



# Environment and Social Due Diligence for Narketpally-Addanki-Medarmetla (NAM) Toll Road

Cube Highways and Infrastructure Pte Ltd.

Final Report

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Cube Highways and Infrastructure Pte Ltd.

**Environment and Social Due  
Diligence for Narketpally-  
Addanki-Medarmetla  
(NAM) Toll Road**

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## ACRONYMS

APRDC	Andhra Pradesh Road Development Corporation
APSPCB	Andhra Pradesh State Pollution Control Board
BPL	Below Poverty Line
CA	Concessionaire Agreement
CH	Cube Highways
COD	Commercial Operation Date
CPCB	Central Pollution Control Board
CTE	Consent to Establish
CTO	Consent to Operate
CUP	Cattle Under Pass
DBFOT	Design Built Finance Operate and Transfer
DFO	Divisional Forest Office
DPR	Detailed Project Report
E&S	Environment and Social
E&S CAP	Environment and Social Corrective Action Plan
EC	Environment Clearance
EHS	Environment Health and Safety
EPC	Engineering and Procurement Consultant
ESAP	Environment and Social Action Plan
ESDD	Environmental and Social Due Diligence
ESIA	Environment and Social Impact Assessment
ESMP	Environment and Social Management Plan
FRCT LARR	Right to Fair Compensation and Transparency in Land Acquisition Resettlement and Rehabilitation
GHG	Green House Gas
GO	Government Order (Administrative)
GoAP	Government of Andhra Pradesh
GPS	Global Positioning System
HH	Household
HR	Human Resources
HTMS	Highway Traffic Management System
IBRD	International Bank for Re-construction and Development
IFC	International Finance Corporation
ITNL	IL&FS Transportation Network Limited
LA	Land Acquisition
LEP	Livelihood Enhancement Plan
LHS	Left Hand Side
MCW	Main Carriage Way
MoEFCC	Ministry of Environment Forests and Climate Change
MoU	Memorandum of Understanding
NAM	Narketpally-Addanki-Medarmetla
NAMEL	NAM Expressway Limited
NGO	Non-Government Organization
NOC	No Objection Certificate
O&M	Operation and Maintenance
OH&S	Occupational Health and Safety

PAF	Project Affected Family
PAP	Project Affected Persons
PDPs	Project Displaced Persons
PIL	Public Interest Litigation
PO	Project Office
PPP	Public Private Partnership
PS	Performance Standard
PUP	People Under Pass
PWD	Public Works Department
R&R	Resettlement and Rehabilitation
RAP	Resettlement Action Plan
RDO	Revenue Division Office
RHS	Right Hand Side
RIL	Ramky Infrastructure Ltd
ROB	Railway Over Bridge
RoW	Right of Way
RTO	Road and Transport Office
SDO	Sub-Division Office
SEIAA	State Environment Impact Assessment Authority
SH	State Highway
SIA	Social Impact Assessment
SPCB	State Pollution Control Board
SPV	Special Purpose Vehicle
SSR	Standard Schedule of Rates
ST	Scheduled Tribe
TRIPS	Team of Research Investigators & Processing Services
TSPCB	Telangana State Pollution Control Board

## 1.1

## BACKGROUND

Cube Highways and Infrastructure Pte. Ltd. (hereinafter referred to as “Cube Highways”), a portfolio company of I-Squared Capital and the International Finance Corporation (IFC) is presently evaluating an investment opportunity for 212.500 km long Narketpally - Addanki - Medarmetla (NAM) Road (State Highway-2) (hereinafter referred to as “Project Road”). The road starts at Narketpally in Nalgonda District in the state of Telangana and ends at Medarmetla in Prakasam District in the state of Andhra Pradesh. ERM India has been commissioned by Cube Highways to undertake an Environmental and Social Due Diligence (ESDD) of the NAM Toll Road.

Ramky Infrastructure Ltd (hereinafter referred to as “RIL”) and IL&FS Transportation Network Limited (hereinafter referred to as “ITNL”), had formed a joint venture of 50:50 partnership known as RIL-ITNL (to participate in the competitive bidding process for “Design, Construction, Finance, Operation, and Maintenance of Narketpally-Addanki-Medarmetla Toll Road (SH-2) under Public Private Partnership (PPP) on Design, Built, Finance, Operate and Transfer (DBFOT) Basis”. After being declared successful bidder, a Special Purpose Vehicle (SPV) namely NAM Expressway Limited (hereinafter referred to as NAMEL”) was formed to undertake the project. Andhra Pradesh Road Development Corporation (hereinafter referred to as “APRDC”<sup>1</sup>) is the owner of the NAM Toll Road and NAMEL is the concessioner. Cube Highways is presently evaluating the opportunity to acquire significant stake in NAMEL.

A Provisional Commercial Operation Date PCOD for 190.38 km of the road was obtained on 06<sup>th</sup> March, 2014 and PCOD for another 6 km was obtained in September 2016. Thus, the project road has obtained PCOD for ~196 km out of 212.5 km. The completion of the remaining portion of the road is pending mostly as APRDC has not been able to complete the land acquisition and provided NAMEL land access to carry out the construction work. Nonetheless, NAM Toll Road is considered as an operational road since Mar 2014 (more than 2 years).

Based on ERM’s site assessment and review of documents, the NAM Toll Road is thus categorized as Category 3: just operational (<one year) or where there is any pending land acquisition under IFC Screening Category. (Refer, Section 1.3 for the detailed rationale for the categorization).

<sup>1</sup> APRDC has been bifurcated and a new agency Telangana Road Development Company (TRDC) has been formed after formation of the new state of Telangana..

## 1.2

### *OBJECTIVES OF THE STUDY*

The overall objective of the present assignment is to review the project against the applicable reference framework, identify gaps and provide recommendations in the form of an Action Plan to close these gaps and meet the requirements of the applicable framework. The specific objectives this assignment includes:

- Categorizing the Project as Category 1,2 or 3 as defined in the screening/ESDD criteria defined in the Terms of Reference and to determine the screening requirements applicable to the Project;
- Undertaking the ESDD in line with the applicable requirements detailed in screening /ESDD criteria, which includes, where applicable, reviewing the adequacy of:
  - The Environmental and Social Impact (ESIA) process and report including the Environmental and Social Management Program(ESMP) and the Social Impact Assessment (SIA) and Resettlement Action Plan (RAP), if applicable;
  - The Environmental and Social management systems of the Project/ SPV to manage E&S risks and impacts on an ongoing basis in accordance with the provisions of the reference framework. A part of this review will include assessing the adequacy of the capacity and management structures in place to manage environmental and social risks and impacts through the life of the concession;
- Based on the assessment, providing a detailed evaluation on compliance with the reference framework; and
- Developing a detailed and time bound Environmental and Social Action Plan (ESAP) with clear delineation of tasks, implementation schedule, allocating responsibilities as well as defining parameters and outcome indicators to judge compliance to IFC Performance Standards requirements.

## 1.3

### *APPLICABLE STANDARDS*

The assessment of all material environmental, health & safety and social aspects were carried out with reference to the standards below:

- Revised IFC Performance Standards (2012) as interpreted and applied through screening criteria as follows:
  - a. Category 1: Operating roads (2 or more years);
  - b. Category 2: Operating roads (1 or more years but less than 2 years); and
  - c. Category 3: Just operational (less than 1 year) or where there is any pending Land Acquisition (LA)
- World Bank Group/IFC EHS Guidelines interpreted and applied through requirements under the applicable screening criteria in the categorization for each road, Specifically, the following World Bank Group EHS Guidelines, published on April 30, 2007:

- a. IFC EHS General Guidelines;
- b. IFC EHS Guideline for Toll Roads;
- Applicable local and national environmental and social legislation.

## 1.4 *APPROACH AND METHODOLOGY*

The approach for this project was designed to specifically respond to the complex nature of the project and to the fact that this was the first project undertaken by Cube Highways that was being categorised as Category 3, with both legacy as well as ongoing environmental and resettlement issues. As a number of elements and aspects of the project was unknown at the start of this ESDD, the approach and methodology adopted were flexible, and revised at key junctures, in response to new information emerging from the desk review as well as an early reconnaissance trip. This has been briefly described in the subsequent sections.

### 1.4.1 *Project Inception*

An inception teleconference with Cube Highways and IFC was undertaken in order to obtain an overview of the project status, present ERM's scope of work and align the approach, information requirements and timelines. A two-step approach was agreed, wherein an early reconnaissance trip would be used to scope the issues and the ESDD methodology, followed by the detailed assessment.

### 1.4.2 *Documentation Review*

ERM commenced the assessment with a desk-based review of documentation ahead of the detailed site assessment. Simultaneously, ERM undertook review of available public information on the Narketpally - Addanki - Medarmetla section of SH-2. More documents and information was collected during the field visit and corporate level meeting with Ramky. *Annexure A* provides the list of documents that were made available.

### 1.4.3 *Site Assessment*

ERM's team of Environmental and Social experts undertook the initial site assessment of the project corridor from Narkatpalli to Medarmatla stretch of SH-20 from 6<sup>th</sup> to 9<sup>th</sup> Sep 2016. The key aspects of the site assessment included:

- Site Assessment of the entire project corridor from Narkatpalli to Medarmatla, Toll Plaza office and discussions with the SPV( NAMEL) at site;
- Environmental & social sensitivity mapping along the entire project corridor conducted by a drive-through along the entire project road stretch and mapping of features on both left hand side and right hand side of the corridor;
- Site assessment of the truck lay by areas situated along the project corridor;

- Broad level discussions with the government officials of APRDC at their Project Director's Office at Guntur and NAMEL's Management Team; and
- Stakeholder consultations at the chainages located that fall where land acquisitions was pending and where there were pending punch list items along the Project corridor as well as consultations with the maintenance workers.

Subsequent to the initial site assessment detailed site assessment along with ROW survey and stakeholder consultations was carried out from 21<sup>st</sup> to 28<sup>th</sup> October 2016

The table 1.1 below illustrates the key site assessment activities and details of stakeholder consultations undertaken:

**Table 1.1 Site Visit Schedule and Activities**

Date	Location	Activities
7 <sup>th</sup> Sep 2016	Andhra Pradesh and Telangana	<ul style="list-style-type: none"> <li>• Site visit from Narkatpalli to Medarmatla stretch of SH-20 along with the E&amp;S team of Cube Highways and representative from site land team from NAMEL.</li> <li>• Consultations along the ROW with the potential encroachments falling within the ROW;</li> <li>• Environmental and social screening of the sensitive receptors, undertake consultations with the median workers and the maintenance contractor and discussions with the Toll collectors; and</li> <li>• Discussion at with project team at camp office</li> </ul>
8 <sup>th</sup> Sept 2016	APRC Guntur and site visit Andhra Pradesh and Telangana	<ul style="list-style-type: none"> <li>• Completion of the pending site assessment of the remaining stretch;</li> <li>• Discussion with project director APRDC</li> <li>• Verification and collection of the remaining documents on labor and environmental compliance ;</li> <li>• Discussions with the toll operators, security management, HR manager; and</li> <li>• Discussion with contractors and assessment of construction camp</li> </ul>
2 <sup>nd</sup> Site assessment		
21 Oct	NAMEL Corporate office Hyderabad	<ul style="list-style-type: none"> <li>• Discussions at Ramky's corporate office to understand the issues related to the management system; and</li> <li>• Verification and collection of pending E&amp;S documents;</li> </ul>
	NAMEL Camp office	<ul style="list-style-type: none"> <li>• Discussion with land team to understand the issues related to land acquisition</li> <li>• Training of field investigator for conducting ROW survey; and</li> <li>• Field testing for the survey tools and refinement</li> </ul>
22 <sup>nd</sup> to 28 <sup>th</sup> Oct 2016	Andhra Pradesh and Telangana	<ul style="list-style-type: none"> <li>• ROW survey for understand potential issues related to land acquisition and construction of road</li> <li>• Data collection from site office</li> <li>• Day to day discussions with the project land team</li> <li>• Stakeholder consultations along the project road, covering locations where land acquisition was completed and locations where construction of road is pending due to pending land acquisition, court cases and other community related issues ( village wise details are given in stakeholder consultation chapter); and</li> <li>• Consultations with line departments such as PWD and</li> </ul>

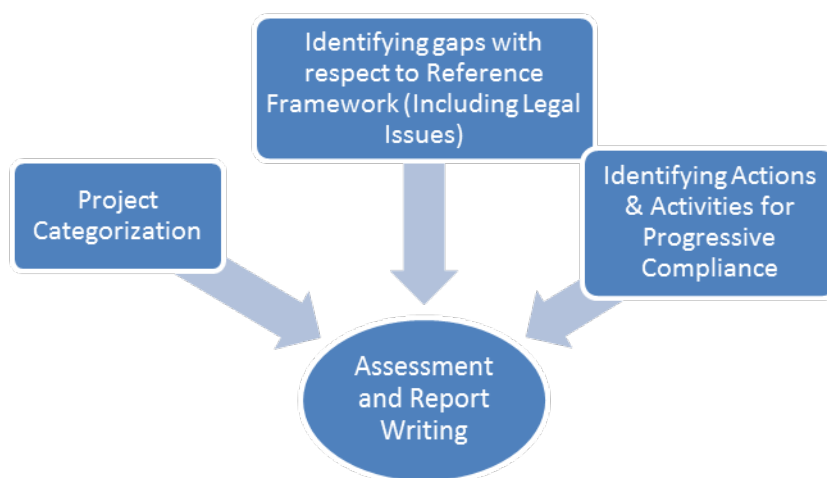
Date	Location	Activities
		revenue department Guntur to understand the process of valuation of potentially affected structures and process of determining compensation and its distribution.

A rapid enumeration of encroachments<sup>1</sup> of the NAM Toll Road was carried out by TRIPS (Team of Research Investigators & Processing Service) between 22<sup>nd</sup> Nov and 29<sup>th</sup> Nov 2016. ERM supervised this rapid encroachment enumeration through which basic information and attributes of the encroached structures were collected (Refer **Annexure-B** for the Schedule used for this Rapid Survey). This survey collected the GPS coordinate, photos, approximate measurements of the structure, nature of construction and its usage and become the basis was calculation of the number of structures and scale of resettlement necessary.

#### 1.4.4 *Assessment and Report Writing*

The assessment involved a three step approach (see Figure 1.1) screening project categorization, identifying gaps with respect to reference framework and finally identifying actions/activities for compliance. The gap assessment was done through an assessment protocol (See **Annexure-C**) based on standards as in reference framework (see **Section 1.3** above).

**Figure 1.1** *Assessment and report writing process*



The detailed assessment through this protocol helped in identifying gaps and considering risks (financial, reputational, operational, legal etc.) associated with them. The issues that represent significant risks (potential for regulatory action; reputational implication; higher financial risks, and potential to affect road operation and revenue) were identified as key issues (see Section-4). The action plan recommended takes into account what is under NAMEL’s control

<sup>1</sup> The rapid enumeration was intended to capture the basic details such as type of structure, its current use, approximate area of encroachment that are necessary to estimate the extent and cost of mitigation measures that complies to the IFC PS-5 requirements. Unlike the detailed survey, the rapid survey does not create expectations and avoids activating opportunistic encroachers.

as a concessionaire and what it can achieve through its sphere of influence with APRDC who is the owner of the road. The ESAP is structured to include: (a) summary of recommendations; (b) resources and responsibilities; (c) timeline for completion and (d) indicator of completion of the task.

## 1.5 *LIMITATIONS*

This due diligence exercise has been undertaken based on the documents made available by ERM's field survey and data collection, NAMEL and Cube Highways, consultations with NAMEL and information available in public domain. Professional judgements expressed herein are based on documents and information provided. Wherever ERM has not been able to make a judgement or assess any process, it has highlighted that as an information gap and suggested a way forward.

The assessment of the land acquisition linked project impacts is based on the information made available by RIL land team. ERM could not access the full RAP Report prepared during the DPR preparation. Only a few pages of the RAP report were accessed at the last stage of the ESDD, and therefore it was not possible to reference the document accurately. Hence, pre-project socio-economic parameters and magnitude of the social impacts are based on interviews with randomly selected community members and information provided by institutional stakeholders.

Information on encroachments (structures and mobile vendors) was received from multiple sources. Information from these sources often varied and date of the document was not available. The sequence of these databases was constructed based on their context and opinions of people who have worked in NAM toll road construction phase. The information used in this report thus was triangulated with other sources to test their reliability

### 1.5.1 *Uses of the Report*

ERM is not engaged in consulting or reporting for the purpose of advertising, sales promotion, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes. Client acknowledges this report has been prepared for their and their clients' exclusive use and agrees that ERM reports or correspondence will not be used or reproduced in full or in part for such purposes, and may not be used or relied upon in any prospectus or offering circular. Client also agrees that none of its advertising, sales promotion, or other publicity matter containing information obtained from this assessment and report will mention or imply the name of ERM.

Nothing contained in this report shall be construed as a warranty or affirmation by ERM that the site and property described in the report are suitable collateral for any loan or that acquisition of such property by any

lender through foreclosure proceedings or otherwise will not expose the lender to potential environmental or social liability.

## 1.6 *LAYOUT OF THE REPORT*

<i>Section 1(this section):</i>	Introduction: Background, Scope of the Independent Review & Approach and Methodology for the study;
<i>Section 2:</i>	Reference Framework & Applicable Regulatory Compliance;
<i>Section 3:</i>	Project Description;
<i>Section 4:</i>	Key Environmental and Social Observations;
<i>Section 5:</i>	Environmental and Social Action Plan (ESAP);
<i>Section 6:</i>	Budget Estimates for Key Recommendations;
<i>Section-7:</i>	RAP-LEP Implementation Framework

### ***Annexures***

<i>Annexure-A:</i>	<i>Documents Reviewed by ERM for this ESDD.</i>
<i>Annexure-B:</i>	<i>Encroachment Survey Schedule</i>
<i>Annexure-C:</i>	<i>Screening and Assessment Protocol</i>
<i>Annexure-D:</i>	<i>Photo-documentation of EHS issues during site visit</i>
<i>Annexure-E:</i>	<i>Rapid Encroachment Enumeration Database</i>
<i>Annexure-F:</i>	<i>Market Value of Land Assessed by Knight Frank</i>
<i>Annexure-G:</i>	<i>Indicative Cost of Livelihood Restoration Activities</i>

This section summarises applicable standards with respect to which this ESDD is undertaken. The reference framework of international standards includes the following:

- IFC Performance standards 2012 as interpreted and applied through screening criteria for road as follows:
  - Category 1: Operating roads (2 or more years);
  - Category 2: Operating roads (1 or more years but less than 2 years); and
  - Category 3: Just operational (less than 1 year) or where there is any pending Land Acquisition (LA)
- World Bank Group/IFC EHS Guidelines, Specifically:
  - IFC EHS General Guidelines ;
  - IFC EHS Guideline for Toll Roads; and
- Applicable local, national environmental and social legislation.

### 2.1 IFC PERFORMANCE STANDARDS

Following IFC Performance Standards (2012) were found to be applicable to the project:

**Table 2.1** *Applicability of IFC Performance Standards, PS 1 to PS 8*

SN.	IFC Performance Standards	Applicability to the Project
1.	PS 1: Assessment and Management of Environmental and Social Risks and Impacts	Applicable  This PS aims to assesses the existing social and environmental management systems of NAMEL and to identify the gaps with respect to their functioning, existence and implementation of an environmental and social management plan (ESMP), a defined EHS Policy, organization chart with defined roles and responsibilities, risk identification and management procedures as well as processes like stakeholder engagement and grievance management..
2.	PS 2: Labour and Working Conditions	Applicable  This PS is guided by a number of international conventions and instruments on labour and workers' rights. It recognises that the pursuit of economic growth through employment creation and income generation should be accompanied by protection of fundamental rights of workers. The PS covers following themes: human resource policy and management, workers' organization, non-discrimination and equal opportunity, retrenchment, protecting the workforce and occupational health and safety. This PS helps to assess the status of the employees and workers in NAMEL as well as any contractors.

SN.	IFC Performance Standards	Applicability to the Project
3.	PS 3: Resource Efficiency and Pollution Prevention	<p>Applicable</p> <p>PS-3 covers the use resources and materials as inputs and wastes that could affect human health. The objective of PS-3 are: to avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities; to promote more sustainable use of resources, including energy and water, and to reduce project related GHG emissions. Key themes covered under PS-3 are: pollution prevention, resource conservation and energy efficiency, wastes, hazardous materials, emergency preparedness and response, greenhouse emissions, pesticide use and management. This PS will assess how NAMEL intends to minimize pollution related impacts, what management plans and systems are in place, and what measures it plans to take to conserve and use resources more efficiently.</p>
4.	PS 4: Community Health, Safety and Security	<p>Applicable</p> <p>This PS-4 requires due diligence to anticipate and avoid adverse impacts on the health and safety of the affected community during the project life from both routine and non-routine circumstances. It also requires to ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the affected Communities. Key areas of compliance screened under PS-4 includes: infrastructure/equipment safety, hazardous material safety, natural resource issues, exposure to disease, emergency preparedness and response, and security personnel requirements. The project would affect the health and safety of the communities adjacent to it during both the construction and operations phases. In addition the safety of the road uses would also be a concern which needs to be looked into.</p>
5.	IFC PS 5: Land Acquisition and Involuntary Resettlement	<p>Applicable (Private sector responsibilities under government managed resettlement)</p> <p>PS-5 requires project proponents to anticipate and avoid, or where avoidance is not possible, minimize adverse social and economic impacts from land acquisition or restrictions on land use. The key themes covered under this are: compensation and benefits for displaced persons, consultation and grievance mechanism, resettlement planning and implementation, physical displacement, economic displacement. The PS-5 also prescribes private sector responsibility to supplement government actions and bridge the gap between governments assigned entitlements and procedures and the requirements of PS-5.</p> <p>The development of NAM Toll Road involved acquisition of 177.54 acres of additional private land. The responsibility of the land acquisition was with APRDC. Hence, the NAMEL's responsibility is to bridge the gap between compensation paid (or to be paid) and rehabilitation benefits provided by APRDC and the requirements of IFC PS-5.</p>
6.	IFC PS 6: Biodiversity Conservation and Sustainable	<p>Applicable.</p> <p>The requirements of this Performance Standard are applied to projects (i) located in modified, natural, and critical habitats; (ii)</p>

SN.	IFC Performance Standards	Applicability to the Project
	Management of Living Natural Resources	<p>that potentially impact on or are dependent on ecosystem services over which the client has direct management control or significant influence; or (iii) that include the production of living natural resources (e.g., agriculture, animal husbandry, fisheries, forestry). PS-6 screens relevant threats to biodiversity and ecosystem services, especially focusing on habitat loss, degradation and fragmentation, invasive alien species, overexploitation, hydrological changes, nutrient loading, and pollution. The key themes covered under PS-6 are: natural habitat, critical habitat, legally protected areas, international introduction of alien species, and living natural resources (natural and plantation forest, aquatic resources etc.) are sustainably managed.</p> <p>The project road is not crossing any ecological sensitive areas like reserve forest, national park, wild life sanctuary, tiger reserve, biosphere reserves, lakes and wet lands. However, there is Elcheru lake adjacent to the highway at Km 171. It is a large lake and reported to be modified habitat of local birds (kingfishers, cormorants, egrets, herons, etc.). Construction of the road also required felling of 2355 trees from Km 0.000 to Km 88.000 in Nalgonda district, 2282 trees from Km 88.000 to Km 165.000 in Guntur district and trees<sup>1</sup> from Km 165.000 to Km 213.000 in Prakasam district to clear the ROW of the road.</p>
7.	PS 7: Indigenous Peoples	<p>Not applicable</p> <p>This Performance Standard applies to communities or groups of Indigenous Peoples who maintain a collective attachment, i.e., whose identity as a group or community is linked, to distinct habitats or ancestral territories and the natural resources therein. PS-7 endeavour to ensure that the development process fosters full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods of Indigenous Peoples. Key themes covered under PS-7 are: avoidance of adverse impacts, consultation and informed participation, impacts on traditional or customary lands under use, relocation of IPs from traditional or customary lands, and cultural resources.</p> <p>NAM Toll Road does not pass through any Indigenous Peoples habitat or territories (Areas under Schedule-V of Indian Constitution in Indian context). As per details available with RIL no land from any Scheduled Tribe household was acquired for the project. Hence, PS-7 is not applicable to the project.</p>
8.	PS 8: Cultural Heritage	<p>Applicable</p> <p>For the purposes of PS-8, cultural heritage refers to (i) tangible forms of cultural heritage; (ii) unique natural features or tangible objects that embody cultural values; and (iii) certain instances of intangible forms of culture that are proposed to be used for commercial purposes. The requirements of PS-8 apply to cultural heritage regardless of whether or not it has been legally protected or previously disturbed.</p>

<sup>1</sup> The number of trees felled in this stretch was not available in the document verified.

SN.	IFC Performance Standards	Applicability to the Project
		The NAMEL construction required approximately 40 cultural structures including religious and non-religious structures to be removed. It was understood from discussion carried out with the land team that required consultations were carried with the concerned stakeholder including community before relocating cultural and religious structures from ROW. However required documents showing the consultation process was not available for review.

Source: IFC Website and ERM site assessment

## 2.2

### *WB/IFC EHS GUIDELINES*

The EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP), as defined in IFC's Performance Standard 2: Labour & working Conditions (Occupational Health and Safety), Performance Standard 3: Resource Efficiency and Pollution Prevention. Following EHS Guidelines were referred for this ESDD:

- General EHS Guidelines, 2007; and
- EHS Guidelines for Toll Roads, 2007.

## 2.3

### *APPLICABLE INDIAN EHS AND SOCIAL REGULATIONS*

Based on our understanding, the table below (*Table 2.2*) provides a list of applicable EHS regulations along with its applicability to the Project, status of the compliance, remarks and recommendations.

