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ABBREVIATIONS

CBD: Central Business District

CC: Community Centre

CCC: Community Commercial Centre

CMP: Comprehensive Master Plan

CT: Census Town

CU: Composite Use

DC: District Centre

DCC: District Commercial Centre

DRC: Development and Regulation Control

DWSD: Drinking Water and Sanitation Department

ECS: Equivalent Car Space

ESS: Electric Sub Station

EWS: Economic Weaker Section

FAR: Floor Area Ratio

FC: Facility Centre

GSS: Grid Sub Station

Ha/HA: hectare

HEC: Heavy Engineering Corporation

HIG: High Income Group

HT: High Tension

ICC: Integrated Community Centre

IDC: Integrated District Centre

IFC: Integrated Freight Complex

IT: Information Technology

Km: Kilometer

KV: Kilo Volts

lpcd: Liters per Capita per Day

LPG: Liquefied Petroleum Gas

LRTS: Light Rail Transit System

LU: Land Use

LT: Low Tension

m: Meter

MIG: Middle Income Group

MLD: Million Liters per Day

NCC: Neighborhood Commercial Centre

NH: National Highway

OP: Original Plot

pm: Per Month

PPH: Person per Hectare

P&SP: Public and Semi-Public

PU: Planning Unit

RMC: Ranchi Municipal Corporation

RMP: Ranchi Master Plan

RMU: Remote Monitoring Unit

RRDA: Ranchi Regional Development Authority

RPA: Ranchi Planning Area

RTC: Ranchi Transport Corporation

R/W: Right of Way

ROB: Rail Over Bridge

SH: State Highway

Sq.m: Square Meter

Sq.km: Square Kilometer

SR: Service Reservoir

STP: Sewage Treatment Plant

TPTM: Transport Planning and Traffic Management

ULBs: Urban Local Bodies

TDR: Transfer of Development Rights

TP: Town Planning

TPO: Town Panning Officer

WFPR: Work Force Participation Rate

WTP: Water Treatment Plan

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It is a pleasure to place on record the gratitude to various persons and organizations, who have put their efforts and support for the rational completion of Zonal Development Plans 2037 of Ranchi.

We acknowledge with thanks the cooperation and guidance of Principal Secretary, IAS, Urban Development & Housing Department (UDHD) for Jharkhand, Director, IAS, State Urban Development Agency (SUDA) Municipal Commissioner, IAS, Ranchi Municipal Corporation (RMC); Jharkhand Urban Infrastructure Development Company (JUIDCO), Town Planner, UDHD, Ranchi, Town Planner, RMC and other officials their kind inputs and support. We would like to express our appreciation to the officials in the preparation of this report that will lead to the preparation of Zonal Development Plan of Ranchi. We hope to have same corporation and support for the preparation of the Zonal Development Plan (ZDP).

The present report contains the data and recommendations mentioned in the following reports prepared by the organizations:

- Master Plan of Ranchi 2037
- Jharkhand Building Byelaws 2015 & other prevailing acts and policies of the State related to Urban Development.
- Smart city- Area Development Plan
- Draft Report: Zonal Development Plans of Garhmukteshwar -Brijghat Master Plan 2021, Concept of Jaipur Development Plan
- URDPFI Guidelines
- AMRUT Design and Standards for GIS mapping
- Draft Policy for affordable housing for all.' Urban Area in Jharkhand in 2015
- Master Plan for Anekal Local Planning Area 2031
- The Smart City Challenge Stage 2- Ranchi
- National Lake Conservation Plan (NLCP) 2001
- The Pioneer, Ranchi – Tuesday, January 10, 2017
- Jharkhand State Solar Power Policy 2015
- Model Building Bye-Laws- 2016

EXECUTIVE SUMMARY

A Zonal Development Plan is a detailed plan for a zone conceived and prepared within the framework of a Master Plan containing proposals for various land uses, roads and streets, parks and open spaces, community facilities, services and public utilities, etc.

Ranchi Master Plan (2037) was notified on 13.08.2014. There are 7 Planning Districts (Zones) in Ranchi i.e. A, B, C, D, E, F and G. Ranchi as the capital of Jharkhand is one of India's youngest states. Various planning efforts have been taken to make Ranchi a sustainable city. Ranchi is one of the 100 smart cities under the Smart City Mission of the Government of India. Educational institutes are being reinforced and efficient traffic and transportation system is being developed to reduce the travel time of commuters and incidents of traffic violations to make Ranchi a safe city for pedestrians and commuters.

Planning District F/ Zone F is located on southern side of Ranchi City. It is bounded by three sides from other Planning district and Planning Units. Planning District G on the West, Planning District E on the East, Planning District A on the north and Rural areas (Non Planning area) on the southern side. It has one regional connectivity road N-75 and NH-33 road and ring road provides city level connectivity.

The total area of the zone is 67.01 sq. km. It is further divided into two Planning Units i.e. 28.18 sq. km. in Planning Unit 11 and 38.83 sq. km. in Planning Unit 12 respectively. Planning District F is having planning Unit 11 and Planning Unit 12. In planning unit 11 there are six wards and two villages viz. Ward 45, 46, 51, 52, 53, 54, Khijri (Thana no. 219), and Tumbagutu (301). Planning unit 12 there are villages such as Kutetoli (299), Oberiya (297), Mariyatu (303), Chandaghasi (300), Ithe (304), Dungri (294), Tanko (295), Garhkhatanga (296), Lolkhantanga (305), Gundu (268), Kochbang (306), Lodhma (302), Churu (327), Pindarkom (328) and Kharsidag (326).

As per the Master Plan the population of the Planning district F in the year 2011 was 2,23,584 which is further divided into Planning Unit 11 with 2,04,521 population and

Planning Unit 12 with 19,063. The Master Plan has projected this population for the year 2037 as 4,04,762.

Vision: Zone F has an Airport. In view of the anticipated future requirement of large sized aircrafts, long runways (of around 3.5 Km) would be required for the landing of the same. Considering this, 794 hectare of land has been proposed for Airport Expansion under RMP-2037, which could accommodate the longer runway and desired Terminal facilities.

Based on this vision the Master Plan 2037 plans to achieve the following two main objectives:

1. Better quality of life through improved physical & social infrastructure facilities.
2. Strengthen the economic base and generate employment opportunities by optimum utilization of available resource

There is also an exhibition ground proposed in Zone F to organize fairs, exhibitions and shows and events for cultural as well as economic benefits. Ranchi is the cultural and economic hub of not only the state of Jharkhand but also the entire of the region.

The existing Birsa Munda Airport of Ranchi is a public domestic airport serving the city of Ranchi, Jharkhand, India and is managed by the Airports Authority of India. It is located in Hinoo locality, approximately 7 km from the centre of the city. The airport is spread over an area of 223 hectare and is presently handling about 8 lakhs passengers per annum. It is also considered as one of the fastest growing small airports in the country.

Keeping in view the potential of traffic growth in the horizon year it is proposed to augment the land area of the airport to 794 hectare around the existing airport site by 2037. Further it is also proposed to improve the land side connectivity of the airport with different parts of the city through an improved public transport system facilitated as part of the overall bus services operationalization plan. In addition feeder services need to be operated between the airport and the proposed LRT system.

Although metro route is proposed in Zone F, but TOD Zone will not be proposed here as there is Birsa Munda Airport adjoining them. Intensive development will take place nearby the airport area as per the guidelines and permission of Airport Authority of India.

CLARIFICAITON

Ranchi Master Plan, 2037 was notified on 13-08-2014 having 55 wards and proposed Seven Zones named as Zone A, Zone B, Zone C, Zone D, Zone E, Zone F and Zone G. Ranchi Master Plan, 2037 shows Proposed Land uses in 17 categories. However, Zonal development plan of Ranchi is being prepared in compliance to ***Amrut Design and Standards*** as per the directions from the State Government. As Amrut Design and Standards specified to map the land uses as "Class" wise and "Sub-Class" wise. There is a detailing of land use categories mapped in Master Plan as per the categories specified in Amrut Design and Standards. Hence, following table has been prepared with the intention to establish a clear link between Ranchi Master Plan, 2037 and Zonal Development of Ranchi, 2037.

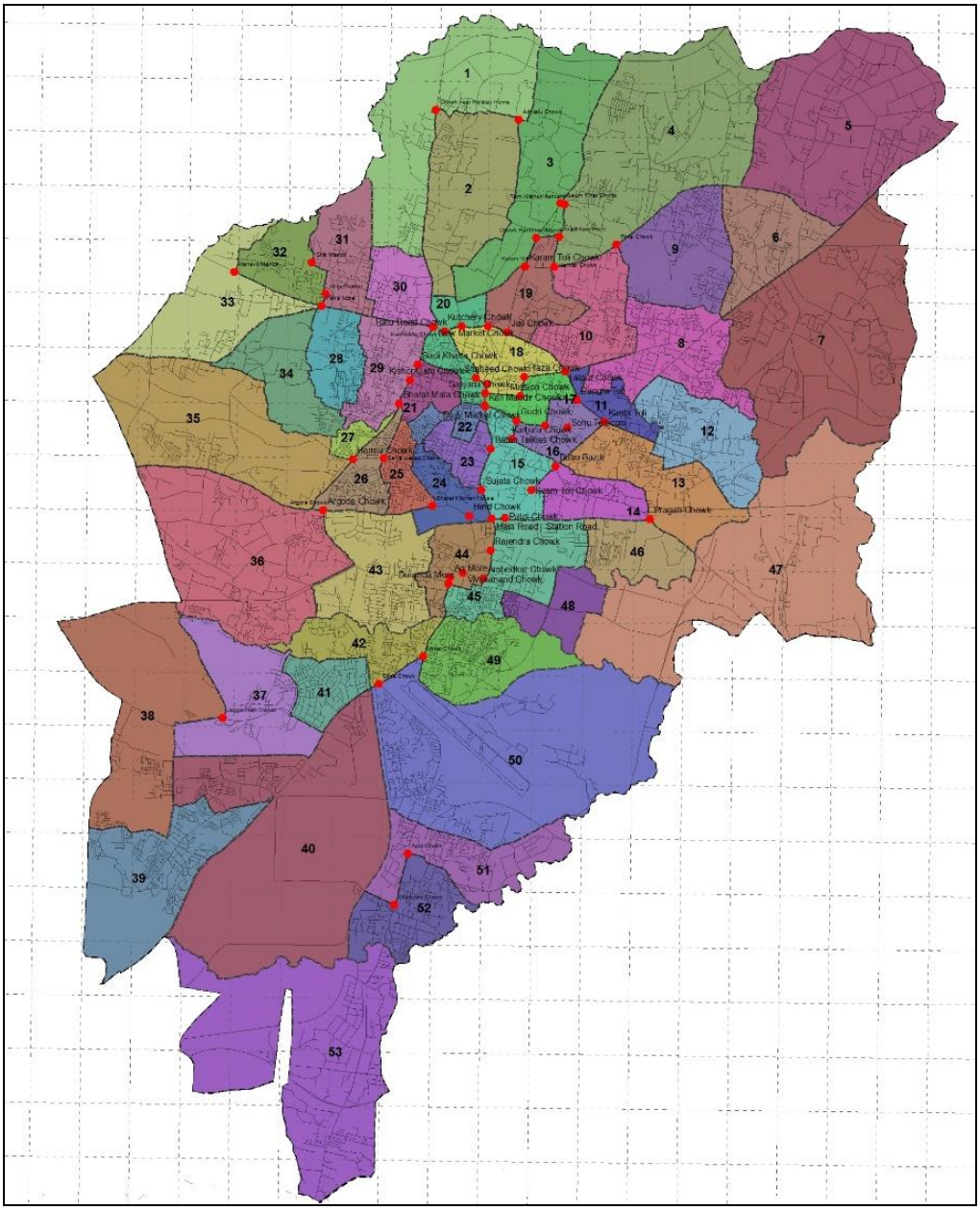
CLASSIFICATION AS PER RANCHI MASTER PLAN, 2037	CLASSIFICATION AS PER AMRUT	SUB-CLASSIFICATION AS PER AMRUT
DEVELOPED AREA		
RESIDENTIAL	RESIDENTIAL	Residential Area / Colony
RESIDENTIAL	SLUM	Non-Notified Slums
COMMERCIAL (RETAIL)	COMMERCIAL	Retail
COMMERCIAL (RETAIL)	COMMERCIAL	Shopping Centre/
COMMERCIAL (RETAIL)	COMMERCIAL	Hostel
COMMERCIAL (RETAIL)	COMMERCIAL	Function Hall
COMMERCIAL (RETAIL)	COMMERCIAL	Petrol Pump
COMMERCIAL (RETAIL)	COMMERCIAL	Hotel
COMMERCIAL (RETAIL)	COMMERCIAL	Mall
COMMERCIAL (RETAIL)	OTHERS	Slaughter House
WHOLE SALE & GODOWN	COMMERCIAL	Wholesale
WHOLE SALE & GODOWN	COMMERCIAL	Storage Godown
COMPOSITE USE - 1	MIXED	Residential, Commercial, Rec. & Insti.
COMPOSITE USE - 2	MIXED	"Residential, Commercial, Rec. , Insti. & Exist. Indus.
INDUSTRIES	INDUSTRIAL	Service
PUBLIC AND SEMI-PUBLIC	PUBLIC & SEMI - PUBLIC	Jail
PUBLIC AND SEMI-PUBLIC	PUBLIC & SEMI - PUBLIC	Museum
PUBLIC AND SEMI-PUBLIC	PUBLIC & SEMI - PUBLIC	Police Station
PUBLIC AND SEMI-PUBLIC	PUBLIC & SEMI - PUBLIC	Dharmashala
PUBLIC AND SEMI-PUBLIC	PUBLIC & SEMI - PUBLIC	Over Head Tank
PUBLIC AND SEMI-PUBLIC	PUBLIC & SEMI - PUBLIC	Public Library
PUBLIC AND SEMI-PUBLIC	PUBLIC & SEMI - PUBLIC	Banks
PUBLIC AND SEMI-PUBLIC	PUBLIC & SEMI - PUBLIC	Community hall
PUBLIC AND SEMI-PUBLIC	PUBLIC & SEMI - PUBLIC	Cultural Centre
PUBLIC AND SEMI-PUBLIC	PUBLIC & SEMI - PUBLIC	Fire Station
PUBLIC AND SEMI-PUBLIC	PUBLIC & SEMI - PUBLIC	Crematorium/Burial Ground
PUBLIC AND SEMI-PUBLIC	RELIGIOUS	Church
PUBLIC AND SEMI-PUBLIC	RELIGIOUS	Temple

CLASSIFICATION AS PER RANCHI MASTER PLAN, 2037	CLASSIFICATION AS PER AMRUT	SUB-CLASSIFICATION AS PER AMRUT
PUBLIC AND SEMI-PUBLIC	RELIGIOUS	Mosque
PUBLIC AND SEMI-PUBLIC	RELIGIOUS	Gurudwara
PUBLIC AND SEMI-PUBLIC	EDUCATIONAL	School
PUBLIC AND SEMI-PUBLIC	EDUCATIONAL	College
PUBLIC AND SEMI-PUBLIC	EDUCATIONAL	University
PUBLIC AND SEMI-PUBLIC	HEALTH SERVICES	Private Hospital
PUBLIC AND SEMI-PUBLIC	HEALTH SERVICES	Diagnostic Centre
PUBLIC AND SEMI-PUBLIC	HEALTH SERVICES	Govt. Hospital
PUBLIC AND SEMI-PUBLIC	PUBLIC UTILITIES	Over Head Tank
PUBLIC AND SEMI-PUBLIC	PUBLIC UTILITIES	Sewage Pumping Station
PUBLIC AND SEMI-PUBLIC	PUBLIC UTILITIES	Electric Sub Station
PUBLIC AND SEMI-PUBLIC	PUBLIC UTILITIES	Water Treatment Plant
PUBLIC AND SEMI-PUBLIC	PUBLIC UTILITIES	Sewage Treatment Plant
PUBLIC AND SEMI-PUBLIC	SOLID WASTE MANAGEMENT	land Fill Site
GOVERNMENTAL OFFICE	STATE GOVT. PROPERTY	Office
GOVERNMENTAL OFFICE	CENTRAL GOVT. PROPERTY	Office (Centre)
RECREATIONAL	RECREATIONAL	Club
RECREATIONAL	RECREATIONAL	Stadium
RECREATIONAL	RECREATIONAL	Park
RECREATIONAL	RECREATIONAL	Play Ground
RECREATIONAL	RECREATIONAL	Exhibition Ground
RECREATIONAL	RECREATIONAL	Amusement Park
RECREATIONAL	RECREATIONAL	Aquarium
RECREATIONAL	RECREATIONAL	Garden
RECREATIONAL	RECREATIONAL	Green belt
RECREATIONAL	ECO - SENSITIVE AREAS	
TRANSPORTATION AND COMMUNICATION	RAILWAY	Railway Property
TRANSPORTATION AND COMMUNICATION	TRANSPORTATION	Bus stand /Terminus
TRANSPORTATION AND COMMUNICATION	ROADS	State Highway
TRANSPORTATION AND COMMUNICATION	ROADS	Ring Road
TRANSPORTATION AND COMMUNICATION	ROADS	Other Public Road
TRANSPORTATION AND COMMUNICATION	ROADS	Major City Road
TRANSPORTATION AND COMMUNICATION	ROADS	Major District Road
TRANSPORTATION AND COMMUNICATION	ROADS	National Highway

CLASSIFICATION AS PER RANCHI MASTER PLAN, 2037	CLASSIFICATION AS PER AMRUT	SUB-CLASSIFICATION AS PER AMRUT
TRANSPORTATION AND COMMUNICATION	ROADS	Minor City Road
TRANSPORTATION AND COMMUNICATION	TRAFFIC RELATED	Parking Space / Area
TRANSPORTATION AND COMMUNICATION	COMMUNICATION	Telephone Exchange
TRANSPORTATION AND COMMUNICATION	COMMUNICATION	Post /Telegraph Office
GREATER RANCHI PHASE - 1		Greater Ranchi Phase - 1
GREATER RANCHI PHASE - 2		Greater Ranchi Phase - 2
UN-DEVELOPED AREA		
DEFENCE AREA	PUBLIC & SEMI - PUBLIC	Cantonment/Battalion
AGRICULTURE	AGRICULTURAL LAND	Crop Land
FOREST	GREEN AREAS	
FOREST	GREEN AREAS	Reserved Forest
HILLOCK	SPECIFIC LAND USE	Hill/Mountain
HILLOCK	OTHERS	Others
RURAL SETTLEMENTS	RURAL	Village/Abadi Area
WATER BODIES	WATER BODIES	River
WATER BODIES	WATER BODIES	Ponds
WATER BODIES	WATER BODIES	Canal
WATER BODIES	WATER BODIES	Reservoir
WATER BODIES	WATER BODIES	Stream
WATER BODIES	WATER BODIES	Lake

In the year 2017, Ranchi Municipal Corporation has re-organized almost all the ward boundaries and the number of the ward has been reduced to 53 from 55. Revised ward map having minor adjustments of boundaries has been prepared in the GIS format and superimposed on the Zonal Plans for all the seven Zones specified in the Ranchi Master Plan, 2037. Since the Master Plan has divided the zones/planning district considering the old ward boundaries accordingly zone boundaries are also considered the same.

Revised ward Map of Ranchi Municipal Corporation



Source: prepared by the DDF Consultants Pvt. Ltd.

1 INTRODUCTION

Rapid growth of population has put an immense pressure on resources of cities. This is further leading to decrease in quality of life i.e. lack of infrastructure, pressure on housing, deterioration of natural resources such as soil, water bodies, depleting open areas and parks. Urbanization has been a key factor in the socio-economic transformation of cities/ towns all over India. The cities are growing faster than the smaller settlements and are dominating the urban scenario.

Urban areas being 'Engines of Growth' act as an economy and employment generators of a state or a country. These urban areas are facing hindrances in their proper development because of haphazard and unplanned growth. Growth of an urban area takes place with increase in population, which can be due to natural growth and migration. The appalling living condition of the masses is increasingly becoming a matter of grave concern to government. The proliferation of slums and squatter settlements poses one of the most complex problems of our time. Considering that in many cities, over 50% of the total population is said to be below poverty line, urgent action is called for to improve their living conditions and quality of life. In such a programme the fulfilment of basic human need is a primarily goal, to be followed by progressive upgrading of the standard of living.

In order to mitigate the severity of the problems attendant to such unplanned and fast growth and for the overall well-being of the urban population, the urban local bodies (ULBs) and authorities regularly undertake preparing various plans such as Development Plans, Master Plans, Zonal Plans, Sectorial Plans, City Development Plans, City Strategy Plans, Neighborhood Plans, etc.

A Zonal Development Plan is a detailed plan for a zone conceived and prepared within the framework of a Master Plan containing proposals for various land uses, roads and streets, parks and open spaces, community facilities, services and public utilities, etc. The Development Authority is required to proceed with preparation of the ZDPs for each of the zones simultaneously with the preparation of the Master Plan or as soon as may be thereafter, the Authority shall proceed with the preparation of ZDPs for each of the zones into which the development area may be divided.

Ranchi, capital of Jharkhand- one of India's youngest states, is taking incredible strides to transform itself into a livable, healthy, and sustainable city in a very short span of time. With

focus on improving the quality of life for its citizens, Ranchi is embracing people-centric planning practices including strengthening public transport services, implementing a progressive parking management system and adopting transit-oriented development principles for urban planning. These efforts were reflected in the city's Smart City Proposal (SCP), which was selected in the fast-tracked second round of India's Smart City Mission in May 2016. The greenfield area based development is proposed to adopt a transit-oriented development (TOD) approach with dense, mixed-use neighbourhoods planned along frequent, fast, and reliable high capacity mass transport lines. The smart city proposal reinforces the city's intention to curb private vehicle use by managing parking through market-based pricing.

In the present context, the UDHD, Ranchi intends to undertake preparation of ZDPs for 7 planning districts A, B, C, D, E, F and G of the Ranchi Planning Area as indicated in the Ranchi Master Plan 2037.

1.1 RANCHI MASTER PLAN 2037

The first Master plan for the Ranchi city was prepared in year 1965 but due to some unavoidable circumstances it was not approved and the city grew in haphazard manner.

Again, in year 1983 the state government initiated to revise the master plan of 1965 and tried to guide the city's growth in planned manner. Ranchi master plan 1983 was a major effort taken by the Ranchi Regional Development Authority (RRDA) and to accelerate the growth pattern of the City in a planned manner. The master plan was prepared for the estimated population of 6, 68,433 persons by the year 2001. The total area was covered in the master plan was about 6,12,340 hectares out of which 15,914 hectares are covered by urban centers and 5,96,4326 hectares by the rural areas.

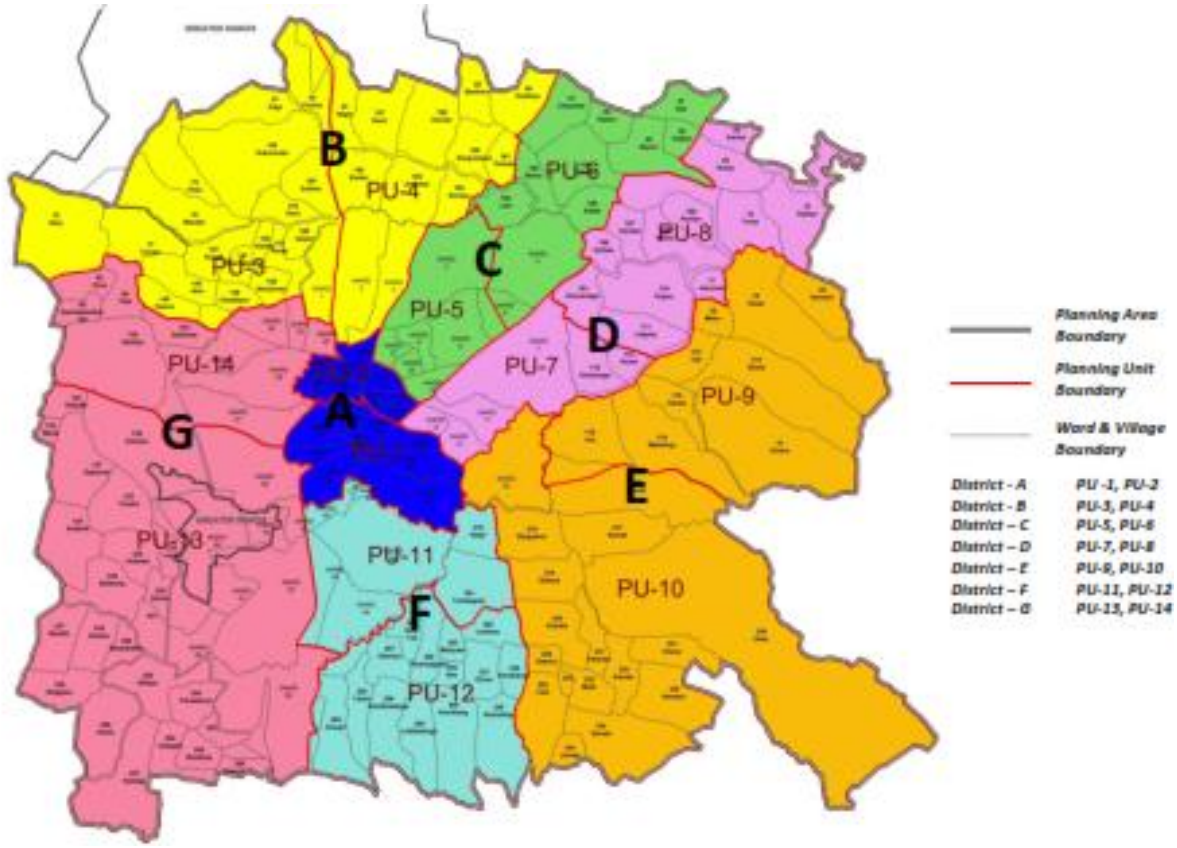
*Ranchi Master Plan (2037) was notified on 13.08.2014. There are 7 Planning District (Zones) in Ranchi i.e. A, B, C, D, E, F, and G (*Map 1-1*and* Table 1-1*)*

Table 1-1: Distribution of Planning Units in Planning Districts

S. No.	Planning District (Zone)	Planning Units (PUs)	Area (Ha)	Projected Population (2037)
1	A	PU-1 and PU-2	2578 Ha	4,87,670
2	B	PU-3 and PU-4	11543 Ha	5,23,485
3	C	PU-5 and PU-6	5413Ha	4,52,827
4	D	PU-7 and PU-8	6766Ha	3,69,990
5	E	PU-9 and PU-10	17245Ha	2,41,380
6	F	PU-11 and PU-12	6702Ha	4,98,865
7	G	PU-13 and PU-14	14974 Ha	7,28,200

Source: Ranchi Master Plan, 2037

Map 1-1: Proposed Planning District and Planning Units



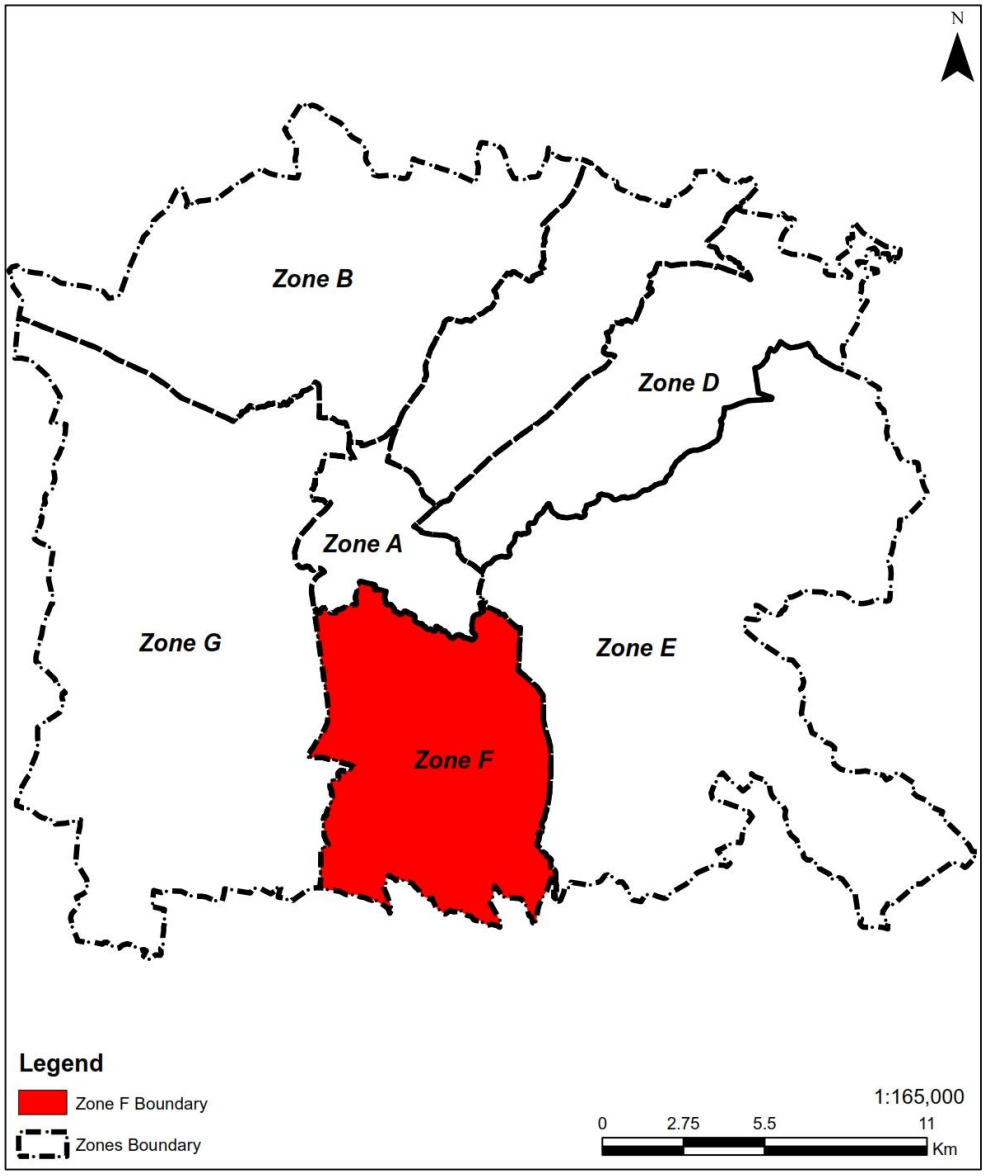
Source: - Ranchi Master Plan 2037

1.2 BRIEF INTRODUCTION TO THE ZONE

Planning district F comprises of two Planning Units i.e. PU-11 and PU-12. It is located in the South of Ranchi city. The Zone lies between Khunti Road and Sahera road which further leads to village Hahap. The zone lies between zone E in the East and zone G in the west. Planning Unit 11 and 12 are divided by the latma road.

1.2.1 LOCATION

Map 1-2 Location of Zone F



Source: DDF Consultants Pvt Ltd

Zone F has six wards and several villages. The wards covered in the zone are 45, 46, and 51,52,53,54. All the wards lies in Planning Unit 11.

Table 1-2 Name of Villages and Wards covered under Planning District F

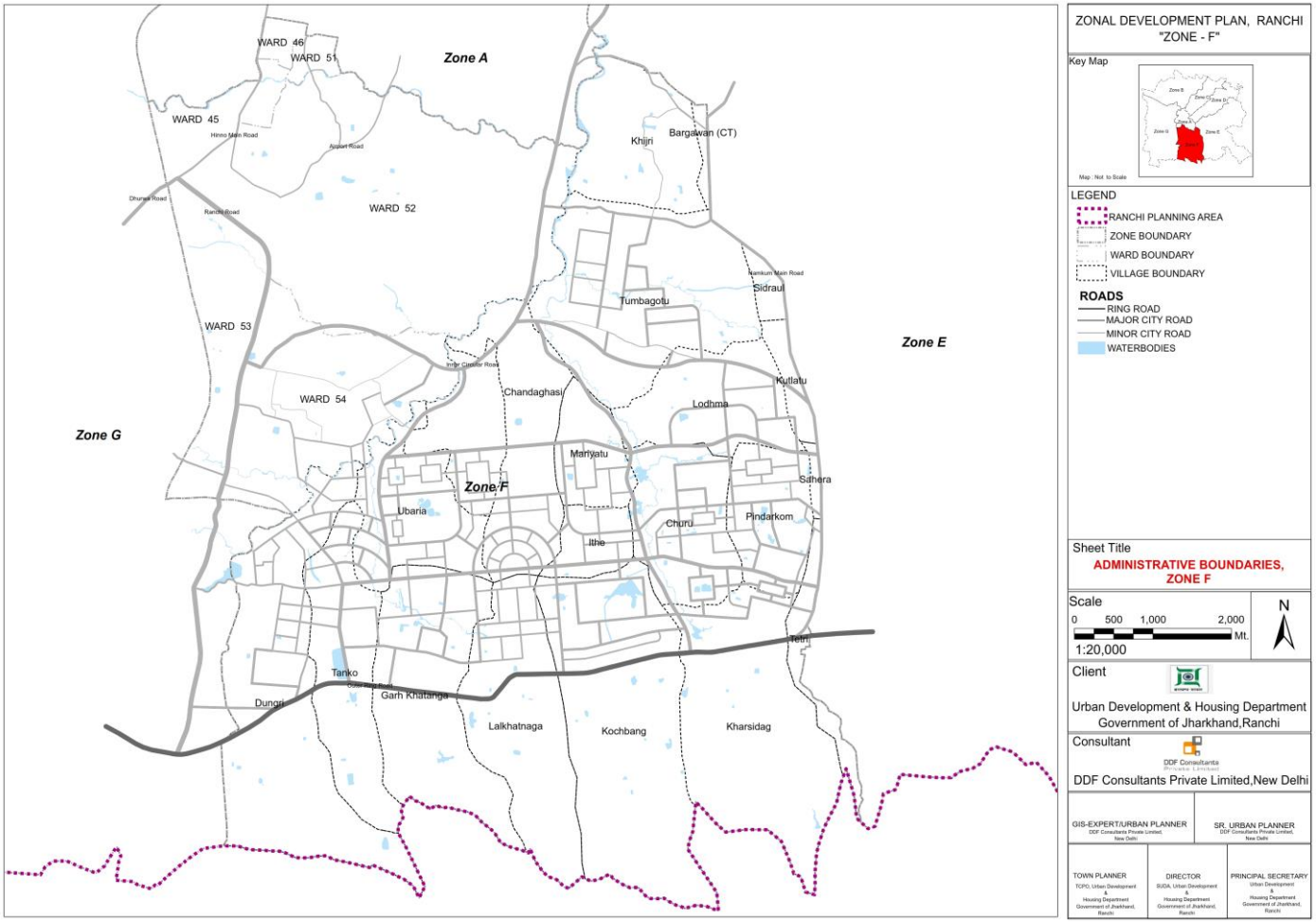
Planning Unit	Area Covered
PU-11	Ward 45, 46, 51, 52, 53, 54, Khijri (219), Tumbagutu (301)
PU-12	Kutetoli (299), Oberiya (297), Mariyatu (303), Chandaghasi (300), Ithe (304), Dungri (294), Tanko (295), Garhkhatanga (296), Lolkhantanga (305), Gundu (268) and Kochbang (306), Lodhma (302), Churu (327), Pindarkom (328) and Kharsidag (326)

1.2.2 Area

Total area of Zone F is 67.01 sq.km. It is approximately 10.10% of the total Ranchi city. The area of Planning Unit 11 is 28.18 sq.km and area of planning unit 12 is 38.83 sq.km. Zone F has 48% of the area as undeveloped i.e. Defense area, Agriculture, Forest, Hillock, Village Settlement, River, Water Body. Only 52% of the area is developed which includes Residential, Commercial, Public Semi Public, Government Office, Industries, Traffic and Transportation and Recreational.

The major built up area of zone F lies in the existing wards. Total area under all the wards present in zone F is 19.74sq.kms. The area under ward 45 is 1.16sq.km, ward 46 is 0.27sq.km, ward 51 is 0.28sq.km, ward 52 is 10.78sq.km, ward 53 is 2.5sq.km, ward 4.75sq.km.

Map 1-3 Ward Boundaries in Zone



Source: Prepared by DDF Consultants Pvt Ltd

1.2.3 Demography

The existing population (2011) of zone F is 2, 23,584. The proposed population is expected to reach 404762 in the year 2037. (Refer Table 1-3)

Table 1-3 Proposed Population of Zone F

Planning Unit	Population 2011	Population 2037
PU- 11	2,04,521	352939
PU- 12	19,063	51823
Total Zone F	2,23584	404762

Source: Ranchi Master Plan, 2037

The facilities and services provided in the zone is according to the projected population. The population has been distributed in several identified residential pockets so that the people residing can access the utilities and services evenly.

1.2.4 Employment

Total estimated employment in the year 2011 in zone F is 50,959. The proposed employment in zone F is 92,642. As per the master plan, there is a decrease in percentage of workers in primary sector and substantial increase in secondary sector (Construction, Trade and Commerce, Transportation and Communication and others). The tertiary sector will more or less remain the same. Distribution of the employment in PU-11 and PU-12 is mention in Table 1-4.

Table 1-4 Employment assignment in Zone F

Planning Unit	Estimated Employment 2011	Employment 2037
PU-11	46,611	76,940
PU-12	4,348	15,702
	50,959	92,642

Source: Ranchi Master Plan, 2037

It is expected that employment will be generated by several proposed landuse such as existing Birsa Munda Airport, Composite Unit, Industrial Estate, Transport Nagar and Proposed Educational Hub.

1.3 VISION AND OBJECTIVES

"A vibrant state capital, with high quality of life and a dynamic economy driven by service sectors such as knowledge-based education, health, tourism, and information technology that provides opportunities for all and makes it an attractive investment destination".

Based on this vision the Master Plan 2037 plans to achieve the following two main objectives:

1. Better quality of life through improved physical & social infrastructure facilities.
2. Strengthen the economic base and generate employment opportunities by optimum utilization of available resource

1.3.1 Vision of Zone

Zone F has an Airport. In view of the anticipated future requirement of large sized aircrafts, long runways (of around 3.5 Km) would be required for the landing of the same. Considering this, 794 hectare of land has been proposed for Airport Expansion under RMP-2037, which could accommodate the longer runway and desired Terminal facilities.

1.4 INTERDEPENDENCE OF ZONE ON OTHER PARTS OF THE CITY

The other zones are depended on the Zone F for the airport. There is also an exhibition ground proposed in Zone F to organize fairs, exhibitions and shows and events for cultural as well as economic benefits. Ranchi is the cultural and economic hub of not only the state of Jharkhand but also the entire of the region.

2 SITE BACKGROUND AND ANALYSIS

2.1 LANDUSE DISTRIBUTION AND ANALYSIS

Overall Landuse

Total area of Zone F is 67.01 sq.km. It is approximately 10.10% of the total Ranchi city. 57% of undevelopable land of zone F lies under agricultural land. Residential area in zone F is 21% of total planning area (Refer Table No. 4-1) Approximately 48% of the area comprises of undeveloped land i.e. Agriculture, Forest, Hillock, Village Settlement, River and Water bodies. 3% of the area comprises of the composite unit I and II. This area includes residential, commercial and small scale industries.

Table 2-1 Proposed Landuse of Zone F (2037)

LAND USE	PU 11		PU 12	
	Area (sq. km)	Percentage to Developable/Undevelopable Land	Area (sq. km)	Percentage to Developable/Undevelopable Land
Residential	11.89	46%	1.96	21%
Commercial - Retail	0.01	0%	0	0%
Commercial - Wholesale	0	0%	0	0%
Composite Use 1	0.45	2%	1.38	15%
Composite Use 2	0.09	0%	0	0%
Public & Semi-Public	0.86	3%	0.86	9%
Government Office	0.27	1%	0	0%
Industries	0	0%	0	0%
Traffic & Transportation	9.03	35%	1.11	12%
Recreational	3.09	12%	3.86	42%
Greater Ranchi (Phase- I)	0	0%	0	0%
Developable Area	25.69	100%	9.17	100%
Army / Defence Area	2	80%	0.2	1%
Agriculture	0	0%	20.45	69%
Forest	0	0%	8.24	28%
Hillock Area	0	0%	0.17	1%
Village Settlement	0	0%	0.14	0%
River	0.41	16%	0.11	0%
Water Body-Lake, Reservoir	0.08	3%	0.35	1%
Undevelopable Area	2.49	100%	29.66	100%
TOTAL	**28.18**	**100.0%**	**38.83**	**100.00%**

Source: Ranchi Master Plan 2037

52% of the total area of Zone F includes the developed land i.e area under residential, commercial, Public semi-public, Government offices, Industries, Traffic and Transportation and Recreational. (Refer Table 4-2 and Map No. 4-1)

Considering the developed area in zone F, 40% of the area is under residential use. Proposed density of the residential area in master plan is Low i.e. 200 Persons per Hectare. The commercial area is 3% of the total area which is present in Composite Unit I and II. The Composite unit comprises of both residential, commercial and small scale industries.

