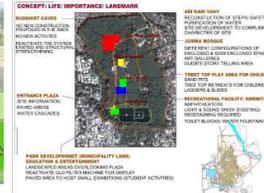
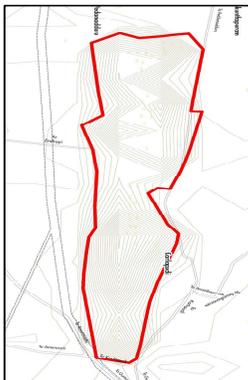
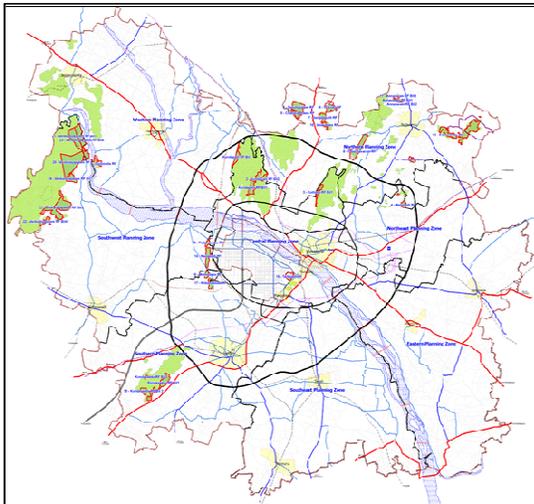


COMPREHENSIVE PROJECT REPORT FOR PROPOSED DIVERSION OF KARLAPUDI RF (371.80 HA) IN APCRDA REGION



Submitted to



ANDHRA PRADESH CAPITAL REGION DEVELOPMENT AUTHORITY
Government of Andhra Pradesh

Prepared By



NOVEMBER 2017

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1 Introduction

1.1 Preamble

The Andhra Pradesh Capital Region Development Authority (APCRDA) comprises parts of Krishna and Guntur districts of Andhra Pradesh state. The APCRDA is constituted through Andhra Pradesh Capital Region Development Act, 2014 replacing Vijayawada Guntur Tenali Mangalagiri Urban Development Authority (VGTM UDA). The Capital Area covers broadly an area of about 8914.52 sq. kms and largest urban development region in the country.



Figure 1: APCRDA location

It includes 30 Mandals from Krishna and 26 Mandals from Guntur District. The region also includes the Phase-I (New Amaravati) of Andhra Pradesh state scheduled to develop in an extent of 217.23 Sq.km. Further, Govt. of Andhra Pradesh has amended the APCRDA jurisdiction with inclusion and as well as

exclusion of few Mandals and villages vide G.O. Ms. No. 207, dt. 22-9-2015. An area of 1413.72 Sq.km was added and simultaneously an area of 116.01 Sq.km was excluded from the region, making the total area of AP CRDA as 8914.52 Sq.Kms including the reserve forests.

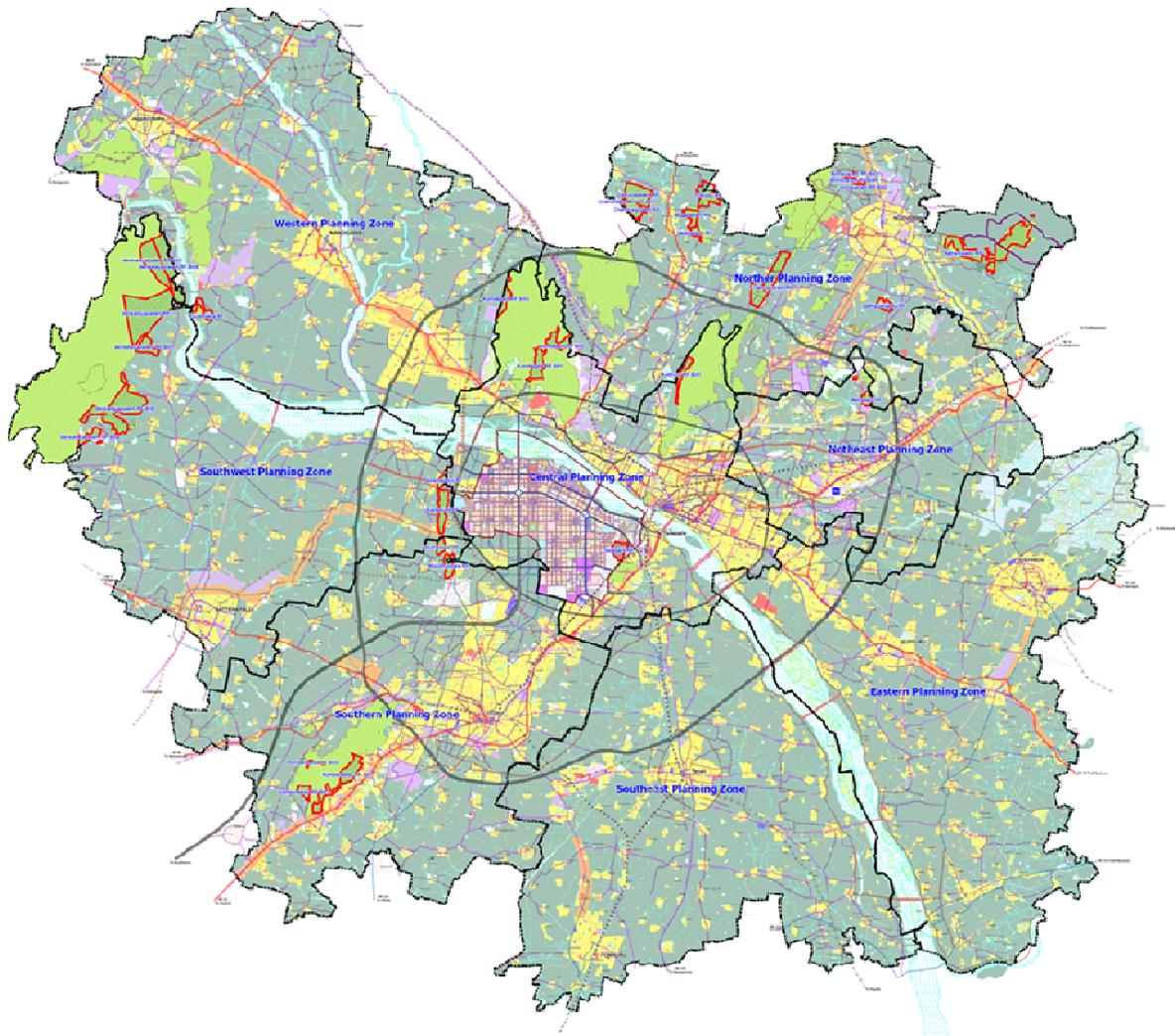


Figure 2: APCRDA Capital Area

As a part of Concept Development Plan and Master planning exercise for the region, APCRDA intend to identify sizable and suitable lands for specific economic and social activities. Below are few activities envisaged for the development of the region, the following image shows the key sectors and their potential for development.

