PRE FEASIBILITY REPORT (PFR)

FOR

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

For

Consultancy Services for preparation of Feasibility Study and Detailed Project Report of Access Controlled Nagpur-Mumbai Expressway

Package IV – Kopargaon to Igatpuri (Nashik Revenue Division)

SUBMITTED BY

MAHARASHTRA STATE ROAD DEVELOPMENT CORPORATION LIMITED
(A Govt. of Maharashtra Undertaking)
1. Executive Summary

1.1 Preamble:

The Government of India is planning to start working on 10 world class express highways in order to boost the road infrastructure for faster connectivity between different cities. Amongst these 10 proposed expressways, Nagpur Mumbai Super Communication Expressway (NMSCE) is one proposed expressway which intends to divert and redistribute the heavy traffic on existing corridors. The proposed expressway (NMSCE) will pass through 12 districts from Vidarbha through Marathwada to Konkan regions. The major settlements which are set to be part of this plan are Nagpur District, Wardha District, Amravati District, Yavatmal District, Washim District, Buldana District, Jalna District, Aurangabad District, Ahmadnagar District, Nasik District, Thane District and Mumbai. Besides a number of villages would also be part of the proposed NMSCE.

In this context, the Union Ministry of Highways and Surface Transport and Government of Maharashtra has announced the eight-lane NMSCE project. The Maharashtra State Road Development Corporation (MSRDC) would be the implementing agency. The NMSCE is a top priority project in the Government agenda. The NMSCE will be designated as a Maharashtra State Highway (MSH) built on National Highway standards. It will start from Jamtha on Nagpur-Butibori road and go up to Padgha-Vadape near Mumbai.

1.2 Project Description:

The NMSCE will be developed as a high-density corridor establishing high-speed connectivity between Nagpur and Mumbai. As a first step in this direction the Government of Maharashtra has decided to develop and strengthen the linkages and connectivity of major cities of state with Mumbai, the state capital. Exploring the viability of one such connectivity between Nagpur Mumbai, which includes links with and through Butibori – Wardha – Karanja – Aurangabad – Sinnar – Ghoti – Vadape along with link from Karanja – Loni - Nagzari corridor. The entire length of the proposed expressway is about 699.7 km and is divided into five packages as follows;

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Project work</th>
<th>Approximate Length in kms</th>
<th>Estimated Cost (Rs. In Crs.)</th>
<th>Cost per km/Rs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Package-I: Jamtha-Butibori MIDC-Wardha-Pulgaon (in Nagpur Division)</td>
<td>89</td>
<td>6430.00</td>
<td>50.23</td>
</tr>
<tr>
<td>2</td>
<td>Package-II: Pulgaon-Karanja-Sindhakhedraja (in Amravati Division).</td>
<td>251</td>
<td>12810.00</td>
<td>50.04</td>
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<td>3</td>
<td>Package-III: Jalna District Border-Aurangabad-Kopargaon (in Marathwada Division).</td>
<td>153</td>
<td>8250.00</td>
<td>50.00</td>
</tr>
<tr>
<td>4</td>
<td>Package-IV: Kopargaon-Sinnar, Sinnar-Igatpuri (in Nashik Division)</td>
<td>126.7</td>
<td>5780.00</td>
<td>50.26</td>
</tr>
<tr>
<td>5</td>
<td>Package-V: Igatpuri to Bhiwandi (in Mumbai Division)</td>
<td>80</td>
<td>4000.00</td>
<td>50.00</td>
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<tr>
<td>Total</td>
<td>699.7</td>
<td>37270.00</td>
<td>50.09</td>
<td></td>
</tr>
</tbody>
</table>

1 http://bdigroup.co.in/blog/10-upcoming-express-highways-for-faster-connectivity-nitin-gadkari/
The estimated cost for the entire stretch of the project is Rs. 37270.00 Crores. The unit cost per km of expressway has been assessed as Rs. 50.09 crore. Some parts of the proposed expressway pass through the forest land and ghat section. Wherever the forest land is involved, the clearance will be required from the Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India.