Total area under the wards (45, 46, 51, 52, 53, 54) present in Zone F is 19.74Sq.Km

29% of the developed area comprises of traffic and transportation. Major roads such as NH75, Ranchi Patratu Ramgarh Road, Ring road passes through Zone F.

Ward 45 has different localities Dargi Colony, Tangra Toli, Kilburn Colony, Shivpuri Colony, Kaishpuri Colony, Hinu Basti, Part of Birsa Chowk, Prakash Nagar, Bandhu Nagar, Kathal toil basti, Phd Colony, Hinoo Main Road, Shukla Colony. The famous multiplex of Ranchi city Eyelex is situated in this ward. This is the first multiplex in the city.

Ward 46 has different localities such as Mistri Colony, Bazar Colony, Kumhar Toli, Beldar Colony, Kasai Colony, Dom Toli, Mochi Toli, B Type quarter, Mecon Office, High Court. A big Campus of MECON is situated in this ward. Adjacent to this campus there is famous Ashoka Hotel which is one of the best hotels in Ranchi. The ward has major important govt/semi government offices such as Jharkhand High Court, Industrial Tribunal Office etc. Doranda Market is the main business center in this ward.

Ward 51 has localities such as Laxmi para, Rahmet Colony, Friend's Colony, Kumhara Toli Kusai, part of Kusai village, Hathikhana Basti, Part of big Gagha Basti.

Ward 52 is surrounded by RMC Boundary in the East. It has different localities such as Mani Tola, C Type Quarter, Part of Saket Nagr, Gas Nagar, Milat Colony, H Type quarter, PHD colony, Hatu basti, Chota Gaghra, Hundru Basti, Airport, Airport Colony, Haratarn etc. Easter parts of this ward are open and has agriculture land. Major business is along the Hinoo chowk road towards Mecon office.

Ward 53, has different localities such as Birsa Nagar, Gatelpiri, Dinkar Nagar, Kachnar Toli, NIFT Compound, Part of Hatia Basti, Hawai nagar, Railway Colony, etc The ward is compact one side by railway line and the other side by Ranchi Khuti road. The chance of further expansion in this ward is very high due to proximity of Hatia Railway station. The major educational institutes are Holy Convent Tender Heart School, Middle School etc.

In ward 54, a large area is agriculture and open spaces. The major educational institutes are Don Bosco School, St. Charlie School, Ursuline Girl's High School and etc. The famous localities are Hati Chowk, Latma Basti, Karma Basti, Solanki Chowk4-, Singh More, Veterinary hospital etc

2.1.1 RESIDENTIAL

Total proposed area under residential is 13.85 sq. km.

The Master Plan has proposed development of large housing colonies on both sides of the proposed circular road. Economies of scale are favorable to large colonies because of reduced per capita on investment on infrastructure and services development in large colonies. The Master Plan also envisages smart growth of the city to overcome the scarcity of land and regulate sprawl of urban development in rich agricultural hinterland. In the development of colonies, unique physiographic features of Ranchi have been given a significant importance within physical thresholds.

2.1.2 Household Size:

As per Census 1981, the average household size of Ranchi city was 5.9, which has decreased to 5.2 in 2011, which is lower than the average household size of Ranchi Urban Agglomeration, District (urban) level and State level. The average household size of revenue village within planning area is having low average household size in comparison of Ranchi urban area. The average household size of planning area is decreasing since 1981 till decadal year 2011. The predominance of large family size is an indicator of high of occupancy rate and acute stress not only on housing demand but also on the infrastructure facilities in the area. As a policy measure and past trend, the average family size is assumed to decline during the plan period of 25 years. Against average family size of 5.2 (2011) for the Ranchi and as well as Planning Area, the average household size of 4.2 for horizon 2037 is adopted for assessing the housing need in Ranchi planning area.

2.1.3 Slums

The Census of India 2001 has proposed to treat the following as 'Slum' areas:

- All areas notified as 'Slum' by State/Local Government and UT Administration under any Act;
- All areas recognized as 'Slum' by State/Local Government ad UT Administration which have not been formally notified as slum under any Act;
- A compact area of at least 300 populations or about 60-70 households of poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities;

According to Ranchi Municipal Corporation, Ranchi, there are 67-slum pockets in the planning area housing around 82,816 persons (about 7.72 % of the total population). There are 38 slums in zone F (Map 2-1Location of Slums in Zone)

About one fourth of the total population in Ranchi belongs to schedule tribe/caste. One third of households live in slums. These essentially are tribal villages engulfed by urban development. Housing quality is very poor. In terms of accessibility to services, the poor in Ranchi face major difficulties.

The name of slums in Zone F are also mentioned in Table 2-2

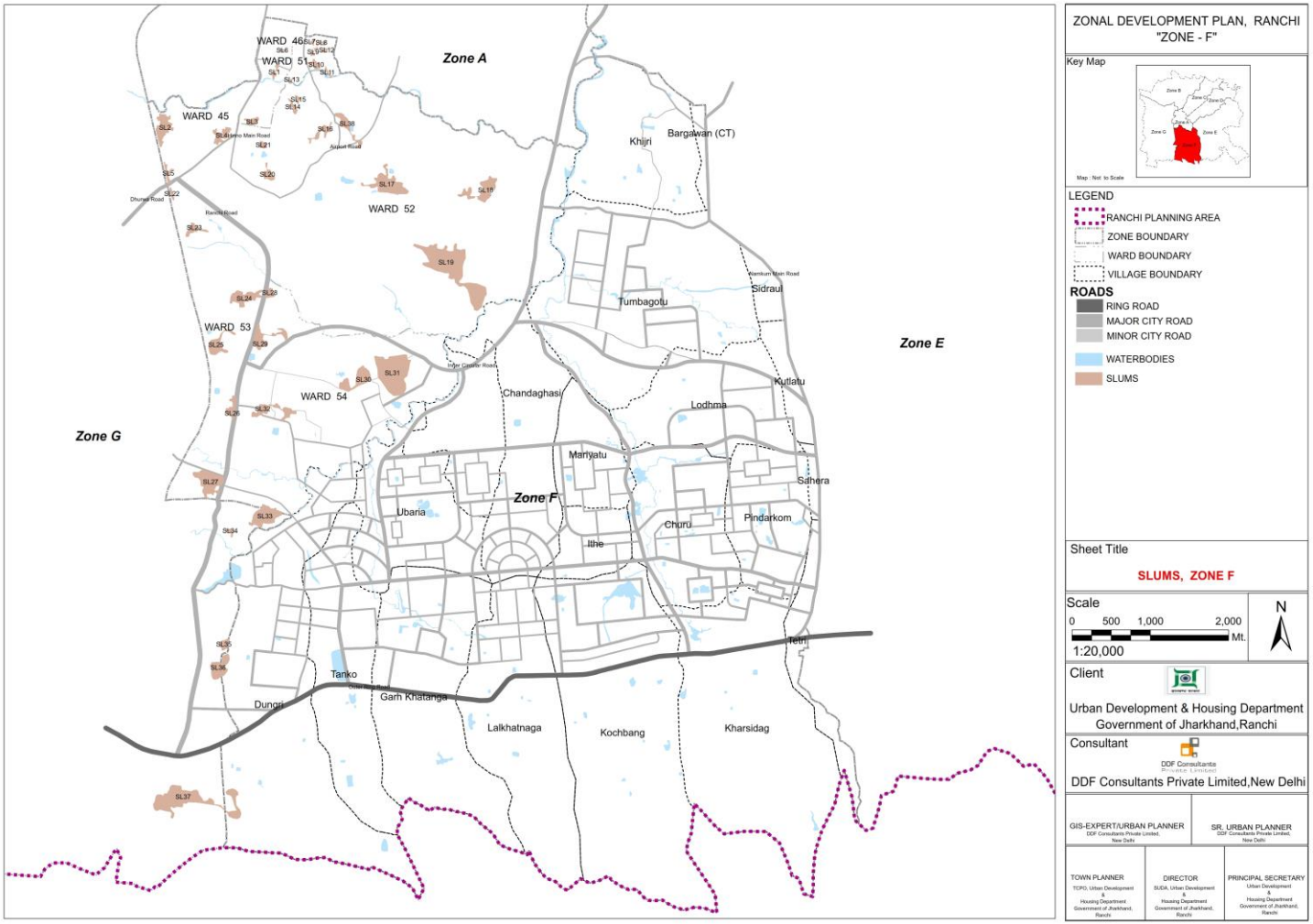
Table 2-2 List of Existing Slums

S.No.	Class	Sub_Class	Name	CODE
1	SLUM	Notified Slum	Ward45-Darzi Mohalla,Doranda	SL1
2	SLUM	Notified Slum	Ward45-Kathar Kocha,Birsa Chowk	SL2
3	SLUM	Notified Slum	Ward45-Tangra Toli,Near Indra palace,Hinoo	SL3
4	SLUM	Notified Slum	Ward45-Hinoo Basti	SL4
5	SLUM	Notified Slum	Ward45-Mudha Kocha(Apna Nagar),Birsa Chowk	SL5
6	SLUM	Notified Slum	Ward46-Mali Mohalla,Doranda Bazar	SL6
7	SLUM	Notified Slum	Ward51-Hasptal Lane,Doranda	SL7
8	SLUM	Notified Slum	Ward51-Dhobi Mohalla,Doranda	SL8
9	SLUM	Notified Slum	Ward51-Nai Mohalla,Doranda	SL9
10	SLUM	Notified Slum	Ward51-Kasai Mohalla,Doranda	SL10
11	SLUM	Notified Slum	Ward51-Friends Colony,Near Harmu River,Doranda	SL11
12	SLUM	Notified Slum	Ward51-Doranda DomToli(BeldarMohalla),Doranda	SL12
13	SLUM	Notified Slum	Ward51-Hathikhana,Near Kath Pul,Doranda	SL13
14	SLUM	Notified Slum	Ward52-Mani Tola,Doranda	SL14
15	SLUM	Notified Slum	Ward52-Bhuiyan Toli,Near Mani Tola,Doranda	SL15
16	SLUM	Notified Slum	Ward52-Pokhar Toli,Behind Airport	SL16
17	SLUM	Notified Slum	Ward52-Hethu Basti,Behind Airport	SL17
18	SLUM	Notified Slum	Ward52-Chhot Ghaghra,Behind Airport	SL18
19	SLUM	Notified Slum	Ward52-Nadi Dhipa,Behind Airport	SL19
20	SLUM	Notified Slum	Ward52-Khokhma Toli,Near Airport	SL20
21	SLUM	Notified Slum	Ward52	SL21
22	SLUM	Notified Slum	Ward53	SL22

23	SLUM	Notified Slum	Ward53-Gitilpiri,Near Hatia Railway Station,Hatia	SL23
24	SLUM	Notified Slum	Ward53-Mahra Toli,Opposite Satiyari Toli,Hatia	SL24
25	SLUM	Notified Slum	Ward53	SL25
26	SLUM	Notified Slum	Ward53-Kachnar Toli,NIFFT,Hatia	SL26
27	SLUM	Notified Slum	Ward53-Nayak Basti,Hatia	SL27
28	SLUM	Notified Slum	Ward54-Satiyari Toli,Hatia	SL28
29	SLUM	Notified Slum	Ward54-Solanki,Singh More,Hatia	SL29
30	SLUM	Notified Slum	Ward54-Choreya,Hatia	SL30
31	SLUM	Notified Slum	Ward54-Latma,Hatia	SL31
32	SLUM	Notified Slum	Ward54-Hesag,Hatia	SL32
33	SLUM	Notified Slum	Ward55-Niche Tola Hatia,Hatia	SL33
34	SLUM	Notified Slum	Ward55-Jojobasa,VLW Colony,Hatia	SL34
35	SLUM	Notified Slum	Ward55-Chapa Toli,Tupudana	SL35
36	SLUM	Notified Slum	Ward55-Tupudana Basti	SL36
37	SLUM	Notified Slum	Ward55-Satranji,New Tupudana	SL37
38	SLUM	Notified Slum	Ward52-Hundru Basti,Behind Airport	SL38

Source: DDF Consultants Pvt Ltd

Map 2-1Location of Slums in Zone F



Source: Prepared by DDF Consultants Pvt Ltd

2.2 TRANSPORTATION

Total area under traffic and transportation is 29% of the total developed land in zone F.

The main functional roads recommended can be categorized into following:

- Ring Road
- Circular Road
- City Radials/Axial
- All-purpose roads

It is proposed to develop a hierarchy based road system in the zone comprising of arterial, sub arterial, collector and local road. While the primary arterial roads have a ROW varying between 45 m to 60 m the other city level roads comprise of sub-arterial roads (24-45 m R/W) and collector roads (18-24 m R/W) respectively (Refer Map No- 8-1). For roads within the Central area it is proposed that these will are all purpose roads where the traffic volumes will be high. On these roads speed is not important as access needs predominate and providing parking space is important. As pedestrian movement will be high on these roads wide footpaths, safe crossing with exclusive phase period where signalized, refuge islands, clear markings, good lighting, guard rails, good signage are important components of the roads.

2.2.1 Road Widening

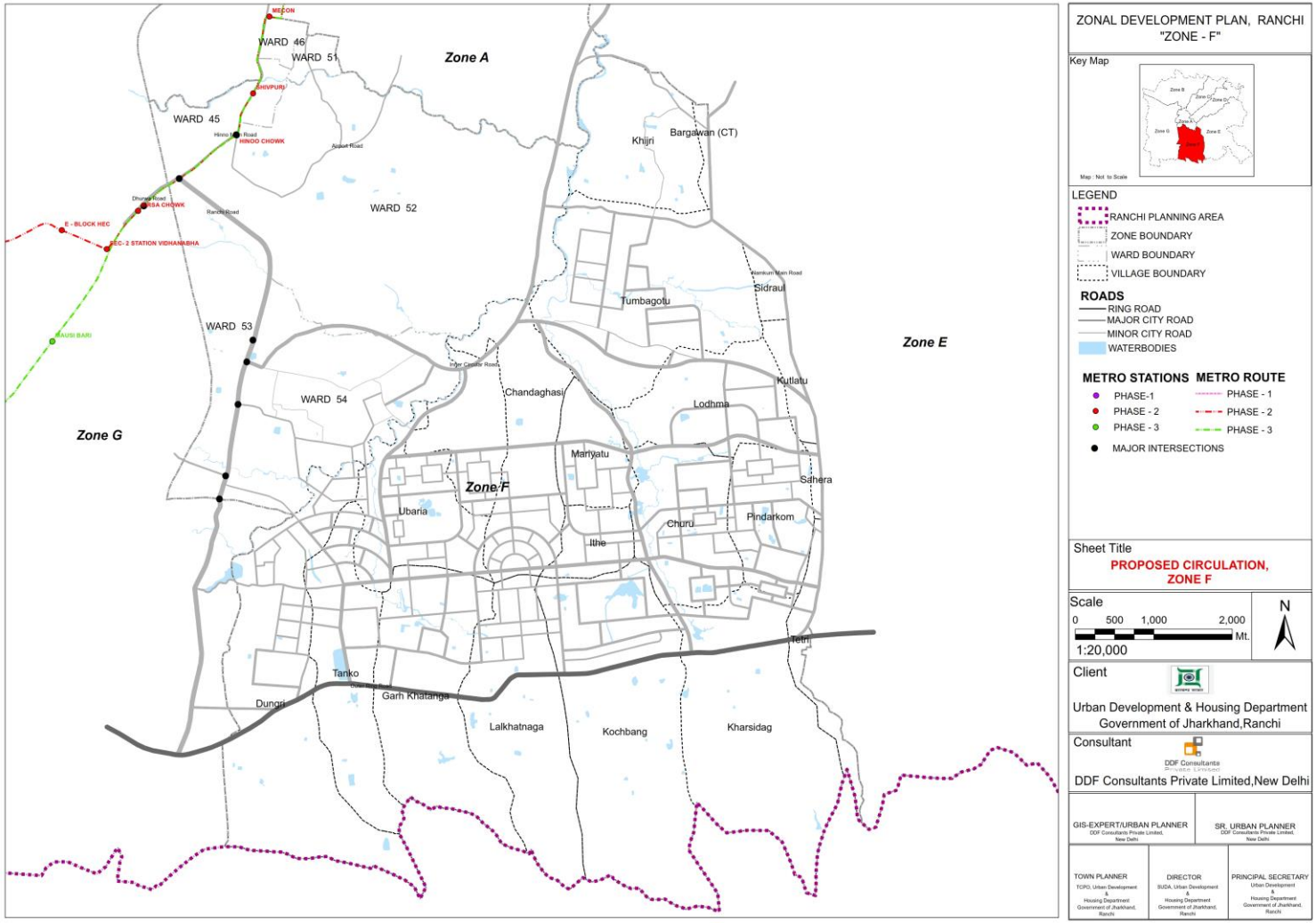
Based on the available R/W and the assigned traffic in year 2037 various up gradation measures of important radial corridors have been identified. These measures include providing for minimum additional lanes feasible within the R/W besides providing of footpaths and utility zones wherever possibilities exists. Road improvement along major roads are mentioned in Table No: Table 2-3

Table 2-3 Existing Major Roads

Road Name	Section	Existing Lanes
Jaintgarh Road (NH 75)	Khunti Road- Birsa Chowk	4
Lodhma Road	J.M chowk- Shalimar Market	3
	Shalimar Market- Hinno Chowk	3
	Hinno Chowk- Dorando	3

Source: Ranchi Master Plan, 2037

Map 2-2 Circulation Map



Source: DDF Consultants Pvt Ltd

2.3 SOCIAL AND PHYSICAL INFRASTRUCTURE

2.3.1 SOCIAL INFRASTRUCTURE

2.3.1.1 Education

To cater the School level facilities, neighborhood centers will proposed in each ward to include secondary school and primary school. Additional required pre-primary and primary school as per standard would be provided in Planning Unit -11 and Unit 12. The norms for school at all levels educational facilities will be as under. (Refer Table 2-4)

Table 2-4 EDUCATIONAL FACILITIES AT DIFFERENT LEVELS

S. No.	Educational Facilities	Level	Pop/Unit (approx.)	Strength	Plot Area
1	Pre-primary/Nursery school	Housing Area	25,00	250	0.08
2	Primary School	Housing Area	3,000-5,000	500	0.40
3	Senior Secondary school	Neighborhood	7,500	1,000	1.60
4	Integrated School without hostel Facility	Community	90,000-1,000,00	1,000	3.50
5	Integrated School with hostel facility	Community	90,000-1,00,000	1,000	3.90
6	School for Handicapped	Community	45,000	400	0.50

Source: URDPFI guidelines

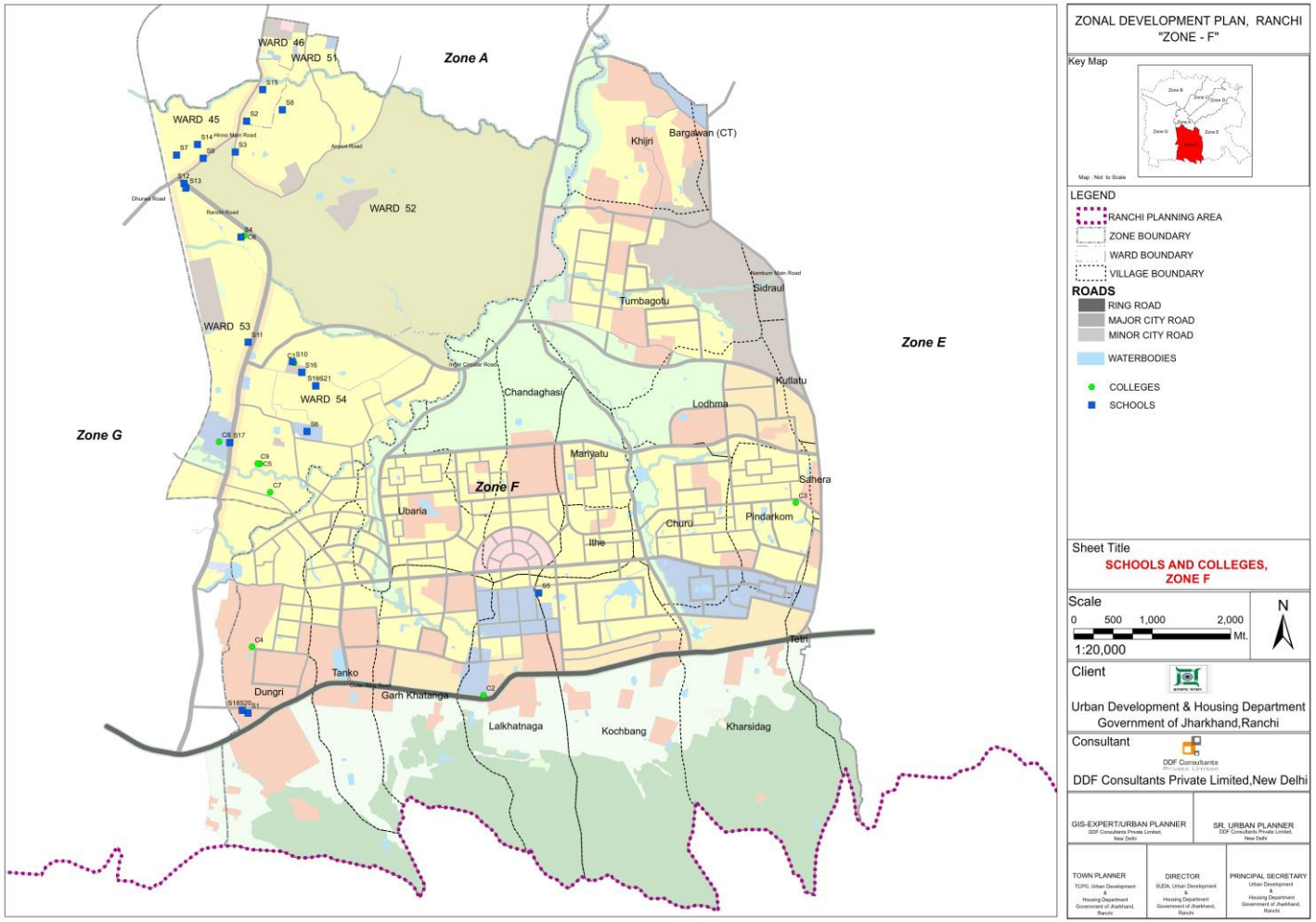
Table 2-5 Education Facility in Zone F

Facilities	Norm	Existing	Requirement in Zone F	Deficit
College /Institute/ University	**One for 1.25 Lakh**	**9**	**3**	**-**
Senior Secondary School	**One for 7500**	**73**	**54**	**-**
Vocational Training Institute	**-**			
Library	**One for 15000**		**27**	**27**

Source: URDPFI Guidelines, 2014

There are existing 9 colleges in Zone F where as per the norms, there is requirement of 3 colleges. (Refer Table 2-5. Few colleges existing are – Bihar Institute of Mining and Mine Surveying, Ravindra Nath Tagore Inter College, Indian Institute of Automotive Engineers, Prabhavati Devi Memorial Paramedical College (Refer Table 2-6). The existing schools in Zone F are 73 where as there is a requirement of total 54 schools. Names of various schools are – Gurukul Public School, Tender Heart School, Sacred Grove School, St .Mary's School, D. A. V. Nageshwar Public School, GP Jalan Memorial School. These schools will be provided in the respective neighborhood centers and cluster centers. There is a deficit of 27 libraries in zone as there not even a single public library available in the zone. In the stakeholders meeting it was stated that existing schools and colleges have libraries in their premises that will bridge the gap. Hence new libraries are not provided. Nevertheless new libraries are provided in neighborhood and cluster facilities center. Location of existing colleges and schools is mentioned below (Refer Map 2-3)

Map 2-3 Existing Educational Facilities in Zone F



Source: Prepared by DDF Consultant Pvt Ltd

List of Colleges and Schools is mention in Table No: Table 2-6

Table 2-6List of Colleges and School in Zone F

Sr.No	Name	Facility	CODE	WARD_NUM
1	Bihar Institute of Mining and Mine Surveying	College	C1	WARD_54
2	Prabhavati Devi Memorial Paramedical College	College	C5	WARD_54
3	S N SINHA INSTITUTE OF BUSINESS MANAGEMENT	College	C6	WARD_53
4	Ravindra Nath Tagore Inter College	College	C7	WARD_54
5	NIFFT	College	C8	WARD_53
6	Indian Institute of Automotive Engineers	College	C9	WARD_54
7	Greenland Public School	School	S10	WARD_54
8	Dav Nageshwar Public School	School	S11	WARD_53
9	Tender Heart School	School	S12	WARD_53
10	Florence Nightingale School	School	S13	WARD_53
11	St .Mary's School	School	S14	WARD_45
12	Springdales School	School	S15	WARD_45
13	Ursuline Convent School	School	S16	WARD_54
14	Bachpan...a play school	School	S17	WARD_53
15	Sacred Grove School	School	S19	WARD_54
16	All Saints School	School	S2	WARD_45
17	Sacred Grove School	School	S21	WARD_54
18	Loyola Convent School	School	S3	WARD_52
19	DPS Public School	School	S4	WARD_53
20	Don Bosco School	School	S6	WARD_54
21	Gurukul Public School	School	S7	WARD_45
22	Hinoo Bal Mandir School, Hinoo Ranchi,	School	S8	WARD_52
23	St.Stephen's School	School	S9	WARD_45

Source: DDF Consultants Pvt Ltd

2.3.1.2 Health facilities

It has been observed that at present there is one existing Government Hospital where as there is requirement of two government hospitals. Hence, there is a need to provide one more hospitals in the zone. There is also a requirement of 4 private hospitals in Zone E. (refer Table 2-7). The nursing homes and diagnostic centers are sufficient and there is no deficit. There is a deficit of 16 clinics in Zone F which will be provided in the respective neighborhood and cluster centers. All the deficit clinics and hospitals are provided in the form of neighbourhood and cluster facilities centers. Location of the existing Health Facilities have been shown in Map 2-4

Table 2-7 Health Facilities

Facilities	Norm	Existing	Requirement in Zone F	Deficit
Government Hospitals	1 Unit per 2.5 Lakh	1	2	1
Private Hospitals	**1 Unit per 1 Lakh**	**-**	**4**	**4**
Nursing Homes	One for 45000 to 1 Lakh	5	4	-
Diagnostic Centre	**One for 50000 to 1 Lakh**	**7**	**4**	**-**
Clinics / Dispensary	One for 15,000	11	27	16

Source: URDPFI Guidelines, 2014

The existing health facilities in Zone F have been listed in Table 2-8

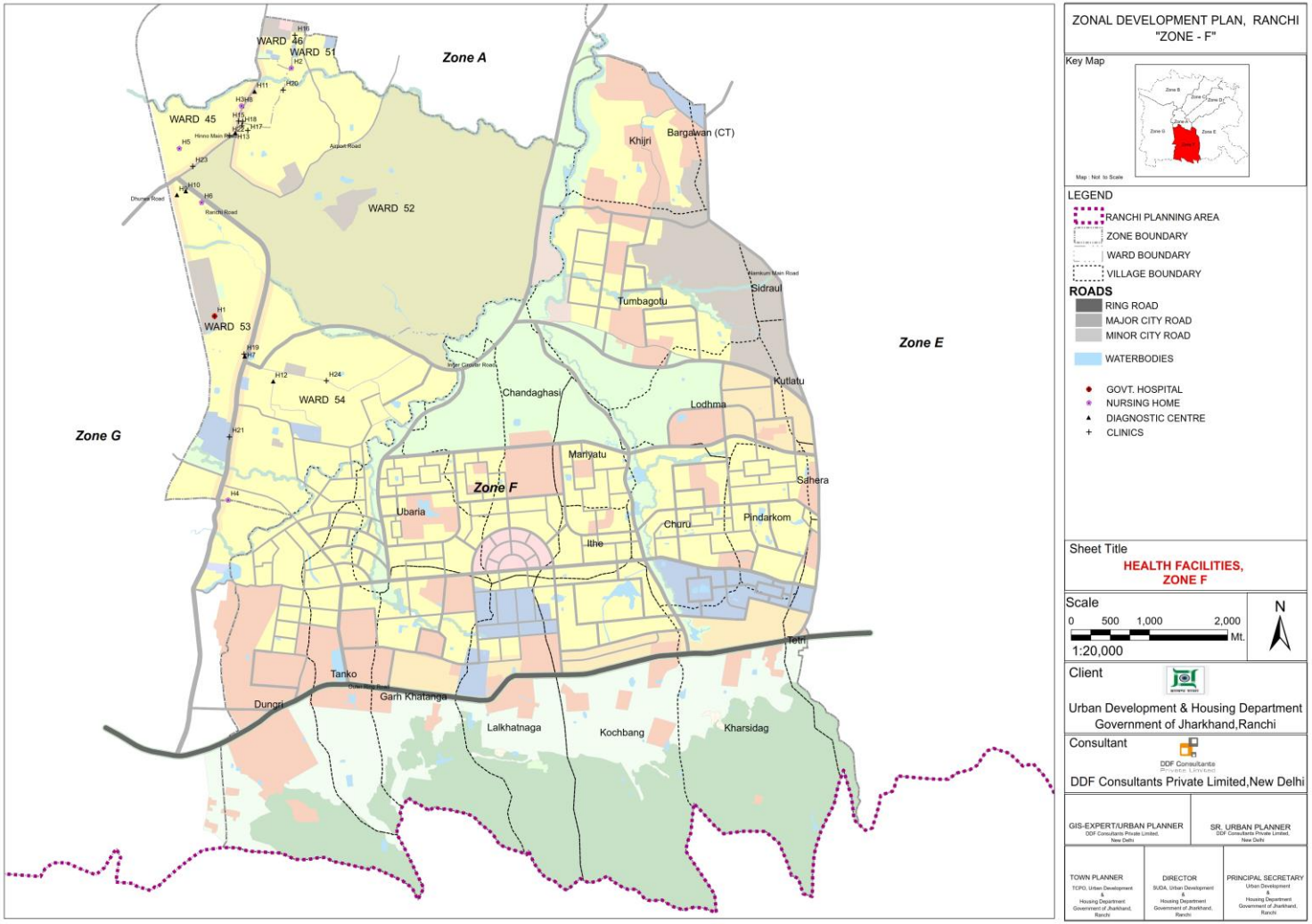
Table 2-8 Existing Health Facilities

S.No.	NAME	TYPE	CODE	ward Nume
1	Shanti Skin Hospital and Laser Center	Clinic	H14	WARD_45
2	Pearl Dental Clinic	Clinic	H15	WARD_45
3	Ayurved Skin Clinic	Clinic	H16	WARD_46
4	Divya Jyoti Netra Clinic	Clinic	H17	WARD_52
5	Physiotherapy Clinic	Clinic	H18	WARD_52
6	New Advance Dental Clinic	Clinic	H19	WARD_53

7	Aadarsh Homeo Clinic	Clinic	H20	WARD_52
8	Rainbow Child Hospital (Dr. S Kumar - Child Specialist)	Clinic	H21	WARD_53
9	Dental Park | Best Dental Clinic in Hinoo	Clinic	H22	WARD_45
10	Paramkamal Dental Clinic And Implant Center	Clinic	H23	WARD_45
11	Aastha Dental Clinic	Clinic	H24	WARD_54
12	Lifeline Diagnostic Centre	Diagnostic centre	H7	WARD_53
13	Care Diagnostics	Diagnostic centre	H8	WARD_45
14	Hinoo Pathology Centre	Diagnostic centre	H9	WARD_53
15	Shekhar diagnostic centre	Diagnostic centre	H10	WARD_53
16	SRL Diagnostics	Diagnostic centre	H11	WARD_45
17	Balajee Health Care	Diagnostic centre	H12	WARD_54
18	Om Dianogstic Patholog Lab	Diagnostic centre	H13	WARD_45
19	Divl Railway Hospital	Government Hospital	H1	WARD_53
20	Doranda Nursing Home	Nursing Home	H2	WARD_51
21	Lakshmi Nursing Home	Nursing Home	H3	WARD_45
22	New Birsa Nursing Home	Nursing Home	H4	WARD_54
23	Sheetal Nursing Dental & Research Center	Nursing Home	H5	WARD_45
24	Narayani Nursing Home	Nursing Home	H6	WARD_53

Source: Primary Survey Conducted by DDF Consultants Pvt Limited

Map 2-4 Location of Health Facilities



Source: DDF Consultants Pvt Ltd

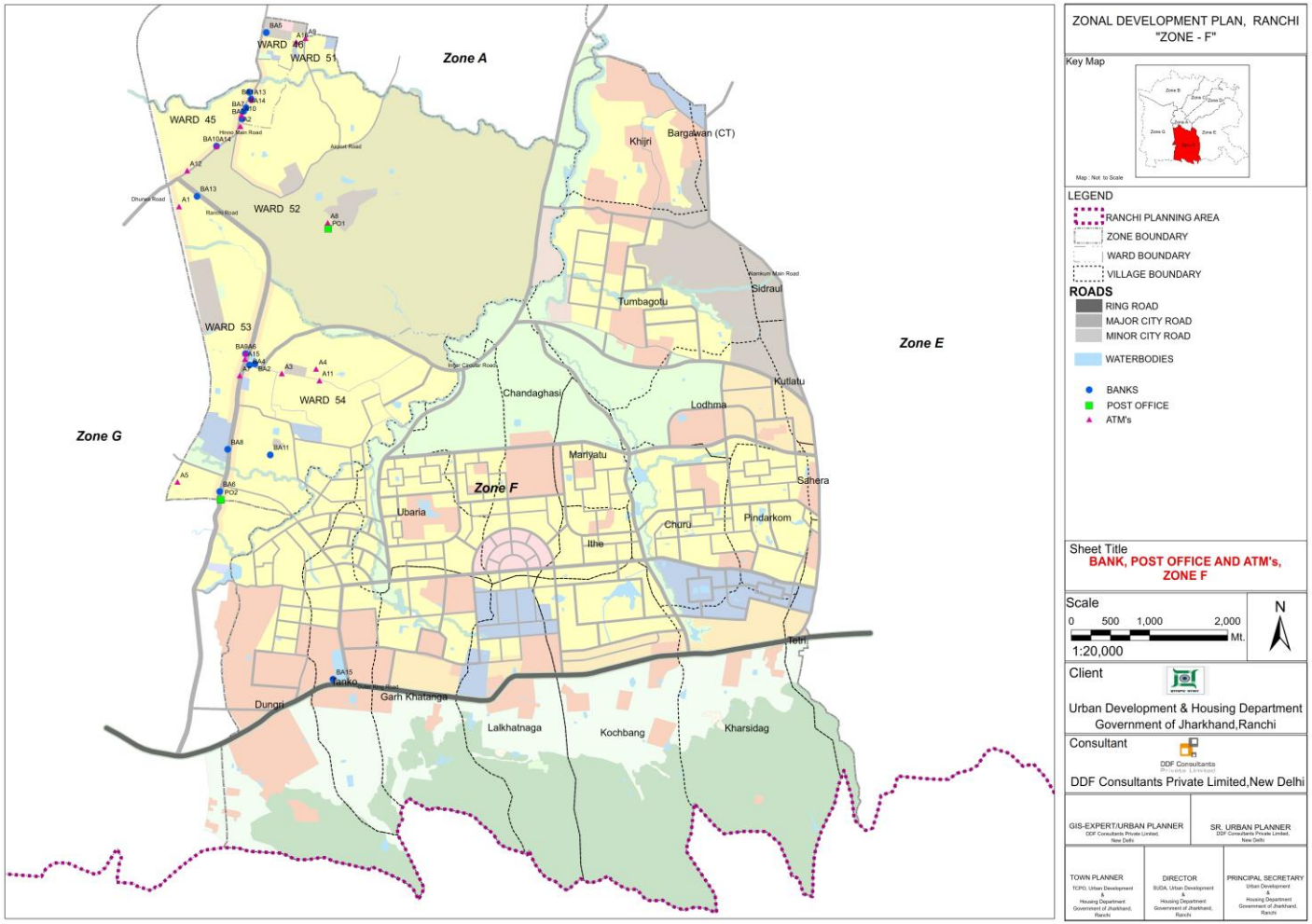
List of Banks and its location code is as follows (Refer Table 2-9 Name of Banks, ATMs in Zone)

Table 2-9 Name of Banks, ATMs in Zone F

Sr.No.	Name	Facility	CODE	WARD_NUM
1	Axis Bank ATM	ATM	A1	WARD_53
2	IDBI Bank ATM	ATM	A10	WARD_45
3	United Bank Of India Atm	ATM	A11	WARD_54
4	Bank Of India	ATM	A12	WARD_45
5	Indian Overseas Bank	ATM	A13	WARD_45
6	Central Bank Of India	ATM	A14	WARD_45
7	Central Bank Of India ATM	ATM	A15	WARD_53
8	State Bank of India ATM	ATM	A16	WARD_46
9	HDFC Bank ATM	ATM	A2	WARD_52
10	indicash ATM	ATM	A3	WARD_54
11	HDFC ATM	ATM	A4	WARD_54
12	Axis Bank ATM	ATM	A5	WARD_53
13	IDBI Bank ATM	ATM	A6	WARD_53
14	Oriental Bank Of Commerce ATM	ATM	A7	WARD_53
15	State Bank Of India ATM	ATM	A8	WARD_52
16	Bank of Baroda ATM	ATM	A9	WARD_51
17	Indian Overseas Bank	Banks	BA1	WARD_45
18	Central Bank of India	Banks	BA10	WARD_45
19	State Bank Of India,Singh More Branch	Banks	BA11	WARD_54
20	State Bank Of India	Banks	BA12	WARD_45
21	Jharkhand Gramin Bank	Banks	BA13	WARD_53
22	Allahabad Bank	Banks	BA14	WARD_45
23	Bank Of India	Banks	BA2	WARD_54
24	HDFC Bank	Banks	BA3	WARD_45
25	Bank of Baroda	Banks	BA4	WARD_54
26	State Bank Of India.SME Branch.	Banks	BA5	WARD_46
27	Allahabad Bank	Banks	BA6	WARD_53
28	Syndicate Bank	Banks	BA7	WARD_45
29	Canara Bank	Banks	BA8	WARD_53
30	IDBI BANK	Banks	BA9	WARD_53
31	India post	Post Offices	PO1	WARD_52
32	INDIA POST	Post Offices	PO2	WARD_54

Source: DDF Consultant Pvt Ltd

Map 2-5 **Location of Bank, ATM, Post offices**



Source: prepared by DDF Consultants Pvt Ltd

2.3.1.3 Religious

Table 2-10 Religious Facility

Facilities	Norm	Existing	Requirement in Zone F	Need
Religious	**One for 5000**	24	81	57
Temples		7		
Mosque		9		
Church		8		
Gurudwara		-		

Source: Primary Survey by DDF Consultants Pvt Ltd

There are 24 existing religious centers in Zone F which includes, 7 Temples, 9 Mosques and 8 church. The requirement as per the standards is 81 religious centers. The remaining 57 centers will be provided in the proposed Neighborhood and cluster centers. The location of existing temples, mosque and church is mentioned in Map 2-6. The list of existing religious centers in mentioned in Table 2-11).

