

Safe Corridor Demonstration Program

Draft Environment and Social Management
Plan



Madhya Pradesh Rural Road Development Authority

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1. Introduction

1.1. Project Background

The project stretch is in Dhar district, covering the block of Umarvan in Manawar. There are 9 villages on the entire stretch, with social consultations being conducted at 3 locations covering 4 major villages - Bakaner, Zirvi, Tawlai Bujurg, and Tonki. In general, the route runs through mainly rural areas, mixed nature with presence of agricultural, vacant land and interspersed built-up area with intersections which lead to small villages and hamlets. The traffic on this road is mostly cars with slow moving farm vehicles using the road for local access. There are motorized two wheelers which are mostly used by local people to ply short distances between or within the villages. The list of villages on the stretch has been given on table.

Table 1. List of Villages Along SCDP Corridor along with Chainage

Sl. No.	Village	Start Chainage	End Chainage
1.	Tawlai Bujurg	21+700	22+100
2.	Zhirvi	24+300	25+400
3.	Rangaon	24+300	25+400
4.	Thangaon	27+150	28+000
5.	Bakaner	30+700	33+750
6.	Ajandiman	35+000	37+050
7.	Khedi	35+000	37+000
8.	Hanumantiya	39+200	39+750
9.	Tonki	40+900	41+200

Currently, it is a two-lane undivided carriageway with earthen shoulder on either side. The width of earthen shoulder varies across the stretch, with no availability of it on the bridges. The stretch comprises of 36 culverts and bridges which are scattered throughout the length.

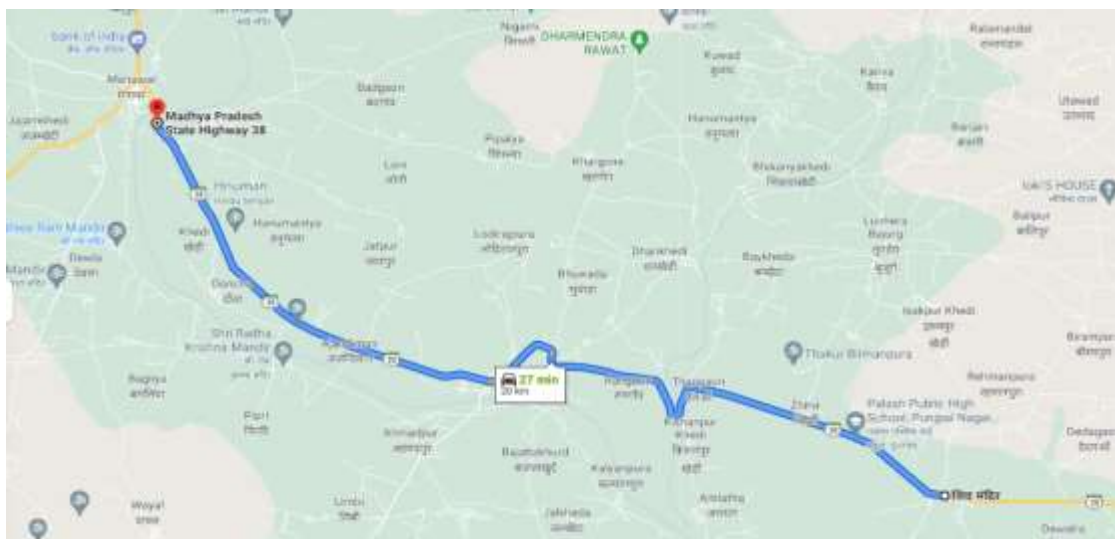


Figure 1: Location map of selected Corridor

1.2. Need and Justification of SCDP

The overall objective of the development of SCDP corridor is to provide safe travel for passengers and pedestrians along this corridor. The outcome of the project is beneficial to all using this corridor. However, the proposed project will have localized and minimal negative impacts at the major habitation areas where improvements and widening will impact petty shops and other commercial/ vendor activity.

1.3. Objectives of ESMP

The Environmental and Social Impact assessment of the project has been carried out to analyze the impact of proposed interventions along the corridor on the nearby habitants, including shopkeepers, dwellers, residents, and road users including pedestrians, vehicle drivers etc.

1.4. Methodology of preparation of ESMP

For social baseline and impact assessment, various levels of discussions were held with stakeholders including government officials, community representatives and a wide range of road users and roadside dwellers. The main purpose of this approach was to obtain a fair impression on the people's perceptions about the baseline condition and their views on the proposed safety countermeasures along the corridor.

In order to establish the environmental condition baseline within the study area, relevant secondary and primary data was collected and reviewed, a comprehensive field visit was undertaken, and a number of consultations with local people were carried out.

1.5. Structure of ESMP Report

The structure of the report is as follows:

- Chapter 1 of the report includes the introduction of the project including need and justification, methodology followed for the preparation of ESMP along with the objectives.
- Chapter 2 of the report deals with description of the baseline status of the selected corridor and the proposed design countermeasures along the corridor.
- Chapter 3 of the report details out the policies and frameworks which needs to be adhered throughout the project.
- Chapter 4 of the report includes the baseline assessment of the project area including social, physical and biological characteristics.
- Chapter 5 of the report includes the alternatives analyzed during the proposal stage of road safety countermeasures along the corridor.
- Chapter 6 details out the consultations held with key stakeholders at different levels to explain the design proposal and gather their viewpoint along with analyzing the impact of the proposed countermeasures.
- Chapter 7 of the report explains the potential environmental and social impacts of the project if any.
- Chapter 8 of the report includes the detailed environmental and social management plan prepared for the project.
- Chapter 9 of the project covers the institutional arrangements for environmental and social management including the grievance redressal mechanism.

2. Description of Project

2.1. Safe Corridor Selection Process and Finalization

As part of baseline study, a preliminary investigation was carried out over 3 candidate corridors for selection of Safe Corridor Demonstration Project (SCDP) corridors. These candidate corridors were chosen in the districts of Dhar after due consultation with the PIU Dhar for MPRRDA. Prior to carry out the site visit, these corridors were mapped on Google Map. Brief details of these corridors are presented below:

2.1.1. Candidate corridor 01: SH38 (Manawar to Talwai Bujurg)

This road stretch start from the outskirts of Manawar Nagar Palika and move towards Bakaner/Dharamapuri. The initial 20 km segment of this road stretch is identified as candidate corridor 01. The road stretch ends at Talwai Bujurg village. Being a part of SH-38, this road stretch carries both passenger and freight traffic.

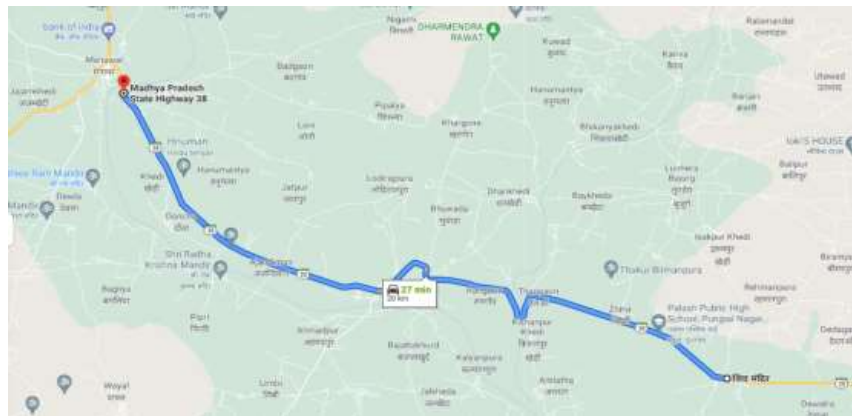


Figure 2:Alignment of Candidate Corridor 01

2.1.2. Candidate corridor 02: SH38 (Thangaon to Dharamapuri)

This road stretch start from Thangaon and move towards Dharamapuri. The initial 20 km segment of this road stretch is identified as candidate corridor 01. The road stretch ends at outskirts of Dharamapuri. Being a part of SH-38, this road stretch also carries both passenger and freight traffic.

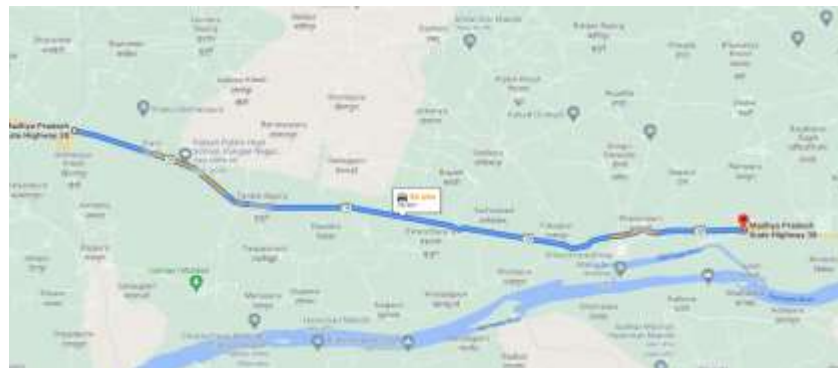


Figure 3:Alignment of Candidate Corridor 02

2.1.3. Candidate corridor 03: SH31 (Badnawar to Khanidigra)

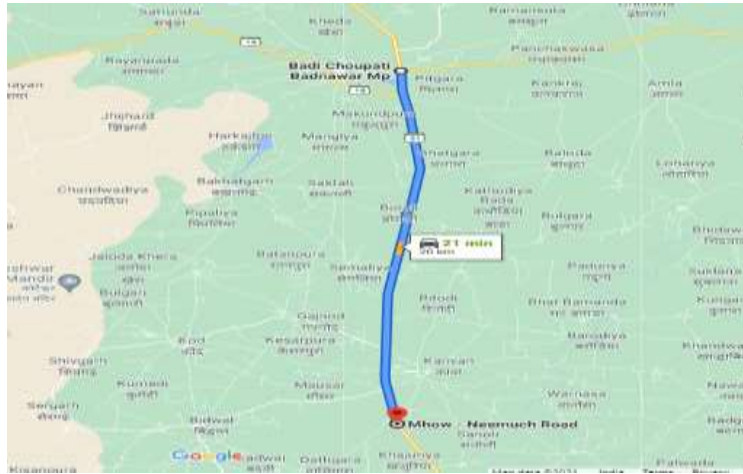


Figure 4:Alignment of Candidate Corridor 03

This road stretch start from Badnawar and move towards Dhar. The initial 20 km segment of this road stretch is identified as candidate corridor 03. The stretch ends just at the outskirts of Khandigra. Being a part of SH-31, this road stretch also carries significant amount of freight and passenger vehicles both.

Further, after site visit of the corridors, these road stretches were mapped in Google Earth and various information were extracted from it to carry out the inventory analysis. Inventory analysis was primarily carried out over geometric feature, safety aspects and road abutting habitational settlements. In following Table, summary of the inventory analysis is presented.

Table 2:Summary of inventory analysis over 3 candidate corridors of SCDP in Dhar district

Roadway Features	Road Stretch			
	Manawar to Bujurg	Talwai	Bakaner to Dharampuri	Badnawar to Makni
Carriageway configuration	2 lane undivided carriageway		4 lane dual carriageway	
Number of Junctions	3 arms	12	14	20
	4 arms	3	3	5
Number of sharp curves	10		0	0
Number of road segments with closely spaced curves (more than 2)	2		1	0
Number of Major habitations along the stretches	8 [#]		2 ^{\$}	9 ^{&}
No. of Black Spots	2 ^a		2 ^b	3 ^c

[#]Doncha, Azandiman, Bakaner, Rangaon, Kisharpur, Khedi, Thangaon, Zirbhi;

^{\$}Thangaon, Zirbhi, Talwai Bujurg, Ekrala Bujurg, Dharampuri;

[&]Pitgarh, Mukundoura, Ghatgara, Boroli, Cho khurd, Ritoda, Kanwan, Khandigara, Makani.

^aTonki Phata, Talwai Bujurg, ^bTalwai Bujurg, Pagara Phata;

^cPitgarah Phata, Modi Petrol Pump, Dhar Phata

2.2. Improvement Proposal and Design Counter Measures

The project aims to improve the safety and operational efficiency of all road users of the corridor, keeping in view international best practices in road safety on a selected highway stretch of 20 km length. The following interventions has been proposed along the corridor to improve the safety of road users:

2.2.1. Curvature Treatments

Horizontal curves are often the locations of run-off and object crashes. Improvement of roadside delineation, and improvement of vehicle guidance for low-visibility conditions have been suggested using the below treatments. The recommendations also follow the concept of safe system approach which included improved visibility for the road users.

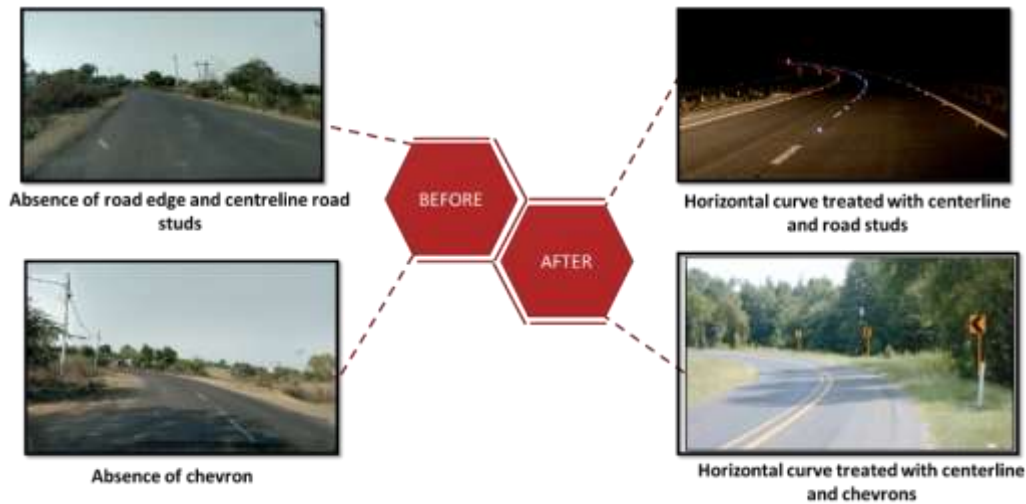


Figure 5: Improvement Measures for curvatures

2.2.2. Bridges & Culverts Treatments

Several bridges and culverts were observed along the corridor with missing delineation and can be a major hazard during low visibility conditions. Improvement of delineation and visibility at these locations will have

major improvement in reducing crashes at these locations. The recommendations follow the elements of safe speed of safe system approach which includes reducing impacts of the injuries.

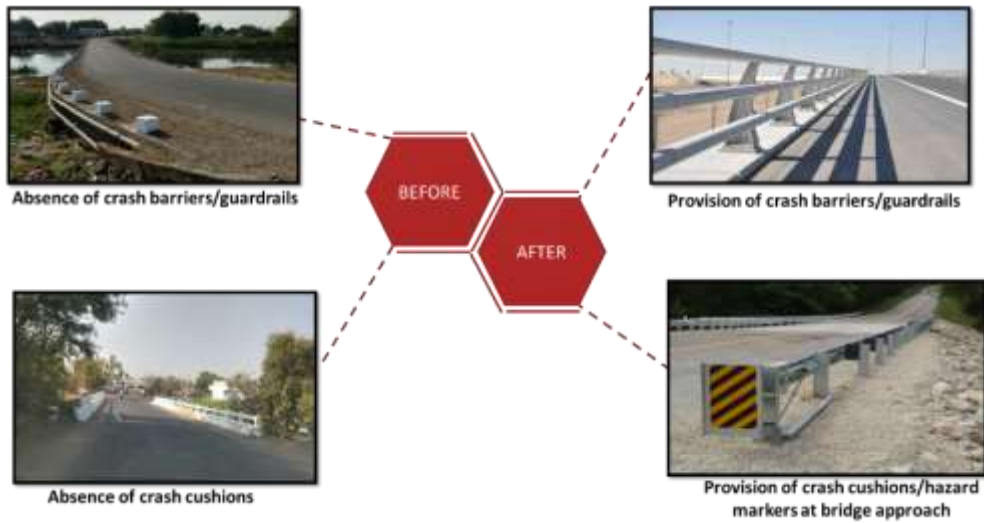


Figure 6:Improvement Measures for Bridges

2.2.3. Speed & Traffic Calming Measures

Speeding is almost always a major cause of crashes. Since the corridor is in a rural environment, with sporadic habitations, it is important for speed calming measures to be installed in order to reduce crashes involving all road users. The recommendations follow the elements of safe speed of safe system approach which includes reducing impacts of the injuries, establish appropriate speed limits and enforcement of existing limits.



Figure 7:Improvements in speed and traffic calming measures

2.2.4. Safety for vulnerable road users

Observations revealed substantial pedestrian and cyclist movements at the built-up areas along the corridor. In order to improve safety of these users, several measures have been recommended as per the pillar of safe roads and roadside of safe system approach including segregating road users etc.



Figure 8:Improvement Measures for Pedestrian Safety

2.2.5. Public Transport Facilities

During the course of the field observations, bus stop was found only at one location along the whole stretch i.e., Tawlai Bujurg. As per the data obtained from Madhya Pradesh Transport Department, there are various registered buses which ply from Manawar to Dharampuri, the following bus stops come along the selected corridor for development:

1. Bakaner
2. Tonki
3. Tawlai
4. Zhirvi

Out of these stops, two of the stops Tonki and Tawlai Bujurg are at the identified blackspots on the corridor. Other locations such as Bakaner, and Zhirvi are also identified as the safety deficient locations on the corridor as per the field observations and historical crash data. Hence, it is recommended to regularize the bus stops at these locations by installing formal bus shelters for the ease of public transport movement. Going by the safe systems approach, this will decrease the conflict points along the corridor due to unauthorized stops of buses and will increase the safety of road users travelling on the corridor.

2.2.1. Corridor wide treatments

2.2.1.1. Flexible Delineator Posts

Throughout the corridor, from field observations and crash data analysis, it was observed that there is a lot of incidences of head-on collisions, especially collisions involving two-wheelers. Hence, in order to curb the incidences of head-on collisions, a consistent treatment of centerline no-overtaking zone consisting of

flexible delineator posts are recommended near the junctions. For these areas, on the corridor approaches the posts will be installed at 1m spacing for a stretch of 20m.

2.2.1.2. Nighttime visibility

Analysis of crash data also shows a high incidence of crashes during nighttime and low visibility conditions. This was corroborated from field observations and discussions with local dwellers. Hence, it has been recommended that at one critical location for 100 m. length based on field conditions during construction period, instead of the regular thermoplastic paint, the highly visible luminescent paint be used for road marking along with the regular thermoplastic paint. Installation of such marking would further improve the visibility of the roadside and junction areas and help vehicles stay on the path and reduce nighttime crashes. This would also help to demonstrate the usefulness of luminescent paint marking.

2.2.1.3. Safety Barriers

Safety barriers have been recommended at locations where roadside conditions create hazards for road users, including steep embankments. W-beam crash barriers have been proposed at various locations including Tawlai Bujurg, Thangaon and Bakaner. W-beam crash barriers have been used at all narrow bridges as terminal treatment beyond the parapets. Also, considering the high proportion of two-wheelers on the subject corridor, instead of the regular W-beam crash barrier, roller safety barriers have been recommended at one specific location, Thangaon bridge, to demonstrate the usefulness in providing extra protection to two-wheeler riders in the event of a crash.