**Table 2.2**      *Applicable EHS and Social Regulations*

S N.	Applicable Policies and Regulations	Institution Responsible	Objective	Applicability	Status of Permits and Licenses	Remarks& Recommendations
1.	The Environment (Protection) Act, 1986	MoEF&CC	Umbrella legislation to protect and improve overall Environment	NAMEL need to obtain Consent to Establish (CTE) and Consent to Operate (CTO) for the project from State PCB for complying within permissible limits for ambient air such as PM 2.5, PM10, CO and noise parameters for Leq day and night from DG sets installed.	<ul style="list-style-type: none"> <li>• Consent to Establish vide order no. NLG-447/PCB/ZO/RCP/CFE/2011 issued by APPCB on 19.02.2011, for establishment of hot mix plant, batching plant and wet mix plant at Kondrapole village.</li> <li>• Consent to Establish vide order no. NLG-452/PCB/ZO/RCP/CFE/2011 issued by APPCB on 11.04.2011, for construction of road metal and stone sand plant at Kondrapole village.</li> <li>• Consent to Operate vide order no. APPCB/ZO/RCP/NLG/450/W&amp;A/2012-963 issued by APPCB on 06.06.2012 for operation of stone crusher at Kondrapole village, validity until 28.02.2013.</li> <li>• Consent to Operate vide order no. APPCB/ZO/RCP/NLG/447/W&amp;A/2014-1003 issued by APPCB on 30.05.2014 for operation of hot mix plant, batching plant and wet mix plant at Kondrapole village, validity until 30.09.2015.</li> <li>• Consent to Operate vide order no. P-89/PCB/ZO-VJA/CFO/W&amp;A/2014-271 issued by APPCB on 13.05.2013 for manufacturing of various sizes of stone chips &amp; stone dust, hot mix aggregate, wet mix aggregate and batching aggregate at Gudipadu village, validity until 31.12.2013.</li> </ul>	<ul style="list-style-type: none"> <li>• RIL has requested TSPCB to renew CTO for operation of hot mix plant, batching plant and wet mix plant at Kondrapole village, dated 13.10.2015, where earlier CTO was expired on 30.09.2015. Reportedly, RIL is yet to get CTO for operation of this facility. RIL should immediately obtain CTO from the TSPCB for this facility.</li> <li>• RIL has requested TSPCB to renew CTO for operation of stone crusher at Kondrapole village, for a period from 28.02.2013 to 28.09.2016 and further requested on 13.02.2016 to extend the validity period of the CTO for one year i.e., 28.02.2017. As reported by RIL, CTO was renewed by TSPCB from 28.02.2013 to 28.09.2016. However, RIL is yet to get renewed CTO from 28.09.2016 to 28.02.2017 for operation of the facility.</li> <li>• 21 DG sets with capacity varying from 30 KVA to 600 KVA are being used for the project. However, permission for operation of these DG sets has not been obtained from the PCB. RIL should immediately obtain CTO from the state PCB for operation of these DG sets.</li> </ul>

S N.	Applicable Policies and Regulations	Institution Responsible	Objective	Applicability	Status of Permits and Licenses	Remarks & Recommendations
2.	The Andhra Pradesh Water, Land and Trees Rules 2004 and The Telangana Water, Land and Trees Rules 2004	State Forest Department	Protection and conservation of Forests	APRDC to obtain permission for felling for trees to clear the Right of Way (ROW)	<ul style="list-style-type: none"> <li>• Permission obtained from the forest department for felling of 2355 trees on either side of the road from Km 0.000 to Km 88.000 vide letter no 3171/2008/S7(i) &amp; (ii) dated 06/12/2010.</li> <li>• Permission obtained from the forest department for felling of 2282 trees on either side of the road from Km 88.000 to Km 165.000 vide letter no. 2355/10/S4 dated 15/11/2010.</li> <li>• Permission obtained from the forest department for felling of trees on either side of the road from Km 165.000 to Km 213.000 vide letter no. 2452/2010/S4 dated 08/11/2010.</li> <li>• Transport, Roads &amp; Buildings Department, Government of Andhra Pradesh gave permission for Tree Cutting along the ROW as preconstruction activity from Kms 0.000 to Kms 88.000 and from Kms 88.000 to Kms 213.000 on 30/12/2010 and 23/12/2010 respectively.</li> </ul>	
		Andhra Pradesh State Water, Land and Trees Authority	Protection of ground water resource	Any person or institution desiring to dig a new well of any kind in their premises would require permission from Andhra Pradesh State Water, Land and Trees Authority and Telangana Water, Land and Trees Authority.	<ul style="list-style-type: none"> <li>• Five bore-wells have been constructed at the construction camp at Km 75 near Kondrapole village. However, permission for these bore wells has not been obtained from the authority.</li> </ul>	<ul style="list-style-type: none"> <li>• Permission need to be obtained from the authority for the bore-well.</li> </ul>
3.	The Water (Prevention and Control of Pollution) Act, 1974	CPCB, APPCB/TSPC B	Prevention and control of water pollution as well as restoration of water quality	Consent to Establish/Operate to be obtained from State PCB for DG sets;	<ul style="list-style-type: none"> <li>• Refer Sl. No. 1 of this table</li> </ul>	<ul style="list-style-type: none"> <li>• Refer Se. No. 1 of this table</li> </ul>

S N.	Applicable Policies and Regulations	Institution Responsible	Objective	Applicability	Status of Permits and Licenses	Remarks & Recommendations
4.	Noise Pollution (Regulation and Control) Rules, 2000	CPCB, APPCB/TSPC B	Noise pollution regulation and control	As per the Act, ambient noise levels are to be maintained as stipulated in the rules for different categories of areas such as residential, commercial, industrial and silence zones. Considering the context of the project, NAMEL as per the conditions laid down in the CTE by State PCB will need to abide by the limits prescribed for residential zones.	<ul style="list-style-type: none"> <li>As per the Noise Rules, 2000 noise levels of 55 dBA and 45 dBA during daytime and night time respectively for residential area and 50 dBA and 40 dBA during daytime and night time respectively for silence zone (1) would be adhered to.</li> </ul>	<ul style="list-style-type: none"> <li>Consent to Operate DG sets should be obtained from State PCB</li> </ul>
5.	The Air (Prevention and Control of Pollution) Act, 1981	CPCB, APPCB/TSPC B	To prevent, control and reduce air pollution including noise pollution	Consent to Establish/Operate to be obtained from APPCB/TSPCB for DG sets;	<ul style="list-style-type: none"> <li>Refer Sl. No. 1 of this table</li> </ul>	<ul style="list-style-type: none"> <li>Refer Sl. No. 1 of this table</li> </ul>
6.	Environmental Impact Assessment Notification, 2006	MoEFCC	Impact Assessment	Environmental Clearance (EC) to be obtained from Expert Appraisal Committee under the Notification prior to start of Construction by APRDC	<ul style="list-style-type: none"> <li>The project did not require Environmental Clearance (EC) as this road involved upgradation of the existing state highway (SH-2), where additional right of way requirement was less than 20m (2). The State Level Environment Assessment Authority (SEIAA) was apprised about non applicability of the EC. It was reported by NAMEL that, a NOC from SEIAA was obtained for the project by APRDC. However, the document was not available with them.</li> </ul>	

(1) Silence zone is an area comprising not less than 100 metres around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority.

(2) As per EIA notification 2006, new National Highway/State Highway project or expansion of National / State Highways greater than 30 km involving additional right of way greater than 20m involving land acquisition would require prior Environmental Clearance.

S N.	Applicable Policies and Regulations	Institution Responsible	Objective	Applicability	Status of Permits and Licenses	Remarks& Recommendations
7.	Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016	CPCB, APPCB/TSPC B	Hazardous Waste Management	Authorization for hazardous waste generation and storage should be obtained from the State Pollution Control Board. Hazardous waste e.g., used oil (diesel/lube oil) need to be disposed accordance to the guidelines stipulated by the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	<ul style="list-style-type: none"> <li>• In Andhra Pradesh and Telangana, PCB provides consolidated CTO which includes consent to operate the facility [under Air (Prevention and Control of Pollution) Act, 1981 and Water (Prevention and Control of Pollution) Act, 1974] well as authorization for hazardous waste generation [under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016].</li> <li>• Refer Sl. No. 1 of this table for status of CTO.</li> </ul>	•Refer Sl. No. 1 of this table
8.	Andhra Pradesh Shops and Establishment Act 1988; and AP Shops and Establishment Rules, 1990	Labour Department	Regulation of conditions of work at shops, commercial establishments	The Toll Plazas (3) and Site Office are commercial establishments and therefore need to be registered under this Act within 30 days from the COD date.	Three operating toll plazas are registered under AP Shops and Establishment Act 1988. NAMEL has professional tax payer registration certificate (PTIN- 36295959156) under the Punjagutta Tax Division.	

S N.	Applicable Policies and Regulations	Institution Responsible	Objective	Applicability	Status of Permits and Licenses	Remarks & Recommendations															
9.	Contract Labour Regulation Act, 1971;	Labour Department	Contract Labour Management		<p>Ramky Infrastructure Piduguralla Guntur is registered under Section 12 (1) for doing the work of state highway road construction. The License was valid up to 26 Nov 2016</p> <table border="1"> <thead> <tr> <th>Office</th> <th>Number of Workers</th> <th>Valid Till</th> </tr> </thead> <tbody> <tr> <td>Project Office</td> <td>100</td> <td>26 Nov 2017</td> </tr> <tr> <td>Toll Plaza-1</td> <td>100</td> <td>29 Jan 2017</td> </tr> <tr> <td>Toll Plaza-2</td> <td>57</td> <td>20 Mar 2017</td> </tr> <tr> <td>Toll Plaza-3</td> <td>36</td> <td>31 Mar 2018</td> </tr> </tbody> </table> <p>The number of employees in Project Office is 5, Toll Plaza-1 has 48, Toll Plaza-2 has 50 and Toll Plaza-3 has 34 employees.</p> <p>NAMEL has issued employment card to the workers (in Form XIV) and maintains register of wages and deductions (Form-XX).</p>	Office	Number of Workers	Valid Till	Project Office	100	26 Nov 2017	Toll Plaza-1	100	29 Jan 2017	Toll Plaza-2	57	20 Mar 2017	Toll Plaza-3	36	31 Mar 2018	
Office	Number of Workers	Valid Till																			
Project Office	100	26 Nov 2017																			
Toll Plaza-1	100	29 Jan 2017																			
Toll Plaza-2	57	20 Mar 2017																			
Toll Plaza-3	36	31 Mar 2018																			
10.	Building and Other Construction Workers Act, 1996 AP Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Rules, 1999	Labour Department	Regulation of employment and conditions of service for Construction Workers.	Though major part of the road construction work is completed, yet some part of the construction work is still pending. Road maintenance work would also require engaging construction workers.	As NAMEL sub-contracts the construction, Operation and Maintenance work, the act is applicable to its sub-contractors.	NAMEL should establish a compliance monitoring and audit process for its sub-contractors and suppliers.															
11.	Child Labour (Prohibition and Regulation) Act, 1986 as amended in 2016 Andhra Pradesh Child Labour Rules 1995	Labour Department	Protection of Child (<15 years) workers	The Act prohibits engagement of children who have not completed their fourteenth year in occupations and processes listed in Schedule attached to it. Part-B (for processes) lists entry 11 mentions building and construction industry.		NAMEL will need to ensure that no child labour is used in any of the pending construction work or O & M works.															

S N.	Applicable Policies and Regulations	Institution Responsible	Objective	Applicability	Status of Permits and Licenses	Remarks & Recommendations
12.	Minimum Wages Act, 1948 and Rules 1980; Payment of Wages Act, 1936 Equal Remuneration Act, 1976	Labour Department	Wage Payment	These acts ensure payment of wages to labours without discrimination and devoid of any unjust deductions.	NAMEL keeps a wage register and issues wage slips. The wages are paid through bank remittance directly to the worker's bank account. Men and women employees for same and similar nature work are paid equal remuneration. Abstracts of the provisions of these Acts were displayed in Toll Plaza office.	
13.	Bonded Labour System (Abolition) Act 1976	Labour Department	Prohibition of forced labour system in any form	NAMEL employs wage labours for road maintenance works directly and indirectly. The bonded debt to these labours is to be monitored to prohibit forced labour.	The wages for Toll operations contract employees is paid through bank remittances. However, the wage labours deployed for plantation maintenance works	
14.	Workers Compensation Act, 1923 Maternity Benefits Act, 1961 Public Provident Fund Act, 1968 Employees State Insurance Act, 1948	Labour Department	Welfare		NAMEL's EPF Registration Code is GRGNT1006230 in Piduguralla Mandal. As per response of the Superintendent of PICI Branch, ESIC Regional Office at Hyderabad, the ESIC Scheme is only implemented in municipal limits of Nalgonda and a few revenue villages only. The Ramky Group of Companies have a group Life Insurance Policy from Shriram Group Term Life Insurance Plan for 5,75,000 which is due for renewal on 1 <sup>st</sup> of Dec 2016. Ramky Group of Companies also have personal accident policy from United India Insurance Company for 7-9 Lakhs per employee. NAMEL also has a workers compensation policy from Visisata Insurance Broking Services Pvt. Ltd which is valid till 22 <sup>nd</sup> Feb 2017.	

S N.	Applicable Policies and Regulations	Institution Responsible	Objective	Applicability	Status of Permits and Licenses	Remarks& Recommendations
15.	Trade Union Act, 1926 and as amended in 2001 Industrial Disputes Act, 1957	Labour Department	Industrial Relations	As per the provisions of this act, the employees at the factory will have the right to form unions. These unions will have to be registered with the Registrar appointed under this Act in the area and will need to have the names of the members, occupations and addresses, name of the trade union and its rules. The powers and functions of the Union will be as per the provisions of this act..	There is no workers organization in NAMEL. The Industrial Disputes Act provisions are applicable to it.	NAMEL will form workers committee at each Toll Plaza.
16.	Andhra Pradesh Private Security Agencies (Regulation) Act 2005 and Rules 2008	Department of Police	Security Agencies Regulation	NAMEL's Toll collection operation needs provision of security.	NAMEL has engaged Harshvardhan Security for TP-1, TP-2 and Sun Security services for TP-3. The Toll operation has security staff in three shifts: 06.00-14.00, 14.00-22.00, 22.00-06.00. There is one armed guard present in each shift in every Toll Plaza. The shifts for the armed guards in Toll Plaza are 20.00-8.00 and 8.00-20.00. The contract agreement with these agencies (ref clause 17) requires them to undertake all legal and statutory formalities. Both these agencies were found not registered under this Act.	The security agencies engaged are to complete their registration process and comply with this Act.
17.	The Welfare Cess Act 1987 and Rules 1988	Labour Department	Workers welfare	The Act makes provision to contribute to a welfare fund constituted by Government.	NAMEL has remitted the welfare contribution on 02.03.2016 and complied with other requirements under this Act.	

The policy is aligned with the National R&R Policy 2007, and is applicable for all the “projects” which are having the following characteristics:

- Project which is displacing 100 families (or partial losses for linear road projects) in plain areas
- 25 and more families en-mass<sup>1</sup> in tribal areas or mentioned in schedule V areas of the constitution of India.)

The project displaced persons (PDPs) and project affected persons (PAP) are entitled to receive assistance/ grants under R&R plan/scheme. For the purpose of the entitlements different of the categories of PAPs were defined. And policy also identifies non-title holders, agriculture labor, tenants and people with disabilities for special grants and assistance.

**Table.2.3** *Entitlement Framework*

Impact / loss	Unit	Entitlement
Loss of Residence	PDF	Free House shall be allotted maximum of size 150 sqmt in rural areas and 75 sqmt urban areas
	PDF ( BPL)	Each PDF of BPL category has been allotted free house shall get Rs. 40000 one time financial assistance ( non BPL are not eligible for grant)
Loss House (road project)	PDF (Including Squatter)	Project displaced families including squatters who are of BPL category would get house construction grant. Each of the displaced families would also been given a grant of Rs. 10,000/- towards construction of alternate shop/work place.
Loss of Shops/workplace (road project)	PDF (including squatter )	Any project displaced family (including squatters losing dwelling/shops/work place) has been acquired should be allotted site for (i) Dwelling house site free of cost (ii) Site for shop 30 sq.m in rural areas 25 sq.m in urban areas, free of cost
Loss of land	PAF	Allotment of Government land to PAFs who become Small, or Marginal farmers or Landless after acquisition, in lieu of Acquired land: In case of allotment of waste / degraded or agricultural Government land, if available within the District, in lieu of acquired land and if agreed by PAF for allotment of such land, each such PAF shall also get financial assistance of Rs. 10,000 per hectare or as fixed by Government from time to time for land development. And in case of allotment of agricultural land. Rs. 5,000 per PAF or as fixed by Government from time to time for agricultural production shall be given. However such allotment of Government land will be restricted to an extent of land acquired from PAF or 2.5 Ha of dry or 1.25 Has wet land whichever is lesser. Provided further that in such cases, a) no compensation will be payable for the lands

<sup>1</sup> For linear road projects the impact will be scattered.

Impact/loss	Unit	Entitlement
		<p>acquired from the PAF for the project, to the extent of Government land is allotted</p> <p>b) no exgratia will be payable for the lands resumed from PAF for the project to the extent of Government land is allotted. Land Acquisition officer shall pass the award for the lands acquired or resumed from PAF accordingly. The Land allotted shall be free from all encumbrances. The land allotted may be in the joint names of wife and husband of PAP.</p>
Loss of land	Schedule Tribe PAFs	<p>Allotment of land acquired by Government from the project benefited area to Schedule Tribe PAFs, who become Small, or Marginal farmers or Landless after acquisition, in lieu of Acquired land from them: Government may acquire land within the project benefited area, as per guidelines issued by the Government from time to time such that no person should become small or marginal farmer or landless due such acquisition, for allotment of such land to ST PAFs (who become small or marginal farmers or landless due to acquisition of their land for the project), if such PAFs so desire, in lieu of lands acquired from them.</p> <p>However such allotment will be restricted to the extent of land acquired from such PAFs or 2.5 Ha dry land or 1.25 Ha land whichever is lower, further provided that in such cases.</p> <p>a) no compensation will be payable for the lands acquired from the PAF for the project, to the extent of such land is allotted</p> <p>b) no exgratia will be payable for the lands resumed from PAF for the project to the extent of such land is allotted Land Acquisition officer shall pass the award for the lands acquired or resumed from PAF accordingly. The Land allotted shall be free from all encumbrances. The land allotted may be in the joint names of wife and husband of PAP.</p>
Loss of Cattle Shed	PAF	Each PAF having cattle, at the time of acquiring his house, shall get financial assistance of Rs.3000/- or as fixed by Government from time to time for construction of cattle shed in new settlement.
Grant for Transporting materials	PAF	Each PAF shall get lump sum one time financial assistance of Rs.5000/- or as fixed by Government from time to time for transportation / shifting of his building materials, belonging and cattle etc. from the affected zone to the resettlement zone.
Income Generating Scheme Grant	PAF (rural artisan / small trader and self-employed person)	Each PAF comprising of rural artisan / small trader and self-employed person shall get one-time lump sum financial assistance of Rs.25000/- or as fixed by Government from time to time for construction of working shed / shop.
Loss of Livelihood	PAF ( Land owner)	<p>A) Wages if after acquisition land owner becomes land less: Each PAF owning agricultural land in the affected zone and whose entire land has been acquired shall get one-time financial assistance equivalent to 750 days minimum agricultural wages for "loss of livelihood "if no land is allotted in lieu of acquired Land.</p> <p>B) Wages if after acquisition land owner becomes marginal</p>

Impact / loss	Unit	Entitlement
		farmer: Each PAF owning agriculture land in the affected zone and who consequently becomes a marginal farmer shall get one time financial assistance equivalent to 500 days minimum agricultural wages if no land is allotted in lieu of acquired land. C) Wages if after acquisition land owner becomes small Farmer: Each PAF owning agriculture land in the affected zone and who consequently becomes a small farmer shall get one time financial assistance equivalent to 375 days minimum agricultural wages if no land is allotted in lieu of acquired land.
	PAF ( laborers)	Wages to labourers: Each PAF belonging to the category of 'agricultural labourer', or 'nonagricultural labourer' shall be provided a onetime financial assistance equivalent to 625 days of the minimum agricultural wages
	PDF	Subsistence allowance to displaced family: Each PAF who is also a project displaced family shall get a onetime subsistence allowance equivalent to 240 days of minimum agricultural wages. It will be in addition to any other benefit available to him as PAF.
Land acquisition in emergent situation such as under Section 17 of the Land Acquisition Act 1894	PAF	Each PAF shall be provided with Transit accommodation, pending resettlement and rehabilitation scheme. Such families shall also get R&R benefits as mentioned in above paras under the policy.
Forest Dwellers	PAF	The project Affected Families who were in possession of forest lands prior to 25th October 1980 shall get all the benefits of R&R as given in above paras under the policy
Basic amenities to be provided at settlement resettlement center for projects	Affected Community	A) In case the entire population of the village / area to be shifted belongs to a particular community, such population / families may be resettled en-masse in a compact area so that socio-cultural relations (social harmony) amongst shifted families are not disturbed B) The Re-settlement center shall be provided with the basic amenities and infrastructural facilities of Drinking water, Internal roads, Drainage, Electricity, Primary School Building, playground, Community center and access road to the resettlements site. In addition to these facilities, the order Community facilities which were available in the village, at the time of acquisition, shall also be provided
R&R benefits for project affected Families of schedule tribes	Affected Community/ PAF	a) Each Project Affected Family of ST category shall be given preference in allotment of land. b) Each Tribal PAF shall get additional financial assistance equivalent to 500 days minimum agriculture wages for loss of customary rights / usages of forest produce. c) Tribal PAF will be re-settled close to their natural habitat of their choice, to the extent possible, in a compact block so that they can retain their ethnic, linguistic and cultural identity. d) Tribal PAFs resettled out of the district of outside tribal area will get 25% higher R&R benefits in monetary terms. e) The Tribal Land Alienated in violation of the Laws and regulations in force on the subject would be treated as null and void and the R&R benefits would be available only to the original tribal landowner.

Impact / loss	Unit	Entitlement
		f) The Tribal families residing in the Project Affected Areas having fishing rights in the river / pond / dam shall be given fishing rights in the reservoir area.
Constitutional benefits to ST/SC/BD PAPs at the re-settlement center:	PAP	The PAPs shall enjoy all the constitutional benefits at new settlement also to which they were entitled to at the village that was acquired for the project

The Irrigation and Command Area Development (I&CAD) Department issued order (vide G.O. Ms. No. 68 dated 8<sup>th</sup> Apr 2005) in 2005 after a State Level meeting of concerned Government Departments for implementation of the R&R Policy. The AP R&R Policy 2005 was modified by APRDC vide G.O. Rt No. 1059 dated 20<sup>th</sup> Nov 2010 to make it more suitable to Road Sector Projects. The APRDC appointed Joint Collectors of Nalgonda, Guntur and Prakasam as Project Administrators for widening and strengthening of NAM Toll Road as a PPP Road (Refer G.O. Rt. No. 167 dated 19<sup>th</sup> Feb 2011).

As per information shared by RIL Land Acquisition Personnel and APRDC representative, an NGO (Seva Bharathi) was engaged to help the project administrators in implementation of the AP R&R Policy 2005. Reportedly, the project did not meet the criteria (displacing 100 or more families) and therefore the project area was not notified as 'affected zone' under section 5.1. Consequently, the rehabilitation benefits as per the entitlement framework (as in Table 2.3 above) was not provided to project affected persons.

The report submitted by Seva Bharathi on NAM Road, summarizes the magnitude of the project impact as follows (Refer Table 3.2 pg-8 of Seva Bharathi Report on NAM Road):

**Table 2.4** *Magnitude of Impacts of NAM Road (as in Seva Bharathi Report)*

Type Of Loss	Total Affected Households
Agricultural land	2411
Residential structures	1152
Commercial structures	359
Residential + commercial Structures	900
Total	4822

Source: Seva Bharathi NAM Road Report. Pg-8.

The detail break-up of the households impacted due to acquisition of agricultural land in 60 project affected villages however gives the total affected household numbers as 2342 as against 4822 in the table above. The information available in Seva Bharathi Report is reproduced below in Table 2.5.

**Table 2.5** *Village wise break-up of project affected households in NAM Road (as in page 16-17 of Seva Bharathi Report)*

Village	Mandal	District	Households
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<i>Village</i>	<i>Mandal</i>	<i>District</i>	<i>Households</i>
Narketpally	Narketpally	Nalgonda	33
Yellareddygudem	Narketpally	Nalgonda	30
Cherlapalli	Nalgonda	Nalgonda	51
Dupalapalli	Nalgonda	Nalgonda	2
Rayanigudem	Nalgonda	Nalgonda	3
Mallepallivarigudem	Tipparthi	Nalgonda	2
Chinnaiahgudem	Tipparthi	Nalgonda	2
Tippalammagudem	Tipparthi	Nalgonda	1
Tipparthi	Tipparthi	Nalgonda	53
Cilarmiyagudem	Tipparthi	Nalgonda	7
Kotthagudem	Tipparthi	Nalgonda	12
Madugulapalli	Tipparthi	Nalgonda	51
Kukkadam	Vemulappalli	Nalgonda	60
Buggabayagudem	Vemulappalli	Nalgonda	15
Vemulapalli	Vemulappalli	Nalgonda	77
Shettyapalem	Vemulappalli	Nalgonda	3
Edukotlathanda	Vemulappalli	Nalgonda	1
Guduru	Miryalguda	Nalgonda	10
Krishnapuram	Miryalguda	Nalgonda	8
Katthagudem new	Miryalguda	Nalgonda	6
Kondrapole	Dhamarcherla	Nalgonda	84
Rallavaguthanda	Dhamarcherla	Nalgonda	15
Bottalapalem	Dhamarcherla	Nalgonda	20
Dhamaracherla	Dhamarcherla	Nalgonda	82
Pondugala	Dachepalli	Guntur	51
Srinagar	Dachepalli	Guntur	41
Gamalapadu	Dachepalli	Guntur	47
Erukupalliboard	Dachepalli	Guntur	2
Nadikui/ Dachepalli	Dachepalli	Guntur	212
Santhinagar	Pidugurula	Guntur	23
Sambasivapet	Pidugurula	Guntur	5
Veerapuram	Pidugurula	Guntur	15
Thummalacheruvu	Pidugurula	Guntur	7
Srinivasapuram	Pidugurula	Guntur	2
Kondamodu	Rajupalem	Guntur	36
Nemalipuri	Rajupalem	Guntur	56
Srinivasanagar	Nakarikallu	Guntur	10
Srirampuram	Nakarikallu	Guntur	29
Nakarikallu	Nakarikallu	Guntur	237
Chalagundla	Nakarikallu	Guntur	75
Chalagundla Addaroad	Nakarikallu	Guntur	33
Vipparla	Rompicherla	Guntur	33
Marrichettupalem	Rompicherla	Guntur	14
Santhagudipadu	Rompicherla	Guntur	28
Rompicherla	Rompicherla	Guntur	54
Annavarappadu	Rompicherla	Guntur	6
Santhamaguluru	Santhamaguluru	Prakasam	13
Rami Reddy palem	Santhamaguluru	Prakasam	10
Elchuru	Santhamaguluru	Prakasam	99

<i>Village</i>	<i>Mandal</i>	<i>District</i>	<i>Households</i>
Kommalapadu	Santhamaguluru	Prakasam	71
SL gudipaddu colony	Ballikurava	Prakasam	0
SL gudipaddu	Ballikurava	Prakasam	19
Vydana road	Ballikurava	Prakasam	3
Kopparapadu	Ballikurava	Prakasam	93
Sadhunagar	Ballikurava	Prakasam	5
Ramanjaneyapuram	Ballikurava	Prakasam	24
Chkrapalem	Addanki	Prakasam	6
Gopalapuram	Addanki	Prakasam	9
Addanki	Addanki	Prakasam	319
Bodduvanipalem	Kurisepadu	Prakasam	27
Total			2342

Source: Seva Bharathi NAM Road Report. Pg-16-17.

### 2.3.2 *Land Acquisition Act 1894 (Amended in 1984):*

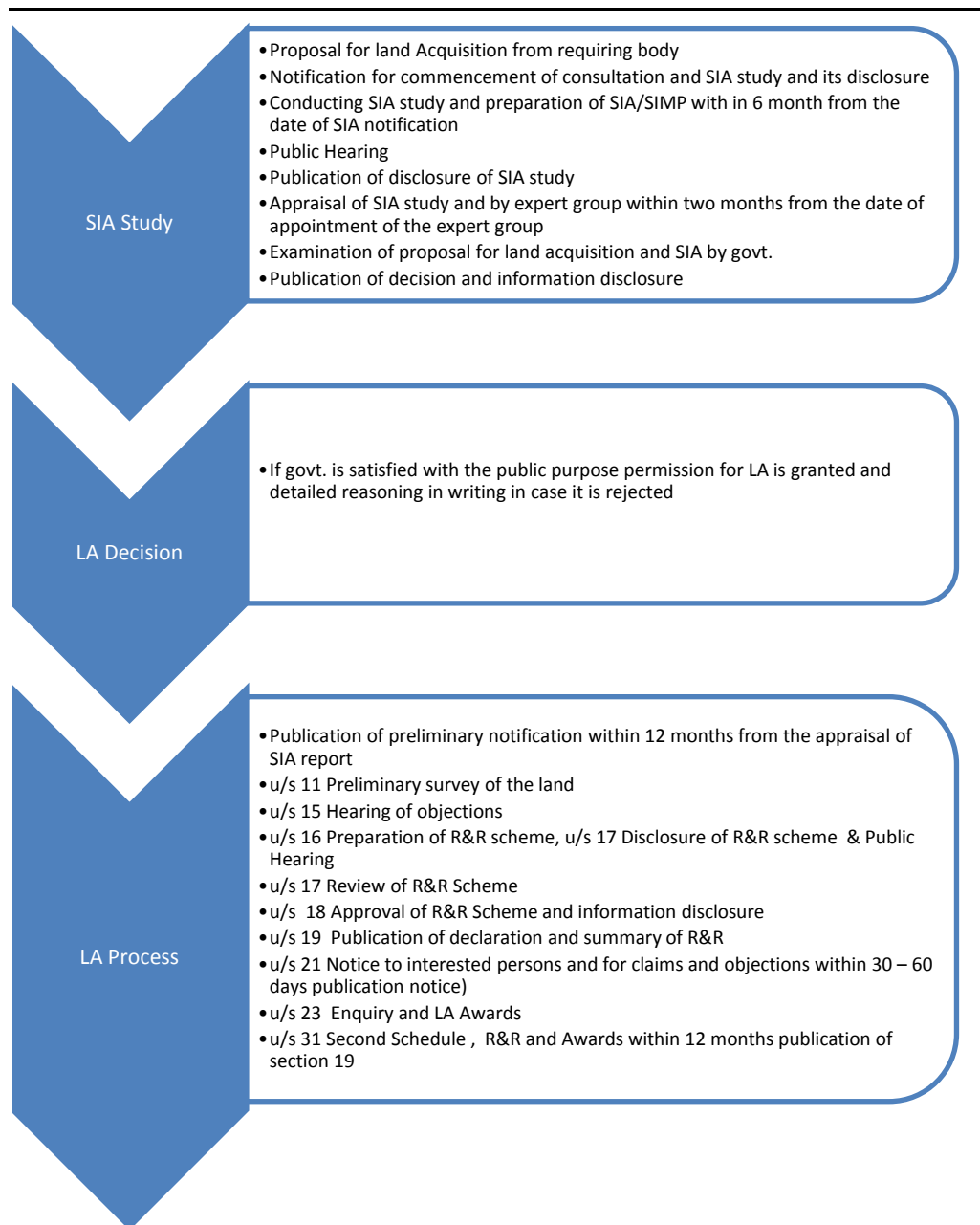
The Land Acquisition Act 1894 was passed with the purpose of enabling the procurement of land for the purpose of activities which are in the interests of the country. These include procedures for the acquisition of land, declaration of acquisition intent, hearing of objections, and final possession of the land amongst others.

In last decade, the LA Act 1894 has been debated over for its archaic characters which do not fit into the current realities. The current reality surrounding the process of land acquisition has changed tremendously, and therefore, the need was felt for the passing of a new law. A new Land Acquisition Resettlement and Rehabilitation Bill (LARR) 2011, which was renamed to The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act (the RFCT LARR Act 2013), was passed by both the houses of Parliament and given the President's assent on 26th September 2013.

### 2.3.3 *LA Process as per RFCT LARR Act 2013*

The aim of this Act is to provide just and fair compensation to the affected families whose land has been acquired. This Act also requires for adequate provisions to be made for the resettlement of such affected families. These provisions should ensure that as part of the cumulative outcome of the acquisition, the social and economic status of the affected families should lead to an improvement from the pre-acquisition status and result in the families becoming partners in the development process.