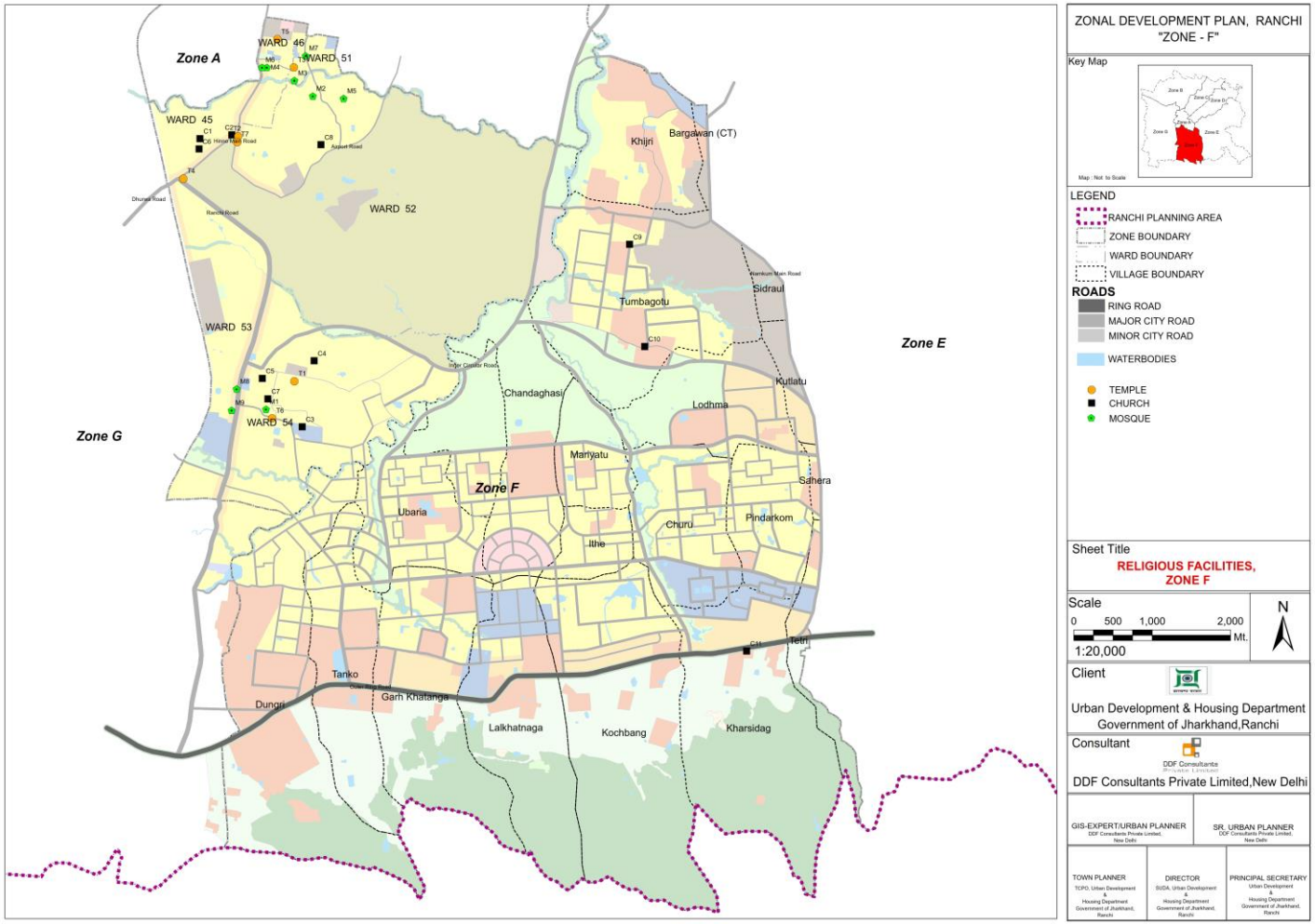
Table 2-11 List of Religious Centers

Sr.No.	Name	Facility	CODE	WARD_NUM
1	St. Stephen's Orthodox Syrian Church, Ranchi	Church	C1	WARD_45
2	Gel Church	Church	C2	WARD_45
3	Don Bosco Hesag Church	Church	C3	WARD_54
4	The Pentecostal Mission Church	Church	C4	WARD_54
5	St Johns Church	Church	C5	WARD_54
6	Mission of Charity Church	Church	C6	WARD_45
7	G.E.L. Church	Church	C7	WARD_54
8	Pokhar Toli Church	Church	C8	WARD_52

9	Hesag Masjid	Mosque	M1	WARD_54
10	Masjid-e-Asra	Mosque	M2	WARD_52
11	Masjid e Belal	Mosque	M3	WARD_51
12	Chishti Masjid	Mosque	M4	WARD_45
13	Abu Bakr Compound Masjid Ghaus Nagar	Mosque	M5	WARD_52
14	Masjid Lane	Mosque	M6	WARD_45
15	Muhammadi Masjid	Mosque	M7	WARD_51
16	Idgah Karbla	Mosque	M8	WARD_53
17	Hatia Masjid	Mosque	M9	WARD_53
18	Surya Mandir	Temple	T1	WARD_54
19	Shani Mandir	Temple	T2	WARD_52
20	Kali Mandir	Temple	T3	WARD_51
21	Kali Mata Mandir	Temple	T4	WARD_52
22	Hanuman Mandir - Shiv Mandir	Temple	T5	WARD_46
23	Shri Shiv Mandir	Temple	T6	WARD_54
24	Krishna Temple	Temple	T7	WARD_52

Source: Primary Survey Conducted by DDF Consultants Pvt Limited

Map 2-6 Location of Religious Facility in Zone F



Source: DDF Consultants Pvt Ltd

2.3.2 Physical Infrastructure

In most of the part of the zone all the services like telephone line, electric line, drainage etc are open or above the ground. Because of such condition the redevelopment or renewable is not possible. Thus first all of these services need to be arranged underground.

2.3.2.1 Water supply

At present the major source of water supply is from the three dams named as Kanke Dam, Rukka Dam, and Hatia Reservoir. Planning District F majority of its water from the Hatia and Kanke dam. Future Probable water sources are Tilaiya Dam, Tenughat Dam.

2.3.2.2 Sewerage System

Presently, the Ranchi Planning Area (RPA) does not have any integrated sewerage system except for certain pockets such as H.E.C. Colony and MECON Colony having their own independent system. There are generally septic tanks in Ranchi. The effluent is released untreated into the nearby drains and low-lying areas. Similar is the case of industrial wastewater. In case of septic tanks, the soak pits are becoming non-functional in many areas because of high sub-soil water table within a short span of time. The city also has public toilets facilities located at public places

A Sewerage Treatment Plant (STP) of 4-MLD capacities is located near Kanke dam to prevent water contamination of the Kanke reservoir.

The per capita waste water generation would be 80% of the water supply. The whole city is divided into 6 sewerage zone considering the criteria of slope, topographical features, water bodies and local disposal points for better collection and treatment of waste water. Planning Unit wise discharge will be as following (Refer Table 2-12). Zone F falls under Sewerage zone 2, 5 and 6 therefore the wastewater generated 2037 is 116.81 MLD

Table 2-12 Estimated Domestic Waste Water Generation, Ranchi

Sewerage Zone	Planning Unit/ Area Covered	Projected Population (Year – 2037)	Generated wastewater in MLD (Year 2037)
1	PU-3 (100%), PU-4(98%), PU-5(50%), PU-6 (90%), PU-8 (70%), PU-9 (2%), PU-14(50%)	9,41,999	116.81
2	PU-1(90%), PU-2(50%), PU-6(5%), PU-11(20%), PU-13(20%), PU-14(50%)	5,41,757	67.18
3	PU-1(10%), PU-2(50%), PU-4(2%), PU-5(50%), PU-6(5%), PU-7(70%)	4,19,620	52.03
4	PU-7(30%), PU-8(30%), PU-9(98%)	3,51,460	43.58
5	PU-10(100%), PU-11(20%), PU-12(90%)	5,10,106	63.25
6	PU-11(60%), PU-12(10%), PU-13(80%)	3,92,694	48.69
	Total	31,57,636	391.55

Source: Ranchi Master Plan, 2037

Waste water generation of zone F can be estimated from sewerage zone 2, 5 and 6.

Sewerage Zone in Ranchi City

2.3.2.3 Drainage Network

Ranchi Town has undulating topographical features facilitating proper drainage throughout the city. The city is sloping away in all four directions more or less from centre and the Subernarekha River passing through the city with its tributaries like Nati Nadi, Hinoo Nadi, Harua Nadi, Harmu Nadi, as evident in the following natural drainage pattern map.

In addition there are numbers of nallah out falling into these tributaries. The storm runoff from the city thus finds its way to various nallah and tributaries of Subernarekha River through roadside drains. As described earlier that due to absence of any sewerage system these roadside drains are receiving all sullage water causing health hazards.

Details of the Catchment Area in Planning Area

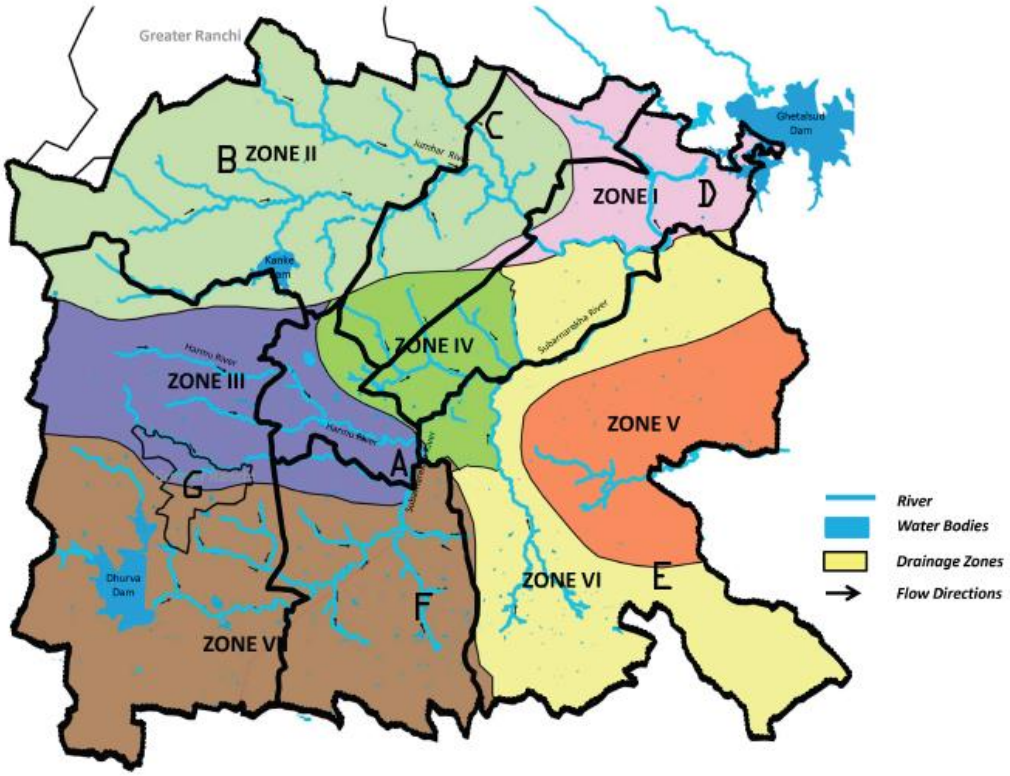
Drainage Zone: VII

Catchment Area: 16167.4

Flow Direction: West to North-East direction

Major Drainage Channel in Catchment: Subarnarekha River and its tributaries

Drainage Zones in Ranchi



2.3.2.4 Solid Waste Management

Each ward of Zone F and will be having solid waste collection centre and from this centre solid waste will be transported to land fill site. The door to door solid waste collection route is given in the Map. The location of dustbins will be strategically placed at convenient points in all wards.

Presently, an area of 16.19 hectares of land is available for the purpose of landfill site at Jhiri Village. It is proposed to shift this site to new proposed landfill site. A Land parcel of an area 85.0 hectares is proposed to development as a solid waste disposal site at Balsiring Village adjacent to the Ring Road. The landfill site for solid waste disposal should be equipped with the required facilities including fencing, weigh-bridges, proper access roads, proper drainage system, leachate collection system, gas handing equipment etc.

2.3.2.5 Electricity and Power Supply

The electric power for Ranchi agglomeration including some of the adjoining villages is supplied from the power generated by Patratu Thermal Power Station (110 MW) and Sikidiri Hydel Power Station (110 MW). The design capacities of both these power generation sources are 840 MW and 130 MW respectively.

The Ranchi city is getting power from two 132/33 KV Grid Sub Stations established at Hatia and Namkum. The total installed capacity of these GSS is 400 MVA (8 x 50 MVA). The present power supply in Ranchi city is 220 MVA, which is being catered through 26-Nos of 33/11 KV power sub-stations established in various part of the city. The present requirement of power in Ranchi city is 390 MVA. Thus, there is a gap of 170 MVA at present.

2.4 COMMERCIAL

Most of the commercial development is in form of the mix land use with commercial areas on ground façade of building of plots. These are basically adjacent to the major roads. They also appeared scattered in form of 'nukkad' markets where three of more than three roads meets. So the Planning district generally lacks of planned commercial areas and there is no hierarchy of commercial centers existing in it. In fact, all the existing commercial development has come up in linear fashion as per the need and demand of the local people.

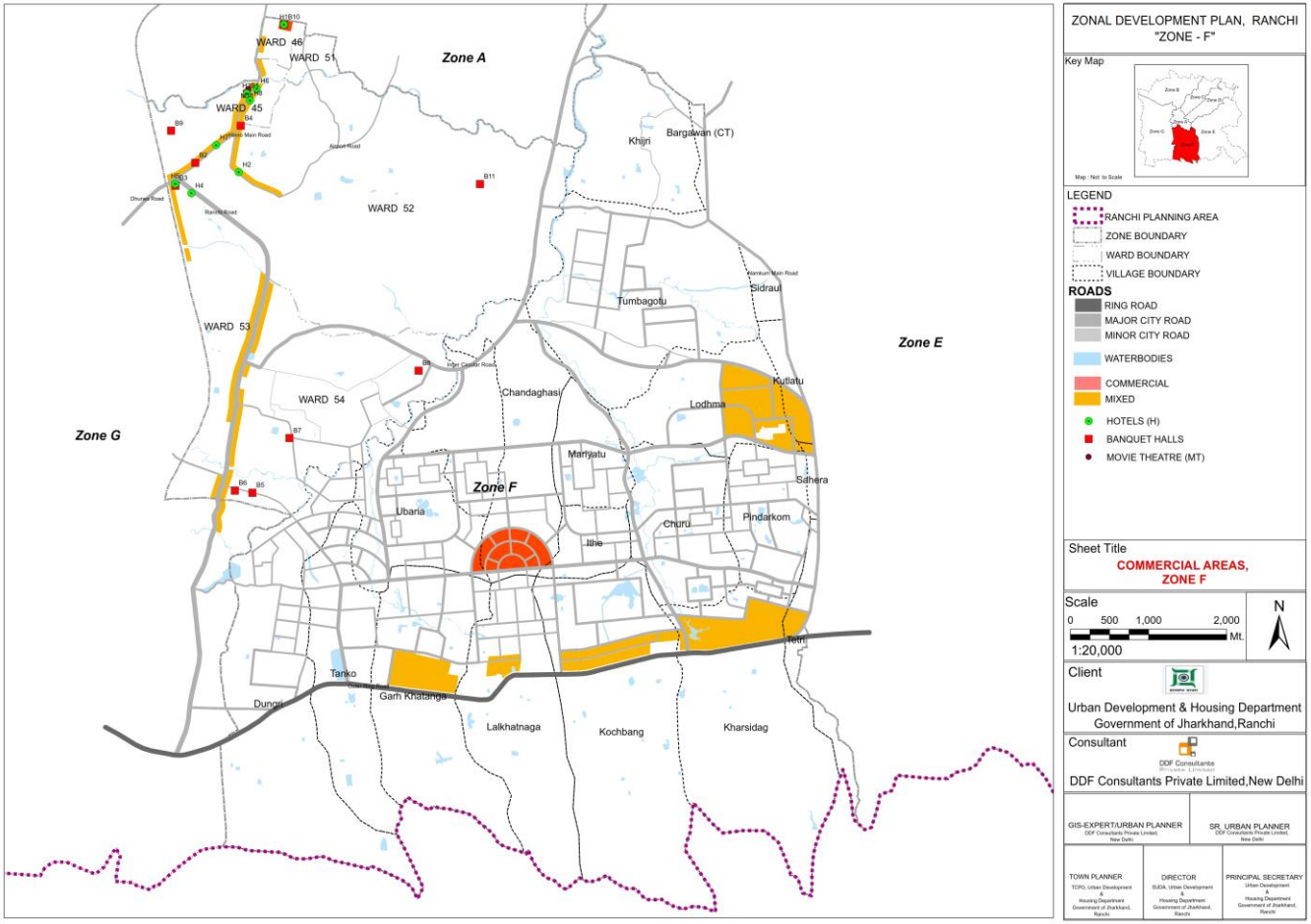
There is no existing hierarchy at present in the Planning district F of Ranchi but as per master plan the proposed hierarchy of commercial is given below in (Table 2-13 and Refer **Map 2-7**)

Table 2-13 Five-tier system of Commercial areas

Aspects	Central Business District	District Commercial Centre	Community Commercial Centre	Neighborhood Commercial Centre	Cluster Centre
Population served	Total city population				
Area	99 hectares	40 hectares	5.4 hectares	0.46 hectares	0.11 hectares
Land Requirement Per Thousand Persons	–	800 SQM	540 SQM	306 SQM	220 SQM

Source: Ranchi Master Plan, 2037

Map 2-7 Location of existing major retail commercial in Planning District F



Source: DDF Consultants Pvt Ltd

Table 2-14 List of Commercial Areas

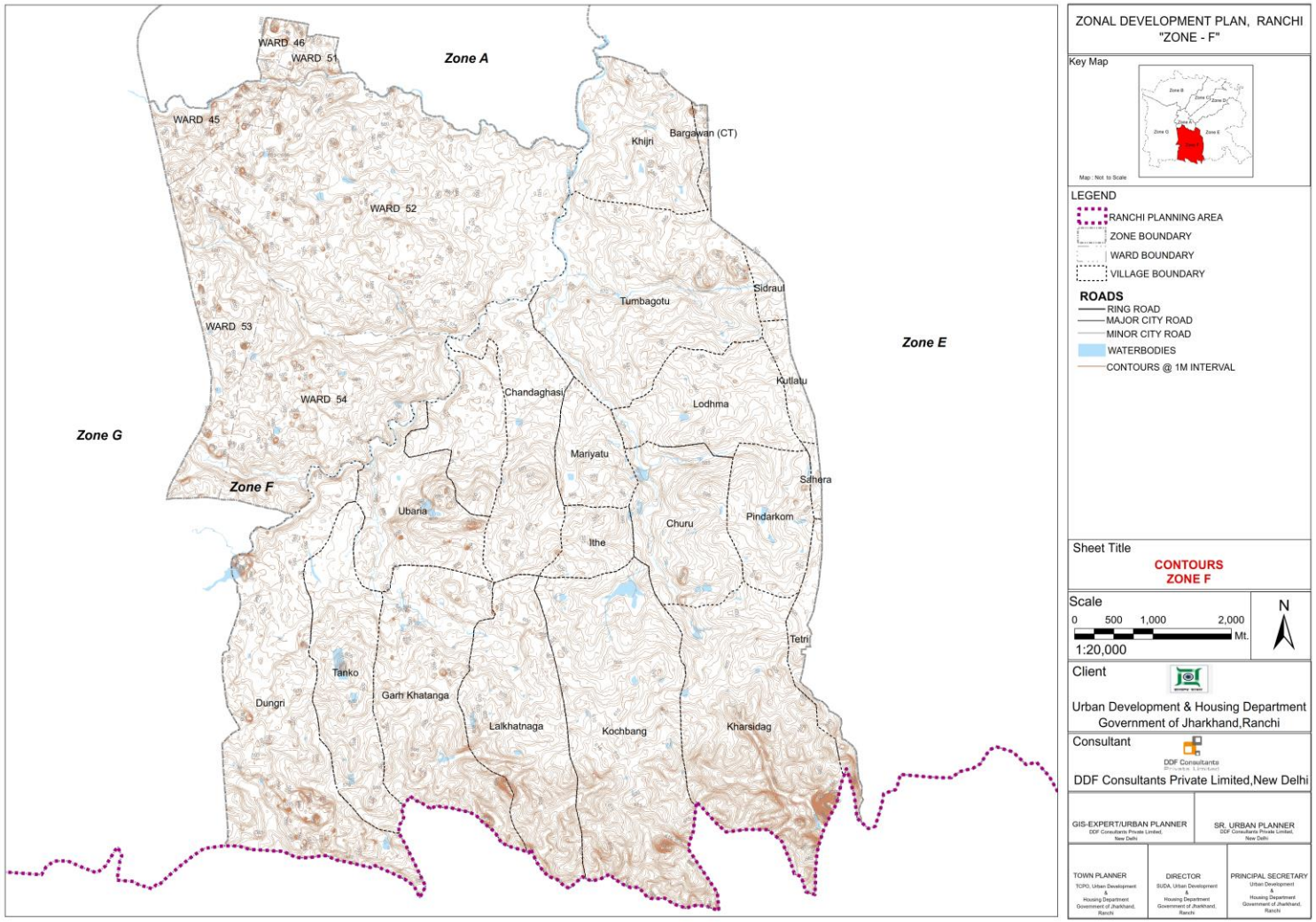
Sr.No.	Name	FolderPath	CODE	WARD_NUM
1	HOTEL SHIVANI INTERNATIONAL	Banquet Halls	B1	WARD_45
2	Hotel Ranchi Ashok	Banquet Halls	B10	WARD_46
3	Chhota Ghaghra.ranchi	Banquet Halls	B11	WARD_52
4	J B Banquet Hall	Banquet Halls	B2	WARD_45
5	New Puja Restaurant & Banquet Hall	Banquet Halls	B3	WARD_53
6	Rasoi Restaurant & Vatika Banquet Hall	Banquet Halls	B4	WARD_52
7	Nandan Palace	Banquet Halls	B5	WARD_54
8	Pushpanjali Banquet Hall	Banquet Halls	B6	WARD_54
9	Sumitra Sadan Banquet Hall	Banquet Halls	B7	WARD_54
10	Sumiran Banquet Hall	Banquet Halls	B8	WARD_54
11	Mahesh Sahu Cooking & Caterer	Banquet Halls	B9	WARD_45
12	Hotel Ranchi Ashok	Hotel	H1	WARD_46
13	Hotel Green Acres	Hotel	H2	WARD_52
14	HOTEL SHIVANI INTERNATIONAL	Hotel	H3	WARD_45
15	Hotel The Raso	Hotel	H4	WARD_53
16	Hotel Park Inn	Hotel	H5	WARD_53
17	Hotel River View	Hotel	H6	WARD_45
18	Hotel Crown Plaza	Hotel	H7	WARD_45
19	Hotel Jalsa Grand	Hotel	H8	WARD_45
20	Fun Cinema Ranchi	Theater	MT1	WARD_45

Source: Primary Survey by DDF Consultants Pvt Ltd

2.5 SLOPE ANALYSIS

The Ranchi City is having an undulating plain located on the Chotanagur plateau. The well-marked contours of Zone F show that the general slope is from west to east direction. (Refer Map 2-8). The eastern section of the city has an average elevation of about 624.84 m, which gradually increases to 655.32 m in the west. The two hills, which are conspicuous in the monotonous rolling surface of the city, are the Tagore or Morabadi hill on the northern margin and the curious pyramidal shaped Ranchi hill on the western margin of the city.

Map 2-8 Contour Map of Zone F



Source: DDF Consultants Pvt Ltd

2.6 MICRO ZONING HAZARD MAPPING

The Disaster Management Department of the State came in to existence from October 2004. The Department primarily works to provide timely relief to disaster affected people through releases from state disaster response fund to various line departments and District collectors directly at the time of Disaster. The state disaster response fund comprises of 75 % contribution from the central govt. and 25% from the state government. The State Disaster Management Authority and District Disaster Management Authorities in all the 24-Districts have already been constituted. Department as mandated has developed State Disaster Management Plan in the year 2009, however the capacity of line departments, institutions and non-government organisations and their functionaries on Disaster Management need to be strengthened further. In the year 2010-11 department received a central share of Rs. 194.59 crores. The outlay for the financial year 2011-12 is Rs. 204.32 crores. Apart from this, an additional fund of Rs. 5 crores has been provided from 13th Finance commission for the first time for capacity building. This was continued for next five years.

Existing Schemes:

- Calamity relief fund distribution and monitoring;
- National program of capacity building for Engineers / Architects in Earthquake risk management

2.7 GREEN COVER: PAKRS/OPEN SPACES

The land under recreational use is significant keeping in view the population and nature of the Planning district. The presence of open and green space increase in geometric progression as moving away from the core city. Uniformly distributed and well-planned parks and playfields are grossly lacking because of unplanned residential development in planning district. There are numerous of the open spaces around residential areas which used by local residents.

The Main open spaces and parks in the district are as follows:

1. Biodiversity Park
2. Railway Colony Park
3. Officers mess Park
4. NIFFT Cricket Ground
5. Ranchi Club

Table 2-15 Requirement of Parks and Open Spaces

Facilities	Norm	Existing	Requirement in Zone F	Deficit
Parks / Garden (Neighbourhood Park)	One for 15000	6	27	21
Play Grounds (Community Level M. Purpose Ground) Stadium	One for 1 Lakh	1	4	3
Golf Course	-		-	
Clubs	-	2	-	-

Source: Primary Survey Conducted by DDF Consultants Pvt Ltd

At present there are 6 parks in Zone F. According to the norms and standards, there is a requirement of 27 parks, therefore 21 parks need to be proposed in the proposed neighborhood and cluster centers. There is also a deficit of 3 Play grounds in Zone F. (Refer Table 2-15)

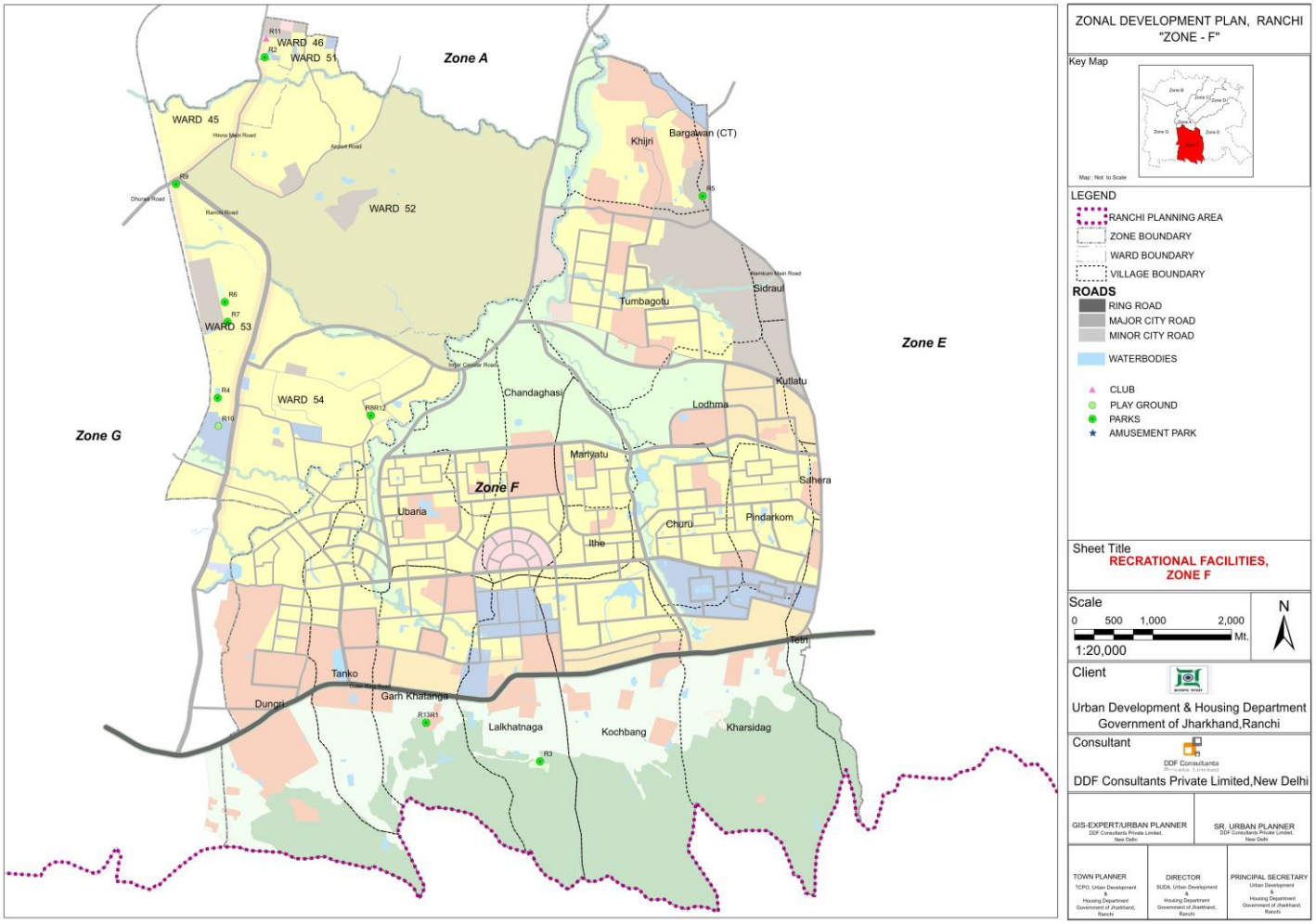
List of recreational areas in Zone F is mentioned below (Refer Table 2-16)

Table 2-16 Names of Existing Recreation Areas in Zone F

Sr.No.	Name	Facility	CODE	WARD_NUM
1	NIFFT Cricket Ground	Cricket Play Ground	R10	WARD_53
2	Ranchi club	Club	R11	WARD_46
3	The Ranchi Rifle Club	Club	R12	WARD_54
4	Shree Krishna Singh Park	Park	R2	WARD_46
5	Nifft Colony Park	Park	R4	WARD_53
6	Railway Colony Park	Park	R6	WARD_53
7	Officers Colony Park	Park	R7	WARD_53
8	Jharkhand Mega Food Park Private Limited	Park	R8	WARD_54
9	Hotel Park Inn	Park	R9	WARD_53

Source: Primary Survey by DDF Consultants Pvt Ltd

Map 2-9 Location of Recreational Areas



Source: Prepared by DDF Consultants Pvt Ltd

2.8 ZONE POTENTIALS AND CONSTRAINTS

2.8.1 Potentials

- Zone F has an Airport. In view of the anticipated future requirement of large sized aircrafts, long runways (of around 3.5 Km) would be required for the landing of the same. Considering this, 794 hectare of land has been proposed for Airport Expansion under RMP-2037, which could accommodate the longer runway and desired Terminal facilities.
- There is an exhibition ground proposed in Zone F to organize fairs, exhibitions and shows and events for cultural as well as economic benefits. Ranchi is the cultural and economic hub of not only the state of Jharkhand but also the entire of the region.

2.8.2 Constraints

- Tribal lands inside the zone is in abundance, which is non-transferable outside the Tribal community to any non-Tribal agency as per the Chhotanagpur Tenancy Act (CNT). This restricts the zone to grow on the underutilized land in the city domain, this land is therefore inaccessible for any planned growth.
- The zone lacks in physical infrastructure such as water supply, sewerage network. There are many wards which do not have a piped water supply.
- With increased population, there has been a pressure on the existing roads of the Zone leading to traffic congestion. Most of the intersections need improvement.
- There are many slums in zone F. Villages constitute maximum number of slums. The Tribal land like Bara Ghagra, Karam Toli, Nagratoli etc., which use to be villages in the past, have been enveloped with the growing city all around, and due to natural increase in population inside the city the density of such villages has increased, forcing such villages to a slum like conditions.

3 CONCEPTUAL FRAMEWORK

Various concepts have been used for the preparation of Zonal Development Plan. These strategies help to improve accessibility/ connectivity with both the urban extension and the rural areas, ensures that different land use requirements of the community area are planned in a sustainable way. They also promote sustainable development by preserving natural resources and eco-system of the region to implement smart Principles of Development for better city Planning Develop adequate parking area facilities in and around the major activity centres of the city. It helps to preserve & develop natural resources & open spaces.

3.1 Concepts for Residential Area

- Residential density
- Neighborhood concept
- Cluster level planning
- Calculation for new infrastructure
- Redevelopment
- Regulations for new and existing development

Neighbourhood Concept: The concept of neighborhood unit evolved due to the advent of industrial revolution and degradation of the city environment caused by high congestions, heavy traffic movements, factors of security for the school-going population, distant locations of shopping and recreational activities, etc.

These major issues led to the development of neighborhood concept with the foresight of creating a safe healthy physical environment wherein:

- Children would have no traffic streets to cross on their way to schools which are within walking distance from homes;
- Women would be able to have a walk to a shopping center for purchasing daily household goods;
- Employed people would find convenient transportation options to and from work.
- Well-equipped playgrounds would be located near the houses wherein children may play in safety

The activities of a town takes place in its public spaces. In a town/ urban area, there are a wide range of public spaces which are differentiated by the pattern of their functions and

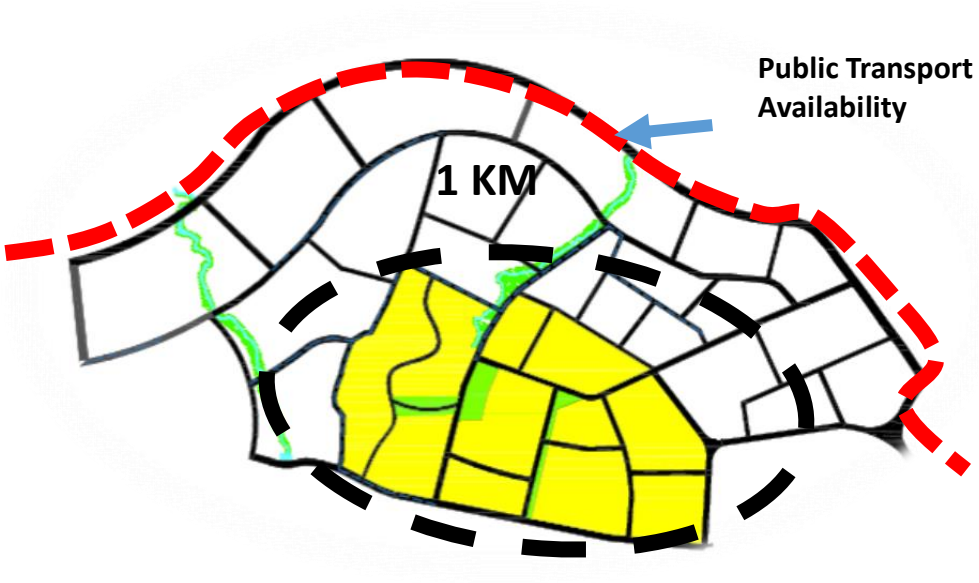
circulations system. Neighbourhood unit concept, which is being used as the planning unit for a town or city consists of following urban spaces for public assemblies

- Streets and squares
- Parks and Grounds
- Precinct
- Recreation green
- Civic and Religious Building
- Sports
- Shopping Complexes
- Community centre's for public assembly

Residential Densities:

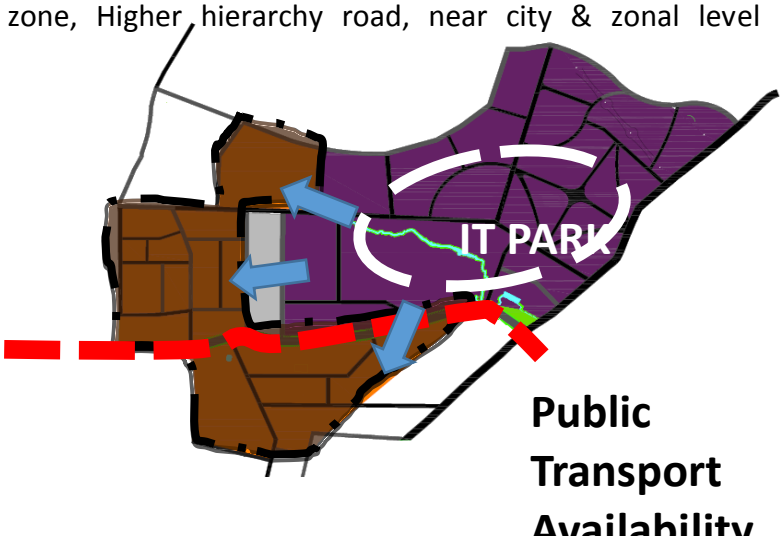
1. **Low density Residential(<=200 PPH):**

   Residential areas access by lower Hierarchy roads (generally 30m) and not proximate of Public transport.



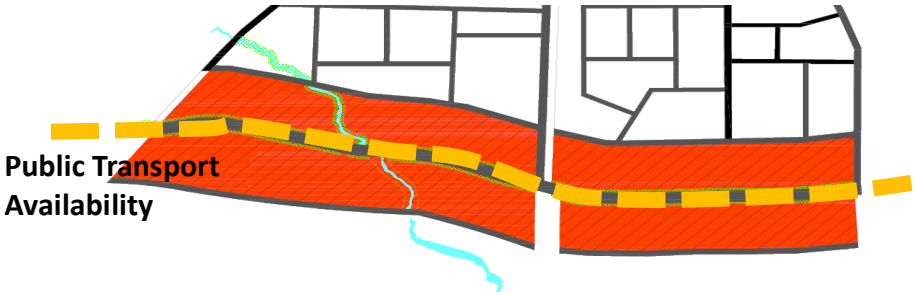
2. Medium Density Residential (250-350 PPH)

Residential areas near TOD zone, Higher hierarchy road, near city & zonal level infrastructure.



3. Composite Zone (250-350 PPH)

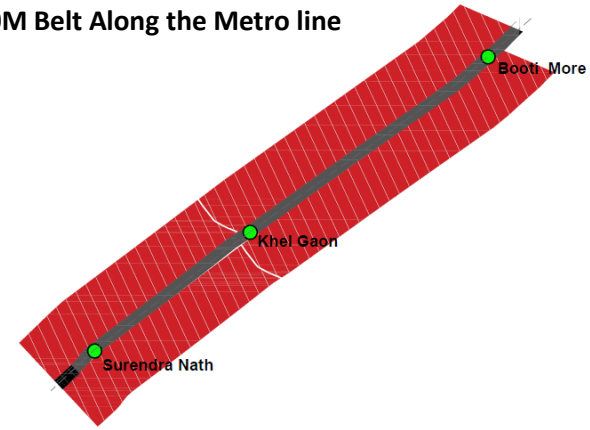
Mix land use (Composite Zone comprise of Residential, Commercial, Public Semi public and Recreational).Along all the major Connecting Roads.



4. High Density Residential (1200-2200 PPH)

Residential areas along MRTS and BRTS

A 500M Belt Along the Metro line



3.2 Concepts for Transportation

- Strengthening the existing road network (road widening)
- TOD development
- BRT corridor
- Pedestrian oriented development
- Trip generation
- Proposal of multilevel parking
- Providing transport related regulation

Transit oriented development is any development, macro or micro, that is focused around a transit nodes and facilitate complete ease of access to the transit facility, there by inducing people to prefer walking and use public transportation over personal mode of transport.

(Source *UTIPEC)*

A transit-oriented development should have:

- Active, walkable streets
- Building intensity and scale
- Careful transit integration

According to the Jharkhand TOD 2016-2026 Policy all urban areas needs to be development according to the transits oriented development. The major points of Jharkhand TOD policy are given below:

- The Government of Jharkhand aims to, sustainably, guide urban development in the State over the coming years and provide a clear framework for its cities to better manage their existing urban areas as well as guide future transportation and land use investments.
- The present, growing use of personal motor vehicles (PMVs) in the urban areas of the State is contributing to traffic congestion, poor air quality, declining public health, increasing number of road fatalities, and social segregation. Further, in the past decade, several of Jharkhand's cities have been allowing, even facilitating, low-density urban sprawl, often in the form of gated complexes with mono-functional land uses, such as only housing or only industry. This approach and the consequent trends coupled with poor public transport (PT) infrastructure have resulted in longer commutes, growing dependence on PMVs, rising congestion, and poor mobility options, especially, for the urban poor and other vulnerable groups.
- As cities in Jharkhand continue to grow, there is a clear need to provide for increased housing and commercial space over the next decade, to meet housing and

employment demands of the future population. Basic civic infrastructure like roads, parks, and utilities also need to be improved, as these have a direct implication on the quality of life. There is also a need to develop low-cost housing options with basic infrastructure for the urban poor.