1.3 Importance of the Project:

- Technologies are available for construction of super infrastructure
- In terms of technology, viaducts, tunnels the travel time will be reduced by 50% assuming current speed of 100km/hour and travel time of 14² hours.
- It connects Industrial places at Butibori, Amravati, Jalna, Chikalthana, Shendra, Waluj, Sinnar to Mumbai.
- The incidental benefit would be that it will create employment during construction phase and post development. It will boost industrialization which will largely benefit the entire region.
- The length passes through backward regions of Vidarbha and Marathwada.
- It connects Tourist places at Karanja, Lonar, Sindhkheda, Verul, Shirdi.

1.4 Package IV - Vaijapur to Ghoti - 115 kms length:

This Pre-feasibility Report is for Package IV i.e. Kopargaon, Dhotre village to Igatpuri of approximately 126.7 kms length. The estimated total cost for this stretch of the project is 5780.00Crores. The unit cost per km has been assessed as Rs 50.26 crore.

1.4.1 Components of the project:

The project will have Interchange at Ghoti with NH – 3, Sinnar with NH – 50, Mangaon with NH – 50, Kopargaon with NH – 222. The project intends to connect NH – 3 at Ghoti, NH – 50 at Sinnar. The project will have connectivity with AH47 i.e. Great Asian Expressway at Sinnar which further improve connectivity to AH43 in (Gwalior) Madhya Pradesh and AH45 in Bangalore (Karnataka). The project will also increase transportation connectivity to NH4 (Mumbai Pune Expressway) which is at distance of about 100 km.

Along the NMSCE industrial parks, technology parks, smart cities, and educational complexes will be developed. The NMSCE will have optical fibre all along its stretch so that Wi-Fi connectivity is available. The proposed expressway is passing through a large number of backward districts and the government hopes to ensure their industrial development using the expressway as an infrastructural launch pad. Along with this it is also proposed to have area development, real estate development, emergency landing of plane, medical facilities, food courts, police stations, public toilets, petrol pumps.

Other planned activities include construction of intersections/junctions, culverts and drainage works, toll plazas and ancillary structures, temporary access, diversion roads and site location for Wet Mix Macadam Plant (WMM plant) and other road construction related plants and establishments.

The offsite work includes, quarrying from nearby quarry sites, labour camps, material storage yard, earth from nearby burrow area and dumping of construction spoils at dumping sites.

2 https://www.google.co.in/?ion=1&espv=2#q=nagpur%20to%20mumbai%20travel%20time%20by%20road (13 h 43 min (809.5 km) via Nagpur - Aurangabad Hwy)
2. Introduction of the project

2.1 Background information

i. Identification of project and project proponent.

**Project**: Consultancy Services for preparation of Feasibility Study and Detailed Project Report of Access Controlled Nagpur Mumbai Super Communication Expressway for Package IV i.e. Kopargaon, Dhotre Village to Igatpuri of 126.7 kms length.

**Project proponent**: Maharashtra State Road Development Corporation Ltd. (MSRDC)

**Brief description of nature of the project.**

The project intends to develop 8 lane expressway with six lanes (3+3) carriage way of Super Communication Expressway, one lane for Railway corridor and one lane for utility shifting, bypass and other structures in the state of Maharashtra. The proposed alignment passes through approximately 300 villages. The proposed expressway (NMSCE) will pass through 12 districts from Vidarbha through Marathwada to Konkan regions. The major settlements which are set to be part of this plan are Nagpur District, Wardha District, Amravati District, Yavatmal District, Washim District, Buldana District, Jalna District, Aurangabad District, Ahmadnagar District, Nasik District, Thane District and Mumbai. The design speed is proposed such that Vehicles shall be able to reach an average speed of 200 km per hour\(^3\) on it.

The proposed Package IV Kopargaon – Igatpuri will pass through Nashik District and connect three major cities viz Aurangabad, Nashik and Thane in less distance and time as compared to the distance covered by the current Nashik Mumbai Expressway NH-3, NH-50 and SH-39. The proposed Package IV passes through approximately 30 villages. The proposed stretch would save 1.5 hours travelling time between the two cities.

ii. Need for the project and its importance to the country and or region.