Figure 2.1 LARR Act Process



Source: Adopted from RFTC LARR Act 2013

### 2.3.4 LA process as in Telangana Govt G.o.123

In order to expeditiously procure land for public projects the Government of Telangana, came out with a framework that allows the land owners to participate in the development process by willingly selling their land and properties thereon for a consideration on the basis of an agreement between land owners and the user department/undertaking/society/authority, (Procuring Agency), as approved by the District Level Land Procurement Committee (DLLPC). To procure land from Willing Land Owners and others, the following procedure is prescribed:-

- The Procuring Agency will inform the District Collector about the land required for public developmental purpose along with necessary details.
- On receipt of such information, the District Collector will ascertain the willingness of the land owners for sale of land and property thereon.

- Subject to getting willingness from the land owners/ authorized representatives for voluntarily selling their land and property, the District Collector shall inform about the number of such sellers, extent of land out of total indent, and likely consideration to the Procuring Agency.
- On receiving confirmation from the Procuring Agency, the District Collector shall place the matter before the District Level Land Procurement Committee
- The Land Procurement Officer shall place all connected records of enquiry, valuation statements, encumbrances of preceding (12) years and other relevant records duly verified by him before the District Level Land Procurement Committee.
- The District Level Land Procurement Committee may take up local inspections, where deemed necessary.
- The Committee shall hold negotiations with the persons interested or authorized by them.
- The Chairperson shall fix the date, time and place of the meetings.
- The Committee may hear any oral/ written representations made in respect of any claim/objection by the interested persons or their authorized representatives.
- Agreement in Form-I shall be attested by all the members.
- After attesting Form-I, the Convener shall obtain affidavits from concerned interested persons on the same day in Form- II.
- Once the agreement is reached, the Collector after executing agreements in Form-I and II shall publish the details of land owners including others and their respective share in two newspapers inviting claims and objections within (15) days of publication of such notification. After receipt of objections/claims, if any,
- The District Collector shall requisition necessary funds from the Procuring Agency.
- The consideration as agreed by the individual land owner/ owners and procuring agency before the District Level Land Procurement
- Committee shall inter-alia, include the value of land and property, perceived loss of livelihood, equivalent costs required for rehabilitation and resettlement of willing land owners and others.
- Land owner will give an affidavit that she/he will not have any right to further enhancement of consideration finalised by the Committee to any other forum.
- While determining the consideration, the District Level Land Procurement Committee shall take into account all taxes as admissible under various Central/State/Local Laws.
- On signing of agreement, the District Collector shall ensure registration of Conveyance Deed / Sale Deed in favour of Procuring Agency duly making on-line payment of consideration.

This section includes a brief description of the Project road that is under the scope of the concessionaire, i.e. NAMEL. The description of the project is intended to provide the context of the ESDD within which the environmental and social impacts are screened.

### 3.1 LOCATION

The Narketpally- Addanki - Medarametla Toll Road (State Highway-2) is 212.500 Km long and starts from NH-9 junction at Narketpally in Nalgonda District at Km 0.000 and ends at Medarametla at the junction with NH-5 at Km 212.500 in Prakasam District in the state of Andhra Pradesh. From Km. 0.000 to Km. 87.640 of the project road falls in the state of Telangana and from Km. 87.640 to Km. 212+500 of road falls in Andhra Pradesh.

The project road passes primarily through a plain terrain across Nalgonda District in the state of Telangana and Guntur and Prakasam District in the state of Andhra Pradesh. Approximately 83% of the corridor traverses through rural areas. The major urban areas falling in the vicinity of the corridor are Damarcherla, Nalgonda, Karimnagar, Brahmanapalli, Pidiguralla and Addanki;

### 3.2 HISTORY OF THE NAM ROAD

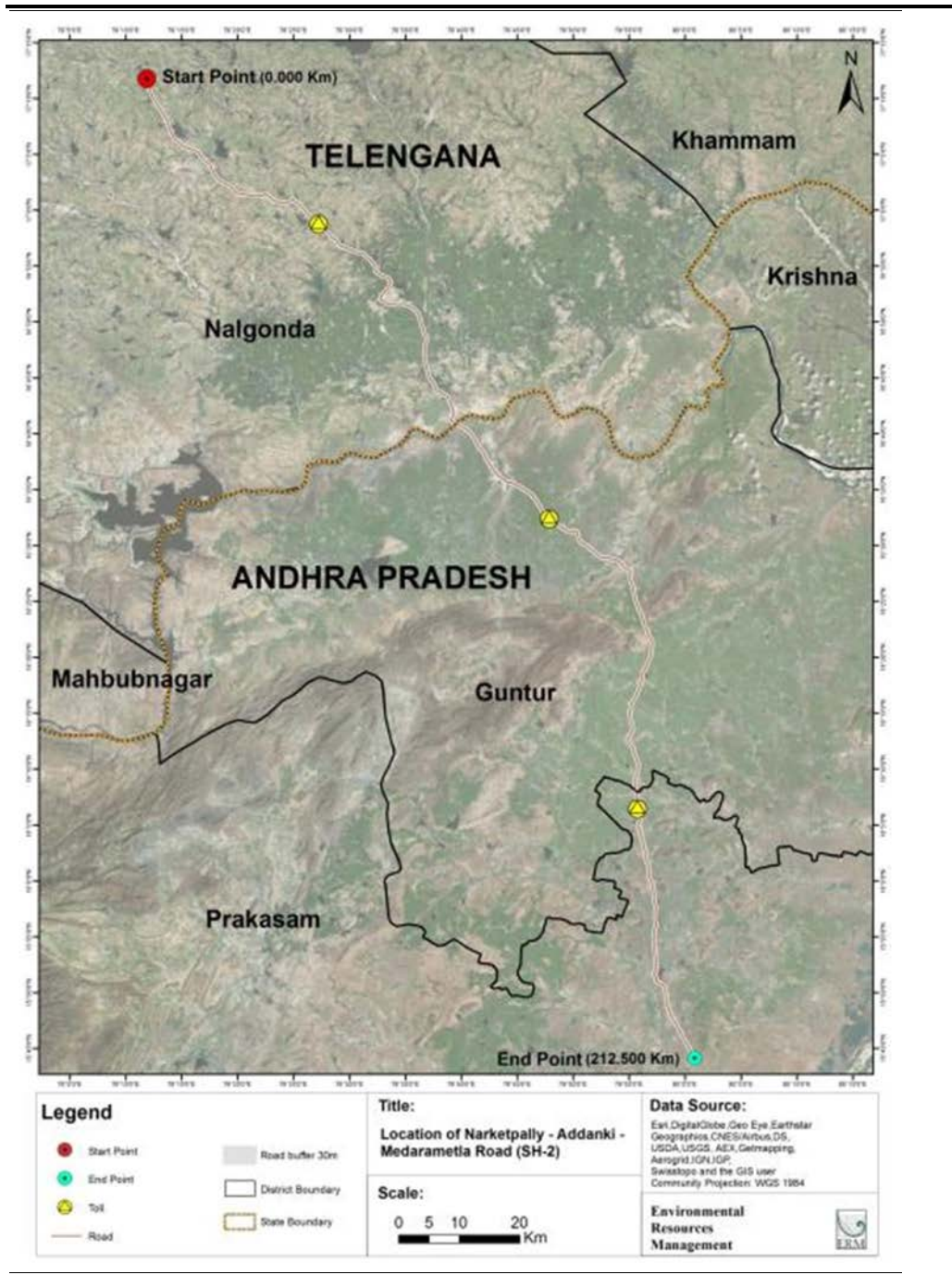
The road was a single-lane road till 1998 and was converted to two-lane between 1998 and 2001 and became a State Highway (SH-2). This widening involved expanding the RoW to 30m in urban stretch and 40m in rural stretch and also developed two bypasses (Miryalguda and Nalgonda) with 45m RoW.

A DPR for expanding this 2 lane road into 4 lane divided carriageway with paved shoulder; geometric improvements; improvement of the various intersections; and a range of other improvements was prepared in 2008. The 2008 DPR also proposed construction of five additional bypasses at Tipparthi, Brahmanapally, Piduguralla, Elchur and Addanki. The State Government of Andhra Pradesh (GoAP) wanted to develop this road through a loan from the International Bank for Re-construction and Development (IBRD). Later the project was developed in a PPP mode on DBFOT (Toll) basis. The Concessionaire Agreement between GoAP and NAMEL was signed on 23<sup>rd</sup> July 2010 to develop this road into a 4 lane toll road. The COD for ~196 km out of 212.5 km has been obtained so far and at present this is an operating road. The completion of the remaining portion of the road is delayed mostly due to delay on the part of APRDC to complete the land acquisition process and provide land access to NAMEL.

Thus, the historical background of the road can be divided into following phases.

- **Pre 2001:** It was a single lane Major District Road;
- **Between 2001 and 2010:** It became a State Highway (SH-2) with two lanes and increased RoW (30m in Urban, 40m in Rural and 45m in by-passes in Miryalguda and Nalgonda);
- **Between July 2011 and Mar 2014:** Construction of four-lane road along with other improvements;
- **Post Mar 2014:** Operating four-lane toll road (with 190+ km COD out of 212.5 km).

Figure 3.1 Location of Narketpally - Addanki - Medarmetla Road (SH-2)



The proposed development of the SH-2 as listed in Schedule-B of the Concessionaire Agreement. The 2-lane existing road had a carriageway width of 7.5-10.0m for most of its length. The proposed paved carriage way is 17.5m (with kerb shyness) wide excluding the median provided in general. The improvement also involved the following:

- 7 major bridges;
- 46 minor bridges;
- 2 ROBs (at chainage 125.200 and 163.920);
- 21 Pedestrian/ Cattle Pass;
- Service Roads of 25kms;
- Improvement of 5 major and 34 minor intersections;
- Pavement markings and Traffic signage;

S. No	Item Description	Unit	
<b>A</b>	Main Carriage Way (width is 17.5m with kerb shyness excluding median)		
1	Four lane Road	Km	212.500
2	Construction of Structures		
a	Major Bridges	No	7
b	Minor Bridges	No	50
c	ROBs	No	2
d	Pipe Culverts	No	321
e	Widening of Slab/Box Culverts	No	106
f	Rehabilitation of Bridges,	No	51
	a) Painting and numbering		
3	PUPs/CUPs	No	10
4	Construction of Service Roads		
a	RHS	Km	13.035
b	LHS	Km	12.965
<b>B</b>	<b>Road Furniture</b>		
a	Major Junctions	No	4
b	Minor Junctions	No	34
c	RCC Line Drains	Km	26
d	Unlined Open Drains	Km	300
e	Median Drains	Km	1
f	Chute Drains	No	7600
g	Pavement Marking	Km	211.86
h	Traffic Signage	No	2638
i	Highway Lighting	Location	17
j	Speed Breakers on side roads	No	172
k	5 K.M /KM/ H.M Stones		
	a) 5KM stones	No	85
	b) KM stones	No	339
	c) HM stones	No	1695
l	a) Blinker Signals/Object Markers	No	208
m	a) Guard Posts	No	5993
	b) Delineators	No	4930
n	Metal Beam Crash Barriers	Km	18.515
o	Studs	No	49254
p	Pedestrian Guard rail and Safety Barriers	Km	12.9
q	Road land boundary	Km	374.65
r	Land Acquisition Locations	No	127
s	a) Utilities shifting	No	39

S. No	Item Description	Unit	
	b) Removal of trees	No	6795
t	Removal of encroachments	No	13
u	Landscaping	No	5
v	Environmental clearances		-
w	Environmental Mitigation Measures	No	1
<b>C</b>	<b>Project Facilities</b>		
a	Toll Plazas	No	3
<b>D</b>	<b>Road side facilities</b>		
a	Rest Area	No	2
b	Truck Lay Bye	No	3
c	Bus Bay & Bus shelters	No	64
d	Traffic Aid Posts	No	3
e	Medical Aid Posts	No	3
f	Telecom Systems	No	84
g	Highway Traffic Management System	No	
	a) HTMS Equipment	No	21
	b) HTMS - ECB	No	84
	c) HTMS - Fibre optic	Km	423.72
	d) HTMS - Toll systems	Km	21
	e) Establishment of Control Room	No	1
	f) CCTV System at Major Junction	No	4
	g) Variable Message Sign	Nos	2
	h) Meteorological Data System	Nos	3
	i) Automatic Traffic Counter	Nos	3
	j) Project Implementation Unit	No	2
	k) Base Camp	No	2
	l) Avenue Plantation	Km	423.72
	m)Median Plantation	Km	211.86
	n) Gantry Sign Boards	Nos	26
	o) Turffing for slopes	Km	358.15
	p) Stone Pitching	Km	16.5

### 3.3.1 Service Roads

The proposed road development had provisions for service roads in 16 locations as mentioned in table below and their locations shown in *Table 3.1* below.

**Table 3.1 Details of the Service Roads (as in CA Schedule-B, ref. Table b-2)**

Sl. No	Design Chainage		Village/ Town	Side	Length in m	Total Length	Width
	From	To					
1	000.000	000.250	Narketpally	Both	250	500	5.5
2	005.250	005.500	Yellareddyguda Colony	RHS	250	250	3.75
3	012.000	013.000	Cherlapalli	Both	1000	2000	5.5
4	017.000	017.000	Nalgonda Bypass (immersion Ghat)	RHS	200	200	3.75
5	035.000	035.500	Thipparthi	Both	400	800	5.5
6	041.800	042.250	Madgulappali	Both	450	900	5.5
7	046.000	046.400	Mugubaigudem	Both	400	800	3.75
8	050.950	051.750	Vemalapally	Both	800	1600	5.5
9	073.600	074.700	Kondrapool Village	Both	800	1600	5.5
10	077.450	077.950	Bothalapalem	Both	500	1000	3.75
11	080.950	082.000	Dhamaracherla	Both	1050	2100	5.5

Sl.	Design Chainage		Village/ Town	Side	Length	Total	Width
12	099.500	101.000	Narayanapuram (before Dachehalli)	Both	1550	3100	3.75
13	101.050	101.700	Dhachepalli	Both	650	1300	5.5
14	137.050	138.300	Nakerakal	Both	1250	2500	5.5
15	172.200	172.750	Elchur	Both	550	1100	3.75
		172.750		LHS	550	1100	3.75
16	202.550	205.150	Addanki	Both	2600	5200	5.5

Source: Concession Agreement

### 3.3.2 Proposed ROBs

The proposed road has two Rail Over Bridges at 125.200 and 163.920 the details of which are provided in Table 3.2 below.

**Table 3.2 Proposed ROBs (as in Table B-9 of Concession Agreement)**

Sl No	Design Chainage	Type of Bridge	Existing Structure		Total Length of Bridge	Extension Deck Width	Proposed Length & Width		
			No of Vents	Length			Nos	Length	Width
	125.200	New					2	51	27.5
	163.920	RCC Deck	1	30	30	12	1	30	11.5

Source: Concession Agreement

Figure 3.2, Figure 3.3 and Figure 3.4 illustrate the project footprint based on strip mapping that was developed using geographical coordinates. A summary of selective key environmental and social features along the project corridor have been provided subsequently.

Figure 3.2 Overview of Narketpally - Addanki - Medarametla Road (SH-2) - Nalgonda District

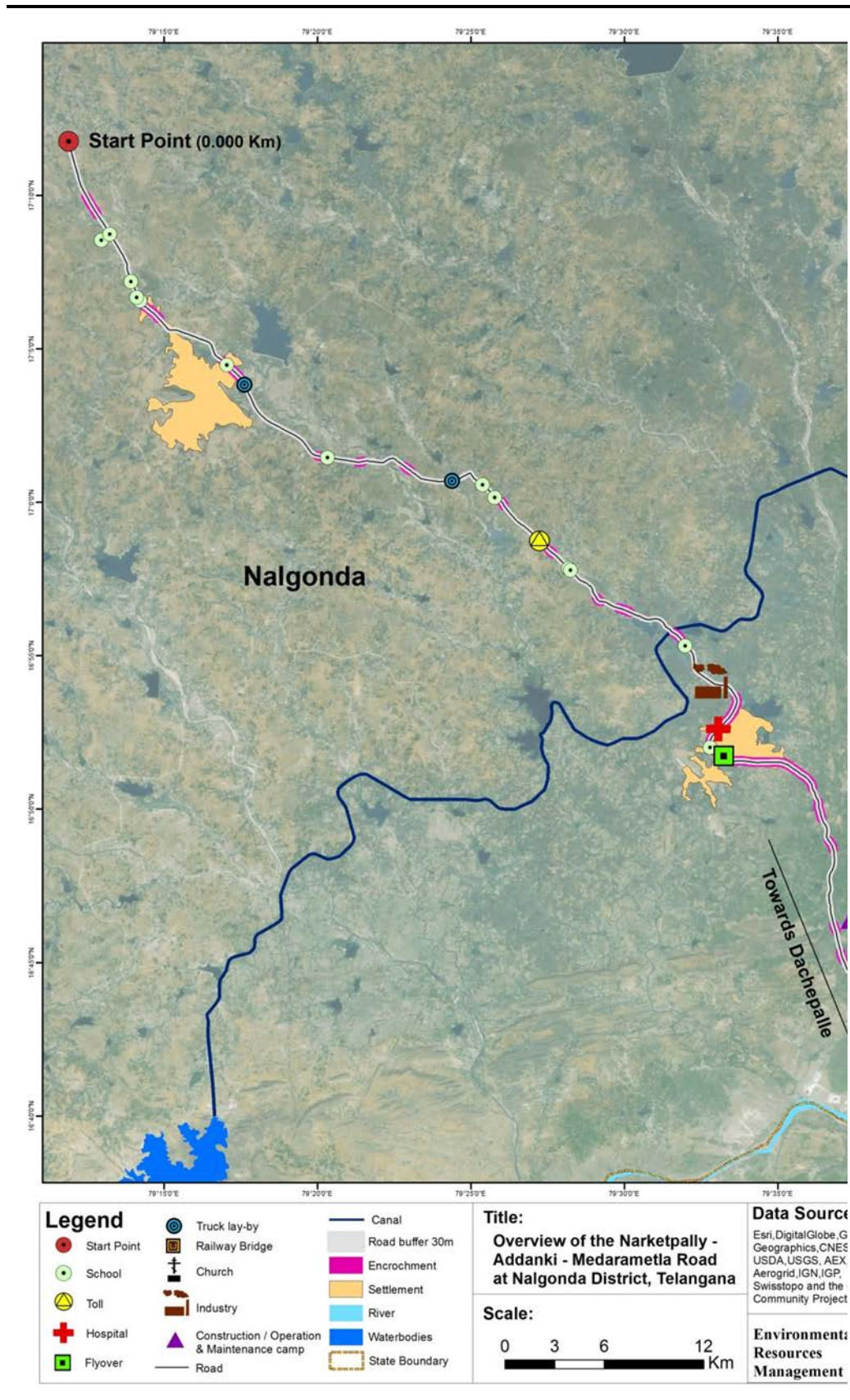


Figure 3.3 Overview of Narketpally - Addanki - Medarametla Road (SH-2) - Guntur District

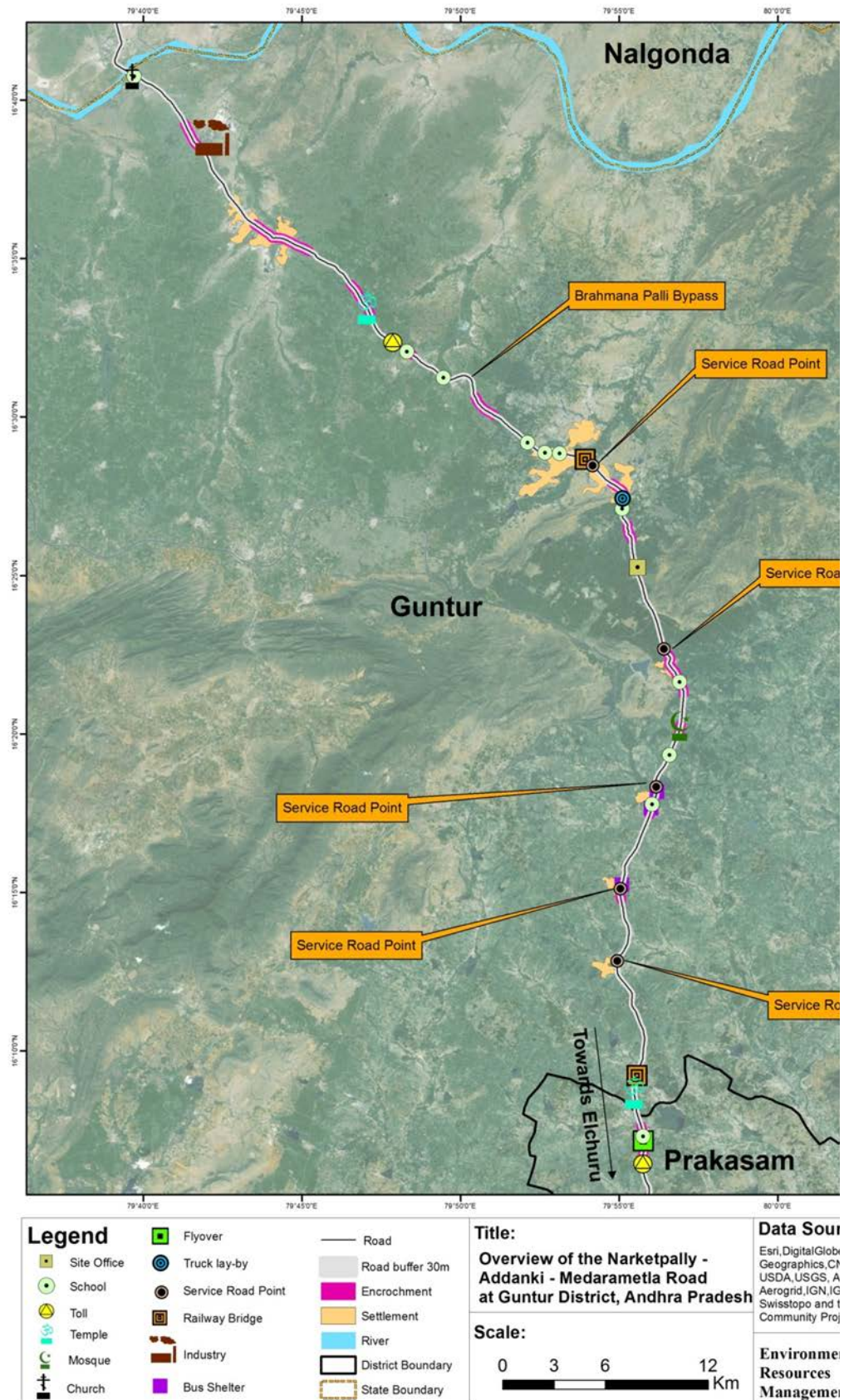
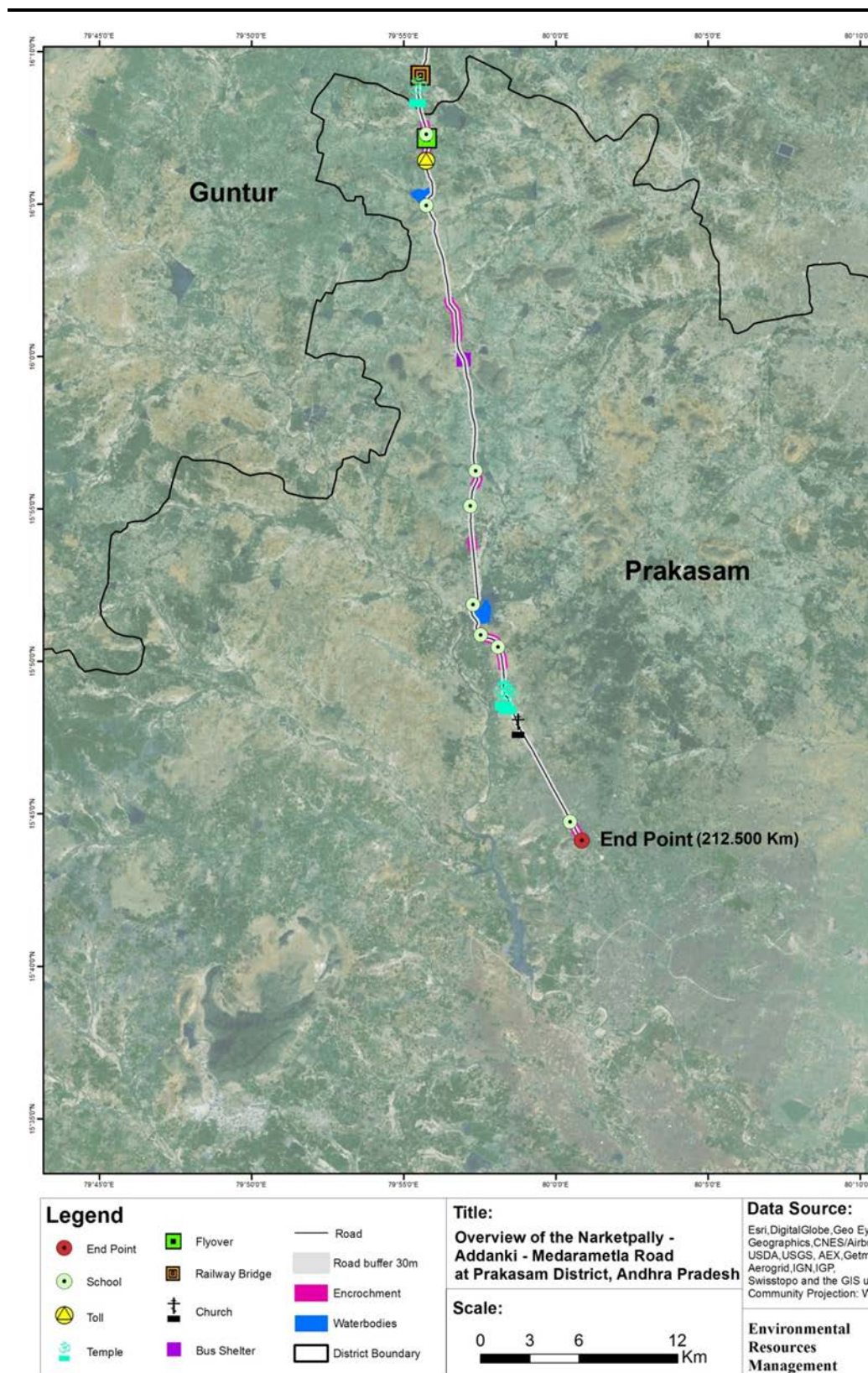


Figure 3.4 Overview of Narketpally - Addanki - Medarametla Road (SH-2) - Prakasam District



## 3.3.3

*Sensitive Cultural Properties*

The list of Sensitive Cultural Properties to be affected by the road development is provided below. The project road DPR identified 40 cultural properties and 21 out of them were to be fully impacted. The cultural properties comprised of 30 temples, 7 mosques/mazars, and 3 churches.

**Table 3.3** *Sensitive Cultural Properties Impacted (as in B-12 CA)*

Chainage		Type	Side	Distance in m		Length in m	Impact	
Existing	Proposed			From ECL	From PCL		Physical	Access
008.170	008.170	Temple	Right	12.395	9.865	5.758	Full	SH opening
27.990	27.990	Temple	Left	13.959	13.959	5.381	Partial	SH opening
32.370	32.360	Temple	Right	11.139	11.139	7.220	Full	SH opening
37.000		Temple	Right	14.027	14.503	4.594	Full	SH opening
-	41.860	Mosque	Right	10.771	10.771	40.642	Full	SH opening
51.570	51.500	Mosque	Right	9.975	9.653	7.533	Full	SH opening
66.825	66.755	Mosque	Left	>15.000	>15.000	-	No	SH opening
73.965	73.895	Church	Left	6.56	11.649	8.030	Full	SH opening
73.975	73.905	Temple	Right	14.523	11.653	3.655	Partial	SH opening
87.915	87.800	Mosque/Mazar	Left	9.5	15	2.0	Full	Village Road opening
88.190	88.075	Temple	Right	12.771	12.771	17.426	Partial	SH opening
88.420	88.305	Temple	Left	10.09	9.235	15.935	Full	SH opening
92.200	92.085	Temple	Left	14.325	17.596	5.896	Partial	SH opening
97.600	97.700	Mosque	Left	>15.000	>15.000		Partial	SH opening
99.190	99.085	Temple	Left	12.213	12.226	3.621	Full	SH opening
100.290	100.185	Temple	Right	13.551	13.551	3.500	Partial	SH opening
106.170	106.065	Temple	Right	12.485	12.485	3.562	Full	SH opening
107.73	107.84	Temple	Right	12.022	12.022	11.037	Partial	SH opening
107.86	107.97	Temple	Right	11.647	11.647	2.0	Partial	SH opening
117.750	117.000	Temple	Right	12.267	12.267	39.127	Full	SH opening
117.910	117.3	Church	Left	9.717	9.717	4.777	Partial	SH opening
118.000	117.4	Temple	Right	12.365	12.365	40.388	Partial	SH opening
132.800	131.700	Temple	Right	9.125	9.125	3	Full	SH opening
132.750	131.650	Temple	Right	8.699	8.699	2.5	Full	SH opening
135.300	134.200	Temple	Right	7.648	7.648	7.508	Full	SH opening
137.315	136.210	Temple	Left	6.843	7.214	11.339	Full	SH opening
140.270	139.17	Temple	Right	9.962	9.599	11.261	Partial	SH opening
141.925	140.825	Temple	Left	5.652	10.400	8.252	Full	SH opening
147.000	145.910	Temple	Left	6.072	8.065	12.757	Full	SH opening
157.250	156.050	Temple	Left	8.005	10.347	6.000	Full	SH opening
163.280	162.180	Temple	Left	14.41	14.807	3.515	Partial	SH opening
165.060	163.960	Temple	Right	8.404	8.468	2.974	Full	SH opening
170.850	169.730	Temple	Right	10.314	10.314	7.202	Partial	SH opening
178.600	177.600	Mazar	Right	6.349	>15.000	10	Full	SH opening
184.175	183.165	Temple	Right	7.157	7.907	3.962	Full	SH opening
198.600	197.700	Church	Left	>15.000	>15.000		Partial	SH opening
203.370	202.42	Mosque	Right	8.145	>15.000	15.0922	Partial	SH opening
203.900	203	Temple		>15.000	>15.000		Partial	SH opening
203.450	202.5	Temple	Right	>15.000	>15.000		Partial	SH opening
206.470	205.8	Temple	Right	>15.000	>15.000		Partial	SH opening

Source: Concession Agreement

### 3.3.4

### Noise Sensitive Receptors

The Noise Sensitive Receptors along the road and planned mitigation measures are provided in Table 3.4 below.