- In order to comprehensively address these issues, Gal has adopted the JTODP, applicable as relevant, for the whole of Jharkhand. Based on a transit-oriented development (TOD) approach, this policy seeks to encourage urban development practices that promote sustainable modes of transport (walking, cycling and PT). Simultaneously, it seeks to discourage and disincentives the use of PMVs.
- Moreover, JTODP is meant to provide a strategic framework for Jharkhand's cities to proactively plan for future residential, commercial, and other development, within a compact city form, so that 60% or more of its citizens can have access to their shelter and work as well as other public amenities by using high quality mass rapid transit (MRT), which in turn, can be accessible within walking distances from all these points.

In reference to all above stated points and Ranchi Master Plan 2016 the Ranchi TOD Zone has been identified and delineated. Delineate high intensity development Zones called TOD zones- to a distance of 500 metres on either sides" At least 60% of metropolitan population lives within 500m walking distance of MRT Corridors. FAR at least 3 times higher as compared to non-TOD zones

3.3 Concepts for Recreation

- Connecting greens
- River front development
- Rejuvenation of existing green areas and water bodies
- Proposal for new green areas

It is proposed to provide equitable distribution of major green spaces over city. Major Green areas will be connected through linear channels like river and roads. In New Development areas, the proposed green spaces should be provided in hierarchy.

Revitalization of Existing Green

The conservation of the green heritage in future is a major concern with regards to the rapid development of the city in the last few decades.

- Integration of existing forest areas trees parks in the Development Master Plans of cities Greens
- Integrate existing natural attributes and topography within the development and, where possible, make a public feature of these elements.
- Maintain and, extend parks and open space networks through the neighborhood to encourage the safe use of these spaces by the public.
- Provide common open space such as children's playgrounds (ie: privately maintained tot lots) when appropriate.

3.4 Concepts for Commercial

- Hierarchy of commercial areas
- Mixed land use
- Regulation for commercial development

Mix Use

Mix use has emerged as a major provision for any kind of development due to emerging needs and requirement of people. Ranchi being the State capital and an important center of economic activity, it has a large diversity in the typology of residential areas. Apart from the planned residential colonies built as part of Residential, Commercial and Industrial as well as through the process of planned development undertaken by the various Authorities, there are authorized residential areas in the core city, special areas and urban villages. Other planned areas include resettlement colonies and core area. There are also regularized unauthorized colonies as well as slums and Jhuggi Jhompri clusters in various parts of Ranchi city and so our interest should be to follow a differentiated approach in the application of the mixed-use policy in Ranchi. The differentiated approach based on categorization of colonies should be adopted by RMC and RRDA and GRDA for unit area method of property tax assessment.

The following mixed use and commercial activities are permissible in residential premises

• Mixed Use Streets

• Commercial Streets

• Small Shops

• Professional Activities

• Other Activities: Group Housing , Notified Mixed Use Streets (including pedestrian streets- Notified Commercial Streets (including pedestrian shopping streets) The Small Shops of maximum 20 sq m area, trading in or dealing with the following items/activities, may be allowed on ground floor only, in residential premises, including in A and B category colonies; - Professional Activity: subject to general terms and conditions specified in bye laws of GROUP HOUSING and Plotted development in all categories of colonies

Spot Zoning of pre-existing cultural, religious (including spiritual) health care and educational institutions. The genesis of the concept of Spot Zoning is to protect genuine pre-existing institutions for this purpose.

• The institutional activities which existed up to a cut off dated building only are to be considered for regularization

• The regularization shall be allowed on the lands which do not form part of the Ridge, Regional Park, developed park, Riverbed, Gram Sabha land or public land. Institutions on the lands affected by Heritage Zone, land required for Master Plan roads, service corridors, etc.; shall not be regularized

• The extent of buildable area shall be limited to the extent of MP 2037 norms and the remaining surplus area shall be reserved for Recreational Green and Open with a maximum 3 times of the existing FAR subject to payment of levies, charges, other conditions as may be stipulated. Buildings so permitted will have to directly serve the principal objectives of the Institution.

RMP, 2037 should permit certain public and semi-public facilities in residential and other use zones as a part of approval of lay out or as a case of special permission from the Authority

• The regularization shall be subject to payment of all charges and levies

• The applicant will submit all the details of land ownership and area, built up area, site plan indicating the location of building, building plans, etc.

• The applications, thus, received will be examined by zone-wise committee for recommendations to the Authority.

The above Concepts suggest detailed procedure for integration at micro-level which is useful for the zonal plans. For better planning, zonal development plans have been a very successful tool. Adding important planning tools like “procedure based planning” to the Zonal plan document makes it implementable and result oriented. Flexible localized “procedure based planning” approach is necessary to integrate local issues like land assembly, mix use, regularization of unauthorized colonies and urban villages, etc. among themselves so that land use planning becomes practical and implementable.

4 PROPOSALS AND DEVELOPMENT STRATEGY

4.1 PROPOSED LANDUSE PLAN IN ZONAL DEVELOPMENT PLAN

	CLASSIFICATION AS PER RANCHI MASTER PLAN, 2037	Area in Ha.	% of Sub-Total (Developed/ Un-Developed)	% of Planning Area of Zone	Zone F				
					CLASSIFICATION AS PER AMRUT	SUB-CLASSIFICATION AS PER AMRUT	Area In Ha.	% of Sub-Total (Developed/Un-Developed)	% of Planning Area of Zone
DEVELOPED AREA	RESIDENTIAL	2009.94	45%	28%	RESIDENTIAL	Housing Scheme	1583.84	35.14%	21.88%
					RESIDENTIAL	Residential Area/Colony	412.15	9.14%	5.69%
					RESIDENTIAL	Affordable Housing	6.81	0.15%	0.09%
					SLUM	Non-Notified Slums	7.15	0.16%	0.10%
	COMMERCIAL (RETAIL)	2.08	0%	0%	COMMERCIAL	Retail	2.08	0.05%	0.03%
					COMMERCIAL	Shopping Center/Mall	0.00	0.00%	0.00%
					COMMERCIAL	Hostel	0.00	0.00%	0.00%
					COMMERCIAL	Function Hall	0.00	0.00%	0.00%
					COMMERCIAL	Petrol Pump/LPG Filling Station	0.00	0.00%	0.00%
					COMMERCIAL	Hotel	0.00	0.00%	0.00%
					COMMERCIAL	Mall	0.00	0.00%	0.00%
					OTHERS	Slaughter House	0.00	0.00%	0.00%
	WHOLE SALE & GODOWN	0.00	0%	0%	COMMERCIAL	Wholesale	0.00	0.00%	0.00%
					COMMERCIAL	Storage Godown	0.00	0.00%	0.00%
	COMPOSITE USE - 1	293.10	7%	4%	MIXED	Resi & Comm & Instit & Recr	186.59	4.14%	2.58%
	COMPOSITE USE - 1				MIXED	Integrated District Center	73.98	1.64%	1.02%

	CLASSIFICATION AS PER RANCHI MASTER PLAN, 2037	Area in Ha.	% of Sub-Total (Developed/ Un-Developed)	% of Planning Area of Zone	Zone F				
					CLASSIFICATION AS PER AMRUT	SUB-CLASSIFICATION AS PER AMRUT	Area In Ha.	% of Sub-Total (Developed/Un-Developed)	% of Planning Area of Zone
	COMPOSITE USE - 1				MIXED	Integrated Commercial centre	32.54	0.72%	0.45%
	COMPOSITE USE - 1				MIXED	Comm & Educa & Recreation	0.00	0.00%	0.00%
	COMPOSITE USE - 1				MIXED	"Residential, Commercial, Rec. , Insti. & Exist. Indus.	0.00	0.00%	0.00%
	COMPOSITE USE - 2	0.00	0%	0%	MIXED	Resi-Insti-Comm-Recr-Indus	0.00	0.00%	0.00%
	INDUSTRIES	0.00	0%	0%	INDUSTRIAL	Service	0.00	0.00%	0.00%
					INDUSTRIAL	Manufacturing	0.00	0.00%	0.00%
					INDUSTRIAL	IT Parks	0.00	0.00%	0.00%
	PUBLIC AND SEMI-PUBLIC	230.90	5%	3%	PUBLIC & SEMI - PUBLIC	Jail	0.00	0.00%	0.00%
					PUBLIC & SEMI - PUBLIC	Aashram	0.00	0.00%	0.00%
					PUBLIC & SEMI - PUBLIC	Museum	0.00	0.00%	0.00%
					PUBLIC & SEMI - PUBLIC	Police Station	0.00	0.00%	0.00%
					PUBLIC & SEMI - PUBLIC	Dharmashala	0.00	0.00%	0.00%
					PUBLIC & SEMI - PUBLIC	Over Head Tank	0.00	0.00%	0.00%
					PUBLIC & SEMI - PUBLIC	Public Library	0.00	0.00%	0.00%

	CLASSIFICATION AS PER RANCHI MASTER PLAN, 2037	Area in Ha.	% of Sub-Total (Developed/ Un-Developed)	% of Planning Area of Zone	Zone F				
					CLASSIFICATION AS PER AMRUT	SUB-CLASSIFICATION AS PER AMRUT	Area In Ha.	% of Sub-Total (Developed/Un-Developed)	% of Planning Area of Zone
					PUBLIC & SEMI - PUBLIC	Banks	0.00	0.00%	0.00%
					PUBLIC & SEMI - PUBLIC	Community hall	0.00	0.00%	0.00%
					PUBLIC & SEMI - PUBLIC	Cultural Centre	0.00	0.00%	0.00%
					PUBLIC & SEMI - PUBLIC	Fire Station	0.00	0.00%	0.00%
					PUBLIC & SEMI - PUBLIC	Crematorium/Burial Ground	0.05	0.00%	0.00%
					RELIGIOUS	Church	0.00	0.00%	0.00%
					RELIGIOUS	Temple	0.00	0.00%	0.00%
					RELIGIOUS	Mosque	0.00	0.00%	0.00%
					RELIGIOUS	Gurudwara	0.00	0.00%	0.00%
					EDUCATIONAL	School	0.00	0.00%	0.00%
					EDUCATIONAL	College	39.84	0.88%	0.55%
					EDUCATIONAL	Education & Research	159.70	3.54%	2.21%
					EDUCATIONAL	Training Institute	0.00	0.00%	0.00%
					EDUCATIONAL	University	0.00	0.00%	0.00%
					HEALTH SERVICES	Private Hospital	0.00	0.00%	0.00%
					HEALTH SERVICES	Diagnostic Centre	0.00	0.00%	0.00%
					HEALTH SERVICES	Govt. Hospital	2.85	0.06%	0.04%
					PUBLIC UTILITIES	Over Head Tank	0.00	0.00%	0.00%
					PUBLIC UTILITIES	Sewage Pumping Station	0.00	0.00%	0.00%
					PUBLIC UTILITIES	Electric Sub Station	0.00	0.00%	0.00%

	CLASSIFICATION AS PER RANCHI MASTER PLAN, 2037	Area in Ha.	% of Sub-Total (Developed/ Un-Developed)	% of Planning Area of Zone	Zone F				
					CLASSIFICATION AS PER AMRUT	SUB-CLASSIFICATION AS PER AMRUT	Area In Ha.	% of Sub-Total (Developed/Un-Developed)	% of Planning Area of Zone
					PUBLIC UTILITIES	Water Treatment Plant	0.00	0.00%	0.00%
					PUBLIC UTILITIES	Water Pumping Station	0.00	0.00%	0.00%
					PUBLIC UTILITIES	Sewage Treatment Plant	28.46	0.63%	0.39%
					SOLID WASTE MANAGEMENT	land Fill Site	0.00	0.00%	0.00%
	GOVERNMENTAL OFFICE	39.40	1%	1%	STATE GOVT. PROPERTY	Office	0.00	0.00%	0.00%
					CENTRAL GOVT. PROPERTY	Office (Centre)	39.40	0.87%	0.54%
	RECREATIONAL	518.35	11%	7%	RECREATIONAL	Club	0.00	0.00%	0.00%
					RECREATIONAL	Stadium	224.10	4.97%	3.10%
					RECREATIONAL	Sport Center	0.00	0.00%	0.00%
					RECREATIONAL	Park	124.99	2.77%	1.73%
					RECREATIONAL	Play Ground	1.70	0.04%	0.02%
					RECREATIONAL	Amusement Park	0.00	0.00%	0.00%
					RECREATIONAL	Aquarium	0.00	0.00%	0.00%
					RECREATIONAL	Theme Park Proposed	0.00	0.00%	0.00%
					RECREATIONAL	Exhibition Ground	8.03	0.18%	0.11%
					RECREATIONAL	Equitation Section	0.00	0.00%	0.00%
					RECREATIONAL	MultiPurpose Playground	157.21	3.49%	2.17%
					RECREATIONAL	Garden	0.00	0.00%	0.00%
					RECREATIONAL	Special recreational Zone	2.31	0.05%	0.03%

	CLASSIFICATION AS PER RANCHI MASTER PLAN, 2037	Area in Ha.	% of Sub-Total (Developed/ Un-Developed)	% of Planning Area of Zone	Zone F				
					CLASSIFICATION AS PER AMRUT	SUB-CLASSIFICATION AS PER AMRUT	Area In Ha.	% of Sub-Total (Developed/Un-Developed)	% of Planning Area of Zone
					ECO - SENSITIVE AREAS		0.00	0.00%	0.00%
	TRANSPORTATION AND COMMUNICATION	1413.79	31%	20%	RAILWAY	Railway Property	13.59	0.30%	0.19%
					TRANSPORTATION	Airport	826.24	18.33%	11.42%
					TRANSPORTATION	Railway Track Area	0.00	0.00%	0.00%
					TRANSPORTATION	Bus stand /Terminus	0.00	0.00%	0.00%
					TRANSPORTATION	Truck Terminus	0.00	0.00%	0.00%
					ROADS	State Highway	0.00	0.00%	0.00%
					ROADS	Ring Road	49.39	1.10%	0.68%
					ROADS	Other Public Road	0.00	0.00%	0.00%
					ROADS	Major City Road	518.91	11.51%	7.17%
					ROADS	Major District Road	0.00	0.00%	0.00%
					ROADS	National Highway	0.00	0.00%	0.00%
					ROADS	Minor City Road	5.66	0.13%	0.08%
					TRAFFIC RELATED	Parking Space / Area	0.00	0.00%	0.00%
					COMMUNICATION	Telephone Exchange	0.00	0.00%	0.00%
					COMMUNICATION	Post /Telegraph Office	0.00	0.00%	0.00%
					COMMUNICATION	Satellite & Telecommunication Centre	0.00	0.00%	0.00%
	GREATER RANCHI PHASE - 1	0.00	0%	0%		Greater Ranchi Phase - 1	0.00	0.00%	0.00%
	GREATER RANCHI PHASE - 2	0.00	0%	0%		Greater Ranchi Phase - 2	0.00	0.00%	0.00%

	CLASSIFICATION AS PER RANCHI MASTER PLAN, 2037	Area in Ha.	% of Sub-Total (Developed/ Un-Developed)	% of Planning Area of Zone	Zone F CLASSIFICATION AS PER AMRUT	SUB-CLASSIFICATION AS PER AMRUT	Area In Ha.	% of Sub-Total (Developed/Un-Developed)	% of Planning Area of Zone
	SUB-TOTAL (DEVELOPED AREA)	**4507.57**		**62%**			**4507.57**	**100.00%**	**62.28%**
UN-DEVELOPED AREA	DEFENCE AREA	234.15	9%	3%	PUBLIC & SEMI - PUBLIC	Cantonment/Battalion	234.15	8.58%	3.24%
	AGRICULTURE	543.42	20%	8%	AGRICULTURAL LAND	Crop Land	543.42	19.90%	7.51%
	FOREST	1102.79	40%	15%	GREEN AREAS	Green Belt	151.54	5.55%	2.09%
					GREEN AREAS	Forest	951.24	34.84%	13.14%
					GREEN AREAS	Reserved Forest	0.00	0.00%	0.00%
	HILLOCK	4.93	0%	0%	SPECIFIC LAND USE	Hill / Mountain	4.93	0.18%	0.07%
					OTHERS	Others	0.00	0.00%	0.00%
	RURAL SETTLEMENTS	759.98	28%	11%	RURAL	Village/Abadi Area	759.98	27.84%	10.50%
	WATER BODIES	84.97	3%	1%	WATER BODIES	River	0.00	0.00%	0.00%
					WATER BODIES	Ponds	42.62	1.56%	0.59%
					WATER BODIES	Canal	0.00	0.00%	0.00%
					WATER BODIES	Reservoir	5.49	0.20%	0.08%
					WATER BODIES	Stream	36.87	1.35%	0.51%
					WATER BODIES	Lake	0.00	0.00%	0.00%
	SUB-TOTAL (UN-DEVELOPED AREA)	**2730.25**		**38%**			**2730.25**	**100.00%**	**37.72%**

	CLASSIFICATION AS PER RANCHI MASTER PLAN, 2037	Area in Ha.	% of Sub-Total (Developed/ Un-Developed)	% of Planning Area of Zone	Zone F				
					CLASSIFICATION AS PER AMRUT	SUB-CLASSIFICATION AS PER AMRUT	Area In Ha.	% of Sub-Total (Developed/Un-Developed)	% of Planning Area of Zone
	GRAND TOTAL (DEVELOPED + UN-DEVELOPED)	**7237.81[1]**					**7237.81**		**100.00%**

[1] Deviation in the total area of Planning District/Zone form the Master plan, 2037 is due to difference in platform used while mapping i.e. autocad and GIS has been used for Master Plan and Zonal Development Plan respectively.

Table 4-1 Proposed Landuse Plan in Zonal Development Plan, Zone F

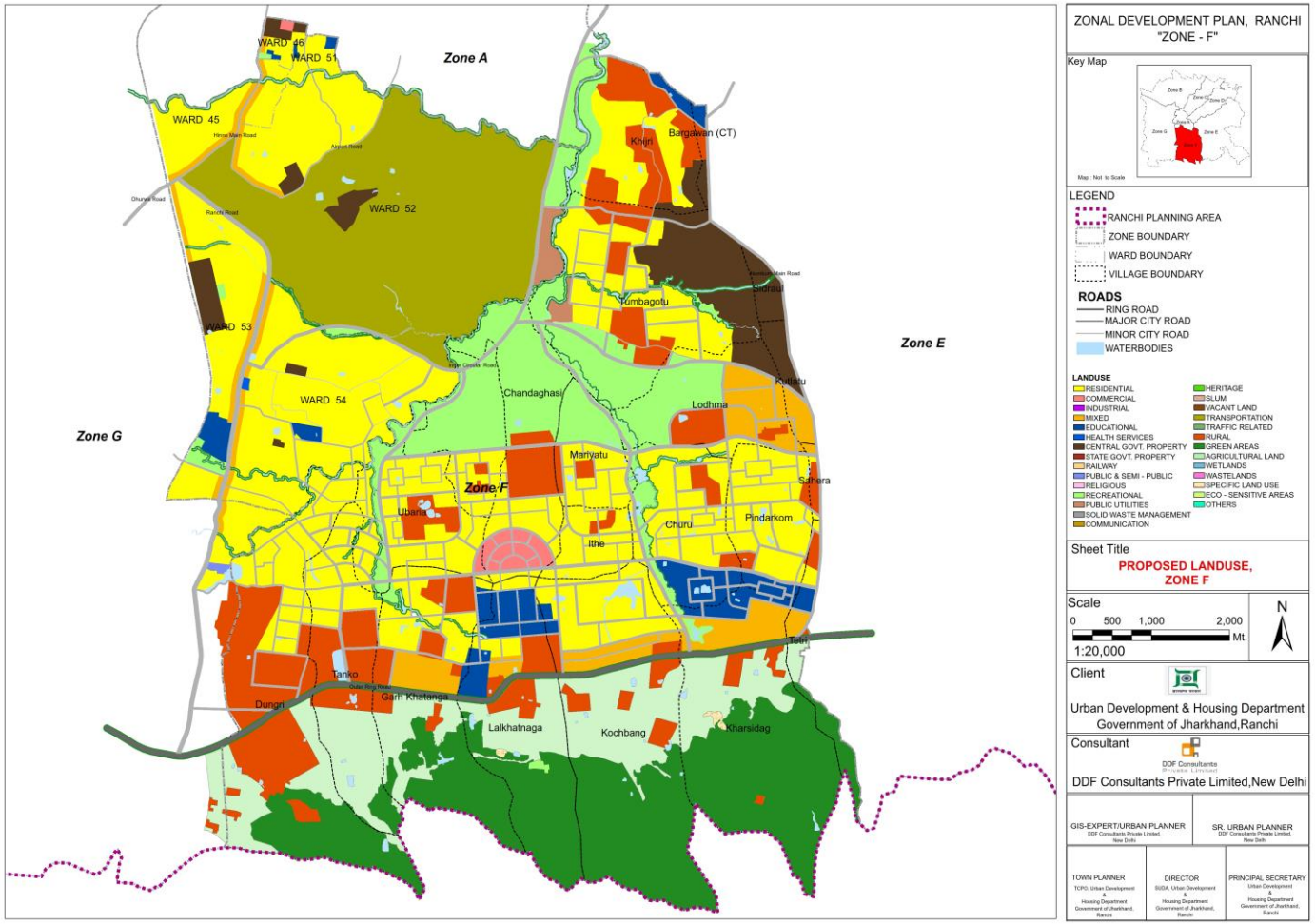
LAND USE	area (sq. Km)	percentage to total planning area
Residential	13.85	21%
Commercial - Retail	0.01	0%
Commercial - Wholesale	0	0%
Composite Use 1	1.83	3%
Composite Use 2	0.09	0%
Public & Semi-Public	1.72	3%
Government Office	0.27	0%
Industries	0	0%
Traffic & Transportation	10.14	15%
Recreational	6.95	10%
Greater Ranchi (Phase- I)	0	0%
Developable Area	**34.86**	**52%**
Army / Defence Area	2.2	3%
Agriculture	20.45	31%
Forest	8.24	12%
Hillock Area	0.17	0%
Village Settlement	0.14	0%
River	0.52	1%
Water Body-Lake, Reservoir	0.43	1%
Undevelopable Area	**32.15**	**48%**
TOTAL	**67.01**	**100%**

Source: Ranchi Master Plan,2037

In zone F, 52% of the land is developed land i.e. residential, commercial, Public Semi Public, Mixed Landuse, Recreation. Whereas, 48% of the land is undevelopable land. This includes area under Agricultural and forest.

Total area under residential is 30.61% of the total area under Zone F. Total area under Public semi Public is 3.06%, which consist of area under school, colleges, hospitals, clinics, public utilities, burial ground etc. (Refer Table 4-1)

Map 4-1 Proposed Landuse in Zonal Development Plan



Source: DDF Consultants Pvt Ltd

4.2 PROPOSED RESIDENTIAL

4.2.1 Proposed Residential Density

Population density as envisaged in the Ranchi Master Plan-2037 varies from low of 250 PPH, medium density 251–300 PPH, high medium density 301-350 PPH and high density of 350 PPH and above. Average density of zone F is low i.e. 250 persons per Hectare. (Refer Map 4-2).

4.2.2 Proposed Subdivision

Table 4-2 Proposed Requirement in Residential Area

		Area in Ha.	Population	Neighbourhood facilities @ 15000	Cluster facility @ 5000
Sub Division 1	Density @ 150	289.92	43487.58	3	9
	Total	**289.92**	**43487.58**	**3**	**9**
		Area in Ha.	**Population**	**Neighbourhood facilities @ 15000**	**Cluster facility @ 5000**
Sub Division 2	Density @ 200	169.41	33881.91	2	7
	Total	**169.41**	**33881.91**	**2**	**7**
		Area in Ha.	**Population**	**Neighbourhood facilities @ 15000**	**Cluster facility @ 5000**
Sub Division 3	Density @ 200	417.78	83556.87	6	17
	Total	**417.78**	**83556.87**	**6**	**17**
		Area in Ha.	**Population**	**Neighbourhood facilities @ 15000**	**Cluster facility @ 5000**
Sub Division 4	Density @ 200	219.63	43926.18	3	9
	Total	**219.63**	**43926.18**	**3**	**9**
		Area in Ha.	**Population**	**Neighbourhood facilities @ 15000**	**Cluster facility @ 5000**
Sub Division 5	Density @ 200	150.41	30083.00	2	6
	Total	**150.41**	**30083.00**	**2**	**6**
		Area in Ha.	**Population**	**Neighbourhood facilities @ 15000**	**Cluster facility @ 5000**
Sub Division 6	Density @ 200	128.67	25733.27	2	5
	Total	**128.67**	**25733.27**	**2**	**5**

		Area in Ha.	Population	Neighbourhood facilities @ 15000	Cluster facility @ 5000
	Density @ 200	128.94	25787.32	2	5
Sub Division 7	**Total**	**128.94**	**25787.32**	**2**	**5**
		Area in Ha.	**Population**	**Neighbourhood facilities @ 15000**	**Cluster facility @ 5000**
	Density @ 200	328.78	32877.51	2	7
Sub Division 8	**Total**	**328.78**	**32877.51**	**2**	**7**
		Area in Ha.	**Population**	**Neighbourhood facilities @ 15000**	**Cluster facility @ 5000**
	Density @ 200	266.90	53380.00	4	11
Sub Division 9	**Total**	**266.90**	**53380.00**	**4**	**11**
		Area in Ha.	**Population**	**Neighbourhood facilities @ 15000**	**Cluster facility @ 5000**
	Density @ 150	183.78	36755.61	2	7
Sub Division 10	**Total**	**183.78**	**36755.61**	**2**	**7**
Grand Total		**2284.21**	**409469.24**	**27**	**82**

Source: DDF Consultants Pvt Ltd

Zone F has been divided into 10 Sub Divisions and each sub division has been proposed with specific density keeping in mind its location. (Refer Table 4-2) Residential blocks along Composite Unit I, II; Public semi-public, integrated district center has been proposed with medium density and the other areas have been proposed with low density.

Each sub divisions are made self-sufficient by proposing number of neighborhood centers and cluster centers. The facilities in each neighbourhood center have been proposed according to the availability of land, availability of public land and spatial equitable distribution. The existing facilities have been kept in mind before proposing new ones.

A neighborhood center is given for a population of 15,000. The facilities including a neighborhood center is a Sr. Secondary School, Dispensary, Community Hall and Library, Electric Sub Station, Local Shopping, Taxi Stand and Neighborhood Park. (Refer

Table 4-3) Total area of a neighborhood center is 3.8ha.

Table 4-3 Details of Neighborhood Centers (One for 15,000 persons)

S. No.	Facilities	Number	Area (Sq.mt)	Total Area (Ha)
1	Sr. Secondary School	1 for 15000	10,000	1
2	Dispensary	1 for 15000	1,000	0.1
3	Community hall and Library	1 for 15000	2,000	0.2
4	Electric Substation 11 KV	1 for 15000	460	0.046
5	Local Shopping incl. Service centre	1 for 15000	4,600	0.46
6	Three wheeler and taxi stand	1 for 15000	500	0.05
7	Neighbourhood Park	1 for 15000	8,000	0.8
8	Neighbourhood Play Area	1 for 15000	8,000	0.8
9	Primary School	1 for 15000	4,000	0.4
	Sub Total A			**3.8**

Source: URDPFI Guidelines, 2014

A cluster center is provided in a residential area with a population of 5000 persons. Total area of a cluster center is 1.8Ha. (Refer

Table 4-4) The facilities included in a cluster center are Primary School, Anganwadi, Community Room, Religious Facility, Housing Area Park, Milk Distribution and Convenient Shopping.

Table 4-4 Details of a Cluster center (one for 5000 persons)

Sr.No	Facilities	Area (Ha)
1	Primary school	0.4
2	Anganwadi	0.02
3	Community Room	0.075
4	Religious Facility	0.04
5	Housing Area Park	0.5
6	Residential Unit Play Area	0.5
7	Milk Distribution	0.21
8	Convenience Shopping	0.15
	Total Area	1.89

Source: URDPFI Guidelines, 2014

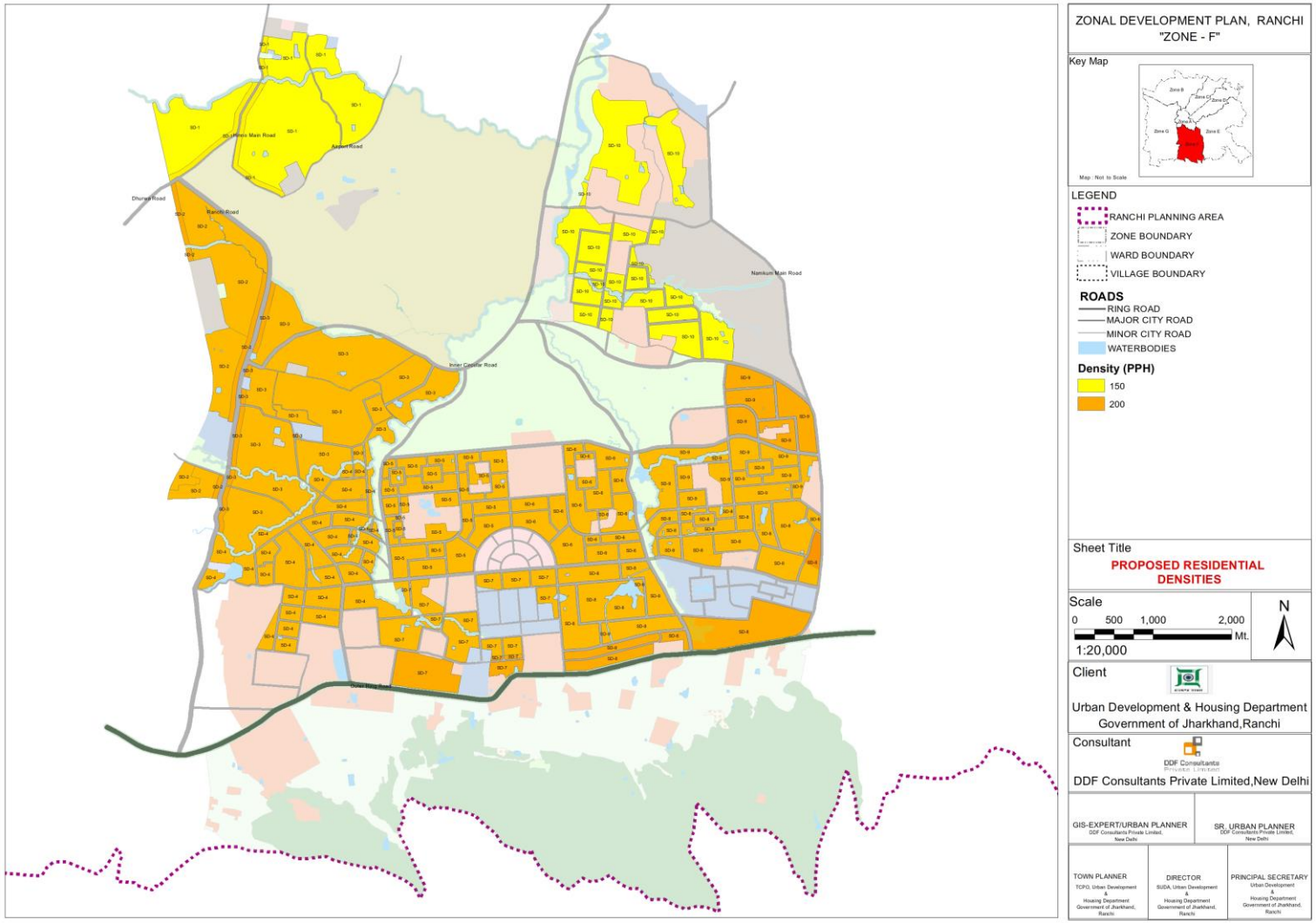
Each proposed sub division has been further detailed with area, density, Population, number of neighborhood and cluster centers.

There are basically small pockets of residence which open up in collector zone / cluster center each chattering a population of 3000 to 3500 which will comprise of daily market, milk booths, play school etc.

All these clusters will be connected through a linkage road, and the neighborhood center will be planned on the outer periphery to ignore the congestion inside module. (Refer **Table 4-4**) There is a green linkage and NMT zone passing through the center of the neighborhood.

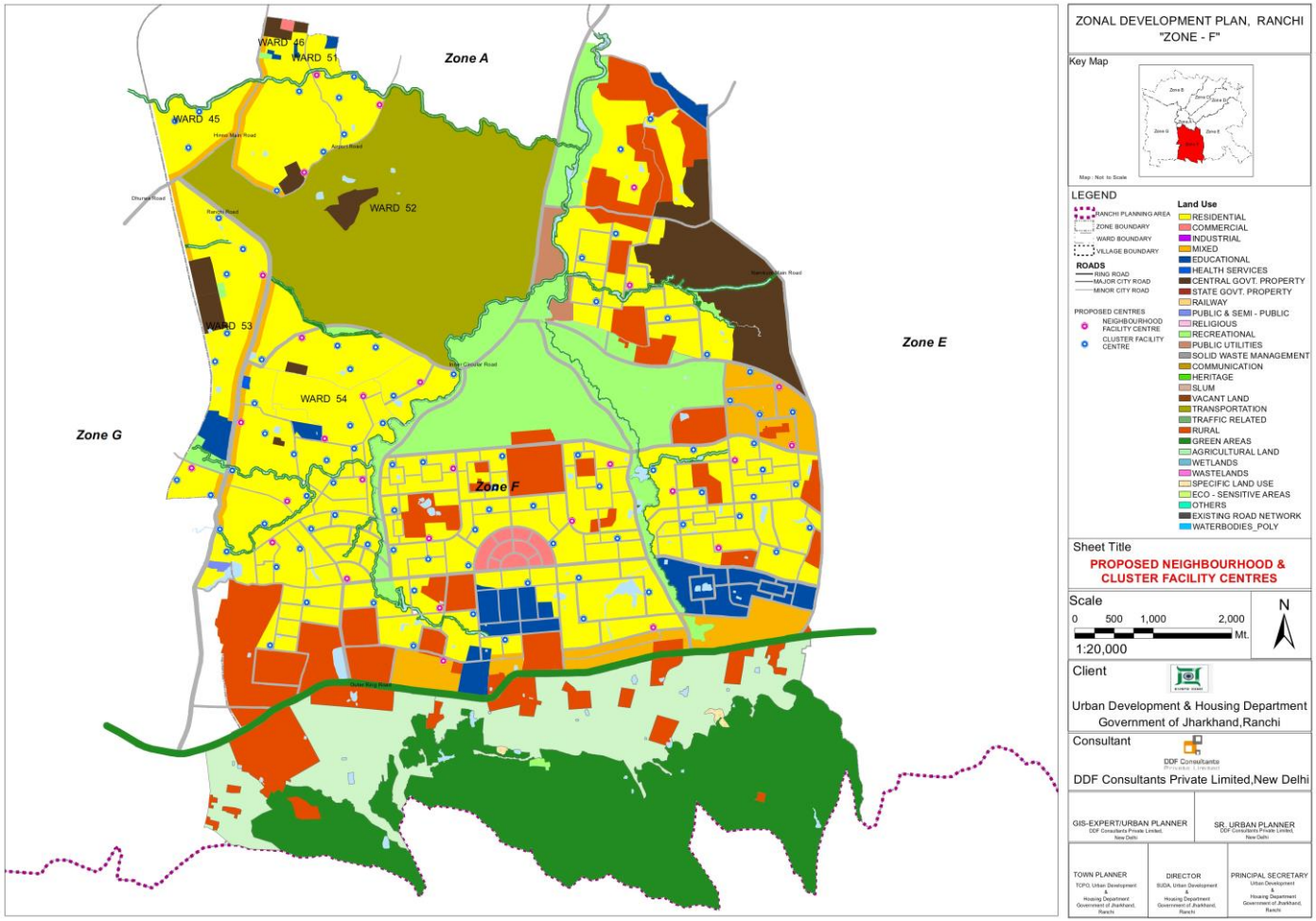
All Neighborhood and clusters have been superimposed on the Khasras to find the availability of the public land. Most of the Neighbourhood and Cluster centres are provided on the public land.

Map 4-2 Proposed Density



Source: DDF Consultants Pvt Ltd

Map 4-3 Location of Neighborhood and Cluster Centers



Source: Prepared by DDF Consultants Pvt Ltd

4.2.3 Proposals for Slums:

The Central Government scheme "Housing for All" with all its four components need to be adopted to deal with the Housing Shortage and Renovation /addition of living rooms.

Curative Strategy:

The objective of curative strategy is to develop options for slum improvement, which includes in-situ up-gradation, in situ redevelopment or re-location. The methodology for this comprises (a) assessment of present status of all slums (b) categorization of slums (c) prioritization of slums and (d) formulation of slum development options for different categories of slums.

Preventive Strategy

The objective of the preparation of the preventive strategy is, to restrict or prevent the formation of slums in future, by bringing in necessary policy reforms and correcting the supply and demand constraints in the housing market. To achieve this objective an analysis of the existing housing market is to be done, which would comprise; estimating existing and future urban poor housing shortage, identification of supply constraints with respect to availability of land and constraining or restrictive land use or housing policies, identification of demand side constraints particularly with reference to availability of affordable housing finance options.

4.2.4 Proposals under Pradhana Mantri Awaas Yojana

Under the Pradhan Mantri Awas Yojana for vertical-3, Ranchi Municipal Corporation has identified 8 clusters in different areas under its jurisdiction. List of the identified cluster under PMAY is as follow:

S. No	Cluster Name	Area Needed
1	Lowadih Hotwar Cluster	7.35
2	Bajra Banhora Cluster	13.19
3	Hehal Banhora Cluster	9.56
4	Bargain Cluster	4.34
5	Sithio Hatia Cluster	1.595
6	Samlong Cluster	2.775
7	HEC Cluster	35.11
8	Hehal Cluster	3.985
	Total	**77.905**

Source: Ranchi Municipal Corporation

None of the cluster falls under Zone F.

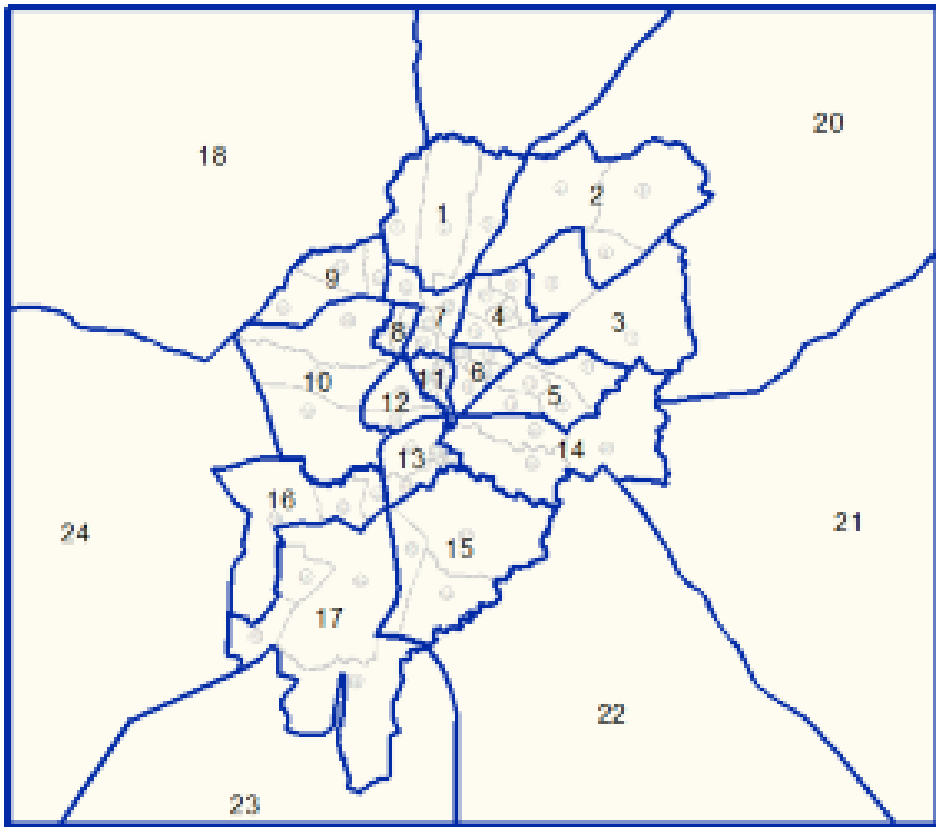
4.3 PROPOSED CIRCULATION SYSTEM

The Vision of the transport development strategies for the study area is to plan, develop, operate and manage an integrated coordinated multi modal transport system which offers high capacity, good connectivity, excellent quality, high productivity and reliability.

