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TECHNICAL ASSISTANCE:

CENTER FOR ENVIRONMENTAL PLANNING & TECHNOLOGY (CEPT), AHMEDABAD



MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY (MMRDA)

Executive Summary

DRAFT DEVELOPMENT PLAN FOR NOTIFIED AREA OF 27 VILLAGES OF KALYAN AND AMBARNATH TEHSILS OF THANE DISTRICT

October 21, 2011



Mumbai Metropolitan Region Development Authority



**Technical Assistance:
Centre for Environmental Planning & Technology (CEPT), Ahmedabad**

Executive Summary

1.1. BACKGROUND

Mumbai is the capital of the State of Maharashtra and one of the largest cities of India, with a population of about 12 million in 2001, located on the western coast of Maharashtra. Greater Mumbai Urban Agglomeration is the world's 4th most populous metropolitan area, with a population density of 27,209 persons per square km (2001 census). The 1973 Regional Plan of the Mumbai Metropolitan Region (MMR) envisioned the metropolis as a poly-centric development with successful growth centers at significant junctions.

The MMR Plan of 1996 identified a number of growth centers in the hinterland of Greater Mumbai as exhibiting feeble developmental patterns due to an exponential growth in the population of the metropolis and a number of consequent infrastructural constraints.

Dombivali, Kalyan, Ulhasnagar, Ambarnath and Badlapur were identified as such significant urban growth centers ; strategic connecting hubs between Greater Mumbai and the rest of Maharashtra, presenting tremendous development potential by offering opportunities of decongesting Greater Mumbai.

The Urban Development Department, Government of Maharashtra by Notification No. TPS/1299/1910/CR-34/2000/UD-12, dated 9th August 2006 published in Maharashtra Government Gazette dated 7th December 2006 has appointed Mumbai Metropolitan Region Development Authority (MMRDA) as the 'Special Planning Authority' (SPA) under sub section (1) of section 40 of the Maharashtra Regional and Town Planning Act, 1966 for better planning of the area of 27 villages of Kalyan and Ambarnath Tehsils in Thane District. MMRDA has declared intention to prepare the Draft Development Plan under section 23 of MR & TP Act in the Maharashtra Government Gazette by notice dated 7th February 2008. MMRDA has commissioned on 22nd July 2008 CEPT (Centre for Environment Planning & Technology), Ahmedabad as a Consultant for the project "Preparation of Draft Development Plan for 27 villages of Kalyan & Ambarnath Tehsils of Thane District".

No.	Tehsil Name	Village Name	Total Village Area		% of Total Notified Area
			Sq.km	Ha	
1	Kalyan	Ghesar	1.67	167.32	3.45
2		Hedutane	4.03	402.77	8.32
3		Nandivali turfe Ambarnath	0.64	63.94	1.32
4		Davadi	2.63	262.57	5.42
5		Pisavali	1.08	108.44	2.24
6		Golivali	1.60	160.18	3.31
7		Sonarpada	1.49	148.73	3.07
8		Mangaon	1.41	140.58	2.90
9		Kole	1.65	164.79	3.40
10		Nilaje	2.82	282.38	5.83
11		Katai	1.07	107.24	2.21
12		Usarghar	1.90	189.75	3.92
13		Gharivali	0.81	81.41	1.68
14		Sandap	0.51	51.30	1.06

No.	Tehsil Name	Village Name	Total Village Area		% of Total Notified Area
			Sq.km	Ha	
15 & 16		Bhopar (Deslapada)	4.47	447.30	9.24
17		Nandivali – Panchanand	1.51	150.75	3.11
18		Asade	1.56	155.74	3.22
19		Sagaon	1.17	117.48	2.43
20	Ambarnath	Chinchapada	1.04	103.58	2.14
21		Adivali – Dhokali	1.79	179.40	3.70
22		Umbroli	1.91	190.96	3.94
23		Bhal	2.12	212.01	4.38
24		Dwarli	1.02	102.01	2.11
25		Manere	2.36	235.56	4.86
26		Vasar	4.54	453.82	9.37
27		Ashele	1.63	163.38	3.37
Total of Notified Area for 27 villages			48.43	4843.40	100.00