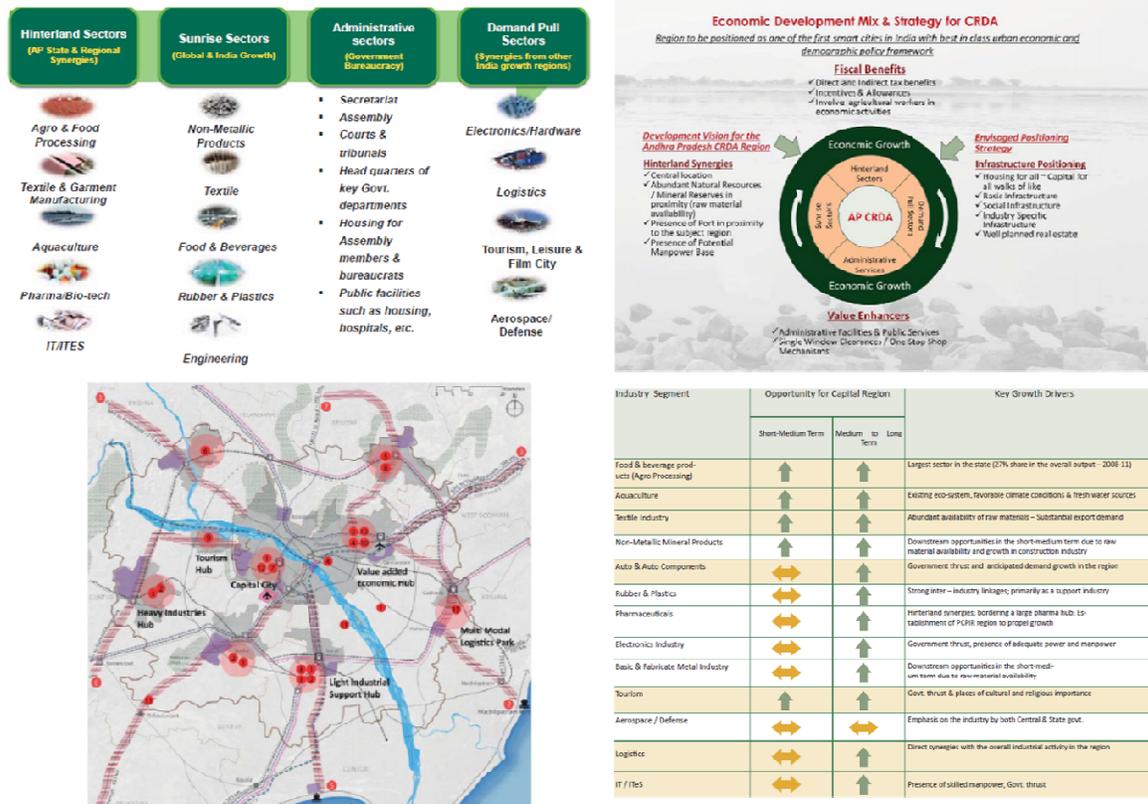


Figure 3: Potential sectors from development Plan in APCRDA Capital Area

1.2 Need for the Proposal

APCRDA proposes to develop specific social and economic activities under the purview of the Development Plan Proposals. During the process of identification of suitable lands, revenue, and reserve forest lands that are nearer to urban areas and that are suitable for the above activities were identified. Most of the alternatives explored are either Revenue lands, basic suitability analysis was carried out and most of them are either inaccessible, smaller than required, nominated for other uses and sparsely located. Meanwhile 26 reserved forests sites have been identified both in Krishna and Guntur Division to evaluate the suitability. For promoting and securing the planned development of the Capital Area by creating and establishing future economic drivers; it was found apt to locate these activities in the identified forest lands available within the Capital Area, since most of them are strategically located along growth corridors of the Capital Area. APCRDA entrusted preparation of Comprehensive Project report (Aarvee associates to support) with proposed land use plan to obtain approval from Ministry of Environment and Forest & Climate Change, Govt. of India, New Delhi.

1.2.1 Data Collection & Site Visits

The following data shall be collected from the concerned divisions:

- i. Topo drawings or Topo Sheets from GSI of the RF Lands
- ii. DGPS survey boundary drawings/ data sheets- Each Block boundary and the boundary for proposed diversion extent.
- iii. Finalize the activities to be proposed in the identified RF lands
- iv. Three Alternative sites with location details.
- v. Any other data for the Project needs, as requested by consultants during contract duration

1.2.2 Site Visits

Aarvee Team carried out a detailed visit of the 26 Reserved Forest Blocks between 26th Sep to 1st October 2016. Respective forest block FROs and FBOs accompanied the team for the reconnaissance visit. This includes the profile of each Project site covering connectivity aspects, existing land use, surrounding developments, review of development controls (Bye-laws) and zoning regulations, environmental aspects and SWOT analysis. The existing infrastructure facilities including water supply, power supply and waste management shall also be studied.

1.2.3 Meetings with Officials

Several meetings were held with CRDA officials and other concern officers from revenue and forest departments.

1.2.4 Data Analysis

Parallel to this, planners were analysing the relevant data received from various sources. The analysis included understanding of physical site features such as hills, rivers, canals, forests, drains, etc., along with an understanding of the sociodemographic and economic pattern of the surrounding areas.

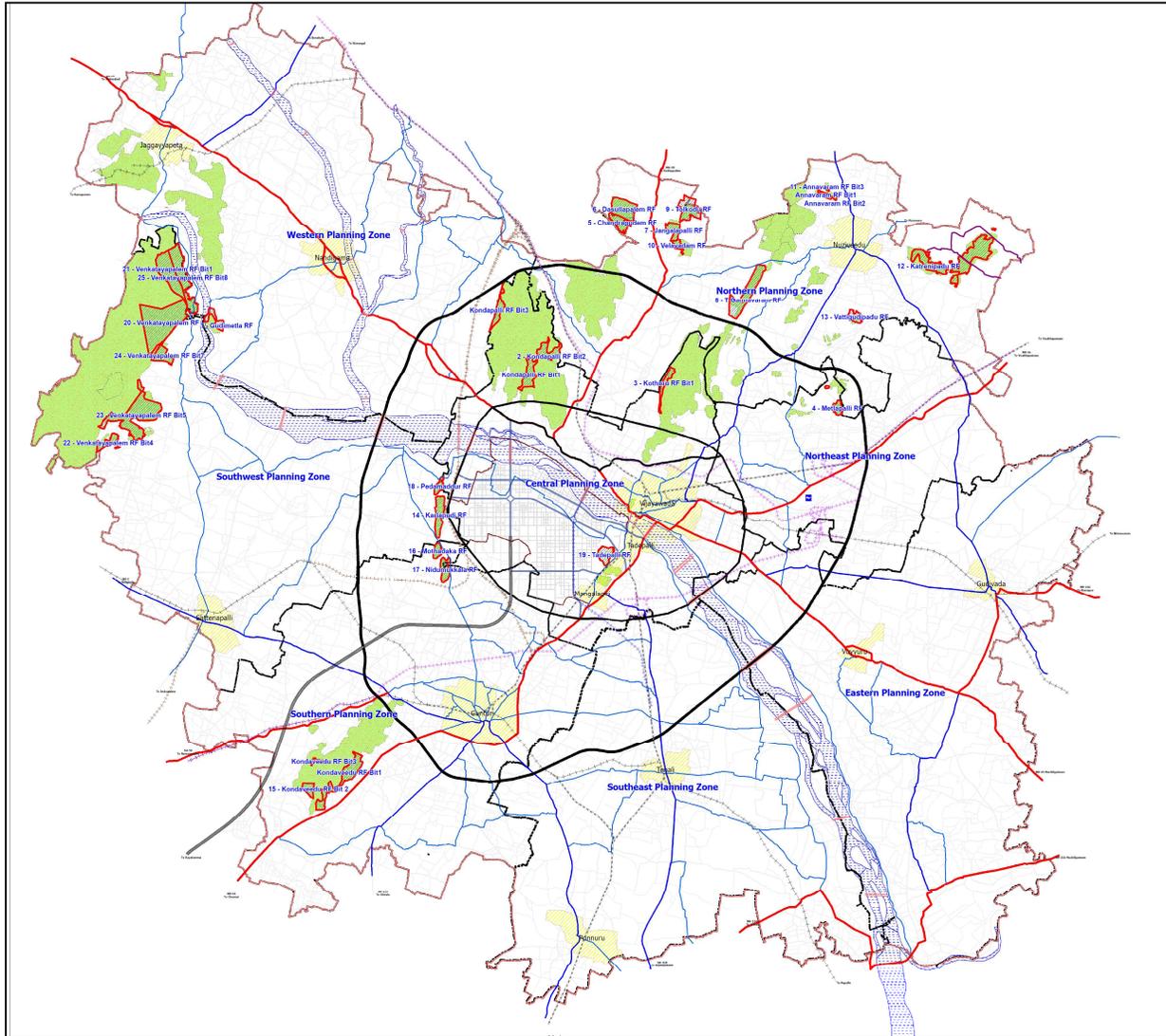
DGPS survey drawings and Forest boundaries were analysed with satellite imagery available to arrive at the exact boundaries proposed for diversion under this proposal.

