		0.96		3.94	97.605	96.645	change point
7	180			1.035			96.57	
8	210			1.7			95.905	
9	240			2.535			95.07	
10	270		0.955		3.85	94.71	93.755	change point
11	300			1.58			93.13	
12	330				3.015		91.695	ON B
			2.5		10.805			

4.0 RESULTS

Roads into highways with pavements constructed from nearby regular stone bound with neighborhood raw petroleum. The slow advancement of the street organize has improved neighborhood assets and conditions inside tight spending limitations. Conventional tracks and transport courses were redesigned rapidly utilizing neighborhood building materials with little ventures to give the biggest conceivable system the nation over. The sub-base, courses and extensions were built to universal norms, anyway the asphalt development depended neighborhood stone bound with nearby raw petroleum. Under expanding movement stacks the surface has been updated with cement and bitumen items relying upon the neighborhood conditions and height Rural Roads Connectivity is one of the key for country improvement, as it elevates access to monetary and social administrations, creating expanded horticultural wage and business. While building provincial streets, the arrangements in view of the parameters that influence the maintainability a t least expense The standard strategies and particulars tend to propose advancement and materials, in any case troublesome and evacuate away they may be, which commonly result in higher cost of improvement. In spite of the way that such strategies and progressions were endeavored world over, they couldn't wind up renowned in India, as a result of procedural objectives and nonappearance of care. An undertaking is made to join in inventive headways and discuss their beneficial outcomes so as to induce the field works in accepting such advances at set found ground-breaking

- The normal subgrade, which is the most reduced layer of a street and can comprise of leftovers that have been left from old streets or might be the common soil that is uncovered for new street building
- The sub-base, which comprises of compacted rock, stone or sand and is the principal layer that the street developer puts down on the characteristic subgrade Basically, this layer adds to the quality of the street, yet in addition gives a stage to working the hardware.

- The road base, made of assessed mineral aggregates, is seen as the essential working layer of the road and gives quality and flexibility. The mix may contain bitumen if the store bearing necessities are high.
- The base course, included totals and bitumen, is an even surface establishment for the best layer and further fortifies the street.
- The wearing course, generally made of a finely finished blend of total and bitumen, must have the capacity to oppose the scraped area of activity and give a smooth surface to vehicles to movement. It must be climate confirmation and fit for scattering water viably to limit risky occurrences, for example, sliding.

Geometric Overview of Existing Highway 563:

The design review of the existing Highway 563 corridor involved a desktop assessment and an evaluation of the corridor based on a site overview. The review of existing conditions served to identify the following geometric and access management issues:

Horizontal Alignment: A review of the geometry of the 12 horizontal curves along the existing Highway 563 alignment indicated that only 6 of the curves meet current highway standards³³.

Vertical Alignment: The Highway 563 corridor consists of 22 vertical curves (12 sag and 10 crest), with sag curves ranging from K19-to-K153 and crest curves in the range K13-to- K53. The Highway 563 grades vary from 0.0% to 7.2% (where a 6% grade is desirable for this highway facility). A comparison of these curves to the permitted Kmin values (required to accommodate stopping sight distance) was undertaken:

Approximately 23 % (5 of 22) of the existing Highway 563 vertical curves satisfy design criteria for 3R/4R projects that are applied to improvements proposed along existing paved highways³⁵; Three segments of the Highway 563 corridor, over a total length 0.6km (or 10% of the length of the corridor in both directions), exceed the 6% desirable maximum gradient³⁶ for a rural 2-lane undivided highway A thorough survey of the vertical profile should be performed to more accurately determine areas for further improvement.

Pavement Width: The current minimum standard for an undivided rural highway surface (exclusive of shoulders) requires a 7.0m pavement width³⁸. The existing Highway 563 pavement width along its entire length within the study area is 6.9m

Access Management: The intersection and private access spacing along Highway 563 is inconsistent with AT access management guidelines³⁹ for collectors and can be characterized as follows:

- Spacing between the existing public road intersections varies from 1.9-to-3.8km;
- Private access spacing ranges from 100m-to-425m; and
- Access to intersection spacing ranges from 22m-to-440m.