In addition, all narrow bridges have been improved with addition of W-beam barrier treatment at both ends of the bridges on both sides.

2.2.1.4. Road Studs

Further improvement to roadside delineation is recommended to be provided along the corridor road by installing uniformly throughout the road raised road pavement markers (RRPMs) or road studs along the roadside and at an adequate distance along the junctions, as per IRC:35-2015.

2.2.1.5. Modified Transverse Bar Markings

Typical Transverse Bar Markings as prescribed by IRC:35-2015 are a soft measure to include alertness in drivers of oncoming hazards and comprise of a set of 6 bars at equal spacing of 4-5mm height. This has been modified such that the spacing would be wider initially and as the driver enters the zone of hazards, the spacings become closer and offer louder noise and therefore greater alert. The paintings have also been recommended to be of height 9mm for louder sound effect.

2.3. Manpower Requirement

There are approximately 50 persons who are employed as supervisor, Skilled and semi-skilled labor during construction of the corridor.

2.4. Project Implementation Schedule

The construction of project is of about 3 months. Tentative implementation schedule of the project is listed below:

Table 3: Project Implementation Schedule

S.No	Description	Indicative Time Frame
1	Detailed Design and Bidding documents	September 2022
2	Procurement	January 2023
3	Construction Commencement	January 2023
4	Project Completion	March 2023
5	Defect Liability Period	3 years

3. Policy, Legal and Regulatory Framework

3.1. Legal Framework

Below mentioned are the applicable policies and regulations at Central and state level and of World Bank:

Table 4: Applicable Policies and Regulations

SI.No.	Act, Policy	Provisions	Applicability to the Project
1	The Constitution of India (Articles 15,16 and 46, 338, 243M, 243 ZC, 244-, 330, 332, 243D and 340 T 65th Amendment	The Indian Constitution (Article 15) prohibits any discrimination based on religion, race, caste, sex, and place of birth and also contains a clause allowing the union and state governments to make any special provision for the advancement of any socially and educationally backward classes of citizens or for the Scheduled Castes and Scheduled Tribes. Article 16 refers to the equality of opportunity in matters of public employment. Article 46 directs the state to promote with special care the educational and economic interests of the weaker sections of the people, particularly of the Scheduled Castes and the Scheduled Tribes and also directs the state to protect them from social injustice and all forms of exploitation. Article 338 provides for Setting up of National Commission for STs Articles 243M, 243 ZC, 244 provide for reservation of seats for the Local Self-Governments bodies Article 330 provides for Reservation of seats for SCs in the Lok Sabha is provided under, Article 332 provides for in the State Assemblies under and Articles 243D and 340T provides Reservation of seats for the Local Self-Governments bodies under. Sixty-fifty amendment constituting national commission for SC and ST	Relevant as the provisions under the Constitution ensure the access, equity and inclusiveness of the vulnerable groups in the Program particularly as the state as population of SC, STs in many districts
2	Article 366 (25) of the Constitution of India Article	Article 366 (25) refers to Scheduled Tribes as those communities, who are scheduled in accordance with Article 342 of the Constitution, wherein	Relevant as some of the project interventions would be in tribal dominated areas,

	244(1) of Constitution	<p>communities shall be declared as such by the President through an initial public notification or through a subsequent amending Act of Parliament.</p> <p>The Fifth Schedule under Article 244(1) of Constitution defines "Scheduled Areas" as such areas as the President may by order declare to be Scheduled Areas after consultation with the Governor of that State. Defines following essential characteristics, for a community to be identified as Scheduled Tribes are;</p> <ul style="list-style-type: none"> • Indications of primitive traits; • Distinctive culture; • Shyness of contact with the community at large; • Geographical isolation; and • Backwardness. <p>The criteria for declaring any area as a "Scheduled Area" under the Fifth Schedule are; (a) preponderance of tribal population, (b) compactness and reasonable size of the area, (c) a viable administrative entity such as a district, block or Taluka, and (d) economic backwardness of the area as compared to the neighbouring areas .</p>	besides in other areas where tribal population is dispersed
3	Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	<p>The Act has been framed to recognize and vest the forest rights and occupation in forest land in forest dwelling STs and other traditional forest dwellers who have residing in such forests for generations but whose rights could not be recorded. The Act intends to provide for a framework for recording the forest rights so vested and the nature of evidence required for such recognition and vesting in respect of forest land. The main objective is to facilitate the overall development and welfare of the tribal people by empowering them socially, economically and politically without any impact on their culture, habitation and tradition and in terms of their age old rights and privileges.</p> <p>The Act provides three kinds of rights to Scheduled Tribes and Other Traditional Forest Dwellers: Land Rights: Right to continue cultivating land (less than or equal to four hectares) where they have been cultivating prior to 13 December</p>	Relevant due to presence of ST population dependent on such resources in many of the project districts

		2005; Use Rights: Provides for rights to use and/or collect a) minor forest produce (tendu patta, herbs, medicinal plants) that has been traditionally collected, b) Grazing grounds and water bodies, c) Traditional areas of use by nomadic or pastoralist Communities Right to protect and conserve. Gives the community the right to protect and manage the forest.	
4	Right to Information Act, 2005	provides for setting out the practical regime of right to information for citizens to secure access to information under the control of Public Authorities. The act sets out obligations of public authorities with respect to provision of information; requires designating of a Public Information Officer; process for any citizen to obtain information/disposal of request, etc.; provides for institutions such as Central Information Commission/State Information Commission	Relevant as all program related information would need to be disclosed
5	Panchayats (Extension to Scheduled Areas Act (PESA, 1996)	The salient feature of the Panchayats (Extension to the Scheduled Areas) Act, 1996 (PESA) and the modalities worked out to grant rights to tribals in the country are: (i) Legislation on Panchayats shall be in conformity with the customary law, social and religious practices and traditional management practices of community resources; (ii) Habitation or a group of habitations or a hamlet or a group of hamlets comprising community and managing its affairs in accordance with traditions and customs; and shall have a separate Gram Sabha. (iii) Every Gram Sabha to safeguard and preserve the traditions and customs of people, their cultural identity, community resources and the customary mode of dispute resolution. (iv) The Gram Sabhas have roles and responsibilities in approving all development works in the village, identify beneficiaries, issue certificates of utilization of funds; powers to control institutions and functionaries in all social sectors and local plans.	Relevant as there are scheduled areas in the state, wherein project proposes roads – upgrading to BT standards and multiple connectivity links

		<p>Gram Sabhas or Panchayats at appropriate level shall also have powers to manage minor water bodies; power of mandatory consultation in matters of land acquisition; resettlement and rehabilitation and prospecting licenses/mining leases for minor minerals; power to prevent alienation of land and restore alienated land; regulate and restrict sale/consumption of liquor; manage village markets, control moneylending to STs; and ownership of minor forest produce.</p> <p>The provisions of Panchayat with certain modification and exceptions have been extended to the Schedule V areas viz. the ten States where the Panchayats exist in the country. Gram Sabhas have been constituted in every State as per the Panchayat Raj Act/PESA Rules of the concerned State</p>	
6	Involuntary Resettlement (OP4.12)	<p>This policy covers direct economic and social impacts that both result from Bank-assisted investment projects, and are caused by</p> <p>(a) the involuntary taking of land resulting in</p> <p>(i) relocation or loss of shelter.</p> <p>(ii) lost of assets or access to assets; or</p> <p>(iii) Loss of income sources or means of livelihood, whether or not the affected persons must move to another location. In the event of inadequate land width to construct the road specifically in habitation sections need for taking land may arise.</p>	<p>Not relevant.</p> <p>There shall be no land acquisition</p> <p>Further, provision is being made to screen and identify such locations and avoid any land take through design modifications.</p> <p>All land take would be sourced through voluntary donation.</p>
7	Indigenous People (OP4.10)	<p>The scheduled Caste and Scheduled Tribepopulation are present in the state and project districts. Some of the project roads are likely to provide new connectivity to habitations with scheduled caste and schedule Tribe population.</p> <p>The policy requires a social assessment by the borrower;</p> <p>(a) a process of free, prior, and informed consultation with the affected Indigenous Peoples" communities at each stage of the project, and particularly during project preparation, to fully identify their views and ascertain their broad community support for the project;</p>	<p>Relevant. A Vulnerability Framework is provided outlining the process of screening the sub projects for presence of Scheduled caste and Scheduled tribe Population in the habitations to be connected, ensuring their participation in the transect walk process and consultations during DPR preparation to ascertain their views and broad support for the project, and</p>

			<p>Extending additional support to them and other vulnerable people adversely affected by the project.</p> <p>Disclosure of project information at the community level in a culturally appropriate way and local language "Hindi".</p>
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Apart from compliance to the above policies, the project will comply with the bank procedure, BP17.50 in respect of Disclosure shall be carried out at all stages of the project as at planning stage, prioritization stage, project preparation stage and implementation stages. Consultations shall be conducted with the community and the PRI at project preparation and implementation stage.

3.2. Applicable national and State Environmental, Social and Labor regulations

Some major labour laws applicable to establishments engaged in building and other construction work:

- (a) **Employees Compensation Act 1923**: The Act provides for compensation in case of injury, disease or death arising out of and during the course of employment.
- (b) **Payment of Gratuity Act 1972**: gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years' service or more or on death at the rate of 15 days wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.
- (c) **Employees P.F. and Miscellaneous Provision Act 1952 (since amended)**: The Act provides for monthly contribution by the employer plus workers @ 10% or 8.33%. The benefits payable under the Act are:
 - (i) Pension or family pension on retirement or death, as the case may be.
 - (ii) Deposit linked insurance on the death in harness of the worker.
 - (iii) Payment of P.F. accumulation on retirement/death etc.
- (d) **Maternity Benefit Act 1961**: The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.
- (e) **Sexual Harassment of Women at the Workplace (Prevention, Prohibition and Redressal) Act, 2013**: This Act defines sexual harassment in the workplace, provides for an enquiry procedure in case of complaints and mandates the setting up of an Internal Complaints Committee or a Local Complaints Committee
- (f) **Contract Labour (Regulation & Abolition) Act 1970**: The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by law. The Principal Employer is required to take Certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if they employ 20 or more contract labour.
- (g) **Minimum Wages Act 1948**: The Employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of Buildings, Roads, Runways are scheduled employments.
- (h) **Payment of Wages Act 1936**: It lays down the mode, manner and by what date the wages are to be paid, what deductions can be made from the wages of the workers.
- (i) **Equal Remuneration Act 1976**: The Act provides for payment of equal wages for work of equal nature to male and female workers and for not making discrimination against Female employees in the matters of transfers, training and promotions etc.
- (j) **Payment of Bonus Act 1965**: The Act is applicable to all establishments employing 20 or more employees. Some of the State Governments have reduced this requirement from 20 to 10. The Act provides for payments of annual bonus subject to a minimum of 8.33% of the

wages drawn in the relevant year. It applies to skilled or unskilled manual, supervisory, managerial, administrative, technical or clerical work for hire or reward to employees who draw a salary of Rs. 10,000/- per month or less. To be eligible for bonus, the employee should have worked in the establishment for not less than 30 working days in the relevant year. The Act does not apply to certain establishments.

- (k) **Industrial Disputes Act 1947:** the Act lays down the machinery and procedure for resolution of Industrial disputes, in what situations, a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.
- (l) **Trade Unions Act 1926:** The Act lays down the procedure for registration of trade unions of workmen and employers. The Trade Unions registered under the Act have been given certain immunities from civil and criminal liabilities.
- (m) **Child Labour (Prohibition & Regulation) Act 1986:** The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of employment of children in all other occupations and processes. Employment of Child Labour is prohibited in the Building and Construction Industry.
- (n) **Inter-State Migrant workmen's (Regulation of Employment & Conditions of Service) Act 1979:** The Act is applicable to an establishment which employs 5 or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home up to the establishment and back, etc.
- (o) **The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996 and the Building and Other Construction Workers Welfare Cess Act, 1996 (BOCWW Cess Act):** All the establishments who carry on any building or other construction work and employ 10 or more workers are covered under these Acts. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be notified by the Government. The Employer of the establishment is required to provide safety measures at the building or construction work and other welfare measures, such as Canteens, First – Aid facilities, Ambulance, Housing accommodations for workers near the work place etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.
- (p) **Factories Act 1948:** the Act lays down the procedure for approval of plans before setting up a factory engaged in manufacturing processes, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing 10 persons or more with aid of power or 20 or more persons without the aid of power.
- (q) **Bonded Labour System (Abolition) Act, 1976:** The Act provides for the abolition of bonded labour system with a view to preventing the economic and physical exploitation of weaker sections of society. Bonded labour covers all forms of forced labour, including that arising out of a loan, debt or advance.

- (r) **Employer's Liability Act, 1938:** This Act protects workmen who bring suits for damages against employers in case of injuries endured in the course of employment. Such injuries could be on account of negligence on the part of the employer or persons employed by them in maintenance of all machinery, equipment etc. in healthy and sound condition.
- (s) **Employees State Insurance Act 1948:** The Act provides for certain benefits to insured employees and their families in case of sickness, maternity and disablement arising out of an employment injury. The Act applies to all employees in factories (as defined) or establishments which may be so notified by the appropriate Government. The Act provides for the setting up of an Employees' State Insurance Fund, which is to be administered by the Employees State Insurance Corporation. Contributions to the Fund are paid by the employer and the employee at rates as prescribed by the Central Government. The Act also provides for benefits to dependents of insured persons in case of death as a result of an employment injury.
- (t) **The Personal Injuries (Compensation Insurance) Act, 1963:** This Act provides for the employer's liability and responsibility to pay compensation to employees where workmen sustain personal injuries in the course of employment.
- (u) **Industrial Employment (Standing Order) Act 1946:** It is applicable to all establishments employing 100 or more workmen (employment size reduced by some of the States and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and get the same certified by the designated Authority.
- (v) Any other applicable law, if any

Some of the major laws that are applicable for protection of environment:

1. **The Environment (Protection) Act, 1986 and as amended:** This provides for the protection and improvement of environment and for matters connected therewith, and the prevention of hazards to human beings, other living creatures, plants and property. 'Environment' includes water, air and land and the inter-relationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organism and property.
2. **State Tree Preservation Acts as may be in force:** These provide for protection of trees of important species. Contractors will be required to obtain prior permission for full or partial cutting, uprooting, or pruning of any such trees.
3. **The Wildlife (Protection) Act, 1972, and as amended:** This provides for protection of wildlife through notifying National Parks and Sanctuaries and buffer areas around these zones; and to protect individuals of nationally important species listed in the Annex of the Act.
4. **The Biological Diversity Act, 2002:** This provides for conservation of biological diversity, sustainable use of components of biological diversity, and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto.
5. **The Public Liability Insurance Act, 1991 as amended and The Public Liability Insurance Rules, 1991 as amended:** These provide for public liability insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling hazardous substances and for matters connected herewith or incidental thereto. Hazardous substance means any substance or preparation

which is defined as hazardous substance under the Environment (Protection) Act 1986 and exceeding such quantity as may be specified by notification by the Central Government.

6. **The Ancient Monuments and Archaeological Sites and Remains Act, 1958 and the Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010**, (applicable for chance finds as there is no archaeological) These provide for conservation of cultural and historical remains found in India. Accordingly, area within the radii of 100m and 300m from the “protected property” are designated as “protected area” and “controlled area” respectively. No development activity (including building, mining, excavating, blasting) is permitted in the “protected area” and development activities likely to damage the protected property is not permitted in the “controlled area” without prior permission of the Archaeological Survey of India (ASI) or the State Departments of Art and Culture or Archaeology as applicable.
7. **The Environmental Impact Assessment Notification, 2006 and as amended:** This provides for prior environmental clearance for new, modernization and expansion projects listed in Schedule 1 of the Notification. Contractors will be required to ensure that no work starts until applicable clearances under the Notification is not available. Contractors will be responsible for implementation of any environmental management plan stipulated as per the permission under this Notification; and will be required to prepare and submit to the employer and compliance report stipulated in the permission under the Notification.
8. **The Water (Prevention and Control of Pollution) Act, 1974 as amended, and the Water (Prevention and Control of Pollution) Rules, 1975 as amended:** These provide for the prevention and control of water pollution and the maintaining and restoring of wholesomeness of water. ‘Pollution’ means such contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance into water (whether directly or indirectly) as may, or is likely to, create a nuisance or render such water harmful or injurious to public health or safety, or to domestic, commercial, industrial, agricultural or other legitimate uses, or to the life and health of animals or plants or of aquatic organisms. Contractors will need to obtain consent for establishment and consent for operation of any item of work or installation of equipment that generates waste water, and observe the required standards of establishment and operation of these items of work or installations; as well as install and operate all required waste water treatment facilities.
9. **The Water (Prevention and Control of Pollution) Cess Act, 1977 and The Water (Prevention and Control of Pollution) Cess Rules, 1978:** These provide for the levy and collection of a cess on water consumed by persons carrying on certain industries and by local authorities, with a view to augment the resources of the Central Board and the State Boards for the prevention and control of water pollution under the Water (Prevention and Control of Pollution) Act, 1974.
10. **The Air (Prevention and Control of Pollution) Act, 1981 as amended, and the Air (Prevention and Control of Pollution) Rules, 1982:** These provides for prevention, control and abatement of air pollution. ‘Air Pollution’ means the presence in the atmosphere of any ‘air pollutant’, which means any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment. Contractors will need to obtain consent for establishment and consent for operation of any item of work or installation of equipment that generates air pollution such as batching plants, hot mix plants, power generators, backup power generation, material handling processes, and observe the required standards of establishment and operation of these items of work or installations.
11. **Noise Pollution (Control and Regulation) Rules, 2000, and as amended:** This provides for standards for noise for day and night for various land uses and specifies special standards in and around sensitive receptors of noise such as schools and hospitals. Contractors will need to ensure compliance to the applicable standards, and install and operate all required noise control devices as may be required for all plants and work processes.