1.3 List of Proposed Forest Lands for Diversion

Table 1 : List of Proposed Lands for Diversion

S.NO	FOREST BLOCK	PROPOSED ACTIVITIES
KRISHNA DISTRICT		
1	Gudimetla	Centre of Excellence for Ayurveda Research and Wellness
2	Kothuru	Integrated Health and Wellness center
3	Metlapalli	International Convention & Exhibition Centre.
4	Chandragudem	IT,ITES Park & Allied activities
5	Dasullapalem	IT,ITES Park & Allied activities
6	Jangalapalli	Handloom & Handicraft Village
7	T Gannavaram	Centre for Education & Higher learning
8	Tholukodu	Biomedical & Biotechnology Research Centre
9	Velvadam	Biodiversity Education and Infotainment Centre
10	Annavaram	Agri Processing and Support Infrastructure
11	Katrenipadu	Centre of Excellence for Culture, Heritage and Media
12	Vattigudipadu	Institute of Fundamental Research & Aqua Research Complex
13	Kondapalli	Sports & Physical Training Centre (Bit 1&2), Agri-Tourism Projects (Bit 3)
GUNTUR DISTRICT		
14	Karlapudi	E-5 Theme Park
15	Kondaveedu	Forest Academy, Heritage Park Adventure Eco Theme Park & Institutional Area
16	Mothadaka	Science City
17	Nidumukkala	Bio-Diversity Park
18	Pedamadduru	Eco Tourist Village
19	Tadepalli-Undavalli	Business District
20	Venkatayapalem	Police & Armed Forces complex
21	Venkatayapalem Extn 1	Green Mobility Park
22	Venkatayapalem Extn 4	Integrated Cut Flower & Spice Park
23	Venkatayapalem Extn 5	Innovation Industrial Park
24	Venkatayapalem Extn 7	Integrated Bio Pharma Infrastructure Park
25	Venkatayapalem Extn 8	Green Mobility Park

1.4 Location Map of Proposed Forest Lands for Diversion



2 Karlapudi Reserve Forest

2.1 Site Introduction

Table 2: Site Assessment for Karlapudi RF

2.1.1 Introduction	a. Location & Site Details	<p>Karlapudi RF is situated in Amravathi Mandal, Guntur District. Located below River Krishna; the RF site is accessible from Amravathi Road which connects all the major urban centres and towns viz., Amravathi (10 kms), and Guntur (22 kms). The Capital City (Phase I) of Andhra Pradesh “Amravati” is located to the east i.e., approx. 2-3 kms away (Thulur).</p> <p>Surrounding Locations</p> <p>The immediate areas surrounding the subject land parcel are settlements, and rich agricultural fields.</p> <ul style="list-style-type: none"> ▪ North – River Krishna; Pedomadduru RF ▪ South – Mothada RF;Guntur ▪ East – Capital City (Phase I); Vijayawada ▪ West – Rich agricultural fields
	b. Accessibility	<p>The RF is accessible to the citizens from Lemalle Village via Guntur – Amravathi Main Road which passes to the west of the site. This main road is the major axis for all the urban centres. The Vijayawada Airport is 56 kms away. The site is accessible by Rail; with the nearest station at Guntur.</p> <ul style="list-style-type: none"> ▪ Surrounding Villages (within 3 kms) : Lemalle, Karlapudi and Mothadaka ▪ Rail Access: : Guntur Rly Stn (22 Kms) ▪ ORR Distance (at Intersection point): 12 Kms ▪ Distance from Capital City (Phase I) (Thullur) : 17 Kms
	c. Key Features of Site (Detail Breakup refer in Annexure - 1)	<p>The project site, covers an area of about 371.8 Ha (as per the details provided APCRDA). It is accessible from Guntur-Amravathi Main Road and site is well approachable from Lemalle Village (0.5 km) and Velagaleru Village (0.5 km). Located in the midst of agriculture fields; the site is a hillock with steep slopes. The elevation difference is in the order of about 30% with a maximum contour level difference of 110m</p> <p>The RF Site lies between latitudes 16°30'45.55"N and longitudes 80°23'52.61"E</p> <p>Due consideration is taken to provide access to the existing settlements; if any within the site area.</p>
	d. Forest Cover	<p>The forest in Karlapudi RF is a Dry Deciduous type thorny scrub forest. With a density of 0.2 to 0.3 ; the soil found in this division is highly bouldry and rocky. The vegetation is open and the growth consists of thorny bushes ranging from 3 to 6m in height</p> <p><u>Floristic Composition</u></p> <ul style="list-style-type: none"> • Azadirachta indica (Vepa) ;

- Prosopis juliflora (Sarkar thumma)
- Albizia amara (Nallarregi)
- Cassia fistula (Rela)
- Acacia leucofloea
- Carrisa spinarum
- Euphorbia triquetrum
- Zizyphus xylopyrus
- Grewia rotundifolia
- Gyrocarpus jacquini
- Manilkara nexandra

e. Alternative Sites

The chosen sites are listed below.

1. VYKUNTAPURAM HILL

Located in between River Krishna and Vykuntapuram Hill; This Hillock (Survey No 183) is spread across an area of 63.39 Ha. Situated on the banks of River Krishna, this site is 5 kms away from Capital City (Phase I) and is accessible from Amravathi – Karakatta Road.

The usage of the site as per adangal data is Road (Donka Land).

This site area is limited and as it is located in the banks of River Krishna; the land would be marshy for the development of the proposed activity

2. ANANTHAVATAM HILL

Located just beside the village main road connecting “Harichandrapuram – Tadikonda” ; the site is spread across an area of 123.83 Ha. The site identified as a Hillock (Survey No 221) is categorized as a Hill and Metta (Govt. Land) usage. Located within the Capital City (Phase I) Limits; the site has been earmarked as primary green use with surrounding areas classified and plotted into industrial plots. Henceforth the proposed activity is not suitable to be developed in this zone.

(Refer alternative site assessment details in subsequent section)

2.1.2 Nearby Attractions

Guntur

Guntur is the third most populous city within Andhra Pradesh. The city is renowned for its numerous educational institutions, and functions as the “Education Hub” of the state.

Additionally, the city is also the largest producer of chillies and is known for its chili, cotton and tobacco exports. E-commerce and other business related industries are also fast growing within Guntur.

Amaravati Town

Amaravati is a very important Buddhist pilgrimage centre. It has been declared as one of the heritage cities within India. The town houses the famous Amaravati Dhyana Budha Statue and Amareshwar Temple. The town will continue to remain as one of the important heritage tourism centres.