**Table 3.4** Noise sensitive receptors along the road and mitigation measures

Chainage		Type	Side	Distance in m		Length in m	Impact		Mitigation
Existing	Proposed			From ECL	From PCL		Physical	Access	
4.650	4.650	School	Left	13.963	13.963	18.6	Partial	SH Opening	Existing Compound wall to be shifted and developed as Noise Barrier to adopt TCS 3 to solve access issue
4.720	4.720	School	Right	10.5	10.2	41.5	Partial	SH Opening	Existing Compound wall to shifted and developed as noise barrier. To adopt TCS 3 to solve access issues.
11.800	11.8000	College	Right	>15.0	>15.5		No	Village Road Opening	No access issues
26.500	26.500	School	Left	>15.0	>15.0		No	SH Opening	School though opens into SH is quite far away. No access issue anticipated.
35.675	35.665	Hospital	Left	>15.0	>15.0		No	SH Opening	No access issue. To adopt TCS 3
36.310	36.300	Hospital	Left	>15.0	>15.0		No	SH Opening	Though the hospital opens into SH is quite far away. No access issue anticipated.
51.270	51.200	School	Left	11.3	11.3	35.7	Partial	SH Opening	Existing Compound wall to shifted and developed as noise barrier. Service road on both side as per TCS-2 proposed.
52.320	52.250	Hospital	Right	>15.0	>15.0		No	SH Opening	TCS-3 to be adopted
54.250	54.180	School	Left	15.407	15.407	51.7	Partial	SH Opening	Existing Compound wall to shifted and developed as noise barrier.
75.820	75.755	School	Left	9.75	9.75	35.5	Partial	SH Opening	Existing Compound wall to shifted and developed as noise barrier. To adopt TCS 3 to solve access issues.
88.150	88.035	School	Right	>15.0	>15.0		No	SH Opening	
97.890	98.000	School	Right	12.445	12.445	25.9	Partial	SH Opening	Existing Compound wall to shifted and developed as noise barrier. To adopt TCS 3 to solve access issues.

Chainage Existing	Proposed	Type	Side	Distance in m		Length in m	Impact		Mitigation
				From ECL	From PCL		Physical	Access	
99.090	99.200	College	Right	>15.0	>15.0		No	SH Opening	Though the college opens into SH is far away. No access issues anticipated. Moreover TCS-3 to be adopted.
99.790	99.900	School	Left	>15.0	>15.0		No	Village Road Opening	No access issues anticipated as TCS-3 with 3.75m service road on both side is proposed.
113.840	113.950	School	Left	12.724	21.21	56.7	Partial	SH Opening	Existing Compound wall to shifted and developed as noise barrier. To adopt TCS 3 to solve access issues.
120.600	119.900	School	Right	>15.0	>15.0		No	SH Opening	To adopt TCS 3 to solve access issues.
137.750	136.645	School	Left	>15.0	>15.0		No	Village Road Opening	No access issues anticipated, however Service road with 5.5m width and corresponding to TCS-2 proposed.
138.150	137.050	School	Right	21.162	18.48	15	Partial	SH Opening	New Compound wall to be developed as noise barrier. Service road with 5.5m width and corresponding to TCS-2 proposed.
157.350	156.150	School	Right	13.37	13.37	107.2	Partial	SH Opening	Existing Compound wall to shifted and developed as noise barrier. To adopt TCS 3 to solve access issues.
170.900	169.680	School	Left	>15.000	>15.001	0	No	SH Opening	No access issues as school is away from SH

Source: Concession Agreement

### 3.3.5

#### *Community Properties*

The road development involved impact on 35 community properties which includes 11 bus shelters, 2 checkposts, 9 government offices, 8 graves, 3 police stations, 1 truck lay bye and 1 statute. Impact on 8 of these community properties were avoided, while 14 were partially impacted and 13 were fully impacted. The details of these community properties along with extent of impact and proposed mitigation measures is provided in Table 3.5 below.

**Table 3.5**

#### *List of Community Properties impacted*

Chainage Proposed	Existing	Type	Side	Distance in m		Impact	Mitigation	
				From ECL	From PCL		Physical	Access
157.535	156.400	Tomb	Left	11.565	12.225	Full	SH opening	Relocation as per RAP

Chainage		Type	Side	Distance in m		Impact		Mitigation
Proposed	Existing			From ECL	From PCL	Physical	Access	
4.750	4.750	Graveyard	Left	12.832	12.532	Partial	-	Relocation and rehabilitation as per RAP. Service road as per TCS-3 to be adopted
73.150	73.080	Graveyard	Left	12.100	12.100	Partial	SH opening	Relocation and rehabilitation as per RAP. Service road as per TCS-3 to be adopted
11.400	11.400	Graveyard	Left	>15.000	>15.000	No	SH opening	Service road as per TCS-3 to be adopted
12.750	12.750	Graveyard	Right	>15.000	>15.000	No	SH opening	Service road as per TCS-2 proposed
34.650	34.640	Graveyard	Right	>15.000	>15.000	No	SH opening	Service road as per TCS-3 to be adopted
52.020	51.950	Graveyard	Right	>15.000	>15.000	No	SH opening	Service road as per TCS-3 to be adopted
52.320	52.250	Graveyard	Right	>15.000	>15.000	No	SH opening	Service road as per TCS-3 to be adopted
	84.600	Truck lay by	Right	>15.000	-	N0	SH opening	New lay bye as per drawing
8.200	8.200	Bus Shelter	Right	10.4	8.861	Full	-	New bus stand as per drawing
30.100	30.015	Bus Shelter	Right	0.5	6.448	Full	-	New bus stand as per drawing
34.780	34.770	Bus Shelter	Right	8.203	8.230	Full	-	New bus stand as per drawing
37.650	37.640	Bus Shelter	Right	7.482	8.068	Full	-	New bus stand as per drawing
88.850	88.735	Bus Shelter	Right	2.307	6.753	Full	-	New bus stand as per drawing
101.040	101.150	Bus Shelter	Left	4.236	11.784	Full	-	New bus stand as per drawing
134.530	133.430	Bus Shelter	Left	9.327	9.832	Full	-	New bus stand as per drawing
137.750	136.645	Bus Shelter	Right	10.19	21.956	Full	-	New bus stand as per drawing
157.200	156.000	Bus Shelter	Left	7.802	13.559	Full	-	New bus stand as per drawing
172.300	171.080	Bus Shelter	Left	0.123	16.052	Full	-	New bus stand as per drawing
35.340	35.330	Bus Shelter	Left	13.689	9.513	Partial	-	New bus stand as per drawing
38.010	38.000	Government offices	Right	4.921	12.991	Full	SH opening	Relocation and rehabilitation as per RAP.
4.600	4.600	Government offices	Right	13.345	13.345	Partial	SH opening	Relocation and rehabilitation as per RAP.
51.320	51.250	Police Station	Left	11.3	11.3	Partial	SH opening	Relocation and rehabilitation as per RAP.
51.370	51.300	Government offices	Left	11.3	11.3	Partial	SH opening	Relocation and rehabilitation as per RAP.
51.770	51.770	Government offices	Right	8.626	8.421	Partial	SH opening	Relocation and rehabilitation as per RAP.
74.260	74.190	Government offices	Left	10.738	11.689	Partial	SH opening	Relocation and rehabilitation as per RAP.
97.890	98.000	Government offices	Right	12.445	12.445	Partial	SH opening	Relocation and rehabilitation as per RAP.

Chainage		Type	Side	Distance in m		Impact		Mitigation
Proposed	Existing			From ECL	From PCL	Physical	Access	
107.840	107.950	Government offices	Right	11.647	11.647	Partial	SH opening	Relocation and rehabilitation as per RAP.
138.100	137.000	Police Station	Right	5.215	7.706	Partial	SH opening	Relocation and rehabilitation as per RAP.
184.550	183.530	Government office	Left	>15.000	>15.000	Partial	SH opening	Relocation and rehabilitation as per RAP.
35.500	35.490	Government office	Left	>15.000	>15.000	No	SH opening	Service road as per TCS-2 proposed
36.000	35.990	Police Station	Left	>15.000	>15.000	No	SH opening	Service road as per TCS-3 to be adopted
13.780	13.780	Check Posts	Right	9.802	8.350	Full	Yes	Relocation as per RAP
36.100	36.100	Check Post	Left	11.964	11.964	Partial	None	Relocation as per RAP
107.840	107.950	Statue	Left			Partial		Repair, Rehabilitation and /or Relocation as per RAP

Source: Concession Agreement: B-14

### 3.3.6

#### *Affected Water Resources*

The road development also had impacts on water resources (tap, pumping station, water treatment plant, water tank, well, hand pump etc.). The list of affected water resources is provided in Table B-15 in Concession Agreement. The list includes 82 water resource structures to be fully impacted. The mitigation measure suggested for these is to relocate them to the nearest place.

Elcheru Lake is partially impacted which is at the right side of the road at chainage 171.400. The mitigation measures are as follows:

- Enhancement of the space in between the existing and the old road;
- Silt trap and oil interceptors to arrest silt and water pollution;
- Water quality measurement during construction and operation phase; and
- Landscaping and tree plantation to be done by the concessionaire.

## 3.4

### *CURRENT STATUS AND DE-SCOPING OPTIONS*

#### 3.4.1

##### *Punch list Items*

Concession Agreement for the project was signed in 23<sup>rd</sup> July, 2010, and a Supplement Concession Agreement <sup>(1)</sup> was signed 27<sup>th</sup> January 2016. Concessionaire (NAMEL) was appointed on 18<sup>th</sup> January, 2011. Concession period of the project is 24 years from the appointed date. Provisional commercial operation date (COD) for 190.38kms of the road was issued in 06<sup>th</sup> March, 2014 and this stretch of the road is in operation since then. NAMEL has obtained COD for another 6kms road in September 2016. Hence, the total length of the road for which COD is obtained till date is 196kms

(1) Initially the Concession Agreement was signed between PPP and Managing Director, APRDC and NAM Expressway Limited. After bifurcation of the Telangana state, as the road traverses through both Telangana and Andhra Pradesh State, Provisional Concession Agreement was signed between PPP and Managing Director, APRDC; PPP, NH, CRF&LWE Telangana and NAM Expressway Limited.

The completion status of different components of the project road as per the punch list is provided in Table 3.6 below.

**Table 3.6** *The Punchlist showing the extent of completion of construction works vis-à-vis provisions in DPR*

S. No	Item Description	Unit	Scope in COD Stretch	Executed	Balance	%age balance
<b>A</b>	<b>Main Carriage Way</b>					
1	Four lane Road	Km	211.86	190.38	21.48	10.14
a	Road Kerb on both sides	Km	211.86	190.38	21.48	10.14
2	Construction of Structures					
a	Major Bridges	No	7	6	0	0.00
b	Minor Bridges	No	50	46	4	8.00
c	ROBs	No	2	0	2	100.00
d	Pipe Culverts	No	321	288	33	10.28
e	Widening of Slab/Box Culverts	No	106	99	7	6.60
f	Rehabilitation of Bridges, a) Painting and numbering	No	51	51	0	0.00
3	PUPs/CUPs	No	10	7	3	30.00
4	Construction of Service Roads					
a	RHS	Km	13.035	7.22	5.815	44.61
b	LHS	Km	12.965	5.42	7.545	58.20
<b>B</b>	<b>Road Furniture</b>					
a	Major Junctions	No	4	3	0	0.00
b	Minor Junctions	No	34	29	5	14.71
c	RCC Line Drains	Km	26	12.64	13.36	51.38
d	Unlined Open Drains	Km	300	294.45	5.55	1.85
e	Median Drains	Km	1	1	0	0.00
f	Chute Drains	No	7600	6060	1540	20.26
g	Pavement Marking	Km	211.86	190.38	21.48	10.14
h	Traffic Signages	No	2638	1940	698	26.46
i	Highway Lighting	Locati on	17	10	7	41.18
j	Speed Breakers on side roads	No	172	132	40	23.26
k	5 K.M /KM/ H.M Stones					
	a) 5KM stones	No	85	76	9	10.59
	b) KM stones	No	339	304	35	10.32
	c) HM stones	No	1695	1520	175	10.32
l	a) Blinker Signals/Object Markers	No	208	166	42	20.19
m	a) Guard Posts	No	5993	5993	0	0.00
	b) Delineators	No	4930	4173	757	15.35
n	Metal Beam Crash Barriers	Km	18.515	3.5	15.015	81.1
o	Studs	No	49254	42867	6387	12.97
p	Pedestrian Guard rail and Safety Barriers	Km	12.9	1	11.9	92.25
q	Road land boundary	Km	374.65	0	374.65	100
r	Land Acquisition Locations	No	127	101	26	20.47
s	a) Utilities shifting	No	39	26	13	33.33
	b) Removal of trees	No	6795	6778	17	0.25

S. No	Item Description	Unit	Scope in COD Stretch	Executed	Balance	%age balance
t	Removal of encroachments	No	13	12	1	7.69
u	Landscaping	No	5	3	2	40.00
v	Environmental clearances		-	-	-	-
w	Environmental Mitigation Measures	No	1	0	1	100.00
<b>C</b>	<b>Project Facilities</b>					
a	Toll Plazas	No	3	3	0	0
<b>D</b>	<b>Road side facilities</b>					
a	Rest Area	No	2	0	2	100
b	Truck Lay Bye	No	3	3	0	0
c	Bus Bay & Bus shelters	No	64	37	27	42.19
d	Traffic Aid Posts	No	3	3	0	0
e	Medical Aid Posts	No	3	3	0	0
f	Telecom Systems	No	84	0	84	100
g	Highway Traffic Management System	No				
a)	HTMS Equipment	No	21	17	4	19.05
b)	HTMS - ECB	No	84	0	84	100
c)	HTMS - Fibre optic	Km	423.72	375.86	47.86	11.3
d)	HTMS - Toll systems	Km	21	17	4	19.05
e)	Establishment of Control Room	No	1	0	1	100
f)	CCTV System at Major Junction	No	4	0	4	100
g)	Variable Message Sign	Nos	2	0	2	100
h)	Meteorological Data System	Nos	3	0	3	100
i)	Automatic Traffic Counter	Nos	3	0	3	100
j)	Project Implementation Unit	No	2	0	2	100
k)	Base Camp	No	2	0	2	100
l)	Avenue Plantation	Km	423.72	0	47.86	11.3
m)	Median Plantation	Km	211.86	190.38	21.48	10.14
n)	Gantry Sign Boards	Nos	26	24	2	7.69
o)	Turffing for slopes	Km	358.15	304.86	53.29	14.88
p)	Stone Pitching	Km	16.5	4.3	12.2	73.94

### 3.4.2

#### *Major Project Components which are not Constructed and under Discussion for De-scoping*

The construction of the service roads at some section of the project road is pending due to encroachment and conflict with local community, and presently being proposed for de-scoping. Similarly, due to land acquisition problem construction of Adanki bypass is de-scoped. The list of project components which are not constructed yet and the land acquisition process is under progress for these components are in **Table 3.5**.

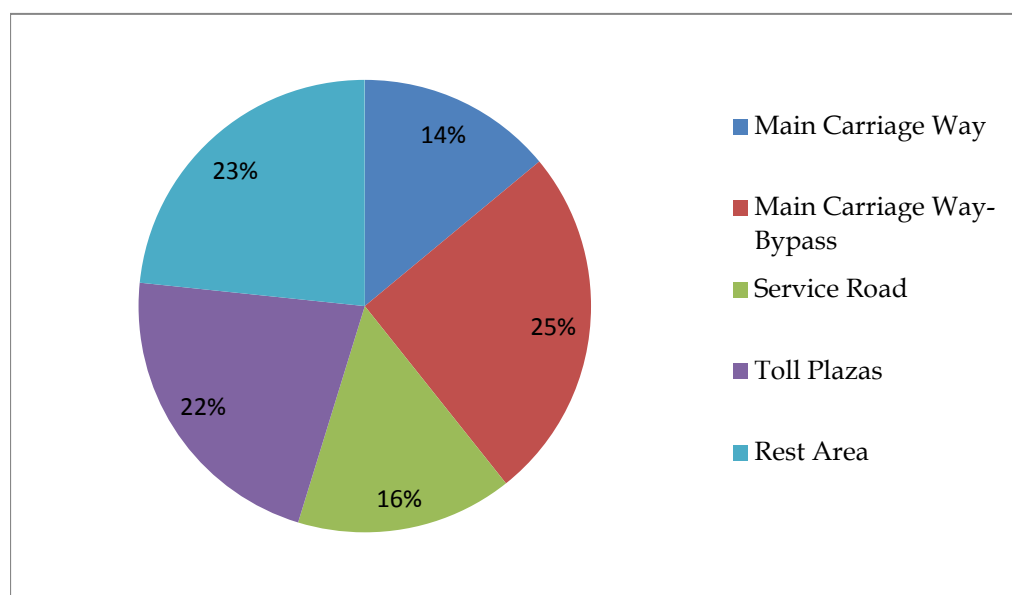
**Table 3.7** *Incomplete road components where land acquisition is not completed*

<i>Village</i>	<i>Project Component</i>	<i>Mandal</i>	<i>District</i>	<i>Area of land to be Acquired (in Acre)</i>	<i>Sub-Total for Project Component (in Acre)</i>
Madugulapalli	Main Carriage Way	Thipparthi	Nalgonda	0.95	12.63
Eluchuru		Santhamaguluru	Prakasham	3.5	
Chakryapalem		Addanki	Prakasham	5.07	
Kalvakur		Addanki	Prakasham	0.73	
Gopalapuram		Addanki	Prakasham	2.38	
Thipparthi	Main Carriage Way-Bypass	Thipparthi	Nalgonda	7.5	22.86
Piduguralla		Piduguralla	Guntur	1.99	
Piduguralla		Piduguralla	Guntur	4.12	
Piduguralla		Piduguralla	Guntur	0.67	
Piduguralla		Piduguralla	Guntur	1.8	
Piduguralla		Piduguralla	Guntur	6.78	
Yellareddygudem	Service Road	Narketpally	Nalgonda	0.81	13.99
Cherlapally		Nalgonda	Nalgonda	1.83	
A Duppalapalli		Thipparthi	Nalgonda	0.94	
Madugulapalli		Thipparthi	Nalgonda	2.17	
Kukudam		Vemulapali	Nalgonda	1.02	
Vemulapali		Vemulapali	Nalgonda	1.87	
Kondrapole		Damarcherla	Nalgonda	1.58	
Bothulaplem		Damarcherla	Nalgonda	0.59	
Damarcherla		Damarcherla	Nalgonda	2.37	
Chakrayapalem		Addanki	Prakasham	0.81	
Elchuru		Toll Plazas	Santhamaguluru	Prakasham	
Madugulapalli	Thipparthi		Nalgonda	5.28	
Thummalacheruvu	Piduguralla		Guntur	6.98	
Itukyala	Rest Area	Vemulapali	Nalgonda	10.55	21.1
Puttvanipalem		Santhamaguluru	Prakasham	10.55	
Grand Total					90.34

Source: NAMEL

Thus, the land acquisition for 90.34 acres is under process to complete construction of the remaining ~16 km of road (rest of the ~196km is operational). Out of this 40.86 acres are required for three Toll Plazas and 2 Rest Areas. This constitutes 45% of the total land acquisition under process. The completion of the remaining carriage way requires 22.86 acres and 13.99 acres for completion of service roads. The pie chart of the current land requirement for incomplete project components is showed in Figure 3.5 below.

**Figure 3.5** *Incomplete road components and land requirements (land acquisition under process)*



Source: Information shared by RIL Land Team

As construction of these components are pending due to access to land acquisition, de-scoping them will avoid the negative impacts of land acquisition. However, omission of some of them will compromise the road safety or ‘user experience’ or ‘transportation performance objectives’ of the project. Hence, the de-scoping decision needs to include appropriate mitigations for these concerns as well.

### 3.4.3 *De-Scoping Options under Consideration*

Cube is considering following options for avoiding land acquisition for some of these incomplete project components and is in the process of discussion with APRDC for taking decision.

**Table 3.8** *De-scoping Options under consideration*

Option	Description
Option-A	If all encroached structures are removed from RoW, all land required for the project is acquired and construction of all pending components are completed.
Option-B	Service roads and Rest Areas de-scoped, Revised RoW at Adanki Town (200.660 to 205.030) that includes main carriageway, drain, utility and service road, 25m RoW for other stretch is cleared of encroachments
Option-C	Only rest areas de-scoped. Revised RoW for Adanki Town 200.660 to 205.030) that includes Main carriageway, drain, utility and Service Road 35m RoW where Service Roads and 25m in rest of the road stretch free from encroachments

### 3.5 LAND REQUIREMENT AND LAND ACQUISITION PROCESS

#### 3.5.1 Land Acquisition Provisions in Concession Agreement

The cost of the land acquisition is borne by Government. As per Clause 21.1 of the Concession Agreement, “the Concessionaire shall be involved proactively in this regard for submitting relevant balance land acquisition proposal as outline in Andhra Pradesh R&R Policy 2005 and pursuing the matter with the state government revenue department and the concerned private people whose land is to be acquired. Government shall provide all necessary administrative support in this regard”. Further, Clause 21.3 states: “Government shall bear the cost of the rehabilitation and resettlement of project affected people. The RAP for the RAF is currently under implementation in accordance with GO MS. No 68 dated 8.4.2005 and amendment issued vide memo number 13236/roads IV.2/07 dated 25.01.2008. Any additional impact identified by the Concessionaire during the DPR stage will be implemented by the Government in a reasonable manner.” The Concessionaire shall proactively involve in all related activities.

#### 3.5.2 Land Requirement and Current Status

As per the available information, the total additional land requirement for the project was initially proposed to be 212.52 acre (including main carriage way and other associated facilities). This comprised of 177.54 acres of private land and 34.98 acres of government land.

As informed the process of land acquisition for services lanes could not be completed due to the changes in the old Land Acquisition Act 1894 (Old Act). Section-24 of The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (RFCT LARR Act 2013) considers the land acquisition process under the Old Act deemed to have lapsed under two circumstances:

- (a) Where no awards u/s 11 of the Old Act is made; and
- (b) Where an award u/s 11 of the Old Act is made five years or more prior to the commencement of the new RFCT LARR Act 2013, but physical possession was not taken or the compensation was not paid.

In such cases, all provisions of the RFCT LARR Act 2013 relating to the determination of the compensation shall apply. As a consequence, the land acquisition process for 90.34 acres of private land was re-initiated under the RFCT LARR Act 2013. Table 3.10 below provides the break-up.

**Table 3.9 Land requirement for the project and present status**

Total Land Acquired under Old LA Act		Land Acquisition in process under New RFCT LARR Act 2013 in Acre	
Private Land Acquired in Acre	Govt. Land Acquired in Acre	Private Land in Acre	Government Land in Acre
87.20	30.41	90.34	4.57
	117.61		94.91
Total Land Required: 212.52			

Source NAMEL

Thus, 56% of the total land required for the project has been acquired under the Old LA Act 1894 (Amended in 1984) and the balance land acquisition is under process as per requirements in RFCT LARR Act 2013. A brief overview of the land acquisition process under the old and the new Act is discussed in sections below.

### 3.5.3

#### *LA Process under Old Act and Compensations Paid*

Land acquisition for NAM Toll Road project was initiated in July 2011 and continued till 2014 as per the progression of the construction work. As the road passed through Telangana and Andhra Pradesh, the LA process was carried out in 6 Revenue Division Offices (RDOs). The details of the LA process completed under the Old LA Act are provided in Table 3.10 below.

**Table 3.10** *Land Acquisition Completed under Old LA Act*

<i>RDO/ SDO</i>	<i>Mandal</i>	<i>Village</i>	<i>Date of Land Acquisition Notification</i>	<i>Total Land Acquired in Acre</i>	<i>Cost of Total Land (Rs)</i>	
Nalgonda	Narketpally	Narketpally	14.5.2012	0.35	91,10,344	
		Cheruvugattu	01.02.2012	0.13	17,95,035	
		Yellareddygudaem	01.02.2012	0.12	16,69,800	
		Anneparthy	21-Jan-12	0.075	60,750	
	Nalgonda	Cherlapalli	29-Jun-12	1.48	1,29,36,568	
	Thipparthi	Jangareddy gudam	01-Feb-12	0.62	8,39,436	
		Cheruvuplli	02-Feb-12	0.89	14,73,236	
	Miryalaguda	Vemulapalli	Madugulapalli	26.03.2012	0.95	1,25,62,552
			Kukudam	01.02.2012	1.25	86,84,171
			Vemulapalli	02.02.2012	3.06	1,61,57,745
Vemulapalli		Vemulapalli	01.02.2012	1.33	26,56,476	
		Buggabaigudeam	19-Mar-12	0.53	40,000	
		Annepureddy gudam	5.8.2013	0.425	8,94,298	
		Itikyla	19-Jan-12	0.08		
Miryalaguda		Mullapahad	Mullapahad	15-Mar-12	0.18	1,82,456
			Gudur	30.07.2011	1.4	
		Kistapuram	Kistapuram	01-Apr-12	0.07	1,44,900
	Kothagudem		19.05.2012	0.94	19,83,245	
	Kothagudem		27-Jan-12	0.7	5,78,200	
Damarcherla	Kondrapole	26.01.2013	1.33	4,07,70,636		
	Kondrapole	27-Mar-12	0.1	81,561		
	Bothulapalem	09.01.2013	0.09	14,53,300		
	Damarcherla	09-Apr-12	0.32	2,56,000		
Gurazala	Piduguralla	Thummalacheruvu	19-Mar-12	0.87	5,70,071	
		Bramanapalli Bypass	28-Nov-12	24.55	2,43,58,630	
		Piduguralla bypass	07-Sep-12	32.03	12,22,49,120	
		Piduguralla bypass	07-Sep-12	2.67	2,29,59,067	
Guntur	Rajuapalem	Peddanelalipuri	20-Nov-12	0.16	18,52,000	
Narsaraopeta	Rompicherla	Vipparla	2012	0.13	58,500	
		Rompicherla	20-Oct-12	3.52	14,00,960	

Ongole		Annavarapupadu	19-Jul-13	0.65	4,38,514
		Thurumella	19-Jul-13	3.19	21,52,092
	Santhamaguluru	Puttvaniapalem	14.03.2012	0.58	6,42,850
		Eluchuru	30-Dec-13	1.617	8,59,500
		Eluchuru	30-Dec-13	0.693	20,05,500
		Kommalapadu	21.03.2012	0.05	7,65,000
	Ballikuruva	SL Gudipadu	18.04.2012	0.07	12,45,000
		<b>Total</b>		<b>87.20</b>	<b>29,58,87,513</b>

Source: RIL Land Team 2016.

Note: NA- Not Available. \*- LA Awards made available for review to ERM

The valuation of the land was done u/s 23 and 24 of the LA Act 1984 (old LA Act) which included the cost of land, solatium and interest paid for the period between notification date and date of award.

### 3.5.4 *Land Acquisition in Progress*

The LA process for the remaining portion of the required land within Andhra Pradesh is carried out under RFCT LARR Act 2013 (Refer section 2.3.3 for details). The LA process within Telengana is carried out as per the GO 123 (Refer section 2.3.4 for details).

### 3.5.5 *Litigations*

Reportedly there were nearly 22 court cases filed against the project. Most of these cases were related to alignment, removal of encroachments and invoking urgency clause. Out of 22 filed cases till September 2016, 13 cases are disposed by the respective courts and 9 are still pending.

**Table 3.11** *Summary of Court cases*

Category	Total Filed	Disposed	Balance
W.P	19	11	8
PIL	02	02	0
Suite / Sr. Civil Court	01	00	01

Source: NAMEL

The details of the pending court cases are provided in Table 3.12 below.