On these roads speed is not important as access need predominate and providing parking space is important. As pedestrian movement will be high on these roads wide footpaths, safe crossing with exclusive phase period where signalized, refuge islands, clear markings, good lighting, guard rails, good signage are important components of the roads.

The Master Plan has suggested 17 internal and 7 external traffic zone in the Ranchi out of which majorly 3 traffic zone fall in planning district F i.e Traffic Zone 13, 14, 15

Figure: 3.1 Traffic Zones of Ranchi



Source: Ranchi Master Plan, 2037

The main functional roads recommended can be categorized into following:

- Ring Road
- Circular Road
- City Radials/Axial
- All-purpose roads

It is proposed to develop a hierarchy based road system in the zone comprising of arterial, sub arterial, collector and local road. While the primary arterial roads have a ROW varying between 45 m to 60 m the other city level roads comprise of sub-arterial roads (24-45 m R/W) and collector roads (18-24 m R/W) respectively. For roads within the Central area it is proposed that these will are all purpose roads where the traffic volumes will be high. On these roads speed is not important as access needs predominate and providing parking space is important. As pedestrian movement will be high on these roads wide footpaths, safe crossing with exclusive phase period where signalized, refuge islands, clear markings, good lighting, guard rails, good signage are important components of the roads.

4.3.1 Road Widening

Based on the available R/W and the assigned traffic in year 2037 various up gradation measures of important radial corridors have been identified. These measures include providing for minimum additional lanes feasible within the R/W besides providing of footpaths and utility zones wherever possibilities exists. Road improvement along major roads are mentioned in Table No: 8-1.

Table 4-5 Road Improvement Along major Radial Road

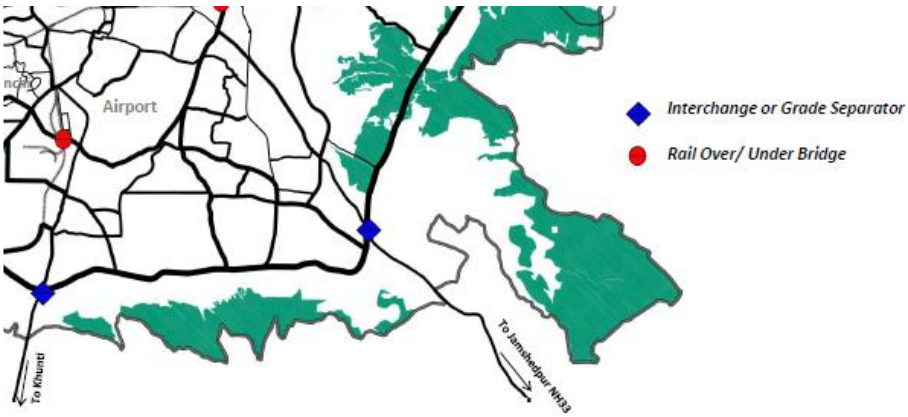
Road Name	Section	Existing Lanes	Proposed Additional Lanes	Footpath
Jaintgarh Road (NH 75)	Khunti Road- Birsa Chowk	4	-	2
Lodhma Road	J.M chowk- Shalimar Market	3	3	2
	Shalimar Market- Hinno Chowk	3	1	2
	Hinno Chowk- Dorando	3	1	1.5

Source: Ranchi Master Plan, 2037

4.3.2 Grade Separators

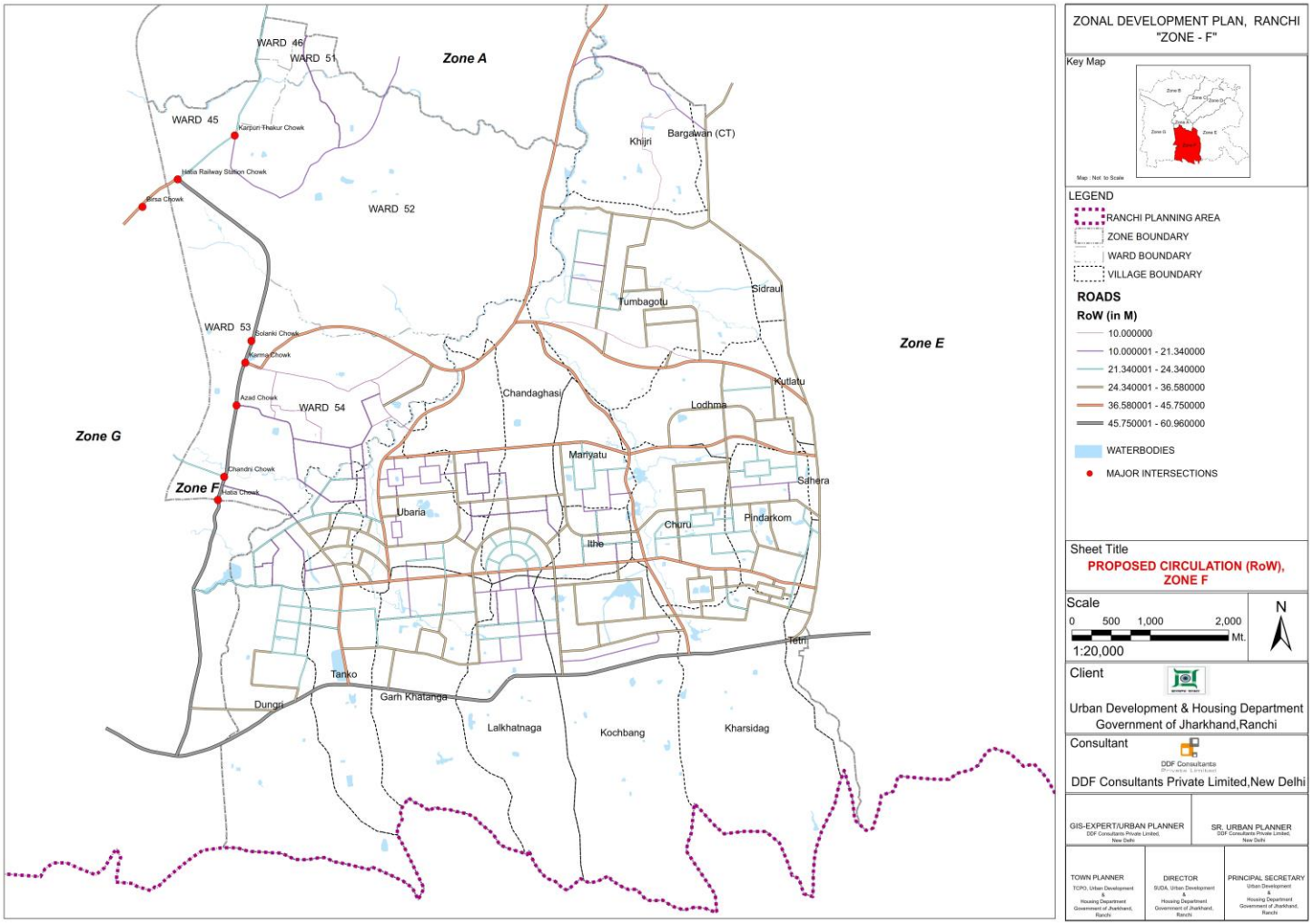
Keeping in view the projected traffic at major intersections by the year 2037 and the criteria that major travel corridors of the city, namely the Ring Road, Circular Road and the radial roads provide seamless traffic movement along it is proposed to develop 5 grade separators at different locations in the zone as per details below. There is one grade separator on road to Khunti. (Refer Figure No. 4-2)

Figure 4-2 Grade Separators in Zone F



Source: Ranchi Master Plan, 2037

Map 4-4 Proposed Circulation Map (ROW)



Source: DDF Consultants Pvt Ltd

4.3.3 Airport

The existing Birsa Munda Airport of Ranchi is a public domestic airport serving the city of Ranchi, Jharkhand, India and is managed by the Airports Authority of India. It is located in Hinoo locality, approximately 7 km from the centre of the city. The airport is spread over an area of 223 hectare and is presently handling about 8 lakhs passengers per annum. It is also considered as one of the fastest growing small airports in the country. The airport has an terminal with a capacity of handle 700 passengers per day comprising 200 and 500 domestic passengers. Keeping in view the potential of traffic growth in the horizon year it is proposed to augment the land area of the airport to 794 hectare around the existing airport site by 2037. Further it is also proposed to improve the land side connectivity of the airport with different parts of the city through an improved public transport system facilitated as part of the overall bus services operationalization plan. In addition feeder services need to be operated between the airport and the proposed LRT system.

4.3.4 TOD Zone

Although metro route is proposed in Zone F, but TOD Zone will not be proposed here as there is Birsa Munda Airport adjoining them.

Intensive development will take place nearby the airport area as per the guidelines and permission of Airport Authority of India.

4.3.5 Bus System

It is recommended that the entire intra-city bus services route network system is reorganized by developing a hierarchy of bus terminals. At the highest level are the nodal terminals, followed by sub-nodal terminals and at the lowest level are the area terminals. It is proposed that the concept of direction oriented services need to be adopted. In this context 'Hub and spoke' form of network system provides good scope for organizing the bus services. As part of this concept direct, fast and frequent bus services are to be operated amongst the nodal bus terminals.

4.3.6 Parking

To promote development of off-street parking facilities in association with private sector. There is a need to prescribe 'compounding fees' rate from time to time, by location. This strategy may be applied in central areas where demand for space is high, availability is low and opportunity costs are high. Off street parking's are proposed District Center and around

MRTS Stations, IT Park and City center area. The On street parking proposed in and around Composite zone.

In all buildings including Apartment buildings/ Group Housing, Hotels, Restaurants and Lodges, business buildings, commercial buildings, Institutional buildings like hospitals, Educational buildings like schools and colleges, multi-storied buildings/complexes etc. and all other non-residential activities provision shall be made for parking spaces as per the requirements mentioned in table below. (Refer Table 4-6)

Table 4-6 Parking Standard in Zone F

Sr. No.	Category of building/ activity	Parking area to be provided as percentage of total built up area
1	Shopping malls, Shopping malls with Multiplexes/ Cineplex's, Cinemas, Retail shopping center and marriage halls and banquet halls	35
2	IT / ITES complexes, Hotels, Restaurants, Lodges, Nursing Homes, Hospitals, Institutional and other commercial buildings, Assembly buildings, offices, and Industrial buildings and High-rise buildings and complexes.	30
3	Residential Building, Residential apartment buildings, Group Housing, Clinics and small offices up to 50 sqm.	25

Source: Ranchi Master Plan, 2037

4.4 PROPOSALS FOR PHYSICAL INFRASTRUCTURE

4.4.1 Water Supply

Norms adopted for water supply in the city are as under

- 100% houses will be supplied with piped filtered water by the year 2037.
- 100% houses will be connected to Municipal Sewerage System requiring flushing of toilets;
- Adequate water for firefighting will be stored for entire Planning Area;
- Per capita gross domestic water requirement inclusive of general light industrial, commercial, institutional, firefighting, and floating population, works out to 155 Lpcd (Including 15% transmission loses) for Urban Area;
- Water demand for proposed industrial areas should be estimated as 45,000 liter/hectare/day.

Table 4-7 Projected Water Demand Domestic in RPA-2037

Planning Unit	Places Covered	Population 2037	Domestic Water Demand (in MLD)
PU-11	Ward 45, 46, 51, 52, 53, 54, Khijri (219), Tumbagutu (301)	2,32,390	36.02
PU-12	Kutetoli (299), Oberiya (297), Mariyatu (303), Chandaghasi (300), Ithe (304), Dungri (294), Tanko (295), Garhkhatanga (296), Lolkhantanga, 305), Gundu (268) and Kochbang (306), Lodhma (302), Churu (327), Pindarkom (328) and Kharsidag (326)	2,66,475	41.30

Source: Ranchi Master Plan, 2037

Total Gross Water demand in zone F for the year 2037 is 80.63 MLD where domestic water supply is 77.32MLD and Industrial and Institutional water demand is 3.31 MLD. The water supply system of the city is maintained by three agencies viz. Drinking Water & Sanitation

Department (DWSD)-Govt. of Jharkhand, Ranchi Municipal Corporation (RMC) and Public Health Engineering Department (PHED) through their existing system. Beside heavy industrial area like H.E.C. also have their own independent supply system for their areas, which has their own future plans. The main sources of water for the city are the three reservoirs constructed on river Subernarekha at different locations. The water stored in these reservoirs is draw by intake pumps and treated in water treatment plants before supply to the users. The water level of the river Subernarekha varies drastically during monsoon and summer seasons. The river is almost dry during the summer period and during monsoon period; the water level of the river sometimes goes higher than ground level of the city at some locations and stays so for many days. Thus, storage of river water during the peak rainfall period and augmentation of the reservoirs capacity are the appropriate options to meet the increasing demand of water.

4.4.2 Sewerage System

Presently, the Ranchi Planning Area (RPA) does not have any integrated sewerage system except for certain pockets such as H.E.C. Colony and MECON Colony having their own independent system. There are generally septic tanks in Ranchi. The effluent is released untreated into the nearby drains and low-lying areas. Similar is the case of industrial wastewater. In case of septic tanks, the soak pits are becoming non-functional in many areas because of high sub-soil water table within a short span of time. The city also has public toilets facilities located at public places i.e. bus terminals, Firayalal commercial area, near DC office, slum areas etc.

A Sewerage Treatment Plant (STP) of 4-MLD capacities is located near Kanke dam to prevent water contamination of the Kanke reservoir.

Considering the various factors, the per capita wastewater generation would be 80% of the water supply. Zone F falls under Sewerage zone 2, 5 and 6 therefore the wastewater generated 2037 is 116.81 MLD. (Refer Table 4-8)

Table 4-8 Estimated Domestic Waste Water Generation in Ranchi

Sewerage Zone	Planning Unit/ Area Covered	Projected Population (Year – 2037)	Generated wastewater in MLD (Year 2037)
1	PU-3 (100%), PU-4(98%), PU-5(50%), PU-6 (90%), PU-8 (70%), PU-9 (2%), PU-14(50%)	9,41,999	116.81
2	PU-1(90%), PU-2(50%), PU-6(5%), PU-11(20%), PU-13(20%), PU-14(50%)	5,41,757	67.18
3	PU-1(10%), PU-2(50%), PU-4(2%), PU-5(50%), PU-6(5%), PU-7(70%)	4,19,620	52.03
4	PU-7(30%), PU-8(30%), PU-9(98%)	3,51,460	43.58
5	PU-10(100%), PU-11(20%), PU-12(90%)	5,10,106	63.25
6	PU-11(60%), PU-12(10%), PU-13(80%)	3,92,694	48.69
	Total	31,57,636	391.55

Source: Ranchi Master Plan, 2037

Waste water generation of zone F can be estimated from sewerage zone 2, 5 and 6.

Sewerage Zone in Ranchi City

4.4.3 Drainage

Ranchi Town has undulating topographical features facilitating proper drainage throughout the city. The city is sloping away in all four directions more or less from centre and the Subernarekha River passing through the city with its tributaries like Nati Nadi, Hinoo Nadi, Harua Nadi, Harmu Nadi, as evident in the following natural drainage pattern map.

In addition there are numbers of nallah out falling into these tributaries. The storm runoff from the city thus finds its way to various nallah and tributaries of Subernarekha River through roadside drains. As described earlier that due to absence of any sewerage system these roadside drains are receiving all sullage water causing health hazards.

Details of the Catchment Area in Planning Area

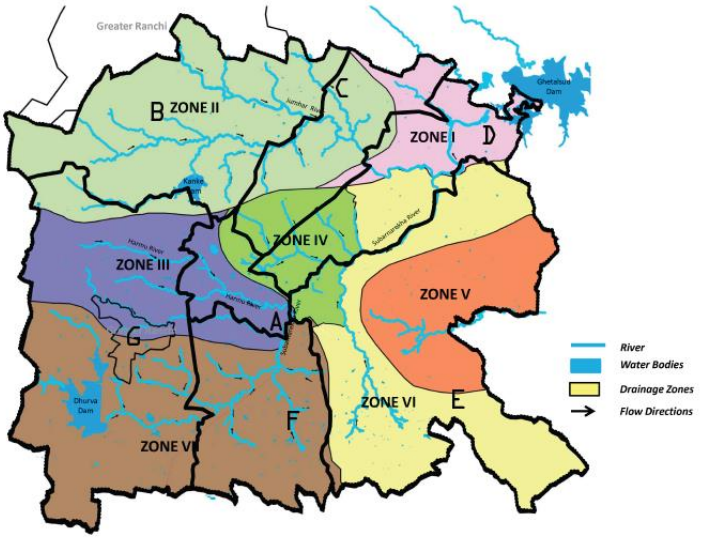
Drainage Zone: VII

Catchment Area: 16167.4

Flow Direction: West to North-East direction

Major Drainage Channel in Catchment: Subarnarekha River and its tributaries

Drainage Zones in Ranchi



4.4.4 Solid Waste Management

Each ward of Planning Unit 11 and 12 will be having solid waste collection center and from this center solid waste will be transported to land fill site. The door to door solid waste collection route is given in the Map. The location of dustbins will be strategically placed at convenient points in all wards.

a. Organizing house-to-house collection of municipal solid wastes through:
    a. Community bin collection (central bin) for the slum and low income community on a regular pre-informed timings and scheduling
    b. House-to-house collection on a regular pre-informed timings and scheduling by using bell ringing of musical vehicle for the more affluent areas.
    c. Collection of waste from hotels, restaurants, office complexes and commercial areas on a regular pre-informed timings and scheduling
    d. Encourage performance based incentives to enhance efficiency and output.
b. Segregation of Municipal Solid Wastes. Organize awareness programmes for segregation of wastes and promotion of recycling or reuse of segregated materials, undertaken in a phased programme to ensure community participation.
c. Bio-medical wastes and hazardous industrial wastes to be segregated from municipal solid wastes for separate incineration
d. Wastes from slaughter houses, meat and fish markets, fruits and vegetable markets, which are biodegradable in nature, to be separately collected and managed to make use of such wastes;
e. Collected waste from residential and other areas to be transferred to community bin by hand-driven containerized carts or other small vehicles;

Sustainable Waste Management[2]- Zero Waste is a concept of waste management and planning approaches that emphasize waste prevention as opposed to end waste management. This means restructuring production and distribution systems, designing and managing products and processes to systematically follow the 3R rule of Reduce, Re-use and Re-cycle the volume of waste, to conserve and recover all used resources, and therefore eliminating all discharges to landfills, and prevent air, water and land pollution.

[2] Model Building Bye-Laws- 2016

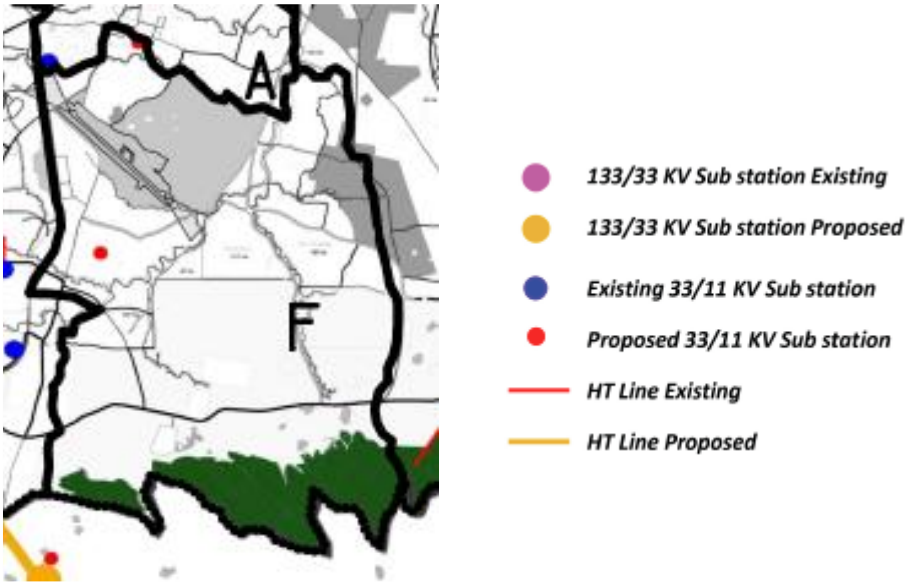
Zero Waste/ land-fill can be achieved by adopting systematic approach of segregation at source by planning, by collection facilitation and most importantly by creating public awareness. The green waste can be converted into fuel cakes, kitchen waste into manure, construction & demolition waste into bricks, plastic waste into oil, paper, glass and steel back into the same and all residual inert materials can also be converted into bricks.

4.4.5 Electricity and power supply

The electric power for Ranchi agglomeration including some of the adjoining villages is supplied from the power generated by Patratu Thermal Power Station (110 MW) and Sikidiri Hydel Power Station (110 MW). The design capacities of both these power generation sources are 840 MW and 130 MW respectively.

The Ranchi city is getting power from two 132/33 KV Grid Sub Stations established at Hatia and Namkum. The total installed capacity of these GSS is 400 MVA (8 x 50 MVA). The present power supply in Ranchi city is 220 MVA, which is being catered through 26-Nos of 33/11 KV power sub-stations established in various part of the city. The present requirement of power in Ranchi city is 390 MVA. Thus, there is a gap of 170 MVA at present.

Location of Electric Sub Station in Zone F



In Zone F, there is one Electric Sub station, 33/11KV proposed.

4.5 PROPOSALS FOR COMMERCIAL

Hierarchy of commercial centers have been proposed in Ranchi with 5 tiers (Refer Table 4-9) i.e.

- Central Business District
- District Commercial Centre
- Community Commercial Centre
- Neighborhood Commercial
- Cluster Centre

Table 4-9 Hierarchy of Commercial Centers

Central business District	**District Commercial Centre**	**Community Commercial Centre**	**Neighborhood Commercial Centre**	**Cluster Centre**
Tier I	Tier II	Tier III	Tier IV	Tier V
Population				
5 lakh and Above	About 4-5 Lakh	About 1-1.5 Lakh	About 12-15 thousand	5000
Area				
99Ha	40Ha	5.4Ha	0.46Ha	0.11Ha
Land Requirement per Thousand Persons				
	800 sq.mt.	540Sq.mt.	306Sq.mt.	220Sq.mt.
Activities Permitted	The City Commercial Centre would be a modern commercial Centre with multi-story commercial buildings and shall have major retail shopping malls, multi-story commercial offices, banks, hotels, restaurants, and cine complexes	Shopping (Retail Service, Repair & limited Wholesale) Informal Shopping, Commercial Offices, Cinema, Hotel, Guest House, Nursing Home, Service Industries: Auditorium, Museum, Library, Science Centre.	Shopping (Retail Service, Repair Informal Shopping, Commercial Offices, Cinema, Hotel, Guest House, Nursing Home).	Shopping Retail Service, Repair Informal Shops, Commercial Offices, community hall and library.

Source: Ranchi Master Plan, 2037

In Zone F apart from the composite use or mixed use along the roads Integrated District Center (IDC - 3) having total area of 100 ha. and Integrated Commercial Center (ICC- 11) having total area of 21.94 ha. are proposed. Summary of the land uses proposed in the Master plan, 2037 for each center is as follows:

Table 4-10: Summary of the Integrated District Center (IDC-3) and Integrated Commercial Center (ICC-11)

S. No	Land Use Category	ICC-11	IDC-3	Total	% Of Land Use W.R.T Planning Area
1	Health	1.90	8.10	10.00	0.00
2	Educational	1.50	10.40	11.90	0.00
3	Public Semi-Public	5.42	6.54	11.96	0.00
4	Commercial	0.67	18.82	19.50	0.00
5	Recreational	10.00	40.00	50.00	0.00

S. No	Land Use Category	ICC-11	IDC-3	Total	% Of Land Use W.R.T Planning Area
6	Public Utility	2.30	1.00	3.30	0.00
7	Communication	0.03	0.25	0.28	0.00
8	Religious	0.10	0.00	0.10	0.00
9	Transportation	0.01	10.27	10.29	0.00
10	Residential	0.00	2.70	2.70	0.00
11	Industry	0.00	1.81	1.81	0.00
12	Religious	0.00	0.10	0.10	0.00
	GRAND TOTAL	**21.94**	**100.00**	**121.94**	**0.00**

Source: Ranchi Master Plan, 2037

Details of the facility centers along with the areas is explained here.

4.5.1 Integrated District Center (IDC-3)

Integrated District Center (IDC -3) is located in Lodhma village (thana no 302) and it is accessible from T2 category (ROW 45 mt.) Of the roads. Numerous facilities such as Hospital, college, women hostels, and hospital for pets, space for commercial offices and government offices, parks and play field etc. has been proposed. Details of the facilities along with required area is as follow:

Table 4-11: List of the facilities included in the Integrated Commercial Center (ICC -11)

S. No	Land Use Category	Description	Required in Nos.	Total Area in Ha.
A				**30.15**
1	Public and Semi-Public	Auditorium	1	0.770666667
2	Public and Semi-Public	Museum	1	0.770666667
3	Public and Semi-Public	Reading Room	1	0.770666667
4	Educational	Science centers, Art/Craft/Music/Dance/School	1	0.1
5	Commercial	Hotel	1	0.12
6	Commercial	Commercial Offices	1	9.04
7	Public and Semi-Public	Guest House	1	0.05
8	Public and Semi-Public	Bank & ATM	1	0.03
9	Health	Nursing Home	1	0.3
10	Public and Semi-Public	Library	1	0.2
11	Public and Semi-Public	Fire Station	1	1
12	Public and Semi-Public	Police Station/Post	1	1.5
13	Communication	Telephone Exchange	1	0.25
14	Public and Semi-Public	Post Office	1	0.15
15	Public Utility	Electric Sub-Station	1	1
16	Residential	Essential Residential	1	2.7
17	Commercial	Shopping (retail, services, repair)	1	6.789
18	Commercial	Informal Shopping	1	0.2

S. No	Land Use Category	Description	Required in Nos.	Total Area in Ha.
19	Commercial	Weekly Markets (on Close Days)	1	0.4
20	Commercial	Convenience Shopping	1	0.15
21	Commercial	Cinema	1	0.2
22	Industry	Service Industries excluding petrol pump etc. (6 % of the area)	1	1.809
23	Commercial	Petrol Pump (36 x 32 mt.)	1	0.1152
24	Transportation	Bus Terminal	1	0.0145
25	Commercial	Limited wholesale & Mandi	1	1.809
26	**Sub Total**			**30.2387**
	Facility Centre (Fc-10)			
27	Health	General Referral Hospital (500 beds)	1	6
28	Health	Intermediate Hospital B (80 Beds)	1	1
29	Health	Hospital for Pets	1	0.2
30	Public and Semi-Public	Old age home	1	**0.1**
31	Public and Semi-Public	Orphanage	1	**0.1**
32	Public and Semi-Public	Working Men / Women hostel	1	**0.1**
33	Educational	Schools for Handicapped	2	**1.4**
34	Health	Nursing Home	2	**0.6**
35	Educational	General College	1	5
36	Educational	Integrated School with Hostel	1	3.9
37	Religious	Religious Buildings	1	0.1
38	Public and Semi-Public	Fire Station	1	1
39	Recreational	District Park and Play Areas	1	25
40	Recreational	District Socio-Cultural Hub	1	5
	Sub Total			**49.5**
41	Recreational	Parks and Play Area	1	10
42	Transportation	Parking and Circulation Area	1	10.26
		GRAND TOTAL		**100.00**

Source: Ranchi Master Plan, 2037

4.5.2 Integrated Commercial Center

Integrated Commercial Centre (ICC-11) having total area of 21.94 hectare is located in the village Chondaghasi (thana no 300) and accessible through T3 category (ROW 30.48 mt.) of roads proposed in the Master Plan, 2037. List of the facilities proposed in the ICC-11 is as follows:

S.No	Land Use Category	Description	Required In Nos.	Area In Ha. Per Unit	Total Area In Ha.
1	Health	Intermediate Hospital B (80 Beds)	1	1	1
2	Health	Polyclinic	1	0.3	0.3
3	Health	Nursing Home	2	0.3	0.6
4	Educational	Schools For Handicapped	2	0.7	1.4
5	Public and Semi-Public	Telegraph Booking Counter	1		0
6	Educational	Music & Drama Centre	1	0.1	0.1
7	Public and Semi-	Community Centre With Service	1	5	5

S.No	Land Use Category	Description	Required In Nos.	Area In Ha. Per Unit	Total Area In Ha.
	Public	Centre			
8	Commercial	Organized Informal Sector	1	0.2	0.2
9	Recreational	Sport Centre	1	3	3
10	Commercial	Sko/Ldo Outlets /Retail Outlet	1	0.46	0.46
11	Public Utility	Electric Sub-Station-66 Kv	2	1	2
12	Public Utility	LPG Godown	2	0.15	0.3
13	Communication	Remote Subscriber Unit (Rsu)	1	0.03	0.03
14	Religious	Religious Building	1	0.1	0.1
15	Public and Semi-Public	Night Shelter	1	0.1	0.1
16	Transportation	Bus Terminal	1	0.0145	0.0145
17	Commercial	Petrol Pump	1	0.0148	0.0148
18	Public and Semi-Public	Police Post	2	0.16	0.32
19	Transportation	Parking			0
20	Recreational	Community Park	1	5	5
21	Recreational	Play Area	1	2	2
		Grand Total		**18.0293**	**21.9393**

Source: Ranchi Master Plan, 2037

4.5.3 Composite Use

Ranchi Master Plan, 2037 has proposed composite use as mixed land use. In which two categories named as composite use – 1 and composite use -2 is proposed along the roads. To achieve the distribution of land use according to the URDPFI guidelines, it is proposed to develop 50 percent of the land use as purely commercial area.

4.5.4 Proposals for Informal Sector

The vendors in the wards will be registered by the Ranchi Municipal Corporation and each will be assigned with the identity card.

The vending zone will be demarcated and following facilities will be provided -

- Provisions for solid waste disposal
- Public toilets to maintain cleanliness
- Aesthetic design of mobile stalls/ push carts
- Provision for electricity
- Provision for drinking water
- Provision for protective covers to protect their wares as well as themselves from heat, rain, dust etc.
- Storage facilities including cold storage

4.6 URBAN RENEWAL

Urban renewal is a process of up-gradation/re development of substandard areas. It involves the relocation of businesses, the demolition of structures, the relocation of people, and provision of Urban Infrastructure. In Zone F, there are a few areas in Ward 45, 46, 51, 52, 53, 54, which may have any buildings and areas for urban renewal.

For redevelopment of inner (old) city areas, this would include items like – improving the livability of a city by means of revitalization, rejuvenation, redevelopment, regeneration or rehabilitation of the current scenario by widening of narrow streets, shifting of industrial/commercial establishments from non-conforming (inner city) to 'conforming' (outer-city) areas to reduce congestion, slum improvement, improving the public realm; replacement of old and worn-out water pipes by new/higher capacity ones, renewal of sewerage/drainage/solid waste disposal systems, etc. There are five dimensions of Urban Renewal.

4.6.1 Need for Urban Renewal

- **Public Realm**

Public realm is a major part of a city. This a zone in a city where every individual visit may be daily or once in a while depending on the individual daily regular schedule.

- **Last Mile Connectivity**

City already has a layer of public transport but is not well used by general public. It is because it fails to prove that it is more efficient than private transport. Thus ZDP looks towards providing last mile connectivity and strengthening the layer of public transport.

Master plan has proposed revised Bus Route but proper Bus Shelter and NMT Stand with all these Shelters will be provided which should connect the passenger to their respective door steps.

- **Accessibility**

City has been provided by many infrastructure in the public realm and on the streets but people don't use them reason being they are not accessible. Thus all the infrastructure provided need to be relooked keeping in mind all should be accessible by handicapped,

blind and children's. ZDP also looks towards making the pedestrian street parking free by proposing new parking zones or Multi Level Parking

- **Skyline and Street Façade (view and vista)**

Every city has its own culture and tradition which get reflected through the street façade and the morphology of the place. While walking or travelling along a street the façade and morphology speaks about a city and it gives a feeling of homeliness and introduce the tourist and visitor about the place. Thus there has to be some continuity in the facade and the skyline. This will also improve the natural lighting and ventilation in the existing buildings.

5 COMPLIANCE OF GOVERNMENT POLICIES

5.1 Jharkhand Transit Oriented Development 2016-2026

JTODP is meant to provide a strategic framework for Jharkhand's cities to proactively plan for future residential, commercial, and other development, within a compact city form, so that 60% or more of its citizens can have access to their shelter and work as well as other public amenities by using high quality mass rapid transit (MRT), which in turn can be accessible within walking distance from all these points.

Initiatives Proposed for JTODP's Implementation

i. Identifying and building a wide network of MRT corridors by:

- GoJ assisting cities to develop high quality rapid transit that is cost- effective, reliable, convenient, safe and accessible by all regarless of age, income, gender, ability or social standing.
- GoJ providing statutory backing for MRT corridors in development and transportation policies/plan. In turn, the plans shall specify the alignment of these corridors as well as delineate right of ways, as applicable, for creation of these transit modes.
- GoJ and city governments and other public authorities concerned in JArkhand identify land for instituting and/or expanding other PT infrastructure such as bus depots, terminals

ii. Development based on access to MRT and not on road width whereby landuse plans and regulations.

- Delineate high intensity development zones – called TOD zones – to a distance of 400 Meters on either side of MRT corridors.
- Plan to accommodate 60% of the built –space needs (housing, commercial, social) of the future population through development, and/or redevelopment, of existing land in the TOD zones.
- Provide additional FAR in TOD zones on premium basis as compared to non-TOD zones and remove all existing regulations on FAR based on road width. The additional FAR in TOD zones can be premium FAR.

- Maximize use of FAR by also removing other restrictions on building- height, coverage, and bulk (other than the minimum fire safety access standards as well as by eliminating front setback requirements)
- Encourage densification along TOD zones in the policies governing land management such as Transfer of Rights (TDR) such that TOD zones shall act as receiving zones for TDR generated on other non – TOD zones within the city.

iii. Intense mixed use development along MRT networks such that/ or to ensure that:

- Landuse plans and development regulations encpurage rezoning of plots in TOD zones to allow mixed residential or commercial development.
- For developments whose plot area is 2000 sq.mt. or more, their residential use must account for no more than 85% and no less than 15% of the total developed floor area.

iv. Promote prioritized development of low cost housing through land use planning and regulation that, also, particularly:

- Requires reservation of 20% of the total permissible FAR, for plots measuring, 2000sq.mt. or more, for housing for EWS, with dwelling units of size 25040 sq.mt. as well as requires cities to ensure development of low cost housing in TOD zones. The latter could be done by redevelopment of existing public land through means such as public –private partnerships, or joint ventures or other means necessary/desirable and by adopting measures that duly incentivize such initiatives.

v. Develop a fine grid of streets with walking and cycling facilities which:

Improve access to transit and hence, include – in the transporation and landuse plans – comprehensive street network sub plans for TOD zones, whereby, public streets shall be developed for a block of every 1 hectare or less, and appropriate provisions shall be made to create new access streets.

vi. Build building that support street life by:

- Including in the land use plans urban design guidelines meant to ensure that streets are active and vibrant at all times of the day.
- Requiring that building edge(s) on all plot abutting public road(s) are continuous to a minimum height of 7.4 meters from the road level, with habitable space

inside and requiring that for plots along MRT corridors, a minimum of 80% of plot frontage should comply with this, whereas, for other plots, a minimum of 50% of plot frontage should comply with this.

vii. Restrict PMV use and ownership by adopting, at the very minimum, parking management strategies. Shifting PMV users to PT modes is critical because PMV's occupy the most road space per person as compared to PT modes while in motion or when parked. The precious road space PMVs take up can be used more efficiently and equitably. Moreover, it is important that the use of the road space by PMVs is, duly, paid for. Hence, it is critical that Jharkhand's cities adopt parking management strategies that restrict parking supply even as they charge market-based fee for on street and off street parking.

Key Considerations and Initiatives Proposed for JTODP's Implementation

GoJ and ULGs and other public authorities concerned in Jharkhand shall work in collaboration to develop land use and transportation plans of cities that will, by 2019 or in the next DP for a city, necessarily provide for:

i. Identifying and building a wide network of MRT corridors by:

- GoJ assisting cities to develop high quality rapid transit that is cost –effective, reliable, convenient, safe and accessible by all regardless of age, income, gender, ability or social standing.
- GoJ providing statutory backing for MRT corridor in development and transportation policies/plans. In turn, the plans shall specify the alignment of these corridors as well as delineate right of ways, as applicable, for creation of these transit modes.

Development based on access to MRT and not on road width whereby land use plans and regulations:

- Delineate high intensity development zones – called TOD zones – to a distance of 500 meters on either side of MRT corridor.
- Plan to accommodate 60% of the built-space needs (housing, commercial, social) of the future population through development, and /or redevelopment, of existing land in the TOD zones.

- Provide for FAR in TOD zones to be at least three times higher as compared to non-TOD zones and remove all existing regulations on FAR based on road width. The additional FAR in TOD zones can be premium FAR
- Maximise use of FAR by also removing other restrictions on building- height, coverage, and bulk
- Encourage densification along TOD zones in the policies governing land management such as Transfer of Development Rights (TDR) such that TOD zones shall act as receiving zones for TDR generated in other non-TOD zones within the city.

Intense mixed use development along MRT network such that and/ or to ensure that:

- For development whose plot area is 2000 sq.mt. or more, their residential use must account for no more than 85% and no less than 15% of the total developed floor area.

5.2 Draft Policy on Affordable Housing for All –Urban Area in Jharkhand, 2015

Objectives:

- To create a comprehensive, holistic policy framework to address all aspects of housing for the urban poor including slum rehabilitation and redevelopment as well as new housing and rental housing.
- To promote inclusive mixed housing development in all new housing projects, both in the public and private domain.

Strategies:

Supply side strategies:

- Mandate the provision of affordable houses for urban poor as part of all new housing development projects both in public and private domains and to provide adequate incentives to make such mandatory provisions viable.
- Create a policy framework for public private partnerships in affordable hosuing where the government land for the purpose
- All land identified for promoting Housing Projects would be constituted into a Housing Land Bank under the control of UD&H Department
- Integrate the policy framework for slum rehabilitation and redevelopment with affordable housing policy.

Demand side strategies

- Establish transparent processes for matching beneficiaries with projects for allotment of houses

Service Level Strategies:

- Establish responsibility framework, integrate and coordinate various government agencies responsible for provisioning of basic services at the location of housing development by the Project Development Agencies (PDA) in any of the Models under the policy.

Models under Housing for All (HFA) Policy in Jharkhand

Model 1: Mandatory Development of EWS Housing
Model 2: Development of Affordable Housing Projects
Model 3- In-Situ Slum Redevelopment
Model 4 – Relocation and Rehabilitation
Model 5 – Beneficiary – Led Individual Housing Construction and Enhancement
Model 6- Credit Linked Subsidy (under Pradhan Mantri Awas Yojana)
Model 7: Rental Housing
Model 8 : Housing Projects by Cooperatives Societies

5.3 Jharkhand Tourism Policy, 2015

OBJECTIVES

The tourism policy of the State aims at making Jharkhand as one of the most preferred destination for tourists, both inside and outside of the country and to ensure accelerated development of tourism related infrastructure, increasing employment opportunities, augmenting the resources of the State as also showcasing the rich cultural heritage and traditions of the State.

STRATEGY

- Government will act as a facilitator/ catalyst by providing support infrastructure facilities, which includes way side amenities centres, tourist information centres, facilities for holding/ organizing craft melas, transport services and a platform for organizing festivals / events.
- Provide basic infrastructure, viz roads, better air connectivity, rail network and encourage joint public – private initiative in this regard.
- Conducting a detailed survey of tourism potential of every district of the State so as to optimally utilize such potential and achieve the objectives set forth.