Phase I (Amravati Capital Area)

The New Capital of Andhra Pradesh is envisioned to be the pioneer Smart City of India. It will be an economic powerhouse that will create a range of jobs for existing resident villagers by upgrading their skills, as well as provide high-tech and knowledge based industry jobs to be globally competitive.

The New Amaravati Capital City (Phase I) and Vijayawada will grow as twin cities in the future due to their close proximity. The diverse economy of the two cities will complement each other and ultimately emerge as a Mega City.

2.1.3 Existing Facilities

- ✓ Approach Roads from 2 villages and accessibility from Amravathi Raod
- ✓ Water Source: Krishna
- ✓ Surrounding settlements

2.1.4 Proposed Facilities

- ✓ Proposed Landuse : Recreational
- ✓ Activities : E-5 Theme Park (Rides & the entire concept would be constructed based on 5 elements of Nature i.e., Water, Sky, Earth, Air & Fire)

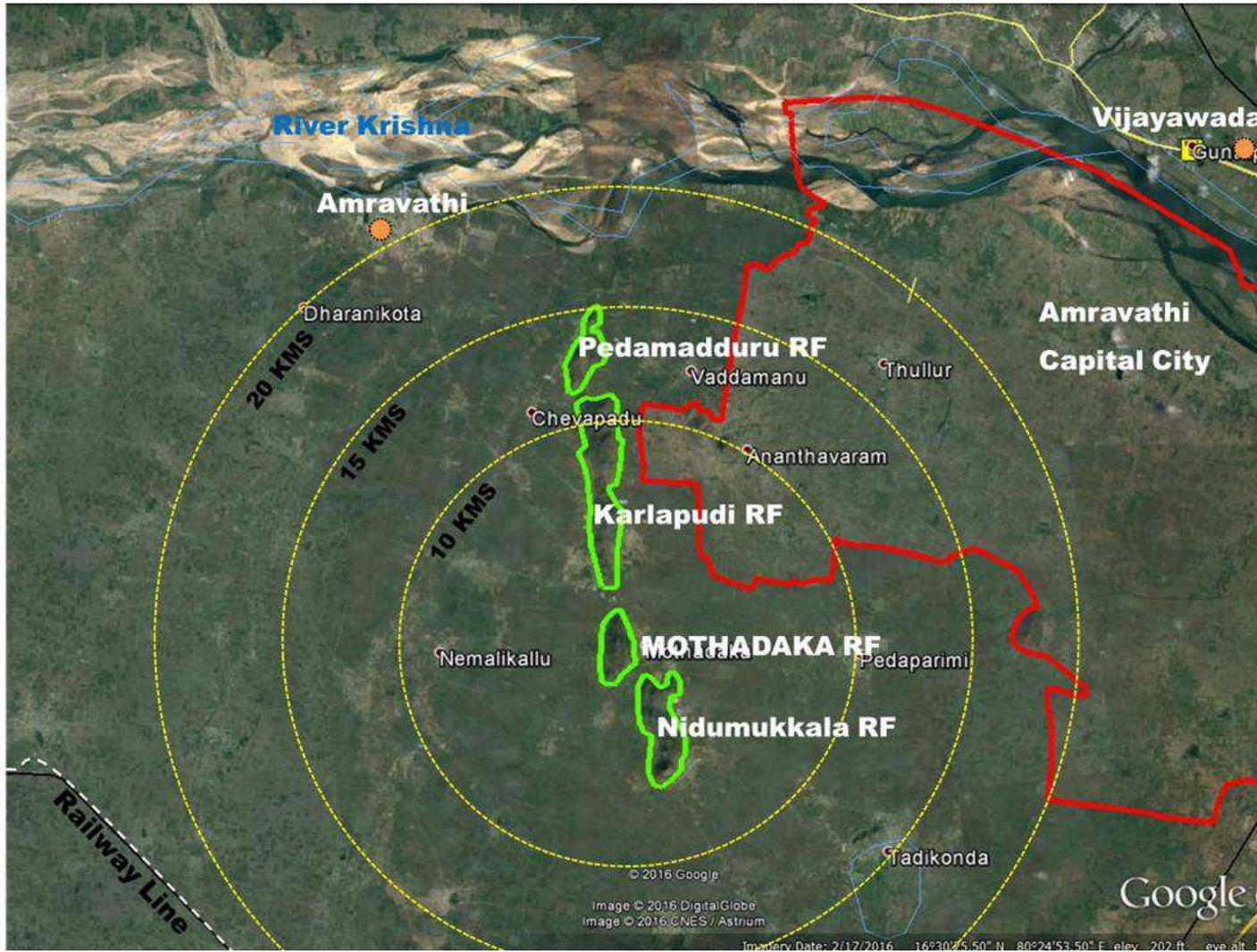


Figure 4: Regional Location Map of Karlapudi Site

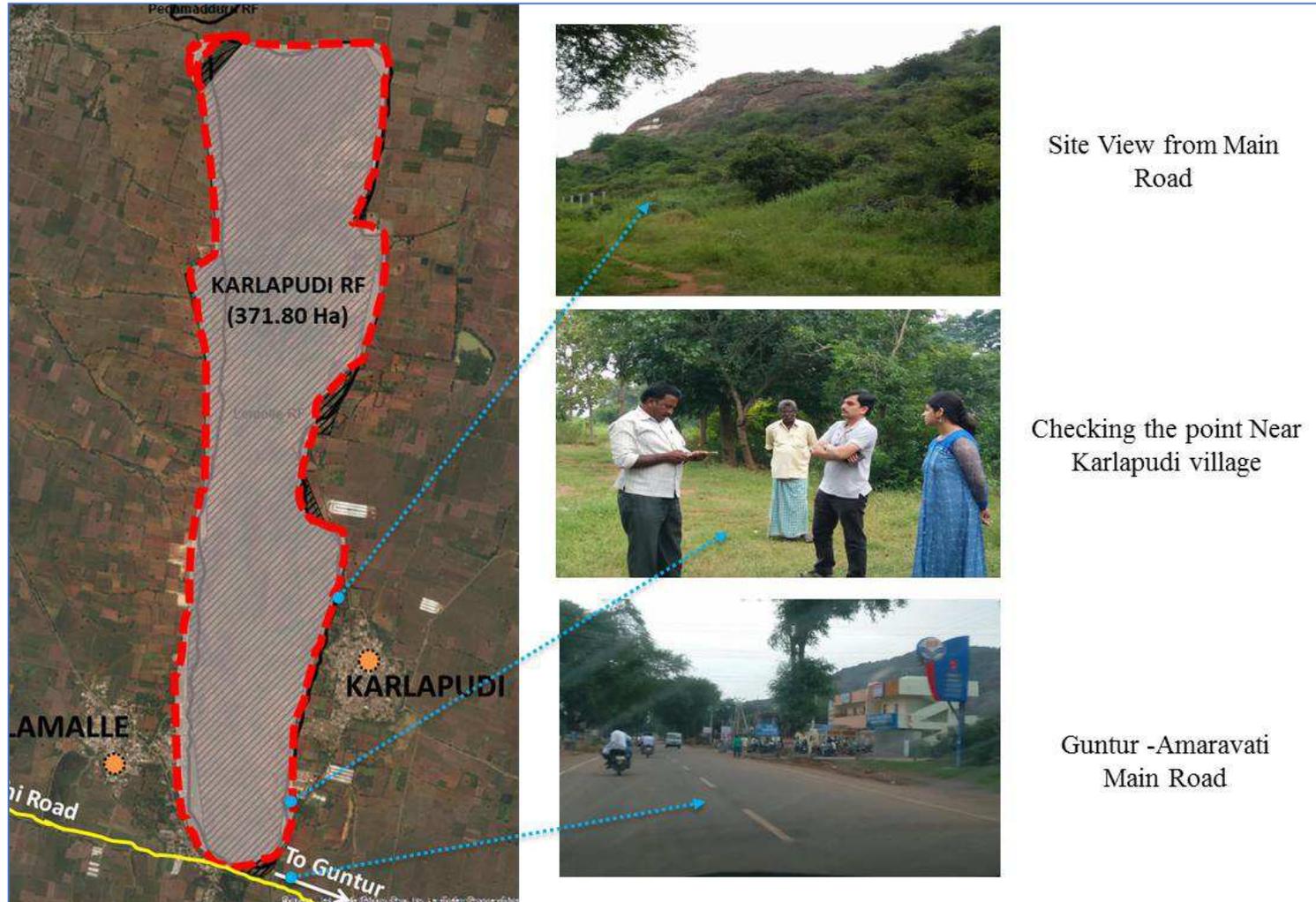


Figure 5: Site Accessibility & Reconnaissance Survey- Karlapudi Site

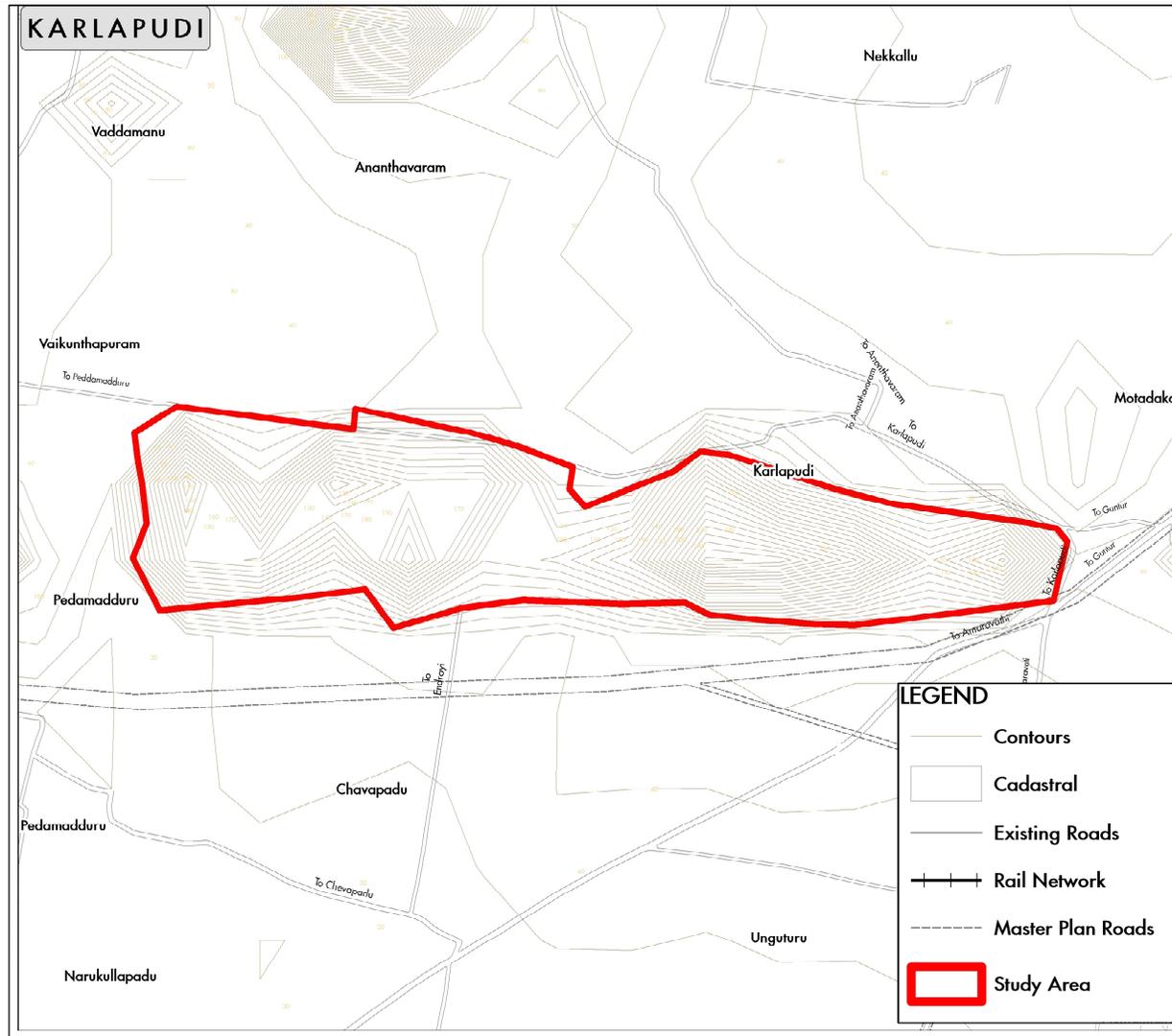


Figure 6: Base Map – Karlapudi Site

2.2 Site Suitability Assessment

Table 3: Site Suitability Assessment of Karlapudi RF Site

#	Particulars	Good	Average	Poor
1	Proximity to Urban Areas	Located nearby the Capital City (Phase I) and is easily accessible from major urban centres such as Guntur ,Amravathi & Capital City (Phase I) “Amravati”	----	----