1.1.1. PREVIOUS PLANNING AUTHORITIES

The area of these 27 villages was a part of Kalyan Complex Notified Area (KCNA) from 15th March, 1976 up to 22nd July 1992. Thereafter this area became part of Kalyan Municipal Corporation limits in 1992. These 27 villages were excluded from the limits of Kalyan Dombivali Municipal Corporation (KDMC) in July 2002. The Zilla Parishad Thane was appointed in the year 2004 as the Planning Authority for the area of these 27 villages. Now the Government of Maharashtra by its Notification No.TPS/1299/1910/CR-34/2000/UD-12, dt.9th August 2006, published in Maharashtra Government Gazette dt.7th December 2006, has appointed the Mumbai Metropolitan Region Development Authority (MMRDA) as the 'Special Planning Authority' (SPA) for the area of these 27 villages for better planning of these villages.

The approximate total population of these 27 villages as per the records from KDMC is 125000. The KDMC had prepared in 1996 Development Plan for Kalyan Municipal Corporation limits which included this area. The Government of Maharashtra has not sanctioned the proposals of Draft Development Plan submitted by the KDMC for the area of these 27 villages. As per letter dt.11th January 2007 from the Urban Development Department, Government of Maharashtra, the Proposals/Regulations in the sanctioned Regional Plan for Mumbai Metropolitan Region (1996 – 2011) are applicable for the proposed development in the area of these 27 villages till the Development Plan is prepared. As per the provisions of sanctioned Regional Plan the area of these 27 villages consists of land use of Urbanisable Zones, U-1 and U-2, as also the Industrial and G-1 (Green Zone) Zones.

1.1.2. OBJECTIVE

The objective of the consultancy is to prepare a Development Plan (DP) under statutory provisions of Chapter III of the MR&TP Act, 1966 and to prepare development control regulations for the notified area whereas content defined by section 22 of the Act, to bring about orderly and planned development of the area.

1.2. NOTIFIED AREA PROFILE

In the context of the Mumbai Metropolitan Region, the Notified Area of 27 Villages is strategically situated at the Mumbai – Thane conurbation and assumes physically central location in MMR. It forms the part of the North – Eastern Sub Region of the MMR.

Out of these 27 villages in the Notified Area, 19 villages are in Kalyan Tehsil and remaining 8 are in Ambarnath Tehsil. The area is adjoined by following administrative jurisdiction and natural features.

- On North: Kalyan-Dombivli Municipal Corporation
- On North-East: Ulhasnagar Municipal Corporation
- On North-West: Ulhas River and Bhiwandi Tehsil
- On South-West: Navi Mumbai Municipal Corporation
- On West: Dasai River and Thane Municipal Corporation

The Region is well connected to the surrounding Urban Centers like Kalyan, Ulhasnagar, Ambarnath, Kulgaon-Badlapur through the State Highways 40 & 43 and the MDR 62.

The Notified Area is conveniently located near the Central Railway corridors, which provides suburban connection to Mumbai, and inter-city connections to Karjat, Pune and beyond. There is also a railway line passing through the notified area that provides a link at Nilaje Station to Panvel, Konkan railway. There is a single track connection between Vasai Road on the Western Railway and Diva on the Central Railway, which also passes through the notified area.

Physiographically, the project area lies along the western foot plain of the Western Ghats and is characterized by rolling topography. There are a few elevated land forms present in the central-southern and south-eastern part of project area and rest of the part exhibits rolling landscape sloping towards north western direction. The north-western part of the project area features the Ulhas river low land plain.