- Setting up of minimum standards for tourism units and introduction of an incentive scheme to facilitate active private sector participation for tourism infrastructure development and promotion.
- Having strategic joint ventures with private tour operators for setting up tourist packages/ services. Reorganization of circuits for integrated development, publicity, promotion and marketing. Each circuit will have a specific and exclusive marketing strategy and marketing plan.

5.4 Jharkhand Export Policy,2015

Jharkhand is endowed with abundant mineral resources and has vast potential for increasing exports in various sectors aligned with this value chain. This policy aims at supporting export of value added goods and services from Jharkhand as compared to raw materials being exported with low value addition.

This policy is focused on identified sectors, where Jharkhand has an edge, like minerals, agricultural produce, handicrafts and automobiles. This will help the State to achieve the target of increasing its share in India's exports to 2% by 2019.

Strategy

In order to achieve these objectives, the following strategy will be adapted:

- To create a strong networking with Export Promotion Councils, Commerce and Transport Department, FIEO, ITPO and Product Sectoral Associations and MSME sector associations to give impetus to Public Private Partnership.
- Development of trade service providers to boost international trade
- Operationalization of Single Window System for facilitating exporting Industries.
- Creation of strong analytical data base on export and exporters in Jharkhand.
- Identification of sector specific measures for accelerating exports in the state.
- Exploiting full potential and competitive advantages of Jharkhand in export of Silk, Lac, Bamboo based product, Handicraft, Automobile Components and Engineering Goods, Processed Food, Horticulture items, Spices, Iron & Steel, Mica, Refractories, Cement, etc.

- Setting up of Institutional mechanism in the State for promoting exports like State Level Export Promotion Board.
- Providing E- Governance support to exporters of Jharkhand, preferably using the high power facility of STPI, Namkum.
- Promoting PPP initiatives in creating infrastructure conducive to export.
- To encourage National Level R&D centers and premier Institutes of Science and Technology to set up Incubation centres for encouraging innovation and development of knowledge based and high technology end products.
- To establish a testing laboratory and R&D centre for minerals and refractories at State Govt. tool room at Tatisilwai.
- To open full-fledged DGFT office and foreign exchange department at RBI Branch in Jharkhand and also to create at least desk counter of important export promotion councils, ECGC and knowledge imparting centre of IFT.

5.5 Jharkhand Industrial Park Policy 2015

The Government of Jharkhand is committed for employment generation for local population which is possible only through rapid industrialization of Jharkhand. It has been experienced that Micro, Small and Medium Scale Industries are having large potential for employment generation to local youth.

"Sector Specific Industrial Park" means industrial parks envisaged for specific sectors like

a) Apparel Fibre and Textile Park

b) IT Park / Software Technology Park

c) Gems and Jewelry Park

d) Bio-tech and Herbs Park

e) Chemical and Pharmaceutical Park

f) Food Park

g) Automobile Vendor - Ancillary Industries Park

h) Any other specific sectors e.g. Ceramic Park, Plastic Park, Knowledge Park, Film City

Eligible Activities for Assistance in Industrial Parks Including Sector Specific Industrial Parks

Infrastructure facilities as may be required in an industrial park such as:

a) Approach Road and Bridge to the Industrial Estate

b) Upgradation of Existing Roads / Widening of Roads to the Industrial Park

c) Internal Roads with the Industrial Estate

d) Drainage Facilities

e) Street Lights in Industrial Park

f) Water Distribution Network and Related Facilities

6 ZONING REGULATIONS

In order to promote public health, safety and the general social welfare of the community, it is necessary to apply control and reasonable limitation on the development of land and buildings. This is to ensure that most appropriate, economical and healthy development of the town takes place in accordance with the land use plan, and its continued maintenance over the years. For this purpose, the town is divided in to a number of use zones, such as, residential, commercial, industrial, public and semi - public etc.

Each zone has its own regulations, as the same set of regulations cannot be applied to the entire town. There are 6 wards - 45, 46, 51, 52, 53, 54. Major roads of Zone F which connects to other zones has mixed landuse comprising residential, commercial, public/ semipublic and government offices. Zoning regulation in zone B will be helpful in controlling the haphazard development in residential and commercial. Regulation for traffic and transportation will guide the smooth flow of traffic and solving parking related issues.

Zonal Regulations protects residential areas from the harmful invasions of commercial and industrial uses and at the same time promotes the orderly development of industrial and commercial areas, by suitable regulations on spacing of buildings to provide adequate light, air, protection from fire, etc. It prevents overcrowding in buildings and on land to ensure adequate facilities and services.

Zoning is not retrospective. It does not prohibit the uses of land and buildings that are lawfully established prior to the coming into effect of these Zonal Regulations. If these uses are contrary to the newly proposed uses, they are termed non-conforming uses and are gradually eliminated over years without inflicting unreasonable hardship upon the property owner.

The Zonal Regulations and its enforcement ensure proper land use and development and form an integral part of the Master Plan. It also ensures solutions to problems of development under local conditions.

Establishment of Zones and Zonal Maps:

1. The local planning area is divided into use zones such as residential, commercial, industrial etc., as shown in the enclosed maps.
2. Zonal boundaries and interpretations of Zonal Regulations.

Where there is uncertainty as regards the boundary of the zones in the approved maps, it shall be referred to the authority and the decision of the authority in this regard shall be final.

6.1 DEFINITIONS:

In these Zonal Regulations, unless the context otherwise requires, the expressions given below shall have the meaning indicated against each of them.

'Amenity' includes roads, street, open spaces, parks, recreational grounds, playgrounds, gardens, water supply, electric supply, street lighting, sewerage, drainage, public works and other utilities, services and conveniences.

'Apartment' means a room or suite or rooms, which are occupied or which is intended or designed to be occupied by one family for living purpose.

'Apartment building / multi dwelling units' means a building containing four or more apartments / dwelling units, or two or more buildings, each containing two or more apartments with a total of four or more apartments / dwelling units for all such buildings and comprising or part of the property.

'Applicant' means any person who gives notice to the Authority with an intention to erect or re-erect or alter a building.

'Balcony' means a horizontal cantilever projection including a handrail or balustrade, to serve as passage or sit out place.

'Basement storey or cellar'

Means any storey, which is partly / wholly below the ground level. The basement height should not project more than 1.5 mtrs. Above the average ground level.

Building' includes

A house, out-house, stable, privy, shed, well, verandah, fixed platform, plinth, door step and any other such structure whether of masonry, bricks, wood, mud, metal or any other material whatsoever.

A structure on wheels simply resting on the ground without foundation.

Any structure used for human habitation or used for keeping animals or storing any article or goods on land.

Chimney'

means a structure usually vertical containing a passage or flue by which the smoke, gas, etc., of a fire or furnace are carried off and by means of which a draught is created.

Civic Amenity

"civic amenity" means a market, a post office, a bank, a bus stand or a bus depot, a fair price shop, a milk booth, a school, a dispensary, a maternity home, a child care center, a library, a gymnasium, a recreation center run by the Government or local authority, a center for educational, religious, social or cultural activities or philanthropic service run by a co-operative society created wholly for charitable, educational or religious purposes, a police station, an area office or a service station of the local authority

Commercial building

Means a building or part of a building, which is used as shops, and/or market for display and sale of merchandise either wholesale or retail, building used for transaction of business or the keeping of accounts, records for similar purpose; professional service facilities,

Corporate offices, software services, offices of commercial undertakings and companies petrol pumps, restaurants, lodges, nursing homes, cinema theatres, multiplex, community hall (run on commercial basis) banks, clubs run on commercial basis. Storage and service facilities incidental to the sale of merchandise and located in the same building shall be included under this group, except where exempted.

Corner plot

Means a plot facing two or more intersecting streets

Corridor

Means a common passage or circulation space including a common entrance hall.

Courtyard

Means a space permanently open to the sky either interior or exterior of the building within the site around a structure

Covered Area

Means area covered by building / buildings immediately above the plinth level, but does not include the space covered by;

i. Garden, rocky area, well and well structures, plant, nursery, water pool, swimming pool (if uncovered) platform around a tree, tank, fountain, bench with open top and unenclosed sides by walls and the like;

ii. Drainage, culvert, conduit, catch-pit, gully-pit, chamber gutter and the like;

iii. Compound or boundary wall, gate, un-storied porch and portico, Chajja, slide, swing, uncovered staircase, watchman booth, pump house. The area covered by watchman booth / pump house shall not exceed three square meters;

iv. Sump tank and electric transformer

Cross wall

Means an internal wall within the building upto the roof level or lintel level

Density

Means concentration of population expressed in terms of number of persons per hectare in a particular area

Detached building

Means a building, the walls and roof of which are independent of any other building with open spaces on all sides, except the portion covered by the garage.

Development with its grammatical variations

means the carrying out of building, engineering, mining or other operations in, or over or under land or the making of any material change in any building or land or in the use of any building or land and includes sub-division of any land.

Drain means

Any pipe or other construction emanating from a plumbing fixture unit, traps, gullies, floor traps, etc., which carries water, or waste water in a building and connects to the drainage system.

Drainage

Means the removal of any waste liquid by a system constructed for this purpose.

Dwelling unit / Tenement

Means an independent housing unit with separate facility for living, cooking and sanitary requirements.

Exit

Means a passage channel or means of egress from any floor to a street or other open space of safety.

External wall

Means an outer wall of the building not being a partition wall even though adjoining a wall of another building and also a wall abutting on an interior open space of any building.

First floor

Means the floor immediately above the ground floor, on which second and other floors follow subsequently.

Flatted factory

Means a premises having group of non-hazardous small industrial units as given in schedule-I and II having not more than 50 workers and these units are located in multi-storeyed buildings.

Floor

Means the lower surface in a storey on which one normally walks in a building. The general term 'floor' does not refer basement or cellar floor and mezzanine.

Floor Area Ratio (FAR)

Means the quotient of the ratio of the combined gross areas of all floors, except the areas specifically exempted under these regulations, to the total area of the plot, viz.

Floor Area Ratio =	Total floor area of all the floors.
	Plot Area

Frontage

Means the measurement of the side of any site abutting the road.

Garage

Means a structure designed or used for the parking of vehicles.

Ground floor

Means immediately above the level of the adjoining ground level on all sides or above the basement floor.

Group Housing

Means apartments or group of apartments on a minimum plot size of 1 hectare or more with one or more floors and with one or more dwelling units in each floor. They are connected by an access of not less than 3.5 m in width, if they are not approachable directly from the road. Head room where a finished ceiling is not provided the lower side of the joists or beams or tie beams shall determine the clear headroom.

Heavy industry means an industry employing more than 500 workers.

Height of Building means the vertical distance measured in the case of flat roofs from the average road level of the site to the top of the roof and in the case of pitched roofs up to the point where the external surface of the outer wall intersects a finished surface of the sloping roof and in case of gable facing the street, the midpoint between the eave-level and the ridge. Architectural features, service no other function except that of decoration shall be excluded for the purpose of measuring height. Water tank, chimneys, lift room, stair case room, and parapet are also excluded for the purpose of measuring height. This shall exclude stilt parking.

High-rise Building means a building measuring G+4 or 15 meters and above, whichever is less. However, stilt, chimneys, cooling towers, boiler, rooms/ lift machine rooms, cold storage and other not-working areas in case of industrial buildings and water tanks, and architectural features in respect of other buildings may be permitted as a non-High Rise building.

Industrial building

Means a building wholly or partly used as a factory, for the manufacture of products of all kinds including fabrication and assembly, power plant, refinery, gas plant distillery, brewery, dairy, factory, workshop etc.

Land use includes the purpose to which the site or part of the site or the building or part of the building is in use or permitted to be used by the Authority. Land use includes zoning of land use as stipulated in the Master plan and the Zoning Regulations.

Layout

Means any subdivision of land with the formation of a new road or an access road.

Light industry

Means an industry employing not more than 50 workers with power or without power, aggregate installed power not exceeding 25 HP, and which conforms to performance

standards and are listed in Schedule-II not causing excessive, injurious or obnoxious fumes, odor, dust, effluent or other objectionable conditions.

Medium industry

Medium industry, which employs not more than 500 workers and conforming to performance standards

Mezzanine floor

Means an intermediate floor between two floors, above ground level with area of mezzanine floor restricted to 1/3 of the area of that floor and with a minimum height of 2.20mts.

Parking space

means an area enclosed or unenclosed, covered or open sufficient in size to park vehicles together with a drive-way connecting the parking space with a street or any public area and permitting the ingress and egress of the vehicles.

Penthouse

Means a covered space not exceeding 10 square meters on the roof of a building, which shall have at least one side completely open.

Plinth

Means the portion of a structure between the surface of the surrounding ground and surface of the floor immediately above the ground.

Plinth area

Means the built up covered area of the building / buildings immediately above plinth level.

Plinth level

Means the level of the floor of a building immediately above the surrounding ground.

Porch or portico

Means a roof cover supported on pillars or cantilevered projection for the purpose of pedestrian or vehicular approach to a building.

Public and semi-public building

Means a building used or intended to be used either ordinarily or occasionally by the public such as offices of State or Central Government or Local authorities, a church, temple, chapel, mosque or any place of public worship, dharmashala, college, school, library, theatre for cultural activities, public concert room, public hall, hospital run by public institutions, public exhibition hall, lecture room or any other place of public assembly.

Residential building

Means a building used or constructed or adopted to be used wholly for human habitation and includes garages, and other out-houses necessary for the normal use of the building as a residence.

Row Housing

Means a row of houses with only front, rear and interior open spaces.

Semi-detached Building

Means a building detached on three sides with open spaces as specified in these regulations.

Service Apartments

Means fully furnished room or suite or rooms with kitchen, which are intended to be rented out on daily/weekly/monthly basis.

Service Road

Means a road / lane provided at the front, rear or side of a plot for service purposes.

Service industry

Means an industry where services are offered with or without power. If power is used, aggregate installed capacity shall not exceed 5 HP or the site area shall not exceed 240 sq m. Service industries shall be permitted in the light industries zone of the Master Plan.

Set back

Means the open space prescribed under these Zonal Regulations between the plot boundary and the plinth of the building.

Storey

means the space between the surface of one floor and the surface of the other floor vertically above or below.

Stilt Floor

Means a floor consisting of columns, used only as car parking and shall not exceed 2.4m in height and not be covered by enclosures and shutters

6.2 .ZONING REGULATIONS

In the Planning area or areas where various use zones viz, residential, commercial, industrial, administrative, institutional, open space uses, transport & communication, green belt, natural drainage channel and water bodies having their zonal boundaries have been indicated, they shall be regulated as per the below mentioned Table. Except as otherwise provided no structure or land hereinafter shall be used and no structure shall be erected, re-erected or altered unless its use is in conformity with these bye laws.

For all non-confirming land use, no expansion shall be permitted. At the time of redevelopment, stipulated zoning regulations shall be followed.

Land Use Permissibility in different Use Zones

Land Uses	Use Zones in which permitted										
	R	C	I	P	T	G	E	CUI	CUII	A	TZ*
Art gallery, museum, exhibition center	●	●		●				●	●		●
Auto Supply store and Show room for motor vehicle and machinery		●	●					●	●		●
Automobile service and repairing station			●						●		
Bank and Safe deposit vault	●	●	●	●	●			●	●		●
Boarding or lodging house	●	●		●				●	●		●
Botanical garden						●					
Bus Depot		●	●		●				●		●
Bus Terminal	●				●						
Canteen and eating house serving the industries			●						●		
Cemetery, crematorium, burial ground, electric crematorium				●						●	
Cinema	●	●						●	●		●
Clinic for pets	●	●		●				●	●		●
Clinical Laboratory		●		●				●	●		●
Club house not conducted primarily as business	●	●		●		●		●	●		●

Club house or other recreational activities conducted as business		●						●	●		●
Cold storage and ice factory			●						●		
College				●				●	●		●
Commercial/ business Offices		●	●					●	●		●
Community hall & welfare centre,	●	●	●	●				●	●		●
Contractor plant and storage for building material			●						●		
Convenience Shopping Center	●	●	●	●	●			●	●		●
Convention Centre				●				●	●		
Cottage, Handloom and Household Industries	●	●	●					●	●		
Court				●				●	●		
Crèche and Day Care Centre	●	●	●	●				●	●		●
Cultural and Information Center		●		●				●	●		●
Customary home occupation	●	●						●	●		●
Defense	●	●	●	●	●			●	●		
Dairy and poultry industry			●							●	
Dispensary	●	●	●	●				●	●		●
Dry Cleaners-cleaning and dyeing		●	●					●	●		
Educational and research institution	●	●		●				●	●		●
Electric Sub-station	●	●	●	●	●	●		●	●	●	●
Fair Ground				●				●	●		
Flood control work	●	●	●	●	●	●	●	●	●	●	
Forensic Science Laboratory		●		●				●	●		●
Gas Godown	●	●		●				●	●		
Green house	●	●		●		●		●	●		●
Gymnasium	●	●		●		●		●	●		●
Health Centre	●	●	●	●				●	●		●
Hospital	●	●	●	●				●	●		●
Hostels for educational institution	●	●		●				●	●		●

Hotel		●						●	●		●
Indoor Games Hall	●	●	●	●		●		●	●		●
Jail				●							
Junk yard			●								
Local, Municipal, State or Central Government office	●	●	●	●	●			●	●		●
Mechanical workshop with lathes, drills, grinders, spot welding set			●						●		
Medical, eye and dental practitioners' clinic	●	●	●	●				●	●		●
Monument	●	●	●	●	●	●	●	●	●	●	
Motor Driving Training Center	●	●		●				●	●		●
Municipal facility (as listed in Annex VII)	●	●	●	●	●			●	●		●
Music, dance, drama training center	●	●		●				●	●		●
Neighbourhood Shopping Centre-convenience and local shopping with vegetables, fruits, flowers, fish and meat.	●	●						●	●		●
Night Shelter	●	●	●	●	●			●	●		●
Nursery, Horticulture and Orchards	●	●	●	●	●		●	●	●	●	●
Nursing Home	●		●	●				●	●		●
Oil Depot			●								
Open Air Theatre	●	●	●	●		●		●	●		●
Orphanage	●	●		●				●	●		●
Park, playground, playfield and recreational area	●	●	●	●		●		●	●		●
Personal Service Shop	●	●	●	●	●			●	●		●
Petrol filling station	●	●	●	●	●			●	●		●
Photograph studio and laboratory	●	●	●	●				●	●		●
Planetarium		●		●		●		●	●		●
Police Headquarter and Police Lines				●							
Police Station, Out Post and Fire Station	●	●	●	●	●			●	●		●
Post office, Telephone Exchange, Telegraph Offices	●	●	●	●	●			●	●		●
Professional office of a resident of the premise	●	●						●	●		●
Public library	●	●		●	●			●	●		●

Radio broadcasting studio				●				●	●		
Railway Station					●						●
Reformatory (Juvenile Home)				●				●	●		
Refinery			●								
Religious Place like temple, Namghar, Sarna Sathal, mosque, church etc	●	●		●				●	●	●	●
Research and Development Centre		●	●	●							●
Residence cum Work Plot	●	●						●	●		●
Residential Dwelling	●	●						●	●		●
Residential Plot- Plotted Housing	●							●	●		
Restaurant, cafeteria, milk bar	●	●	●	●	●	●		●	●		●
Retail Shop	●	●	●	●	●			●	●		●
Satellite and Telecommunication Center				●				●	●		●
Schools	●	●		●				●	●		●
Service Centre	●	●	●		●			●	●		●
Sewerage treatment plant			●	●						●	
Social, cultural and religious institution	●	●		●				●	●		●
Specialised Park/Ground		●		●		●		●	●		●
Sports Training Center				●		●		●	●		●
Stadium						●					
Storage of petroleum and other inflammable materials			●						●		
Storage, Warehouses and Godown		●	●					●	●		●
Swimming Pool	●	●		●		●		●	●		●
Taxi stand and bus stand, cycle and rickshaw stand	●	●	●	●	●	●		●	●		●
Theatre, assembly or concert hall, dance and music hall and such other place of entertainment;	●	●		●				●	●		●
Truck terminal		●			●						
Vending Booth	●	●	●	●	●	●		●	●		●

Vocational Training/Technical Training Institute	●	●	●	●				●	●		●
Watchmen or caretaker's lodges	●	●	●	●	●	●		●	●		●
Water Treatment Plant	●	●	●	●		●		●	●	●	●
Weekly Market/ Informal Sector Unit	●	●		●		●		●	●		●
Wholesale Trade		●									
Wireless transmitting and weather station, Transmission Tower				●				●	●		

Source: Jharkhand Building Bye-laws-2016

Index of Use Zones

R – Residential

C – Commercial

I – Industrial

P – Public & Semi Public

T – Transportation

G - Green Belt (Recreational and Open Space)

E – Eco-sensitive

CU I – Composite Use I

CU II – Composite Use II

A – Agricultural Use

*TZ[3] – Transit Oriented Development Zone

Note: *For development control regulations Jharkhand Building Byelaws 2016 and further amendments-2017/prevailing regulations will be followed.*

6.2.1 RESIDENTIAL

The sub-division of residential use zone into plots/use premises and subsequent approval of the layout plans shall be governed by the following:

The residential areas shall be planned at gross residential densities. The provision of requisite social infrastructure shall be governed by the following norms for residential neighborhood of 15,000 persons. In any residential sub-division plan, minimum area reserved for social

[3] Transit Orient Development Zone has been earmarked in compliance of Jharkhand Transit Development Policy, 2016. All permissible activities listed in the TZ zone are based on the existing situation; it may change once the Development Control Regulations will be framed for the Transit Orient Development Zone by the competent authority and same will be followed.

infrastructure shall be 8.50 sq. m. per person; Standards for facilities in Residential Area is given in Table 6-1.

Table 6-1 Details of Neighborhood Centers (One for 15,000 persons)

Sr. No.	Facilities	Area (Sq.Mt.)	Total Area (Ha)
1	Sr. Secondary School	10,000	1
2	Dispensary	1,000	0.1
3	Community hall and Library	2,000	0.2
4	Electric Substation 11 KV	460	0.046
5	Local Shopping incl. Service centre	4,600	0.46
6	Three wheeler and taxi stand	500	0.05
7	Neighbourhood Park	8,000	0.8
8	Neighbourhood Play Area	8,000	0.8
9	Primary School	4,000	0.4
	Sub Total A		3.8

Source: URDPFI Guidelines, 2014

Table 6-2 Details of a Cluster center (one for 5000 persons)

Sr. No	Facilities	Area (Ha)
1	Primary school	0.4
2	Anganwadi	0.02
3	Community Room	0.075
4	Religious Facility	0.04
5	Housing Area Park	0.5
6	Residential Unit Play Area	0.5
7	Milk Distribution	0.21
8	Convenience Shopping	0.15
	Total Area	1.89

Source: URDPFI Guidelines, 2014

Park and play areas shall be @ 4.5 sq. m. per person with one of the park cum play area to be of the minimum size of 1.50 hectare.

Permissible land uses allowed in the residential zone are:

Cinema, Clinic for pets, Art gallery, museum, exhibition center, Bank and Safe deposit vault, Boarding or lodging house, Community hall & welfare center, Convenience Shopping Centre, Cottage, Handloom and Household Industries, Crèche and Day Care Centre, Customary home occupation, Defense, Dispensary, Educational and research institution, Electric Sub-station, Existing Village, Flood control work, Gas Godown, Green house, Gymnasium, Health Centre, Hospital, Hostels for educational institution, Indoor Games Hall, Local, Municipal, State or

Central Government office, Medical, eye and dental practitioners' clinic, Monument, Motor Driving Training Centre, Municipal facility (as listed in Annex VII), Music, dance, drama training center, Neighborhood Shopping Centre-convenience and local shopping with vegetables, fruits, flowers, fish and meat, Night Shelter, Nursery, Horticulture and Orchards, Nursing Home, Open Air Theatre, Orphanage, Park, playground, playfield and recreational area, Personal Service Shop, Petrol filling station, Photograph studio and laboratory, Police Station, Out Post and Fire Station, Post office, Telephone Exchange, Telegraph Offices, Professional office of a resident of the premise, Public library, Religious Place like temple, Namghar, Sarna Sathal, mosque, church etc., Residence cum Work Plot, Residential Dwelling, Residential Plot- Plotted Housing, Restaurant, cafeteria, milk bar, Retail Shop, Schools, Service Centre, Social, cultural and religious institution, Storage of petroleum and other inflammable materials, Storage, Warehouses and Godown, Swimming Pool, Taxi stand and bus stand, cycle and rickshaw stand, Theatre, assembly or concert hall, dance and music hall and such other place of entertainment, Vending Booth, Vocational Training/Technical Training Institute, Watchmen or caretaker's lodges, Water Treatment Plant, Weekly Market/ Informal Sector Unit.

Activities that are prohibited in the residential areas are:

Heavy, large and extensive industries, noxious, obnoxious and hazardous industries, Warehousing, storage godowns of perishables, hazardous, inflammable goods, wholesale mandis, junk yards, Workshops for buses, Slaughter houses, District battalion offices, forensic science laboratory, International conference centers, Bird Sanctuary, Outdoor and indoor games stadiums, shooting range, Water treatment plants, solid waste dumping grounds, Sewage treatment plants and disposal sites, Hospitals treating contagious diseases etc.

Uses/Activities Permissible on approval by Authority:

Places of worship, Shopping centers, Municipal, State and Central government offices, Colleges and research institutions, Petrol filling stations, Places of entertainment, cinema halls, restaurants and hotels, Markets for retail goods, IT and IT enabled services, Tourism related services, Motor vehicle repairing workshop, garages, storage of LPG cylinders, Burial grounds, Printing presses employing not more than 10 persons, godowns /warehousing of

non-perishables, Bus depots without workshop, Household industries if the area for such use does not exceed one floor and there shall be no public display of the goods, Consulates, etc.

Residential

Minimum Road width and use permitted				
Uses	Less than 12m and 12m (40')	18m (60')	24m (80')	30m (100') and Above
Residential*	Residential Plots, Farm Houses, Old Age Home, Guest House	Flats/Apartment, Group Housing, Residential Schemes, different types of Townships, Affordable Housing, Boarding and Bodging House (All permitted as per building		
The following use premises are permissible in this land use after approval from competent authority				
Commercial	General Shops, Convenient Shopping Centre, ATM, Gym, I.T. unit in a residential plot	Bank, Restaurant, Hotel, (Upto 20 beds) Showroom, office, Barat ghar	Commercial Complex, Hotel (Upto 50 beds), Marriage Garden, Banquet Hall, Non – Inflammable Godowns	Mall, Multiplex, Cinema Hall, Hotel (Above 50 beds), Fuel Filling Station
Public/Semi Public	Educational Kindergarten, Creche, Nursery, Primary School Medical Dispensary, Clinic Socio- Cultural Community Hall, Library, Dharmshala OCF Orphanage, Old age home	Middle School, Coaching centre, Training Centre and Institute, School for the Handicapped Nursing Home, Hospital, health center up to 30 beds Community Centre, Religious building, Art Gallery, Exhibition Centre Hostel, Dharamshala	Secondary, Sr. Secondary School Hospital (Upto 60 beds) Auditorium, Art Gallery, Exhibition Centre, Museum	College, University, Professional Institution Hospital (Upto 60 beds) Auditorium, Art Gallery, Exhibition Centre, Museum
Recreational	Parks	Recreational Club		
Industrial	As per Concerned Department Norms			
Agricultural		Plant Nursery, Orchard		
Governmental/Public	On all roads after approval from Competent Authority			

Utilities	

*All other uses permitted in building bye –laws/Govt. orders shall stand permitted

6.2.2 COMMERCIAL

The Commercial zone can be subdivided into

1. Retail Shopping Zone: C1
2. General Business and Commercial District/ Centers: C2
3. Wholesale, Go-downs, Warehousing/ Regulated markets: C3
4. Service Sector: C4
5. Regulated/ Informal/ Weekly markets: C5

The activities Permitted, Restricted and Prohibited in Commercial land use zone shall be as given below:

Uses that are permissible

Art gallery, museum, exhibition center, Auto supply store and show rooms for motor vehicle and machinery, Bank and safe deposit vault, Boarding or lodging house, Bus Depot, Cinema, Clinic for pets, Clinical Laboratory, club house not conducted primarily as business, commercial/business offices, community hall & welfare center, convenience shopping center, cottage, handloom and household industries, crèche and day care center, cultural and information center, customary home occupation, defense, dispensary, dry cleaners-cleaning and dyeing, educational and research institution, electric sub-station, flood control work, forensic science laboratory, gas go-down, green house, gymnasium, health center, hospital, hostels for educational institution, Hotel, Indoor games hall, Local, Municipal, state or central government office, Medical, eye and dental practitioners' clinic, monument, motor driving training center, municipal facility, music, dance, drama training center, neighborhood shopping center – convenience and local shopping with vegetables, fruits, flowers, fish and meat, night shelter, nursery, horticulture and orchards, open air theatre, orphanage, park, playground, playfield and recreational area, personal service shop, petrol filling station, photography studio and laboratory, planetarium, police station, out post and fire station, post office, telephone exchange, telegraph office, professional offices of a resident of the premise, public library, religious place like temple, namghar, sarana sathal, mosque and development center, residence cum work plot, residential dwelling, restaurant, cafeteria, milk bar, retail shop, schools, service center, social, cultural and religious institutions,

specialized park/ground, storage, warehouse and go-down, swimming pool, taxi stand and bus stand, cycle and rickshaw stand, theatre, assembly or concert hall, dance and music hall and such other place of entertainment, vending booth, truck terminal, vocational training/technical training institute, watchmen or caretaker's lodges, water treatment plant, weekly market/informal sector unit, wholesale trade.

Activities that are prohibited in the commercial areas:

Polluting industries, Heavy, extensive, noxious, obnoxious, hazardous and extractive industrial unit, Poultry farms, dairy farms, slaughter houses, Sewage treatment plants and disposal sites, solid waste treatment plants and grounds, Agricultural uses, storage of perishable and inflammable commodities, Quarrying of gravel, sand, clay and stone, Bird sanctuary, Sports training centers, etc.

Uses/Activities Permissible on approval by Authority:

Associated residential uses, Wholesale storage yards, Service garages provided they do not directly about the main road, Stock exchanges, Printing presses employing not more than 10 persons, 20 bedded hospitals not treating contagious diseases and mental patients, Weigh bridges, Colleges, polytechnics and higher technical institutes, Sports complex and stadiums. Zoological gardens, botanical gardens, Transient visitor's homes, Places of entertainment, recreational uses and museums, Convention centers, Religious places, Public utilities, telephone exchanges, Public utilities, telephone exchanges, Residential, apartment, group housing, Picnic Hut, Truck terminal, bus depots and parking, Freight terminal, Warehousing, storage godowns of perishable, inflammable goods, coal, wood, timber yards, Service centers, garages, workshops, Non- polluting, non-obnoxious light industries, Junk-yards, Gas installation and gas works, Railway yards and stations, road freight stations, Banks and financial services, Associated residential uses, residential, apartment, Government and Semi-government offices, etc..

COMMERCIAL USE

Minimum road width and use premises				
Uses	12m (40')	18m (60')	24m (80')	30m (100') and above
Commercial*	Showroom, shop,	Bank,	District Commercial Centre,	

	Bakery and etc	Restaurant, Hotel, Resort Commercial Complex, office, Services Centres	Marriage Garden, Banquet Hall, Mall, Multiplex, Cinema Hall, Non- Inflammable Godown, Motel, Fuel Filling Station, wholesale Market, Warehousing	
The following use premises are permissible in this land use after approval from the competent				
Residential		Flats/Apartment, Affordable Housing, boarding and Lodging House, Guest house	Group housing, Residential Scheme (upto 2.0 Hect.)	Townships
Public/Semi-Public	Educational Kindergarten, Creche	Nursery, Primary, Middle School, Coaching centre, Training Centre and Institute, Financial Institutions.	Secondary, Senior Secondary School	Technical College, University, Professional Institutions
	Medical Dispensary, Clinic	Nursing home, Hospital (Upto 20 beds)	Hospital (Upto 60 Beds)	Hospital (Above 60 beds)
	Socio- Cultural Community Hall, Library, Religious buildings	Community Centre, Religious Building, Auditorium, Health Centre Hostel	Auditorium, Art gallery, Exhibition centre, Museum	

	OCF Orphanage, Old age Home	Hostel, Dharamshala		
Recreational	Parks/Playgrounds	Recreational Club		
Industrial	As per Concerned Department, Norms and Govt. Policies			
Agricultural		Plant Nursery, orchards		
Governmental/ Public Utilities	On all roads after approval from competent authority			

6.2.3 COMPOSITE UNIT

There are two types of composite unit proposed in Ranchi

Composite Unit I: Residential, Public Semi Public, Commercial, Recreation

Composite Unit II: Residential, Public Semi Public, Commercial, Recreation and Existing Industrial.

Mixed use is allowed in the residential areas in the following manner:

- Retail shops (except hazardous, nuisance causing) allowed in residential premises up to maximum 25 percent of the ground floor coverage, or 50 square meters of floor area, whichever is less, only on ground floor.
- Professional offices up to 25 percent of FAR or 100 square meters, whichever is less, on any floor.
- Nursing Homes, Guest Houses and Banks have been permitted in residential plots having more than 209 square meters (250 square yards) size and facing minimum 18 meter wide roads (13.5 meter wide in rehabilitation colonies and 9 meter wide roads in walled city/ Special Area).
- Non-polluting household industries allowed in residential plots to the extent of 25 percent of floor space, or 30 square meters, whichever is less.

Non-Permissible Use

With a view to ensure security, safety and environmental quality, of residential areas, the following activities are not allowed:

- Retail shops - building materials, timber, building products, marble, iron, steel and sand, firewood, coal.
- Repair shops - automobile repair and workshops, cycle rickshaw repairs, tyre resorting and retreading, battery charging.
- Service shops - flour mills, (more than 3 KW power load), fabrication and welding.
- Storage, godown and warehousing
- Manufacturing units (excluding household industry)
- Junk shop

Activities related to commercial, institutional and residential land use in Composite use II Zone can be increased to between 20-50% depending on the contextual and locational feasibility of the area. Restricted uses activities, institutional and residential land use in composite use II zone can be increased

6.2.4 TRAFFIC AND Transportation

Uses permitted

Bank and Safe deposit vault, Bus Depot, Bus Terminal, convenience shopping center, defense, electric sub-station, Flood control work, Local, Municipal, State or Central government office, Monument, Municipal facility, Night Shelter, Nursery, Horticulture and orchards, personal service shops, petrol filling station, police station, outpost and fire station, post office, telephone exchange, telegraph office, public library, railway station, restaurant, cafeteria, milk bar, retail shop, service center, taxi stand, bus stand, cycle and rickshaw stand, truck terminal, vending booth, watchmen or caretakers lodge.

Activities that are prohibited in this zone:

Use/activity not specifically related to transport and communication permitted herein.

Uses/Activities Permissible on approval by Authority:

Way side shops and restaurants, Authorized/Planned Vending areas, Incidental/ancillary residential use, Emergency health care center, Tourism related Activities, All ancillary (complimentary) uses for above categories (subject to decision of the Authority) etc..

6.2.5 RECREATIONAL AREA

Uses permitted

Botanical garden, club house not conducted primarily as business, electric sub-station, flood control work, green house, gymnasium, indoor games, monument, open air theater, park play field, playground, and recreational area, planetarium, restaurant, cafeteria, milk bar, specialized park/ground, sports training center, stadium, swimming pool, taxi stand, bus stand, cycle and rickshaw stand, vending booth, watchmen or caretaker's lodges, water treatment plant, weekly market/informal sector unit,

Activities that are prohibited in this zone:

Any building or structure, which is not required for open air recreation, dwelling unit except for watch and ward, and uses not specifically permitted therein, Public utilities and facilities

such as police post, fire post, post and telegraph office, health center for players and staff, Animal racing or riding stables etc.

Uses/Activities Permissible on approval by Authority:

Building and structure ancillary to use permitted in open spaces and parks such as stands for vehicles on hire, taxis and scooters, Commercial use of transit nature like cinemas, circus and other shows, Public assembly halls, Restaurants, Parking areas, Caravan parks, Open air cinemas/ theatre, Entertainment and recreational complexes, Community hall, library, Open air theatre, theme parks, amphitheaters, Residential club, guest house, Camping sites, Camping sites, Commercial uses centre, Special education areas, Incidental/ancillary residential use.

Note:[4]-

- *Parks and open spaces shall not be less than 10% of the total land area. This shall be relinquished to the Authority and if required, the Authority may handover area over for maintenance to the residents' welfare association or owner or developer. If the site is not utilized for which it is leased out within a prescribed period, it will be resumed back to the Authority.*
- *For integrated townships, at least 20% of the total area, shall be reserved for parks and open space. It shall be developed and maintained by the developer.*

6.2.6 PUBLIC SEMI PUBLIC

Uses permitted

Art gallery, Museum, exhibition center, bank and safe deposit vault, boarding and lodging house, cemetery, crematorium, burial ground, electric crematorium, clinic for pets, clinical laboratory, club house not conducted primarily as business, college, community hasll and welfare center, convenience shopping center, convention center, court, crèche and day care center, cultural and information center, defense, dispensary, educational and research institution, fair ground, flood control work, forensic science laboratory, green house, gymnasium, health center, hospital, hostels for educational institution, indoor games hall, jail, local, municipal, state or central government office, medical, eye and dental practitioners' clinic, monument, municipal facility, music, dance, drama training center, night shelter,

[4] Jharkhand Building Bye-Laws, 2015; Anekal LPA Master Plan 2031

nursery, horticulture and orchards, nursing home, open air theater, orphanage, park, playground, playfield and recreational area, photograph studio and laboratory, planetarium, police headquarter and police lines, police station, out post and fire station, post office, telephone exchange, telegraph office, public library, radio broadcasting studio, reformatory (juvenile home), religious place like temple, Namghar, saran sathal, mosque, church etc., research and development center, restaurant cafeteria, ,milk bar, retail; shop, satellite and telecommunication center, schools, social, cultural and religious institution, specialized park/ground, sports training center, swimming pool, taxi stand and bus stand, cycle and rickshaw stand, theater, assembly or concert hall, dance and music hall and such other place of entertainment, vending booth, vocational training / technical training institute, watchmen or caretaker's lodge, water treatment plant.

Activities that are prohibited in this zone:

Any other activity not listed in permissible activity is prohibited.

Uses/Activities Permissible on approval by Authority:

Wireless transmitting and weather station, transmission tower, weekly market/informal sector unit, sewerage treatment plant, petrol filling station, personal service shop, motor driving training center, gas godown, electric sub-station, etc.

Public/Semi Public

Minimum Road width and use premises				
Uses	12 M(40')	18m (60')	24m (80')	30m (100' and above)
Public /Semi Public *	Educational Kindergarten, Creche Medical Dispensary, Clinic Socio Cultural Community Hall OCF	Nursery, Primary Middle School, Coaching Centre, Training Centre & Institute Hospital (upto 20 Beds), Clinical Laboratory Cultural Centre, Community Centre, Religious	Secondary, Senior Secondary School, College, University, Professional Institutions Hospital (Above 20 beds) Auditorium, Conventional Centre, Art Gallery, Exhibition Centre, Museum	

	Hostel, Dharamshala, orphanage, old age home	building		
Following Landuse premises are permissible in this landuse after approval of the competent authority				
Residential	(All uses as per building bye –laws) Affordable Housing, Staff Quarters			
Commercial		Bank, Restaurant, Hotel (Upto 20 beds), Showroom, Shop	Commercial Complex	Fuel Filling Station
Recreational	Parks, Recreational Club			
Agricultural	Plant Nursery, Orchards			
Governmental/Public Utilities	On all roads after approval from competent authority			

*All other uses permitted in building bye-laws/Govt. orders shall stand permitted

6.2.7 EDUCATION AND RESEARCH

Layout Plan for education and research areas shall be prepared with 75 % area for institutional plots and 25 % of the area reserved for roads, parks, parking and some retail shopping.

Uses permitted

Government offices, central, state, local and semi government, public undertaking offices, Universities and specialized educational institutions, colleges, schools, research and development centers, Social and welfare centers, Libraries, Hospitals, health centers, dispensaries and clinics, Social and cultural institutes, Religious buildings, Conference halls, Community halls, marriage halls, dharamashala, Museums, art galleries, exhibition halls, auditoriums, Police stations, police lines, jails , Local state and central government, offices uses for defense purpose , Educational and research institutions , Social and cultural and religious institutions, Local municipal facilities , Uses incidental to government, offices and for their use , Monuments , Post offices, Telegraph offices, public - utilities and buildings , Radio and television station , Integrated Township.