**Table 3.12 Details of Ongoing court cases**

Village	W.P.No	Subject	Petitioners	Respondents	Status	Remarks	
Gudur	65+500	W.P.No.4893 of 2012 WP Dt:23.02.2012	Invoking urgency clause	Ch.Prabhavathi & others, Gudur village	1. Prl. Secretary to Revenue (LA), Hyd. 2. Dist. Collector, Nalgonda. 3. RDO, Miriyalaguda.	Counter affidavit submitted by RDO,MRL	Admission Pending.
Nakerekallu	137+910	O.S.No.54 of 2013 Dt:03.01.2013	Removal Encroachments	Anumolu Sarojini Devi,Nakerekallu	1. EE(R&B), Narasaraopet. 2.Tahsildar, Nakerekallu. 3. EO, Gampanchayath, Nakerekallu. 4. EE(R&B) RDC, Guntur.	At Narsaraopet Sr Civil Court court	Counter affidavit
Nakerekallu	137+910	W.P.No.28352 of 2012 WP. Dt:10.09.2012	Removal Encroachments	Yeluri Srinivasarao & Others, Nekerekallu	1. Dist. Collector, Guntur. 2. EE(R&B), Narasaraopet. 3. Tahsildar, Nakerekallu. 4. EO, Gampanchayath, Nakerekallu. 5. EE(R&B) RDC, Guntur. 6. GM, Ramky, NAM	NOTICES (LISTING 10/09/12)	Counter to be submitted. however structure dismantled & work completed
Addanki Town		W.P. No.5636 of 2013 WP. Dt:26.02.2013	Addanki Town :: To go with Bypass or as per revised 2012 alignment by widening on both sides without any curve improvements	T. Savaraiah & 11 Others, Addanki	1. PS to R&B,Hyd. 2. Dist.Collector, Prakasam. 3. MD.APRDC,Hyd. 4. CE(R&B)PPP,Hyd. 5. EE (R&B), Guntur 6. SE, (R&B), Ongole 7. RDO, Ongole 8. Tahsildar, Addanki. 9. MD, M/s Ramky, Hyd	ADMIT LISTING 26/02/2013	Counter Affidavit yet to submit
Addanki Town		W.P. No.39473 of 2012 Dt:21.12.2012	Addanki Town :: To Stop as per DPR alignment (2008)	I. Chandra Sekhar & 22 Others, Addanki	1. PS to R&B,Hyd. 2. Dist.Collector, Prakasam. 3. MD.APRDC,Hyd. 4. CE(R&B)PPP,Hyd. 5. SE (R&B), Ongole. 6. Tahsildar, Addanki. 7. MD, M/s Ramky, Hyd	ADMIT (24/12/2012) Counter affidavit filed by R&B GP on 08/03/2012  Interim direction	"In the meanwhile, the respondents shall not demolish the premises owned by the petitioners, abutting the state High Way from Narketpalli to Addanki, under they are acquired in accordance with the relevant provisions of law."

Village	W.P.No	Subject	Petitioners	Respondents	Status	Remarks
Addanki Town	W.P.No.33989 of 2012 WP Dt:30.10.2012	Addanki Town:: LA: demarcating the existing road as per FMB	R. Sivanjaneyulu & 16 others	1. Dist Collector, Prakasam. 2. RDO, Ongole. 3. Tahsildar, Addanki. 4. MD, APRDC, Hyd. 5. MD, M/s Ramky, Hyd. 6.CE(R&B)PPP,Hyd	LISTING 21/01/13 Counter affidavit was filed on 08/03/2013	The main content of the petition pertains to Revenue Dept. i.e., demarcating the existing road as per FMB. Next hearing Date:25.07.2016
Addanki Town	W.P.No.29394 of 2012 WP Dt:17.9.2012	Addanki Town To follow original as per DPR (2008 alignment)	P.Madan Mohana Rao & 2 Others,Addanki	1. Dist Collector, Prakasam. 2. RDO, Ongole. 3. Tahsildar, Addanki. 4. MD, APRDC, Hyd. 5. MD,Ramky, Hyd. 6.CE(R&B)PPP,Hyd	NOTICES (LISTING 21/09/12)  Counter affidavit was filed by R&B GP on 28/12/2012.	Next hearing date 25.07.2016
Elchuru	171+300 W.P.No.9921of 2012 WP: Dt:10.04.2012	Elchuru Village realignment	Muthyala thirumaiah & 2 Others,Elchuru	1. Dist Collector, Prakasam. 2. RDO, Ongole. 3. Tahsildar, Santhamaguluru. 4. MD, APRDC, Hyd. 5. MD, M/s Ramky, Hyd.	NOTICES (LISTING 04/06/12) R&B GP	Counter affidavit submitted to GP T(R&B) on 18.12.2012. Next hearing date 27.01.2016

Source NAMEL

### 3.6 ENCROACHMENTS AND ENCUMBERED STRUCTURES

#### 3.6.1 Provisions in Concession Agreement

As per the Concession Agreement, the road land (RoW) boundary demarcation shall be maintained by the Concessionaire during the Concession period. For this purpose nail wires and angle posts shall be used in rural section and poles and chain shall be used in urban section. All components used in delineating road land boundary shall be aesthetically pleasing, sturdy and vandal-proof. Clause 21.4 states that the Concessionaire at his own cost shall remove all encroachments. The Government will be providing administrative support needed.

#### 3.6.2 Pre-Construction RoW Inventory Data

The joint survey<sup>1</sup> (Government and Concessionaire) inspecting the site before construction was carried out and a memorandum containing an inventory of the site including the vacant and unencumbered land, buildings, structures, roadworks, trees and other immovable property on or attached to the site was prepared. The summary of the built-up area or obstructions as per this memorandum is provided in table below.

**Table 3.13 Pre-Construction Joint Memorandum on Site Inventory**

Within Available RoW			Within land to be Acquired		
Huts	Pakka Building	Shops/ Temporary	Huts	Pakka Building	Shops/ Temporary
351	644	986	44	372	211
	1981			627	

Note: The exact date for this data is not available.

As per this initial survey in pre-construction phase, there were 1650 permanent and semi-permanent structures and 351 huts within the RoW. Similarly, 583 permanent and semi-permanent structures and 44 huts were reported from within the land acquisition area. The land acquisition award passed included the cost of the land as well as the cost of the structure.

#### 3.6.3 PWD Valuation of Structures within RoW During Construction Phase

The valuation of the structures within RoW in a later date during the construction period was carried out by PWD. The valuation exercise by PWD department during construction of the project covered 1428 structures and used SSR rates notified in 2008. The summary of the valuation data of the encroached structures (in Nov 2012) is presented below.

<sup>1</sup> Refer section 10.3.1 of Concession Agreement, pg-37.

**Table 3.14 Summary of Valuation of Structures within RoW by PWD in Nov 2012**

Type of Structure	Number of Structures	Total Estimated Cost with Depreciation	Average % of Depreciation Deducted	Non Depreciated Value of the affected structure as per SSR 2008
Permanent	550	9,92,15,438	15%	11,40,97,753
Semi-Permanent	730	4,49,60,652	15%	5,17,04,749
Temporary	146	39,21,687	20%	47,06,024
Grand Total	1426	14,80,97,777		17,05,08,528

Source: NAMEL database of Structure Valuation Sheets

The depreciations calculated for a sample of different types of structures were examined and it was found that the deductions for depreciation were 15% for permanent and semi-permanent structures and 20% of the permanent structures. Thus, the market price for these 1426 structures in 2012 is estimated to be 17.05 Crore.

The average per square meter cost for permanent, semi-permanent and temporary structures were determined using these detailed estimates done by PWD Department using SSR rates notified in 2008. The rates for different categories of structures are provided in Table 3.15 below.

**Table 3.15 Average cost of the Structures as per Valuation by PWD in Nov 2012**

Type of Structure	Average of Per square meter Cost in INR (as per 2008 SSR rate)	Rounded per square meter Cost in INR (as per 2008 SSR rate)
Permanent	10,753	10,750
Semi-Permanent	4, 621	4,500
Temporary	2,509	2,500

Source: NAMEL database of Structure Valuation Sheets

It was reported that due to local opposition, the construction of the carriage way was completed by undertaking partial demolition of the structures within the RoW. Hence, the RoW is not completely free of encumbrances. The partial demolition was carried out without paying the estimated compensation.

After completion of the construction of the carriage way, the encroachments within the RoW continued. As these data on encroachment was as old as 2012, ERM undertook a rapid enumeration of the existing structures in October 2016.

### 3.6.4 Enumeration of Structures within RoW in Oct 2016

A quick enumeration of the structures existing within the RoW was carried out in October 2016. The survey result is summarized in Table 3.17. It enumeration shows that 2492 encroached structures exist within the RoW. Permanent structures comprise 51% of the total number of structures and covers 59% of the total area under encroachment. Similarly, semi-permanent structures comprise 35% of the total number of encroached structures and constitute 31% of the total encroached area. Thus, 86% of the total number of

encroached structures is permanent and semi-permanent structures and together they constitute 90% of the encroached area.

**Table 3.16** *The summary of rapid enumeration of structures within RoW, As in Oct 2016*

<i>Structure Category</i>	<i>Number of Encroached Structures</i>	<i>Area of Encroachment in Square meter</i>
Permanent	1269 (51%)	46,408 (59%)
Semi-permanent	863 (35%)	24,014 (31%)
Temporary	318 (13%)	7,329 (9%)
Mobile Vendors	42 (2%)	502 (1%)
<b>Grand Total</b>	<b>2492 (100%)</b>	<b>78,252 (100%)</b>

Source: TRIPS-ERM Survey Oct 2016

### 3.6.5 *De-Scoping Options and Encroachments within Impact Corridor*

The de-scoping options as discussed in section 3.4.3 above correspondingly will have different corridor of impact due to removal of encroached structures from within the RoW. The extent of impact in the three de-scoping options is provided in Table 3.17.

**Table 3.17** *Difference in Corridor of Impact with different De-scoping Options*

<i>Structure Category</i>	<i>Option-A</i>		<i>Option-B</i>		<i>Option-C</i>	
	<i>Number</i>	<i>Area in sqm</i>	<i>Number</i>	<i>Area in sqm</i>	<i>Number</i>	<i>Area in sqm</i>
Permanent	1269 (51%)	46408 (59%)	105 (58%)	2362 (74%)	204 (57%)	5412 (65%)
Semi-permanent	863 (35%)	24014 (31%)	44 (24%)	603 (19%)	97 (27%)	2057 (25%)
Temporary	318 (13%)	7329 (9%)	19 (10%)	150 (5%)	42 (12%)	734 (9%)
Mobile Vendors	42 (2%)	502 (1%)	14 (8%)	61 (2%)	16 (4%)	66 (1%)
<b>Grand Total</b>	<b>2492 (100%)</b>	<b>78252 (100%)</b>	<b>182 (7%)</b>	<b>3175 (4%)</b>	<b>359 (14%)</b>	<b>8269 (11%)</b>

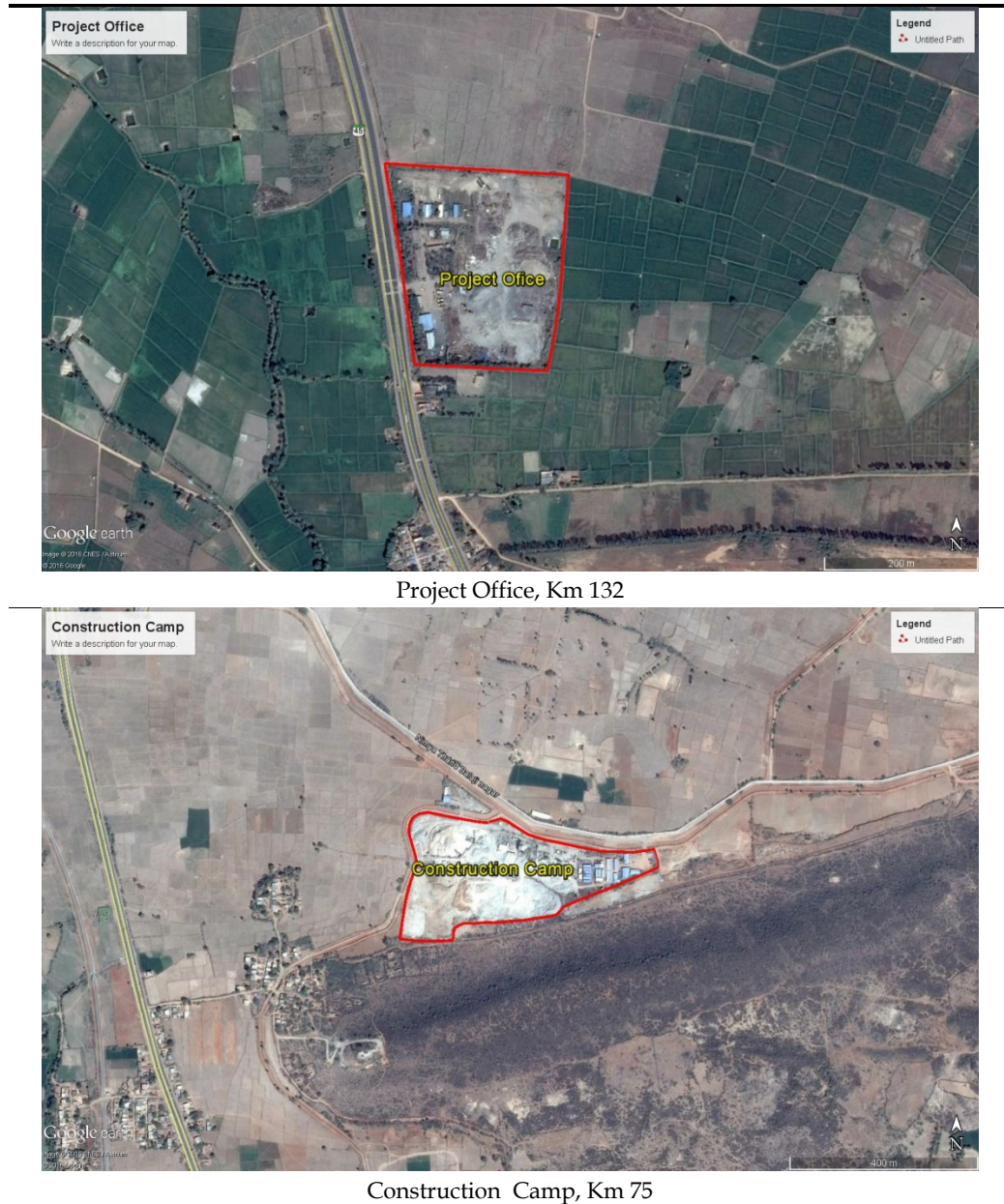
The Option-B will have the least impact corridor. It will require only 182 encroached structures to be removed, which constitute 7% of the total enumerated structures within RoW. In terms of area encroached it would constitute 4% of the total area of encroachment. Option-C will require removal of 359 (14% of total) encroached structures which comprises of 11% of the total encroached area of RoW.

### 3.7 *OPERATION & MAINTENANCE (O&M) ACTIVITY*

Construction camp for the project road is located at Kondrapole village at Km 75 and Gudipadu village at Km 182 with facilities like hot mix plant, wet mix plant, batching plant and stone crusher. Currently, Kondrapole construction camp with facilities like hot mix plant, batching plant is in functional stage, though it is reported that this camp will be decommissioned once the construction of the project road is over. At Gudipadu camp, all the construction equipment and machineries are decommissioned. Currently this

camp is being used as store yard. Project office (PO) for the project road is located at Srinivasanagar village at Km 132. In future, this PO will be upgraded to operation and maintenance camp and hot mix plant, wet mix plant and batching plant will be installed there. Aerial view of project office and construction camp is provided in *Figure 3.6*.

**Figure 3.6** *Arial view of Project Office and Construction Camp*



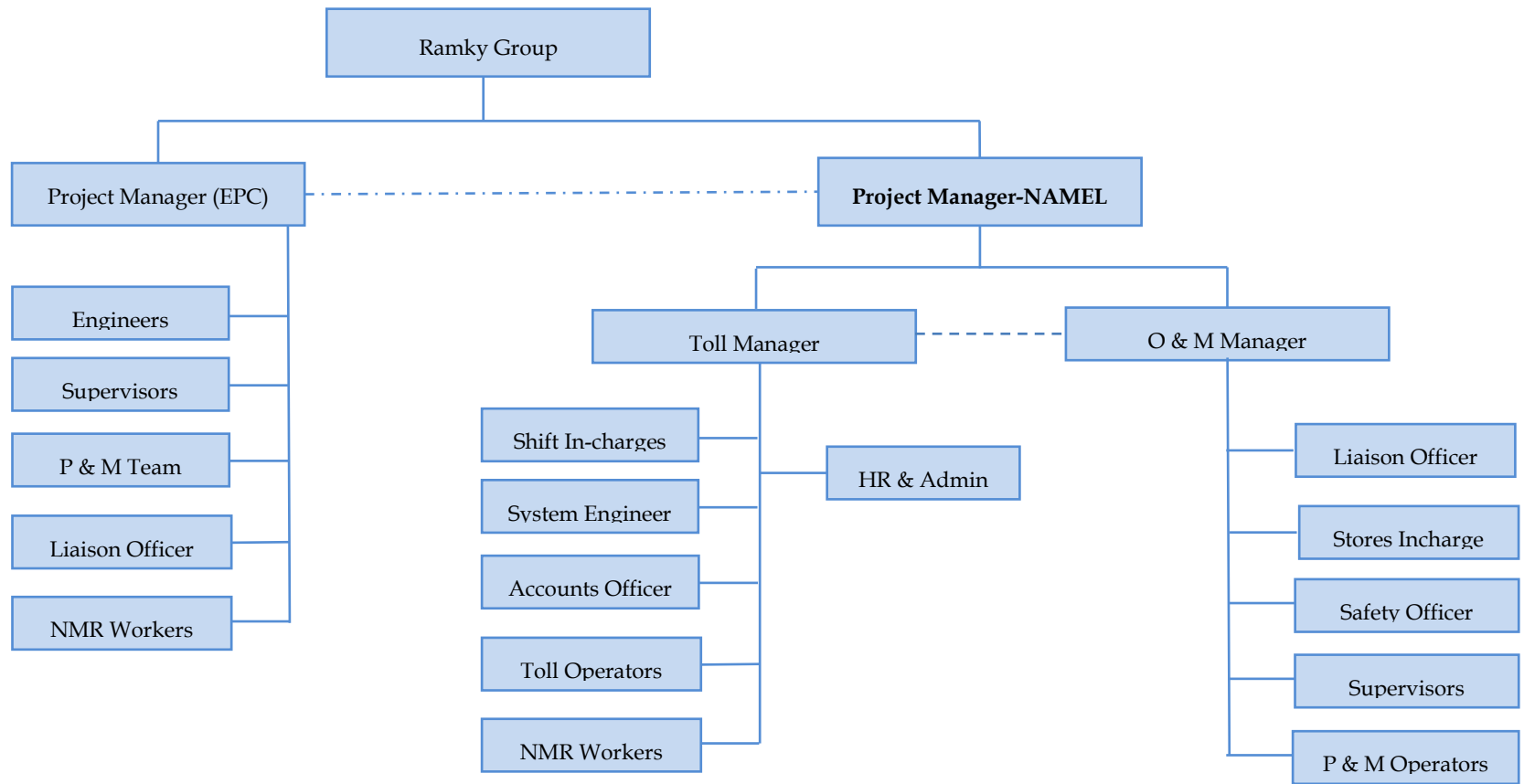
Source: Image derived from google earth dated 03.11.2016

Clause 22 of the Concessionaire Agreement deals with environment. All statutory environment clearances shall be the obligation of the Government. The Concessionaire shall be responsible for compliance to environment rules and regulation in force during design, construction, operation and maintenance. The Schedule-D of the CA deals with environmental mitigation measures and management plan for monitoring. The Schedule-D also deals with mitigation measures for sensitive cultural properties (as per Table B-12), noise sensitive receptors (as per Table B-13, community properties (as per Table B-14, and water resources (as in B-15).

### 3.7.1 *Organisation Structure*

NAMEL has established an organizational structure for construction and O & M of toll road, including safety management. The site office is headed by Project Manager who is responsible for the overall project. Project manager of RIL, Head of the O&M team and Toll Manager reports to the Project Manager of NAMEL. Project Office of NAMEL is located at Srinivasanagar (Km 132.200). The organization chart of NAMEL has been provided in *Figure 3.7*.

Figure 3.7 Organisation Chart-NAMEL



Source: NAMEL

### 3.7.2 *Environment and Social Management Systems*

As discussed in *Section 1.1*, NAMEL is a SPV jointly formed by RIL and ITNL. Reportedly, ITNL exited the JV later and thereby NAMEL became an wholly owned subsidiary of RIL. Also, EPC work of NAMEL was undertaken by RIL

RIL has Health, Safety and Environment (HSE) policy which applies to the NAMEL project. It also has document Environmental and Social Management System (ESMS). At corporate level, there is Environmental Management System (EMS) cell, responsible to implement the ESMS for all the projects including NAMEL project. Environmental Management System (EMS) cell of RIL is certified under EMS ISO 14001:2004 and OHSAS 18001:2007.

As part of the ESMS, emergency preparedness and response plan is prepared at the corporate office. However, site specific emergency response plant was not available at the project site.

NAMEL has an Operation and Maintenance (O&M) Manual which describes the Highway Operations, Procedures for Emergency Operations and Highway inspection and Frequency. The Highway maintenance aspects describe about the safety management and road asset management. However, the Manual does not talk about environment management during O&M phase carriageway waste management Plan, oil/chemical spill contingency plan and storm water management plan.

### 3.7.3 *Employees and Contract Workers*

NAMEL has dedicated human resource professionals at corporate office. This HR team oversees employee administration and welfare and reports to Project Manager.

As reported there are a total of 142 employees working at NAMEL, out of which 5 employees are stationed at corporate office and 5 employees are stationed at site office. Remaining 132 employees are working at three toll plazas. Detail of the employees of NAMEL is given in *Table 3.18*.

*Table 3.18 List of Employees of NAMEL*

SN.	Location wise employee	Number of workers involved
1.	<b>NAMEL-Corporate office</b>	<b>5</b>
	F&A	1
	HR & Admin	1
	Management Systems	2
	Secretarial	1
2.	<b>NAMEL SPV Office</b>	<b>5</b>
	F&A	1
	Highways	1
	Projects	1
	Structures	1
	Toll Operations	1
3.	<b>Toll Plaza I (Thipparthy)</b>	<b>48</b>

SN.	Location wise employee	Number of workers involved
	F&A	3
	Toll Operations	45
4.	Toll Plaza II (Dachepalli)	50
	Electrical	1
	Safety	1
	Toll Operations	48
5.	<b>Toll Plaza III (Santhamagalur)</b>	<b>34</b>
	F&A	1
	Projects	1
	Toll Operations	32
	<b>Grand Total</b>	<b>142</b>

Source: NAMEL

NAMEL has engaged the following subcontractors for all the activities and maintenance of the project corridor and the list has been presented in

**Table 3.19** *List of Subcontractors for the Project road maintenance*

SN.	Name of the Contractor	Scope of Work
1.	RIL	Road Construction
2.	Sun Security Services	Security at Toll Plaza and Site Office
3.	Harshavardhana Industrial Security Services	Security at Toll Plaza and Site Office

Source: NAMEL

### 3.8 ACCIDENT/INCIDENT ANALYSIS

Based on the data obtained from NAMEL, the following accident data (refer *Table 3.20*) shows that the total no of accidents decreasing from March 2014 to July 2016.

**Table 3.20** *Accident Data*

SN.	Period	Total no of accidents	Minor Injuries	Major Injuries	Death	Animal Killed
1.	March to December, 2014 (9 Months)	332 (36.9)	194 (21.6)	47 (5.2)	42 (4.7)	150 (16.7)
2.	January to December, 2015 (12 Months)	436 (36.3)	188 (15.7)	131 (10.9)	56 (4.7)	44 (3.7)
3.	January to July, 2016 (7 Months)	171 (24.4)	76 (10.9)	59 (8.4)	26 (3.7)	20 (2.9)
	<b>Total</b>	939	458	237	124	214
	<b>Average Per Annum</b>	402	196	102	53	92

Source: NAMEL

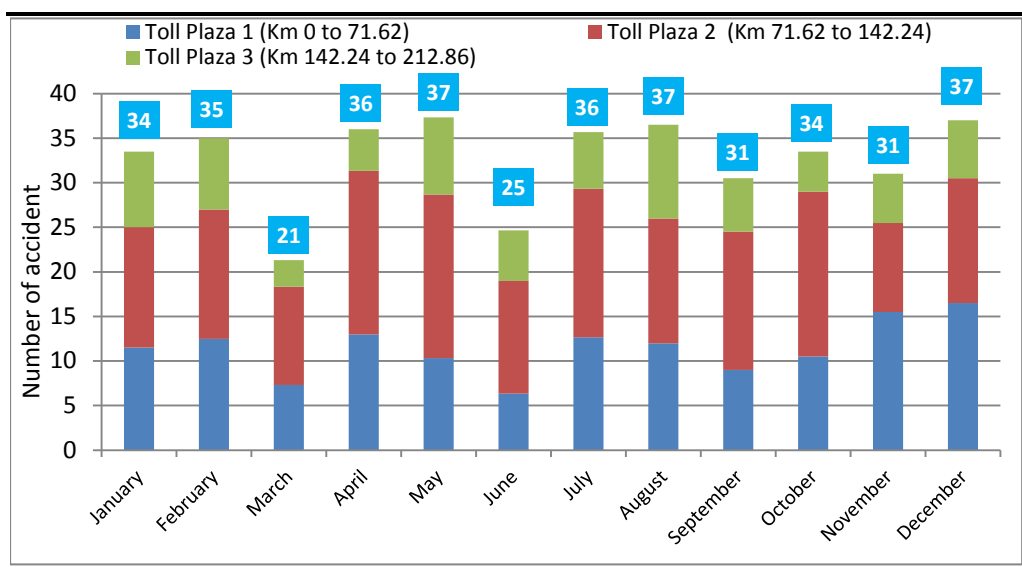
Note: Figures in parenthesis are monthly averages during the reference period.

The operating stretch of the road has recorded the slight reduction in monthly average number of reported road accidents. The road stretch records a fatality rate of 4.7 per month in 2014 and 2015. The average monthly fatality rate in 2016 is seen to be reduced to 3.7. It is significant to note that fatality of animals was high in 2014, though it has reduced considerably in 2015 and 2016.

The severity of the road accidents in terms of fatality per 100 accidents for NAM Toll Road is estimated as 13 which is lower than the annual accident severity rate for 2015 for India which is reported as 29.1 per hundred accidents.

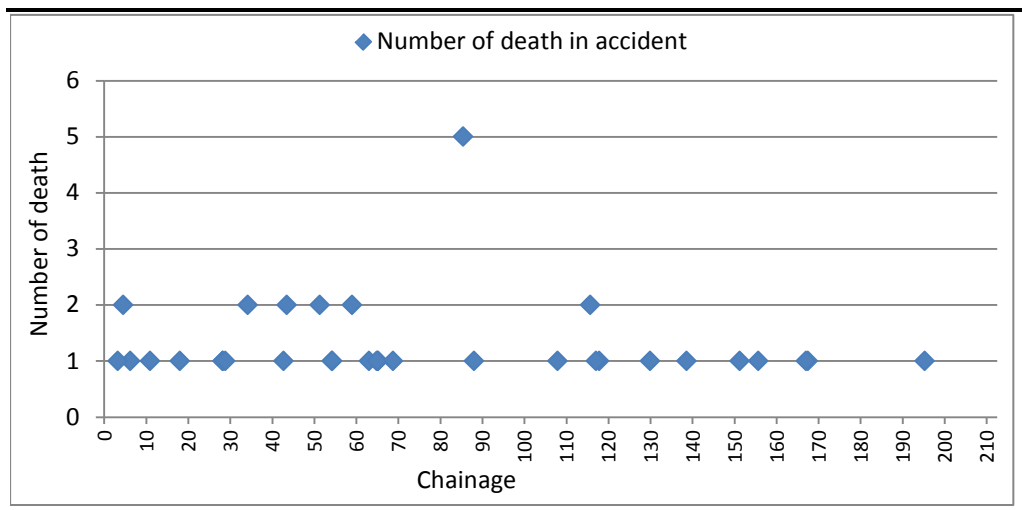
Monthly average number of accident from March 2014 to July 2016 is depicted in *Figure 3.8*. The data shows higher number of accident at Toll Plaza 2 (Km 71.62 to Km 142.24) compared to Toll Plaza 1 (Km 0.0 to Km 71.62) and 3 (Km 142.24 to Km 212.86). Also, at Toll Plaza 3, number of accident is less compared Toll Plaza 1 and Toll Plaza 2.