2	Site Accessibility	<ul style="list-style-type: none"> • Good Connectivity : Amravathi Road • Availability of public transport facility (Buses & shared autos) • Rail Access - Guntur • Proposed ORR 	----	----
3	Existing Features /Resources in proximity	<ul style="list-style-type: none"> • Good Approach Roads • Surrounding village settlements • Upcoming Residential Layouts (influence of Capital City (Phase I)) 	----	----
4	Infrastructure (Water Supply, Power, drainage)	<ul style="list-style-type: none"> • Water source for future availed • Access Road to the site • Remaining facilities – dependency on Amravati or Future Capital City (Phase I) 	----	----
5	Potential for Development	<p>The site is ideal to be developed as an E-5 Theme Park.</p> <ul style="list-style-type: none"> • APCRDA Region is in a need of large recreational spaces for maintaining a balance in the region and to boost the economic sector in term of Tourism development. • One among the Capital City is to develop and create a tourism circuit that links all the existing heritage features and new nodes created in the city and also Compliment adjacent cities, at the same time establish a unique identity. • With 4.5 million population projected for the Capital City (Phase I) by 2050; the allocated space i.e., Karlapudi RF is an ideal location to develop such recreational spaces. 	----	----
7	Other similar Development in Proximity	None	----	----
8	Visitors Security w.r.t Site	No Threat Perception since the proposed site is well within the CRDA Region	----	----

**Location Map showing the forest land proposed for diversion in PEDAMADDURU RF, GUNTUR DIVISION
for Capital City Infrastructure Project in APCRDA**

