PRE-FEASIBILTY REPORT (PFR)

For

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

For

Consultancy services for preparation of development of Economic Corridors, Inter Corridors, Feeder Routes and Coastal Roads to improve the efficiency of freight movement in India

(Lot- 1/Maharashtra/Package-3)

Route 1 – Banda - Sindhudurg District

To

Sankeshwar - Belgaum District

Submitted by

NATIONAL HIGHWAYS AUTHORITY OF INDIA

(Ministry of Road Transport & Highways Government of India)

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 section (SH – 190, 180, 188)	Banda - Sankeshwar	103.60 km
2	Inter Corridor	Sangamner – Nira – Pune – Kedgaon section of SH 117 & 118, MDR67)	Lonand - Kedgaon	51.375 km
3	Inter Corridor	Devmogra – Shree Mangal Harchand Nagar – Patan section of MSH1,SH 6&5	Songir-Nandurbar-Visarwadi	114.50 km
4	Feeder Route	Nandur Shingote – Ahmednagar section of SH 45	Kolhar – Nandur Shingote	48.70 km
5	Feeder Route	Ulwe – Raigad section of SH 104	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.

The Pre-feasibility Report is for Route 1 (Banda to Sankeshwar) of approximately 103.6 km length, which passes through Sindhudurg, Kolhapur and Belgaum District. The alignment passes through approximately 42 villages.

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 inter-corridor route which interlinks the different Highways.
- The improvement will especially help transportation of agricultural produce which is sent out to cities for export.
- 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 Konkan areas.
- The project corridor is proposed for development to 4 - lane access-controlled roads depending upon traffic and the Right of Way available
- Two bypasses are proposed at Ajara and Gadhinglaj and 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.
- Along the project planned activities include construction of intersections/junctions, culverts and drainage works, toll plazas and ancillary structures, temporary access, diversion roads and other road construction related plants and establishments.

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

2.1 Identification of Project and Project Proponent

- **Project name:** Consultancy Services for preparation of feasibility Study and Detailed Project Report of Bharatmala Project– Route 1 from Banda in Sindhudurg district and ending at Sankeshwar in Belgaum district. (Design = 103.6 km approximately) in the state of Maharashtra.
- **Project Proponent:** National Highway Authority of India (NHAI)

2.2 Brief Description of nature of the Project:

The project alignment passes through three districts viz. Sindhudurg, Kolhapur and Belgaum. The total length of the alignment sums up to 103.6 km, covering State Highway SH 190, 180 and 188; and it includes a part of hybrid annuity project route (Length: 13 km) from Banda to Burdipool in Sindhudurg district

Two bypasses are proposed at Gandhinglaj (length 5.31 km) and Ajara (1.1 km). The bypass alignments run through the side with minimum habitation to keep the bypass length optimum. The bypass route also avoids construction of a ROB which crosses the village road. ROW of the bypass is 60 m. The proposed bypass will be a 2 + 2 Lane, Access Controlled Road, with service roads on either side.

2.3 Need for the Project and its importance to the Country and or region

This projected corridor interlinks different State & National Highways. The Banda – Sankeshwar corridor is one such inter-corridor identified for improvement. This projected corridor interlinks the National Highways.

The alignment passes from Sindhudurg, Kolhapur & Belgaum district. All these three districts are known for producing export quality agricultural produce. This produces get exported all over the country and outside the country as well. 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 bypasses at major villages near Ajara and Gandhinglaj where habitation is excessive. The proposed bypass will be a 2+2 Lane, Access Controlled Road, with service roads on either side. This will avoid traffic congestions. Another important aspect to be considered is the frequency and impact 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.

2.4 Demand Supply Gap

NA. Material is easily available in nearby areas

2.5 Imports vs. Indigenous production

NA

2.6 Export Possibility

NA

2.7 Domestic / Export Markets

NA

2.8 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, 384130.00 labours shall be employed for the project, for 60 months project period.

- **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

3.1 Type of project including interlinked and interdependent projects, if any

NA

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

Maps attached as **Annexure 1**

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

In order to avoid Amboli Ghat three alternative alignments are proposed as shown in Figure 3.2 above.

