PRE-FEASIBILTY REPORT (PFR)

For

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PLAN (EMP)

For

Proposed New National highway -NH-160D (Feeder Route of Bharatmala Project Route 4 starts from Junction of NH-60 near Nandur Shingote District-Nashik connecting Dighe, Talegaon, Loni and terminating at its junction with NH-160 near Kolhar in District-Ahmednagar (approximately 48.70 km)

SUBMITTED BY

NATIONAL HIGHWAYS AUTHORITY OF INDIA

(Ministry of Road Transport & Highways Government of India)

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1. Executive Summary

The proposed project is a part of the Bharat Mala Project which has been envisaged as an umbrella program under the Ministry of Road Transport and Highways. The project involves constructions or improvement of national highways/ newly declared National Highways with an aim to improve road connectivity to border areas, ports, backward areas, religious and tourist sites. The project has identified 44 economic (freight) corridors, inter-corridors and feeder-routes for development.

The Bharatmala Project consists of connecting National Highways by improvement of State Highways in 3 states viz.

- Telangana – 2 packages
- Madhya Pradesh – 7 Packages
- Maharashtra – 5 Packages

Out of 5 packages in Maharashtra, there are 3 Inter Corridor stretches & 2 Feeder Routes. The details are as follows:

Sr. No	Route	Stretch	Start & End locations of Corridor	Length in km (approx.)
1	Inter Corridor	Banda – Madhkhol – Sankeshwar	Banda - Sankeshwar	103.60 km
2	Inter Corridor	Sangamner – Nira – Pune – Kedgaon	Lonand - Kedgaon	51.375 km
3	Inter Corridor	Devmogra – Shree Mangal Harchand Nagar – Patan	Songir-Nandurbar-Visarwadi	114.50 km
4	Feeder Route	Nandur Shingote – Ahmednagar	Kolhar – Nandur Shingote	48.70 km
5	Feeder Route	Ulwe – Raigad	Padeghar – Barapada(JNPT)	26.50 km

The project corridor is proposed for development to 4-lane access-controlled roads depending upon traffic and the Right of Way available. In this regard, NHAI has been entrusted with the assignment of Development of Economic Corridors, Inter-Corridors, Feeder Routes and Coastal Roads primarily to improve freight movement in the Country. NHAI has invited proposal from Technical consultants for carrying out detailed project report.

Bharatmala Route 4:

The Pre-feasibility Report is for Route 4 (Nandur Shingote to Kolhar) of approximately 48.7 km length, which passes through Nashik and Ahmednagar District. The alignment passes through approximately 17 villages.

Components of the Project

- The project corridor is proposed for development to 4 - lane access-controlled roads depending upon traffic and the Right of Way available;

- Provision of basic amenities like toll plazas, administrative buildings, rest areas, etc., and other ancillary structures;
- Two bypasses are proposed at Loni and Talegaon Dighe these proposed bypasses will be 2+2 lane, access-controlled road, with service roads on either side;
- Avenue plantation shall be provided as per Green Highway (Plantation and Maintenance) policy and Green Highways (Plantation Trans-plantation beautification and Maintenance) policy 2015.

Need and Importance of the Project:

Cities have concentrated educational infrastructures, employment opportunities, skilled work force, financial independence and the infrastructure to keep the demand-supply cycle intact. Thus, for a young developing nation, exposure of the youth to the industries and business opportunities in the cities plays a very important role in deciding the future and its demography. Transport infrastructure forms the backbone of a country's economy and provides a vital linkage between the urban and the rural areas.

- The project corridor is one of the identified feeder route which interlinks the different Highways like NH-60, NH-160.
- The improvement will especially speed up the freight movement and provide a better access to freight vehicles to the Sugar factories situated in various villages of Ahmednagar District.
- Connectivity with the remote and sensitive areas will enhance, it will also ensure faster road vehicular and train movement and also reduce accidents.
- It also connects the rural areas to better prospects of medical support for humans as well as cattle. Apart from that, it promises to revive the agriculture, tourism, education in and around the district.
- Temporary employment generation
- An important aspect which may not be always thought about is the frequency and impact of accidents. Improving highway geometry and widening it from 2-lane to 4-lane will reduce probability of accidents.
- The Project will substantially reduce the existing transport bottleneck to trade and will foster regional economic cooperation, especially for the sugar factories and other industrial area.