12. **Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996:** This provides for Requirement of preparation of on-site and off-site Disaster Management Plans for accident-prone areas.
13. **The Explosives Act 1884 and the Explosives Rules, 2008:** These provide for safe manufacture, possession, sale, use, transportation and import of explosive materials such as diesel, Oil and lubricants etc.; and also for regulating the use of any explosives used in blasting and/or demolition. All applicable provisions will need compliance by the contractors.
14. **The Petroleum Rules, 2002:** This provides for safe use and storage of petroleum products and will need to be complied by the contractors.
15. **The Gas Cylinder Rules 2004 and amendments:** This provides for regulations related to storage of gas, and possession of gas cylinder more than the exempted quantity. Contractors should comply with all the requirements of this Rule.
16. **Manufacture, Storage and Import of Hazardous Chemical Rules of 2000 and as amended:** These provide for use and storage of hazardous material such as highly inflammable liquids like HSD/LPG. Contractors will need to ensure compliance to the Rules; and in the event where the storage quantity exceeds the regulated threshold limit, the contractors will be responsible for regular safety audits and other reporting requirements as prescribed in the Rules.
17. **Hazardous & Other Wastes (Management and Transboundary Movement) Rules, 2016:** These provide for protection of general public from improper handling storage and disposal of hazardous waste. The rules prescribe the management requirement of hazardous wastes from its generation to final disposal. Contractors will need to obtain permission from the State Pollution Control Boards and other designated authorities for storage and handling of any hazardous material; and will to ensure full compliance to these rules and any conditions imposed in the permit.
18. **The Bio Medical Waste Management Rules, 2016:** This provides for control, storage, transportation and disposal of bio-medical wastes. As and where the contractor has any first aid facility and dispensaries, established in either temporary or permanent manner, compliance to these Rules are mandatory.
19. **Construction and Demolition Waste Management Rules, 2016:** This provides for management of construction and demolition waste (such as building materials possible to be reused, rubble and debris or the like); and applies to all those waste resulting from construction, re-modelling, repair or demolition of any civil structure. Contractor will need to prepare a waste disposal plan and obtain required approval from local authorities, if waste generation is more than 20 tons in any day or 300 tons in any month during the contract period; and ensure full compliance to these rules and any conditions imposed in the regulatory approval.
20. **The E-Waste (Management) Rules, 2016:** This provides for management of E-wastes (but not covering lead acid batteries and radio-active wastes) aiming to enable the recovery and/or reuse of useful material from e-waste, thereby reducing the hazardous wastes destined for disposal and to ensure the environmentally sound management of all types of waste of electrical and electronic equipment. This Rule applies to every manufacturer, producer, consumer, bulk consumer, collection centers, dealers, e-retailer, refurbisher, dismantler and recycler involved in manufacture, sale, transfer, purchase, collection, storage and processing of e-waste or electrical and electronic equipment listed in Schedule I, including their components, consumables, parts and spares which make the product operational.
21. **Plastic waste Management Rules, 2016:** This provides for control and management of the plastic waste generated from any activity. Contractors will ensure compliance to this Rule.
22. **The Batteries (Management and Handling) Rules 2001:** This provides for ensuring safe disposal and recycling of discarded lead acid batteries likely to be used in any equipment during construction and operation stage. Rules require proper control and record keeping on the sale or import of lead acid

batteries and recollection of the used batteries by registered recyclers to ensure environmentally sound recycling of used batteries. Contractors will ensure compliance to this Rule.

23. **The Ozone Depleting Substances (Regulation and Control) Rules, 2000 and as amended:** This provides for regulation of production and consumption of ozone depleting substances in the country, and specifically prohibits export to or import from countries not specified in the Rules, and prohibits unless specifically permitted, any use of ozone depleting substance.
24. **The Coastal Regulation Zone Notifications, 1991 and as amended:** This provides for regulation of development activities within the 500m of high tide line in coastal zone and 100m of stretches of rivers and estuaries influenced by tides. Contractors will be required to ensure that no work starts until applicable clearances under the Notification is not available. Contractors will be responsible for implementation of any plan stipulated as per the permission under this Notification; and will be required to prepare and submit to the employer and compliance report stipulated in the permission under the Notification.
25. **The Motor Vehicle Act 2019 as amended (and State Motor Vehicle Acts as may be in force) and the Motor Vehicle Rules and as amended (and State Motor Vehicle Rules as may be in force):** To minimize the road accidents, penalizing the guilty, provision of compensation to victim and family and check vehicular air and noise pollution. Contractors will be required to ensure full compliance to these rules.
26. **Easement Act, 1882:** This provides for the rights of landowners on groundwater. Contractors will need to ensure that other landowners' rights under the Act is not affected by any groundwater abstraction by the contractors.
27. **State Groundwater Acts and Rules as may be in force and the Guidelines for Groundwater Abstraction for drinking and domestic purposes in Notified Areas and Industry/Infrastructure project proposals in Non-Notified areas, 2012:** These provide for regulating extraction of ground water for construction/industrial and drinking and domestic purposes. Contractors will need to obtain permission from Central/State Groundwater Boards prior to groundwater abstraction through digging any bore well or through any other means; and will to ensure full compliance to these rules and any conditions imposed in the permit.
28. **The Mines Act, 1952 as amended; the Minor Mineral and concession Rules as amended; and the State Mineral (Rights and Taxation) Acts as may be in force:** These provide for for safe and sound mining activity. The contractors will procure aggregates and other building materials from quarries and borrow areas approved under such Acts. In the event the contractors open any new quarry and/or borrow areas, appropriate prior permission from the State Departments of Minerals and Geology will need to be obtained. Contractors will also need to ensure full compliance to these rules and any conditions imposed in the permit.
29. **The Insecticides Act, 1968 and Insecticides Rules, 1971 and as amended:** These provide for regulates the manufacture, sale, transport, distribution, export, import and use of pesticides to prevent risk to human beings or animals, and for matters connected therewith. No one should import or manufacture; sell, stock or exhibit for sale; distribute, transport, use: (i) any misbranded insecticides, (ii) any insecticide the sale, distribution or use of which is for the time being prohibited under the Act; and (iii) any insecticide except in accordance with the condition on which it was registered under the Act.
30. **National Building Codes of India, 2005 and as amended:** This provides guidelines for regulating the building construction activities in India. The code mainly contains administrative regulations, development control rules and general building requirements; stipulations regarding materials, structural design and construction; and building and plumbing services. Contractors will be required to comply with all Bureau of Indian Standards Codes dealing with: (i) use and disposal of asbestos containing materials in construction; (ii) paints containing lead; (iii) permanent and temporary ventilations in workplace; (iv) safety, and hygiene at the workplace; (v) prevention of fire; (vi) prevention

of accidents from faulty electrical gadgets, equipment and accessories; and all other such codes incidental to the Contract.

31. Any other applicable law, if any.

3.3. Applicable World Bank Safeguard Policies

Table 5: Applicable World Bank Environmental Safeguard Policies

S.No.	World Bank Policy	Applicability Due to	How Project Address Policy Requirements?
1.	Environmental Assessment OP 4.01	Project is likely to have impacts on environmental components such as on ambient air quality water bodies, existing slopes in on embankment, trees along the road, etc.	Preparation and application of environmental Codes of Practice for addressing environmental issues.
2.	Natural Habitats OP 4.04	Some rural roads are likely to be in/close to sensitive natural habitats.	Avoidance measures, including non-inclusion of such sub-projects in the project.

3.4. IRC Codes and MORTH Clauses Applicable to the SCDP

The typical details of various treatments have been given here as guidance and for calculation of estimates for the recommended measures attached as part of this study. Various innovative road safety treatments such as roller barriers, gateway treatment, etc. are proposed along the SCDP.

Signing and marking at narrow bridge

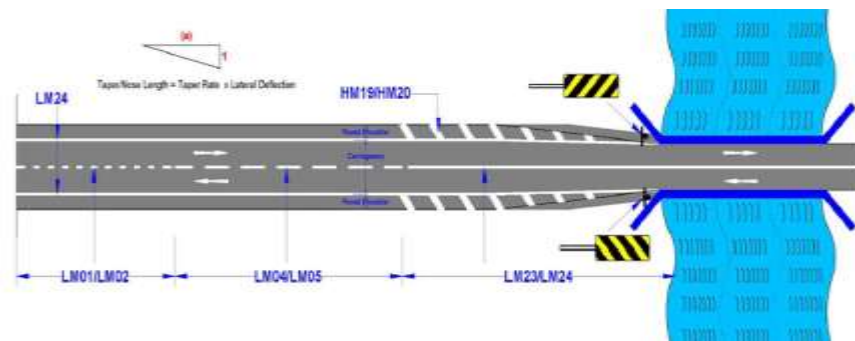


Figure 9: Typical signing and marking at bridge approach

(Source: IRC: SP 73-2015)

Curve Delineation for 2-lane Road

Curve delineation shall comprise of two-faced Chevron signs, appropriate pavement markings including no-overtaking centerline markings, Curve warning signs and reduced speed limit signs (to be replaced with Driver Feedback Signs)



Figure 10: Typical signing and marking on a 2-lane curve

(Source: IRC: SP 73-2015)

T-junctions

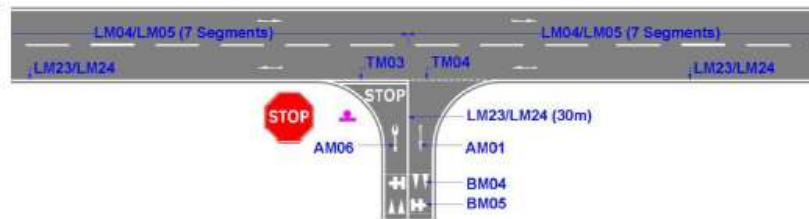


Figure 11: Typical signing and marking at T-junction

(Source: IRC: 35-2015)

Y-junctions



Figure 12: Typical signing and marking at Y-intersection

(Source: IRC: 35-2015)

Vertical profile of side road

Vertical profile of side road for at least up to 10-12m shall be nearly flat gradient (i.e., 0.5%) to ensure mutual visibility between main road and side road traffic

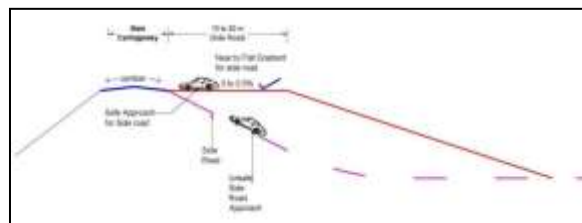


Figure 13: Typical longitudinal profile of a side road

Gateway effect

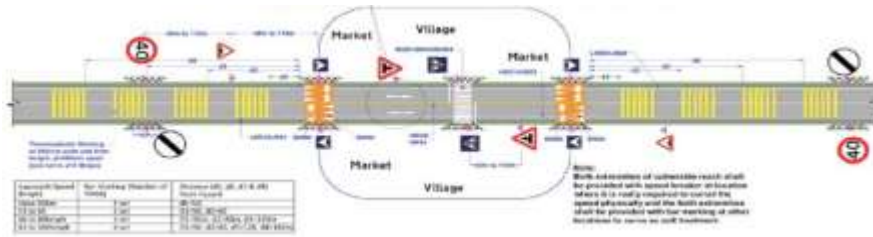


Figure 14: Gateway effect in vulnerable reaches

(Source: IRC: SP 73-2015)

However, instead of the traditional four sets of TBMs at each end of the section, a modified TBM with gradually increased spacing has been recommended in order to provide a gradual auditory alert to drivers. The modified TBM is shown below:

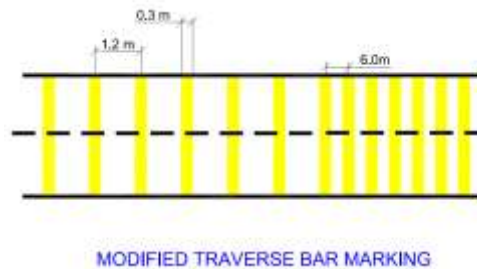


Figure 15: Modified Traverse Bar Markings

Feedback Signs

Driver feedback signs as depicted below have better visibility and alert speeding motorists to give vulnerable road users better safety protection.



Figure 16: Driver Feedback Signs

(Source: IRC: 99-2018)

Traffic Signs and Lane marking

The traffic signs (Mandatory, Cautionary and Information) proposed at all the major and minor junctions, and signalised junctions as per IRC-67-2012. The lane marking proposed at all the major and minor junctions as per IRC-35-2015.

Road Delineators

Road delineators like roadway indicators, studs (cat eyes), object markers, hazard markers, are proposed at all major and minor junctions as per IRC-79-2019 with respect to radius of the curve.

4. Baseline Conditions

4.1. Baseline Conditions of SCDP Road Section

The length of the Safe Demonstration Corridor Program is approximately 20 kms from Manawar till Tawlai Bujurg on SH 38. The corridor has 2 lane undivided road without paved shoulder. At majority of road section, width of each travel lane is about 3.5 meters with unpaved shoulder of 1 to 1.5 meters. There are many bridges, culverts on the corridor and corridor passes through habitations. At majority of the section, pavement quality of the road is fair.

Number of Sharp Curves	10
Number of Junctions	3 Arm junctions = 12, 4 Arm staggered junction = 4
Number of Bridges and Culverts	36
Number of Settlement area	8
Number of Schools in the vicinity	6 schools within a range of 500 meters to 1 kilometer of the stretch
Pavement Type	Flexible Pavement (Fair quality across most of the stretch)
Existing Crust thickness	BC 40mm, DBM 75mm, WMM 250mm & GSB 300mm

4.1.1. Speed Surveys and Classified Traffic Volume Counts

Classified Traffic Volume Count Survey was carried out at Thangaon along the proposed corridor during May 2022. The count was conducted using a manual method of counting. Recorded data are analyzed, and direction-wise classified traffic volume data are entered in the database. For carrying out the counts, the vehicles were grouped under the following categories as shown in **Table 11** as per **IRC: 64-1990**.

Table 6: Vehicle Classification System

Motorized Vehicles		Non-motorized Vehicles
2 wheelers		Bicycle
3 wheelers		Cycle Rickshaw
Passenger Car	Car & taxi	Cycle-Rickshaw
Jeep	Utility Vehicle (Jeep & Van)	Animal Drawn
Bus	Minibus	Hand Cart
	Standard Bus	Other NMV
LGV	LCV Passenger	
	LCV Freight	
Truck	2 – Axle Truck	
	3 – Axle Truck	
MAV	4 – 6 Axle	
	Greater than 6 Axle	
Tractor	Tractor	
	Tractor with Trailer	

Since speed is an important factor in road safety investigations, speed data was collected along various locations of the corridor, in order to capture the speed characteristics of the traffic. The speed data was collected by the team using a typical “floating car” method which is employed for determining travel time information along corridors. The speed was recorded through real time speed API on Google map while traversing the road along with the digital speedometer of the car. The results of this information capture are presented in a tabular format below:

Date: 08/02/2022								
		Trip Time	Starting	Location 1	Location 2	Location 3	Location 4	Average Speed (kmph)
1	Time:	10:00 AM		Ajandiman	Rangaon	Zhirvi	Tawlai	
	Speed	W-E		48	55	52	40	48.75
2	Time:	4:00 PM		Hanumantiya	Thangaon	Zhirvi	Tawlai	
	Speed	W-E		36	52	50	45	45.75
		Trip Time	Starting	Location 1	Location 2	Location 3	Location 4	Average Speed (kmph)
3	Time:	2:00 PM		Tawlai	Zhirvi	Bakaner	Ajandiman	
	Speed	E-W		50	55	35	45	46.25
4	Time:	6:00 PM		Zhirvi	Rangaon	Bakaner	Tonki	
	Speed	E-W		45	51	30	32	39.5

Date: 23/02/2022								
		Trip Time	Starting	Location 1	Location 2	Location 3	Location 4	Average Speed (kmph)
1	Time:	12:00 PM		Ajandiman	Rangaon	Zhirvi	Tawlai	
	Speed	W-E		52	44	51	42	47.25
2	Time:	4:30 PM		Tawlai	Zhirvi	Bakaner	Tonki	
	Speed	E-W		35	52	42	40	42.25

The various vehicle types having different sizes and characteristics were converted into a standard unit called Passenger Car Unit (PCU). PCUs for various vehicles are adopted based on recommendations of Indian Road Congress prescribed in “Guidelines for Capacity of Urban Roads in Plain Areas”, IRC-64-1990. The Passenger Car Unit values (PCU) used are presented in Table below.

Table 7: PCU Factors Adopted for the Study (IRC:64)

Sl. No.	Vehicle Type	PCU Factor
Fast Vehicles		
1	Two wheelers, Motorcycle or scooter etc.	0.5
2	Passenger car, pick-up van	1.0
3	Auto-rickshaw	1
4	Light commercial vehicle	1.5
5	Minibus	1.5
6	Truck / Bus	3
7	MAV	4.5
8	Agricultural Tractor Trailer	4.5
Slow Vehicle		
9	Cycle	0.5

Percentages of traffic composition for each mode were analyzed from average traffic volume data for each traffic count location. PCU factors were assigned to each mode based on its composition percentage.

The average daily traffic (ADT) was computed for mid-block count locations. Daily traffic volumes were averaged to find the ADT. Vehicle wise ADT values are given in Table below. The details of the traffic survey count is provided in Annexure 5.

Table 8: Average Daily Traffic (ADT)

Type of Vehicle	ADT (in veh)	% Composition
Car	1807	26.16
Jeep /Van	0	0.00
Three Wheeler	11	0.16
Two Wheeler	3787	54.84
Minibus	60	0.87
Bus	268	3.88
LGV	374	5.42
2 Axle	58	0.84
3 Axle	58	0.84
Multi Axle Vehicles	381	5.51
Tractor	12	0.17
Tractor with Trailor	64	0.92
Non-Motorised Vehicles	27	0.38
Toll Exempted Vehicles	0	0.00
Total	6906 (in vehicle) / 7642 (in PCU)	

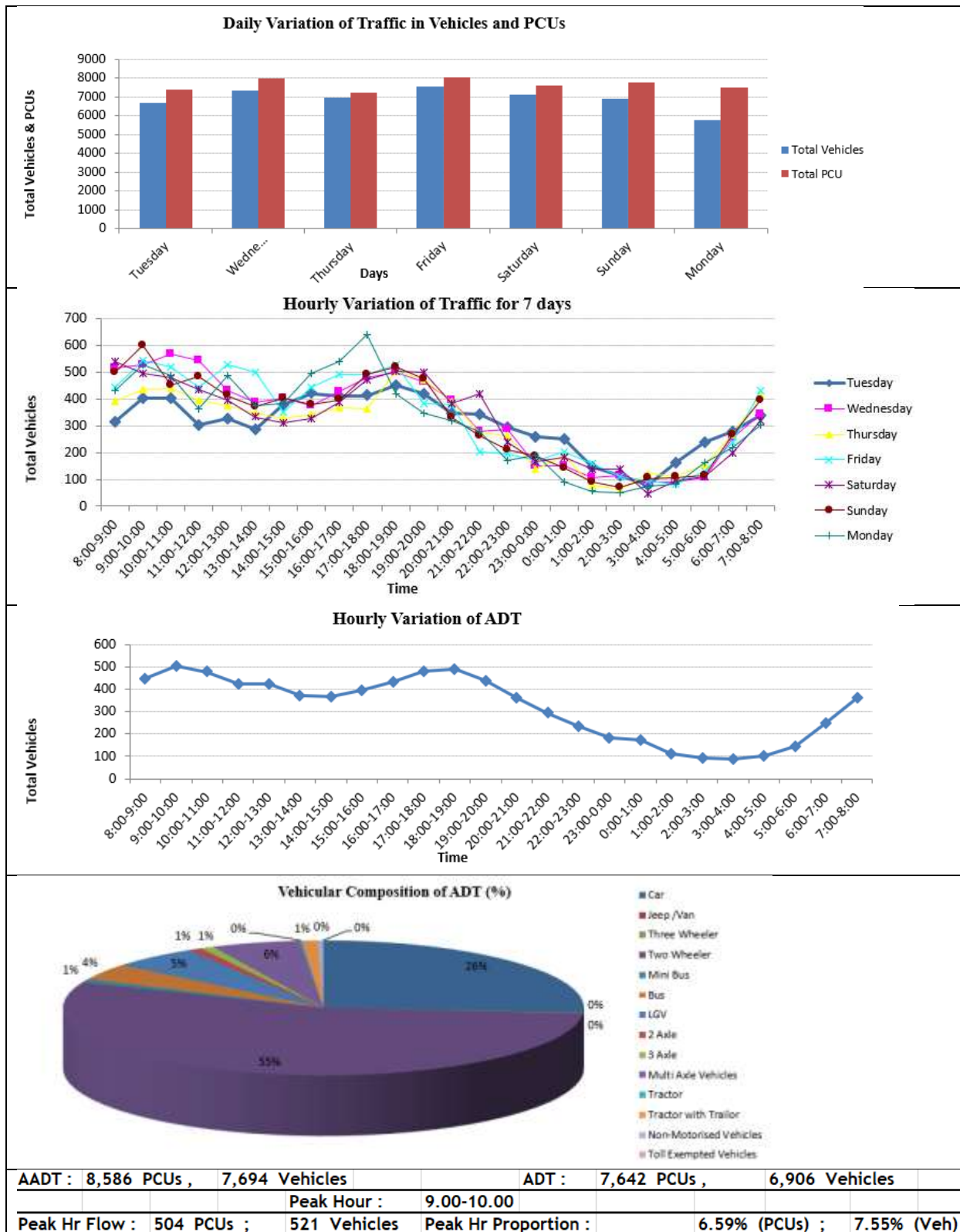


Figure 17: Vehicular Composition and Daily/Hourly Variation of Traffic

4.1.2. Audit Observations

4.1.3. Blackspots

4.1.3.1. Blackspot 1: Tonki Phata



Figure 18: Satellite Image of the Blackspot at Tonki Phata

- ❖ **Crash records from 2017 to 2019:** Number of crashes 7, Fatalities: 1
- ❖ **Road Geometry:** This is a T-junction along State Highway 38 with a minor road leading to a Cement factory. All the approaches have 2 lane carriageways with unpaved shoulder. Commercial establishments are located along both sides of SH-38 at this location.
- ❖ **Traffic characteristics:** Side road of the junction connects to nearby cement factory which results into movement of multi axle trucks from side road approach. In addition to it, nearby vacant plots are also used as parking lot for these multi axle trucks. The major road approaches cater to a usual mixed vehicular highway traffic stream. A large proportion of the vehicles making turning movements into the minor road are heavy vehicles accessing the cement factory.
- ❖ **Observations and findings:** Based on the field visit, the following observations were noted about the blackspot location:
 - Layout of the junction was observed to be a wide unchannelised area which resulted in haphazard traffic movement including turning movements.
 - No pedestrian crossing facilities were found in the vicinity of the junction.
 - Sudden drop in the gradient was found for the side road. The approach segment of the side road has gravel surface.
 - Significant movement of multi axle trucks were found along the side road connecting to a cement factory nearby. Pavement deterioration was observed on the side road (possibly due to frequent heavy vehicle movement) and has resulted in complete erosion of the overlay and the side road resembles a gravel road.
 - The north approach of the junction is on a horizontal curve and this limits sight distance of vehicles turning right from the minor road towards the north approach.
 - There were limited road markings and signages were found along the stretch. There was a complete absence of road edge delineation.