1.3. UPDATED BASE MAP & EXISTING LAND USE

Preparation of an accurate and updated Base Map was the first and foremost activity for the preparation of the Development Plan of the Notified Area. The aim of this exercise was to identify the key physical features (including natural, major river and water bodies and manmade features); accurate administrative boundaries state, district, tehsil, urban area, villages; identify linkages which includes roads (National and State Highway) and railway lines; built and un-built; agriculture, waste land and barren land. Henceforth, this Base Map is the principal source representing diverse spatial information, procured from different sources.

The Data prepared by MRSAC, Nagpur (January 2008) was provided by MMRDA. This was verified and updated by using LISS IV Aerial Image (28 January 2008) also with consultation and discussions with MMRDA officials followed by subsequent ground verifications.

The Existing Land use survey was carried out during the period of August 2008 to March 2009, and the following scenario is arrived.

AREA STATEMENT FOR EXISTING LAND USE			
LAND USE CATEGORIES	AREA (HA)	% OF SUB TOTAL	% OF TOTAL
DEVELOPED AREA			
Residential	482.59	68.12	10.99
Mixed (Residential+Commercial)	14.65	2.07	0.33
Commercial	8.04	1.13	0.18
Industrial	90.08	12.71	2.05
Public/Semi-public	13.16	1.86	0.30
Public Utility	5.67	0.80	0.13
Recreational	0.42	0.06	0.01
Roads (SH+MDR+OTHER ROADS)	65.10	9.19	1.48
Kutchha Roads	11.33	1.60	0.26
Railway	15.56	2.20	0.35
Religious	1.89	0.27	0.04
Sub Total 1	708.49	100.00	16.14
UNDEVELOPED AREA			
Agriculture	1320.90	35.88	30.09
Agriculture Plantation	46.30	1.26	1.05
Open	1447.06	39.30	32.96
Scrub	382.68	10.39	8.72
Tree Cover	125.99	3.42	2.87
Brick Kiln	23.82	0.65	0.54
Marshy Land	74.08	1.69	1.69
Defense	0.68	0.25	0.02
River / Streams / Nallas	30.78	0.84	0.70
Ponds (As per Revenue Map) *	10.58	0.29	0.24
Water Bodies	39.31	1.07	0.90
Hillock	179.49	4.88	4.09
Sub Total 2	3681.67	100.00	83.86
Total (1+2)	4390.16	100.00	100.00
Existing MIDC Area	272.86	5.63	
Excluded Area (Ashele, Manere Urban Part+Ulhas, Dasai River Part)	180.37	3.72	
TOTAL OF NOTIFIED AREA	4843.39	100.00	
*Note: Ponds (As per Revenue map excludes pond in Ashele village near survey no. 51, which is at present encroached by buildings).			

- The above table exhibits, around 16 per cent of the project area has witnessed development, while around 84 per cent land is undeveloped land.

1.4. ISSUES OF CONCERNS

1.4.1. REGIONAL LEVEL ISSUES

The following have been identified as critical issues that need to be addressed immediately for strategic and comprehensive development of the notified area to take place in the future.

- The existing industrial development is observed in the form of a ribbon development along the existing Shilphata Road (SH 40).
- The existing State Highways and Major District Roads in the notified area require up-gradation in terms of widening for better connectivity and accommodating the increasing traffic volumes.
- The area also requires improved connectivity to nearby urban centers.
- The region at present has inadequate sewerage and storm water drainage facilities. There is an immediate requirement for safe collection and conveyance of domestic waste water.
- It is vital to develop an amalgamated growth management strategy for the area including the MIDC Estate and the village settlements (Gaothan).
- The area which was earlier a part of KDMC being excluded from Corporation limits, the local governance is under Zilla Parishad and the respective village Panchayats.

1.4.2. SETTLEMENT LEVEL ISSUES

Provision of adequate and appropriate infrastructure is required to enable more regulated growth of the notified area in the future. The following are critical issues concerning the industrial area that are required to be addressed immediately:

- **Poor maintenance of the basic facilities and services:** The numerous changes in the administrative jurisdiction of the notified area have caused haphazard development in the entire area, and poor maintenance of the basic services provided to the Gaothan.
- **Inadequate Fire Safety facilities:** There is not a single fire station in the entire notified area. This facility if required is obtained from the nearby urban centers.
- **Inadequate specialized Health facilities:** The notified area lacks specialized hospitals and health facilities and the industrial workers and village residents have to travel 5-15 km to avail these services.
- **Absence of Leisure and Recreational Facilities:** The notified area doesn't have planned recreational facilities, in spite of having ample natural resources like ponds, water bodies, hills are in and around the area.