Thus, this will not only reduce travel time but also improve the district's economic growth. The entire region will be benefitted from the Project, while the project area will gain through economic development and increased access to markets and social services.

2. Introduction of the Project / Background information

i. Identification of Project and Project Proponent

Project name: Consultancy Services for preparation of feasibility Study and Detailed Project Report of Bharatmala Project– Route 4 from Nandur Shingote in Nashik district and ending at Kolhar in Ahmednagar district. (Length = 48.7 km approximately) in the state of Maharashtra.

Project Proponent: National Highway Authority of India (NHAI)

ii. Brief Description of nature of the Project

The project alignment passes through two districts viz. Nashik and Nashik. The total length of the alignment sums up to 48.7 km.

SN	Village
1.	Nandur shingote
2.	Nimon
3.	Pimpale
4.	Nannaj dumala
5.	Ajampur
6.	Junegaon
7.	Arampur
8.	Wadzari Bk.
9.	Wadzari Kh.
10.	Kasare
11.	Mirapur
12.	Lohare
13.	Gogalgaon
14.	Loni khurd
15.	Loni Bk
16.	Bhagwatipur
17.	Kolhar Bk

There are two bypasses proposed along the alignment, at village Loni and Talegaon Dighe. The bypass alignments run through the side with minimum habitation to keep the bypass length optimum. At some places the alignment passes straight through some of the areas so as to meet the design speed, hence the curvature is avoided.

iii. Need for the Project and its importance to the Country and or region

This projected corridor interlinks different State & National Highways. The improvement will speed up the freight movement and provide a better access to vehicles as a link to the National Highways. Apart from that, it promises to revive the agriculture, tourism, education as well as better connectivity in and around the district. Thus, this planning will not only reduce travel time but also improve the district's economic growth.

The projected corridor has proposed 2+2 lane, access-controlled bypasses with service roads on either side at major villages Loni and Talegaon Dighe, where the habitation is excessive. This will avoid traffic congestions. Another important aspect to be considered is the frequency of accidents. The widening and efficient planning on the geometrical aspects of the highways may reduce the probability of accidents.

The entire region will be benefitted from the Project, while the project area will gain through economic development and increased access to markets and social services.

iv. Demand Supply Gap

Not Applicable

v. Imports vs. Indigenous production

Not Applicable

vi. Export Possibility

Not Applicable

vii. Domestic / Export Markets

Not Applicable

viii. Employment generation (Direct and Indirect) due to the project

Highway construction broadly encompasses the process of construction and maintenance, including the design, contracting, implementation, supervision, and maintenance of highways and related structures, such as bridges and interchanges. The areas covered includes public works, private contracting of civil works, and labor-based construction techniques. For this purpose, 200 labours shall be employed per day.

Direct employment generation: During the construction phase manpower will be needed to take the part in various project activities. Skilled, semi-skilled and unskilled labors, will likely to get work. In the post construction phase, it is expected that the project will provide social benefits to local people in terms of direct employment by way of better commercial and industrial development of the area.

Indirect Employment: The project shall also induce indirect employment generation for cleaners, guards, local vendors, operation and maintenance workers etc. Local vendors, construction material traders, electrician, plumbers etc. will be benefitted through employment generated during construction and maintenance phase.

3. Project Description

i. Type of project including interlinked and interdependent projects, if any.

Not Applicable

ii. Location (map showing general location, specific location and project boundary and project site layout) with coordinates