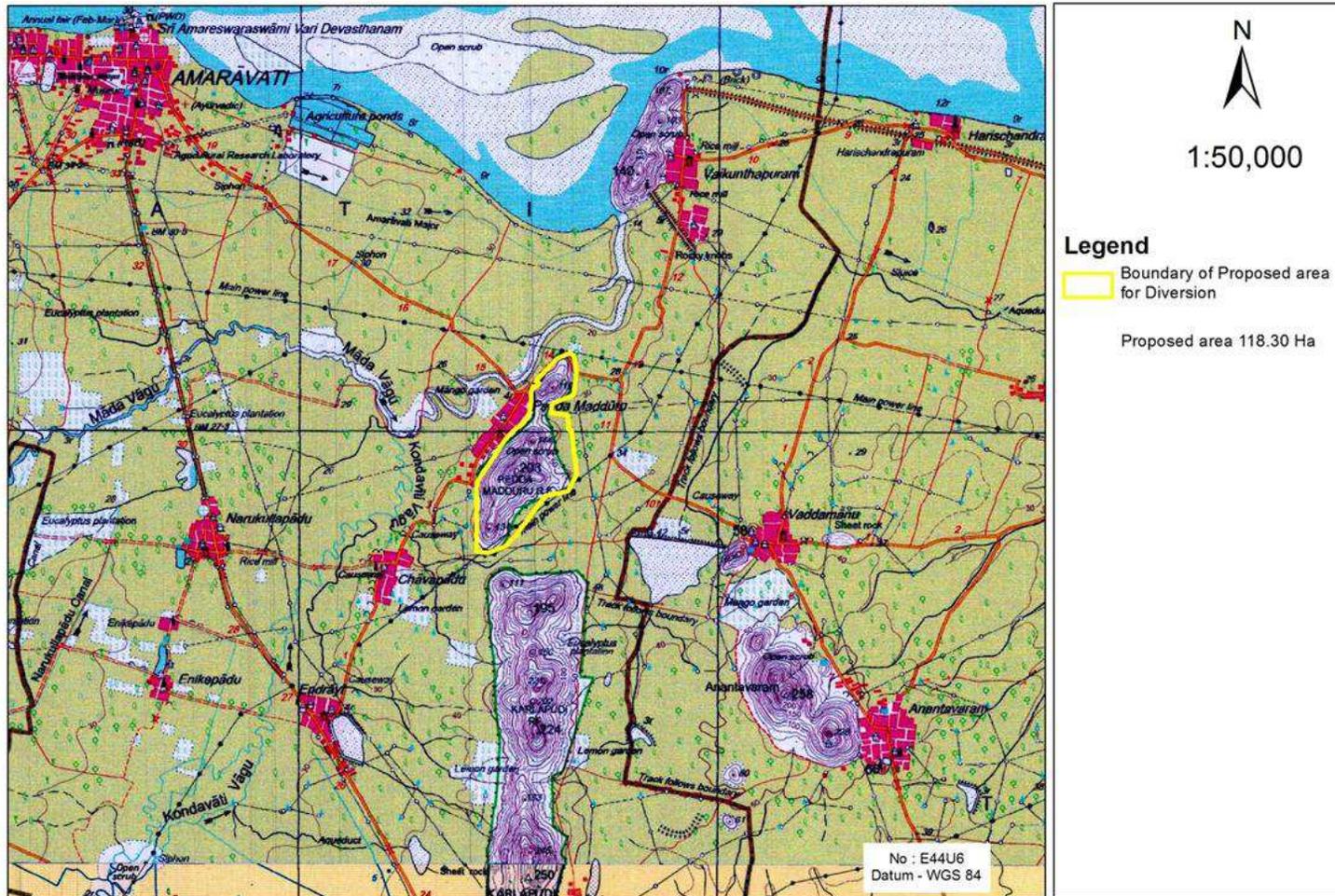


Figure 7: Topographic Map – Karlapudi RF Site

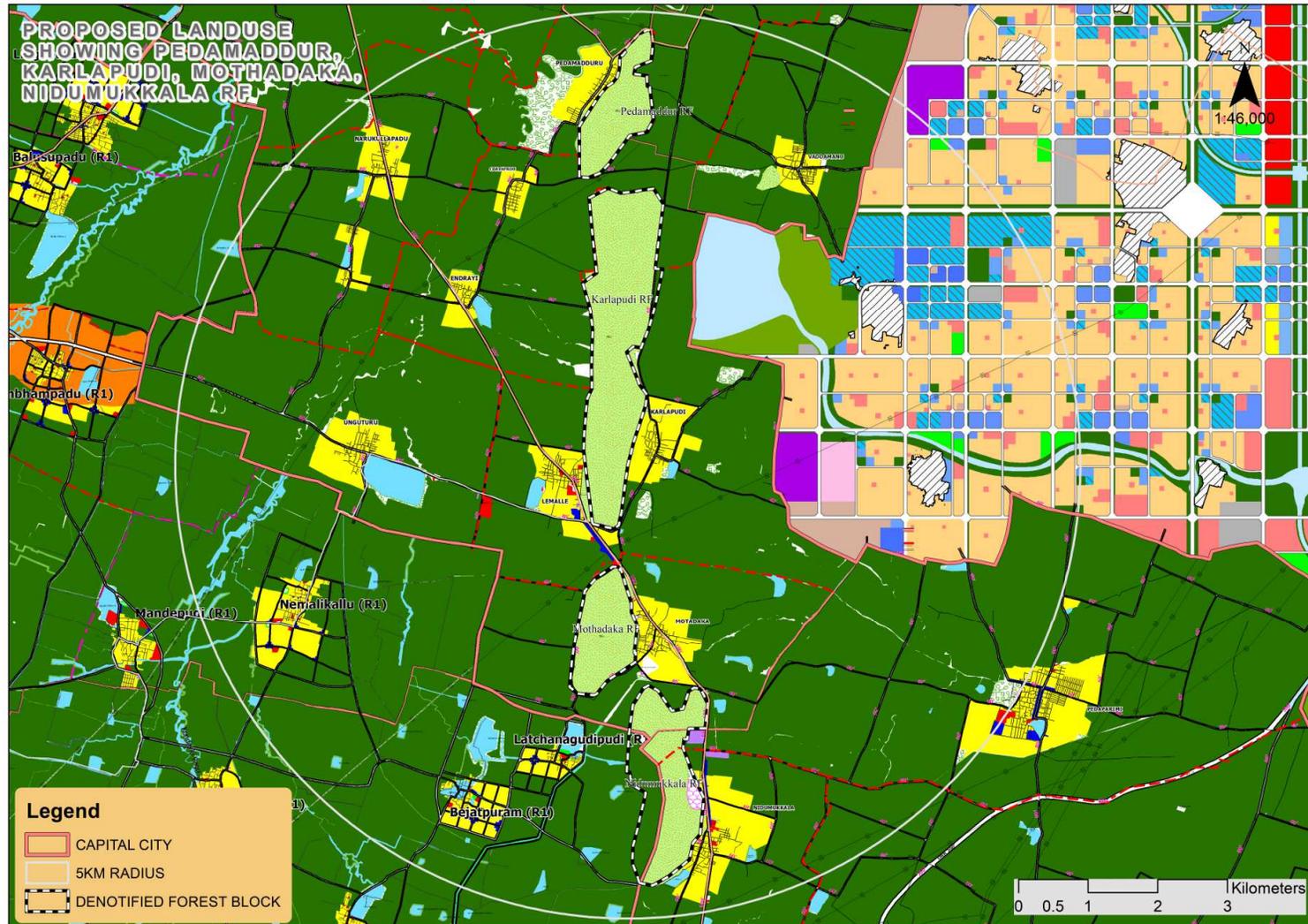


Figure 8: Proposed Development in and around the RF as per Master Plan (2035)