Activities prohibited in this zone:

Heavy, extensive and other obnoxious, hazardous industries, Slaughterhouses, Junkyard, Wholesale mandis, Dairy and poultry farms, farmhouses, Workshops for servicing and repairs, Processing and sale of farm products.

Uses/Activities Permissible on approval by Authority:

Residential flats, residential plots for group housing and staff housing, Residential, apartment, group housing, IT services, Defense quarters, Hostels, transit accommodation, Entertainment 0and recreational complexes, Nursery and kindergarten, welfare center, Open air theater, playground, Residential club, guest house, Bus and Truck terminals, helipads, Parking areas, taxi stands, 3 wheeler/auto stands, rickshaw stands.

COMPOSITION OF HERITAGE CONSERVATION COMMITTEE

The members of the Heritage Conservation Committee shall include Chairman with experience in the field of Heritage Conservation, with experienced heritage Architects, structural engineers and nominees from the concerned government departments.

Functions of the Heritage Conservation Committee

a) To advise the competent authority whether Development permission should be granted under this Regulation and the conditions of such permission;

b) To prepare a supplementary list of buildings, artefacts, structures, areas, precincts of historic, aesthetic, architectural, or cultural significance, to which this Regulation would apply (vide regulation);

c) To advise whether any relaxation, modification, alteration, or variance of any of the Development Control Regulations / Building Byelaws, is required;

d) To frame special regulations for precincts and to advise the Competent Authority regarding the same;

e) To advise whether to allow commercial / office uses;

f) To advise in the operation to regulate or eliminate / erection of outside advertisements / bill boards;

g) To recommend guidelines to be adopted by those private parties who sponsor beautification schemes at public intersections and elsewhere;

h) To prepare special designs and guidelines for listed buildings;

i) To advise the Competent Authority on any other issues as may be required from time to time during course of scrutiny of development permissions and in overall interest of heritage conservation.

Note: Ranchi Regional Development Authority (RRDA) may be declared as the competent authority responsible for the conservation of heritage buildings and precincts and also the plan sanctioning authority for these.

7 SITE PLAN

Integrated District Center (IDC-3), which is proposed in the village Lodhma (thana no 302) includes district level facilities and city level facilities. In order to encourage the orderly development, it is recommended to conduct a pre-feasibility study before implementing any proposal of the IDC-3.List of the facilities included in the district center are as follows:

Table 7-1: List of the facilities included in the Integrated District Center (IDC – 3)

S. No	Land Use Category	Description	Required in Nos.	Total Area in Ha.
A				**30.15**
1	Public and Semi-Public	Auditorium	1	0.770666667
2	Public and Semi-Public	Museum	1	0.770666667
3	Public and Semi-Public	Reading Room	1	0.770666667
4	Educational	Science centers, Art/Craft/Music/Dance/School	1	0.1
5	Commercial	Hotel	1	0.12
6	Commercial	Commercial Offices	1	9.04
7	Public and Semi-Public	Guest House	1	0.05
8	Public and Semi-Public	Bank & ATM	1	0.03
9	Health	Nursing Home	1	0.3
10	Public and Semi-Public	Library	1	0.2
11	Public and Semi-Public	Fire Station	1	1
12	Public and Semi-Public	Police Station/Post	1	1.5
13	Communication	Telephone Exchange	1	0.25
14	Public and Semi-Public	Post Office	1	0.15
15	Public Utility	Electric Sub-Station	1	1
16	Residential	Essential Residential	1	2.7
17	Commercial	Shopping (retail, services, repair)	1	6.789
18	Commercial	Informal Shopping	1	0.2
19	Commercial	Weekly Markets (on Close Days)	1	0.4
20	Commercial	Convenience Shopping	1	0.15
21	Commercial	Cinema	1	0.2
22	Industry	Service Industries excluding petrol pump etc. (6 % of the area)	1	1.809
23	Commercial	Petrol Pump (36 x 32 mt.)	1	0.1152
24	Transportation	Bus Terminal	1	0.0145
25	Commercial	Limited wholesale & Mandi	1	1.809
26	**Sub Total**			**30.2387**
B	**Facility Centre (FC-10)**			
27	Health	General Referral Hospital (500 beds)	1	6
28	Health	Intermediate Hospital B (80 Beds)	1	1
29	Health	Hospital for Pets	1	0.2
30	Public and Semi-Public	Old age home	1	**0.1**
31	Public and Semi-Public	Orphanage	1	**0.1**

S. No	Land Use Category	Description	Required in Nos.	Total Area in Ha.
32	Public and Semi-Public	Working Men / Women hostel	1	**0.1**
33	Educational	Schools for Handicapped	2	**1.4**
34	Health	Nursing Home	2	**0.6**
35	Educational	General College	1	5
36	Educational	Integrated School with Hostel	1	3.9
37	Religious	Religious Buildings	1	0.1
38	Public and Semi-Public	Fire Station	1	1
39	Recreational	District Park and Play Areas	1	25
40	Recreational	District Socio-Cultural Hub	1	5
	Sub Total			**49.5**
41	Recreational	Parks and Play Area	1	10
42	Transportation	Parking and Circulation Area	1	10.26
		GRAND TOTAL		**100.00**

Source: Ranchi Master Plan, 2037

Strategies followed while planning:

As the IDC-3 is near to the Airport and surrounded by Defense area in the North, recreational area in the left and residential area in the south; this center has potential to guide the development, which will be a very useful strategy to decongest the town.

1. In the close proximity of the recreational areas, social infrastructure such as Schools, college or Hospital has been planned.
2. Space for the commercial office has been planned along the main roads of the IDC.
3. Retail centers has been planned in close proximity of the park and play fields, commercial offices and others.
4. Facilities which is required on day to day basis has been planned near the existing village.
5. Existing village has been provided with reserved area for the expansion and parking facilities.

All the facilities proposed in the IDC – 3 is listed in the Table 7-1 and shown in the following layout plan.

Map 7-1 Layout Plan of the Integrated District Center – 3 (IDC -3)

8 ANNEXURES

ANNEXURE – 1 URBAN DESIGN GUIDELINES

Urban design guidelines are an important part of its implementation strategy. Urban design guidelines are adopted to advance the policies, goals and objectives of the Plan and help translate these directions into desired outcomes for the design of streets, parks, open spaces and buildings.

Urban Design Goals:

1. Produce a high quality living environment for all residents.
2. Clarify and enhance the relationship between new housing development and public streets and open spaces.
3. Protect significant natural and man-made features such as mature vegetation, street trees, heritage structures and recreation areas.
4. Maintain an appropriate overall scale and pattern of development within its context.
5. Minimize shadow, blocked views and overlook onto existing residential buildings and open spaces.
6. Consolidate service areas (parking, loading and garbage) to minimize their impact on public streets and open spaces.
7. Provide efficient and cost effective infrastructure for future users.

STREETS AND OPEN SPACES

Streets are a vital part of Ranchi public open space system. They function as movement corridors for pedestrians, cyclists, transit and vehicles, as well as support many social and business activities. The appearance and character of Ranchi streets play a large part in determining the overall quality and livability of the city.

The Streetscape guideline is an urban design reference tool for the improvement of the City's arterial street network - the Main Streets and Green Streets that define and connect neighborhoods. The guideline focuses on design quality in the public right-of-way, with an emphasis on coherence, beauty, durability, accessibility, pedestrian amenity and tree canopy.

Following a hierarchy of streetscape types, the proposal assigns a set of standard or specialized design treatments to each arterial road. Although the proposal does not typically include collector roads, local roads or laneways, design quality and tree canopy on these streets is also very important.

The design treatments specified in the proposal center on five streetscape elements - paving, street trees, medians, lighting and street furniture. When applied over time, these design treatments will enhance the appearance, health and enjoyment of the urban landscape.

Main Streets:

Focus on commercial, residential and mixed-use buildings which generate grade-related activities. The buildings create a continuous street wall with a direct or 'storefront' relationship to both the pedestrian realm and the vehicular portion of the street. They support public transportation networks, pedestrians, cyclists and private vehicles. This streetscape category encourages diverse types of economic stimulation and social interaction at a pedestrian scale.

Special Streets:

These cab be distinguished by their high level of importance in the city resulting from historical, cultural, physical or functional characteristics. Often used as ceremonial routes, they are recognized provincially, nationally or even internationally as making significant contributions to the character of Ranchi.

Special Streets are usually lined with important public and institutional buildings. They support a high volume of pedestrian movement, as well as vehicular traffic, and are well-connected by public transit. The distinct identities of Special Streets should be complemented with customized design elements and the highest quality materials.

Major Streets:

These are well-established streets that lead to or are lined with important public buildings, and therefore, have provincial and city-wide importance. They are predominantly lined by institutional and commercial buildings, with some ground floor retail and restaurant uses. Businesses are well-established and contribute to the municipal and provincial economy.

They are well-connected with public transportation and support a high volume of pedestrian and vehicular traffic.

Major Streets generally require many years of development to achieve their provincial and city-wide importance and tend to have a moderate level of historical significance. As with Special Streets, Major Streets are not restricted to any particular area in the city, however, due to the high concentration of institutions and businesses, as well as intensity of land use, the majority of them are within the Downtown and Central Waterfront areas.

Existing Main Streets:

These are predominantly commercial and mixed-use in nature, with residential areas in close proximity. The livelihood of the businesses is dependent on the local community, therefore, making them the most important street in the neighborhood. They are the focus of public life in a neighborhood and support local festivities such as sidewalk sales and festivals.

Existing Main Streets are usually supported by public transportation in the form of streetcars or buses, and their local scale supports a comfortable pedestrian environment. They typically retain some aspect of an earlier era such as a post office, banks, community religious centers and/or rows of older commercial buildings.

Emerging Main Streets

These are predominantly commercial in nature, with suburban characteristics, and are undergoing both commercial and residential intensification. Although the existing businesses may be less established than those on Existing Main Streets, they are important contributors to the local community. Therefore, Emerging Main Streets are often the most important street in the neighborhoods.

Emerging Main Streets are supported by public transportation, usually in the form of a network of bus routes. With significantly wider road widths than Existing Main Streets, vehicles have a strong presence on these streets and substantial parking areas are usually adjacent to businesses. Although Emerging Main Streets do not currently provide significant pedestrian amenities, the extra road width provides opportunities for improved pedestrian environments, such as grassy boulevards and street tree planting. Emerging Main Streets

share some qualities with Existing Main Streets; however, their transitional state requires their streetscape design to be flexible.

Green Streets

Green Streets are highlighted by adjacent natural areas, public parks and open spaces. The urban elements within the streetscape are integrated with natural environments and enhanced with street tree planting, creating open space corridors with a naturalized form. Green Streets play a similar role as the Green Space System, while still supporting vehicular traffic, pedestrians and cyclists. This streetscape category encourages diverse types of environmental protection and social interaction at a pedestrian scale.

Scenic Streets

These street are adjacent or have a direct physical relationship with natural features such as parks, ravines, rivers and lakes. This relationship often provides important views. Buildings plays a minor role in the character of Scenic Streets, however, when present, they are usually residential.

Scenic Streets have wide boulevards, often with grassy or tree planted medians which reduce the impact of vehicles. Their generous width provides opportunities for pedestrian and bicycle trails which often connect to a wider recreational system. Their significance can be regional, city or provincial-wide. Scenic Streets are usually supported by public transportation in the form of buses.

Intermediate

These streets have a stronger presence of buildings than Scenic Streets and therefore, the edge of the street is better defined. Although the buildings are usually residential, there are often mixed-use buildings. Intermediate Streets exhibit suburban characteristics such as wide set-backs, substantial parking areas and residential lots with rear gardens and privacy fences facing the street. The reverse lot conditions offer no connection to adjacent buildings and limited vehicular and pedestrian access.

Intermediate Streets connect important places in a neighborhood such as schools and community facilities. They provide an uninterrupted given the wide set-backs, Intermediate Streets often have significant street tree plantings or opportunities for such. Reverse lot conditions can benefit from screen planting along privacy fences to soften the boundary.

Similar to Emerging Main Streets, Intermediate Streets support opportunities for intensification. They can evolve into an Emerging Main Street or stay as an Intermediate Street, depending on the use and level of development.

Guidelines for Laying Out Streets:

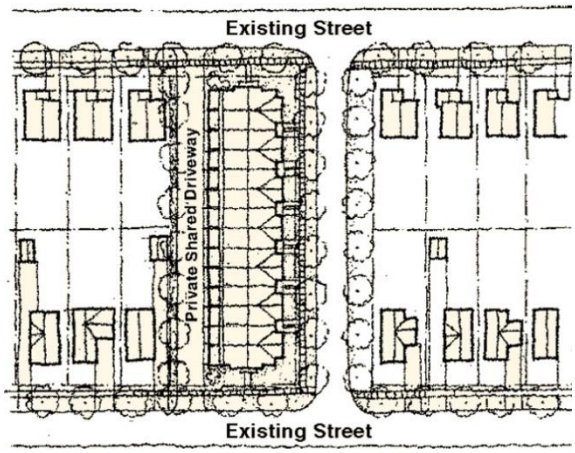
1. Use existing public streets where possible for addresses to new development
2. Enhance and extend the local street network into the new development to create strong visual and physical links with adjacent neighborhoods
3. Provide safe and easily accessible pedestrian links to destinations within the new development including schools, transit, community facilities and local retail areas
4. Avoid gated communities and dead ends
5. All streets must be laid out to allow emergency vehicle access

New streets should be laid out allowing for new development such that:

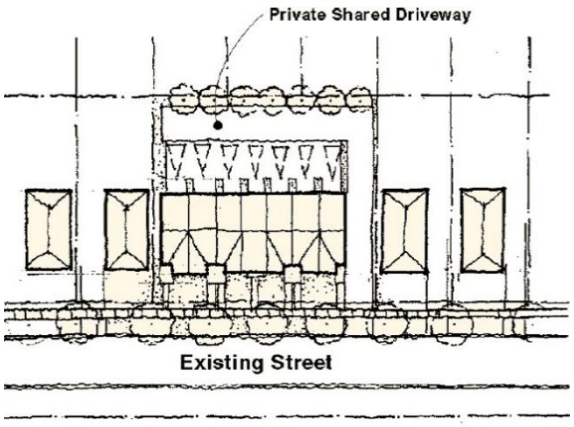
New and existing development front entrances on existing or newly created public streets, and that avoid back to-front facing relationships (such as front doors facing rear yards or service areas)

Create a street wall without interruptions to enclose and frame the street, with front doors facing the street

Coordinate separate developments within a block so access to all properties within that block can be shared and be space efficient.



Dwelling units on a new street with rear access private shared driveway



Dwelling units on an existing street with rear access private shared driveway

Open Space within the neighborhoods

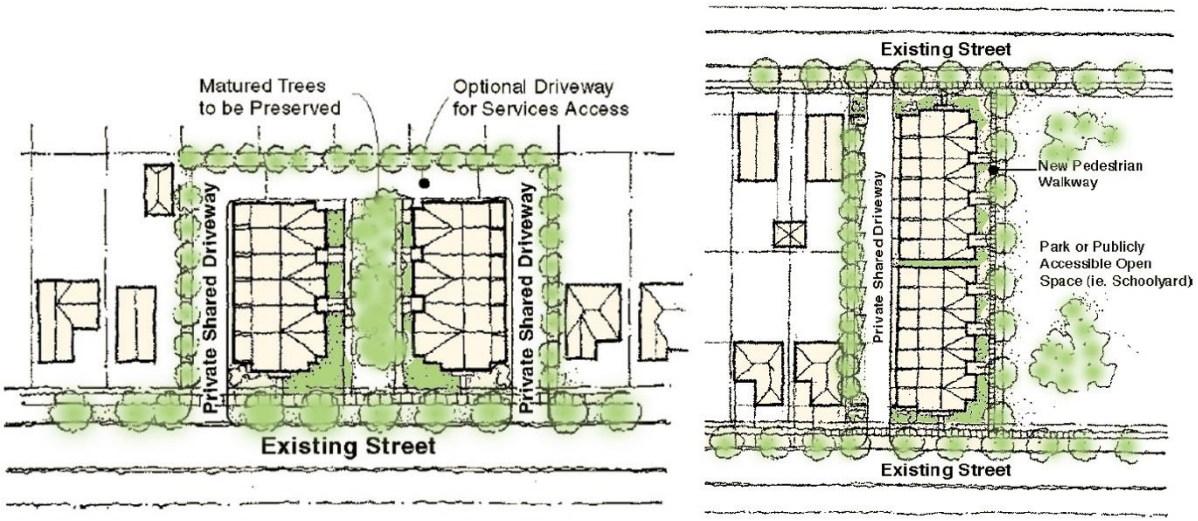
Small urban parks and accessible open spaces are like public living rooms. Appropriately located, sized and detailed buildings, and their ground floor uses, help define the edges and determine safety, use and quality of these open spaces. Many of Toronto's open spaces, including public parks, schoolyards and private amenity spaces, share the block with private buildings.

Guidelines for Locating and Designing Open Space:

1. Preserve and protect existing healthy trees and green space.
2. Integrate existing natural attributes and topography within the development and, where possible, make a public feature of these elements.
3. Landscape both the Public Boulevard and private property to enhance the pedestrian environment.
4. Maintain and, where possible, extend parks and open space networks through the neighborhood to encourage the safe use of these spaces by the public.
5. Provide common open space such as children's playgrounds (ie: privately maintained tot lots) when appropriate.
6. Minimize parking and servicing on adjacent streets or parks by placing these functions underground or at the rear.

Organize the layout and design of new development adjacent to parks and open space so that:

1. Where possible, buildings should face parks and open spaces across a Parkside street
2. Buildings face onto these spaces
3. Windows overlook parks and open spaces to ensure clear views for safety



New development to face parks / open spaces on adjacent sites where new streets adjacent to the park are not possible

Preserve and integrate landscape features into site design

Walkways

As development in a neighborhood intensifies, additional ground level pedestrian access may be needed to link public destinations such as schools, parks and public transit. Existing pedestrian routes through large neighborhood should be maintained and enhanced with complementary abutting building uses and landscaping. Mid-neighborhood routes work best when they supplement, rather than duplicate or replace, the role of public streets.

Guidelines for Walkways:

1. provide easy, barrier free and direct access to public destinations
2. Connect pedestrian routes to adjacent developments
3. Embellish walkways with landscaping and lighting
4. Create extensions of public sidewalks by using the same surface and planting materials to indicate this is publicly accessible
5. Provide clear sight lines and direct links to the public sidewalk
6. Provide windows along the building face to encourage comfortable and safe pedestrian use
7. Design adjacent buildings so sunlight can reach the walkways during midday

BUILDING LOCATION AND ORGANIZATION

Some of the City's most pleasant streets are created, not through the grand architecture of individual buildings, but rather through the cumulative effect of many generations of buildings lined up along the edge of a street. This traditional building pattern creates the walls of an 'urban room' and makes up a public street. If new buildings follow this pattern they will enhance the streetscape and help pedestrians enjoy the street and feel safe. A setback from the public roadway consistent with the neighboring properties should provide a space for landscaping and a pleasant continuous green space adjacent to the public sidewalk.

Guidelines for Front Yard Setbacks:

1. Provide space for an entry, front stoop and landscaping between the public sidewalk and private home

2. In general, match the front yard setback so it is equivalent to the existing adjacent properties
3. Provide a minimum 6 meters setback from the front property line when parking is at the front of the property
4. Provide a minimum 2-3 meters setback from the front property line for services and privacy when parking is at the back

Parking

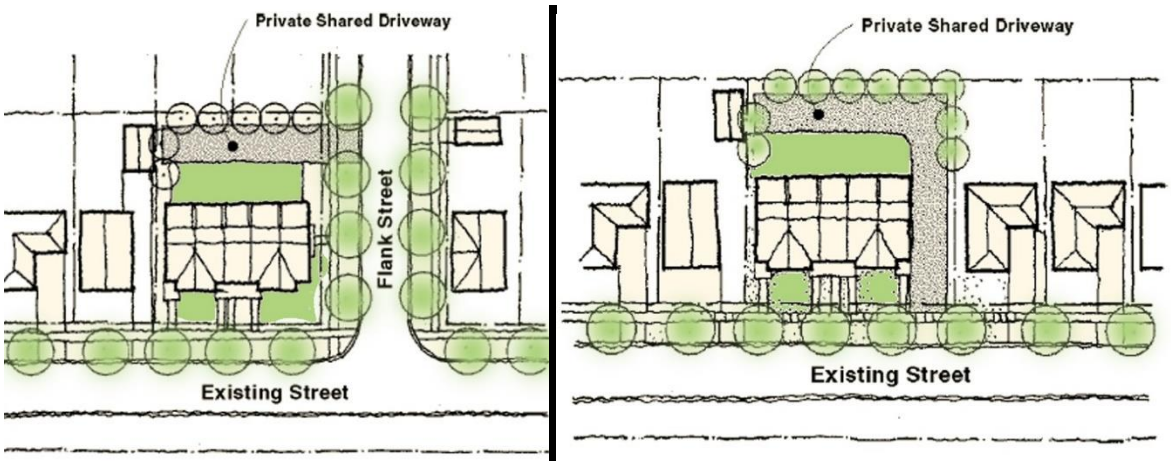
Parking for existing and new development should not dominate the streetscape, but instead be located in underground shared garages or to the rear of individual townhouses. Each curb-cut and driveway for service, parking and pedestrian drop-off creates a potential conflict with pedestrians. Multiple curb-cuts and driveways jeopardize safety and comfort for pedestrians and preclude curbside parking and tree planting. Ideally, parking and service areas should be accessed from a shared lane/driveway system. If the garage is at the front of the house, the plot frontage should allow for parking on-site, a landscaped front yard, Public Boulevard and enough space between private driveways for on street short-term parking where permitted. If residence are designed for plots less than 6 meters wide, the front yard parking area plus the walkway occupies most of the front yard. When this pattern is repeated, the streetscape is filled with multiple curb cuts, more paving than soft landscaping, too little boulevard space for street trees, and few opportunities for on-street visitor parking. This jeopardizes pedestrian safety and diminishes the quality of the street. Narrow townhouses produce better streetscapes when parking is at the back of the unit and accessed by a lane or private shared driveway. Lot frontages and setbacks can then be reduced and still present a safe, comfortable and nice looking streetscape lined with trees, gardens and porches.

Without front yard driveway curb cuts, short term on-street visitor parking is possible. With this arrangement the ground floor uses at the front of the house are devoted to living space (as opposed to a garage) and enhance the safety of the public sidewalk. Where on-street parking is not allowed, sufficient parking on site needs to be provided. If parking is at the back, narrow lot frontages as small as 4.2 meters become possible without losing amenity on the street.

Guidelines for Parking:

Avoid properties designs with integral front garages, or front-yard parking. Only consider front parking/garage designs where rear lanes/ shared driveways cannot fit (such as in the case of shallow blocks and lots or sites with difficult topography) and incorporate the following standards:

1. A front driveway only when a lot is more than 6 meters wide.
2. A driveway width (including a walkway leading to the front door) restricted to 3 meters for access to a single car garage in the front wall of the property.
3. A minimum of 6 meters space between individual driveways to not preclude on-street parking.



Single Driveway access L-shaped driveway access

Servicing and Utilities

Garbage storage and disposal, loading docks, ramps to underground parking, vents, air conditioner compressors, meters and transformers are essential to the efficient functioning of any new development. Where possible, they should be incorporated into the design of the building and /or integrated into landscaped areas to minimize their noise and unsightly visual impact on pedestrian areas, streets and adjacent homes. The preferred locations for service areas are underground and/or paired with similar servicing functions on adjacent properties. Easements for municipal services may be required.

Guidelines for Locating Servicing:

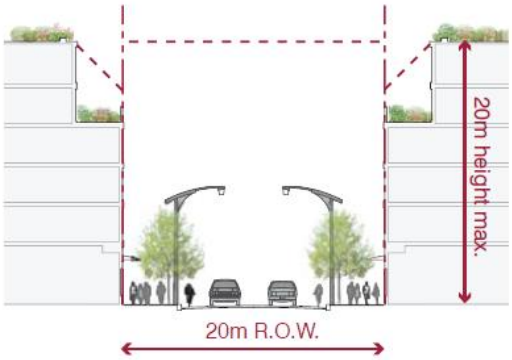
1. Physical lay-out of new, existing and retrofitting developments must meet the City's servicing requirements.
2. On corner sites, take private shared access from a flanking street where possible.

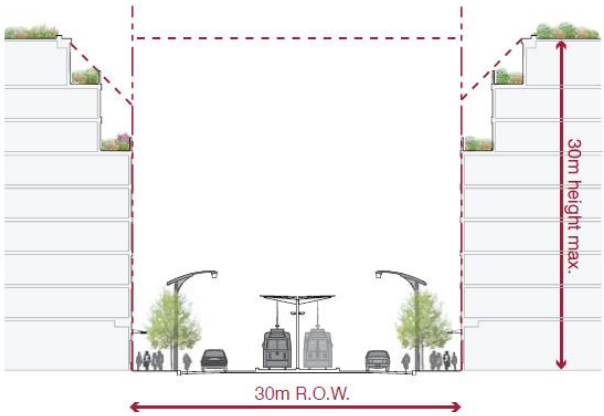
3. Locate loading, garbage and other services so they do not negatively affect adjacent residences; screen with fencing and/or landscaping or integrate into the design of the building so they are not visible from the street or adjacent accessible open spaces and parks.
4. Consolidate servicing areas in the interior of the block with cooperative arrangements among landowners for access.
5. Integrate auto ramps and service entrances into the building facade to minimize space needs and potential unsightly appearance.
6. Locate transformers, utility meters, HVAC (heating, ventilation, air conditioning) equipment and other machinery off the back when possible and/or ensure that they are not visible from the street or other public space.
7. Public garbage pickup is made from the public street.

BUILDING FORM

Street Proportion

Street proportion is the relationship between the height of buildings on each side of the street and the width of the space between those buildings. In new development it is important to analyze the existing context of building massing and street proportion. New townhouses should not reduce adequate sunlight and sky view for streets and adjacent open spaces. The mass or shape of a new building should step back (and down) to provide a transition on sites that are next to, or across the street from, existing buildings that are lower in scale.





Guidelines for Locating the Building Face of New Development:

1. Provide adequate distance between buildings to ensure appropriate light, view and privacy

2. Position buildings to face one another with a front-to-front and back-to-back relationship, whether on either side of a street, lane or open space
3. Design buildings to step back (or down) to provide a suitable transition to neighboring buildings that are lower or setback further

Relationship of Building to Grade and Height

One of the main issues new development raises is the perception of excessive height and potential impact on the abutting properties and streets. This creates less than desirable streetscapes and backyards with negative impacts, including drainage problems on adjacent properties. In developments on narrow plots with front integral garages, the garage, basement and utility areas occupy the ground floor. Typically, the livable area of the city is one level above grade. Consequently, what is a three-storey house in a zoning by-law, is actually four storeys in relation to the street. The manipulation of site grading may lead to extensive perimeter retaining walls and excessive grade differences between the site and the surrounding area should be avoided. The overall building height should reflect the prevailing context of neighboring buildings, with a maximum height limit identified in the applicable zoning by-law. On sites that are adjacent to lower height buildings, either on the block or across the street, the massing of new development should step down or provide lower scaled building elements that respond to the building height and mass of neighboring buildings. In locations where higher buildings characterize the neighborhoods, additional storeys and height may be considered appropriate for new development provided the design addresses issues of light and privacy.

Guidelines for Building Grades:

1. The first floor level should be raised approximately 3 to 5 steps above the grade of the sidewalk directly in front of the front entrance. The top of the front door stoop should be NOT HIGHER than 0.9 meters above grade, to provide living space close to grade and to avoid a long barrier-like flight of stairs up to the front porch or stoop. Where setbacks are equal to or less than 6 meters the top of the front door stoop should be NOT LOWER than 0.6 meters above the sidewalk grade to ensure privacy for residential use.
2. Development located on Avenues, where ground floor live/work uses are permitted, can have their first floor level at the same grade as the sidewalk.

3. Limit the overall building height to match the context or the existing zoning bylaw.
4. Maintain the existing natural grade at property lines.
5. Avoid drainage swales, or low-lying areas where water collects, and artificially raised, or lowered, grades. (These may adversely affect adjacent properties, open spaces or use of amenity areas, and may require retaining walls.)

Light, View and Privacy

The guidelines establish setback requirements for space between buildings in order to maintain standards of light, view and privacy. These are three interrelated conditions influenced by the orientation, spatial characteristics and distances between the walls, balconies and windows of adjacent buildings.

Each of these conditions should be considered separately.

1. Natural light inside a dwelling: The orientation and space between building walls and windows is sufficient for daylight to reach the main living space for part of the day.
2. A reasonable view from a unit: The view from a dwelling unit window should extend beyond the nearest outside facing wall.
3. Privacy: residential windows and balconies do not face or overlook each other.

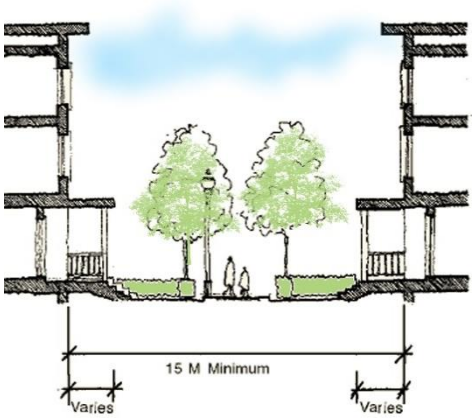
The City recommends a 15 meters facing distance between the primary faces of buildings. In addition to providing light, view and privacy, the 15 meters facing distance will also create a reasonable private amenity area where units are situated back-to-back or adjacent to an existing residential area. If buildings are two storeys high (or where the units are wider) the setback could be reduced. If the 7.5 meters rear yard setback is reduced, planted screens and decorative walls can mitigate views into amenity spaces.

Guidelines Enhancing Light, View and Privacy:

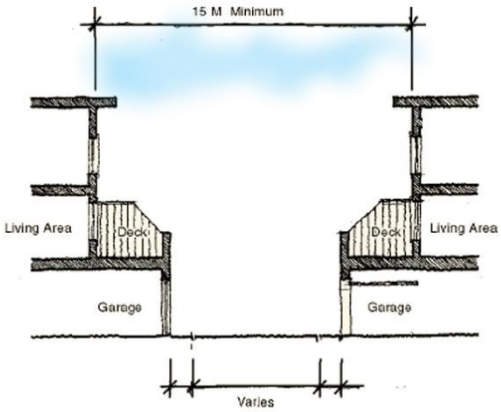
Allow for a minimum of:

1. 7.5 meters back yard setback to the rear property line.
2. 15 meters facing distance between townhouse block.
3. 7.5 meters between the back of a house and the side of another.
4. Set the buildings back so they do not project into a 45 degree angular plane gradient measured from the rear property line of the adjacent residence.

5. When integrating new townhouses into an existing streetscape, use the same side yard setbacks as the neighboring properties.
6. Windows facing into interior side yards should be kept to a minimum to ensure privacy.



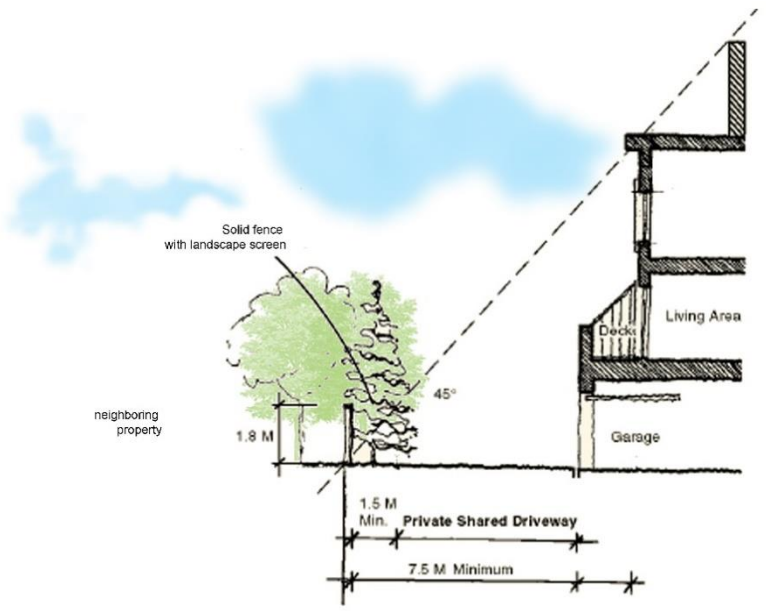
Light, view and privacy - face to face



Back to back

The Building Face

The front facades of buildings are the walls of Ranchi streets and public open spaces. These facades or exterior faces tell people about the building, what it is, how to enter, the nature of its interior uses and their relationship to adjacent buildings, streets and open spaces. Individual buildings that line a street or edge of a park form an enclosure for that public space. The design of an individual facade, including the shape and layout of windows, the profile of the roof, the presence of porches or stoops, works together with other facades on the street to create a single wall. New development should not just copy the adjacent buildings but should consider its role as part of Great Street or park wall design. A memorable and distinctive building at a corner can reinforce the prominence of that corner within the city. Buildings that are located at the end of a street are visually prominent and have the same potential to become landmarks.



Rear setback and angular plane to minimize overlook and shadows on neighboring properties

Guidelines for Facade Articulation:

1. Balance the expression of individuality of ownership with the role of a building to fit along a street through the design of its facade including a complete range of building details including roof, windows and landscaping.
2. Provide the appropriate number and size of windows for light and view along street and park spaces.
3. Provide appropriate design treatment to both street facades when the building is on a corner. The design of a corner building can be unique and incorporate special features such as towers, corner bays and gables.
4. The design of buildings that terminate the street view can be unique and incorporate building design elements such as towers, bays etc. that promote a memorable place in the city.

A COMFORTABLE ENVIRONMENT FOR PEDESTRIANS

Streetscape Improvement

Streetscape design plays an important role in improving the quality and safety of the public street experience for pedestrians, cyclists and motorists. An ideal pedestrian environment includes street trees for shade and greenery, planters for seasonal variety and interest, pedestrian scale lighting for safety and appearance and permeable paving for water infiltration. New development should improve the adjacent boulevards and sidewalks by

incorporating pedestrian lighting, street trees, decorative paving, landscaping and street furniture (where applicable). Allowance for pedestrians, cycling, motorist safety (as in sightlines) and maintenance need to be included. The guidelines apply to both private and public roads. All streets should have sidewalks and trees. When planting trees, it is beneficial to have as much planting area as possible. The amount of 36 square meters of soil per tree at 1 meter depth is needed to enable the tree to grow to maturity (80 to 100 years). Less space reduces the life expectancy of the tree and the benefit that the tree will provide to the environment.

Guidelines for an Attractive Streetscape:

1. Maximize the amount of soft landscaping on both the public right-of-way and private plot respecting pedestrian, cycling motorist safety (clear sightlines) and maintenance activities.
2. Provide a minimum of 80% front yard soft landscaping when parking is at the back, 30% when parking is at the front.
3. Incorporate existing natural features and topography.
4. Provide street tree planting at 6-10 meters spacing, with trees in a continuous tree pit and/or clusters where space permits.
5. Provide 36 square metres at 1 metre depth of appropriate soil and growing space for each tree.
6. Plant high branching deciduous trees to form a canopy and provide shade.
7. Use a variety of trees and ornamental shrubs on private property adjacent to streets for year-round interest.
8. Landscape areas between adjacent uses, such as between laneways and adjacent back yards.
9. Provide water permeable surfaces, such as interlocking pavers, for driveways.
10. Coordinate space for tree planting with utility locations and other city infrastructure

Pedestrian Comfort and Safety

Safety can be a concern anywhere in the city. The design of townhouse developments should encourage informal surveillance.

Guidelines to ensure Pedestrian Safety:

1. Locate and design open spaces, parking facilities and building entrances for the safety and security of the residents and visitors.
2. Provide adequate lighting according to public standards for sidewalks, pathways, parking lots and lanes to promote safe evening use.
3. Create habitable rooms and windows that face streets, sidewalks and associated open space to promote informal surveillance.
4. Design streets and sidewalks without dead ends that could lead to areas of entrapment.
5. Promote public safety on sidewalks by minimizing the potential for pedestrian/ car conflicts.
6. Provide “tot lots” in safe, convenient and highly visible locations to ensure informal surveillance by residents.

ANNEXURE – 2 SPATIAL STRATEGY AND PRELIMINARY ZONAL DEVELOPMENT PLAN

SPATIAL STRATEGY FOR ZONAL DEVELOPMENT PLAN

Bottom-up procedures are successful for improving the quality of land use planning and resource management. Procedure based planning aims at linking the micro level of management (i.e. farm, community land) and the level of policy making (zonal and master plan). In land use planning, the problem has more often been approached by studying the interactions between the biophysical and socio economical elements of a land use system.

Procedure based planning allows to:

• Ascertain the representation of the important local planning issues at Zonal Development Plan and Master Plan level;

• Assure the feasibility of proposed local interventions by taking into account zonal development plan & master plan objectives and constraints (biophysical, socio-economical) as well as local knowledge, incentives and values; and

• Provide local planners with decision-making tools for maximizing the potential of zonal development plan and master plan support (geo data, financial, organizational, etc.

Checking the relevance of zonal and city level plans to local communities and reducing land use planning conflicts. Procedure based planning approach within overall framework of ZDP is most suitable for critical areas of urban policies and development where ZDP policies could not make impact at local level (land assembly, villages, unauthorized colonies, etc.)

PROCEDURE BASED PLANNING

Taking into consideration 73rd and 74th Constitution Amendment, the Master Plans has introduced concept of Local Area Plan, the Master Plan and Zonal Plan remains to be macro level plans which cannot respond to micro level ground realities. To absorb ground realities and formulate enforceable building bye laws, it will be necessary to focus on much smaller areas with more or less similar character and concerns. In other words areas with specific norms and standards need to be detailed out to prepare local area plans.

REGULARIZATION OF UNAUTHORIZED COLONIES:

Master Plans recognizes the problem of unauthorized colonies in Ranchi. In the past policies for regularization were formulated as a corrective measure on and above prevailing Master Plan. All unauthorized colonies whether on private or public land regularization should be done as per government orders issued from time to time. For proper improvement of physical and social infrastructure, minimum necessary physical level of services and common facilities are to be provided. Master Plan for the city provided reduced space standards for facilities taking into consideration difficulty in finding vacant plots for facilities in built up areas. But actual procedure for regularization has been separated. Thus, procedure based planning as the Plan for regularization of unauthorized colonies. The Ministry of Urban Development should Revised Guidelines stating procedure for unauthorized colonies for further processing to be implemented by local bodies. Further Ministry of Urban Development notified detailed procedure for regulation of unauthorized colonies and issuing of 'provisional certificate for regularization' or in other words list of colonies which are eligible for regularization. Thus, Master Plan would pave the way for an era of Procedure Based Planning.

MIX USE

Mix use has emerged as a major provision for any kind of development due to emerging needs and requirement of people. Ranchi being the State capital and an important center of economic activity, it has a large diversity in the typology of residential areas. Apart from the planned residential colonies built as part of Residential, Commercial and Industrial as well as through the process of planned development undertaken by the various Authorities, there are authorized residential areas in the core city, special areas and urban villages. Other planned areas include resettlement colonies and core area. There are also regularized unauthorized colonies as well as slums and Jhuggi Jhompri clusters in various parts of Ranchi city and so our interest should be to follow a differentiated approach in the application of the mixed-use policy in Ranchi. The differentiated approach based on categorization of colonies should be adopted by RMC and RRDA and GRDA for unit area method of property tax assessment.