Map attached as **Annexure 1**

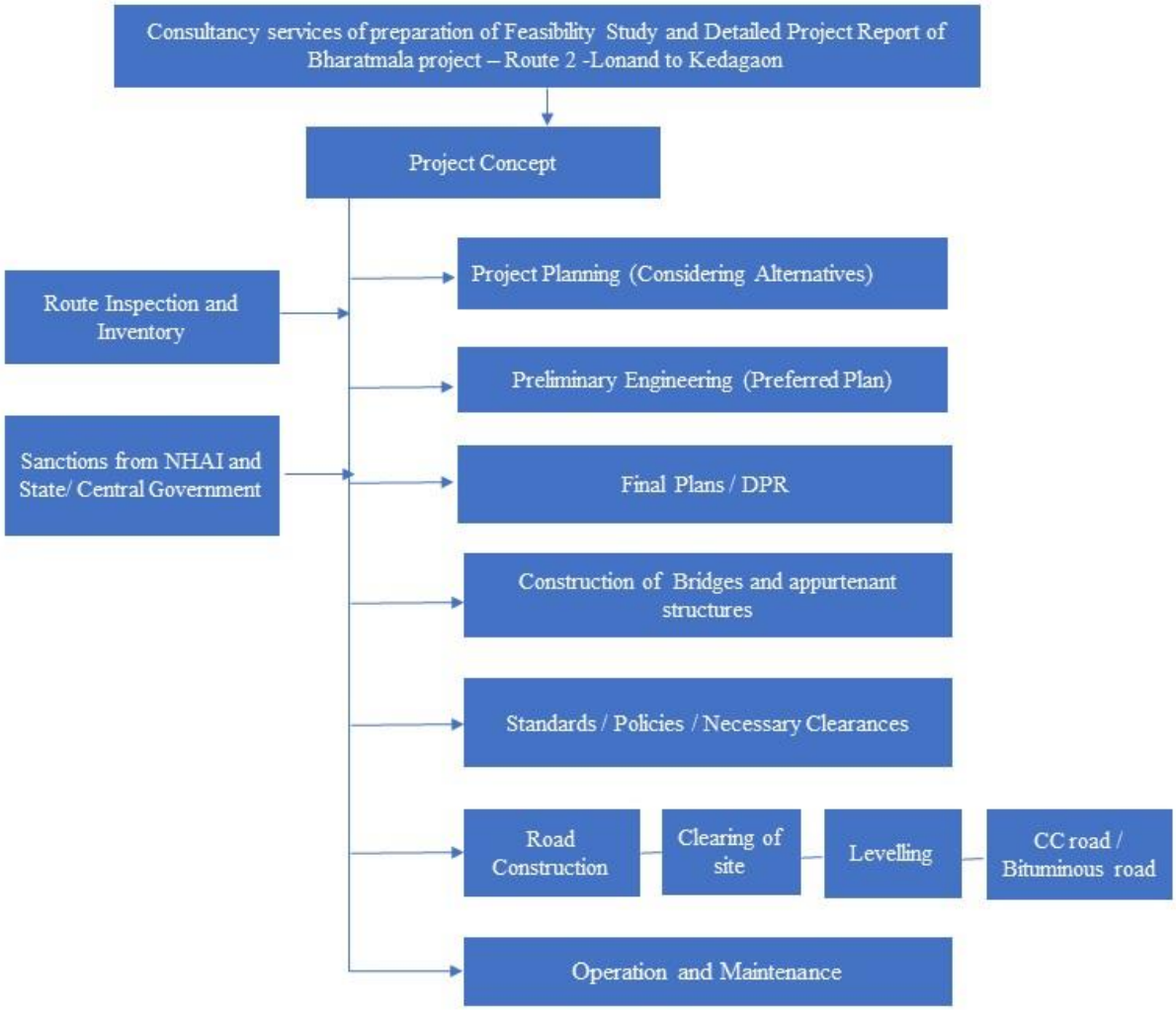
iii. Details of alternative sites considered and the basis of selecting the proposed site, particularly the environmental considerations gone into should be highlighted.

This PFR is prepared as per selected alignment. Comparison and detailed report on alternative alignment analysis will be furnished in EIA.

iv. Size of magnitude of operation

The total stretch of proposed route 4 of Bharatmala is 48.7 km (approx.) starting from Nandur Shingote in Nashik District and ends at Kolhar in Ahmednagar District. This stretch will also have 4 lane (2+2) carriageway. Some major and minor bridges are proposed along with culverts.

v. Project description with process (a schematic diagram / flowchart showing the project layout, components of the project etc. should be given.)



vi. Raw material required along with estimated quantity, likely source, marketing area of final product/s, Mode of transport of raw Material and Finished Product.

The material requirement during the construction phase of the project for a period of 24 months in broad view per kilometer is as below:

- Aggregate: 730602 (CUM)
- Steel: 4475 (MT)
- Cement: 36039 (MT)
- Bitumen: 16362 (MT)

The highway construction will require minor minerals like stones, gravel, ordinary clay, ordinary sand, limestone, boulders, kankar, murum, brick earth, bentonite, road metals. As per MINES

AND MINERALS (DEVELOPMENT AND REGULATION) ACT, 1957, excavation of minor minerals during construction of roads shall be executed after prior permit.

vii. Resource optimization/ recycling and reuse envisaged in the project, if any, should be briefly outlined.

