Pre-Feasibility Report

NAME OF THE PROJECT- Construction of 4 lane Access Controlled Greenfield Highway Section from Khammam to Devarapalle of length 162.126 km from Khammam in the state of Telangana to Devarapalle in the State of Andhra Pradesh under Economic Corridor under Bharatmala Pariyojana.

भा रा रा प्रा
NHAI
भारतीय राष्ट्रीय राजमार्ग प्राधिकरण
National Highways Authority of India

SUBMITTED BY

National Highways Authority of India
Khammam, Telangana

1.0 EXECUTIVE SUMMARY

Ministry of Road Transport and Highways, Government of India, has decided to improve the efficiency of freight movement in India. National Highways Authority of India (NHAI) has been entrusted for preparation of DPR to improve the road networks in the State of Telangana and Andhra Pradesh.

In pursuance of the above M/s. K and J Projects Pvt. Ltd. has been appointed as Consultant for preparation of DPR for development of Economic Corridors, Inter Corridors and Feeder Routes to improve the efficiency of freight movement in India under Bharatmala Pariyojana.

This part of highway starts from Khammam in the state of Telangana to Devarapalle in the State of Andhra Pradesh from CH: 0+000 to 162+126 km. The length of the proposed alignment is 162.126 km approx.

This is a green field alignment, access control and is proposed for 4 -Lane. The main objective of the proposed project is to reduce the distance and travel time between Andhra Pradesh and Telangana and to give connectivity to remote area. The project lays emphasis on development of these areas and make them available with the resources.

The proposed access controlled highway project with new alignment has been envisaged through an area which shall have the advantage of simultaneous development as well as shall result in a shorter distance to travel. The junctions with existing road will be planned in the form of interchanges and flyover to ensure uninterrupted flow of traffic.

The proposed road would act as the prime artery for the economic flow to this region. It will enhance economic development, provide employment opportunities to locals, strengthen tourist development, ensure road safety, and provide better transportation facilities and other facilities such as way side amenities. Vehicle operating cost will also be reduced due to improved road quality. The compensatory plantation and road side plantation shall further improve the air quality of the region.

a. SALIENT FEATURES OF THE PROJECT

Project name	"Construction of 4 lane Access Controlled Greenfield Highway Section from Khammam to Devarapalle of length 162.126 km from Khammam in the state of Telangana to Devarapalle in the State of Andhra Pradesh under Economic Corridor under Bharatmala Pariyojana" **Proposed Length** – 162.126 Km
Location	This part of highway starts from Khammam in the state of Telangana to Devarapalle in the State of Andhra Pradesh from CH: 0+000 to 162+126 km.
Latitude & Longitude	Start Location : 17°14'12.58"N 80° 3'47.27"E End Location: 17° 2'41.30"N 81°32'11.38"E
Land use	Agricultural, Barren and waste land
Nearest railway station	Khammam Railway Station (approx. 5.5 Km, aerial)

Nearest Airport	Hyderabad (Approx. 170.0 Km, aerial)
Seismic Zone	The area falls under seismic zone III which is categorized as low seismic zone. (As per 1893:2002)

b. PROPOSED PLANNING

Type of project	-	National Highway (New)
Project cost	-	4609.07 Cr (approx.).
Project Length	-	162.126 km approx.

2.0 INTRODUCTION OF THE PROJECT/ BACKGROUND INFORMATION

a. IDENTIFICATION OF PROJECT PROPONENT

Ministry of Road Transport and Highways, Government of India, has decided to improve the efficiency of freight movement in India. National Highways Authority of India (NHAI) has been entrusted for preparation of DPR to improve the road networks in the State of Telangana and Andhra Pradesh.

b. BRIEF INFORMATION ABOUT THE PROJECT

The proposed road has a total length of 162.126 km approx. The alignment starts from Khammam in the state of Telangana to Devarapalle in the State of Andhra Pradesh from CH:0+000 to 162+126.

c. NEED FOR THE PROJECT AND ITS IMPORTANCE TO THE COUNTRY OR REGION

The proposed access controlled project with new alignment has been envisaged through an area which shall have the advantage of simultaneous development as well as shall result in a shorter distance to travel. The junctions with existing road will be planned in the form of interchanges and flyover to ensure uninterrupted flow of traffic.