In the present scenario industrial growth remains centralised around Mumbai, Pune and to some extent in Nashik and Aurangabad as these cities remain connected through sea ports in Mumbai. Mumbai-Pune region is saturated in terms of land, population or infrastructure. There is tremendous pressure on this region, as the economic nerve-centre of Maharashtra and the entire country. This may be linked to the proximity of the Mazagon Dock and Jawaharlal Nehru Port Trust, from where the finished goods are exported and raw material is imported.

On the other hand Vidarbha and Marathwada regions are less economically prosperous due to low industrial growth, area development, agricultural fertile land, lack of ample amount of water resources, lack of new technologies as compared to the rest of Maharashtra.

These cities will be projected as investment destinations for manufacturing, automobile, defence, aerospace, information technology, textile and food processing. The proposed project will set target as

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\(^3\) During the review meeting held on 2\(^{nd}\) April 2016 n MSRDC, it was decided to maintain the design speed of 200 kmph with the assumption that the vehicles would go upto a average speed of 120-140 kmph
the new centres of industrial development, area development along with entertainment / tourism development throughout the corridor. Thus this planning will not only reduce time but also improve country’s economic growth.

iii. Demand Supply Gap.

NA. Material is easily available in nearby areas.

iv. Imports vs. Indigenous production.

NA

v. Export Possibility.

NA

vi. Domestic / export Markets.

NA

vii. Employment Generation (Direct and Indirect) due to the project.

Highway construction broadly encompasses the issues relevant to 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.

**Direct employment generation:** During the construction phase of the project which is likely to be completed within 36 months, manpower will be needed to take part in various project activities. About 8000 persons per day, which includes, skilled, semi-skilled and unskilled labours, will likely to get work. In the post construction phase it is expected that the project will provide social benefits to about 800 people in terms of direct employment by way of better commercial and industrial development of the area.

The project shall also induce indirect employment generation for cleaners, guards, local vendors, operation and maintenance workers etc. Indirect employment will be both temporary and permanent.

**Temporary indirect employment:** Local vendors, construction material traders, electrician, plumbers etc. will be benefitted through employment generated during construction and maintenance phase.

**Permanent indirect employment:** Cleaners, guards, local vendors, kiosk stalls will be benefitted through employment generated during operation phase. The project will therefore provide employment to people from all walks of life i.e. Construction, Building materials, Engineering, Medicine, Hospitality, Education, Information Technology and Administration etc. The project will be beneficial for the local communities, as it will generate employment by way of construction and reduction in pollution with better communication. The project will benefit all the population groups and consequently not differentially or adversely affect any groups.
3. Project Description

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

ii. Location (map showing general location, specific location, and project boundary & project site layout) with coordinates.
Maps attached as Annexure I.

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

Detailed Alternative alignment analysis is carried out. This PFR is prepared as per selected alignment. Comparison and detailed report on alternative alignment analysis will be presented in Annexure II and will be detailed out in EIA.

iv. Size or magnitude of operation

The total stretch of proposed Package IV of NMSCE 126.7 km starting from Kopargaon and ends at Igatpuri in Nashik District. This stretch will also have dual carriageway 8 lane with six lanes (3+3) carriageway way of super communication highway and one lane for Railway corridor and one lane for utility. This stretch is also divided into arterial highway intended for traffic with full control of access and provided with grade separators at intersection.

It is proposed to have grade separator over National highways, Underpass multispans, Underpass single span, Underpass twin cell, road overpasses (OP), agricultural vehicle underpass (AVUP), cattle crossings (CX), Pedestrian crossings (PX), and railway crossings are proposed along the stretch of expressway wherever necessary. Also some major and minor bridges are proposed along with culverts.