Not Applicable

viii. Availability of water its source, Energy/ power requirement and source should be given.

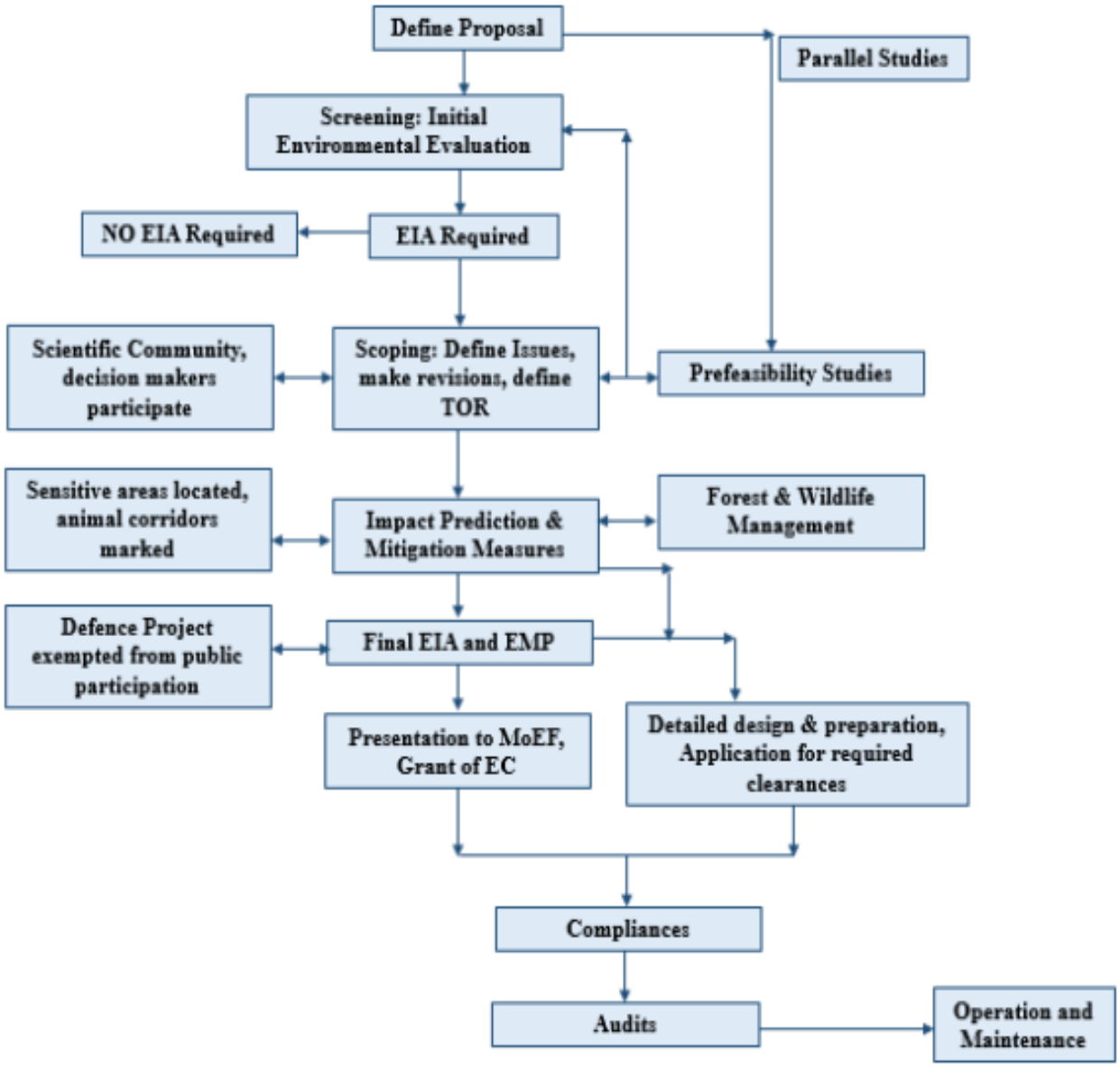
Water: Water will be provided through bore wells/ water tankers with prior consent. Details will be furnished in EIA report.