- No speed calming and conflict control measures were available along the road stretch at the location.



Junction opening



South approach of the junction



North approach of the junction

Figure 19: Photos of blackspot at Tonki Phata

4.1.3.2. Blackspot 2: Tawai Bujurg



Figure 20: Satellite Image of the Blackspot at Tawai Bujurg

- ❖ **Road Geometry:** At this location, there are two staggered junctions along SH-38. The north T-junction (Junction 1) is a PMGSY road leading to Kothada and joins the highway in a skew on curve segment of the road stretch while the south T-junction (Junction 2) is towards the village of Isakpur Khedi.
- ❖ **Traffic characteristics:** Side roads of the junction connects to nearby rural habitational settlements that caters primarily NMT modes, 2 wheelers and Light goods vehicle. The major road approaches cater usual mixed vehicular highway traffic stream. Buses were observed to be plying on the major road approaches at very high speeds.

❖ **Observations and findings:** Based on the field visit, the following observations were noted about the blackspot location:

- Both junctions at the location have missing stop line treatment including signs.
- Due to road abutting vegetation and settlements, sight distance at both junctions is limited for turning vehicles
- Junction 1 is a junction with PMGSY road (on RHS) and has a downgrade which limits visibility for turning vehicles which meets the highway segment in a skew.
- Pedestrian crossing facilities across the junction is found to be absent.
- Except for a centerline marking, road markings and signages were mostly found missing along the SH-38 stretch.
- The South approach of SH-38 has a minor bridge without OHMs.
- Pavement deterioration and deformation was observed for 3-4m on the north edge of SH-38 between the two junctions.
- Pedestrian crossing facility across the junctions, and speed calming measures were observed to be missing at the location.
- Chevron treatment was observed on the horizontal curve leading to the blackspot but does not cover both directions of the road.



Junction 2



Bridge south of Junction 2



Junction 1



SH-38 north of Junction 1

Figure 21: Photos of blackspot at Tawlai Bujurg

4.1.4. Locations with Steep Curves

4.1.4.1. Bakaner



Figure 22: Map of the Bakaner section of the corridor

- ❖ **Road Geometry:** This section of the road comprises of a series of steep horizontal curves passing through the habitation of Bakaner. All the approaches have 2 lane carriageways with unpaved shoulder. Commercial and residential settlements are located along both sides of SH-38 at this location
- ❖ **Observations and findings:** Based on the field visit, the following observations were noted about the location:
 - Speed breakers installed at both ends of the built-up area. Pavement markings are fading
 - Series of Bends signs installed at south end of the section
 - Chevron signs are missing on several sections

Minor bridge does not have OHMs and W-beam barrier treatments for the approaches

4.1.4.2. Thangaon



Figure 23: Map of the Thangaon section of the corridor

- ❖ **Road Geometry:** This section of the road comprises of a series of steep horizontal curves and one broken back curve passing through the habitations of Thangaon and Rangaon. The road has a bridge passing over a stream. All the approaches have 2 lane carriageways with unpaved shoulder. Commercial establishments are located along both sides of SH-38 at this location.
- ❖ **Observations and findings:** Based on the field visit, the following observations were noted about the location:

- Speed breakers are installed at both ends of the section. However, pavement markings to delineate these breakers are fading and not visible
- All junctions have missing Stop line treatment and signages
- South edge of the road opposite the Mandir on the south end of the area has concrete guard posts, which do not provide adequate roadside protection
- Junction with PMGSY road at this location has pavement deterioration and has a gravel like surface. Side road warning signs are missing
- Speed limit 30kmph signs are installed. Small Narrow Bridge warning sign present on the south approach of the bridge
- Whitewashed concrete guard posts of small height are present on both sides of the bridge and do not provide adequate protection for errant vehicles

4.1.5. Junctions

4.1.5.1. Junction south of Bakaner



Figure 24: Satellite Image of the Bakaner Junction

- ❖ **Road Geometry:** The location is a T-junction without channelization and road markings, with Pradhan Mantri Gram Sadak Yojna road leading to Dhankedi village.
- ❖ **Observations and findings:** Based on the field visit, the following observations were noted about the junction:
 - Layout of the junction was observed to be unchannelised area which resulted in haphazard traffic movement including turning movements.
 - No pedestrian crossing facilities were found in the vicinity of the junction.
 - Side road warning signs and top line treatment along with the signages are missing at the junction.
 - Speed hump is present on minor road, but no marking is present.
 - Chevron signs are missing on the minor road approach curve.

4.1.5.2. Junction south of Zhirvi



Figure 25: Satellite Image of Junction towards south of Zhirvi village

- ❖ **Observations and findings:** Based on the field visit, the following observations were noted about the location:
 - Towards south of Zhirvi, a 4-arm junction under construction was observed. The east approach of the junction leads to the Tawlai area while the west approach leads to nearby cultivation fields.
 - The under-construction junction approaches are wide open areas, which if not channelized will lead to haphazard turning movements.
 - Currently no signing or marking were observed in the vicinity of this junction.

4.1.6. Built Up Areas

4.1.6.1. Zhirvi



Figure 26:Satellite Image of Zhirvi Village

- ❖ **Observations and findings:** Based on the field visit, the following observations were noted about the location:
 - Pavement markings are present but are fading
 - Pavement deterioration is observed at the south end of the area for approximately 10m length of road
 - Minor bridge does not have object hazard markers for delineation.
 - Movement of pedestrians along the carriageway is observed due to lack of pedestrian facilities including footpath and crossings.

4.1.6.2. Sawariya and Ajandiman



Figure 27. Satellite Image of Ajandiman Village

- ❖ **Observations and findings:** Based on the field visit, the following observations were noted about the location:
 - Pavement markings are present on the centerline but are fading. Edge line markings are missing.
 - Minor bridge does not have object hazard markers and hazard painting for delineation.
 - Movement of pedestrians along the carriageway is observed due to lack of pedestrian facilities including footpath and crossings.

4.2. Baseline Environment and Social Conditions

4.2.1. Corridor of Impacts (COI) and Project Influence Area (PIA)

Based on the proposed mitigation designs a preliminary assessment of impacts was done. The project influence area was taken to be 2.5 meters on either side of the project road. Titleholders along the project corridor are not impacted, even in this buffer zone.

4.2.2. Topography and Physiography

SCDP corridor between Tawlai Bujurg to Tonki Phata is in Dhar district. The district is primarily located on the south-western part of Madhya Pradesh. The selected corridor is semi-urban with plain terrain.

4.2.3. Seismological Characteristics of the Area

The selected SCDP Corridor falls under seismic zone III of the seismic zoning map of India prepared by Bureau of Indian Standards (BIS).

4.2.4. Drainage Pattern

There are no major water bodies crossing the SCDP Corridor.

4.2.5. Soil Types

The soil of Manawar area is medium black soil. Major crops grown are jawar and soyabean. Major fruits grown are Mango, Banana, Grape, Papaya, Chiku, Lime, Guava, and Pomegranate in irrigated condition. Turmeric, Chillies, Colocasia, Fennel and seasonal vegetables.

4.2.6. Water Environment

Agriculture is the main land use and application of pesticides and fertilizers is a major source of contamination for surface and ground water along the project road.

4.2.7. Climatic Conditions

4.2.7.1. Temperature

The climate of the district as a whole can be termed as tropical. The variation in the maximum temperature during the year ranges from 41.1°C to 28.2°C and minimum from 16.3°C to 28.4°C. The district experiences pleasant winters and hot and rainy summers. The hot season extends from March to May, during which the daily maximum temperature often shoots up to 41.1° C

4.2.7.2. Rainfall

The average annual rainfall recorded in the district is 833.6 mm.

4.2.7.3. Wind Speed

The average wind speed in Dhar is 3.2 m/s with the maximum wind speed of around 9 m/s.

4.2.8. Ambient Air Quality

The existing project road is a part of State Highway 38 with two lanes without paved shoulder. The nearest Air Quality monitoring station is located near Pithampur. The AQI Index = 131 is recorded on 19th May 2022, as per the data form the monitoring station.

4.2.9. Noise Environment

The major source of noise pollution along the corridor is vehicular traffic. The baseline noise levels near noise sensitive zones such as schools, hostels, hospitals, etc. may record high values because of operating vehicles on the state highway.

4.2.10. Biological Environment

4.2.10.1. Forest

There is no forest land diversion involved in the project and there are no forest sections in the near vicinity of the project corridor.

4.2.10.2. Protected Area

There are no notified National parks and Wildlife sanctuary identified within the boundary of 5 kms from the proposed project corridor.

4.2.10.3. Wild Fauna

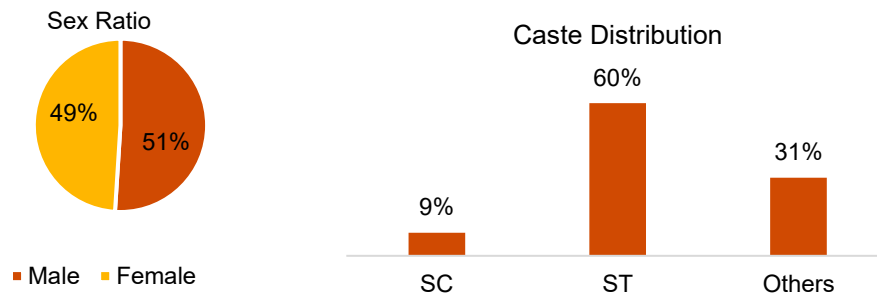
There are no endangered, critically endangered, and threatened categories of fauna in the nearby vicinity of the project corridor.

4.2.11. Socio-Economic Environment

4.2.11.1. Socio Economic Profiling of Area/Villages

There are 9 villages on the entire stretch, with social consultations being conducted at 3 locations covering 4 major villages -Bakaner, Zirvi, Tawlai Bujurg, and Tonki. According to 2011 census, the main language of the communities along the corridor is Hindi and Bhili/Bhilodi.

As per the census 2011, the total population along the corridor is 14286 out of which 51 % are men and 49 % are women. The average household size along the corridor is 4.85. The majority of the population along the corridor belongs to schedule tribes with 60% share followed by 31 % as unknown and 9% classified as scheduled caste.



Out of total population, 57% of the people are literate out of which 60 % are male and 40 % are female. The total working population along the corridor is 49% out of which 55 % are male and 45% are female. Agriculture is the main occupation along the corridor covering 77 % of the population out of which 45 % are cultivators and 32% work as labourers.

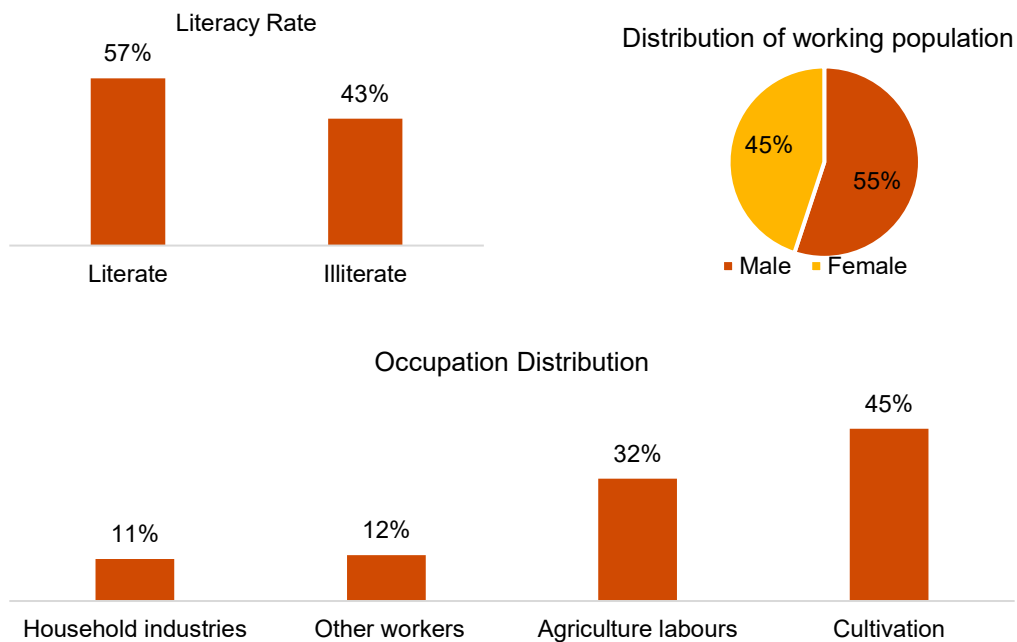


Figure 28: Socio-Economic Impact of the population along the corridor (Source-Census 2011)

4.2.12. Archeological Monuments and Religious Structures

There are no notified archaeological properties along the project corridor.

5. Analysis of Alternatives

5.1. “With” and “Without” SCDP Scenario

The selected road stretch to be developed as Safe Corridor starts from the outskirts of Manawar Nagar Palika and move towards Bakaner/Dharamapuri. The initial 20 km segment of this road stretch is identified as candidate corridor 01. The road stretch ends at Tawlai Bujurg village. Being a part of SH-38, this road stretch carries both passenger and freight traffic. The no action scenario will allow an increase in accidents and a deteriorating road safety condition throughout the stretch.

As a part of development of the corridor as Safe Corridor Demonstration, the road safety assessment has been completed to propose corridor wide road safety measures for improving the safety along the selected section of the highway. While the entire corridor has been inspected and safety recommendations provided, emphasis has been put on blackspots along the existing alignment of SH-38 and other safety deficient locations that were observed during the road safety assessment. Accordingly, all the identified blackspot locations and other safety deficient locations were examined at site for the nature of the safety problems and a set of recommendations have been provided for implementation in respect of each such location to improve the road safety throughout the corridor.

5.2. Alternative analysis of Thermoplastic and Luminous Paint Road Marking

Traditional thermoplastic vs Luminescent paint:

- Thermoplastic paint is less visible during nighttime conditions while luminescent paints use glow in dark technology and have better visibility during night time conditions.
- Thermoplastic paints are currently less expensive as compared to luminescent paint.

5.3. Alternative analysis for Roller Crash Barrier

Roller barriers vs traditional W-Beam barriers:

- Roller Barrier converts momentum to rolling energy while W-beam absorbs energy into its frame
- Roller barrier is more suitable for vulnerable road users such as unprotected two-wheeler drivers compared to W-beam which causes greater injury to unprotected drivers
- Roller barrier currently are more expensive compared to W-beam

5.4. Alternative analysis for Blackspots/Curve Improvement

The SCDP corridor has several shar curves. Currently, as in the entire corridor, the areas of curves lack proper traffic control devices and delineation. In order to improve the safety at these locations, various improvements such as delineation in the form of road studs, chevron and curve warning signs, and safety barriers have been proposed in addition to speed management with the help of gateway treatment.

There are two designated blackspots in the corridor-Tawlai Bujurg and Tonki Phata. Both these blackspots are being redeveloped with gateway treatment, junction improvements and pedestrian facilities. In addition, signalization and channelization improvements have been recommended for Tonki Phata.

6. Consultation with key Stakeholders

6.1. Definition of stakeholders

Project stakeholders are defined as individuals, groups or other entities who:

- (i) are impacted or likely to be impacted directly or indirectly, positively or adversely, by the Project (also known as 'affected parties')
- (ii) may have an interest in the project including individuals or groups whose interests may be affected by the project and who have the potential to influence the project outcomes in any way.

6.2. Objective of Stakeholders consultations

The objective of stakeholder consultation is to look into the likely impacts of road improvement on the communities, and the likely mitigation aspects of the impacts.

6.3. Types and categories of stakeholders

6.3.1. Institutional

The institutional stakeholder of the project includes the government authorities involved in the project including Madhya Pradesh Road Development Corporation, Police, World Bank, Madhya Pradesh Rural Road Development Authority & project management consultancy.

6.3.2. Road Users

All the categories of road users including pedestrians, bus drivers, 2-wheeler drivers, four-wheeler drivers truck operators as well as the communities living along the stretch including the female residents were involved in the consultations

6.3.3. Vulnerable groups

There are no vulnerable groups who are impacted because of the proposed interventions in the project.

6.4. Type of Consultations

6.5. Consultation with project stakeholders (Government)

Consultations in form of site verifications and discussion were conducted with representatives from MPRDC, Police, World Bank, MPRRDA & PMC. A detailed list of suggestions received, and compliances is provided in table below.