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

Consultancy Services for preparation of Feasibility Study and Detailed Project Report of Access Controlled Nagpur-Mumbai Super Communication Expressway

Develop Project Concept

Route Inspection and Inventory

Sanctions from MSRDC & State Government

Project Planning (Considering Alternatives)

Preliminary Engineering (Preferred Plans)

Final Plans / DPR

Construction of Bridges and appurtenant Structures

Standards / policies / Necessary Clearances

Road Construction Clearing of site Levelling / laying Foundation on Coat CC/ Bituminous Road

Operation and Maintenance

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 construction material requirement in broad view per kilometre is as below:

1. Earth work - 60,000 MT/ km
2. Stone ballast - 8000 MT/ km
3. Grit - 6000 MT/ km
4. Cement Concrete - 50,000 MT/km

The expressway 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.

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

Water: 90 lpcd will be required for onsite workers, while water for expressway construction and sprinkling for dust suppression will also be needed. Approximately 720 KL of water would be required for daily uses in labour camps. The water shall be obtained from nearby surface/ ground water with prior consent.

Power: LSD D.G sets shall be used for power for onsite construction and labour camps, 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 representations of the feasibility drawing which give information of EIA purpose.
4. Site Analysis

The latitude and longitude are 19°51'42.69"N latitude, 74°38'39.64"E longitude and 19°41'35.25"N latitude, 73°32'06.61"E longitude at Igatpuri in Nashik District. Part of the stretch in Nashik District will be through the ghat section. The remaining stretch will be through undulating terrain near Mangaon. Rest of the stretch will be through plain lands.

i. Connectivity.

The proposed route is connected and approached through State highways and National Highways. At present the route from Kopargaon to Igatpuri is covered by the Mumbai Nashik Highway NH-3, Pune Nashik Highway NH-50 and Nashik Shirdi Highway SH-39. Igatpuri is connected to Mumbai via Mumbai Nashik Highway NH-3 i.e. AH47. Igatpuri is also connected to NH4 near Padgha at distance of about 100 km. This route is connected to Kopargaon with Kalyan Nirmal National Highway NH – 222. The existing road is also connected to Nashik Dhule State SH-10 and NH-222.

ii. Land Form, Land use and Land ownership.

The development of expressway in the area shall possibly bring substantial changes in the existing land use pattern. The land acquired for the purpose is predominantly agriculture. About 84% length of the proposed expressway passes through cultivated land / agricultural land, remaining 13% length traverse through barren land and 0.62% through forest area. Hence there is need of diversion of agriculture/forest or other land use to Expressway construction. The project alignment will pass through forest land. The details will be presented in EIA.

Soil Profile of the state:

The soil in project region is covered by black cotton soil or ‘Regur’ formed by the weathering of Deccan Trap Basalt. The soils of the Nashik district are the weathering products of Basalt and have various shades from grey to black, red and pink colour. The soils occurring in the project area 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).

Topography:

The alignment of the proposed passes through plain and undulating terrain, ghats and passes through agricultural area. The terrains and the expressway alignment are moderate with flat and hilly gradients. The project site is bounded by surface water reservoirs. The major one is Baele Lake. The project will cross though two main rivers Godawari River at west end near Kopargaon and Darna River in the east near Pandurli Village. The southern and eastern part is undulating due to hilly terrain in Nashik District.

iii. 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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Both the survey and final alignment the data will be supplied by the design consultant. Accordingly, factual information shall be presented.
The land use of the land acquired for the purpose of construction of expressway is mainly agriculture. Around 84% length of the proposed expressway passes through cultivated land. Remaining 16% length of the alignment is passes through forest, barren and inhabited area. The land use will be changed to Highway construction from agriculture, forest and settlement\(^6\). Although, there is no habitation in the 300 m wide strip along the alignment of expressway, however, there are several villages and settlements located in the vicinity of the expressway. The number of villages located within 5 km radius along stretch is given below in table:

<table>
<thead>
<tr>
<th>#</th>
<th>Villages</th>
<th>#</th>
<th>Villages</th>
<th>#</th>
<th>Villages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ghoti</td>
<td>47</td>
<td>Lahan Ghotichiwadi</td>
<td>89</td>
<td>Malunjewadi</td>
</tr>
<tr>
<td>2</td>
<td>Daundat</td>
<td>48</td>
<td>Kavadada</td>
<td>90</td>
<td>Samnere</td>
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<tr>
<td>3</td>
<td>Kanadwadi</td>
<td>49</td>
<td>Nandurvaidya</td>
<td>91</td>
<td>Suregaonrasta</td>
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<td>4</td>
<td>Jhadavwadi</td>
<td>50</td>
<td>Belgaon Kurhe</td>
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<td>Devthan</td>
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<tr>
<td>5</td>
<td>Daranwadi</td>
<td>51</td>
<td>Sakur</td>
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<td>Chandgaon</td>
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<td>6</td>
<td>Bandewadi</td>
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<td>Shenit</td>
<td>94</td>
<td>Bhaggaon</td>
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<tr>
<td>7</td>
<td>Nandgaon</td>
<td>53</td>
<td>Vinchuri Dalvi</td>
<td>95</td>
<td>Khambala</td>
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<td>8</td>
<td>Igatpuri</td>
<td>54</td>
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<td>Dawala</td>
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<td>Wadgaon Pingle</td>
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<td>Lahavit</td>
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<td>Saradwadi</td>
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<td>Lohashingave</td>
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<td>Jhapwadi</td>
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<td>Bhojde</td>
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<td>Pandhurli</td>
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<td>Bhatwadi</td>
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<td>Ramwadi</td>
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<td>Pajhar Talao</td>
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<td>Vadgaon Sinnar</td>
<td>101</td>
<td>Sanvatsa</td>
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<td>Lonarwadi</td>
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<td>Ghari</td>
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<td>16</td>
<td>Harsule</td>
<td>61</td>
<td>Dattawadi</td>
<td>103</td>
<td>Chande Kasare</td>
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<td>17</td>
<td>Atakwade</td>
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<td>Dubere</td>
<td>104</td>
<td>Madhi Budruk</td>
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<td>18</td>
<td>Manegaon</td>
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<td>Panchale</td>
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<td>Sonari</td>
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<td>Mirgaon</td>
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<td>Gulvancha</td>
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<td>Suregaon</td>
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<td>Borkhind</td>
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<tr>
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<td>Khopargaon</td>
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<td>Dharangaon</td>
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<td>Pimpalgaon Gadge</td>
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<td>Anchagaon</td>
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<td>Ravande</td>
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<td>Shirasgaon</td>
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<td>Dugalgaon</td>
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<td>Vakhichiwadi</td>
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<td>Vaijapur</td>
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<td>Mundhegaon</td>
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<td>Vaghhabichiwadi</td>
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<td>Padli Deshmukh</td>
<td>123</td>
<td>Gonde Dumala</td>
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<td>Musalgaon-Bu</td>
<td>82</td>
<td>Asavali</td>
<td>124</td>
<td>Balgaon Kurhe</td>
</tr>
</tbody>
</table>

\(^6\) Will depend on the above foot note.
The list of villages through which the concluded alignment is passing is as below:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Alignment passing Through Villages</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Igatipuri</td>
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<td>15</td>
<td>Kaluste</td>
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<tr>
<td>16</td>
<td>Pimplegaon More</td>
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<tr>
<td>17</td>
<td>Bharvir</td>
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<tr>
<td>18</td>
<td>Pimple gaon Dukra</td>
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<td>19</td>
<td>Belu</td>
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<td>20</td>
<td>Agaskind</td>
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<td>21</td>
<td>Pandurli</td>
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<tr>
<td>22</td>
<td>Konambe</td>
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<td>23</td>
<td>Sonambe</td>
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<td>24</td>
<td>Dubere</td>
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<td>Gonde</td>
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<td>26</td>
<td>Pangari</td>
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<td>27</td>
<td>Vavi</td>
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<td>28</td>
<td>Pathare</td>
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<td>29</td>
<td>Zagde Phata</td>
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<tr>
<td>30</td>
<td>Sanwatsar</td>
</tr>
</tbody>
</table>