Power: LSD D.G sets shall be used for power for onsite construction sites, wherever grid power supply is not available.

ix. Quantity of wastes to be generated (liquid and solid) and scheme for their Management/disposal.

Wastes generated within the site would be of food items, paints, cement, grit, bitumen, tar, cement, concrete, oil & grease etc. Waste shall be segregated and collected in separate bins and disposed-off according to MoEF&CC regulations.

x. Schematic representation of the feasibility drawing which give information of EIA purpose



4. Site Analysis

The geographical locations at Sinnar Taluka in Nashik district are at 19°43'11.04"N Latitude 74° 8'9.80"E Longitude and Rahata Taluka in Ahmednagar District are at 19°32'28.37"N Latitude, 74°32'1.55"E Longitude.

i. Connectivity

The proposed route is connected and approached through State highways and National Highways. As it is developing new NH 160D Feeder Route. It will further improves connectivity to major economic cities by connecting to SH-44, SH-10, NH-60, NH-160, AH-47. Highway's strategic location provides connectivity to various economically developed cities of Maharashtra.

ii. Land form and land use

The general land use pattern is agriculture. Some of the habitant villages are developed along the project route. There is residential, commercial & institutional development of major villages like Nandur shingote, Loni, Talegaon Dighe, Nimon, Kolhar etc. along the road.

The area falling under the proposed Right of Way (ROW) and the proposed bypasses majorly passes through agricultural land, hence there will be permanent change in the landuse from agricultural to non-agricultural land. Near residential areas the landuse will change from private to Government land. Details of Land use breakup will be described in EIA.

iii. Topography

Most of the project road passes through plain terrain, whereas certain sections pass through low hilly terrains. There are major rivers like Pravara N B canal and various canals crossing the route.

iv. Existing land use pattern (agriculture, non-agriculture, forest, water bodies (including area under CRZ), shortest distances from the periphery of the project to periphery of the forests, national park, wildlife sanctuary, eco-sensitive areas, water bodies (distance from the HFL of the river), CRZ. In case of notified industrial area, a copy of the Gazette notification should be given.

The area falling under the proposed Right of Way (ROW) and the proposed bypasses majorly passes through agricultural land, hence there will be permanent change in the landuse from agricultural to non-agricultural land. Near residential areas the landuse will change from private to Government land. Details of Land use breakup will be described in EIA. There are several villages and settlements located in the vicinity of the existing route. The proposed project passes through several villages- Nandur shingote, Loni, Talegaon Dighe, Nimon, and Kolhar.

Table 4-1: Village List

SN	Village
1	Nandur Shingote
2	Nimon
3	Pimpale
4	Nannaj Dumala
5	Ajampur
6	Junegaon
7	Arampur
8	Wadzari Bk.
9	Wadzari Kh
10	Kasare

11	Mirapur
12	Lohare
13	Gogalgaon
14	Loni Khurd
15	Loni Bk.
16	Bhagwatipur
17	Kolhar Bk.

- **Water Bodies**

The project crosses Pravara N B canal near Loni village, and other various canals. The project site is bounded by surface water reservoirs within 15 km.

Water Body	**Average aerial distance in km from alignment**
Bhandardhara dam Backwater	45.23
Pravara River Dam	14.27
Mula Dam	23.83
Deothan Reservoir	14.08
Bhavali Dam	58.18
Darna Dam	42.37
Kudwa Reservoir	35.85
Bhojapur Dam	9.44

- **Sanctuaries and Wildlife parks:**

Not applicable.

No identified and notified protected area within 15 km from the project boundary.

v. Existing Infrastructure

Majority of the alignment traverse through agricultural areas with intermittent built-up patches at village like Nandur shingote, Loni, Talegaon Dighe, Nimon, and Kolhar etc. The built-up patches comprise of settlements, market place, educational institutes, etc.

vi. Soil Classification

Soil profile of the State: The soil status of Maharashtra is residual, derived from the underlying basalts. In the semidry plateau, the black-cotton soil is clayey, rich in iron and moisture-retentive, though poor in nitrogen and organic matter. When re-deposited along the river valleys, the kali soils are deeper and heavier, better suited for Rabi crops. Farther away, with a better mixture of lime, the morand soils form the ideal Kharif zone. The higher plateau areas have pather soils, which contain more gravel.