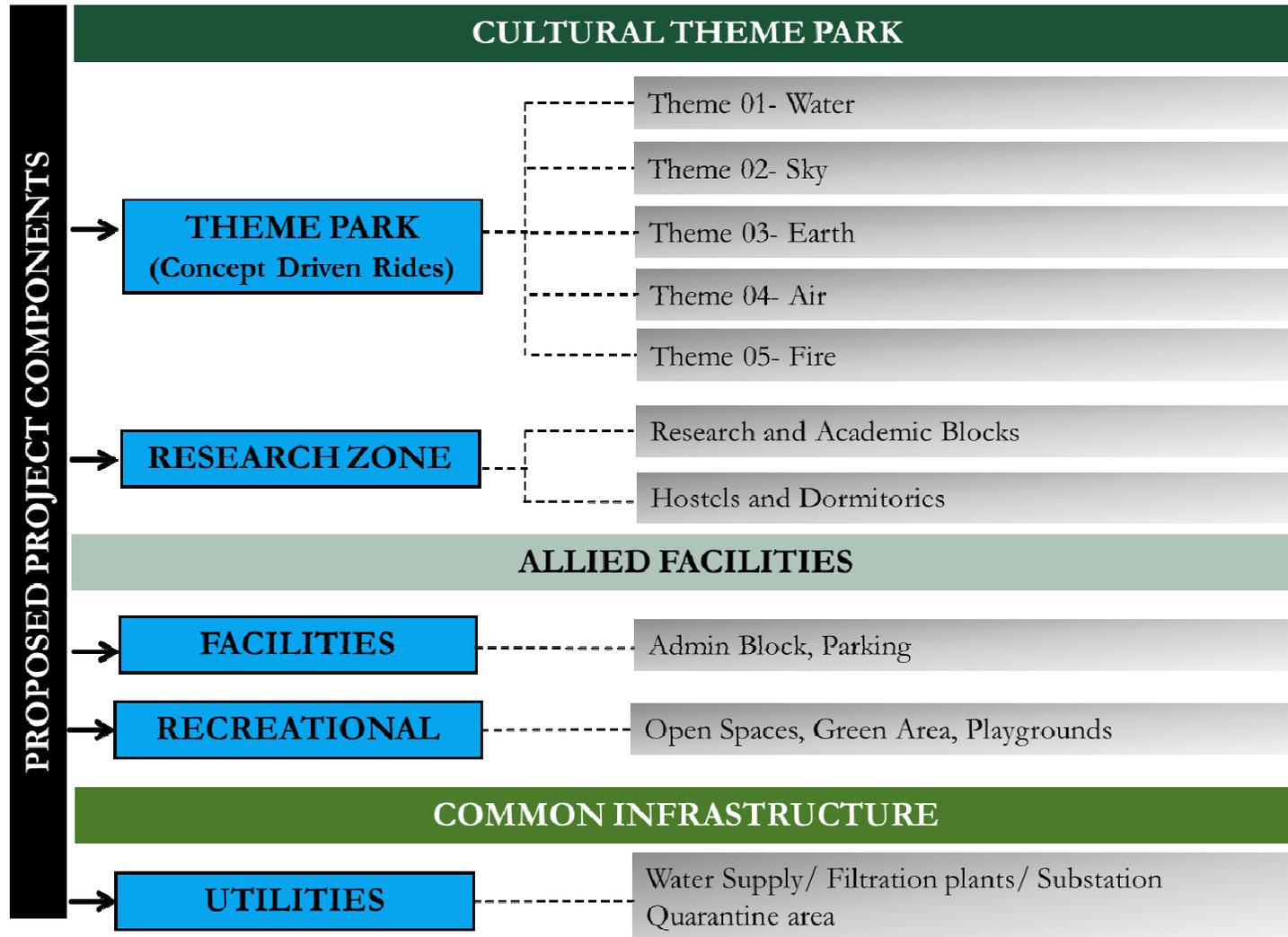


Figure 9: Key Project Components – Karlapudi RF site

2.3 Concept Plan



Figure 10: Concept Layout Plan – Karlapudi RF Site



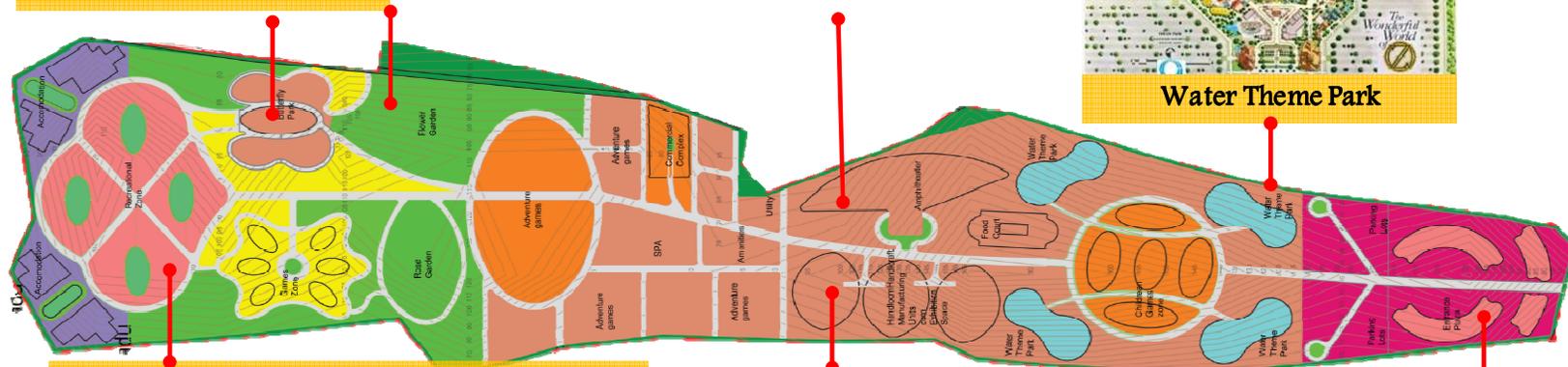
Gardens



Food Court & Fun Zone



Water Theme Park



Cultural Theme Park

Adventure Park

Entrance Zone



Figure 11: Illustrative views & images of proposed E5- Theme Park

2.4 Area Statement

Table 4: Area Statement for Karlapudi RF site

S.No	Landuse	Area in Ha	Area in Ac	% to total area
1	Area for Proposed activities	244.56	604.30	65.78%
a	E-5 Theme 01- Water	90.25	223.01	36.90%
b	E-5 Theme 02- Sky	27.01	66.73	11.04%
c	E-5 Theme 03- Earth	19.82	48.98	8.10%
d	E-5 Theme 04- Air	32.20	79.56	13.17%
e	E-5 Theme 05- Fire	34.94	86.34	14.29%
f	Research and Academic Blocks	17.86	44.13	7.30%
g	Entrance Plaza & Admin Block	11.94	29.50	4.88%
h	Hostels & Dormitories	10.55	26.06	4.31%
2	Roads	81.90	202.37	22.03%
3	Open Spaces & Green Areas	42.15	104.14	11.34%
4	Utilities	3.21	7.92	0.86%
	Total	371.80	918.73	100%

2.5 Open Spaces & Green Area Calculation

Table 5: Open Spaces & Green Area Calculation

S.No	Components	Area in Ha	Area in Ac	% to Total Area
1	Activities			
a	E-5 Theme 01- Water	90.25	223.01	36.90%
b	E-5 Theme 02- Sky	27.01	66.73	11.04%
c	E-5 Theme 03- Earth	19.82	48.98	8.10%
d	E-5 Theme 04- Air	32.20	79.56	13.17%
e	E-5 Theme 05- Fire	34.94	86.34	14.29%
f	Research and Academic Blocks	17.86	44.13	7.30%
g	Entrance Plaza & Admin Block	11.94	29.50	4.88%
h	Hostels & Dormitories	10.55	26.06	4.31%
A	Sub-total of Plot area under each activity	244.56	604.30	65.78%
2	Utilities	3.21	7.92	3.77%
3	Roads	81.90	202.37	96.23%
B	Sub-total of Roads and Utilities	85.10	210.29	22.89%
4	Green & Open Spaces			
a	Common Green & Open Spaces	42.15	104.14	23.86%
b	Open Spaces within the Plots (55% of A)	134.51	332.36	76.14%
C	Sub-total Green and open spaces	176.65	436.50	47.51%
Total Area of the RF Site		371.80	918.73	

2.6 Block Cost & Cost Benefit Analysis (CBA)

Financial assessment of Cost Benefit Analysis (CBA) is done by calculating the total project cost as per the best industry practices for development of the project, assuming basic features and specifications. These features and specifications may vary when detailed assessment and engineering activities are carried out for the development.