**Water Bodies:**

The alignment of the proposed passes through plain and undulating terrain and passes through agricultural area. The terrains and the expressway alignment are moderate with flat and hilly gradients. The project site is bounded by surface water reservoirs within 10 km. The major one is Baele Lake. The project will cross though two main rivers Godawari River at west end near Kopargaon and Darna River in the east near Pandurli Village. The southern and eastern part is undulating due to hilly terrain in Nashik District. The details are depicted below.
Sr. No | Water Body          | Average Distance in Km |
-------|---------------------|------------------------|
1      | Upper Vaitarna Dam  | 12.0                   |
2      | Mukne Dam           | 10.0                   |
3      | Godavari River      | 0.0                    |
4      | Darna River         | 0.0                    |
5      | Baele Lake          | 0.5                    |

Sanctuaries and Wildlife Parks:

The details of eco-sensitive and forest areas noted within 10 km from the project are listed below.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Particulars</th>
<th>Distance in Km</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Triambakeshwar Forest</td>
<td>27.56</td>
</tr>
<tr>
<td>2</td>
<td>Anjaneri Forest</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>Devlali Ranges</td>
<td>9.5³</td>
</tr>
<tr>
<td>4</td>
<td>Kalsubai ESZ &amp; WLS</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Nandurmadhweshwar Bird Sanctuary</td>
<td>23</td>
</tr>
</tbody>
</table>

Detailed information shall be furnished in EIA Report.

iv. Existing Infrastructure.

The proposed route is connected and approached through State highways and National Highways. At present the route from Igatpuri to Kopargaon is covered by the Mumbai Nashik Highway NH-3, Pune Nashik Highway NH-50 and Nashik Shirdi Highway SH-39. Ghoti is connected to Mumbai via Mumbai Nashik Highway NH-3 i.e. AH47. Igatpuri is also connected to NH4 near Padgha at distance of about 100 km. This route is connected to Kopargaon with Kalyan Nirmal National Highway NH – 222. The existing road is also connected to Nashik Dhule State SH-10 and NH-222.

The project route is having various prestigious industrial projects viz., Sinner MIDC Industrial Estate, Lahavit industrial Area, Kopargaon Industrial area, Sanjivani Sugar Factory near Kopargaon. Igatpuri Railway station is existing within 5 kms from Ghoti end.

The proposed project route is also having well rail transport in existence. Asavali Station and Igatpuri Railway Station are existing within 5 kms at Ghoti Khurd. Kopargaon Railway station within 5 kms and Sai Nagar Shirdi Railway Station within 10 kms from Kopargaon. PpiRotegaon Railway Station within 5 kms from Vaijapur end is existing. Ghoti Bus Depot and Shirdi Bus Depot within 5kms from Ghoti end and Kopargaon.

v. Soil Classification

The soils of the district are the weathering products of Basalt and have various shades from grey 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.

³ Devlali Ranges are not Notified PA area but having forest zone.
vi. **Climatic data from secondary sources.**

Climatic conditions are strongly influenced by its geographical conditions. It is distinctly different on the coastal strip where it is very humid and warm. On the other hand, the climate on the eastern slopes and the plains at the foot slopes is comparatively less humid. The humidity ranges from 50 to 80 per cent throughout the year. On an average, the temperature ranges from 17.5° to 33.3° centigrade.

Rainfall is most dominant single weather parameter that influences plant growth and crop production because of its uncertainty and variable nature. The district gets assured rainfall of 2000-3500 mm, from the south-west monsoon during the months of June to September. Generally, the highest rainfall is recorded in the month of July. It is less towards the north than south.

vii. **Social Infrastructure available.**

Basic social infrastructure 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. People have to go to Nashik or Aurangabad for major hospital and education facilities. Shirdi Sainath Hospital is existing but within 10 km average distance.