**Figure 3.8** *Average Monthly Accident*

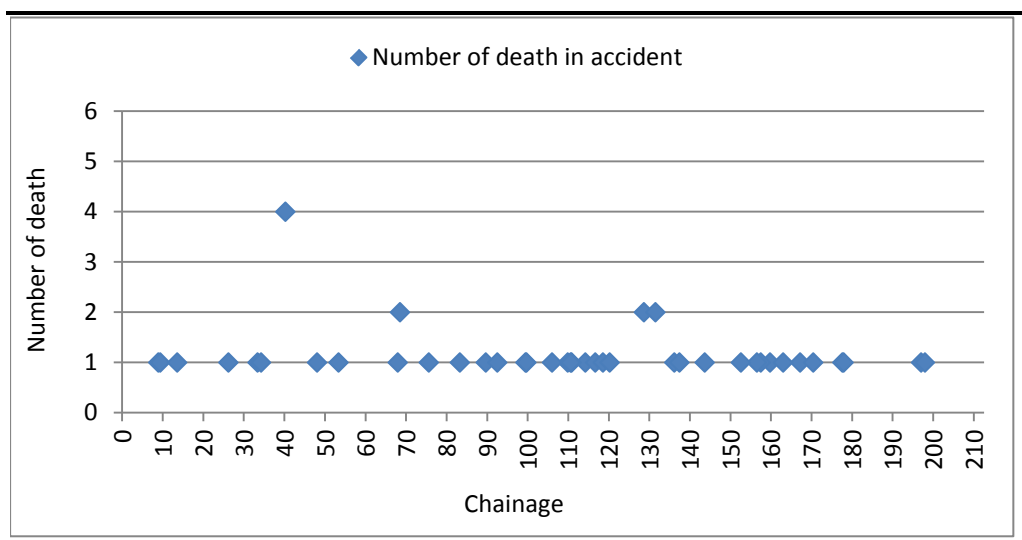


Number of death from road accident along the project road is depicted in *Figure 3.8*, *Figure 3.9* and *Figure 3.10*. From March to December 2014, maximum number of death occurred near Km 90. During this period, most of the fatal accident was recorded between Km 0 to 90. From January to December 2015 and January to July 2016, maximum number of death from road accident was recorded near Km 40 and Km 190 respectively.

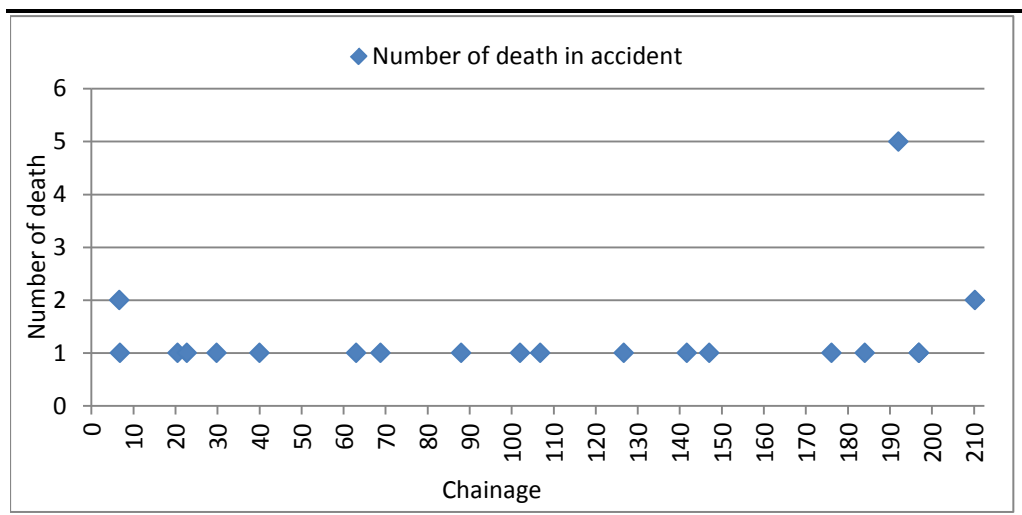
**Figure 3.9** *Number of death in road accident- March to December 2014*



**Figure 3.10** *Number of death in road accident - January to December 2015*



**Figure 3.11** *Number of death in road accident - January to July 2016*



Aspects that may act as a potential risk for accidents along the project stretch are:

- Significant number of multi-axle vehicles parked in the corridor on both sides. Vehicle parking in the corridor were seen near industrial area (Km 85 and Km 55) and near state border (RTO check post), thereby reducing the road width for traffic movement;
- Significant number of vehicles driving in the opposite direction on the main expressway, for e.g., tractors, motorcycles etc. This type of practice was observed at places where median opening was not available nearby, and vehicle were trying shortcut to reach their destination. There seems to be lax traffic control to prevent such occurrences;
- Based on the site assessment, it was observed that highway patrolling is not adequate. Review of the incidence log book available with ambulance at Toll Plaza-2 indicates varying response time of the medical team from as low as 3 minutes to as high as 25 minutes.; and
- The entire road had multiple sections where there was significant cattle movement. Mainly sheep herd (approx. 40 to 50) and buffalo (approx. 3 to 5) were seen crossing the road.

NAMEL has held road safety awareness programs for children and villagers in the project corridor as part of its CSR activities. It is acting as per the guidance of the APRDC to reduce the fatalities and road accidents.

### 3.9

#### *NATURAL HABITATS*

The project road is mainly dominated by agricultural land followed by residential area. There is no critical habitat and endangered areas within the proximity of the project corridor. The project road is not crossing any ecological sensitive and protected areas like reserve forest, national park, wild life sanctuary, tiger reserve, biosphere reserves, lakes and wet lands. There are two lakes (Elchuru lake at Km 171 and Bhavanasi Cheruvu at Km 197) adjacent to the highway. Both lakes are used for irrigation purpose as well as a habitat of local birds (kingfishers, cormorants, egrets, herons, etc.).

#### *Terrestrial Flora*

No forest areas are present in the vicinity of the road alignment. Construction of the road required felling of 2355 no's of impeding trees from Km 0.000 to Km 88.000 in Nalgonda district, 2282 nos of trees from Km 88.000 to Km 165.000 in Guntur district and some (exact number was not available in the document examined by ERM) trees from Km 165.000 to Km 213.000 in Prakasam district to clear the ROW of the road. Permission for this tree felling was obtained from respective Divisional Forest Officer (DFO). There is no endangered flora along the road. Predominant tree species are Marri, Teak, Neem, Eucalyptus, Tamarind, Kowit, Mango and Jamun.

As compensatory afforestation, minimum 14386 trees are proposed to be planted along the project corridor and another 11455 trees to be planted in the

bypass location (*Scheduled D of Concession Agreement*). Proposed tree species to be planted as avenue plantations are Kadamba, Jackfruit, Neem, Kachnar, Amalaka, Mango, Tamarind etc.

Total avenue plantation proposed for the project is 424.13 kms (considering both LHS and RHS) along the road, out of which avenue plantation for 267.92 kms is completed. Avenue plantation in the remaining section of the road is in progress. Due to encroachment and land acquisition issue, avenue plantation is delayed.

#### *Terrestrial Fauna*

Domesticated animals dominate fauna species all along the project road. No endangered fauna were reported along the project corridor.

### 3.10

#### COMMUNITY CONSULTATIONS

During the site visit (between 22<sup>nd</sup> to 28<sup>th</sup> October 2016) community consultations were carried out with affected land owners, existing encroachers whose structures are located within the ROW, officials of revenue and public works department district Guntur. These consultations indicate the following:

- It was reported that project road was widened/upgraded two times before the current four laning project. Firstly around 30-40 years back the road was widened up to single lane when it was converted to major district road. And around year 2000, the road was converted to state road and was widened up-to two lanes.
- Most of the consulted people could not confirm or remember the land acquisition related issues including compensation and displacement arising due to the conversion of road to major district road. However they reported that during that period the populations living close to road was less and having limited commercial activities therefore impact must have been low.
- Further during the conversion of road to state highway the expansion of carriageway was limited and there were sufficient ROW. Hence, there was no major reported incidence of displacement due to the project.
- However due to four laning most of the people living close to the carriageway were affected. Affected persons included both people having formal rights to land (titleholders from whom land was acquired to accommodate additional RoW for improvement of junctions or road curvatures) and assets and informal dweller (included encroachers and squatters using the RoW for residential and commercial use).
- Most of the land was acquired under Land acquisition act 1894 and its subsequent amendments and compensation for land and other assets were paid to eligible persons who are having legal title of the acquired land.
- The majority of the affected persons come under the category of informal dwellers which includes squatter and encroachers. These groups of PAPs were not paid compensation for the loss land & assets and livelihood due to land acquisition.
- In incidence of physical displacement was limited. However community informed that most of the informal road dwellers who vacated their earlier position are still living at the margin of the ROW or on the link roads in

case of junctions. Hence the impact if any on livelihood maybe minimum or negligible.

Table 3.22 summarize the consultations carried out from 22<sup>nd</sup> to 28<sup>th</sup> Oct 2016.

**Table 3.21** *Details of Community Consultations*

Date	Location	Group/person consulted	Description
24 <sup>th</sup> Oct 2016	Nakirekallu	Community	During consultations following issues were discussed: <ul style="list-style-type: none"> <li>• History of settlement and widening of road vis a vis its impact</li> <li>• Land acquisition and its process</li> <li>• Distribution of Compensation for land &amp; assets</li> <li>• Process of removal encroachments &amp; squatters</li> <li>• Resettlement &amp; Rehabilitation process</li> <li>• Grievances handling mechanism and current grievances</li> <li>• Public perception and protests</li> <li>• Litigation &amp; court cases</li> </ul>
	Vippalla		
	Kondamodu		
25 <sup>th</sup> Oct 2016	kukkadam	Community	During consultations following issues were discussed: <ul style="list-style-type: none"> <li>• History of settlement and widening of road vis a vis its impact</li> <li>• Land acquisition and its process</li> <li>• Distribution of Compensation for land &amp; assets</li> <li>• Process of removal encroachments &amp; squatters</li> <li>• Resettlement &amp; Rehabilitation process</li> <li>• Grievances handling mechanism and current grievances</li> <li>• Public perception and protests</li> <li>• Litigation &amp; court cases</li> </ul>
	Vemulapalli		
	Chaiapalli		
	Bothalapalem		
26 <sup>th</sup> Oct 2016	Guntur	PWD	<ul style="list-style-type: none"> <li>• Process of valuation of potentially impacted structures</li> <li>• Role of NGO</li> <li>• Market rates and SSR rates</li> <li>•</li> </ul>
	Guntur	Revenue Department	<ul style="list-style-type: none"> <li>• Process and status of land acquisition</li> <li>• Determination of land rates</li> <li>• Adequacy of compensation and market rates</li> <li>• Process to complete the pending land acquisition</li> <li>• Litigation and ongoing court cases</li> </ul>
	Chalagundla Pedanemalipuri	Community	<ul style="list-style-type: none"> <li>• History of settlement and widening of road vis a vis its impact</li> <li>• Land acquisition and its process</li> <li>• Distribution of compensation for land &amp; assets</li> <li>• Process of removal encroachments &amp; squatters</li> <li>• Resettlement &amp; Rehabilitation process</li> <li>• Grievances handling mechanism and current grievances</li> <li>• Public perception and protests</li> <li>• Litigation &amp; court cases</li> </ul>
27 <sup>th</sup> Oct 2016	SL Gudipadu Kopperapadu Boduvera Palem Elchur Adda Road Komalapedu Gopalapurum Vipparla	Community	

**4.1 REFERENCE FRAMEWORK AND SCREENING CRITERIA**

This section provides a detailed analysis of the gaps identified pertaining to environmental, social and health and safety of the project based on the IFC ESDD screening criteria for operational toll roads. As illustrated through the Table 4.1, the project road falls under “Category 3: Just operational (less than one year) or where there is any pending land acquisition”. The project was screened using the reference framework detailed out in Section 2 above and following significant aspects were found relevant for NAM Toll Road project.

- Legal Permits/ Consents;
- Assessment and management of environment and social risks and Impacts;
- Stakeholder/ community engagement;
- Grievance Mechanism;
- Human Resources and labour/ workers conditions;
- Contractor management
- Health & safety;
- Community health & safety
- Pollution prevention
- Land and resettlement issues
- Avenue Plantation
- Cultural heritage and resources

**4.2 KEY OBSERVATIONS, IMPLICATIONS AND RECOMMENDATIONS**

Observations on these aspects along with their implications or risk to the project are discussed in this section. Table 4.1 provides summary of key observations, implications and recommendations to close gaps if any. A detailed gap assessment has also been provided in Annexure C.

**Table 4.1 Key Gaps as per the IFC Screening Criteria**

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
Legal Permits/ Consents	<p>No legal register has been prepared and maintained by NAMEL covering necessary permits, approvals and other regulatory requirement details. Permits for some of the project activity are not obtained, or if obtained, have expired. Following permits are not obtained or have expired for the project:</p> <ul style="list-style-type: none"> <li>• At Kondrapole camp, validity of consent to operate (CTO) for hot mix plant, batching plant and wet mix plant was expired on 30.09.2015 and validity of stone crusher was expired on 28.09.2016</li> <li>• Five bore wells have been constructed at the Kondrapole camp. However, permission for these bore wells has not been obtained from the Telangana WALTA (Water, Land and Trees Authority).</li> <li>• 21 DG sets with capacity varying from 30 KVA to 600 KVA are being used for the project. However, permission for operation of these DG sets has not been obtained from the State PCB.</li> <li>• As part of the CTO (for Kondrapole camp) condition, RIL had to prepare and submit annual environmental statement to the state PCB. However, annual environmental statement was not prepared and submitted to the state PCB.</li> </ul>	IFC Performance Standard 1- Assessment for Social and Environment Management Systems for litigations on environment and social and IFC PS 5 on land Acquisition.	Operating without required permission/consents pose the business risk	<ul style="list-style-type: none"> <li>• NAMEL should develop an environmental and social legal register for the project to ensure a comprehensive list of requirements is available and there is compliance to all applicable environmental clearance and permit conditions.</li> <li>• All the necessary permits should be obtained and old ones updated</li> <li>• All the conditions stipulated in the consent document should be adhered to.</li> <li>• Third party compliance audit should be periodically undertaken (at least annually)</li> </ul>
Assessment and Management of Environment and Social Risks and Impacts	<p>The EIA was carried out for the project road at DPR stage and the EMP prepared as part of the EIA study was incorporated in Concessionaire Agreement. NAMEL has implemented the EMP in accordance to the Concessionaire Agreement. . Further, RIL has Health, Safety and Environment (HSE) policy which applies to the NAMEL project. RIL's Environmental Management System is certified under EMS ISO 14001:2004 and OHSAS 18001:2007. The following gaps were identified in the environmental and social management systems with respect to this project:</p> <ul style="list-style-type: none"> <li>• Organizational capacity is not adequate. Presently, in O &amp; M phase, there is only one safety office for the entire</li> </ul>	IFC Performance Standard 1- Assessment for Social and Environment Management Systems	Lack of capacity for effective management of EHS and social issues during O & M phase. This has resulted in weak monitoring of the project from the corporate	<ul style="list-style-type: none"> <li>• At site office suitable number of EHS office need to be engaged.</li> <li>• NAMEL should establish EHS monitoring framework along with an updated ESMS for NAMEL. This monitoring plan covering compliance (permits and licenses), implementation of the EMP and CA conditions; RAP and LRP obligations; etc NAMEL should periodically monitor implementation of management</li> </ul>

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
	<p>stretch of the road. Also, there is no environment officer being engaged in O &amp; M phase of the project.</p> <ul style="list-style-type: none"> <li>Periodic monitoring and review of implementation of management plan is not adequate at the corporate office level. At corporate level, RIL has been carrying out monitoring of implementation of management plan of any one of their asset in every quarter of a year. There is no specific time frame for monitoring one particular asset.</li> </ul> <p>O &amp; M manual (as per requirements of Article 17, Schedule-L and Schedule-K of the Concession Agreement) is prepared for the project. This document provides guideline, procedure and system for implementation of operation and maintenance of the project. However, detail environmental, health, safety and social action plan was not incorporated in O &amp; M manual.</p>			<p>programme at Project Level and at Corporate Level.</p> <ul style="list-style-type: none"> <li>Detail Environmental, health, safety and social action plan should be incorporated in O &amp; M manual. Following plans should be prepared and incorporated in the O&amp;M manual: <ul style="list-style-type: none"> <li>Carriageway Waste Management Plan</li> <li>Oil/Chemical Spill Contingency Plan</li> </ul> </li> </ul>
Land and Resettlement issues	<p>The NAMEL four-lane toll road project required 212.52 acres of additional land. Out of these 177.54 acres was private land which constitutes 84% of the total land requirement. As per concession agreement, the cost of the land acquisition is paid by APRDC.</p> <p>87.20 acres (49% of the total private land) was acquired under Old LA Act of 1894. As the land acquisition process was not completed for the remaining portions of land when the New RFCT LARR Act 2013 came into force, as per provisions u/s 26, the acquisition of these remaining 90.34 acres were re-initiated.</p> <p>Thus, compensation for 49% of the private land was made as per provisions under the Old LA Act 1894 and an enhanced compensation was paid to titleholders of remaining 51%. In general, the compensation under the RFCT LARR 2013 is higher and in most cases more than the replacement cost. However, the land compensation under Old LA Act is less than the replacement cost (estimated by Land Valuation Consultant Knight Frank).</p> <p>The social impact of the land acquisition (both under Old LA</p>	IFC Performance Standard 5- Land Acquisition and Involuntary Resettlement	Though land acquisition is responsibility of APRDC, poor management of the same will have reputational and operational risks for NAMEL.	A Livelihood Enhancement Plan (LEP) in compliance to IFC PS-5 for the project should be prepared which closes the gaps in payment of land compensation and provides livelihood assistance benefits for affected families.

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
	<p>act and new RFCT LARR Act 2013) has not been conducted to understand the impact of the land acquisition on livelihoods of the affected families. The physical displacement due to project though informed by NAMEL to be limited or negligible, count not be verified as there is no reliable pre-project documentation available. Hence, the extent of the physical and economic displacement is not known.</p> <p>In addition, the pre-project documentation indicates presence of encroachers and squatters along the road corridor. The expansion of the carriage-way to four lanes at several places involved demolition of these structures fully or partially. It is informed that these encroachers/squatters were not paid any compensation for the structures or for their loss of income and livelihood. A rapid enumeration of the encroached structures and squatters in Oct 2016 estimates that there are 2492 structures/squatters within the RoW.</p>			
Stakeholder/Community Engagement	<p>The stakeholder engagement/community relationship activities carried out by RIL/NAMEL are sporadic in nature. The stakeholders are neither systematically identified nor a structured information disclosure and stakeholder engagement program is implemented for the project.</p>	<p>IFC Performance Standard 1- Assessment for Social and Environment Management Systems and IFC PS 5 covering consultation and disclosure under LEP</p>	<p>Poor stakeholder engagement has operational and reputational risks for both construction as well as O &amp; M phase...</p>	<p>A detailed stakeholder analysis and engagement plan along with information disclosure plan should be prepared and implemented.</p>
Grievance Mechanism	<p>NAMEL follows the obligations under Concession Agreement for establishing a complaint mechanism. The emergency contact numbers are displayed at regular intervals and complaint registers are kept at Toll Plazas to be used by road users.</p> <p>The same system is also intended to be used for the road-side communities for their grievances and suggestions. However,</p>	<p>IFC Performance Standard 1- Assessment for Social and Environment Management Systems</p>	<p>Poor grievance management has operational and reputational risks</p>	<p>The grievance management process should be closely monitored by the management in regular interval and take steps to make it more efficient and effective. A quarterly reporting to management on Grievance Management should be prepared.</p>

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
Health & Safety	<p>the road side communities were not found to have used the grievance system. It may be due to lack of their awareness.</p> <p>Based on the site walk through, visit at construction and O &amp; M camp and consultation with site personnel, following observations are made:</p> <ul style="list-style-type: none"> <li>Number of site safety officer is inadequate for the project. At present there is one safety officer for the entire stretch of the project road.</li> <li>Road maintenance staffs engaged in maintaining median plantation and RoW maintenance are provided with reflective jacket. However, protective equipment like shoes and gloves are not provided to them.</li> <li>Accident-incident register is not maintained for the project.</li> <li>Emergency response plan is not prepared for the camp site (construction and O &amp; M camp).</li> <li>It is observed that subcontractor workers are engaged in pruning of vegetation on RoW edge without adequate protective barriers like reflective cone.</li> <li>Highway emergency service is not adequate as it is observed from the review of the incident -accident register that the time lapse to reach accident spot is sometimes exceeded 20 minutes.</li> </ul>	IFC Performance standard 2: Labour & Working Conditions on occupational Health & Safety	The safety of the road users, workers, and road-side communities is paramount for smooth operation of the road.	<ul style="list-style-type: none"> <li>At site office at least one EHS officer need to be deployed to monitor the road safety incidents and also look into the aspects of stakeholder engagements.</li> <li>Road maintenance staffs should be provided with PPEs including shoes, gloves and reflective jacket.</li> <li>Emergency response plan should be prepared for the project office and O &amp; M camp.</li> <li>NAMEL should ensure that adequate number of protective barrier is used during road maintenance work.</li> <li>Response time of medical team should be reduced below 20 minutes by increasing the number of response teams.</li> <li>Considering high incidence of livestock fatality, the road side communities should be made aware about safety measures and preventive practices.</li> </ul>
HR/ Contractor Management	<p>NAMEL reported to have engaged security agencies for Toll Plazas as contract workers. It has obtained the requisite permits as well. However, it was reported by the workers engaged in maintaining avenue plantation that they are hired on daily wages.</p> <p>The engagement of workers for avenue plantation and regular maintenance work is a recurring employment. Hence, engaging workers on daily wages contravenes the Contract Labaor (Abolition and Regulation) Act provisions.</p>	IFC Performance Standard-2: Labor and Working Conditions	There is a risk of legal compliance.	The engagement of workers for O&M of avenue planation should be in compliance to Contract Labour Act.
Pollution Prevention	The review of project documents and site assessment of the project road for environmental aspects revealed the following	IFC Performance Standard 3:	<ul style="list-style-type: none"> <li>Poor maintenance of the carriageway for</li> </ul>	<ul style="list-style-type: none"> <li>Water meter should be installed with bore wells and ground water</li> </ul>

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
	<p>observations.</p> <ul style="list-style-type: none"> <li>• There is no mechanism to measure utilization of water resource for the project. Bore wells used for ground water abstraction (at Kondrapole camp) are not fitted with water meter.</li> <li>• Waste management seems inadequate along the project road. Animal carcass is observed on RHS unpaved shoulder of the road. At some sections of the road, domestic solid waste, debris etc. is found to be scattered on the ROW edge.</li> <li>• Management of hazardous waste is not adequate at the camp site. Hazardous waste e.g., used oil, grease were observed to be stored in the open area without impervious floor and bunding. Spillage of oil from these diesel drums was noticed. Reportedly, hazardous waste at the project office was not disposed through authorised waste recyclers. Also, NAMEL staffs at the camp site are reportedly not aware of disposal procedure of hazardous waste. Oil spillage on the open ground is observed from vehicle at vehicle perking area. This has a likelihood of potential soil pollution.</li> <li>• Municipal solid waste was observed to be scattered inside Kondrapole camp.</li> <li>• No measures are taken to account GHG emission from the project. Also, no such measures are adopted to reduce GHG emission from the project.</li> </ul>	Resource Efficiency and Pollution Prevention	<p>solid waste, resulting into the clogging of the RoW drains.</p> <ul style="list-style-type: none"> <li>• Over utilization of water</li> <li>• Accidental spillage of hazardous waste would cause water and soil pollution.</li> </ul>	<p>abstracted from the bore well should be minimized and monitored.</p> <ul style="list-style-type: none"> <li>• Waste from the median and the ROW should be regularly removed and maintained by the sub-contractors.</li> <li>• Hazardous waste should be disposed by state PCB approved disposal agency.</li> <li>• Diesel/lube oil barrels to be stored in a properly covered area. Also drums should be placed on impervious pit/floor.</li> <li>• Municipal solid waste at the camp site will be disposed by local authority. In this regard, a MoU can be reached with the local municipal body.</li> <li>• Oil/Chemical Spill Contingency Plan should be prepared.</li> <li>• NAMEL should adopt measures like GHG accounting for this project. As a good practice, NAMEL should install solar street light and adopt other energy saving measures.</li> </ul>
Avenue Plantation	<ul style="list-style-type: none"> <li>• As compensatory afforestation, minimum 14386 trees are proposed to be planted along the project corridor and another 11455 trees to be planted in the bypass location. Total avenue plantation proposed for the project is 424.13 kms (considering both LHS and RHS) along the road, out of which avenue plantation for 267.92 km is completed. As reported by NAMEL, due to land acquisition and community issues, targeted avenue plantation is not completed yet.</li> </ul>	IFC PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Felling of trees for the project not only lead to erosion, it also affects the micro-ecosystems developed on the roadside with the birds, animals and insects.	<ul style="list-style-type: none"> <li>• Avenue Plantation should be completed at the earliest.</li> <li>• Measures suggested in Concessioner Agreement Document (Schedule-B, Table B-15: Water Recourse Mitigation) should be implemented for the road.</li> <li>•</li> </ul>
Cultural Heritage and Resources	<ul style="list-style-type: none"> <li>• The construction stage has removed or relocated affected cultural resources. There are still a few cultural sites (mostly religious shrines) close to the carriageway.</li> </ul>	IFC PS- 8: Cultural Heritage	It will have operational risk	<ul style="list-style-type: none"> <li>• A calendar of cultural events for the existing cultural sites should be prepared and effective measures</li> </ul>

Criteria	Key Gaps and Issues	Applicable Reference Framework	Implications/Risks to Project Operations	Recommendations
	<p>Though impact on these shrines was avoided, there is a possibility of conflicting requirements of the toll road users and users of these cultural sites on a daily basis or during special occasions. Such occasions will create unsafe traffic conditions and affect road operations.</p>			<p>for traffic control should be arranged in coordination with local administration.</p> <ul style="list-style-type: none"> <li>The stakeholder identification and analysis to cover the users of the cultural sites along the road including permanent, seasonal and occasional users.</li> </ul>
Community Health & Safety	<p>Some element of the project road e.g., service roads, bypasses, road furniture and road side facility items are pending due to land acquisition and encroachment issue. These would compromise the community safety aspects of the road operation.</p> <p>Significant number of multi-axle vehicles parked in the corridor on both sides, thereby reducing the effective road width for traffic movement;</p> <p>Vehicles are observed driving in the opposite direction on the main expressway, for e.g., tractors, motorcycles etc. This type of practice is observed at places where median opening is not available nearby, and vehicle are trying shortcut to reach their destination. There seems to be lax traffic control to prevent such occurrences;;</p> <p>The entire road had multiple sections where there is significant cattle movement. The nomadic livestock keepers were noticed to use the road corridor to travel along with their herd obstructing the carriageway.</p> <p>Though medical camps and road safety awareness programs are conducted in the neighboring villages across road alignment, these activities appear sporadic and no planning and execution of stakeholder engagement activities is noticed.</p>	IFC Performance Standard 4: Community Health, Safety, and Security	<p>The high number of accidents might become an issue to the project where community sentiments can get flared up due to recurring accidents. Lack of access control, non-enforcement of basic traffic rules cannot be ignored in light of these risks.</p>	<ul style="list-style-type: none"> <li>NAMEL should carry out a road safety audit (after the de-scoping decision) and implement remedial measures recommended by it. This should be part of the O &amp; M plan and should be monitored annually.</li> </ul>

### 5.1 PROJECT CATEGORISATION

IFC categorizes road projects into the following three types:

- Category 1: Operating roads (2 or more years);
- Category 2: Operating roads (1 or more years but less than 2 years); and
- Category 3: Just operational (less than 1 year) or where there is any pending Land Acquisition (LA)

Based on ERM's site assessment, review of documents and discussions with the regulatory authorities, the Project Corridor has been categorized as "Category 3: Just operational (less than 1 year) or where there is any pending Land Acquisition (LA) under IFC Screening criteria on the basis of the following:

- **Operational Period:** project road has been operational since Mar 2014, i.e. for more than 2 years;
- **Project Impacts:** The project road has been in operation since March 2014, and it has adverse environment and social impacts. Mitigation measures were adopted during the project design such as provisions for vehicular underpasses, service roads in the urban stretches and speed signboards along the project corridor, though ERM has observed that these measures need to be strengthened. The project road passes through agricultural land and there are more than 50 settlements. However, there are no critical habitat or environment sensitive areas within the proximity of the project corridor.
- **Extent and Magnitude of Impacts:** The limited environmental impacts are site-specific and are located within the right-of-way of the corridor of impact. However, the project has considerable social and rehabilitation impacts that need to be addressed. The current estimates of the number of households impacted by the project are approximately 4300 (for Option-B).
- **Management Systems:** NAMEL is managed by RIL and it has Health, Safety and Environment (HSE) policy which applies to NAMEL. It also has Environmental and Social Management System (ESMS) at corporate level. There is Environmental Management System (EMS) cell, responsible to implement the ESMS for all the projects including NAMEL. The Environmental Management System (EMS) cell of RIL is certified under EMS ISO 14001:2004 and OHSAS 18001:2007.

### 5.2 ENVIRONMENT AND SOCIAL CORRECTIVE ACTION PLAN

Keeping the magnitude of the environment and social action impacts, the recommended Environment and Social Corrective Action Plan (E&S CAP) is provided in *Table 5.1*.