1. Satuli to Amboli via Fansavade & Kegad
2. Satuli to Danoli via Udeli
3. Satuli to Kamatwade

The alignment which is the most feasible is from Satuli to Kamatwade which is a tunnel hence the forest areas can also be avoided. This alternative is the most suited keeping in mind the ecologically sensitive areas the existing alignment is passing though.

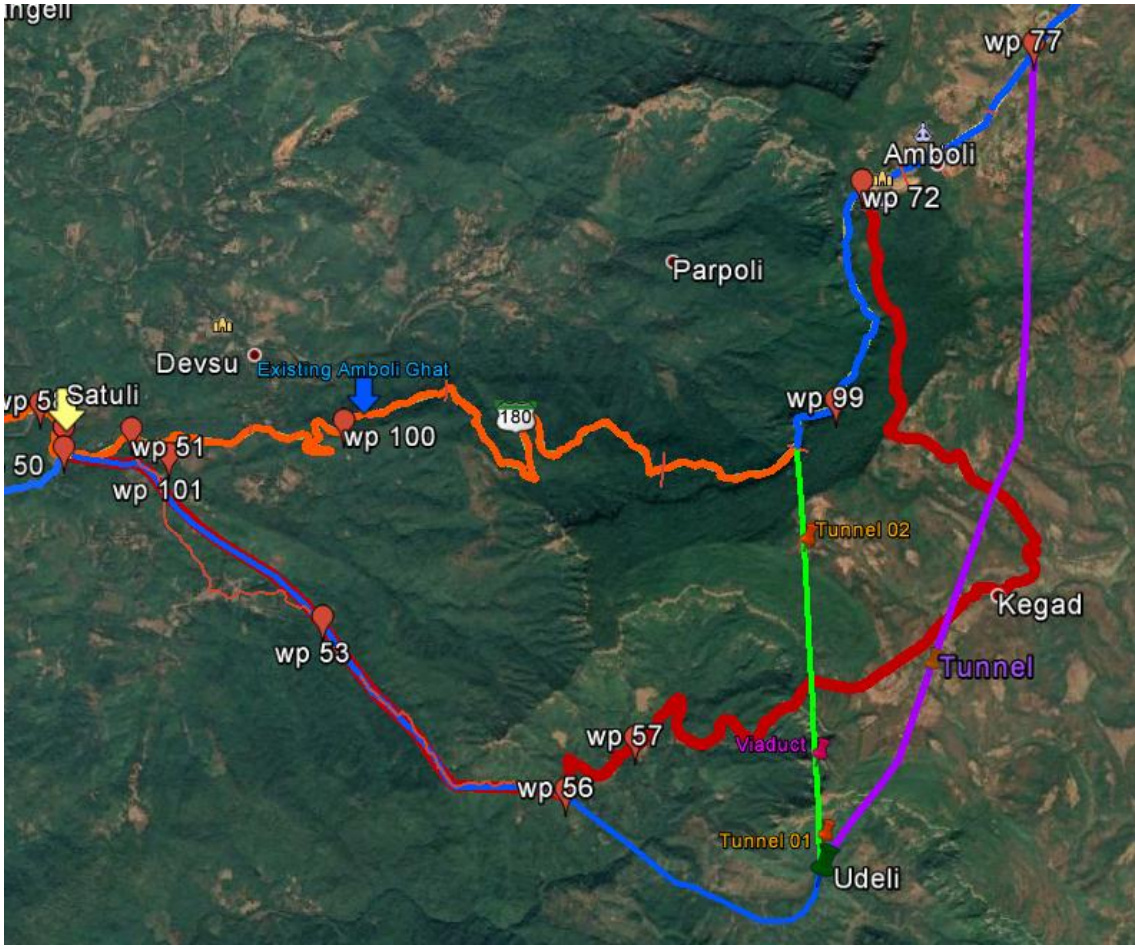
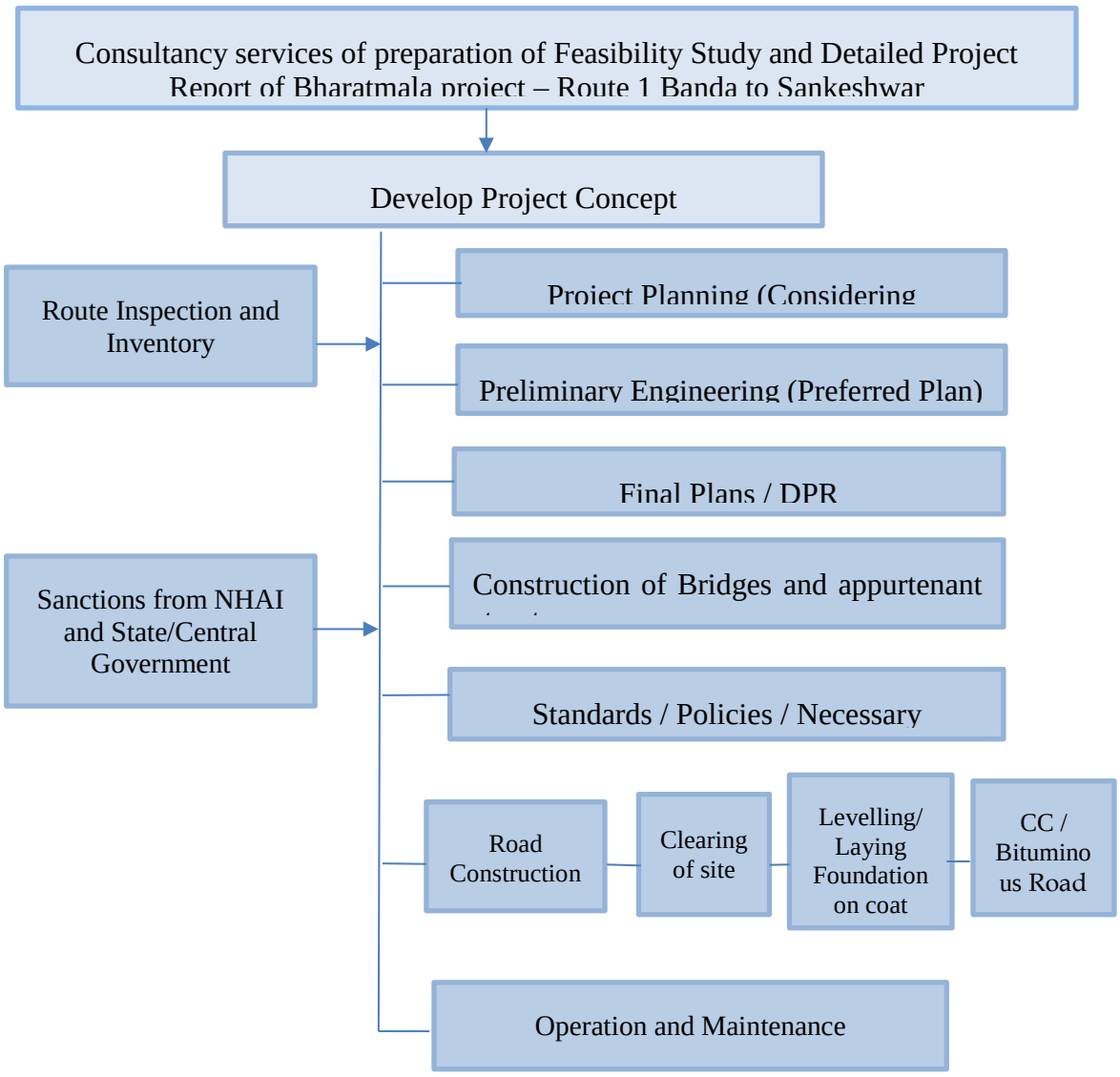