5. **Planning Brief**

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

The stretch of proposed Package IV is 126.7 km starting from Kopargaon and ends at Igatpuri in Nashik District. The proposed expressway is a dual carriageway 8 lane with six lanes (3+3) carriage way of super communication highway, one lane for railway corridor and one lane for service utility. The expressway is a divided arterial highway intended for traffic with full control of access and provided with grade separators at intersection. Other planned activities include construction of intersections/junctions, culverts and drainage works, toll plazas and ancillary structures, temporary access, diversion roads and site location for WMM plant and other road construction related plants and establishments. The offsite work includes, quarrying from nearby quarry sites, labour camps, material storage yard, earth from nearby burrow area and dumping of construction spoils at dumping sites.

ii. **Population Projection**

In construction phase about 8000 persons per day, which includes, skilled, semi-skilled and unskilled labours, will likely to get work. In the post construction phase it is expected that the project will provide social benefits to about 800 people in terms of direct employment by way of better commercial and industrial development of the area. Also other than this area development and entertainment centres it is expected the influx of employees and residents.

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

The total stretch of 126.7 km with a band of 5 km covers on either side of the NMSCE will cover 1267 sq. kms. The RoW will cover 152 sq.kms (126.7 kms X 120 mts), emergency services, green belt and other related components. The green belt development as per Indian Road Congress Guidelines (IRC: SP: 21-2009) and the Ministry of Road Transport & Highways (MORTH) Green Highways (Plantation, Transplantation, Beautification & Maintenance) Policy-2015.
Details of Land use breakup will be described in EIA. Compensatory plantation will be a part of management plan.

iv. **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.

**Landscaping & Green belt development:** As per IRC: SP: 21-2009 and MORTH Green Highways (Plantation, Transplantation, Beautification & Maintenance) Policy-2015, it is mandatory to have plantation along the highways. The plantation will be proposed stick to the guidelines and policy. It is proposed that 250 sapling will be planted as on an area of 0.25Ha along the boundary. A number of species will be planted suitable to this area of climate conditions like indigenous Neem, Mango, Pipal, Wad, Jamun etc. Thus the total plantations will be 63,350 along both sides of the entire stretch of 126.7 kms. The general benefits of plantations are;

- Reduction in Heat Island,
- Plantation of herbs, shrubs and trees will create three tier which will reduce the impacts of air pollution and dust as trees and shrubs are known to be natural sink for air pollutants
- It will provide much needed shade on glaring hot roads during summer
- It will reduce the impact of ever increasing noise pollution caused due to increase in number of vehicles
- Moderating the effect of wind and incoming radiation
- Grass plantation on the embankment slopes will reduce soil erosion and cutting
- Rumbling sound of vehicle leads to sleeping hence sound barrier
- Prevention of glare from the headlight of incoming vehicles
- Enhancement of Bio-diversity,
- Compensatory tree plantation,
- Fruit bearing plants can generate local economy,
- Enhance Greenery and Aesthetics along the 744 kms stretch.

**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.

v. **Amenities/Facilities.**

**Amenities and Facilities:** Basic amenities such as toilets for both men and women and clean drinking water will be provided to the workers. A temporary restroom will also be erected for resting. First aid kits and PPE will be provided to the employees while imparting knowledge about its usage.
6. Proposed Infrastructure

i. Industrial Area (Processing Area).

About 400 to 500 ha of land will be developed as industrial estate / SEZ / Parks / Manufacturing units along the corridor of the alignment with prior investigation, site suitability and infrastructure demand in the area.

ii. Residential Area (Non Processing Area).

About 400 to 500 acres (200 ha) of land at each intersection of @ 40-50 kms\(^8\) will be developed as Area Development / Township Projects, Hospitals, Institutions along the corridor of the alignment with prior investigation, site suitability and infrastructure demand in the area. It is also proposed to have better connectivity to existing tourism / tourist’s places. Also along development of entertainment centres like theme parks, hotels, resorts, recreational activities near water resources, shopping centres etc.

iii. Green Belt.

Plantations shall be done on either side of the road, as well as on the median, by MSRDC after the completion of project. Forest clearance will be obtained from MoEF&CC. Compensatory Afforestation will be prepared.

iv. Social Infrastructure.