**Table 5.1 Environmental and Social Corrective Action Plan**

SN.	Recommendation Action/Corrective Measure against the ESDD Screening Criteria	Reference	Responsibility and Resources	Measurable Outcome/ Documentation	Target Timelines for Completion after closing
<b>1</b>	<b>Compliance</b>				
	NAMEL should develop environmental and social legal register for the project to ensure compliance to all applicable environmental clearance and permit conditions	Refer Table 4.1 Legal Permits/Consents	NAMEL/RIL	Copy of Legal Register	1 months
1.1	NAMEL should obtain Consent to Operate under Air Act (1981) for the installed DG sets	Refer Table 4.1 Legal Permits/Consents	NAMEL/RIL	Copy of the License	3 months
1.2	NAMEL should renew validity of consent to operate (CTO) for operation of hot mix plant, batching plant wet mix plant and stone crusher.	Refer Table 4.1 Legal Permits/Consents	NAMEL/RIL	Copy of the License	3 months
1.3	Ground water abstraction withdrawal permit from WALTA should be obtained.	Refer Table 4.1 Legal Permits/Consents	NAMEL/RIL	Ground water abstraction permit	3 months
1.4	As per the CTO condition, annual environmental statement should be prepared and submitted to state PCB	Refer Table 4.1 Legal Permits/Consents	NAMEL/RIL	Copy of environment statement	Within 30 <sup>th</sup> September of every year
<b>2</b>	<b>Assessment and Management of Environment and Social Risks and Impacts</b>				
2.1	NAMEL should prepare an Environment and Social Management System for Operation Phase to establish a comprehensive EHS Management/Mitigation Plan along with monitoring indicators. NAMEL should periodically monitor implementation of management programme at Project Level and at Corporate Level.	Refer Table 4.1- Assessment and Management of Environment and Social Risks and Impacts	NAMEL through a third party agency	Copy of EHSMP; Internal Monitoring Records and Reports	Within 6 months
2.2	Detail Environmental, health, safety and social action plan should be incorporated in O & M manual. Following plans should be prepared and incorporated in the O&M manual: <ul style="list-style-type: none"> <li>o Carriageway Waste Management Plan</li> <li>o Oil/Chemical Spill Contingency Plan</li> </ul>	Refer Table 4.1- Assessment and Management of Environment and Social Risks and Impacts	NAMEL through a third party agency	Environmental, health, safety and social action plan	Within 6 months
<b>3</b>	<b>Resettlement Action Plan (RAP)/ Stakeholder Engagement Plan</b>				
3.1	A detailed Livelihood Enhancement Program (LEP) in compliance to IFC PS-5 for the project should be prepared which closes the gaps in payment of land compensation and provides livelihood assistance benefits for affected families.	Refer Table 4.1- Resettlement and Rehabilitation	NAMEL through a third party agency	LEP Document LEP Monitoring Reports LEP Completion Audit Report	Within 9 months (Monitoring and Completion Audit As per the LEP Schedule)
3.2	A detailed stakeholder analysis and engagement plan along with information disclosure plan should be prepared and implemented.	Refer Table 4.1- Stakeholder Analysis and Engagement	NAMEL	Stakeholder Engagement and Information Disclosure Plan	Within 6 months

SN.	Recommendation Action/Corrective Measure against the ESDD Screening Criteria	Reference	Responsibility and Resources	Measurable Outcome/ Documentation	Target Timelines for Completion after closing
3.3	The grievance management process should be closely monitored by the management in regular interval and take steps to make it more efficient and effective.	Refer Table 4.1- Grievance Management System	NAMEL	Grievance Management Register	Within 3 months
<b>4</b>	<b>Health &amp; Safety</b>				
4.1	<p>NAMEL should consider the following measures</p> <ul style="list-style-type: none"> <li>At site office suitable number of EHS officer need to be engaged</li> <li>Road maintenance staffs should be provided with shoes, gloves and reflective jacket</li> <li>Accident-incident register should be maintained at all the three toll plaza and project office.</li> <li>Emergency response plan should be prepared for the project office and o &amp; m camp.</li> <li>NAMEL should ensure that adequate number of protective barrier is used during road maintenance work.</li> <li>Response time of medical team should be reduced below 20 minutes.</li> </ul>	Refer Table 4.1, Health & Safety	NAMEL/RIL	Health and Safety Management Plan, its implementation as well as physical verification. Ongoing Monitoring	Within 3 months
<b>5</b>	<b>HR/ Contractor Management</b>				
5.1	The engagement of O&M of avenue planation works should be engaged through a contractor and ensure compliance to labour welfare measures	Refer Table 4.1, HR/ Contractor Management	NAMEL/RIL	No long term wage labours directly engaged	Within 3 months
5.2	Compliance of Security Agencies to Andhra Pradesh Private Security Agencies (Regulation) Act 2005 and Rules 2008	Refer Table 2.2, SI No. 16	NAMEL/RIL	Registration Certificate under APPSA Act 2005	Within 3 month
<b>6</b>	<b>Pollution Prevention</b>				
6.1	Water meter should be installed with bore wells and ground water abstracted from the bore well should be registered.	Refer Table 4.1 Pollution Prevention	NAMEL/RIL	Physical verification	Within 6 months
6.2	Waste from the median and the ROW should be regularly removed and maintained by the sub-contractors. NAMEL should ensure the regular monitoring of the sub-contractor activities.	Refer Table 4.1 Pollution Prevention	NAMEL/RIL	Physical Verification	Within 3 month and Quarterly thereafter
6.3	<ul style="list-style-type: none"> <li>Hazardous waste should be disposed by state PCB approved disposal agency.</li> <li>Diesel/lube oil barrels to be stored in a properly covered area. Also drums should be placed on impervious pit.</li> <li>Oil/Chemical Spill Contingency Plan should be prepared.</li> <li>Municipal solid waste at the camp site will be disposed by local authority. In this regard, a MoU can be reached with the local municipal body.</li> </ul>	Refer Table 4.1 Pollution Prevention	NAMEL/RIL	Physical Verification, Copy of Manifest for hazardous waste, copy of oil/chemical spill contingency plan	Within 6 months

SN.	Recommendation Action/Corrective Measure against the ESDD Screening Criteria	Reference	Responsibility and Resources	Measurable Outcome/ Documentation	Target Timelines for Completion after closing
	NAMEL should adopt measures like GHG accounting for this project. As a good practice, NAMEL should install solar street light.	Refer Table 4.1 Pollution Prevention	NAMEL/RIL	Physical verification, GHG accounting report	Within 6 months
<b>7</b>	<b>Avenue Plantation</b>				
7.1	Avenue Plantation should be completed.	Refer Table 4.1 Natural Habitats	NAMEL	Physical verification	Within 12 months
<b>8</b>	<b>Community Health &amp; Safety</b>				
8.1	NAMEL should carry out a road safety audit (after the de-scoping decision) and implement remedial measures recommended by it.	Refer Table 4.1 on Community , Health & Safety	NAMEL	Road Safety Audit Report and Action Plan	Within 6 months of de-scoping decision Action Taken Report on the Road Safety Report Recommendations within 12 months of Road Safety Audit Report

Some of the recommendations can be implemented within the current available budget or a marginal increase therein. The budgetary requirements of the recommendations are screened and presented in

**Table 6.1** Screening of Budgetary Requirements for Key Recommendations

SN.	Recommendation Action/Corrective Measure	Financial Implications
<b>1</b>	<b>Compliance</b>	The cost of permits is small amounts and will not have significant financial implication.
1.1	NAMEL should develop environmental and social legal register for the project to ensure compliance to all applicable environmental clearance and permit conditions	
1.2	RIL should obtain Consent to Operate under Air Act (1981) for the installed DG sets	
1.3	RIL should renew validity of consent to operate (CTO) for operation of hot mix plant, batching plant wet mix plant and stone crusher.	
1.4	Ground water abstraction withdrawal permit from WALTA should be obtained.	
1.5	As per the CTO condition, annual environmental statement should be prepared and submitted to state PCB	
<b>2</b>	<b>Assessment and Management of Environment and Social Risks and Impacts</b>	The ESIA study will be conducted through a third party agency. Hence will have cost implications.
2.1	NAMEL should prepare an Environment and Social Impact Assessment (ESIA) for Operation Phase to establish a comprehensive EHS Management/Mitigation Plan along with monitoring indicators. NAMEL should periodically monitor implementation of management programme at Project Level and at Corporate Level.	
2.2	Detail Environmental, health, safety and social action plan should be incorporated in O & M manual. Following plans should be prepared and incorporated in the O&M manual: <ul style="list-style-type: none"> <li>o Carriageway Waste Management Plan</li> <li>o Oil/Chemical Spill Contingency Plan</li> </ul>	
<b>3</b>	<b>Resettlement Action Plan (RAP)/ Stakeholder Engagement Plan</b>	The LEP study will be conducted through a third party agency. Hence will have cost implications. Typical recommendation of an RAP covers Livelihood Enhancement Plan (RAP/LEP) which will have significant cost implications
3.1	A detailed Livelihood Enhancement Program (LEP) in compliance to IFC PS-5 for the project should be prepared which closes the gaps in payment of land compensation and provides livelihood assistance benefits for affected families.	
3.2	A detailed stakeholder analysis and engagement plan along with information disclosure plan should be prepared and implemented.	
3.3	The grievance management process should be closely monitored by the management in regular interval and take steps to make it more efficient and effective.	
<b>4</b>	<b>Health &amp; Safety</b>	No radical change in Health and Safety measures is recommended. Hence, it can be achieved with marginal increase in current H&S budget.
4.1	NAMEL should consider the following measures <ul style="list-style-type: none"> <li>• At site office suitable number of EHS officer need to be engaged</li> <li>• Road maintenance staffs should be provided with shoes, gloves and reflective jacket</li> <li>• Accident-incident register should be maintained at all the three toll plaza and project office.</li> <li>• Emergency response plan should be prepared for the project office and o &amp; m camp.</li> <li>• NAMEL should ensure that adequate number of protective barrier is used during road maintenance work.</li> <li>• Response time of medical team should be reduced below 20 minutes.</li> </ul>	

SN.	Recommendation Action/Corrective Measure	Financial Implications
<b>5</b>	<b>HR/ Contractor Management</b>	It is an administrative measure and is not likely to incur extra cost.
5.1	The engagement of O&M of avenue plantation works should be engaged through a contractor and ensure compliance to labour welfare measures	
5.2	Compliance of Security Agencies to Andhra Pradesh Private Security Agencies (Regulation) Act 2005 and Rules 2008	
<b>6</b>	<b>Pollution Prevention</b>	These recommendations have marginal cost increase over the current expenses as per regulatory requirements.
6.1	Water meter should be installed with bore wells and ground water abstracted from the bore well should be registered.	
6.2	Waste from the median and the ROW should be regularly removed and maintained by the sub-contractors. NAMEL should ensure the regular monitoring of the sub-contractor activities.	
6.3	<ul style="list-style-type: none"> <li>• Hazardous waste should be disposed by state PCB approved disposal agency.</li> <li>• Diesel/lube oil barrels to be stored in a properly covered area. Also drums should be placed on impervious pit.</li> <li>• Oil/Chemical Spill Contingency Plan should be prepared.</li> <li>• Municipal solid waste at the camp site will be disposed by local authority. In this regard, a MoU can be reached with the local municipal body.</li> </ul>	
6.4	NAMEL should adopt measures like GHG accounting for this project. As a good practice, NAMEL should install solar street light.	
<b>7</b>	<b>Natural habitats</b>	The budget for avenue plantation is already earmarked in regulatory compliance cost.
7.1	Avenue Plantation should be completed.	
<b>8</b>	<b>Community Health &amp; Safety</b>	A third party will be engaged for this task and will require additional budgetary provision.
8.1	NAMEL should carry out a road safety audit (after the de-scoping decision) and implement remedial measures recommended by it.	

Thus the recommendations which have financial implications are:

- Cost of RAP/LEP Interventions
  - Cost gaps in payment of land cost to titleholders
  - Compensation cost of the affected structures in land acquired for the project
  - Compensation cost of the affected encroached structures within RoW
  - Cost of Livelihood Enhancement Plan Interventions
- Cost of Engaging Third Party Agencies for Planning and Monitoring
  - ESIA Study
  - Stakeholder Engagement and Information Disclosure Plan
  - Grievance Management Plan
  - RAP/LEP Implementation Monitoring
  - RAP Completion Audit
  - RAP/LEP Implementation Agency
  - Road Safety Audit Agency

A brief discussion and cost estimates for these components with additional financial implications are provided below.

The impacts of the land acquisition (economic displacement) will be addressed in a retrospective effect for this project. As a standard principle, the obligation of the private party (concessionaire) to fill the gap between provisions of IFC Performance Standards and the processes followed as per the Government of India/Government of Andhra Pradesh is assessed retrospectively fixing the date of the land acquisition notification as cut-off date. The key gaps identified with respect to payment of compensation for land and providing rehabilitation benefits are presented in Table 6.2.

**Table 6.2** *Gaps in Compensation and Rehabilitation entitlements between Government and IFC PS-5*

<b>Compensation and Rehabilitation Aspect</b>	<b>Description of Gap</b>	<b>Principles for Retrofitting</b>
Payment of land compensation under Old LA Act 1894	The valuation of the land was not based on 'replacement cost'.	Valuation of the market rate of the land acquired on the cut-off date by a professional agency and determining the gap amount. Considering the transaction cost for purchasing a replacement land by the PAF. Interest on the gap amount for the intervening period (cut-off date and date for retrofitting Mar 2017).
Payment of land compensation under New RFCT LARR Act 2013	The compensation paid for the land though was higher than what was paid under Old LA Act 1894, the land-use categorization of the land while doing the valuation was based on Record of Ownership rather than the actual current land-use.	Valuation of the market rate of the land acquired on the cut-off date by a professional agency as per current use of the land and determining the gap amount.
Compensation for Structures within acquired lands	The valuation of the structure deducted cost for depreciation hence was not a replacement cost.	The depreciation cost deducted was estimated. Interest on the gap amount for the intervening period (cut-off date and date for retrofitting).
Compensation for affected structures within RoW by Encroachers or Squatters	No compensation to the owners of the affected structures within RoW was paid.	A rapid enumeration of the encroached structures within RoW was carried out and a rough estimate of the area impacted and type of structure was prepared. The current market rate of different structures was determined based on a previous valuation database for the project. The compensation amount was calculated on the basis of this current replacement value of the structure.

Compensation and Rehabilitation Aspect	Description of Gap	Principles for Retrofitting
Rehabilitation or livelihood enhancement support to entitled PAFs	The rehabilitation or livelihood restoration support was not provided to any PAF as Andhra Pradesh R&R Policy 2005 is applicable only when there is physical displacement. The retrospective application of the RFCT LARR Act 2013 u/s 26 only provides enhanced land compensation and R&R provisions under the Act are not applicable.	Estimates of number of project affected families were arrived at based on the available information. The PAFs considered included the Titleholders of the land acquired and each adult unmarried member therein, the non-titleholders dependent on the land, owners of the encroached structure ( as on Oct 2016) and dependent families. A broad estimate of average cost of livelihood support interventions was adopted to arrive at an indicative cost.

The estimates in each of these gap areas in compensation and rehabilitation aspects are discussed in following sections.

### 6.1.1 *Cost gaps in payment of land cost to titleholders*

Cube Highways engaged Knight Frank to assess the market value of different categories of land (dry, wet, residential etc.) in project corridor villages as on the date of land acquisition notification. The market value of the land as submitted by Knight Franks is provided in Annexure-F The market rates assessed by Knight Frank was used to determine the gap between the compensation paid by the Government led land acquisition process and its replacement cost at the cut off-date. The details of the estimate are provided in Table 6.4 below for the land acquired under old LA Act. The cost estimated to cover this gap for land acquired under Old LA Act is Rs. 7,01,31,217.

Similarly, the cost gap for the land acquired under RFCT LARR Act 2013 was estimated and the details are provided in Table 6.5. The amount of land acquired under the new RFCT LARR Act 2013 will vary for different de-scoping options. The cost estimates for each option is provided in Table 6.3 below.

**Table 6.3** *Summary of Cost Gaps in land compensation for different de-scoping options*

Option	Compensation Cost Gap for Land Acquired under Old LA Act 1894 (in Rs)	Compensation Cost Gap for Land Acquired under RFCT LARR Act 2013 (in Rs)	Total Cost in Rs	Contingency (@ 5% of the Total Land Compensation)	Grand Total along with Contingency Provision
Option-A	7,01,31,217	6,60,82,691	13,62,13,908	68,10,695	14,30,24,604
Option-B	7,01,31,217	3,83,62,566	10,84,93,783	54,24,689	11,39,18,472
Option-C	7,01,31,217	3,83,62,566	10,84,93,783	54,24,689	11,39,18,472

**Table 6.4 Cost gap in land compensations for land acquired in Old LA Act 1894 for NAM Toll Road**

RDO/ SDO	Mandal	Village	Total Land Acquired in Acre	Only land cost paid by Government (Rs)	Market Rate at Notification Date (by Valuation Agency) (Rs)	Estimated Cost of Land Acquired as per Market Rate (Rs)	Replacement Value (Market Rate+7.5% Stamp Duty) (Rs)	Cost Difference or Gap (Rs)	Gap with Interest @ 8% per annum (from Date of LA Notification to Mar 17)	
Nalgonda	Narketpally	Narketpally	0.35	39,65,775	65,00,000	22,75,000	24,45,625.00	-15,20,150		
		Cheruvugattu	0.13	17,95,035	13,50,000	1,75,500	1,88,662.50	-16,06,373		
		Yellareddygudaem	0.12	16,69,800	13,50,000	1,62,000	1,74,150.00	-14,95,650		
		Anneparthy	0.075	60,750	13,50,000	1,01,250	1,08,843.75	48,094	68,065.99	
	Nalgonda	Cherlapalli	1.48	93,20,025	80,00,000	1,18,40,000	1,27,28,000.00	34,07,975	47,03,798.59	
	Thipparthly	Jangareddy gudam	0.62	5,55,147	12,50,000	7,75,000	8,33,125.00	2,77,978	3,92,746.19	
		Cheruvuplli	0.89	7,90,019	32,00,000	28,48,000	30,61,600.00	22,71,581	32,08,946.33	
Madugulapalli		0.95	1,22,78,263	50,00,000	47,50,000	51,06,250.00	-71,72,013			
Miryalagda	Vemulapalli	Kukudam	1.25	86,84,171	12,50,000	15,62,500	16,79,687.50	-70,04,484		
		Vemulapalli	3.06	1,61,57,745	12,50,000	38,25,000	41,11,875.00	-1,20,45,870		
		Vemulapalli	1.33	26,56,476	12,50,000	16,62,500	17,87,187.50	-8,69,289		
		Buggabaigudeam	0.53	40,000	16,50,000	8,74,500	9,40,087.50	9,00,088	12,62,438.95	
		Annepureddy gudam	0.425	8,94,298	12,00,000	5,10,000	5,48,250.00	-3,46,048		
		Itikyla	0.08	-	22,50,000	1,80,000	1,93,500.00	1,93,500	2,73,940.90	
		Mullapahad	0.18	1,82,456	22,50,000	4,05,000	4,35,375.00	2,52,919	3,54,959.09	
	Miryalaguda	Gudur	1.4	-	-	-	-	-	-	
		Kistapuram	0.07	97,689	13,50,000	94,500	1,01,587.50	3,899	5,456.83	
		Kothagudem	0.94	13,27,661	12,50,000	11,75,000	12,63,125.00	-64,536		
		Kothagudem	0.7	5,78,200	32,00,000	22,40,000	24,08,000.00	18,29,800	25,87,269	
	Damarcherla	Kondrapole	1.33	3,23,64,867	36,30,000	48,27,900	51,89,992.50	-2,71,74,875		
		Kondrapole	0.1	81,561	13,50,000	1,35,000	1,45,125.00	63,564	89,041.81	
		Bothulapalem	0.09	14,53,300	15,00,000	1,35,000	1,45,125.00	-13,08,175		
Damarcherla		0.32	2,56,000	17,50,000	5,60,000	6,02,000.00	3,46,000	4,83,699		
Gurazala	Piduguralla	Thummalacheruvu	0.87	5,70,071	16,50,000	14,35,500	15,43,162.50	9,73,092	13,64,832	
		Bramanapalli Bypass	24.55	2,43,58,630	13,50,000	3,31,42,500	3,56,28,187.50	1,12,69,558	1,51,79,422	

RDO/ SDO	Mandal	Village	Total Land Acquired in Acre	Only land cost paid by Government (Rs)	Market Rate at Notification Date (by Valuation Agency) (Rs)	Estimated Cost of Land Acquired as per Market Rate (Rs)	Replacement Value (Market Rate+7.5% Stamp Duty) (Rs)	Cost Difference or Gap (Rs)	Gap with Interest @ 8% per annum (from Date of LA Notification to Mar 17)
		Piduguralla bypass	32.03	12,22,49,120	17,50,000	5,60,52,500	6,02,56,437.50	-6,19,92,683	
		Piduguralla bypass	2.67	2,29,59,067	1,16,00,000	3,09,72,000	3,32,94,900.00	1,03,35,833	1,41,07,386
Guntur	Rajuapalem	Peddanemalipuri	0.16	18,52,000	50,00,000	8,00,000	8,60,000.00	-9,92,000	
Narsaraopeta	Rompicherla	Vipparla	0.13	58,500	12,50,000	1,62,500	1,74,687.50	1,16,188	1,62,662.50
		Rompicherla	3.52	14,00,960	13,50,000	47,52,000	51,08,400.00	37,07,440	50,25,370.21
		Annarapupadu	0.65	4,38,514	10,00,000	6,50,000	6,98,750.00	2,60,236	3,37,241
		Thurumella	3.19	21,52,092	10,00,000	31,90,000	34,29,250.00	12,77,158	16,55,077
Ongole	Santhamaguluru	Puttvaniapalem	0.58	12,50,000	12,50,000	7,25,000	7,79,375.00	-4,70,625	
		Eluchuru	1.617	4,61,449	80,00,000	1,29,36,000	1,39,06,200.00	1,34,44,751	1,69,40,201
		Eluchuru	0.693	10,76,715	35,00,000	24,25,500	26,07,412.50	15,30,698	19,28,658
		Kommalapadu	0.05	7,65,000	15,00,000	75,000	80,625.00	-6,84,375	
	Ballikuruva	SL Gudipadu	0.07	12,45,000	10,00,000	70,000	75,250.00	-11,69,750	
<b>Grand Total</b>							<b>5,25,10,349</b>	<b>7,01,31,217</b>	

Source: Information provided by Cube Highways, RIL Land Team, and Knight Frank

**Table 6.5 Cost gap in land compensation for the land acquired under New RFCT LARR Act 2013.**

District	Mandal	Village	Area of land to be Acquired (Acre)	Rate per Acre as per Agency (Rs)	Estimated Market Cost (Rs)	Estimated Replacement Cost (Market cost+ 7.5% Stamp Duty) (Rs)	Estimated Compensation to be paid by Government (Rs)	Cost Gap (Option-A) (Rs)	Cost Gap (Option-B) (Rs)	Cost Gap (Option-C) (Rs)
Nalgonda	Narketpally	Yellareddygudem (Service road)	0.81	80,00,000	64,80,000	69,66,000	1,86,21,900	-1,16,55,900		-1,16,55,900
Nalgonda	Nalgonda	Cherlapally (Service road)	1.83	1,08,90,000	1,99,28,700	2,14,23,353	4,20,71,700	-2,06,48,348		-2,06,48,348
Nalgonda	Thipparthi	A Duppalapalli (Service road)	0.94	65,00,000	61,10,000	65,68,250	1,47,86,200	-82,17,950		-82,17,950
Nalgonda	Thipparthi	Thipparthi Bypass (MCW)	7.5	17,50,000	1,31,25,000	1,41,09,375	2,90,62,500	-1,49,53,125	-1,49,53,125	-1,49,53,125

District	Mandal	Village	Area of land to be Acquired (Acre)	Rate per Acre as per Agency (Rs)	Estimated Market Cost (Rs)	Estimated Replacement Cost (Market cost+ 7.5% Stamp Duty) (Rs)	Estimated Compensation to be paid by Government (Rs)	Cost Gap (Option-A) (Rs)	Cost Gap (Option-B) (Rs)	Cost Gap (Option-C) (Rs)
Nalgonda	Thipparthi	Madugulapalli (Toll Plaza-1)	5.28	22,50,000	1,18,80,000	1,27,71,000	1,20,64,800	7,06,200	7,06,200	7,06,200
Nalgonda	Thipparthi	Madugulapalli (MCW)	0.95	50,00,000	47,50,000	51,06,250	1,49,43,500	-98,37,250	-98,37,250	-98,37,250
Nalgonda	Thipparthi	Madugulapalli (Service road)	2.17	50,00,000	1,08,50,000	1,16,63,750	3,41,34,100	-2,24,70,350		-2,24,70,350
Nalgonda	Vemulapali	Kukudam (Service road)	1.02	80,00,000	81,60,000	87,72,000	1,60,44,600	-72,72,600		-72,72,600
Nalgonda	Vemulapali	Vemulapali (Service road)	1.87	80,00,000	1,49,60,000	1,60,82,000	3,12,25,260	-1,51,43,260		-1,51,43,260
Nalgonda	Vemulapali	Itukyala Rest Area	10.55	42,50,000	4,48,37,500	4,82,00,313	2,83,26,750	1,98,73,563		
Nalgonda	Damarcherla	Kondrapole (Service road)	1.58	80,00,000	1,26,40,000	1,35,88,000	2,50,82,816	-1,14,94,816		-1,14,94,816
Nalgonda	Damarcherla	Bothulaplem (Service road)	0.59	80,00,000	47,20,000	50,74,000	93,66,368	-42,92,368		-42,92,368
Nalgonda	Damarcherla	Damarcherla (Service road)	2.37	87,12,000	2,06,47,440	2,21,95,998	5,48,30,424	-3,26,34,426		-3,26,34,426
Guntur	Piduguralla	Thummacheruvu (Toll Plaza -2)	6.98	40,00,000	2,79,20,000	3,00,14,000	1,57,05,000	1,43,09,000	1,43,09,000	1,43,09,000
Guntur	Piduguralla	Piduguralla Bypass (MCW) Phase 2	1.99	17,50,000	34,82,500	37,43,688	95,07,288	-57,63,600	-57,63,600	-57,63,600
Guntur	Piduguralla		4.12	1,16,00,000	4,77,92,000	5,13,76,400	5,63,49,191	-49,72,791	-49,72,791	-49,72,791
Guntur	Piduguralla		0.67	17,50,000	11,72,500	12,60,438	27,33,720	-14,73,283	-14,73,283	-14,73,283
Guntur	Piduguralla		1.8	1,16,00,000	2,08,80,000	2,24,46,000	1,63,69,081	60,76,919	60,76,919	60,76,919
Guntur	Piduguralla	Piduguralla Bypass (MCW) Phase 3	6.78	66,75,000	4,52,56,500	4,86,50,738	4,26,66,540	59,84,198	59,84,198	59,84,198
Prakasham	Santhamaguluru	Puttvanipalem Rest Area	10.55	32,50,000	3,42,87,500	3,68,59,063	2,90,12,500	78,46,563		
Prakasham	Santhamaguluru	Elchuru Toll Plaza-3	7.5	35,00,000	2,62,50,000	2,82,18,750	2,06,25,000	75,93,750	75,93,750	75,93,750

District	Mandal	Village	Area of land to be Acquired (Acre)	Rate per Acre as per Agency (Rs)	Estimated Market Cost (Rs)	Estimated Replacement Cost (Market cost+ 7.5% Stamp Duty) (Rs)	Estimated Compensation to be paid by Government (Rs)	Cost Gap (Option-A) (Rs)	Cost Gap (Option-B) (Rs)	Cost Gap (Option-C) (Rs)
Prakasham	Santhamaguluru	Eluchuru (MCW)	3.5	35,00,000	1,22,50,000	1,31,68,750	96,25,000	35,43,750	35,43,750	35,43,750
Prakasham	Addanki	Chakryapalem (MCW)	5.07	27,50,000	1,39,42,500	1,49,88,188	1,66,04,250	-16,16,063	-16,16,063	-16,16,063
Prakasham	Addanki	Chakrayapalem (Service road)	0.81	21,00,000	17,01,000	18,28,575	26,52,750	-8,24,175		-8,24,175
Prakasham	Addanki	Kalvakur (MCW)	0.73	27,50,000	20,07,500	21,58,063	23,90,750	-2,32,688	-2,32,688	-2,32,688
Prakasham	Addanki	Gopalapuram (MCW)	2.38	45,00,000	1,07,10,000	1,15,13,250	1,13,64,500	1,48,750	1,48,750	1,48,750
<b>Grand Total</b>							<b>56,61,66,488</b>	<b>6,60,82,691</b>	<b>3,83,62,566</b>	<b>3,83,62,566</b>

Source: Information provided by Cube Highways, RIL Land Team, and Knight Frank

## 6.1.2

*Compensation cost of the affected structures in land acquired for the project*

The compensation paid for land includes the cost of the land and other fixed assets on it. The valuation of the structures within the land acquired in Old LA Act 1894 was noticed to have deducted the depreciation value of the structures. The LA Award documents provided the break-up of the compensation amount for land and also for the structures. The total value of the structures were 1,95,88,107 for structures (See Table below for details).

The cost estimate database for the encroached structures in the project corridor was used to estimate average depreciation value. It was found that the depreciation constituted approximately 20% of the cost of the compensation paid for the structure. Hence, it was presumed that the cost gap for making up this gap with respect to replacement value for structures located on the land acquired will constitute 20% of the total compensation paid for the structures.