The proposed road would act as the prime artery for the economic flow to this region. It will enhance economic development, provide employment opportunities to locals, strengthen tourist development, ensure road safety, and provide better transportation facilities and other facilities such as way side amenities. Vehicle operating cost will also be reduced due to improved road quality. The compensatory plantation and road side plantation shall further improve the air quality of the region.

d. DEMAND-SUPPLY GAP

This is a green field alignment, access control and is proposed for 4-Lane. Vehicle operating cost will be reduced due to improved road quality and transportation will improve. It will help in development of the state and the Nation.

e. IMPORTS VS. INDIGENOUS PRODUCTION

Import/Indigenous production does not apply in the present case.

f. EXPORT POSSIBILITY

Not applicable in the present case.

g. DOMESTIC/ EXPORT MARKETS

Not applicable in the present case.

h. EMPLOYMENT GENERATION

During the construction of the road project around 1200 persons would be employed temporarily for a period of 2.5 years. However due to construction of toll plazas approx. 486 persons will be employed on permanent basis. Preference will be given to local people for employment. The Project will enhance economic development in the area through industrial growth, agricultural, and commercial development and consequent employment generation, savings in travel time & shall provide easy access to social infrastructure.

3.0 PROJECT DESCRIPTION

a. TYPE OF PROJECT INCLUDING INTERLINKED AND INTERDEPENDENT PROJECTS, IF ANY

The project is independent project, however it is part of the Bharatmala Pariyojana of MoRTH.

b. LOCATION

The proposed road has a total length of 162.126 km approx. The alignment starts from Khammam in the state of Telangana to Devarapalle in the State of Andhra Pradesh.

c. DETAILS OF ALTERNATE SITES

Two alternative alignments have been considered, option (i) Proposed alignment and option (ii) on the left hand side of the proposed alignment. The alignment option (i) is fixed avoiding major habitations, builtup areas, forests and is passing through predominantly agriculture, barren, and waste land.

d. SIZE OR MAGNITUDE OF OPERATION

Length of the project: 162.126 Km approx. having proposed RoW of 70 m.

e. GEOLOGY

The Geology of study area comprises of major rocks like Granites & gneisses, shales, phyllites and dolomites, sandstones etc. Soil type basically comprises of Chalaka, Dubba and black soils. The terrain of the alignment is basically flat to undulating in nature.

f. PRODUCTION PARAMETERS

Not Applicable in the present context.

g. DESIGN PARAMETERS

The proposed road shall be constructed to IRC: SP : 84 -2014, **"Four Lane Manual of Specifications and Standards for highway"** design standards and as per NHAI latest circular vide NHAI/Bharatmala/EC/DPR/2016 Dt. 14.05.2018. The width of RoW will be 70 m.

h. PROJECT DESCRIPTION WITH PROCESS DETAILS

No process is applicable being a construction project.

i. BLASTING

No blasting is proposed to be done.

j. RAW MATERIAL REQUIRED ALONG WITH ESTIMATED QUANTITY, LIKELY SOURCE, MARKETING AREA OF FINAL PRODUCT/S, MODE OF TRANSPORT OF RAW MATERIAL AND FINISHED PRODUCT

Materials requirement are Cement- 139272 Tonne, Coarse sand- 227627 Cum, Coarse Aggregate- 2958270 Cum, Fine Aggregate- 1284051 Cum, Steel- 45099 Tonne, Bitumen emulsion- 3883 Tonne, Bitumen- 65163 Tonne, Borrow Earth- 6337657 Cum, Fly Ash- 8849708 Cum. EPC Contractor before the start of construction would assess the actual quantity required and take necessary approval, if required. However, Steel and Cement would be sourced from Authorized Vendor. Soil, Sand and Aggregate will be procured from operational licensed borrow areas and quarries located around nearby areas. If any new borrow area or quarry site require to be opened, requisite permission will be obtained from concerned department before extraction of materials.

k. RESOURCE OPTIMIZATION/ RECYCLING AND REUSE

Kothagudem Thermal Power Station, Paloncha (67 km) and Kakatiya Thermal Power Station, Bhupalpalle (135 km) are falling within 300 km of proposed project alignment and the fly ash will be used in the project depending upon their availability. As per fly ash notification 2016 of MoEF&CC.

l. AVAILABILITY OF WATER ITS SOURCE, ENERGY / POWER REQUIREMENT AND SOURCE

• Water Requirement

The average water requirements is anticipated at 4417 KLD approx. during construction stage and will be extracted from suitable surface sources (river/canals) or ground water after obtaining necessary permissions from the competent authority.