It is anticipated that toll booths, temporary camps and rain water harvesting structures along with supporting drains shall come up along the alignment. Also it is proposed that on about 400 to 500 ha of land industrial estate / SEZ / Parks / Manufacturing units and on about 400 to 500 acres (200 ha) of land Area Development / Township Projects, Hospitals, Food Courts, Institutions, police stations, public toilets, petrol pumps will be developed. The proposed Super Communication Expressway will have optical fibre all along its stretch so that Wi-Fi connectivity is available.

v. Connectivity (Traffic and Transportation Road/ Rail/ Metro/ Waterways etc)

The proposed route is connected and approached through State highways and National Highways. At present the route from Igatpuri to Kopargaon in Nashik is covered by the Mumbai Nashik Highway NH-3, Pune Nashik Highway NH-50 and Nashik Shirdi Highway SH-39. Ghoti is connected to Mumbai via Mumbai Nashik Highway NH-3 i.e. AH47. Igatpuri is also connected to NH4 near Padgha at distance of about 100 km. This route is connected to Kopargaon with Kalyan Nirmal National Highway NH – 222. The existing road is also connected to Nashik Dhule State SH-10 and NH-222.

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\(^8\) The exact location and size will be given after alignment finalization.
station within 5 kms and Sai Nagar Shirdi Railway Station within 10 kms from Kopargaon. Rotegaon Railway Station within 5 kms from Vaijapur end is existing. Ghoti Bus Depot and Shirdi Bus Depot within 5kms from Ghoti and Kopargaon.

vi. **Drinking Water Management (Source & Supply of water)**

Water at 70 to 90 lpcd\(^9\) shall be required for construction and operational workers. Drinking water will be provided in camps through bore wells/ water tankers with prior consent. It is expected that about 720 KLD water will be required for resident construction workers.

vii. **Sewerage System**

Mobile toilets and soak pit shall be provided for construction and operational workers. In operation phase the waste water management system like proper sewerage system and STPs will be provided.

viii. **Industrial Waste Management**

Industrial waste is expected to be generated in operation phase from proposed Industrial estates / SEZ. Waste management during construction and operational phase shall be done as per MoEF&CC norms. Hazardous waste will be dealt with due care following the Hazardous Waste Management Rules and Regulations 2008.

ix. **Solid Waste Management**

Municipal Solid Waste is expected to be generated from proposed Township and / IT Parks, entertainment centres. 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 SWM rules and regulations.

x. **Power Requirement & Supply / source**

Power requirement during construction phase will be met with LSD D.G sets in case of non-availability of electric supply. 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. Along with this the alignment of expressway passing through forest land barren land and inhabited area. The land required for the construction will be acquired by MSRDC before the start of construction work. 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**

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\(^9\) As per CPHEEO and NBC guidelines
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 36 months. Work will commence from December 2016\(^\text{10}\) and the anticipated date of completion is December 2019.

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

The estimated cost of Package IV is approximately Rs. 5780.00 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 Aurangabad and Nashik. In addition the improved road will provide other benefits like proposed activity improves the economic status of the village people the dedicated project area. Overall improvement will be expected in local area in terms of;

1. Development and improvement in transportation infrastructure facility will connect villages with the nearby cities
2. Proposed Education institutes in the villages
3. Better approach to Medical & Educational services and quick transportation of perishable goods like fruits, vegetables and dairy products and
4. Drinking water facility
5. Development of local agriculture and handicrafts
6. Development of tourism and pilgrimage
7. Vocational and skill development training for youth
8. Opening up of opportunities for new occupations
9. Improved quality of life for people and so on.
10. Transporting, processing and marketing of agricultural products
11. Fast and safe connectivity resulting in savings in fuel, travel time and total transportation cost to the society
12. Reduction in accidents
13. Reduction in pollution
14. Proposed Tree Plantation along the road side, green pockets alongside of the alignment will have social benefits to the nearby people
15. The proposed expressway will have infrastructural Launchpad.
16. Along with this it is also proposed to have area development, real estate development, emergency landing of plane, medical facilities, food courts, police stations, public toilets, petrol pumps. This will definitely add value in the social and financial benefits in the region
17. 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 NMSEC project will boost socio-economic development in the entire central region of India. Accordingly Package IV will contribute towards this objective.

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\(^{10}\) Feed back requested from MSRDC