- **Nashik District**

The soils of the district are the weathering products of Basalt and have various shades from gray to black, red and pink colour. The soils occurring in the district are classified in the four categories namely lateritic black soil (Kali), reddish brown soil (Mal), coarse shallow reddish black soil (Koral), medium light brownish black soil (Barad). In general the soils are very fertile and suitable for growing cereal and pulses. The black soil contains high alumina and carbonates of calcium and magnesium with variable amounts of potash, low nitrogen and phosphorus. The red soil is less common and is suitable for cultivation under a heavy and consistent rainfall. *(Source: CGWB report for Nashik district 2013*)

- **Ahmednagar District**

Physiographically the Ahmednagar district forms part of Deccan Plateau. Part of Sahayadri hill ranges fall in the district. Western Ghat section in Akole taluka is hilly which extends to relatively flat areas in Shevgaon and Jamkhed talukas in the east. From the main Sahayadri range three spurs namely Kalsubai, Baleshwar and Harishchandgad strech eastwards. Physiographically the district can be broadly divided in four major characteristic landforms viz., hill and ghat section (7.6% area); foothill zone (19.4% area); plateau (3.71% area) and plains (occupy 69.30% area). The soils can generally be classified into three groups, viz., black or kali, red or tambat, and laterite and the gray of inferior quality locally known as barad including white or pandhari. Of these, barad soils are very poor in fertility. *(Source: CGWB report for Ahmednagar district 2013)*

vii. Climatic data from Secondary sources

- **Nashik district**

The climate of the district is on the whole is agreeable. The climate of Nashik district is characterized, by general dryness throughout the year except during the south-west monsoon season. The winter season is from December to about the middle of February followed by summer season which last up to May. June to September is the south-west monsoon season, whereas October and November constitute the post-monsoon season. The maximum temperature in summer is 42.5°C and minimum temperature in winter is less than 5.0°C. Relative humidity ranges from 43% to 62%. The normal annual rainfall in the district varies from about 500 mm to 3400 mm. It is minimum in the north eastern part of the district and increases towards west and reaches a maximum around Igatpuri in the western ghat. The chances of receiving normal rainfall are maximum (50 to 55%) in the north eastern part around Malegaon and Nandgaon and minimum in the central part of the district. (Source: CGWB report for Nashik district 2013).

- **Ahmednagar district**

The climate of the Ahmednagar district is characterized by a hot summer and general dryness throughout the year except during the southwest monsoon season, i.e., June to September. The mean minimum temperature is 12.3°C and mean maximum temperature is 39.1°C. The normal rainfall over the district varies from 484 mm to about 879 mm. Rainfall is minimum in the northern parts of the district around Kopargaon and Sangamner and it gradually increases towards southeast and reaches the maximum around Jamkhed. The district being situated in "Rain Shadow" zone of Western Ghats, it often suffers the drought conditions. The proposed Upgradation road is passes through the northern part of the district. (Source: CGWB report for Ahmednagar district 2013).

viii. Social Infrastructure

This existing alignment is passes through villages like, Nandur Shingote -Talegaon Dighe –Loni-Kolhar. This villages mainly consist of Residential settlement and people mainly depends upon the agricultural for their income source. Basic social infrastructure of this villages is not well developed along the route. The villages on the proposed route have primary health care facilities, basic education, markets, police station, transportation, roads etc., but for Higher education and Health care facilities People have to go main city areas of Nashik and Ahmednagar Districts.

5. Planning Brief

i. Planning Concept (type of industries, facilities transportation etc.) Town and Country Planning/ Development authority Classification

Not Applicable

ii. Population Projection

Not Applicable

iii. Land use planning (breakup along with green belt etc.)

The area falling under the proposed Right of Way (ROW) and the proposed bypasses majorly passes through agricultural land, hence there will be permanent change in the landuse from agricultural to non-agricultural land. Near residential areas the landuse will change from private to Government land. Details of Land use breakup will be described in EIA.

iv. Assessment of Infrastructure Demand (Physical & Social)

Not Applicable

v. Amenities / facilities

The amenities proposed during operation phase are toll plaza, administrative buildings, weighing stations, parking areas & rest areas and office cum residential complex of PIU. The toll plaza location will be selected based on the traffic studies and a study of the existing physical features including the availability of land & designed as per IRC 84.