Figure 29: Snapshots of consultations and field verifications

6.6. Consultation with project stakeholders (Public)

First level of consultations with local public stakeholders were conducted in the month of June 2021. Personal interaction with vendors and residents near the two blackspots on the stretch – Tawlai Bujurg and Tonki Phata, was conducted to understand the traffic condition, road safety issues and major causes of crashes along the stretch. The key pointers discussed include -

- Few of the women respondents said that they feel unsafe on roads while driving or walking especially in night-time due to non-availability of proper road lighting and pedestrian facilities. Therefore, provisions of street lighting have been provided in selected locations in the project.
- Respondents indicated that road infrastructure is not as per safety standards. There is lack of availability of proper road spaces for various road users' categories such as motor cyclists, bicyclists, and pedestrians. Facilities including table-top pedestrian crossings, paver block shoulders at built up areas have been provided to counter this issue.

After first level of consultations, road safety audit report and intervention proposals were developed. Thereafter, second level of consultations were conducted in the month of February to communicate the proposed interventions. The purpose was to understand comfort of road users on the intervention proposed on the designs and understand any further needs, if any. The two key aspects emphasized included possible provisions for

- a. Motorcycle crashes and night-time crashes. The designs were further augmented with fluorescent marking in few stretches, retroreflective markings as well as speed calming measures across the stretch.
- b. Increase in finished road level due to regular overlays on the road leads to increased edge drop creating hazards for two-wheelers. Such feedbacks were predominantly received in built-up areas like Ajandiman. This was addressed by including paved shoulders in specific built-up area along with enhanced edge line markings across the stretch.

Third level of consultations were conducted in the month of May to inform about the finalized improvements and to explain the benefits of the same to the road users. This included focused group consultations at three major habitation areas – Tawlai, Tonki and Bakaner, along with personal interaction with Sarpanch of villages of Tawlai and Bakaner.



Figure 30: Snapshots of consultations and field verifications

6.7. Summary of Consultations

The project involves improvement of 20 km stretch, which comprises of three major habitation areas. Social consultations have been conducted at all these major habitation spots and the observations of the same have been summarized in the table.

All the categories of stakeholders including pedestrians, road users, communities along the corridor, truck operators/vehicle users, vulnerable road users, and females were involved in the consultations

As a part of SIA, discussion with local community was conducted in the form of focused group discussions and personal interviews in the habitation area along the corridor.

6.8. Stakeholder Analysis Matrix

The below table details out the stakeholder wise consultation matrix conducted at three critical locations on the corridor, indicating their concerns, steps suggested and the proposed measures in the improvement plan.

Table 9. Stakeholder Analysis Matrix

S No.	Location	Issues Discussed	Steps Suggested by Participants	Remarks
1	Tawlai Bujurg	There should be adequate space available on the side of road, but at present, there is no space at all. The space is extremely important for safe driving.	Make space available, as the road authority currently has enough right of way for 5-6 m of land to be available.	Paved shoulder of 1.5 m is proposed at about 5 km section of the project corridor. So, the need for additional space for movement is catered to.
		Over speeding is a major issue, especially with two-wheeler drivers hence it has to be addressed at priority.	Speed breakers throughout the cross-section, would ensure that the speed of vehicles plying on this road would be kept under check.	At important locations on the stretch where over speeding has been observed to be a cause of accident including blackspot locations, speed breakers/ rumble strips/ transverse bar markings have been proposed in the design.
		Provisions of paved footpath should be made, for pedestrian commuting.	If any provisions for footpath is made, it should be paved.	Paved or paver block shoulders have been proposed in select built-up areas including locations with pedestrian guard rail to make safe walking for pedestrians.
		Two-wheeler drivers slip at areas where there is a drop in pavement from the earthen shoulders, it results in grievous injuries, especially when the rider is not wearing helmet.	Ensure that when overlay is done every year, it should be accompanied with earthwork for keeping the level of junction roads as well as the nearby areas same as that of road.	Paved shoulders along with provision of earthen shoulders and hard shoulders have been done to ensure such incidents do not occur.
		Bus stops are required to be installed at the right locations.	Bus Stops should be strategically placed at places where it should be utilized or required.	Existing Bus Stops along the project road are considered in the design for upgradation and new bus stops at critical locations of urban area and major junctions are also proposed for convenient access and safe use.
		All the water pipelines under Jal Jeevan Mission have been installed within 3 m of the road edge at present. It would be an issue during expansion or widening.	The water pipelines should be installed at least 3 m away from the edge of the road.	The proposed design does not consider major utility shifting of water lines and therefore, would not have any impact.

		There is issue related to encroachment. Although Panchayat Office has prepared a market for the temporary shop owners, the vendors are not willing to relocate.	Request you to kindly include road safety and its importance in your awareness campaigns, so that people realize the importance of it and take steps like relocating to make the road safer.	Paved shoulder of 1.5 m is proposed at about 4.25 km section of the project corridor. So the need for additional space for movement is catered to. There is no need to remove encroachment on these points. The request to include road safety lessons into awareness campaign is being considered at the time of execution of campaigns.
2	Tonki Phata	Due to high embankment on the road connecting cement factory to state highway, drivers are not able to see the incoming vehicles from cement factory side. This leads to accidents.	The existing embankment should be covered up through earthwork to ensure that visibility improves.	Junction improvement is proposed in accordance with the MORT&H specifications and therefore, the issue of visibility of incoming vehicles is mitigated in the provisions.
		The big trailers coming out of cement factory are major cause of accident as the junction is too steep for them to turn onto the main carriageway.	There should be some arrangement like stopping the traffic at the time when the trailers are coming out.	Junction improvement is proposed in accordance with the MORT&H specifications and therefore, the issue of visibility of incoming vehicles is mitigated in the provisions. In addition to engineering improvement, special campaign programs are proposed for commercial traffic on road safety.
3	Tonki Phata – Individual Spot Consultation with Prakash Vishwakarma	Two wheelers are vulnerable to accidents on these roads because of the traffic of heavy vehicles as well as lack of inclination towards road safety measures by them. Over speeding is one of the major causes of accidents among two-wheelers.	Traffic signals should be installed along with proper enforcement measures to ensure that two-wheeler drivers as well as heavy vehicle drivers comply by traffic rule. Also, the nearest CHC should be strengthened so that it becomes adept to cater to the need of crash victims.	Traffic Signal is being proposed as part of design intervention at Tonki Phata. Junction improvement is also proposed to improve road safety conditions. Upgradation of trauma care infrastructure is being pursued. Further, we understand that there have been certain lapses on 108 services due to the transition phase between old and new vendor.

7. Potential Project Impact

7.1. Identified Environmental and Social issues and Impacts

The project impacts during various phases of the implementation on the environment along with the mitigation measures are discussed in this chapter.

7.1.1.1. Climate

Anticipated Environmental Impacts

During construction, air quality along the project road alignment will be adversely impacted at major settlements and junctions. These areas will be impacted by air emissions like oxides of sulphur, oxides of Nitrogen, Carbon monoxide and hydrocarbon from construction vehicles. Dust from stone crushing unit operations at stone quarries and handling and storage of aggregates and sand at batching plants; construction activities like loading and unloading of raw materials; cutting and filling. Emissions from the hot mix plants from where hot mix is procured will also impact on the air quality at hot mix plant locations. However, construction activity in this project is rather limited and all materials can be procured from existing crushers operating in the area.

Operation stage impacts on air quality will be reduced as the project proposals are aimed at facilitating the easy movement of vehicles by widening of the existing narrower carriage way; segregation of traffic by median construction; realignment to make the entry and exit of the traffic perpendicular to the main carriage way. Pedestrian safety will be ensured by proposing raised pedestrian crossings across the major junctions. In addition, these proposals will discipline the road users and reduces unnecessary application of accelerations along the highway reducing impact on the air quality.

Mitigation Measures

- Consent for Establishment (CFE) and Consent for Operation (CFO) shall be obtained for construction establishments such as hot mix plants, batching plants and stone crushers from the SPCB. In case the contractor is procuring the materials from third party, he has to ensure that they are procured from approved sources only.
- All vehicles and construction equipment operating for the contractor and the consultant shall obtain "Pollution Under Control" (PUC) Certificates. Good maintenance of all vehicles and machines used in construction activities must be conformed to the National standards.
- Vehicles deployed for borrow material, sand and aggregate haulage shall be covered with tarpaulins to be spillage proof.
- Location of all construction establishments such as hot mix plants, WMM plants, crusher plants, construction camps and offices shall be located at least 1 km away from the human habitations and preferably on the leeward side ensuring all legal requirements and standards.
- In order to curb the increased fugitive dust emissions in the area due to excavations, loading, unloading, vehicular movement and raw material transport, provisions shall be made for periodical sprinkling water on all the haul roads on a regular basis during the entire construction period.
- Pollution control devices such as cyclone separators /scrubbers shall be installed to control emissions from hot mix plants, crushing units and concrete batching plants. Height of the stacks shall be as per the statutory requirements.
- Construction labours shall be provided with nose masks and other personnel protective equipment.
- LPG or low sulphur diesel shall be used in the diesel generator sets and DGs are fitted with the chimney stack of required height.
- To ensure the efficacy of the mitigation measures suggested, all operational areas (work sites, haul roads, hot mix plants, quarries, borrow sites and disposal sites) under the road construction works

are to be regularly monitored for air quality parameters so that suitable mitigation measures can be taken up if any of the parameters exceed the prescribed limit.

- During operation stage of the project, vehicular emissions of pollutants (SPM, RSPM, CO, SO₂, NO_x and Pb) shall be monitored for sensitive locations upon the instruction of engineer concerned. Regular monitoring of air quality along the project area should help to ensure air pollutants within permissible limits.

7.1.1.2. Noise Environment

Anticipated Environmental Impacts

Various activities of road construction will increase noise levels at junction improvement locations along the project corridor. The construction activities such as excavation and grading of the site and movement of heavy vehicles, loading, transportation and unloading of construction materials contributes for the increase in noise levels. Impact of increase in noise levels will be pronounced especially at junctions.

Although increase in noise levels depends on many key factors such as traffic intensity, type and condition of the vehicles plying on the road, acceleration/deceleration/gear changes by the vehicles depending on the level of congestion and smoothness of road surface, the proposed measures for the project corridor will reduce the noise levels during operational phase.

Mitigation Measures

The adverse impacts from the increase of noise during construction phase on the nearby community will be reduced by several construction phase mitigation plans. All possible mechanical and administrative controls shall be practiced reducing the adverse impacts on the workers.

- Use of enclosures, walls, installation of mufflers around noisy equipment and the noise sources reduce noise generated during construction.
- Substituting quieter equipment or construction methods; minimizing time of operation and locating equipment farther from sensitive receptors.
- Timing of noisier construction and demolition activities to between 6 AM and 10 PM would reduce construction noise impacts during night.
- Detouring construction trucks away from noise-sensitive areas such as schools and hospitals would eliminate construction truck noise from those areas.
- Personnel Protective Equipment (PPE) such as ear plugs, and earmuffs shall be provided to the workers operating or working near noise generating machines.
- Turning off construction equipment during the prolonged periods of nonuse eliminates noise from construction equipment during those periods.
- Regular maintenance of all equipment and training to equipment operators would reduce noise levels and increase efficiency of equipment.
- Locating stationary equipment away from sensitive receptors would decrease noise considerably.

7.1.1.3. Water Environment

Anticipated Environmental Impacts

During construction, if the water required for construction is drawn from the community water resources it will impact the community for the duration of construction.

Mitigation Measures

- No construction waste shall be disposed of into the water bodies.
- The construction vehicles are prohibited from entering the water bodies for any purpose (including for cleaning) other than any legitimate requirements to avoid major pollution points due to oils and lubricants used in vehicles and construction equipment.
- All the water resources and water supply connections such as bore wells, taps, water cisterns, and pipelines being impacted by the project shall be relocated in such a manner that it should not

hamper the access to drinking water. Relocation of bore wells shall be done with consent of concerned water supply authority or the owner.

- Water for construction shall not be tapped from the surface water resources like non-perennial rivers, lakes and water tanks which are being utilized for drinking purposes.
- Appropriate location should be sited for the construction camp, workers camp, etc. to prevent the wastewater from entering these water resources and prevent incidence of spreading of communicable diseases through water. Provision for treatment of wastewater shall be made.
- Cleaning of construction vehicles and construction equipment shall be prohibited at water bodies along the demonstration corridor.

7.1.1.4. Land environment

Anticipated Environmental Impacts

The impact on the land environment will be minimal as the construction materials like murrum, aggregate, sand, and asphalt required for the project proposals are very less. The major land use in the project area is extensive agriculture and existence of settlements at locations of Bakaner, Tawlai, Tonki, Azandiman, Thangaon, and Zhirvi with commercial and economic activity along the roadside.

At secondary construction sites like borrow areas, quarry sites and water resource points land use will be impacted depending upon the demand for material availability. These activities will cause disturbance to the nearby agricultural area, human habitations, etc.

Mitigation Measures

- Special transport facilities are required to transport bituminous material from the refineries to work sites, as these require special measures to control accident spills, as these materials are highly inflammable.
- Proper protection measures need to be worked out for the minimizing the impacts during the haulage of borrow materials.

7.1.1.5. Biological Environment – Flora and Fauna

Mitigation Measures

- No tree shall be cut down.

7.1.1.6. Cultural Environment

Mitigation Measures

One small Idol of goddess and gate of one small temple falls under the project influence area of 2.5 m. In order to avoid community conflicts, contractor will have to discuss with the local community prior to construction work at such sites.

7.2. Negative Impacts for SCDP Road

The negative social impacts and risks during the operation and maintenance phase are mostly associated with noise and road accidents. The ESMP, mentioned earlier, includes measures to address the above impacts, including a chance finds procedure for archaeological, historical and sacred sites. In addition, to address any impacts on the vulnerable groups that exist in the area, the ESMP plan proposes appropriate mitigation measures to be implemented during the construction as well as O&M phases.

7.3. Adverse Social Impacts

Adverse social risks and impacts during the construction phase include vehicle congestion on road due to temporary restriction on using the shoulders. The construction activities are not required in the entire stretch and the needed location of construction sites have been already identified. At a time the entire stretch will not be affected but only the identified location will be treated and renovated as per the laid specification. Therefore, in doing so there will be minimal adverse social risk impact. The contractor will follow all the road safety guidelines and do not hamper the accessibility to schools and healthcare facilities. The potential labor influx and the conduct of road workers during construction will be taken care of by the contractor and will be monitored by MPRDC district officials.

Based on the proposed mitigation designs a preliminary assessment of impacts was done. The project influence area was taken to be 2.5 meters on either side of the project road. Titleholders along the project corridor are not impacted, even in this buffer zone. However, it will have the likely impacts, which is less than 10 % on some of the encroachers/squatters, including temporary structures and staircases in some cases, 1 boundary gate of temple and 1 small idol of goddess. The list of habitation areas has been given below along with the likely social impacts.

Table 10:List of features identified under 2.5 m. buffer on both side from the Road Edge

S. No	Name of PAP	Male/Female	Category	Village	Titleholder/Non-titleholder	Encroachers /Squatters	Type of Losses	Permanent/Temporary	RHS/LHS
1	Khooma Aadiwasi	Male	ST	Tonki	Non-titleholder	Encroachers	Staircase	Permanent	LHS
2	Buddhi Bai	Female	ST	Tonki	Non-titleholder	Encroachers	Shed	Temporary	LHS
3	Gaura Bai	Female	ST	Tonki	Non-titleholder	Encroachers	Shed	Temporary	LHS
4	Deni Malviya	Male	OBC	Hanumantya	Non-titleholder	Encroachers	Platform	Permanent	LHS
5	Mohan Malviya	Male	OBC	Hanumantya	Non-titleholder	Encroachers	Platform	Permanent	LHS
6	Ravi Thakur	Male	Gen	Hanumantya	Non-titleholder	Encroachers	Platform	Permanent	LHS
7	Kiran Kirana	Female	OBC	Hanumantya	Non-titleholder	Encroachers	Platform	Temporary	RHS
8	Heeralal Nigwal	Male	ST	Ajandiman	Non-titleholder	Encroachers	Staircase	Permanent	LHS
9	Arvind Nigwal	Male	ST	Ajandiman	Non-titleholder	Encroachers	Platform and Shed	Permanent	RHS
10	Bharat Nigwal	Male	ST	Ajandiman	Non-titleholder	Encroachers	Tin Shed	Temporary	RHS
11	Rajaram Jayaswal	Male	OBC	Ajandiman	Non-titleholder	Encroachers	Tin Shed	Temporary	LHS
12	Gopal Baghel	Male	OBC	Ajandiman	Non-titleholder	Encroachers	Tin Shed	Temporary	RHS
13	Deewan Nargis	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	LHS
14	Smail Bohara	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	LHS
15	Rishi Rathor	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	LHS
16	Santosh Verma	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	LHS
17	Ganesh Verma	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	LHS
18	Anokhilal Jayaswal	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	LHS
19	Naveen Patidar	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	LHS

20	Sardar Singh	Male	Gen	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	LHS
21	Mukesh Jain	Male	Gen	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	LHS
22	Raju Patidar	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	RHS
23	Mahendra Patidar	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	RHS
24	Mangilal Mahajan	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	RHS
25	Yashraj Jayaswal	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	RHS
26	Lakhan Bundela	Male	Gen	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	RHS
27	Dharmendra Chouhan	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	RHS
28	Saleen Khan	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	RHS
29	Bharat Baskel	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	RHS
30	Mayur ganesh	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed and Wall	Permanent	RHS
31	Kuldeep Rathor	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	RHS
32	Reena Verma	Female	OBC	Bankaner	Non-titleholder	Squatters	Spot Sales Booth	Temporary	RHS
33	Lakhan Verma	Male	OBC	Bankaner	Non-titleholder	Squatters	Spot Sales Booth	Temporary	RHS
34	Dinesh Verma	Male	OBC	Bankaner	Non-titleholder	Squatters	Spot Sales Booth	Temporary	RHS
35	Rajesh Verma	Male	OBC	Bankaner	Non-titleholder	Squatters	Spot Sales Booth	Temporary	RHS
36	Ashok Verma	Male	OBC	Bankaner	Non-titleholder	Squatters	Spot Sales Booth	Temporary	RHS
37	Sangeeta Verma	Female	OBC	Bankaner	Non-titleholder	Squatters	Spot Sales Booth	Temporary	RHS