Figure 3-1 Figure showing alternative route from Satuli to Kamatwade

3.4 Size of magnitude of operation

The total stretch of proposed route 1 of Bharatmala is 103.6 km (approx.) starting from Banda in Sindhudurg District and ends at Sankeshwar in Belgaum District. This stretch will also have 4 lane (2+2) carriageway. Some major and minor bridges are proposed along with culverts.

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



3.6 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 construction material requirement in broad view per kilometer is as below:

- Aggregate: 730602 (CUM)
- Steel: 6245 (MT)
- Cement: 51207 (MT)
- Bitumen: 17065 (MT)

f

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.

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

NA

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

Water: Drinking water will be provided in camps through bore wells/ water tankers with prior consent. Considering 45 litres[1] of water consumption for one laborer per day, it is expected that about 13 KLD of water will be required per day during 60 months of project period.

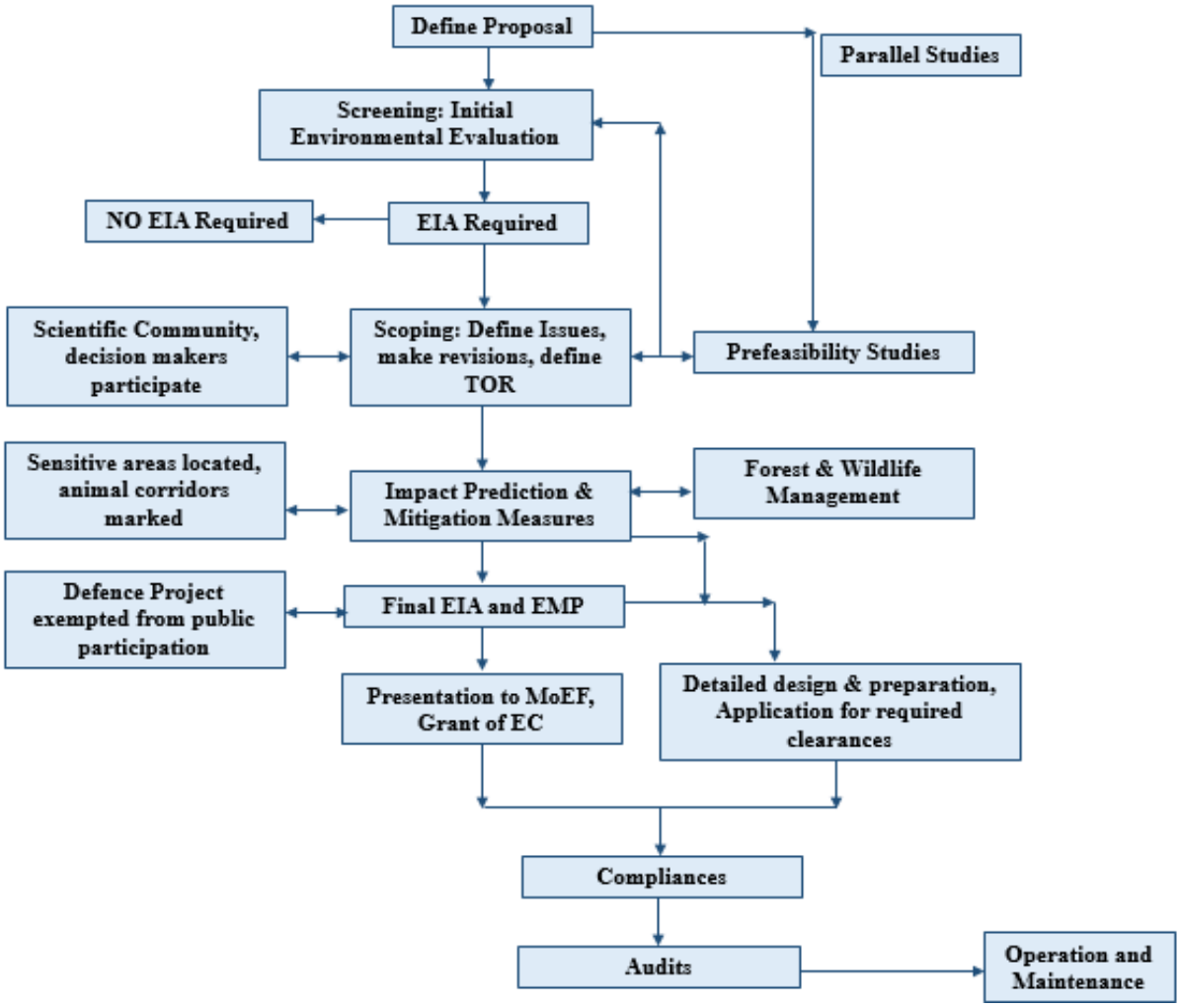
Power: LSD D.G sets shall be used for power for onsite construction and labour camps, wherever grid power supply is not available.

3.9 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.

[1] Central Public Health and Environmental Engineering Organisation (**CPHEEO**) manual for water supply and treatment

3.10 Schematic representation of the feasibility drawing which give information of EIA purpose



4. Site Analysis

The latitude and longitude are 15°49'2.88"N latitude, 73°51'52.94"E longitude at Banda, Sindhudurg district and 16°15'25.08"N latitude, 74°28'17.07"E longitude at Sankeshwar in Belgaum district.