6. Proposed infrastructure

i. Industrial Area (Processing Area)

The project route is having some industrial project within 5 to 10 km.

1. Padmashree Vikhe Patil Sarkari Sugar factories which is 962.73 m (aerial distance) away from the propose alignment at Pravaranagar village.

ii. Residential Area (Non-Processing Area)

Not Applicable

iii. Green Belt

Avenue plantation shall be provided as per Green Highway (Plantation and Maintenance) policy and Green Highways (Plantation Trans-plantation beautification and Maintenance) policy 2015.

iv. Social Infrastructure

Not Applicable

v. Connectivity

- **Road Infrastructure**

This alignment passes through villages like, Nandur Shingote -Talegaon Dighe –Loni-Kolhar. The existing structures on the present alignment are minor/ major bridges, culverts, etc. The existing road condition is good and the carriageway ranges between 6-7 m throughout the alignment. The existing ROW (Right of Way) observed is from 15 m to 20 m.

- **Bus Depots (aerial distance):**

For linear projects, this generally does not apply. However, for the starting point and the end point, the nearest railway stations/ airport is:

1. Kolhar Bus Depot from Ahmednagar end: 0.35 Km.
2. Arote Bus stop from Nashik end: 3.29 km.
3. Rahuri Bus stop from Ahmednagar end: 12.45 km.

- **Airport (aerial distance)**

1. Shirdi airport ~ 2.00 km from Kasare Village along the proposed alignment.
2. Gandhinagar Airport from Nashik at 44.62 km.

vi. Drinking Water Management (Source and Supply of Water)

Drinking water will be provided through bore wells/ water tankers with prior consent. Details will be furnished in EIA report.

vii. Sewerage System

Not Applicable

viii. Industrial Waste management

Not Applicable

ix. Solid Waste management

Waste management during construction and operational phase shall be done as per MoEF&CC norms. Organic and inorganic wastes will be segregated and disposed-off as per Solid Waste Management Rules, 2016.

x. Power Requirement and Supply / Source

Power requirement during construction phase will be met with LSD D.G sets in case of non-availability of electric supply. Approximately, 3848741 liters of diesel will be required for a project period of 24 months. For operational phase, electrical supply will be used wherever available.

7. Rehabilitation and Resettlement (R & R) Plan:

i. Policy to be adopted (Central/State) in respect of the project affected persons including home oustees, land oustees and landless laborers (a brief outline to be given).

Most of the land coming under the project area is agricultural and cultivated land. The land required for the construction of Bypass will be acquired by NHAI before the commencement of construction work and the R&R plan will be prepared and will be submitted in EIA.

8. Project Schedule & Cost Estimates

i. Likely date of start of construction and likely date of completion:

The project shall start its construction work as and when DPR is finalized and will get Environmental clearance from MoEF&CC. The completion period of the project construction is estimated about 24 months. The anticipated period of completion is in the year 2021.

ii. Estimated project cost along with analysis in terms of economic viability of the project.

The estimated civil cost of the project is approximately Rs.467.26 Crores.

9. Analysis of proposal (Final Recommendations)

i. Financial and social benefits with special emphasis on the benefit to the local people including tribal population, if any, in the area.

The project will have multiple benefits. It will reduce the travel time substantially between Nashik and Ahmednagar. Overall improvement will be expected in local area in following ways:

1. Development and improvement in transportation infrastructure facility will connect villages with the nearby cities
2. Better approach to Medical & Educational services and quick transportation of perishable goods like fruits, vegetables and dairy products.

3. Development of tourism and pilgrimage
4. Transporting, processing and marketing of agricultural products
5. Fast and safe connectivity resulting in savings in fuel, travel time and total transportation cost to the society
6. Reduction in accidents due to curve improvements at various sections of the alignment
7. Reduction in pollution due to reduction in congestion
8. Indirect and direct employment opportunity to people from all skilled, semiskilled and unskilled streams will act as social benefits

It is assumed that the overall Bharatmala project will boost socio-economic development in the entire central region of Maharashtra. Accordingly, Route 4 will contribute towards this objective.