• Power

Diesel generator and State Electricity Board will provide electricity required for construction equipment. Labor camps will be provided with LPG as fuel sourced from GOI authorized Supplier.

m. QUANTITY OF WASTES TO BE GENERATED (LIQUID AND SOLID) AND SCHEME FOR THEIR MANAGEMENT/ DISPOSAL

• Solid Waste Generation & its Disposal

Solid waste will be generated from construction camp and dismantling of existing structures. Unproductive/wastelands shall be selected for dumping sites away from residential areas and water bodies. The following precaution will be taken for disposal:

- Dumping sites must be having adequate capacity equal to the amount of debris generated.
- Public perception and consent from the village Panchayats has to be obtained before finalizing the location.
- Develop waste management plan for various specific waste streams (e.g., reusable waste,
- Organize disposal of all wastes generated during construction in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact.
- Minimize the production of waste materials by 3R (Reduce, Recycle and Reuse) approach.
- Segregate and reuse or recycle all the wastes, wherever practical.
- Prohibit burning of solid waste
- Collect and transport non-hazardous wastes to all the approved disposal sites. Vehicles transporting solid waste shall be covered with tarps or nets to prevent spilling waste along the route
- Train and instruct all personnel in waste management practices and procedures as a component of the environmental induction process.
- Provide refuse containers at each worksite.
- Request suppliers to minimize packaging where practicable.
- Place a high emphasis on good housekeeping practices.
- Maintain all construction sites in a cleaner, tidy and safe condition and provide and maintain appropriate facilities as temporary storage of all wastes before transportation and final disposal

• Liquid Effluent

The sewage water generated in construction camp will be disposed through soak pits.

4.0 SITE ANALYSIS

a. CONNECTIVITY

The site is approachable by NH365BB near Khammam and by Devarapalli Kovvuru road near Devarapalli. The proposed alignment is connected with Khammam, Kodad, Wyra, Madhira, Penuballi, Sathupally, Eluru, Jangareddygudem, Devarapalli, Kovvur and Rajamundry.

b. LANDFORM, LANDUSE AND LAND OWNERSHIP

• Land Use

The project area is mostly agricultural followed by waste land.

• Land Ownership

The existing landuse around the proposed project primarily comprises of agricultural land both under private and government ownership.

TOPOGRAPHY

The project area is located in the state of Telangana and Andhra Pradesh. The topography in the proposed project area is mainly plain and rolling area. The areas have an elevation ranging from 89 m to 142 m.

EXISTING LAND USE PATTERN

The existing landuse around the proposed project primarily comprises of agricultural land both under private and government ownership, land for cattle grazing, forest.

e. EXISTING INFRASTRUCTURE & SENSITIVE ECOLOGICAL LOCATIONS

S.No.	Areas	Name / Identity	Aerial distance (within15km.) Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	No	NA
2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	No	Vengalarao Reservoir – 1.0 km Wyra Reservoir- 2.5 km

3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	No	NA
4	Inland, coastal, marine or underground waters	Yes	5 Rivers & 15 Canals are crossing the proposed alignment.
5	State, National boundaries	No	-
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	No	-
7	Defense installations	No	-
8	Densely populated or built-up area	Yes	Khammam- 5.5 km Devarapalli- 2.5 km
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Yes	Khammam- 5.5 km Devarapalli- 2.5 km
10	Areas containing important, high quality or scarce resources. (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	No	Not applicable
11	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	No	Not applicable
12	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions) similar	No	The area falls under seismic zone III which is categorized as low seismic zone.

a. SOIL CLASSIFICATION

The Project Corridor passes through Silty sand, Clayey and at some places the soil strata are black cotton soil except few places hard strata are found.

CLIMATIC DATA FROM SECONDARY SOURCES

Project area experiences typical Indian climatic conditions. Summer season is hot and the temperatures can climb rapidly during the day. Monsoon season brings certain amount of rainfall and the temperatures gradually reduce during this period. After the onset of the monsoon day temperatures are much lower and as the winter approaches they reduce further.

Summer season is from March and lasts till the end of May. During this time day temperatures are high and can reach 40 °C to 42 °C. Humidity is low as it is not located near the ocean. Conditions are generally dry during this period and the temperatures range from a minimum of 35 °C and can rise up to a maximum of 40 °C to 45 °C. Monsoon season brings much needed relief from the heat. Monsoon seasons are from the months of June to September. Temperatures average around 30 °C during this period. The place gets rain from the South West Monsoon. Some amount of rainfall can be experienced in the October as well. Winter season is from December to February. January is usually the coldest parts of the year. Temperatures range around 28 °C to 34 °C during this time.

b. SOCIAL INFRASTRUCTURE

The social infrastructure like educational facilities (primary and higher secondary schools, Degree College), drinking water supply, post office, public transportation are by and large are available in the study area.