38	Dashrath Verma	Male	OBC	Bankaner	Non-titleholder	Squatters	Spot Sales Booth	Temporary	RHS
39	Ramu Verma	Male	OBC	Bankaner	Non-titleholder	Squatters	Spot Sales Booth	Temporary	RHS
40	Reena Verma	Female	OBC	Bankaner	Non-titleholder	Squatters	Spot Sales Booth	Temporary	RHS
41	Pappu Verma	Male	OBC	Bankaner	Non-titleholder	Encroachers	Pan Sales Booth	Permanent	RHS
42	Aslam Khan	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	LHS
43	Bhupendra	Male	OBC	Bankaner	Non-titleholder	Encroachers	Tin Shed	Temporary	LHS
44	Shahrukh	Male	OBC	Bankaner	Non-titleholder	Encroachers	Shed	Temporary	RHS
45	Om Chouhan	Male	OBC	Bankaner	Non-titleholder	Squatters	Spot Sales Booth	Temporary	LHS
45	Raju Verma	Male	OBC	Bankaner	Non-titleholder	Squatters	Spot Sales Booth	Temporary	LHS
46	Nanuram Ganpat	Male	OBC	Thangaon	Non-titleholder	Encroachers	Tin Shed	Temporary	LHS
47	Nanuram Chouhan	Male	OBC	Thangaon	Non-titleholder	Encroachers	Tar Fencing	Temporary	LHS
48	Kamlesh Karsan	Male	SC	Thangaon	Non-titleholder	Encroachers	Shed	Temporary	LHS
49	Gorelal	Male	SC	Thangaon	Non-titleholder	Encroachers	Tin Shed	Temporary	LHS
50	Pramod Ramkrishan	Male	SC	Thangaon	Non-titleholder	Encroachers	Tin Shed	Temporary	RHS
51	Janki Bai	Female	Gen	Zhirvi	Non-titleholder	Encroachers	CC Ramp and plate form	Permanent	RHS
52	Basant Rajpoot	Male	Gen	Zhirvi	Non-titleholder	Encroachers	Small water Tank	Temporary	RHS
53	Mahendra Rajpoot	Male	Gen	Zhirvi	Non-titleholder	Encroachers	Shed	Temporary	RHS

54	Raghuveer Parmar	Male	Gen	Zhirvi	Non-titleholder	Encroachers	Platform	Permanent	LHS
55	Nijam Khan	Male	OBC	Zhirvi	Non-titleholder	Encroachers	Platform and tin shed	Permanent	RHS
56	Mahesh Rajpoot	Male	Gen	Zhirvi	Non-titleholder	Encroachers	Platform	Temporary	RHS
57	Magan Jhamral	Male	SC	Zhirvi	Non-titleholder	Encroachers	Platform	Temporary	RHS
58	Anil Mochi	Male	SC	Zhirvi	Non-titleholder	Encroachers	Platform	Temporary	RHS
59	Dayaram Kannoj	Male	OBC	Tawlai Bujurg	Non-titleholder	Encroachers	Tin Shed	Temporary	LHS
60	Sunil Malviya	Male	OBC	Tawlai Bujurg	Non-titleholder	Encroachers	Pan Sales Booth	Permanent	LHS
61	Girdhari Rawat	Male	OBC	Tawlai Bujurg	Non-titleholder	Encroachers	Pan Gumthi	Permanent	LHS
62	Suresh	Male	OBC	Tawlai Bujurg	Non-titleholder	Encroachers	Pan Sales Booth	Permanent	LHS
63	Golu	Male	OBC	Tawlai Bujurg	Non-titleholder	Squatters	Spot Sales Booth	Temporary	RHS

* The table above list down all the structures (temporary/permanent) identified under the influence area of 2.5 meters from the road edge on either side of the project road. The extent of impact due to the proposed interventions is <10% on all the identified structures

8. Environmental and Social Management Plan

8.1. Introduction

The project stretch is in state Madhya Pradesh Dhar district, encompassing the Manawar block of Umarvan. In general, the route passes through mostly rural areas with some agricultural, vacant land, and built-up areas interspersed with intersections leading to minor communities and hamlets. This route is largely used by cars, industrial trucks, farm vehicles utilising it for local access. Motorized two-wheelers are commonly used by locals to travel small distances between or within villages. The length of the stretch is 20 km .

8.2. Outline of ESMP

The Environmental and Social Management Framework (ESMF) is created to serve as a tool for guiding Implementing Agencies in carrying out appropriate environmental and social safeguards during project design and execution.

The primary goal of this document is to offer specifics on the environmental and social obligations, management, and monitoring standards that must be met by project contractors during the projects to achieve the following.

1. Try to avoid or reduce any possible negative environmental or social consequences of Project implementation.
2. To implement a mitigation hierarchy to foresee and mitigate risks and repercussions to employees, affected communities, and the environment, or to minimise impacts where prevention is not practicable and compensate or offset impacts where they persist.
3. Maximize good outcomes while reducing unavoidable negative impacts to a level that is acceptable to the receiving environment and communities.
4. Satisfy environmental and social commitments and measures, as well as applicable policies and management systems.
5. Conform with national regulations as well as World Bank ESMF Policy and Standards.

8.3. Environmental and Social Management Plan for construction Stage

The ESMP envisages the plans for the proper implementation of management measures to reduce the adverse impacts arising out of the project activities. The proposed work has been subjected to a regulatory application study, which considered the construction/improvement methods, material requirements, sourcing, and timing. The mode of transportation, waste creation, and the circumstances of the recipient environment are all factors to consider.

Table 11: Environmental and Social Management plan for Construction stage

Project Activities	Potential Issues	Mitigation Measures	Location
A. Detailed Design & Pre-construction			
A01 Finalization of RoW: Non -forest areas	Widening or geometric improvements leading to loss of agricultural land and or destruction of trees	Limiting the RoW to construction width to avoid acquisition of excess land Avoiding concentric widening in green tunnels to save trees of one side	Entire Stretch
A02	<ul style="list-style-type: none"> ▪ Raised embankment and inadequate drainage facilities causes water logging, 	<ul style="list-style-type: none"> ▪ Provision of adequate no. of cross drainage structures. ▪ Increase (vent and height) in waterway of existing structures. 	Entire stretch

Project Activities	Potential Issues	Mitigation Measures	Location
Appropriate drainage provisions	<p>which damage pavement and obstructs movement of people and vehicles.</p> <ul style="list-style-type: none"> Natural hazards such as flooding 	<ul style="list-style-type: none"> Provisions of roadside drains with suitable outfalls. Drainage system including surface and subsurface drains shall be provided as per IRC Codes. All culverts have been designed for 50 years HFL return period and bridges designed for 100-year HFL return period Embankment height to be raised along low lying/ potential waterlogged areas 	
A03 Safety Arrangement prior to start of construction	<p>Inadequate safety arrangements in pre-construction stage results increased risk in both preconstruction and construction phase</p> <p>Visibility loss of the construction area during the night hours</p>	<ul style="list-style-type: none"> Safety barriers shall be provided where high embankment (> 3.0 m) and deep trenches (>1.5 m) are to be constructed. Provision of retro-reflective warning sign boards near school, hospital and religious places Signs and marking viz., cat's eyes, delineators, object markers, hazard markers, safety barriers at hazardous locations Horizontal and vertical geometry as per IRC Specification 	Entire stretch
A04 Tree Felling	<ul style="list-style-type: none"> Loss of trees Pruning of tree Loss of habitat of avifauna 	<ul style="list-style-type: none"> Tree clearing to be restricted to construction width only in adequate manner Trees to be felled shall be clearly marked. Obtain prior tree felling permission from State Forest Department as per applicable rules Stacking, transport and storage of the wood will be done as per the relevant norms. Systematic corridor level documentation for the trees to be felled and those saved will be maintained by the MPRDC. 	Entire stretch Number of affected trees= 145
A05(i) Sitting of Project infrastructure: Construction Camps	Inappropriate location such (near settlements or eco-sensitive zones, biodiversity hotspots and human settlements) can lead to conflicts with community or potential impacts on natural habitats	<p>Camps to be established with prior permission from authority. Camps to maintain minimum distance from following:</p> <p># 500 m from habitation, water bodies and traffic route</p> <p>#1000 m from Eco-sensitive zones</p> <p>#500 from community reserves/conservation areas</p>	All camps
A05 (ii) Sitting of Project infrastructure: Plant & Machinery	Potential impact from air pollution on natural habitats and resources located in sensitive areas legally	<ul style="list-style-type: none"> Batching, WMM, HMP and crushers at downwind (1km) direction from nearest town and 500 m from villages. Location of the plants should be based on State Pollution Control Board guidelines. Consent To Establish (CTE) must be obtained from State pollution control board before setting up of plant. 	All plant sites
A06 Procurement of machinery	Potential sources of impacts on air and noise environment	<ul style="list-style-type: none"> Procure/ Hire machinery which complies with the Emission Standards suggested by CPCB. All diesel generators procured or hired for the project to comply with the standards prescribed by CPCB 	All machineries

Project Activities	Potential Issues	Mitigation Measures	Location
A07(i) Location of Quarry Sites	Potential impacts on natural habitats and resources located in sensitive areas legally	<ul style="list-style-type: none"> ▪ Only existing or new approved sites (having necessary statutory clearances) to be considered for procurement of quarry material ▪ Crushers to obtain Consent to establish from SPCB ▪ Only waste land to be used for dumping of debris, no agricultural land shall be used even for temporary dumping 	All Quarries
A07 (ii) Location of borrow areas		<ul style="list-style-type: none"> ▪ Location in area with Stable soil and preferably away from agricultural land ▪ Non-productive, barren lands, upland shall be used for borrowing earth with the necessary permissions/consents. ▪ Follow IRC recommended practice for borrow area (IRC:SP:108:2015) for identification of location, ▪ Should be sited away from inhabited areas. 	All borrow areas
A08 Cultural Heritage (Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010)	Construction and excavation Activity would be damaging the aesthetic view of the site	<ul style="list-style-type: none"> ▪ Before start of construction, joint inspection by contractor and Implementing Agency IA, of site ▪ Workplan will be prepared to ensure no direct/indirect impact from work. ▪ Labour interference or labour access to the site will be prohibited ▪ ASI rules for visit to site or any other regulation will be strictly adhered to ▪ Training and awareness of labour to cover protection of site provisions from the act. ▪ However intangible cultural heritage aspects will be addressed under ESMP where applicable. 	Impacts to cultural heritage at all stages of the project cycle
Vulnerable Groups	Impacts on Vulnerable Groups	<ul style="list-style-type: none"> • The use of access roads should be planned in a way that does not jeopardize the travel safety of shuttle vehicles in villages with bussed training, and traffic measures (warning signs, speed limits, and information about settlements and schools for the periods when large and dangerous goods will be transported) should be taken. • Passages should be structured to allow safe passage of humans and animals. When bovine and ovine are not under shepherd management and children are not under adult supervision, measures should be taken to prevent entry into the railway route. • Occupational health and safety measures should be taken at the construction sites and construction activities. • Construction Impacts Management Plan and Pollution Prevention Plan should be implemented, taking waste management and health controls into consideration. • Necessary measures should be taken for the safety of maintenance and repair activities, teams and local people. 	Throughout the stretch

Project Activities	Potential Issues	Mitigation Measures	Location
		<ul style="list-style-type: none"> The grievance mechanism should be actively and efficiently operated. 	
Labor and Working Conditions	Impacts on Labor and Working Conditions	<ul style="list-style-type: none"> All workers, direct, contracted and others in the supply chain should have the right to organize. In this regard, grievance mechanism have an important part. A secure grievance mechanism system should be established that workers of all levels can benefit from. A fair and transparent employment procedure should be adopted. Positive discrimination should be practiced for disadvantaged groups. In case all measures are taken, remaining impact would be negligible. Ensure compliance with Workers' accommodation: processes and standards for accommodation; including clean and safe areas that ensure the minimum space requirements, air-conditioning and ventilation that is appropriate for the existing climatic conditions, gender based accommodation facilities, etc.) Ensure compliance with Workers' accommodation: processes and standards for onsite facilities (canteen, sanitary facilities, adequate amenities for socialization and resting, etc.). Survey accommodation facilities to be provided off-site (if any) and ensure they are also in compliance with Project standards. Ensure drinking and utility water to be supplied meet the requirements of the Turkish Regulation on Water Intended for Human Consumption and WHO Guidelines for Drinking Water Quality. Provide all accommodation sites with sufficient emergency response equipment such as first aid kits and fire-fighting equipment and conduct periodic checks to ensure they are in working condition. Provide trainings to personnel on general waste management, housekeeping, first aid practices and communicable diseases. Conduct visual checks on site to ensure proper housekeeping. Ensure proper first aid equipment is kept on site, at various related locations. Conduct periodic medical checks for personnel and provide vaccination and/or other mitigating measures when required. Establish adequate medical rooms at the camp sites, provide sufficient human resources and keep a suitable patient transport vehicle on site. 	all stages of the project cycle

8.4. Clause for Nonconformity to ESMP

The project has no non-confirmatory action because it is now functioning on the existing route with certain specific measures that require no more land and no work with an environmental impact. There are no long-term effects from the activity, but there may be short-term consequences during construction, which are addressed by making adequate arrangements on the site.

In addition, the contractor is required to understand and adhere to labour safety, traffic speed, and safety markings on the job site, and the labourers are periodically updated on the safety measures. Environmental certification of vehicles issued by the Pollution Control Board, has been ensured. Also, no dust problem during construction in the community, it has been verified that water sprinkling is done.

Shifting of electric poles coming into the road shoulder and relocating them properly is required, as well as hazard marking colour on them. The contractor must ensure that the machinery are retained and the site is returned to its original condition when the work is completed, and that all construction and demolition waste from the site is properly removed.

8.5. Performance Monitoring Indicators

The relevant / applicable sections of following acts, policy guidelines, regulations and legislations framed by the Government of India / Government of Maharashtra for environmental safeguards are to be followed:

- Environment (Protection) Act and Rules, 1986
- EIA Notification, 14th September 2006, and its subsequent amendments
- The Water (Prevention and Control of Pollution) Act and Rules, 1974, 1975
- The Air (Prevention and Control of Pollution) Act, Rules, and Amendment, 1981, 1982, 1983, 1987
- Noise Pollution (Regulation & Control) Rules, 2003 and amended in 2010
- Forest (Conservation) Act, 1980 and its amendments
- The Schedule Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Amendment Rules, 2012
- Wildlife (Protection) Act, 1972 and its amendments
- Solid Waste Management Rules, 2016 and amendments
- Construction and Demolition Waste Management Rules, 2016
- Hazardous and Other Waste (Management and Trans-boundary Movement) Rules, 2016
- Plastic Waste Management Rules, 2016, as amended, 2021-2022
- Chemical Accident (Emergency Planning, Preparedness and Response) Rules, 1996
- Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010
- The Motor Vehicles Act, 1988
- The Motor Vehicles (Amendment) Bill, 2015
- The Explosive Act, 1984
- Public Liability Insurance Act, 1991
- The Mines Act. 1952

The physical, biological, and social components identified to be particularly significant in affecting the environment at critical locations have been suggested as Performance Indicators. The Performance Indicators shall be evaluated under three heads as:

- a) Environmental condition indicators to determine efficiency of environmental management measures in control of air, noise, water, waste, and soil pollution.
- b) Environmental management indicators to determine compliance with the suggested environmental management measures.

Operational performance indicators that have been devised to determine efficiency and utility of the proposed mitigation measures.

Table 12: Performance Monitoring Indicators

S.N.	Details	Indicators	Stage	Responsibility
A.	Pre-Construction Stage: Environmental Management Indicators and Monitoring Plan			

S.N.	Details	Indicators	Stage	Responsibility
1.	The location of construction camps must be determined, and environmental parameters in the vicinity must be documented.	Construction camp	Pre-construction	Contractor
2.	Borrowing areas must be finalized, and environmental factors in the region must be documented.	Borrow areas	Pre-construction	Contractor
3.	Location of Quarry and Stone Crusher sites have to be finalized and parameters indicative of environment in the area has to be reported.	Quarry and Stone Crusher sites	Pre-construction	Contractor
4.	Locations for Debris Disposal Site must be identified and parameters indicative of environment in the area has to be reported.	Debris Disposal Site	Pre-construction	Contractor
5.	Progress of tree removal marked for cutting is to be reported	Site clearing	Pre-construction	Contractor
B. Construction Stage: Environmental Condition Indicators and Monitoring Plan				
1.	The parameters to be monitored as per frequency, duration & locations of monitoring specified in the Environmental Monitoring Program prepared	Air quality	Construction	Testing should be doing through NABL approved monitoring lab.
		Noise level	Construction	
		Ground Water quality	Construction	
		Surface Water quality	Construction	
		Soil quality	Construction	
2.	Progress of measures suggested as part of the strategy is to be reported	Tree plantation	Construction	Contractor
3.	Contractor shall report implementation of the measures suggested for topsoil conservation	Topsoil Conservation	Construction	Contractor
4.	Contractor shall report implementation of the measures suggested for slope stabilization and sediment control	Slope Stabilization and Sediment Control	Construction	Contractor
5.	Contractor shall report implementation of the measures suggested for waste management	Waste Management Plan	Construction	Contractor
6.	Contractor shall report implementation of the guideline to ensure worker's safety during construction	Worker's Safety during Construction	Construction	Contractor
C. Operation Stage: Management & Operational Performance Indicators				
1.	The number of trees surviving during each visit will be compared with the number of saplings planted	Survival rates of trees	Operation	Environmental Specialist up to construction period
2.	Environmental Specialist will undertake joint site visit with the Contractor to determine whether the Borrow areas, Quarry areas, Debris disposal site have been rehabilitated in line with Guidelines	Rehabilitation of Borrow areas, Quarry area, Debris Disposal site	Operation	Environmental Specialist

8.6. Environmental and Social Management Plan for Operation Stage

The ESMP for operation stage is mentioned below:

Table 13: Environmental and Social Management Plan for Operation Stage

Project Activities	Potential Issues	Mitigation Measures	Location	Implementation
Operation stage				
B01 (i) Site Clearance: Clearing and Grubbing	<ul style="list-style-type: none"> ▪ Impact on Roadside Vegetation ▪ Dumping of debris can affect the quality of the soil if dumped on agricultural land 	<ul style="list-style-type: none"> ▪ No tree shall be felled without the permission of the forest department. ▪ Debris should not be placed on agricultural land even temporarily. Debris to be placed on designated disposal sites only ▪ Debris should be used for backfilling ▪ The root stump shall not be placed on the edge of the carriageway as it would pose hazard for both the local community and the traffic 	All stretches	Contractor
B01 (ii) Site Clearance Dismantling of existing culverts and structures if any	<ul style="list-style-type: none"> ▪ Dumping of debris on drainage will result flooding ▪ Diversions of drainage channel can affect normal flow ▪ Quality of the soil would degrade if debris dumped on agricultural land 	<ul style="list-style-type: none"> ▪ None of the debris should be placed inside any drainage channel ▪ Provision of diversion channels and/or scheduling construction of culverts preferably in dry months ▪ Debris shall be dumped only at specified dumping area 	All culvert locations	Contractor
B01 (iii) Site Clearance: Traffic diversion	<ul style="list-style-type: none"> Loss of vegetation Loss of topsoil 	<ul style="list-style-type: none"> ▪ No trees would be cut down for the creation of diversions without appropriate permissions. ▪ The topsoil shall be removed and stored separately for reclamation of the diversion road. 	Places requiring traffic diversion	Contractor
B02 (i) Worker's Camp Operation of Construction Camp	<ul style="list-style-type: none"> ▪ Wastewater & runoff from Camp will cause contamination of receiving water bodies ▪ Runoff from camp contaminating surface water body ▪ Contamination of soil and ground water from oil ▪ Indiscriminate dumping of Solid waste from construction map will lead to contamination of nearby agricultural fields. 	<ul style="list-style-type: none"> ▪ Water pollution control measures to be provided: i.) adequate number of toilets and bathrooms to be provided ii) soak pits and septic tank to be provided; iii) no wastewater to flow out of the camp ▪ Runoff from camp routed through i) peripheral drain ii) sedimentation tank ▪ All oil and bitumen to be stored i) on impervious platform ii) storage areas to be bunded and iii) runoff from the areas to be routed through oil-water separator ▪ The i) Camp shall be fenced; ii) Access to Camp to be restricted ▪ Composing facilities to be provided for biodegradable waste; non-biodegradable waste to be recycled to maximum possible extent and remaining waste should 	All Construction camps, laydown areas, material storage yards etc	Contractor