CBR Ratio Test:

The C.B.R test was developed by California division of highways as a strategy for Classifying and assessing soil sub-level and base course materials for adaptable Pavements. The C.B.R is a proportion of shearing obstruction of the material under controlled Density and dampness conditions. The C.B.R is characterized as the proportion of the standard Load, communicated as rate for a given entrance of the plunger. $C.B.R = (Total\ load/Standard\ load) \times 100$.

Where standard load is infiltration obstruction of the plunger into a standard example of squashed stone for the relating entrance



Figure C.B.R test apparatus

5.0 CONCLUSION

The conclusions of Khammam to Warangal highway feasibility investigated that the communities and road transport sector will benefit directly, with significant increase expected in the level of passenger transport services; and, growth in the transport of goods by roads by small-scale transporters and other private car. In the longer-term the agricultural and local/community business sector will grow, with new micro, small and medium enterprises being established that will take advantage of better transport services and lower transport costs to operate and provide services. The benefit of proposed widening of NH- 563 Development lead to changes in the level of well- being and human development, through their benefit of consumption level, educational attainments The road construction will provide better transportation facility for tourists visiting regions the pavement and we found that rigid pavement is more economic than flexible pavement after adding the 20 year life cycle cost.

For reduction in accident installation of proper road safety system through signage, barricades, crash barriers, will add to be safety of the vehicular traffic on the stretch of the road. This includes health and education services for which current access is insufficient and inadequate. It also includes services that are presently not available such as access to government services and infrastructure like electricity/water supply and veterinary extension services. The data presented enhances the clear approach on 4 lane road construction on khammam and Warangal highway. “The proposed passage does not have a critical unfavorable effect on the security and task of the Interstate office in view of an investigation of present and future movement. the operational examination for existing conditions will, particularly in urbanized regions, consolidate an examination of territories of Interstate to and including at any rate the essential exchange on either side. The review information was deliberately broke down to discover the rate offer of various vehicle composes, bearing savvy conveyance and morning and night top hour movement volume. The outcomes would be exceptionally helpful to activity police specialists to recognize appropriate movement control measures and actualize it.

REFERENCES:

1. Pandey, Y., Sangita, Kardam, R., and Singh, M. (2015) Laboratory Study for Use of Alternate Coal Mixed Waste Aggregates opposite Natural Aggregates for Bituminous Concrete Layer. *Worldwide Journal of Emerging Technology and Advanced Engineering*, 5(5), 401-403
2. Singh, M. P., and Shishodia, A.(2015).Green Technology for Construction and Maintenance of Roads. *Structural Engineering and Construction Review*, 28(9), 71-74.
3. Rynathiang, M. Mazumdar (2005) IIT Kharagpur, "Auxiliary Behavior of Cast n Situ Concrete Block Pavement", *Journal of Transportation Engineering*, Vol.131, Issue 9, pp.662-668
4. Austroads 2008, *Guide to Pavement Technology, Part 2: Pavement Structural Design Green Highways*, American Concrete Pavement Association, Baton Rouge, Louisiana - April 2008
5. Doolan C, *Concrete Pavements. Fundamental Roads Western Australia* - August 2010
6. Hodgkinson J R, *Introduction to Concrete Road Pavements, CACA Aust Technical Note* - June 1982.
7. Tinni An, *Introduction to Concrete Pavements, Dept of Transport, Environment and Infrastructure, Adelaide* - 19 January 2011
8. Tinni A. *Life Cycle Cost Analysis for Optimal Pavement Selection. Road Design, Construction and Upgrade Conference, Brisbane* - June 2010
9. Tinni An, *Evaluation and Comparison of Performance of Heavy Duty Road Pavements. Baltic International Roads Conference, Kuresaare, Estonia* – August 2006
10. Mawjoud and Mohammed G. Jamel (2016). Utilizing The Analytic Hierarchy Process and GIS For Decision Making In Rural Highway Route Location, *International Journal of Civil Engineering and Technology*, 7(2), 2016, pp. 359– 375