**Table 6.6 Compensation Cost for Structures within the land acquired under LA Act 1894**

RDO/SDO	Mandal	Village	Land Acquired in Acre	Total Compensation (Rs)	Land Cost (Rs)	Structure Cost (Rs)
Nalgonda	Narketpally	Narketpally	0.35	91,10,344	39,65,775	5144569
		Cheruvugattu	0.13	17,95,035	17,95,035	
		Yellareddygudaem	0.12	16,69,800	16,69,800	
		Anneparthi	0.075	60,750	60,750	0
	Nalgonda	Cherlapalli	1.48	1,29,36,568	93,20,025	3616543
	Thipparthi	Jangareddy gudam	0.62	8,39,436	5,55,147	284289
		Cheruvuppli	0.89	14,73,236	7,90,019	683217
		Madugulapalli	0.95	1,25,62,552	1,22,78,263	284289
	Miryalagda	Vemulapalli	Kukudam	1.25	86,84,171	86,84,171
Vemulapalli			3.06	1,61,57,745	1,61,57,745	0
Vemulapalli			1.33	26,56,476	26,56,476	0
Buggabaigudeam			0.53	40,000	40,000	
Annepureddy gudam			0.425	8,94,298	8,94,298	0
Itikyla			0.08		-	
Mullapahad			0.18	1,82,456	1,82,456	
Miryalaguda		Gudur	1.4			
		Kistapuram	0.07	1,44,900	97,689	47211
		Kothagudem	0.94	19,83,245	13,27,661	655584
		Kothagudem	0.7	5,78,200	5,78,200	0
Damarcherla		Kondrapole	1.33	4,07,70,636	3,23,64,867	8405769
		Kondrapole	0.1	81,561	81,561	0
		Bothulapalem	0.09	14,53,300	14,53,300	
		Damarcherla	0.32	2,56,000	2,56,000	
T a n g		Piduguralla	Thummalacheruvu	0.87	5,70,071	5,70,071

RDO/SDO	Mandal	Village	Land Acquired in Acre	Total Compensation (Rs)	Land Cost (Rs)	Structure Cost (Rs)
		Bramanapalli Bypass	24.55	2,43,58,630	2,43,58,630	0
		Piduguralla bypass	32.03	12,22,49,120	12,22,49,120	
		Piduguralla bypass	2.67	2,29,59,067	2,29,59,067	
Guntur	Rajuapalem	Peddanemalipuri	0.16	18,52,000	18,52,000	
Narsaraopeta	Rompicherla	Vipparla	0.13	58,500	58,500	0
		Rompicherla	3.52	14,00,960	14,00,960	0
		Annarapurupadu	0.65	4,38,514	4,38,514	0
		Thurumella	3.19	21,52,092	21,52,092	
Ongole	Santhamagulluru	Puttvanipalem	0.58	6,42,850	12,50,000	
		Eluchuru	1.617	8,59,500	4,61,449	466636
		Eluchuru	0.693	20,05,500	10,76,715	
		Kommalapadu	0.05	7,65,000	7,65,000	
	Ballikuruva	SL Gudipadu	0.07	12,45,000	12,45,000	
<b>Total</b>						<b>1,95,88,107</b>
Average Depreciation Cost of the Structures @ 20% of the Structure Cost						39,17,621
Interest till date @ 12% per annum (4 years)						<b>57,98,080</b>

Source: RIL Land Team.

Further, interest on this gap amount was considered for the intervening period, i.e. from the date of the award to Mar 2017. The total cost to cover the gap for deduction of the depreciation cost on structures is Rs 57,98,080.

### 6.1.3 Compensation cost of the affected encroached structures within RoW

As discussed earlier, the number of encroached structures pre and post construction of the main carriage way though was available, but differed from each other. A rapid enumeration of the encroachments within the RoW showed that there are 2492 structures which comprises of 1296 permanent, 863 semi-permanent, 318 temporary and 42 vendors/kiosks.

The database of the detailed cost estimates of structures prepared in 2008 was used to find out average cost for different types of structures. Consultation with PWD Engineer and other engineers with local experience suggested that the current estimates would be 30% higher than the rates in 2008. Thus the average unit cost (per square meter) for each category of structures was determined and provided in Table 6.7 below.

**Table 6.7 Unit cost of different categories of Structures within RoW**

Structure Type	Cost Estimated as per 2008 (per Sqm)	Cost Estimated as per 2016 (per Sqm)
Permanent	5791	7528
Semi-permanent	3079	4002

Temporary	1453	1889
Lenear	5576	7248

Note: The rate difference is taken 30% over 2008 rates.

The number of structures affected varied according to different de-scoping options. The cost of removing all structures comes to Rs 46,02,70,020. The estimate is least for Option-B which is Rs. 2,05,89,987. The details of the number of encroached structures impacted, area of encroachment and estimated cost is provided in Table 6.8.

**Table 6.8** *Cost estimate of encroached structures in different options for de-scoping*

<i>Structure Category</i>	<i>Number of Encroached Structures</i>	<i>Unit Rate per Sqm (As in 2016)</i>	<i>Area of Encroachment in sqm</i>	<i>Total Cost in Rs</i>
<b>Option A</b>				
Permanent	1269	7528	46408	34,93,73,508
Semi-permanent	863	4002	24014	9,61,03,893
Temporary	318	1889	7329	1,38,45,018
Mobile Vendors	42	1889	502	9,47,601
<b>Total</b>	<b>2492</b>		<b>78252</b>	<b>46,02,70,020</b>
<b>Option B</b>				
Permanent	105	7528	2361.74	1,77,79,985
Semi-permanent	44	4002	602.74	24,12,199
Temporary	19	1889	149.58	2,82,569
Mobile Vendors	14	1889	61	1,15,234
<b>Total</b>	<b>182</b>		<b>3175.1</b>	<b>2,05,89,987</b>
<b>Option C</b>				
Permanent	204	7528	5412	4,07,44,100
Semi-permanent	97	4002	2057	82,33,428
Temporary	42	1889	734	13,86,322
Mobile Vendors	16	1889	66	1,24,377
<b>Total</b>	<b>359</b>		<b>8269</b>	<b>5,04,88,227</b>

#### 6.1.4 *Cost of Livelihood Enhancement Plan Interventions*

The most appropriate livelihood intervention is determined through a detailed Social Impact Assessment and after consulting with PAFs for knowing their preferences. To arrive at a broad estimate, we have used average cost of a range of livelihood interventions (Refer Annexure-G). The average cost of different categories of livelihood intervention is provided in Table 6.9 below.

**Table 6.9** *Average cost per PAF for livelihood support interventions*

<i>Livelihood Support Intervention Category</i>	<i>Average Cost</i>
Farm based	₹ 22,375
Household Industries	₹ 26,750
Skill based	₹ 43,000
For All Categories	30,708

Source: Based on ERM's previous experience

The number of PAFs is expected to vary across various de-scoping options. A broad assessment of number of PAFs for each of the option was made and is presented in Table 6.10 below. The number of PAFs would be maximum 9526 for option-A and 4282 for option-B.

**Table 6.10** *Cost estimate of Livelihood Support Interventions for PAFs in different de-scoping options*

<i>Description</i>	<i>Option-A</i>	<i>Option-B</i>	<i>Option-C</i>
Titleholders (old+New)	2342	1365	1500
PAFs for Acquisition of Land (@ 1:3 ratio of Titleholder to PAF)	7026	4095	4500
PAFs of Affected Structures	2500	187	337
Total PAFs to be Covered in LRP	9526	4282	6337
RAP-LEP Implementation (@ 30,000 per PAF)	28,57,80,000	12,84,60,000	19,01,10,000

Total expected cost for implementing livelihood support/enhancement interventions will be Rs 12,84,60,000 for option-B and Rs 28,57,80,000 for option-C.

## 6.2 *COST OF ENGAGING THIRD PARTY AGENCIES FOR PLANNING AND MONITORING*

The retrofitting of the project to IFC performance standards would require a range of further studies, detailed planning and monitoring efforts. These activities are expected to be carried out by engaging specialized competent third party agencies. Indicative cost estimate for engaging these third party agencies is provided in this section.

### 6.2.1 *ESIA Study (including Stakeholder Engagement Plan and Grievance Management Plan)*

The project will require a consolidated ESIA for operation phase which will include social impact assessment and preparation of the LEP. The cost of the field level efforts which is a major determinant in the budget for ESIA study would vary for each de-scoping option. An indicative cost for an ESIA consultant is provided in Table 6.11 below.

**Table 6.11 Cost Estimate for ESIA Study (including RAP-LEP) for different de-scoping options**

<i>Description</i>	<i>Option-A</i>	<i>Option-B</i>	<i>Option-C</i>
Titleholders (number)	2342	1365	1500
PAFs for Land Acquisition (@ 1:3 ratio of Titleholder to PAF)	7026	4095	4500
PAFs of Affected Structures (number)	2500	187	337
Total PAFs to be Surveyed (number)	9526	4282	6637
PAFs Survey Cost	36,31,500	11,64,000	13,77,750
ESIA Study Professional Fees in Rs	95,00,000	85,00,000	90,00,000
Total Cost in Rs	1,31,31,500	96,64,000	1,03,77,750

### 6.2.2 *RAP/LEP Implementation Monitoring Support*

Five RAP/LEP implementation monitoring visits are planned spread over 3 years. Each mobilization will be for 5 days (3 days in field + 2 days reporting) of input. There would be 3 visits for the first year of implementation (3<sup>rd</sup> month, 6<sup>th</sup> month and 12<sup>th</sup> month) and one annual visit for subsequent years (24<sup>th</sup> month and 36<sup>th</sup> month). Average estimated fee for each visit would be Rs 2, 00,000 each. Hence the total estimated budget is Rs 10,00,000/-.

### 6.2.3 *RAP/LEP Completion Audit*

The RAP/LEP completion audit will be carried out by a third party agency. The completion audit will be based on a sample survey of 25% of the total PAFs benefited under the program. An indicative cost for RAP/LEP Completion Audit is provided in Table 6.12 below.

**Table 6.12 Indicative cost of RAP/LEP Completion Audit**

<i>Description</i>	<i>Option-A</i>	<i>Option-B</i>	<i>Option-C</i>
Total Number of PAFs to be Covered in RAP/LEP	9526	4282	6337
Sample Survey Cost of 25% PAFs @ 900 per PAF in Rs	21,43,350	9,63,450	14,25,825
Professional Fee in Rs	10,00,000	10,00,000	10,00,000
<b>Total Cost</b>	<b>31,43,350</b>	<b>19,63,450</b>	<b>24,25,825</b>

### 6.2.4 *RAP/LEP Implementation Agency*

An Implementing agency with a core staff of 3-4 persons will set up a field office to coordinate the implementation of the entire range of Livelihood Enhancement Plan interventions. The Implementing agency will be deployed along with the RAP-LEP preparation agency and continue till completion of the RAP-LEP implementation. Hence, the RAP-LEP Implementing Agency is expected to be engaged for 45 months (9 months for RAP-LEP preparation + 36 months of RAP-LEP implementation). The broad cost break-up for this RAP-LEP Implementation Agency is provided below.

<i>Cost Head</i>	<i>Unit Cost in Rs</i>	<i>Duration in Months</i>	<i>Total Cost in Rs</i>
Office Space	10,000	45	4,50,000
Staff Cost (4 persons)	1,45,000	45	65,25,000
Transport cost	40,000	45	18,00,000
Communication and Office expenses	5,000	45	2,25,000
Grand Total			90,00,000

### 6.2.5 *Road Safety Audit Agency*

The cost of Road Safety Audit is considered under the O&M expenses of the project. Hence, no extra budget provision is made.

### 6.3 *SUMMARY OF BUDGET ESTIMATE*

The summary statement of the total cost is provided below.

	<i>Budget Head</i>	<i>Cost in Rs for Option-A</i>	<i>Cost in Rs for Option-B</i>	<i>Cost in Rs for Option-C</i>
A	Livelihood Intervention Program			
	Cost gap in payment of land compensation	14,30,24,603	11,39,18,472	11,39,18,472
	Cost gap in compensation for affected structures in acquired land	57,98,080	57,98,080	57,98,080
	Compensation cost of affected encroached structures	46,02,70,020	2,05,89,987	5,04,88,227
	Cost of Livelihood Support/Enhancement Interventions	28,57,80,000	12,84,60,000	19,01,10,000
	<b>Sub-Total (Intervention Program Cost)</b>	<b>89,48,72,703</b>	<b>26,87,66,539</b>	<b>36,03,14,779</b>
B	Cost of Third Party Agencies			
	ESIA Study including RAP-LEP	1,31,31,500	96,64,000	1,03,77,750
	RAP/LEP Implementation Monitoring Support	10,00,000	10,00,000	10,00,000
	RAP/LEP Completion Audit	31,43,350	19,63,450	24,25,825
	RAP/LEP Implementation Agency	90,00,000	90,00,000	90,00,000
	<b>Sub-Total (Third-party Agencies Cost)</b>	<b>2,62,74,850</b>	<b>2,16,27,450</b>	<b>2,28,03,575</b>
	<b>Grand Total</b>	<b>92,11,47,553</b>	<b>29,03,93,989</b>	<b>38,31,18,354</b>

**7.1 BACKGROUND**

The gaps between IFC PS-5 and land acquisition and rehabilitation process followed by Government of Andhra Pradesh (APRDC as the leading agency) would be addressed through a range of livelihood enhancement measures under this program. The objective of this program would be to mitigate the social risks in the project which has potential to affect operation of the road or malign corporate reputation. The RAP-LEP interventions along with Community Development Program would enhance potential positive impacts from the project and ensure the social license to operate.

**7.2 CONCERNS AND RISKS**

Initiation of fresh socio-economic survey for preparation of the LEP after a substantial time gap from the completion of the land acquisition process by APRDC/Govt of Andhra Pradesh (GoAP) is expected to create apprehensions and speculations in concerned communities. This may activate various vested interest groups to spread misinformation and incite people to hold public demonstration, road blockade causing disturbance to road operation.

APRDC and GoAP reportedly have expressed their reservation to provide additional compensation or rehabilitation benefits to families affected by road improvement projects to avoid setting up precedence for their future projects. Hence, direct financial benefits to land owners or implementation of supplementary 'rehabilitation plan' is expected to attract their objection.

**7.3 STRATEGIC FRAMEWORK FOR RAP-LEP IMPLEMENTATION**

In order to avoid operational and reputational risk during preparation and implementation of the RAP-LEP, we recommend the following:

- Direct cash compensation to land owners should be avoided;
- A consistent and transparent 'information disclosure and communication plan' should be adopted for responding to any speculative or opportunistic behaviour of vested interest groups;
- The public communication should use alternative terminology for RAP such as 'Livelihood Enhancement and Community Development Program' to manage community expectation in other projects by APRDC;
- The preparation of RAP-LEP and its implementation should involve credible and experienced organizations for establishing trust and implementing the process efficiently and ethically;
- A high-level internal monitoring and support team is involved to quickly respond to any un-expected situation on the ground.

LRP/LEP preparation and implementation activities will be performed in a staged manner, i.e. each stage having a specific objective and contributing to the overall goal of improving livelihood of the project affected families and establish social licence to operate. These stages and their objectives is presented in Table 7.1 below.

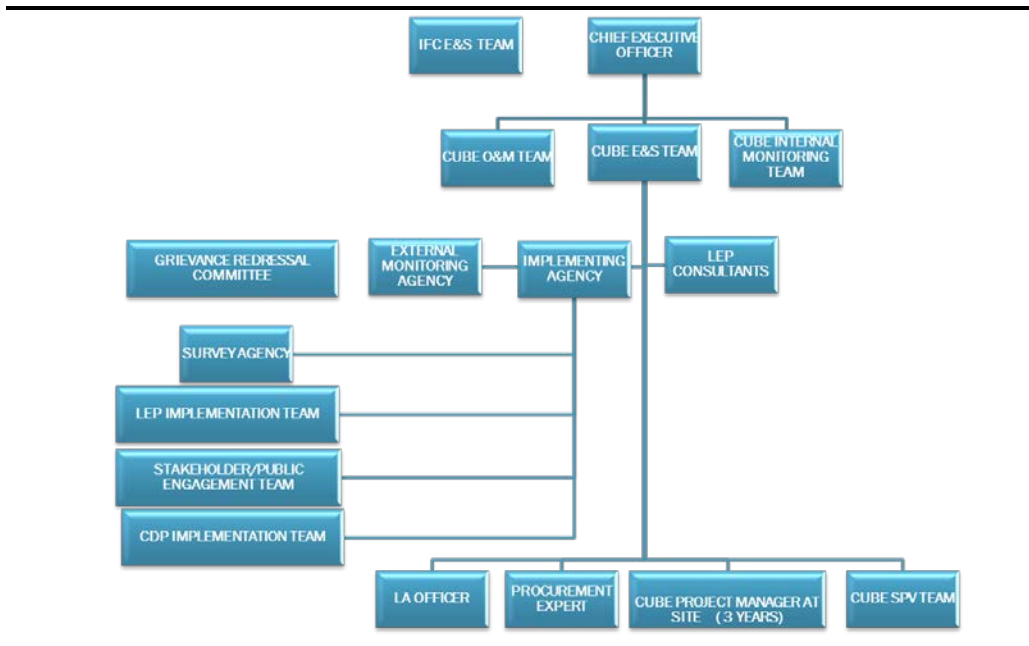
**Table 7.1** *Stages in LEP Implementation and Objectives*

<i>Sl. No.</i>	<i>Stage</i>	<i>Key Activities</i>	<i>Intended Objective</i>
0	<b>Before LEP</b>	<ul style="list-style-type: none"> <li>Confirmation of the de-scoping – agreement with government and current Concessionaire</li> </ul>	<ul style="list-style-type: none"> <li>The presumptions in determining magnitude of social impact of the project are met.</li> </ul>
1	<b>Pre LEP Stage</b>	<ul style="list-style-type: none"> <li>Prepare scope of work for LEP consultant (LEPC) and Implementing Agency (IA) which will carry forward the required tasks</li> <li>Appointment of LEPC and IA</li> <li>Formulating detailed communication strategy and agreeing the same amongst Cube, implementing partner, IFC, LEP Consultant &amp; SPV</li> </ul>	<ul style="list-style-type: none"> <li>To prepare a consistent and transparent ‘information disclosure and communication plan’ and engage credible and competent agencies.</li> </ul>
2	<b>LEP Preparation Stage</b>	<ul style="list-style-type: none"> <li>Establish Grievance Redressal Committee</li> <li>Conducting detailed surveys, interviews with affected persons/families, baseline studies and community consultations</li> <li>Finalizing livelihood interventions which are practical and has potential to enhance income of the beneficiaries.</li> <li>Building broad community consent to the LEP activities and assurance of their participation.</li> </ul>	<ul style="list-style-type: none"> <li>Continuous and effective stake-holder relationship to avoid the process being hijacked by vested interest groups/ opportunists.</li> <li>Preparation of a practical, effective and acceptable livelihood enhancement program.</li> </ul>
3	<b>LEP Implementation Stage</b>	<ul style="list-style-type: none"> <li>Implementation of LEP (for titleholders and non-titleholders, land impact)</li> <li>Regular internal and external monitoring to understand the progress and output indicators of the LEP.</li> <li>Update LEP based on feedback/response from affected persons/families</li> </ul>	<ul style="list-style-type: none"> <li>Effective implementation of LEP and establishing that the objectives of livelihood restoration are achieved before closure.</li> </ul>

The LEP implementation program shall be controlled by the Cube Highways CEO with guidance by IFC, assisted regularly by E&S and O&M divisions. Cube Highways will deploy a dedicated project Manager at the site during LEP preparation and early stages of the implementation. An IA shall be engaged parallel to the LEP consultants for the ease of acquainting them to the database and preparing them for smooth implementation. The Implementing agency shall be leading all field activities, LEP implementation and community liaison, reporting to consultant, external and internal monitoring agencies. Also, Grievance Redressal

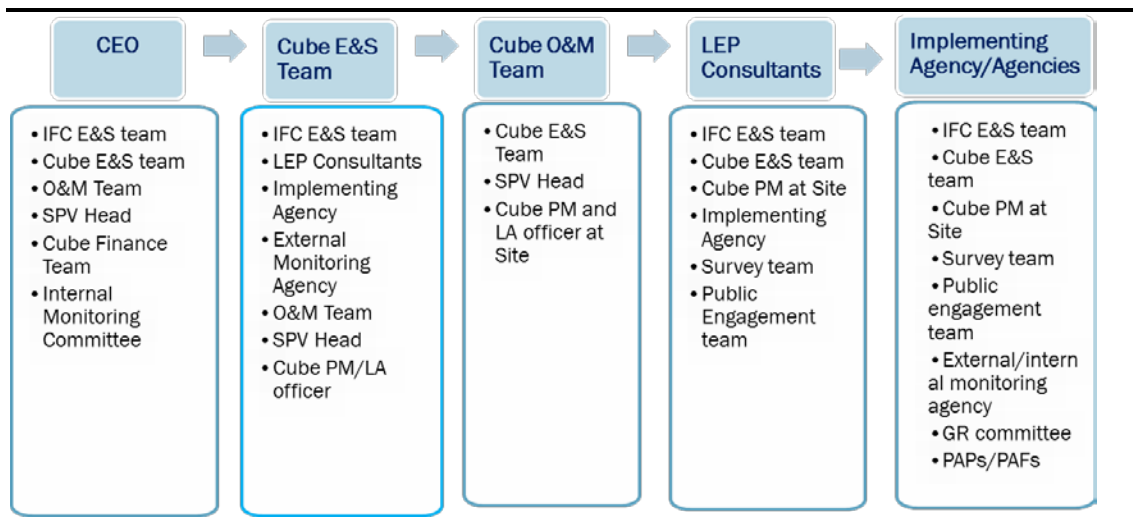
committee shall be constituted represented by the CH, community representative, and prominent personalities of the road side communities. The recommended organization structure is provided in Figure 7.1.

**Figure 7.1** Organization structure for LEP Implementation



The internal communication channels for monitoring and decision making will follow the communication channel as demonstrated in Figure 7.2.

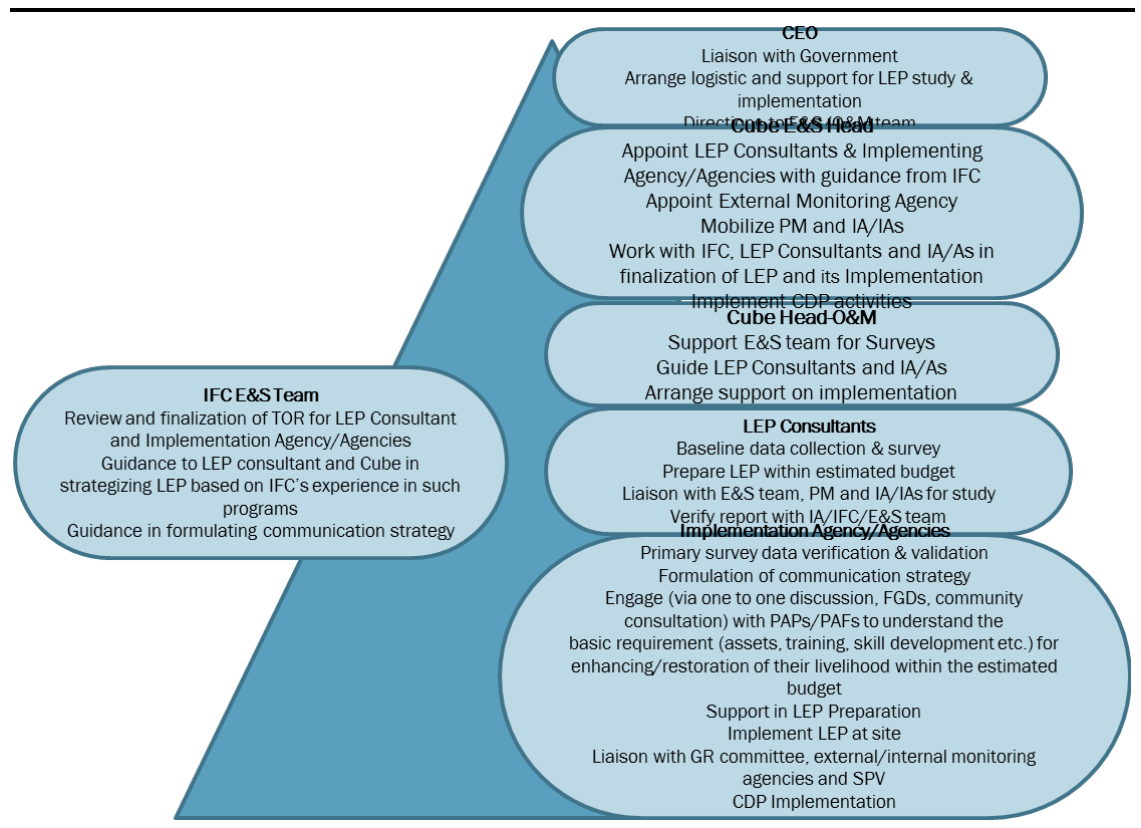
**Figure 7.2** Internal Communication Channel for LEP Implementation



**7.6 ROLES AND RESPONSIBILITIES**

Roles and Responsibilities for each, CH, IFC, Implementing Agency, Consultants are identified and provided in Figure 7.3.

**Figure 7.3 Roles and Responsibilities for LEP Implementation Process**



**7.7 RECOMMENDED SCHEDULE**

A typical time-schedule for different stages of LEP implementation is prepared on the basis of extent and magnitude of the project impacts, usual time taken for similar activities. Changes in this recommended time-schedule should be avoided unless there is a valid reason.

Sl.No	Implementation Stage/ Key Activities	Responsibility		Months after closing
		Primary	Support/ Stakeholder	
<b>A</b>	<b>Before Closing Stage</b>			
1	Confirmation of the de-scoping - agreement with government and current Concessionaire	Cube		Before closing
<b>A</b>	<b>Pre LEP Implementation Stage</b>			
1	Setting up of project management team( PM, Cube Tech. team and E&S team) with IFC Specialists at Delhi	Cube	IFC	2nd week
2	Preparation of TOR for LEP consultant as well as Implementing Agency (IA)/Partner	IFC & Cube		1 month
3	Appointment and Mobilization of LEP Consultant and IA	Cube	IFC	1st month
4	Formulating detailed communication strategy and agreeing the same amongst Cube, implementing partner, IFC, LEP Consultant & SPV	IFC & IA	LEPC & Cube	Within 2 <sup>nd</sup> month
5	Completion of remaining Land Acquisition Process	State Govt.	.	6 months (anticipated to be completed before closing)
6	Videography of ROW for the entire road length (to establish the claims and cutoff date) - Ideally done under the supervision of the LEP consultant. If the hiring of LEP consultant is delayed, then videography to be undertaken by CH after consultation with ESDD team. This will re-establish the cut-off baseline for the project.	Cube		within 2 <sup>nd</sup> month
7	Initiate CDP activities (computer training centers, English speaking centers, scholarship to meritorious students, renovation of religious structures, ponds etc.)	Cube/IA		Initiated in 2 <sup>nd</sup> month and to be continued for the project life
<b>B</b>	<b>LEP Preparation</b>			
1	Establish Grievance Committees for each district falling under project before the start of the LEP. Will need to have reps from community/village Sarpanch, Cube, educational institutions and implementation partner	IA	Cube/IFC	within 3 <sup>rd</sup> month
2	Review of Secondary Data	Consultant	IA/Cube	2 <sup>nd</sup> to 8 <sup>th</sup> month
3	Developing methodology and tools for primary data collection	Consultant	IA/Cube	
4	Sample Socio-economic and census Survey of PAPs/PAFs	Consultant/ IA	Cube	
5	Detailed discussions with PAPs/PAFs (on opted/preferred way of LEP)	Consultant/ IA	Cube	
6	Strategizing and developing LEP Program, Develop plan for livelihood support for each affected HH, finalization of Individual Livelihood enhancement Program	Consultant/ IFC/IA	Cube	9 <sup>th</sup> & 10 <sup>th</sup> month
7	LEP Budget	Consultant/IA	Cube	First half of 11 <sup>th</sup> month
8	Review of LEP by CH Board	IA/Cube	IFC	End of 11 <sup>th</sup> month
9	Approval of LEP and budget	Cube	IFC	
10	Disclosure of Approved LEP & Other documents	Cube		12 <sup>th</sup> month
11	Meeting with each affected family and individual to disclose the planned LEP and sign off from affected families and individuals	IA	Cube	13 <sup>th</sup> month
12	Developing Integrated Management Information System for LEP delivery, with HH data,	IA/Cube		11 <sup>th</sup> & 12 <sup>th</sup> month
<b>C</b>	<b>Implementation of LEP</b>			
1	Updating/ Verifications of PAFs and PAPs eligible	IA	Cube	13 <sup>th</sup> & 14 <sup>th</sup> month

Sl.No	Implementation Stage/ Key Activities	Responsibility		Months after closing
		Primary	Support/ Stakeholder	
2	IA to Identify and appoint suitable resource agency/agencies and develop coordination with PAF & PAPs.	IA	Cube/SPV	13 <sup>th</sup> & 14 <sup>th</sup> month
3	Implement livelihood enhancement program (with staged approach)	IA/ Resource Agency	Cube/SPV	15 <sup>th</sup> -35 <sup>th</sup> month
4	Internal Monitoring	Cube	IA	Monthly
5	External Monitoring	Agency	Cube	Quarterly for First Year Biannual for Subsequent Years
6	Completion Audit	Agency	IA/Cube	36 <sup>th</sup> month



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