4.1 Connectivity

The alignment begins from Banda, in Sindhudurg district and continues until Madkhol and then onwards till Amboli village. From Kamatwadi, it further continues in Kolhapur district till Dundage. From Hebbalak the road enters Belgaum district till Sankeshwar. Several State and

National Highways are connected to the proposed project like NH-4 (starting from Mumbai and terminates at Chennai) near Sankeshwar.

4.2 Land form, Land use & Land Ownership

Land form:

The proposed alignment passes through Sindhudurg, Kolhapur & Belgaum district which encompasses a partial area comprising the coastal plains and largely the Deccan Plateau. The Deccan plateau is an upland plain and is bordered on the west by the N-S trending escarpment of the Sahyadri uplands. It has two parts, northern in Maharashtra and southern in north Karnataka and hence designated as Maharashtra and Karnataka plateaus respectively. Both of these are built of nearly horizontal sheets of basaltic lava flows called 'Deccan Traps'. The southeasterly dip of lava flow is recognizable in southern Deccan Trap regions.

Land Use:

The general land use pattern is agriculture and forest. Some of the habitant villages are developed along the project route. There is residential, commercial & institutional development of major villages like Banda, Amboli, Kamatwadi, Hebbalak, Sankeshwar 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.

Land Ownership:

The details for land ownership & land acquisition will be carried out and the details will be elaborated in EIA.

4.3 Topography:

Most of the project road passes through hilly undulating terrain whereas certain sections pass through flat lands. There are major rivers like Hirayankeshi and Terekhol and various canals crossing the route. Map has been attached along as Annexure I.

4.4 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.

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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.

4.4.1 Village List

The alignment passes through various villages Banda- Madkhol- Amboli- Kamatwadi- Dundage- Hebbalak- Sankeshwar.

Table 4-1 Village List

Banda – Sankeshwar road		
Sr. No.	Village name	Taluka
1	Banda (ct)	Sawantwadi
2	Wafholi	
3	Vilavade	
4	Sarmale	
5	Otavane	
6	Bavlat	
7	Satuli	
8	Devsu	
9	Danoli	
10	Parpoli	
11	Amboli	
12	Suleran	Ajra
13	Alyachiwadi	
14	Gavase	
15	Daradewadi	
16	Haloli	
17	Dewarde	
18	Velwetti	
19	Masoli	
20	Pethewadi	

21	Ajra (ct)	
22	Sulgaon	
23	Munguswadi	
24	Khede	
25	Madilage	
26	Bhadwan	
27	Khoratwadi	
28	Jadhewadi	
29	Hirlage	Gadhinglaj
30	Kaulge	
31	Atyal	
32	Gijavane	
33	Gadhinglaj (ct)	
34	Dundage	
35	Hebbal kasaba nool	
36	Niliji	
37	Mutnal	
38	Hitini	
39	Khandal	
40	Nangur	
41	Solapur	Sankheshwar (Karnatka)
42	Sankheshwar	

4.4.2 Water Bodies

The project crosses two major rivers - Hriyankeshi river in Kolhapur district & Terekhol river, and various canals. The project site is bounded by surface water reservoirs within 15 km.

Water Body	Average aerial Distance in km
Phatakwadi Lake	6 km
Amboli waterfalls	0.4 km
Vilawade Dam	1 km
Vapholi Dam	0.1 km
Amboli Dam	0.5 km
Lake Ghatkarwadi	0.1 km
Suleran	0.4 km
Chitri Dam	5 kms

4.4.3 Sanctuaries and Wildlife parks:

The details of ecologically sensitive and forest areas noted within 10 km from the project are listed below:

Sr. No	Particulars	Aerial Distance in km
1.	Amboli Ghat	The proposed alignment passes through Amboli ghat

Detailed information shall be furnished in EIA Report.

4.5 Existing Infrastructure

Majority of the alignment traverse through agricultural, forest areas with intermittent built-up patches at villages like Banda, Madkhol, Amboli, Kamatwadi, Ajara, Gadhinglaj, Hebbal, Sankeshwar etc. The built-up patches comprise of settlements, market place, educational institutes, etc.