PLANNING BRIEF

PLANNING CONCEPT

The state will have its own self-sustaining eco-system consisting of economic drivers through industrialisation, utility & logistic infrastructure, Social Infrastructure including education, healthcare and other public amenities. It will be connected with Telangana to Andhra Pradesh by a 4-lane access controlled highway as an effective means of transportation between the states.

a. ASSESSMENT OF INFRASTRUCTURE DEMAND (PHYSICAL & SOCIAL)

Only basic infrastructure facilities are available in the vicinity of in the study area. The proposed road is essential for improving faster and economical transportation facilities between the Khammam and Devarapalle and other major cities.

b. AMENITIES/FACILITIES

Office, Workshop etc.

Proper site services such as First Aid, Rest Shelter, toilet with soak pits & drinking Water will be provided to the workers.

Rest Shelter

Rest shelter along with first-aid station complying with all the provisions of State Rules shall be provided by project proponent.

Water Supply

Water will be supplied for human consumption, dust suppression and for plantation from surface water sources.

Power Supply

The power supply for project and construction camp will be done through D.G. Sets and State Electricity Board.

Transport of Men and Material

Employee will report to the duty on own means. The material from the site will be transported by trucks / tractor trolleys.

Communication

Mobile phones shall be used for communication.

Security Arrangements

Appropriate security arrangement shall be made.

5.0 PROPOSED INFRASTRUCTURE

a. CONSTRUCTION SITE

Temporary arrangements like site office, rest shelters, & approach roads etc. shall be provided. No permanent infrastructure is proposed.

c. RESIDENTIAL AREA

As the local person shall be employed, no residential building / housing are proposed. However, temporary construction camp will be established.

d. SOCIAL INFRASTRUCTURE

In-line with the Social Responsibility Activities at other operational sites, relevant developmental assistance shall be rendered depending on the local needs identified through studies.

e. CONNECTIVITY

The site is approachable by NH365BB near Khammam and by Devarapalli Kovvuru road near Devarapalli. The proposed alignment is connected with Khammam, Kodad, Wyra, Madhira, Penuballi, Sathupally, Eluru, Jangareddygudem, Devarapalli, Kovvur and Rajamundry.

f. DRINKING WATER MANAGEMENT

Local Water supply is used for drinking purpose.

g. SEWERAGE SYSTEM

Soak pits shall be provided to workers camp & construction site.

h. INDUSTRIAL WASTE MANAGEMENT

Not applicable, as the activity will not be generating any industrial waste.

i. SOLID WASTE MANAGEMENT

No industrial solid waste will be generated. However, municipal / construction waste generated during construction will be disposed in environmental friendly manner.

6.0 REHABILITATION AND RESETTLEMENT (R&R) PLAN

The Project requires approx. 1411.67 ha. approx. land. Total 36 no. of structures are coming in the proposed RoW. The land will be acquired as per procedure laid down in RFCT LARR Act, 2013.

7.0 PROJECT SCHEDULE & COST ESTIMATES

a. LIKELY DATE OF START OF CONSTRUCTION AND LIKELY DATE OF COMPLETION

Project will be started after getting requisite statutory clearances. A construction period of 2.5 years (2019, 2020 and 2021) has been envisaged with a phasing of 30%, 40% and 30% respectively.

b. ESTIMATED PROJECT COST ALONG WITH ANALYSIS IN TERMS OF ECONOMIC VIABILITY OF THE PROJECT

The capital cost of proposed project is estimated to be INR 4609.07 Cr approx.

8.0 ANALYSIS OF PROPOSAL

a. FINANCIAL AND SOCIAL BENEFITS WITH SPECIAL EMPHASIS ON THE BENEFIT TO THE LOCAL PEOPLE INCLUDING TRIBAL POPULATION, IF ANY, IN THE AREA

This package starts from Khammam in the state of Telangana to Devarapalle in the State of Andhra Pradesh under Economic Corridor under Bharatmala Pariyojana" by the Government of India. The proposed access controlled project with new alignment has been envisaged through an area which shall have the advantage of simultaneous development as well as shall result in a shorter distance to travel. The junctions with existing road will be planned in the form of interchanges and flyover to ensure uninterrupted flow of traffic.

The proposed road would act as the prime artery for the economic flow to this region. It will enhance economic development, provide employment opportunities to locals, strengthen tourist development, ensure road safety, and provide better transportation facilities and other facilities such as way side amenities. Vehicle operating cost will also be reduced due to improved road quality. The compensatory plantation and road side plantation shall further improve the air quality of the region.