Project Activities	Potential Issues	Mitigation Measures	Location	Implementation
		either be disposed at approved disposal ground or through licensed waste operators		
B02 (ii) Worker's Camp Camp Facilities	Inappropriate facilities for workers lead to unsafe working conditions, which may affect health of workers.	<ul style="list-style-type: none"> ▪ The location, layout and basic facility provision of each labor camp will be submitted to IE for approval. ▪ The contractor will maintain necessary living accommodation and ancillary facilities in functional and hygienic manner. ▪ Adequate water and sanitary latrines with septic tanks with soak pits shall be provided. ▪ To provide first aid facility for workers and emergency response system. ▪ To conduct workshop on HIV / AIDS for all laborers at camps at least twice a year ▪ To conduct biannual health check-ups of all laborers through registered medical practitioner ▪ Waste disposal facilities such as dust bins must be provided, and regular disposal of waste must be carried out. ▪ To take all precautions to protect the workers from insect and pest bites to reduce health risk. However, use of insecticides should comply with local regulations, if any. ▪ LPG should be used as fuel source in construction camps instead of wood 	All camps	Contractor
B03 (i) Materials Borrow Areas Operation	<ul style="list-style-type: none"> ▪ Illegal Procurement of Soil ▪ Loss of topsoil ▪ Formation of stagnant water pools due to borrowing/quarrying ▪ Particulate emission from excavation ▪ Safety of the adjoining private or Public Property 	<ul style="list-style-type: none"> ▪ The Borrow Areas to obtain requisite licenses and permission ▪ The topsoil shall be removed and stored separately for reclamation of the diversion road. ▪ Excavation operations to adopt measures: i) consider the wind direction during operation ii) reducing drop height during loading iii) water sprinkling depending on water availability. ▪ The extent of borrow areas should be sited away from settlements. ▪ Depths of borrow pits to be regulated and sides not steeper than 25%. ▪ At least 10% of the acquired area shall be kept for stockpiling of fertile topsoil. The piles shall be covered with gunny bags / tarpaulin. ▪ Slope of stockpile shall not exceed 	All Borrow areas in the project	Contractor

Project Activities	Potential Issues	Mitigation Measures	Location	Implementation
		<p>1:2 (V:H) and edge of pile shall be protected by silt fencing</p> <ul style="list-style-type: none"> Borrow areas shall be leveled with salvaged material or other filling materials which do not pose contamination of soil. Else, it shall be converted into fishpond. 		
B03 (ii) Materials Quarry Operation (Stone and Sand) including stone crusher	<ul style="list-style-type: none"> Illegal Procurement of Stones Noise and Vibrations from Blasting resulting in damages Air pollution from Stone crushers Erosion of sediments from the Stacked material 	<ul style="list-style-type: none"> Consent to Operate (CTO) must be obtained from State Pollution control board for crusher units The conditions of CTO must be complied and regular reported to RSPCB as per the stipulations In case of exiting quarry, the same must be obtained from the owners. The charge of the blasting to be decided in conformity with DGMS circular. Air quality & noise levels should be within the stipulated standards Dry and Wet method of dust suppression should be placed Erosion control measures to prevent sediment being washed to nearby properties 	All new and existing quarry	Contractor
B03 (iii) Material Transport	Deterioration of Air Quality due to: i) Dust emission from Haul roads ii) Fugitive emission from trucks	<ul style="list-style-type: none"> Water sprinkling on haul roads (in case of water scarcity dust suppressant may be used) Speed of the truck on haul roads not to exceed 15 kmph All truck carrying a) excavated soil, b) sand, c) cement shall be covered with tarpaulin sheets 	All materials	Contractor
B03 (iv) Material Handling (Soil, Aggregates Bitumen, Oils)	<ul style="list-style-type: none"> Fugitive emission from loose material deteriorating air quality Erosion from stockpiling causing sedimentation Contamination of surface and ground water from oil and bitumen Health & Safety concerns of workers Risk of injury from vehicle and equipment 	<ul style="list-style-type: none"> Storage against wind break and windrow in the direction of the wind Cement to be stored in closed area All stockpile to have garland drains along with sedimentation tank All oil and bitumen to be stored i) on impervious platform ii) storage areas to be bunded and iii) runoff from the areas to be routed through oil-water separator Workers involved in material transport should be provided with PPE's 	All Borrow areas and during procurement of material	Contractor
B04(i) Earthwork Operation of Equipment and Machinery	<ul style="list-style-type: none"> Compaction of the agricultural land Emission resulting in air quality deteriorations High noise levels 	<ul style="list-style-type: none"> Restrict the equipment and machinery within the designated work site All vehicle to have "Pollution Under Control" Certificates; Regular Maintenance of Equipment and Vehicle 		Contractor

Project Activities	Potential Issues	Mitigation Measures	Location	Implementation
	<ul style="list-style-type: none"> ▪ Accidental spillage of fuel and machine oils ▪ Risk of Injury to workers ▪ Safety of the public 	<ul style="list-style-type: none"> ▪ Safety measures for workers e.g. i) posting of flagman ii) reverse alarm on vehicles iii) reflective jackets and high reflective material to be worn by workmen ▪ Contractor to prepare traffic management and dust suppression plan duly approved by AE ▪ Water Sprinklings for dust suppression as necessary ▪ Safety Measures e.g. i) Traffic Marshals (Flagman) to control traffic ▪ Batching, WMM, HMP and crushers at predominant downwind (1km) direction from the nearest settlement. ▪ All plants shall be used after obtaining Consent to Operate (CTO) from RSPCB and compliance to stipulated conditions must be adhered to. ▪ Crusher Plant should have a combination of dry and wet type control system to minimize deterioration air quality ▪ Construction equipment and machinery to be fitted with silencers and maintained properly. ▪ Near School, noisy construction activities shall be carried out after closing of school and in the weekends / holidays only ▪ Manage smooth traffic flow to avoid traffic jams and honking. ▪ Restrict construction activities near built up areas during day time. ▪ Noise limits for construction equipment such as compactors, rollers, front loaders, concrete mixers, cranes (moveable) etc. shall not exceed 75 dB(A) at a distance of 11 m from its source ▪ To avoid soil contamination Oil-Interceptors shall be provided at wash down and refuelling areas. ▪ Waste oil and oil soaked cotton / cloth shall be stored in containers labelled 'Waste Oil' and 'Hazardous' sold off to MoEF / RSPCB authorized vendors ▪ Workers involved should be provided with PPE's 		
B04(ii) Earthwork Excavation	<ul style="list-style-type: none"> ▪ Discharge of water from excavation increasing sediment 	<ul style="list-style-type: none"> ▪ Water to be routed through sedimentation tank before discharge, 	All stretches involving excavation	Contractor

Project Activities	Potential Issues	Mitigation Measures	Location	Implementation
	<ul style="list-style-type: none"> ▪ load in receiving water body ▪ Erosion of Cut Slopes ▪ Public safety issues 	<ul style="list-style-type: none"> ▪ Feasibility of reusing the water for construction ▪ Slope stabilization measures as seeding, mulching & bio-engineering techniques ▪ Safety Measures e.g. i) barricading of worksites ii) dedicated walkways and crossover points ii) illumination of work area in settlement ▪ Un-used non-bituminous wastes to be dumped in borrow pits with the concurrence of landowner and covered with a layer of topsoil conserved from opening the pit. ▪ Bituminous wastes (if any) will be disposed-off in an identified dumping site approved by the State Pollution Control Board ▪ Other applicable emission control mechanisms mentioned in EMP Matrix (refer Point B04 (i) above) 		
B04(iii) Earthwork Embankment Construction	<ul style="list-style-type: none"> ▪ Erosion causing impact on embankment/slope stability ▪ Contamination of water bodies/ water courses 	<ul style="list-style-type: none"> ▪ Encroachment into any water body is discouraged. ▪ Slope stabilization measures as seeding, mulching & bio-engineering techniques. ▪ Construction of temporary erosion control structures as per requirements ▪ Control measures as silt fencing, vegetative barriers ▪ Avoiding disposal of liquid wastes into natural water courses ▪ Side slopes of all cut and fill areas will be graded and covered with stone pitching, turfing. Care should be taken that the slope gradient shall not be greater than 2:1. ▪ The earth stockpiles to be provided with gentle slopes to soil erosion. ▪ Other applicable emission control mechanisms mentioned in EMP Matrix 	All Embankment locations	Contractor
B04(iv) Earthwork Culvert and Minor Bridge Works	<ul style="list-style-type: none"> ▪ Interruption of flows ▪ Pollution of water channel during construction ▪ Debris contaminating the soil and water ▪ Occupational Health and safety of workers ▪ Community Health and safety 	<ul style="list-style-type: none"> ▪ Diversion channels to prevent stoppage of the flow of water ▪ Construction wastewater or water in excavation to be disposed through sedimentation tank ▪ Batching plant and Transit mixer wash waste i) not to be disposed on agricultural land ii) to be reused in paving of roads ▪ PPE to be provided to workers involved in bar bending and casting operations ▪ Traffic Marshall to guide traffic during the movement of transit 	All culverts and bridge location	Contractor

Project Activities	Potential Issues	Mitigation Measures	Location	Implementation
		<ul style="list-style-type: none"> mixers in and out of the casting site. Other applicable emission control mechanisms mentioned in EMP Matrix 		
B05(i) Surfacing Bituminous Surfacing	<ul style="list-style-type: none"> Deterioration of air quality Contamination of Soil from Bituminous Waste Worker's safety Community Safety 	<ul style="list-style-type: none"> Air Pollution Control Measures: i) No open burning of wood / burned for bitumen works; ii) Hot- mix plants to have air pollution control Bitumen waste and off-spec material not to be thrown on agricultural land PPE's to be provided to workers Traffic Marshall to guide traffic during the movement of vehicle carrying hot mix to and from the surfacing site Other applicable emission control mechanisms mentioned in EMP Matrix 	Entire stretch having flexible pavement	Contractor
B05(i) Surfacing Concrete Surfacing	<ul style="list-style-type: none"> Contamination of soil and water from concrete Stress on water resources in water scarce areas 	<ul style="list-style-type: none"> Batching plant and Transit mixer wash waste i) not to be disposed on agricultural land ii) to be reused in paving of roads Construction wastewater to be used for curing Admixture to be used for reducing water requirement in curing 	Entire stretch having rigid pavement	Contractor
B06(i) Shoulder Shoulder Protection	Erosion of adjoining areas leading sedimentation of water bodies	Erosion control measures of shoulders especially in areas with higher slopes.	Entire stretch	Contractor
B06(ii) Shoulder Plantation	<ul style="list-style-type: none"> Shifting sand dunes affecting infrastructure Impact on Species Diversity 	<ul style="list-style-type: none"> Stabilization of Sand Dunes using vegetative cover (grasses and Trees) Selection of local species drought resistant species Green belt development in surplus land of existing right of way 	Rural stretches	Contractor
B06(iii) Shoulder Signage	<ul style="list-style-type: none"> Safety of local population and traffic Collision with Wildlife 	<ul style="list-style-type: none"> Safety Features to be included as per Traffic Study findings. Road Signage to be provided as per IRC Code Safety features to be included considering the outcomes of the Wildlife Surveys 	All traffic junctions and wildlife crossings	Contractor
Post Construction Decommissioning				
C01 Clearing of Construction Camps	<ul style="list-style-type: none"> Debris Contaminating the Soil and Water Loss of productive land 	<ul style="list-style-type: none"> All Debris to be removed and disposed at designated sites All construction zones including riverbeds, culverts, road-side areas, camps, hot mix plant sites, crushers, batching plant sites and any other area used/affected 	Entire Stretch, and lands used by camps, plant sites borrow &	

Project Activities	Potential Issues	Mitigation Measures	Location	Implementation
		<p>by the project will be left clean and tidy</p> <ul style="list-style-type: none"> ▪ Reutilization of debris for strengthening of the shoulder of approach roads ▪ Restoration of conserved Topsoil 	quarry areas etc.	
Vulnerable Groups	<ul style="list-style-type: none"> ▪ Impacts on Vulnerable Groups 	<ul style="list-style-type: none"> • The use of access roads should be planned in a way that does not jeopardize the travel safety of shuttle vehicles in villages with bussed training, and traffic measures (warning signs, speed limits, and information about settlements and schools for the periods when large and dangerous goods will be transported) should be taken. • Passages should be structured to allow safe passage of humans and animals. When bovine and ovine are not under shepherd management and children are not under adult supervision, measures should be taken to prevent entry into the railway route. • Occupational health and safety measures should be taken at the construction sites and construction activities. • Construction Impacts Management Plan and Pollution Prevention Plan should be implemented, taking waste management and health controls into consideration. • Necessary measures should be taken for the safety of maintenance and repair activities, teams and local people. ▪ The grievance mechanism should be actively and efficiently operated. 	Throughout the stretch	Contractor
Labor and Working Conditions	<ul style="list-style-type: none"> ▪ Impacts on Labor and Working Conditions 	<ul style="list-style-type: none"> • All workers, direct, contracted and others in the supply chain should have the right to organize. In this regard, grievance mechanism have an important part. A secure grievance mechanism system should be established that workers of all levels can benefit from. A fair and transparent employment procedure should be adopted. Positive discrimination should be practiced for disadvantaged groups. In case all measures are taken, remaining impact would be negligible. 	all stages of the project cycle	Contractor

Project Activities	Potential Issues	Mitigation Measures	Location	Implementation
		<ul style="list-style-type: none"> • Ensure compliance with Workers' accommodation: processes and standards for accommodation; including clean and safe areas that ensure the minimum space requirements, air-conditioning and ventilation that is appropriate for the existing climatic conditions, gender based accommodation facilities, etc.) • Ensure compliance with Workers' accommodation: processes and standards for onsite facilities (canteen, sanitary facilities, adequate amenities for socialization and resting, etc.). • Survey accommodation facilities to be provided off-site (if any) and ensure they are also in compliance with Project standards. • Ensure drinking and utility water to be supplied meet the requirements of the Turkish Regulation on Water Intended for Human Consumption and WHO Guidelines for Drinking Water Quality. • Provide all accommodation sites with sufficient emergency response equipment such as first aid kits and fire-fighting equipment and conduct periodic checks to ensure they are in working condition. • Provide trainings to personnel on general waste management, housekeeping, first aid practices and communicable diseases. • Conduct visual checks on site to ensure proper housekeeping. • Ensure proper first aid equipment is kept on site, at various related locations. • Conduct periodic medical checks for personnel and provide vaccination and/or other mitigating measures when required. • Establish adequate medical rooms at the camp sites, provide sufficient human resources and keep a suitable patient transport vehicle on site. 		

8.7. Environmental Management-Budget

The environmental budget will comprise itemized estimate of trees, various water structure and water source improvements, drainages with footpath etc. The quantity of environmental protection is assessed based on this estimate by adding it to the amount of road construction. Based on these estimates the consultant shall prepare a request for funds and submit the same through the Project Director. The World Bank's loan will be available for costs such as works, purchase of goods, and, if required.

Project Management provides budget towards afore-mentioned items/activities covering:

- (i) PMU coordination of E&S activities by the Implementing Agencies of the project, supported by an Engineering and Management Consultant
- (ii) Hiring of E&S experts on a contractual basis
- (iii) PMU will provide adequate budget for preparation and implementation of all safeguard instruments from the counterpart funding, besides for conducting trainings, exposure visits and capacity building events.
- (iv) ESMF budget has been estimated about 3% of the total project costs and will be used by contractor with the consent PMU however, the budget amount may vary based on the need of the project. Costs of ESMP implementation would be included within each dam ESMP and their break-up would depend on the nature of activities, extent of impacts and proposed mitigation measure. World Bank's funding will be available for costs such as works, purchase of goods and services, where required.

9. Institutional Arrangement

9.1. Institutional arrangements for environmental and social management

Institutional arrangements are intended to achieve certain level of quality in the project during implementation of various project components.

General Manager, Madhya Pradesh Road Development Corporation (MPRDC) will have the overall responsibility of the project, who will be assisted by Divisional Manager, Dhar.

Divisional Manager, Dhar will coordinate with all the stakeholder levels as per the requirement.

The Environment Management Plan has been prepared for the construction and operation phases of the project. The Environmental issues or aspects, measures for mitigation of impacts and responsibilities during execution and supervision have been allocated in the EMP.

9.2. Grievance Redressal Mechanism

A Grievance Redressal Mechanism (GRM) has been established to help record, assess, and resolve grievances and complaints during the implementation of the proposed project.

The GRM prepared for the proposed project is based on key principles that protect the rights and interest of affected stakeholders, ensure that their concerns are addressed in a prompt and timely manner, and that entitlements are provided in accordance with ESS policies. The safeguards unit of MPRDC will ensure that communities directly affected by the Project have a full understanding of the GRM and ways to access it especially on: (i) the concept of compensation for any involuntary acquisition of land and/or assets; and (ii) ensuring environmental and social mitigation measures in this ESMP's are implemented as planned.

Already during the community consultation phase the GRC have been constituted and the community was made aware of the process of addressing the grievances. The GRM procedures to be followed have been translated and it will be prepared in local language as needed so that they are easily accessible to all stakeholders and made available by the MPRDC. Information on the steps to be followed in handling grievances has been incorporated into the consultation process with local community.