4.6 Soil Classification

a) Sindhudurg District

The outstanding feature in the relief of the district is its highly uneven nature and very narrow riverine plains that fringe the coastline. About 40% to 50% of the area in the district is hilly. The district has three major physiographic divisions from east to west. (i) The eastern part close to the Western Ghats that is highly dissected with deep valleys. (ii) The middle part of the district which is occupied by flat-topped hills with undulating plateaus with elevations up to 300 m. above mean sea level (MSL) covered by Laterite. (iii) The coastal plain in the western part with elevations of 100 to 150 m. MSL. The physiographic features have given rise to five characteristic landforms

viz. (i) the coast line (ii) the estuarine alluvial plains (iii) the Lateritic plateau (iv) the highly eroded remnant hills, and (v) the scarp faces of Sahyadri hill ranges. (Source: CGWB report for Sindhudurg district 2013).

4.6.1 Kolhapur District

The district is a part by the Deccan table land with an average height by 550 m. MSL with the Sahyadrian Scrap forming the most prominent feature along its western administrative boundary. The Central portion by the district, the hill ranges, exhibit a similar form and possess the same height but they have a south west - north east trend and they extend to a length of about 24 kms. The southern hill range, viz. the Kagal range and Budargad range maintain the same trend of SW-NE. Broadly, the district has three major characteristic land forms (1) the hill, ghats and plateau (2) the foot hill zones (3) the plains. The soils in the district are formed from the weathering of Deccan trap basalts, which is the predominant rock formation. The hill tops are covered with lateritic soil, while in the valleys, the soils are of mixed character varying in colour from brownish to reddish. (Source: CGWB report for Kolhapur district 2013).

4.6.2 Belgaum district

The district is primarily located on the eastern side of the Western Ghats and its topography is predominantly undulating. A "rugged terrain" marks the western part of Khanapur and Belgaum taluks with deep cutting ravines on the foothills of the Western Ghats. The elevation of these hills varies from 796 to 1025m MSL. Northern portion of the district is a plateau region formed by basaltic lava flows, which represents "Deccan peneplain". The central and southern parts exhibit moderate to gently "undulating terrain" having sparsely distributed knolls and tors. In some parts, especially in Ramdurg and Saundatti taluks, hills with elevations between 686 and 783m MSL are present. The remaining part of the district is in general a "plateau area". The elevation in the plains varies from 534m in the northeastern part to 820m MSL in the southwestern part of the district. (Source: CGWB report for Belgaum district 2013).

4.7 Climatic data from Secondary sources

a) Sindhudurg District

Sindhudurg has a semi-tropical climate and remains warm and humid in most of the year. It has three clear seasons: Rainy (June – October), winter (November-mid February) and summer (mid-February – May). Temperatures vary between Max. 32 °C and monsoon winds bring heavy rains (average rainfall 3240.10 mm). The average rainfall is very high but almost all the rainwater causes surface run off, due to undulating topography and lack of any water impounding major and medium structures. . (Source: CGWB report for Sindhudurg district 2013)

b) Kolhapur District

The climate of the district is temperate in plains and cool in Western Ghats. The Eastern region represents dry weather and it experiences hot winds during April and May. The nights over the whole district are generally cool due to the influences of the sea Breezes. The Kolhapur district receives its major rainfall from the South West monsoon winds, it also gets some rainfall from

thunderstorms during the month of April and May. The rainy season is from June to October. The Western Ghats receives the heavy rainfall and Gaganbavada which receives 5000 mm average rainfall is known as the Cherapunji of the Maharashtra. Shirol and Hatkanangle talukas record poor rainfall around 500 mm. Kolhapur's climate is a blend of coastal and inland elements common to Maharashtra. The temperature has a relatively narrow range between 10 °C to 35 °C. Summer in Kolhapur is comparatively cooler, but much more humid, than neighbouring inland cities. Maximum temperatures rarely exceed 38 °C and typically range between 33 and 35 °C. Lows during this season are around 24 °C to 26 °C. Temperatures are low in the rainy season and range between 19 °C and 30 °C.