1.4.3. EMERGING GROWTH TREND & POTENTIAL

The population expansion being witnessed by MMR and the changing population dispersal trend across the region has greatly impacted the north-east sub-region and a dense spatial growth pattern is emerging within the sub-region and the notified area. In view of this, the Development Plan is required to be proposed for target population that will absorb the fairly growing population shift in the North-East sub-region of MMR.

The notified area, bounded by the urban centers of Kalyan & Dombivali, has increasingly been subject to such rapid population increases and consequent development pressures.

The last two decades have witnessed a distinct shift from the secondary sector to the tertiary sector with increasing employment & growth rate in the latter in Thane district.

1.5. PLANNING PRINCIPLES

The Development Plan for the Notified Area has evolved from a comprehensive understanding of area studies, land suitability analysis and population/ employment projections carried out for the area.

Economic and Industrial growth of the notified area would be key in the process of its future development. With ecological sustainability being a major design criterion, the development plan emphasizes the need for good education and health among the resident of the notified area, and the according provision of adequate infrastructure and civic amenities here.

The following guiding factors/principles taken into account while designing the Development Plan for the notified area.

- Image Of The City
- Balance Between Resource Conservation & Quality Of Life
- Mobility, Accessibility And Connectivity
- High Intensity Development Supported By Mass Transit System
- Use Of Public Transport & Walk To Work
- Energy And Ecology
- High Class Infrastructure
- An Equitable Environment: Where People Can Aspire, Grow And Have Choices
- Implementation Efficiency
- Efficient Management And Maintenance

1.6. PROPOSED CONCEPT PLAN

The proposed Development Plan is based on the central theme of an organic grid criss-crossing the site forming the main skeletal frame of the Notified Area. The grid size is approximately 0.5 km x 0.5 km, with variations at some places to respond to the immediate context.

These variations are required due to existing development, topography, water bodies etc. The attempt has been to respect the natural topography and cause minimum impact on the landscape.

This principle results in the creation of an organic grid pattern that grows out of its regional context. The ribbon-like grid forms the structure for the area, with major roads of the grid connecting with existing major roads and highways within and bordering the study area. To the extent possible, the roads have been designed so as to follow the pattern of existing roads.

The main feature of the Development Plan is the formation of a major spine – from south-west to north-east direction. The concept is to develop the vertical spine as the main commercial/ offices spine, with high-density development along the road edges. In contrast to this, the roads perpendicular to this spine would be developed as institutional /

residential belts with educational, public-/ semi-public institutions and amenities. The plan features network of interconnected open spaces and green areas along and around the existing water bodies, drainage ways and green buffer areas integrated within the layout.

The key features based on which the plan is formulated are: -:

- Linear development
- Grid-iron pattern
- Modular development
- Open space network
- High intensity built form
- Amenities weaved with the Open Space Network

1.7. POPULATION & EMPLOYMENT PROJECTION

1.7.1. POPULATION PROJECTION

The method adopted for population projection is **Carrying Capacity Method**. The method by way of deterministic approach mainly considers the proposed land utilization pattern and projected site density. It has been envisaged that the Notified Area shall have high intensity land utilization.

The gross residential area shall be 36.5% of the total notified area, which comes to be around 1606 Ha. The basic pre assumption of the model is to allocate 65% of the gross residential area as area for net residential development.

The proposed residential development in the notified area is categorized as rental housing, group housing and plotted residential development, the assumption being that 75 % of the proposed area will be occupied by group housing and 15 % by plotted development; while around 10% area will be allocated for rental housing schemes to house around 2 lacs of population.