- Grievances registered related to delivery of project benefits that are addressed.
- Grievances responded and/or resolved within the stipulated service standards.
- Project-supported organization(s) publishing periodic reports on GRM and how issues were resolved (including resolution rates);

Annexures

Core Road Network Details – Gram Panchayat

Core Road Network – Bakaner Gram Panchayat

Format 1: Details of Core network along with Map (After approval of core network)


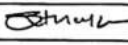
State: Madhya Pradesh

District: Dhar

Block Name	Name of Road	Estimated Length (Kms)	Beneficiary Villages	Population		
				Total	SC	ST
Umarban (Manasar) (Gram Panchayat - Bakaner)	SH-38 Towlai Bujurg to Tonki Phata	18 km.	Bakaner	7188	790	2210

The Map for the block should clearly communicate:
Administrative boundaries (District/Block/Tehsil/Village)
Name of Connected habitations

Responsible Agency/person:

Details	Road Authority(MPRDC)	Gram Panchayat
Name	Mr. shyam Gupta	SHANKAR THAKUR
Designation	Divisional Manager	VILLAGE PANCHAYAT HEAD
Contact Number	94250 91 704	6263340335
Signature/Stamp	 Divisional Manager MPRDC Dhar	 SHANKAR THAKUR ग्राम पंचायत अध्यक्ष जनपद पंचायत उमरवंद

Core Road Network – Tawlai Gram Panchayat

Format: Details of Core network along with Map (After approval of core network)


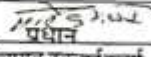
State: Madhya Pradesh

District: Dhar

Block Name	Name of Road	Estimated Length (Kms)	Beneficiary Villages	Population		
				Total	SC	ST
Umarban (Matawar) (Gram Panchayat to Tonki Photo Tawlai)	SH-38 Tawlai Bypass	12 km.	REHMANPURA	208	26	174
			TAWLAI Bypass	504	08	496

The Map for the block should clearly communicate:
 Administrative boundaries (District/Block/Tehsil/Village)
 Name of Connected habitations

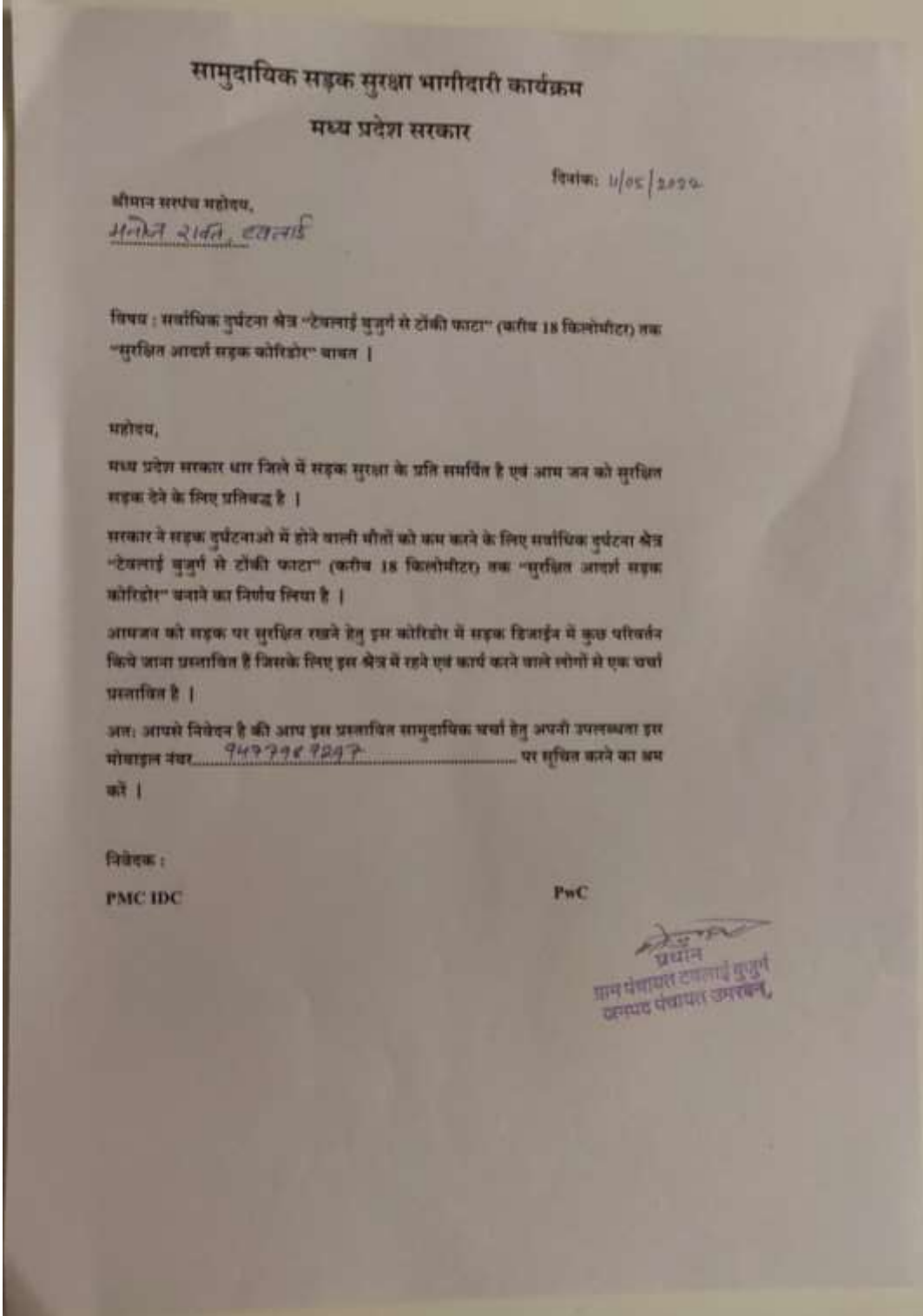
Responsible Agency/person:

Details	Road Authority (MPRDC)	Gram Panchayat
Name	Mr. Shyam Gupta	MANGAL SAWAR
Designation	Divisional Manager	VILLAGE PANCHAYAT HEAD
Contact Number	9425091704	9172290154
Signature/Stamp		

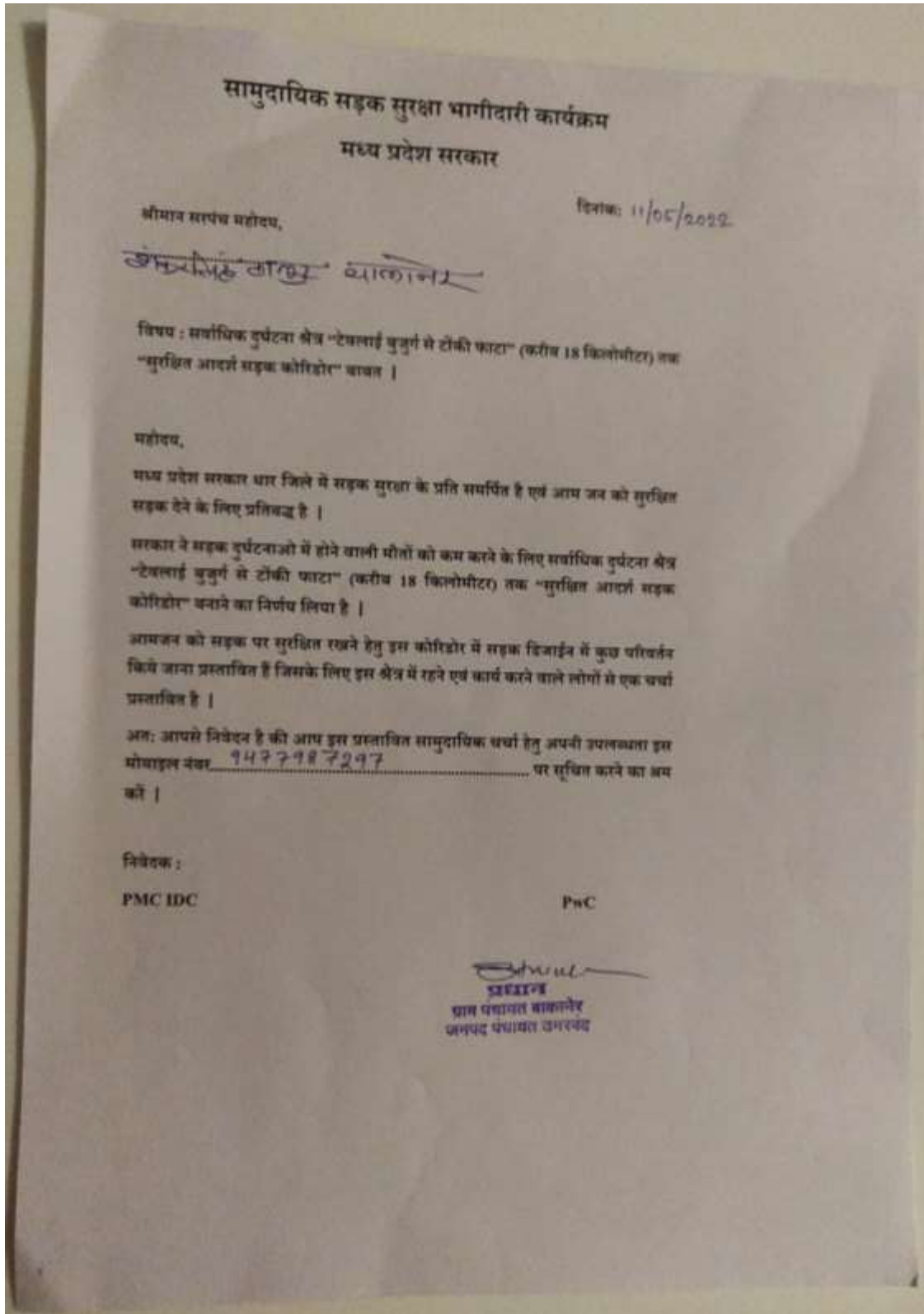
Divisional Manager
MPRDC Dhar

ग्राम पंचायत टपलाई बुजुर्ग
जनपद पंचायत उमरबन

Request for Consultation at Habitation Areas
Request for Consultation at Tawlai Gram Panchayat



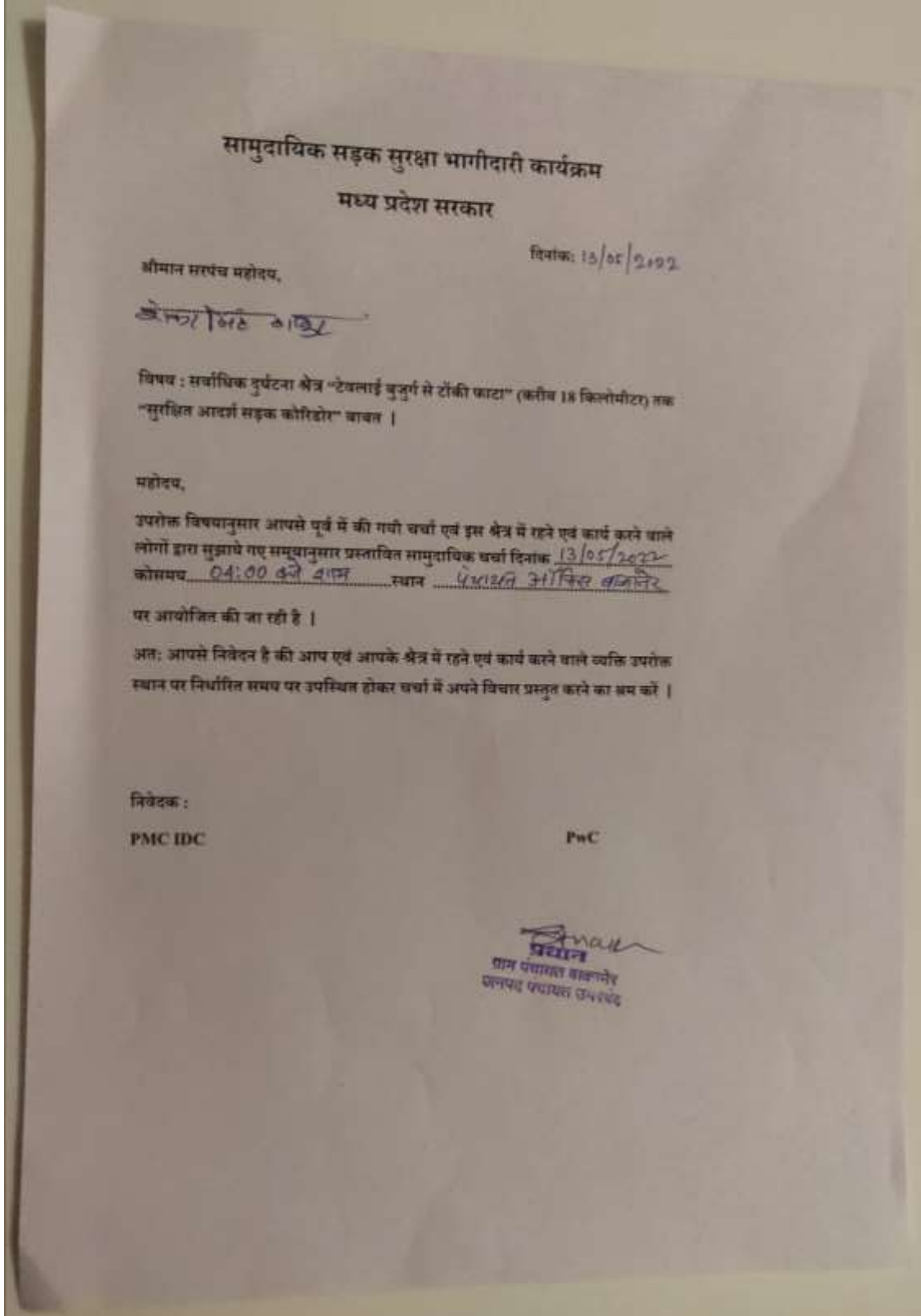
Request for Consultation at Bakaner Gram Panchayat



Intimation of Focus Group Consultation Timing
Tawlai Gram Panchayat



Bakaner Gram Panchayat



Environmental Impact checklist

Community Participatory Environmental Impact Checklist (EIC)		Road	Safety	Programme	(CPRSP)
SN	Features			Responses	
A	District- Dhar	Date- 13/05/22 – 14/05/22			
B	Block- Manawar	Population - 14286			
C	Name of the stretch	Tonki Phata to Tawlai Bujurg			
D	Location Chainage/Milestone	-			
E	Length (km)	20 km			
F	Features (please <input type="checkbox"/> mark)	Market	Built-up area	Semiurban √	
G	Terrain (please <input type="checkbox"/> mark)	Plain	Rolling	Hilly	
		Plain	-	-	
H	Climatic condition	Min	Max		
	Rainfall	833.6mm			
	Temperature	16	45		
	Water Body	Chainages (m)	Dry	Perennial	Seasonal
1	Lake/Swamp/ River	-			Yes
2	Pond	-			
3	Nala Crossing /Drainage	24+700- 25+000			
4	Built-up area with chainage	40+900- 41+ 200 both side	Tonki Phata		
		38+000 -39+900 on both side	Hanumantya		
		35+000- 37+050 on both side	Ajandiman		
		30+700- 33+750 on both side	Bankaner		
		27+150- 28+050 on both side	Thangaon		
		24+700- 25+000 on both side	Jhirvi		
5	Market area Chainage	21+510- 21+950 on both side	Tawlai Bujurg		
		30+700- 33+750 on both side	Bankaner Market		
6	Agriculture Field Chainage	21+510- 21+950 on right side and on both side	Tawlai Bujurg Market		
7	Garden along the road Chainage	-			
8	Fellow land location chainages	Nil			
9	Total no. of Existing CD structures chainages and Condition	33	Good – 33	Poor – 0	
10	CD structure Type (FCW, VCW, FD, HPC etc)	24 – HPC	Good		
11	Chainages of stormwater crossings				
12	Waterlogged area Chainages				
13	Utilities				
13.1	Total Number of Over the ground utilities				
13.2	Eps	LHS- 145 & RHS- 218 and affected 15 EPs			
13.3	HPs	03 - RHS			
13.4	Transformer	20			
13.5	Tap water	0			
13.6	Borewell	0			
13.7	Telephone line	2			
13.8	Drainage line	0			
14	Number of Underground Utilities				
14.1	Water duct	0			
14.2	PHE pipeline	2			
14.3	Electric line (if any)	Both Side along the road			
14.4	OFC cable	1			
14.5	LPG gas pipeline	0			
15	Total No of trees on both sides from centerline to 7 m	Left	Right		

15.1	Total No of trees	97	115
15.2	No. of tree loss affected (A)/to be saved by safety provision (B)	A- 0	B- 11
16	Number of Community structures		
16.1	Temple and another religious place	10	
16.2	Govt. Toilets (Sulabh Sauchalay)	0	
16.3	Govt. Buildings (Panchyat, Anganwadi, PHC etc)		
17	Encroachment		
17.1	Temporary/Permanent	Temporary	
17.2	No. of Footpath shops left and right	17	
17.3	Taxi stand/ Bus Stop available	8	
17.4	Unauthorized parking	2	
17.5	Shop/House enhancement (Shades, platform)	45	
18	Kaccha footpath length and left/right	1 -1.5 m both side	
19	Location of public/people crossings road chainages		
20	The average speed of the traffic on this stretch and PCU value	Average speed - 48 kmph; ADT – 7642 PCUs	
21	Junction location chainages		
22	Each location photographs (Yes/No)	Yes	
23	Community consultation (Yes/No)	Yes	
24	Minutes of community consultation (Yes/No)	Yes	
25	What Community suggested- Note down	Community has agreed with the project and added the road safety like breaker, signages and light at night along the road. They voluntary remove the encroachment drive. The drainage should be clear and free flow near marketplace and habitation area.	
26	Remarks (any accidents/special attention/social environmental disputes etc.)	Black Spot Chainage - 21+510- 21+950 & 40+900- 41+ 200	

Banner Used During the Consultation

मध्य प्रदेश ग्रामीण संपर्कता कार्यक्रम

सामुदायिक भागीदारी सड़क सुरक्षा कार्यक्रम (CPRSP)

सामुदायिक चर्चा

आपके सुझाव से आपकी सड़क को और बेहतर, सुंदर एवं सुरक्षित किया जा सकता है। इस अग्रिम प्रयास में आपका साथ एवं आपके विचार अति महत्वपूर्ण हैं।

आप सभी चर्चा में सादर आमंत्रित है।

PMC-IDC

PWc

Attendance Sheet

ट्रांसेक्ट वॉक/सामुदायिक चर्चा के दौरान प्रतिभागियों की सूची

एम पी आर सी पी ग्रामीण सड़क परियोजना के अंतर्गत प्रस्तावित सड़क का नाम डोंग काटा नु
 दिनांक 14/02/22 को ग्राम डोंग काटा से ग्राम डोंग काटा तक ट्रांसेक्ट वॉक किया गया। इस दौरान समुदाय को सड़क सुरक्षा से संबंधित नियमों के बारे में अवगत कराया गया। जनसमुदाय में सड़क सुरक्षा संबंधित पोस्टरों को भी वितरित किया गया एवं पंचायत व अन्य भवनों पर चस्पा किया गया। इस ट्रांसेक्ट वॉक के दौरान उपस्थित प्रतिभागियों का विवरण निम्नानुसार है -

क्र.	प्रतिभागियों के नाम	महिला/पुरुष	समुदायिक वर्ग	हस्ताक्षर
1	शोलेन्द्र पतिहार	पुरु	0000	शोलेन्द्र
2	प्रकाश	पुरु	---	प्रकाश
3	संजय पंत	पुरु	0000	संजय
4	लोकेश कुमार	पुरु	---	लोकेश
5	किशोरी देवी विजयवर्मा	महिला	0000	किशोरी देवी
6	मुरी कौर	महिला	00	मुरी कौर
7	स्वामी कौर	महिला	---	स्वामी कौर
8	माधव कौर	महिला	---	माधव कौर
9	सुनीता कौर	महिला	---	सुनीता कौर
10	मालती कौर	महिला	---	मालती कौर
11	सुचिता कौर	महिला	---	सुचिता कौर
12	विपिन कौर	महिला	---	विपिन कौर
13	उर्मिला कौर	महिला	---	उर्मिला कौर
14	मालती कौर	महिला	---	मालती कौर
15	संतोषी कौर	महिला	---	संतोषी कौर

क्र.	प्रतिभागियों के नाम	लिंग	व्यक्तिगत क्रम	प्रकार
16	मिना कौर	महिला	57	
17	अनुराधा	महिला	58	श्री
18	शंकर प्रसाद	पुरुष	59	
19	महेन्द्र	पुरुष	60	
20	कन्हैया	महिला	61	श्री
21	अनुराधा	महिला	62	श्री
22	सुभा	महिला	63	
23	अनुराधा	महिला	64	श्री
24	महेश प्रसाद	पुरुष	65	श्री
25	मोहर लाल (ER/अनुराधा)	पुरुष	66	श्री
26				
27				
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