Kolhapur experiences winter from November to February. The winter temperatures are warmer than other cities in Maharashtra such as Pune and Nashik. Lows range from 9 °C to 16 °C while highs are in the range of 26 °C to 32 °C due to its high elevation and being adjacent to the Western Ghats. Humidity is low in this season making the weather much more pleasant. (Source: CGWB report for Kolhapur district 2013).

c) Belgaum

Belgaum has a tropical savanna climate. It is known for its pleasant year-round climate. Belgaum is at its coldest in winter (November - February temperatures dropping to 7 degrees Celsius; the minimum temperature in Karnataka state is usually recorded in Belgaum) and it experiences almost continuous monsoon rains from June through September. Belgaum sometimes receives hail storms during April. (Source: CGWB report for Belgaum district 2013).

4.8 Social Infrastructure

This existing alignment is passes through villages like, Banda-Madkhol-Amboli-Dhangarmola-Ajara-Hitani. This villages mainly consist of Residential settlement and people mainly depends upon the agricultural and export of cash crops like cashews, mangoes etc 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 like Sawantwadi and Kolhapur.

5. Planning Brief:

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

The proposed project is planned to start from Banda to Sankeshwar and will have a length of 103.6 km. 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.

5.2 Population Projection

In construction phase, 384130 skilled, semi-skilled and unskilled labors, are likely to get employed for 60 months of project period.

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

As it is an expansion of existing route there will be no change in land use of area falling in the proposed Right of Way (RoW). In case of bypass there will be both temporary and permanent change in the land use of the area, falling in the proposed Right of Way (RoW).

Details of Land use breakup will be described in EIA.

5.4 Assessment of Infrastructure Demand (Physical & Social).

- Infrastructure: The infrastructure required is office, store and shelter for workers and it will be provided at project site.
- Water: Water for drinking, dust suppression & plantation purpose water will be required & drawn from the nearby Village by tankers
- Workers: Most of the workers will be from nearby village so no accommodation at site will be required.
- Health and safety system: During the construction phase and allied activities, all the precautionary measures shall be taken into account as per mines rules & regulations for safety & security.
- Disaster management and risk assessment: There is a possibility of incidents like bank caving, flooding & drowning during the monsoon. Detailed emergency plan in consultation with Risk and Hazard Expert and project manager will be prepared and submitted during EIA.

5.5 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

6.1 Industrial Area (Processing Area):

NA

6.2 Residential Area (Non-processing Area):

NA

6.3 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.

6.4 Social Infrastructure:

It is anticipated that temporary camps shall come up along the alignment during construction phase.

6.5 Connectivity:

- Road Infrastructure:

The alignment begins from Banda, in Sindhudurg district and continues until Madkhol and then onwards till Amboli village. From Kamatwadi, it further continues in Kolhapur district till Dundage. From Hebbalak the road enters Belgaum district till Sankeshwar. Several State and National Highways are connected to the proposed project like NH-4 (starting from Mumbai and terminates at Chennai) near Sankeshwar.

- Industrial Infrastructure:

The project route is having some industrial project within 5 to 10 km. Details will be furbished in the EIA report

- Railway Stations:
  - Sawantwadi approx. of 0.1 kms by aerial distance
  - Oros approx. of 0.5 kms by aerial distance
  - Banda approx. of 2 kms by aerial distance
  - Insuli approx. of 4 kms by aerial distance
  - Sankeshwar adjacent to the alignment
- Bus Depots:
  - Ajara approx. of 0.1 kms by aerial distance
  - Sawantwadi approx. of 0.4 kms by aerial distance
  - Amboli approx. of 0.1 kms by aerial distance
  - Gadhinglaj approx. of 0.1 kms by aerial distance
  - Sankeshwar approx. of 0.1 kms by aerial distance
  - Insuli adjacent to the alignment

- Airport:

Goa airport approx 45 kms by aerial distance

6.6 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.

6.7 Sewerage System

Mobile toilets with modular STP will be provided for the workers in construction phase. Toilets and STP shall be provided in the amenities area. Details will be furnished in EIA report.

6.8 Industrial Waste management

NA

6.9 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.

6.10 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, 8346816.40 liters of diesel will be required for a project period of 60 months. For operational phase, electrical supply will be used wherever available.

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

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 state level MoEF&CC and State Government. The completion period of the project construction is estimated about 60 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. 2094.12Crores.

9. Analysis of proposal (Final Recommendations)

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 Sindhudurg, Kolhpaur and Belgaum districts. 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 Bharat mala project will boost socio-economic development in the entire central region of Maharashtra. Accordingly, Route 1 will contribute towards this objective.