Table 6: Construction Cost -Karlapudi RF site

S.No	DESCRIPTION	Amount (Rs in lakh)
1	E-5 Theme Park	38638.45
2	Roads and Approaches	7410.83
3	Green Avenues & Buffer areas	6084.39
4	Basic Facilities	5213.37
5	Miscellaneous Cost (2.5% of PC)	1433.68
	Total Construction Cost	58780.72

2.7 Parameters for Evaluation of Benefit, not Withstanding Loss of Forest

Sl. No.	Parameters	Nature of Proposal
1.	Increase productivity attributable to the specific project	Setting up of E-5 Theme Park will generate employment opportunities in the Guntur region. More than 12,000 persons will get employment in various activities in the centre
2.	Benefits to economy	Economy/business will generate through, Entry Ticket to four E-5 Theme- Water, Air, Fire, Sky & Earth and, Research Units. Project cost: Rs. 587.81 Crores
3.	No. of population benefited	About 1.0 lakh population benefited annually (Direct & Indirect)
4.	Employment potential	Approximately 12,000 people in various capacities will be employed during construction of this project a large numbers technician and supporting staff will be retained after construction for maintenance and related work.
5.	Cost of acquisition of facility on non-forest land where feasible	No acquisition of private land is necessary.
6.	Loss of (a) agricultural & (b) non-forest land wherever feasible	Not Applicable
7.	Cost of rehabilitating the displaced persons as different from compensatory amounts given for displacement	Not Applicable
8.	Cost of supply of free fuel wood to workers residing in or near forest area during the period of construction	Free electricity will be provided for lighting. The employees will be facilitated to get the LPG gas connections at nearby location. Management has discouraged the use of fire wood by the workers of this ongoing project for the cooking purpose.

2.8 Site Suitability Assessment for Alternative Site

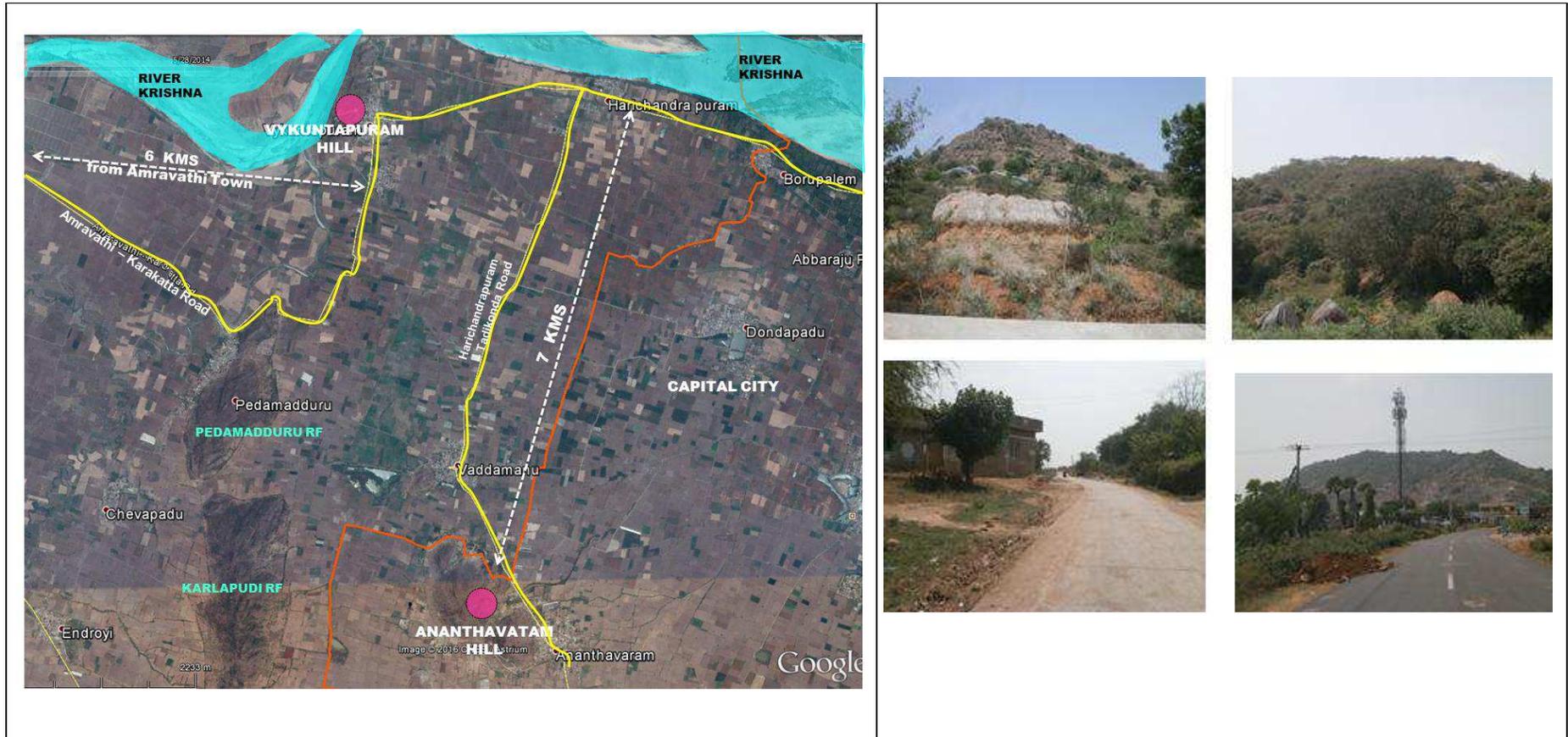


Figure 12: Alternate sites for Karlapudi RF site

Table 7: Site Suitability Assessment for Alternative Site of Karlapudi RF site

#	Particulars	Good	Average	Poor
1	Proximity to Urban Areas	Amravathi, Guntur		
2	Site Accessibility	Amravathi – Karakatta Road. Harichandrapuram – Tadikonda		
3	Existing Features /Resources in proximity		River Krishna Just surrounding villages; encroachments	
4	Existing Infrastructure		To avail Facilities provided at Guntur & proposed facilities for Amravati Capital City (Phase I)	
5	Potential for Development			VYKUNTAPURAM HILL <ul style="list-style-type: none"> • Site are Prone to get inundated • Limited Land availability ANANTHAVATAM HILL <ul style="list-style-type: none"> • Hilly Terrain • Demarked as a Green space and under Metta classification. • Proposed site not suitable for Tourism Development

Conclusion:

The APCRDA has examined Vaikuntapuram and Ananthavaram hillocks for establishment of Cultural Theme Park. But this is steeper in nature and there may be chance of inundation of these areas. Hence this hillock was rejected. Hence there is no alternative except to procure the Karlapudi forest land, which is nearer to Amaravati Capital City (Phase I) and adjoining to proposed water ways.

ANNEXURES