The following mixed use and commercial activities are permissible in residential premises

- Mixed Use Streets
- Commercial Streets

• Small Shops

• Professional Activities

• Other Activities: Group Housing , Notified Mixed Use Streets (including pedestrian streets- Notified Commercial Streets (including pedestrian shopping streets) The Small Shops of maximum 20 sq m area, trading in or dealing with the following items/activities, may be allowed on ground floor only, in residential premises, including in A and B category colonies; - Professional Activity: subject to general terms and conditions specified in bye laws of GROUP HOUSING and Plotted development in all categories of colonies

Spot Zoning of pre-existing cultural, religious (including spiritual) health care and educational institutions. The genesis of the concept of Spot Zoning is to protect genuine pre-existing institutions for this purpose. • The institutional activities which existed up to a cut off dated building only are to be considered for regularization

• The regularization shall be allowed on the lands which do not form part of the Ridge, Regional Park, developed park, Riverbed, Gram Sabha land or public land. Institutions on the lands affected by Heritage Zone, land required for Master Plan roads, service corridors, etc.; shall not be regularized

• The extent of buildable area shall be limited to the extent of MP 2037 norms and the remaining surplus area shall be reserved for Recreational Green and Open with a maximum 3 times of the existing FAR subject to payment of levies, charges, other conditions as may be stipulated. Buildings so permitted will have to directly serve the principal objectives of the Institution.

RMP, 2037 should permits certain public and semi-public facilities in residential and other use zones as a part of approval of lay out or as a case of special permission from the Authority

• The regularization shall be subject to payment of all charges and levies

• The applicant will submit all the details of land ownership and area, built up area, site plan indicating the location of building, building plans, etc.

• The applications, thus, received will be examined by zone-wise committee for recommendations to the Authority.

The above Concept suggest detailed procedure for integration at micro-level which is useful for the zonal plans. The practice in our country where planning is ruled by procedures. Planning practice in India inherited from colonial system of planning with rigid land use plan

with well-defined functions, uniform standards and non-existence of flexibility as Procedures do not prescribe uniform results they ensure that for each individual situation the best possible results are identified.

For better planning zonal plans have been a very successful tool but wide range of planning tools like implementation mechanisms, short term policies to create interface between planning, implementing agencies and decision makers. Adding important planning tools like "procedure based planning" to the Zonal plan document makes it implementable and result oriented. Flexible localized "procedure based planning" approach is necessary to integrate local issues like land assembly, mix use, regularization of unauthorized colonies and urban villages, etc. among themselves so that land use planning becomes practical and implementable.

MAIN FEATURES FOR SPATIAL STRATEGIES

Improve accessibility/ connectivity with both the urban extension and the rural areas

Ensure that different land use requirements of the community area planned in a sustainable way Upgrade infrastructure (Both physical and social)

Promote sustainable development by preserving natural resources and eco-system of the region to implement smart Principles of Development for better city Planning Develop adequate parking area facilities in and around the major activity centers of the city. Preserve & Develop natural resources & open spaces

NEIGHBORHOOD PLANNING

The concept of neighborhood unit evolved due to the advent of industrial revolution and degradation of the city environment caused by high congestions, heavy traffic movements, factors of security for the school-going population, distant locations of shopping and recreational activities, etc.

These major issues led to the development of neighborhood concept with the foresight of creating a safe healthy physical environment wherein:

- Children would have no traffic streets to cross on their way to schools which are within walking distance from homes;
- Women would be able to have a walk to a shopping center for purchasing daily household goods;
- Employed people would find convenient transportation options to and from work.

- Well-equipped playgrounds would be located near the houses wherein children may play in safety

The activities of a town takes place in its public spaces. In a town/ urban area, there are a wide range of public spaces which are differentiated by the pattern of their functions and circulations system. Neighbourhood unit concept, which is being used as the planning unit for a town or city consists of following urban spaces for public assemblies

- Streets and squares
- Parks and Grounds
- Precinct
- Recreation green
- Civic and Religious Building
- Sports
- Shopping Complexes
- Community centre's for public assembly

TRANSITS ORIENTED DEVELOPMENT (TOD)

TOD focuses development in transit-supported locations, links transit directly with land use, and brings people together with jobs and services. No universally accepted definition as attributes are relative to context Most definitions include moderate to high to density, pedestrian orientation, mixed use, and transit connection.

A transit-oriented development should have:

- Active, walkable streets
- Building intensity and scale
- Careful transit integration

According to the Jharkhand TOD 2016-2026 Policy all urban areas needs to be development according to the transits oriented development. The major points of Jharkhand TOD policy are given below:

- The Government of Jharkhand aims to, sustainably, guide urban development in the State over the coming years and provide a clear framework for its cities to better

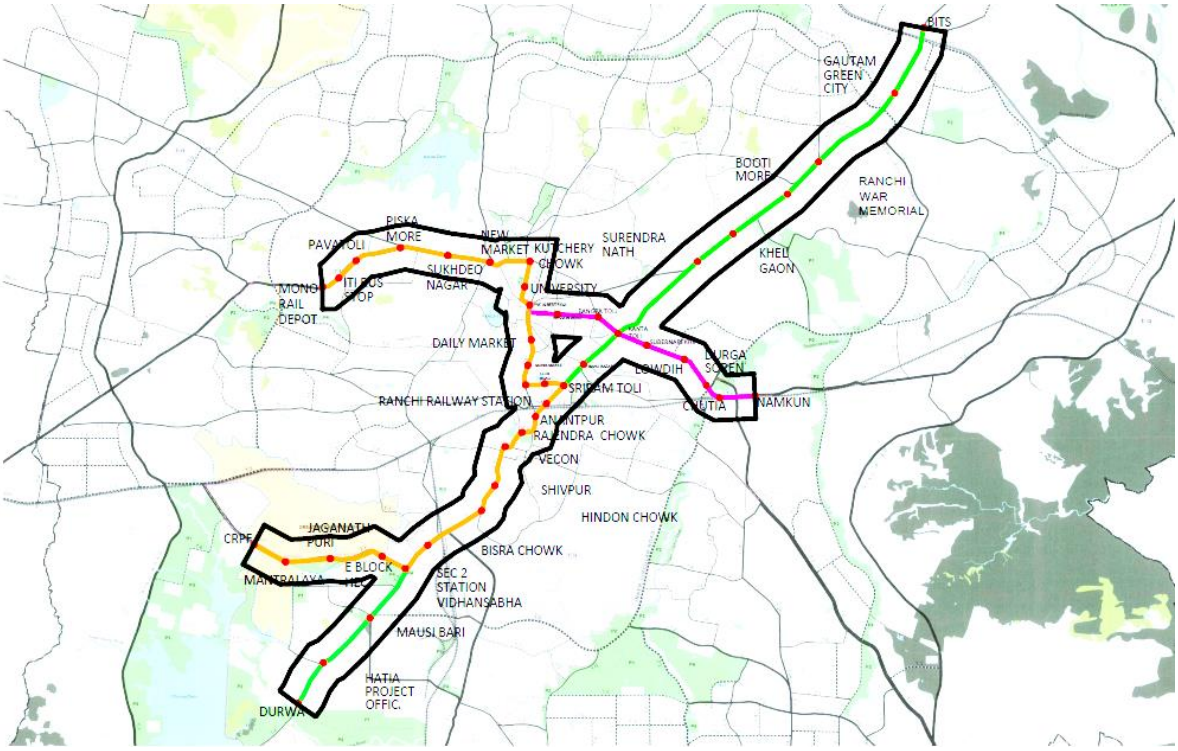
manage their existing urban areas as well as guide future transportation and land use investments.

- The present, growing use of personal motor vehicles (PMVs) in the urban areas of the State is contributing to traffic congestion, poor air quality, declining public health, increasing number of road fatalities, and social segregation. Further, in the past decade, several of Jharkhand's cities have been allowing, even facilitating, low-density urban sprawl, often in the form of gated complexes with mono-functional land uses, such as only housing or only industry. This approach and the consequent trends coupled with poor public transport (PT) infrastructure have resulted in longer commutes, growing dependence on PMVs, rising congestion, and poor mobility options, especially, for the urban poor and other vulnerable groups.
- As cities in Jharkhand continue to grow, there is a clear need to provide for increased housing and commercial space over the next decade, to meet housing and employment demands of the future population. Basic civic infrastructure like roads, parks, and utilities also need to be improved, as these have a direct implication on the quality of life. There is also a need to develop low-cost housing options with basic infrastructure for the urban poor.
- In order to comprehensively address these issues, Gal has adopted the JTODP, applicable as relevant, for the whole of Jharkhand. Based on a transit-oriented development (TOD) approach, this policy seeks to encourage urban development practices that promote sustainable modes of transport (walking, cycling and PT). Simultaneously, it seeks to discourage and disincentives the use of PMVs.
- Moreover, JTODP is meant to provide a strategic framework for Jharkhand's cities to proactively plan for future residential, commercial, and other development, within a compact city form, so that 60% or more of its citizens can have access to their shelter and work as well as other public amenities by using high quality mass rapid transit (MRT), which in turn, can be accessible within walking distances from all these points.

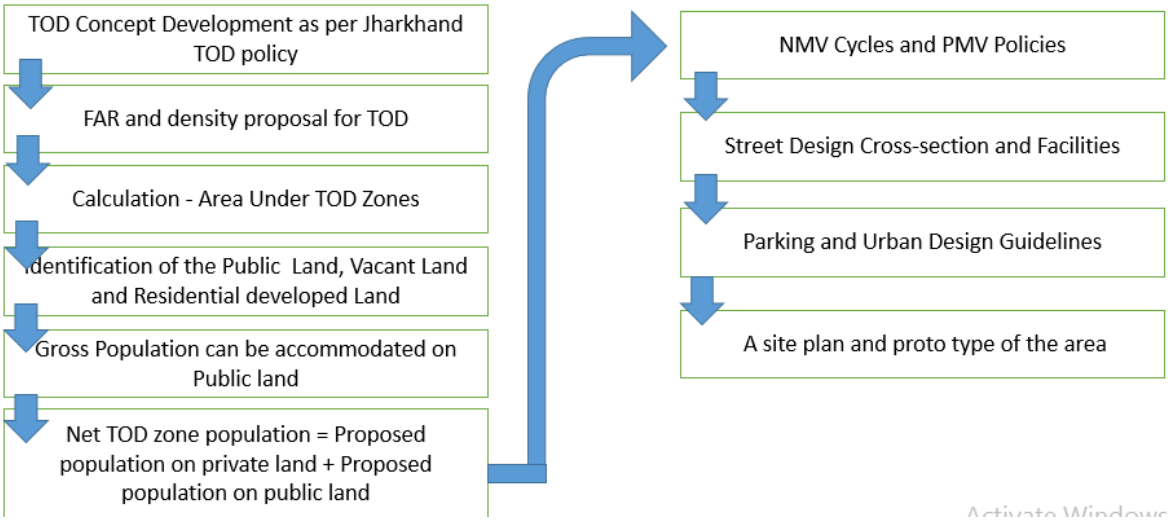
In reference to all above stated points and Ranchi Master Plan 2016 the Ranchi TOD Zone has been identified and delineated. Delineate high intensity development Zones called TOD zones- to a distance of 500 metres on either sides" At least 60% of

metropolitan population lives within 500m walking distance of MRT Corridors. FAR at least 3 times higher as compared to non-TOD zones

Transits Oriented Development along MRTS/LRT Corridor as per Ranchi Master Plan



METHODOLOGY ADOPTED FOR RANCHI TOD



ANNEXURE – 3 MODELS OF PUBLIC –PRIVATE PARTNERSHIPS

i) Build – Operate – Transfer (BOT)

Under this method of financing the public and the private sector join hands to complete a project. A common method of financing Preservation and maintenance of water body works is the Build-Operator-Transfer method.

This is a contractual arrangement whereby the project sponsor undertakes the construction, including financing, of a given infrastructure facility, and the operation and maintenance thereof. The project sponsor operates the facility over a fixed term during which it is *allowed to charge facility users* appropriate tolls, fees, rentals, and charges not exceeding those proposed in its bids or as negotiated and incorporated in the contract to enable the project sponsor to recover its investment, and operating and maintenance expenses in the project. The facility is transferred to the government agency or local government unit concerned at the end of a predetermined term.

The main characteristic of such project is finance arrangement which sets its reliance on the revenue generated from a project for the repayment of loans and investment.

A number of parties are involved in a BOT project. There is the entrepreneur who takes up the work and is the driving force behind a project. The contractors construct and may operate the asset. They may be a part of the operating group. The Government is a party as it is the main client who wants the job done and a customer is the user of the facility. A financier lends money and may be a bank or funding agency and a facilitator does the initial assessment of a project and its different segments.

ii) Build-and-Transfer (BT)

A contractual arrangement whereby the project sponsor undertakes the financing and construction of a given infrastructure or development facility. After the completion of the project it is turned over to the government agency or local government unit concerned, which pays the sponsor or an agreed schedule, its total investment expended on the project, plus a reasonable rate of return thereon. This arrangement may be employed in the construction of any infrastructure or development project, including critical facility that, for security or strategic reasons, must be operated directly by the Government.

iii) Build – Lease – and – Transfer (BLT)

Under this arrangement, a project sponsor is authorized to finance and construct an infrastructure or development facility and upon its completion turns it over to the government agency or local government unit concerned on a lease arrangement for a fixed period, after which ownership of the facility is automatically transferred to the government agency or local government unit concerned.

iv) Build-Own-and Operate (BOO)

A contractual arrangement whereby a project proponent is authorized to finance, construct, own, operate and maintain an infrastructure or development facility from which the proponent is allowed to recover its total investment, operating and maintenance costs plus a reasonable return thereon by collecting tolls, fees, rentals or other charges from facility users. Under this project, the proponent who owns the assets of the facility may assign its operation and maintenance to a facility operator.

v) Build – Transfer – and – Operate (BTO)

The public sector contracts out the building of an infrastructure facility to a private entity such that the contractor builds the facility on a turn – key basis, assuming cost overruns, delays, and specified performance risks. Once the facility is commissioned satisfactorily, title is transferred to the implementing agency. The private entity however operates the facility on behalf of the implementing agency under an agreement.

vi) Contract-Ad-and Operate (CAO)

A contractual arrangement whereby the project proponent adds to an existing infrastructure facility which is renting from the Government and operates the expended project over an agreed franchise period. There may or may not be a transfer arrangement with regard to the added facility provided by the project proponent.

vii) Develop-Operate-and-Transfer (DOT)

A contractual arrangement whereby favorable conditions external to a new infrastructure project which is to be build by a private project proponent are integrated into the

arrangement by giving that entity the right to develop adjoining property, and thus, enjoy some of the benefits the investment creates.

viii) Rehabilitate-Operate-and Transfer (ROT)

A contractual arrangement whereby an existing facility is turned over to the private sector to refurbish, operate and maintain for a franchise period at the expiry of which the legal title to the facility is turned over to the Government.

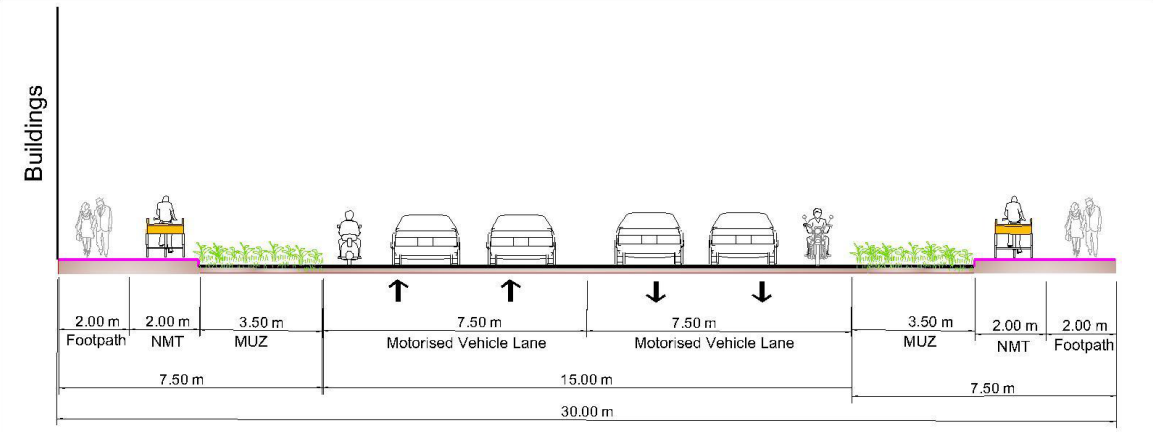
ix) Rehabilitate-Own and Operate (ROO)

A contractual arrangement whereby an existing facility is turned over to the private sector to refurbish and operate with no time limitation imposed on ownership. As long as the operator is not a violation of its franchise, it can continue to operate the facility in perpetuity.

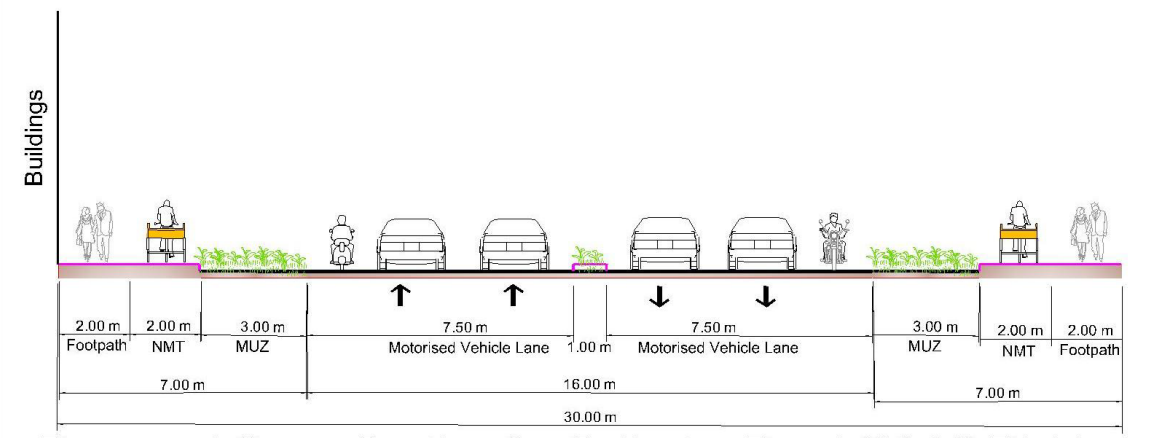
xi) Commercial Development

The aim is to explore the possibility of revenue generation from sale/lease of a strip of land on either side along the water body through commercial development of water body. In addition, ways and means of generating additional revenue including advertisement revenue, entry tickets etc. are envisaged.

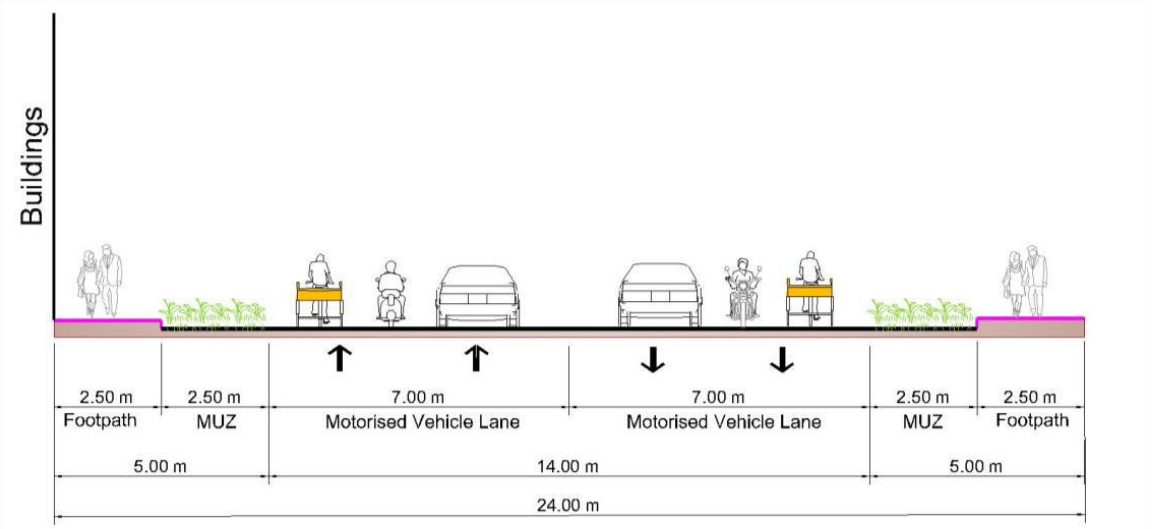
ANNEXURE – 4 TYPICAL ROAD CROSS SECTION



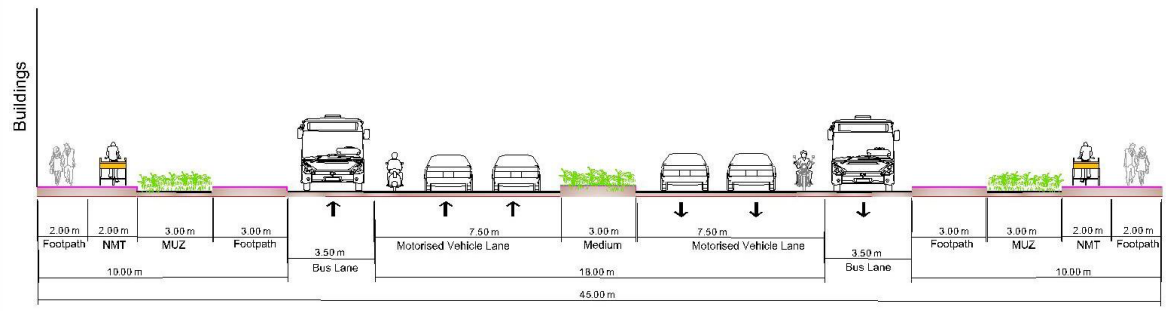
Proposed Cross Section for Collector Road (30 M) Undivided



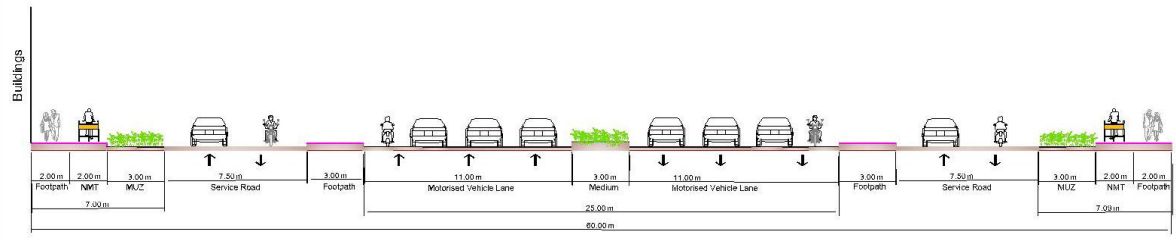
Proposed Cross Section for Collector Road (30 M) Divided



Proposed Cross Section for Collector Road (24 M)



Proposed Cross Section for Arterial Road (45 M)



Proposed Cross Section for Arterial Road (60 M)

ANNEXURE – 5 STREET VENDING

The street vendors cater to the needs of a large majority of the city's population by providing a variety of goods at lower prices often conveniently accessible. Yet, street vendors have to deal with hostile surroundings and a very competitive market. They are frequently harassed for space and are extremely vulnerable to oppression at the hands of the authorities.

The urban local authorities in Indore have to frame norms of spatial planning for earmarking vending zones for street vendors in the master plan, development plan, zonal plan, layout plan or any other spatial plans. The urban local authorities have to prepare the principles for vending and determine vending zones as restricted–free vending zones, restricted vending zones and no vending zones.

The space allocation for vendors should be in tune with the market forces for their successful acceptance. The physical space provision can be given to vendors in three forms:

- On-street vending activity – vending incorporated as a part of street section.
- Organised Markets – vending incorporated in a plot/land just adjoining the major street.
- Flexi Timing on- street vending – Vending will be restricted to certain hours of the day.

Integrating Street Vending in Area Plans

Three approaches can be adopted to accommodate street vendors:

- To accommodate the vendors in the existing locations
- Relocating the vendors in new areas.
- Allocate spaces for the vendors in the newly developed spaces.

Vending activity is "a natural market formed because of local needs". Therefore, the consumers indirectly determine the number of vendors in a particular area.

Regulation and Monitoring Mechanism for Vending Activity

The driving forces behind street vending, as with the informal economy as a whole, are diverse. Many of the working poor who enter street vending do so because they cannot find jobs in the formal economy. Street vending thus serves as a refuge occupation, where low

barriers to entry make it possible to earn a subsistence income. Vendors of fruits and vegetables and other low-end goods often fall into this category.

Others enter street vending because it offers a more flexible or otherwise attractive employment option than wage or salaried work and/or because they see it as a way to avoid the costs of operating a formal storefront business. But then again it has been found that the urban poor, the migrant population have aspirations to be rich and expand their business. Their aspirations provide them with an inherent capacity to pull themselves out of poverty. It is critical that these Micro

Entrepreneurs be provided support to sustain themselves at the same time the government needs to formulate norms so that these vendors are encouraged to become Macro

Entrepreneurs. The regulatory mechanism can be such that the vendor's will be provided license for a year by the authority. They are to be informed about the rules via a pictorial rule book so that the illiterate can understand the vending norms and acquire the special permits as and when required. The vendor's license would be renewed provided he follows the rules and regulations formulated. If any complaints are found against the vendor, the license would not be renewed. The license is renewed only up to a certain number of years after the said period the vendor is expected to upgrade himself into a macro entrepreneur with his savings. The license will be relinquished as and when the vendor evolves into a shop owner from a petty trader. It is important that vendor's be provided only with license and no ownership rights to avoid possession of space.

ANNEXURE – 6 AREA CALCULATIONS ZONE WISE

A table comparing all the zones with respect to the categories specified in the master plan has been prepared.

Table 8-0-1 Area Calculations zone wise

	CLASSIFICATION AS PER MASTER PLAN	ZONE A (AREA IN HA)			ZONE B (AREA IN HA)			ZONE C (AREA IN HA)			ZONE D (AREA IN HA)			ZONE E (AREA IN HA)			ZONE F (AREA IN HA)			ZONE G (AREA IN HA)			GRAND TOTAL FOR ALL ZONES		
	LAND USE CATEGORISATION	ZONE-A	% W.R.T SUB-TOTAL	% OF PLANNING AREA	ZONE B	% W.R.T SUB-TOTAL	% OF PLANNING AREA	ZONE C	% W.R.T SUB-TOTAL	% OF PLANNING AREA	ZONE D	% W.R.T SUB-TOTAL	% OF PLANNING AREA	ZONE E	% W.R.T SUB-TOTAL	% OF PLANNING AREA	ZONE F	% W.R.T SUB-TOTAL	% OF PLANNING AREA	ZONE G	% W.R.T SUB-TOTAL	% OF PLANNING AREA	TOTAL AREA	% W.R.T SUB-TOTAL	% OF PLANNING AREA
DEVELOPED AREA	RESIDENTIAL	1499.74	63.47%	60.58%	2280.19	28.93%	19.99%	2464.61	57.45%	48.22%	1553.00	41.35%	23.86%	1873.74	28.91%	10.85%	2009.94	43.14%	27.77%	4628.07	44.38%	28.60%	16313.84	40.92%	24.64%
	COMMERCIAL (RETAIL)	85.23	3.61%	3.44%	1.27	0.02%	0.01%	38.25	0.89%	0.75%	0.98	0.03%	0.02%	0.00	0.00%	0.00%	2.08	0.04%	0.03%	4.28	0.04%	0.03%	132.18	0.33%	0.20%
	WHOLE SALE & GODOWN	17.52	0.74%	0.71%	0.23	0.00%	0.00%	1.94	0.05%	0.04%	4.01	0.11%	0.06%	170.54	2.63%	0.99%	0.00	0.00%	0.00%	27.91	0.27%	0.17%	222.21	0.56%	0.34%
	COMPOSITE USE - 1	117.35	4.97%	4.74%	565.16	7.17%	4.95%	391.98	9.14%	7.67%	203.59	5.42%	3.13%	372.65	5.75%	2.16%	293.10	6.29%	4.05%	1304.50	12.51%	8.06%	3248.98	8.15%	4.91%
	COMPOSITE USE - 2	0.00	0.00%	0.00%	0.00	0.00%	0.00%	25.80	0.60%	0.50%	35.55	0.95%	0.55%	425.22	6.56%	2.46%	0.00	0.00%	0.00%	124.73	1.20%	0.77%	611.42	1.53%	0.92%
	INDUSTRIES	0.33	0.01%	0.01%	0.00	0.00%	0.00%	379.51	8.85%	7.43%	1.78	0.05%	0.03%	1908.45	29.44%	11.05%	0.00	0.00%	0.00%	662.75	6.36%	4.09%	2953.39	7.41%	4.46%
	PUBLIC AND SEMI-PUBLIC	184.15	7.79%	7.44%	768.84	9.75%	6.74%	179.03	4.17%	3.50%	975.06	25.96%	14.98%	313.43	4.84%	1.82%	230.90	4.96%	3.19%	118.15	1.13%	0.73%	2770.51	6.95%	4.19%
	GOVERNMENTAL OFFICE	69.97	2.96%	2.83%	47.06	0.60%	0.41%	6.85	0.16%	0.13%	22.02	0.59%	0.34%	15.45	0.24%	0.09%	39.40	0.85%	0.54%	432.32	4.15%	2.67%	633.16	1.59%	0.96%
	RECREATIONAL	80.33	3.40%	3.24%	644.79	8.18%	5.65%	320.55	7.47%	6.27%	549.48	14.63%	8.44%	543.33	8.38%	3.15%	669.90	14.38%	9.26%	1354.61	12.99%	8.37%	4163.90	10.44%	6.29%
	TRANSPORTATION AND COMMUNICATION	308.35	13.05%	12.45%	939.80	11.92%	8.24%	481.76	11.23%	9.43%	409.98	10.92%	6.30%	859.19	13.25%	4.98%	1413.79	30.34%	19.53%	1080.96	10.37%	6.68%	5495.33	13.78%	8.30%
	GREATER RANCHI PHASE - 1	0.00	0.00%	0.00%	0.00	0.00%	0.00%	0.00	0.00%	0.00%	0.00	0.00%	0.00%	0.00	0.00%	0.00%	0.00	0.00%	0.00%	688.98	6.61%	4.26%	688.98	1.73%	1.04%
	GREATER RANCHI PHASE - 2	0.00	0.00%	0.00%	2634.67	33.43%	23.09%	0.00	0.00%	0.00%	0.00	0.00%	0.00%	0.00	0.00%	0.00%	0.00	0.00%	0.00%	0.00	0.00%	0.00%	2635.23	6.61%	3.98%
Sub-Total (UNDEVELOPED AREA)		**2362.98**	**100.00%**	**95.45%**	**7882.00**	**100.00%**	**69.09%**	**4290.27**	**100.00%**	**83.94%**	**3755.45**	**100.00%**	**57.69%**	**6481.99**	**100.00%**	**37.55%**	**4659.11**	**100.00%**	**64.37%**	**10427.25**	**100.00%**	**64.43%**	**39869.14**	**100.00%**	**60.23%**
UN-DEVELOPED AREA	DEFENCE AREA	22.37	19.84%	0.90%	68.59	1.94%	0.60%	0.00	0.00%	0.00%	888.22	32.25%	13.64%	465.23	4.31%	2.69%	234.15	9.08%	3.24%	136.17	2.37%	0.84%	1815.60	6.89%	2.74%
	AGRICULTURE	0.00	0.00%	0.00%	833.36	23.63%	7.30%	186.52	22.72%	3.65%	887.55	32.22%	13.63%	3065.39	28.43%	17.76%	543.42	21.07%	7.51%	2673.23	46.43%	16.52%	8191.24	31.10%	12.37%
	FOREST	0.00	0.00%	0.00%	37.67	1.07%	0.33%	0.00	0.00%	0.00%	0.00	0.00%	0.00%	5380.27	49.90%	31.16%	951.24	36.89%	13.14%	595.82	10.35%	3.68%	6966.33	26.45%	10.52%
	HILLOCK	0.00	0.00%	0.00%	370.71	10.51%	3.25%	102.54	12.49%	2.01%	31.59	1.15%	0.49%	102.59	0.95%	0.59%	4.93	0.19%	0.07%	69.45	1.21%	0.43%	682.13	2.59%	1.03%
	RURAL SETTLEMENTS	0.00	0.00%	0.00%	1947.59	55.22%	17.07%	358.95	43.73%	7.02%	631.01	22.91%	9.69%	1481.58	13.74%	8.58%	759.98	29.47%	10.50%	1502.42	26.10%	9.28%	6683.72	25.37%	10.10%
	WATER BODIES	90.37	80.16%	3.65%	268.93	7.63%	2.36%	172.90	21.06%	3.38%	315.98	11.47%	4.85%	286.92	2.66%	1.66%	84.97	3.30%	1.17%	780.02	13.55%	4.82%	2001.52	7.60%	3.02%
Sub-Total (DEVELOPED AREA)		**112.75**	**100.00%**	**4.55%**	**3526.84**	**100.00%**	**30.91%**	**820.91**	**100.00%**	**16.06%**	**2754.34**	**100.00%**	**42.31%**	**10781.99**	**100.00%**	**62.45%**	**2578.71**	**100.00%**	**35.63%**	**5757.10**	**100.00%**	**35.57%**	**26340.54**	**100.00%**	**39.79%**
Total Area (Developed + Undeveloped)		**2475.72**		**100.00%**	**11408.84**		**100.00%**	**5111.18**		**100.00%**	**6509.79**		**100.00%**	**17263.98**		**100.00%**	**7237.81**		**100.00%**	**16184.36**		**100.00%**	**66197.68**		**100.02%**

ANNEXURE – 7 QUESTIONNAIRE FOR WARD COUNCILLORS

QUESTIONNAIRE FOR PREPARATION OF GIS BASED ZONAL DEVELOPMENT PLAN FOR RANCHI

Ward Number : Questionnaire No:

Name of the Ward Councillor:

Address of the Councillor: Contact No:

Interviewer's Name : Date of Interview:

1. Area (in Hectares) _____
2. Population _____
3. Location (which major roads comprise your ward/Zone) _____ Land Ownership and Location

Sr. No.	Land Ownership	Location	Area (Ha)
1.	Central Govt (Railway, Defence, etc)		
2.	State Govt.		
3.	Forest		
4.	Mines		
5.	Urban Local Bodies		
6.	Tribal Land		
7.	Private		

4. Identification of Major Roads and Chowks/Intersections

Sr. No.	Name of the Road	Width (Mt)	Encroachment (If any)
1			
2			
3			
4			
5			

5. Streets with dilapidated structures _____

_____

6. Special Characteristic of the Ward if Any :
   - Residential/Commercial/Industrial/Old City Any other
   - When was the area developed (Tentative Year)_____
7. Identification of Areas for redevelopment (Name the Location) _____
8. Major colonies in the Ward/Zone _____
9. Slum Area if any, Name the Slums_____
10. Villages/Name the Villages _____
11. Influence Zone (Km)
    - Commercial_____
    - Education _____
    - Medical_____
    - Industrial/Business/Service _____

12. Institutional Area _____Name the Location_____

13. Mixed Land Use:

Sr. No.	Name of the Road	Width (Mt)
1		
2		

14. Informal Sector:

Sr. No.	Name of the Road	Width (Mt)
1		
2		

15. Facilities required in Market Areas _____

_____

16. Physical Infrastructure

1. Source of water Supply_____
2. Solid waste management, where is dumping done _____
3. High Tension Wire _____

17. Social Infrastructure

Location of following facilities within the zone/ward

S. No	Facilities	Ward No/ Village
1	Convenience Shopping	
2	Milk Booth	
3	Local Shopping	
13	Anganwari	

14	Primary school	
15	Sr. Secondary school	
17	Electric Sub-station 11 KV	
18	Electric Sub-station 66 KV	
19	Religious building	
20	Banquet Halls	
23	Multipurpose community hall	
24	Community Centre	
25	Three wheeler and Taxi stand	
26	Bus terminal	
27	Parking space for parking of buses, LMVs. IPTs etc.	
28	Underground water tank with booster station and OHT	
29	Sewage pumping station	
30	Local level waste water treatment facility	
31	Waste water treatment facility	
32	Dhalao including segregation	
33	Dispensary	
34	Hospital	
36	Maternity Home	
37	Nursing Home/ Polyclinic	
39	Police station	

18. Freight Movement in Core Area

_____

_____

19. Recreational Area and Open Spaces

Sr.No.	Category	Planning Norms & Standards	
		Units (Approx)	Plot Area (Ha)
1. 2.	Neighbourhood Park Housing Area Park Tot lot		

20. Indicative Distribution of Housing Types

Housing Type	Development Agencies	Location		
		EWS/LIG	Others	Total
Houses on Independent Plots Group Housing Employer Housing Unauthorised Regularised	Public Private Public, Private, Co-op Society Central/State Govt. Co-op Society / Residents / Association /			

Colonies infill	Private			
TOTAL				

21. Any Issues/Problems Faced:

_____

_____

22. Aspirations:

_____

_____

ANNEXURE – 8 DATA COLLECTION

For the preparation of Zonal Development plan, several primary surveys and ground truthing exercises were conducted in Ranchi.

Primary Data:

- Existing Land use survey of open lands as well as built up areas based on satellite images.
- Preliminary survey of stakeholders
- Survey of Existing infrastructure.
- Other surveys for the purpose of preparation of Development plan to determine the potential for different sectors of development
- Slum Areas
- Rural Settlements
- Land Availability and Land Ownership
- Economic Sustainability
- Industrial Profile

Secondary Data

- Population, Employment, type of economic activities
- Land and property prices for the purpose of assessment of costing and stamp duty.
- Existing physical and social infrastructure in the area.
- Industrial Profile of the city
- Proposal of various Governments and Private agencies for the area including Government land, Surplus vacant land for development/ building permissions granted by various planning authorities for this area etc.
- Listing of Heritage Buildings and Guidelines for the development of such areas.
- Data on environmental elements namely air, water, flora and fauna to the extent feasible and identified environmental and ecological issues.
- Review of State level strategies for urban development
- Planning and Development Norms/ Regulations
- Review of Other Studies like Transportation, BPL Population, storm water drainage, water supply, Sewerage and Power.

Meeting with the Ward Councilors

There are 55 wards in Ranchi. To gather information of each ward, special survey was conducted where a meeting was conducted with each ward councilor to know the ward and to collect information related to various sector such as housing, infrastructure, transportation, redevelopment etc. The problems and issues for each ward was discussed. Information regarding area, population, location of the ward i.e. which roads comprise of the ward was collected.

Land ownership details were also tried to be gathered where they were asked to identify land belonging to central government, State Government, Forest, Mines, Urban Local Bodies, Tribal Land and Private Land.

Identification of Major Roads and Chowks/Intersection was done in each ward where the width of the road was mentioned and encroachment on the roads were identified. This data is important to know where the road widening can be done.

Streets with the dilapidated structures were identified. It was discussed with the councilors if the ward comprise of residential, commercial, Industrial, Old City, any other. It was discussed when the area started to develop. Area for redevelopment were identified i.e. areas which needs to be improved in terms of physical and social infrastructure. Number of slums in the particular ward were also identified. Information regarding presence of informal sector, mixed land use on particular roads were gathered.

It was discussed with the ward councilors if there was enough physical and social infrastructure. I.e. if the ward is having enough water supply and if there is a sewerage network existing in the ward. Relevant information regarding availability of enough parks and open spaces i.e. neighborhood park, housing area parks and tot lot was also collected.

Problems Identified:

Housing

- There are a lot of slum areas in the wards which needs to be redevelop.

Infrastructure

- Water is bought by the tankers as the ground water got dried even till 850 Feet depth

- Problem of low pressure of water
- Strengthening of local area shopping

Informal Sector

- Need to relocation of informal market to proper designated place
- Need for public toilets
- Drainage problem

Transportation

- There is insufficient parking in the commercial areas which causes on street parking which further leads to traffic and congestion.
- There is a problem of encroachment on roads
- Traffic problem is increasing day by day
- Road widening is required in the inner city
- Parking facilities required in market areas
- Road infrastructure needs to be strengthened in terms of providing street lights, traffic signals etc.

Recreational

- Need for more park and open spaces

Potentials:

- Greenery due to Rock garden
- 222 houses going to be build under the scheme of Pradhanmantri awas yojana

ANNEXURE – 9 PHOTOGRAPHS OF ZONE - E

BISHOP SCHOOL, DORANDA

BRIDGFORD SCHOOL TUPUDANA

HATIA WATER TANK

DORANDA BAZAR, DORANDA

HATIA CHOWK

HEALTH CENTER, HATIA

BIO-DIVERSITY PARK, LALKHATANGA