Projected population under rental housing, group housing and plotted development is 2,03,006, 9,22,717 and 1,21,935 respectively. **Total projected population for the Notified Area is 12,47,658 say 12.48 lacs.** The total population projected for 10 years comes to be about 6.45 lacs.

1.7.2. EMPLOYMENT PROJECTION

Total employment projected to be accommodated in commercial and industrial activities are 5,01,090 and 88,428 respectively.

1.8. PROPOSED LAND USE

In the development plan the areas within the Planning Authority's jurisdiction are categorized into various land use zones. These zones are depicted distinctly by different colors and notations on the Development Plan.

- The Notified Area is proposed to have 4 Sectors. The proposed land use distribution pattern is based on the population and employment projections for individual planning

sectors, local accessibility and locational attributes of these sectors and the availability of land for development.

- The proposed Residential Zone is 1606 ha which is 36.5% of the total Notified Area including the area under proposed Rental Housing schemes. This includes 17 numbers of proposed rental housing sites spreading over 24.3 ha area.
- The proposed Commercial Zone and Industrial Zone will occupy 12.0% and 4.4% of the total area.
- The shares of open spaces and No Development Zone and Forest Zone will be 10.05%, 1.82% and 5.77 % in the Proposed Land Use. Total 8.4 % area shall be conserved as undevelopable area (Rivers, ponds, forest and NDZ).
- Transportation user will constitute 16.87% of the total notified area.

No	Land use Classification	Notified Area	
		Area (Ha)	% of Total Area
1	Residential Zone	1605.73	36.58
2	Commercial Zone	526.73	12.00
3	Industrial Zone	194.98	4.44
4	Public & Semi Public Reservations (including SWM RLF site of 265 Ha)	512.58	11.68
5	Open / Recreational	440.90	10.04
6	Transportation - Roads	613.12	13.97
7	Transportation - Railway	126.98	2.89
Developable Area		4021.53	4021.72
8	No Development Zone	79.86	1.82
9	Forest	253.10	5.77
10	Ponds	9.85	0.22
11	Rivers / Nallas	25.63	0.58
Non developable Area		368.43	368.44
Total		4390.16	4390.16
12	Existing MIDC Zone	272.86	5.63
13	Excluded part from Notified Area	180.37	3.72
Total of Notified Area		4843.40	4843.40

1.8.1. REGIONAL TRANSPORTATION PROPOSALS

▪ METROPOLITAN REGIONAL TRANSPORTATION NETWORK:

The TRANSFORM report exhibits proposals regarding the regional transportation network. The important components of regional transportation proposed there in are metropolitan regional roads, multi modal corridor, metro rail network and other public transportation routes.

The proposed 100 M wide Multi-Modal Corridor passes north-south through west part of the notified area. The metro rail is proposed to run in the centre of the ROW of proposed Multi-Modal Corridor.

As per proposed metropolitan regional road network, there are two other 100 m. wide regional roads passing through the notified area. Out of these, one is aligned on existing SH 43 (Badlapur Pipeline Road) while the other is partly aligned on MDR 62 (Hajimalang Road).

▪ **PROPOSED DFC LAND:**

Ministry of Railway, Govt. of India has proposed the special railway project named Western Dedicated Freight Corridor. The proposed corridor runs north-south and passes through the west part of the notified area. In most parts, it runs parallel to the existing railway land.

1.8.2. PROPOSED HIERARCHY OF ROAD NETWORK

The proposed Development Plan for the Notified Area exhibits a definitive hierarchy in its structure. Apart from the above mentioned 100 m. wide regional roads, the other proposed road network consist hierarchy of 45m, 30m, 24m, 18 m. wide roads. Other than these, 6 m to 12 m wide roads are proposed as Gaothan approach roads.

1.8.3. PROPOSED SWM RLF SITE

The Proposal of SWM Regional Land Fill site is accommodated in villages Adivali Dhokali, Davdi and Bhal is shown as public – semi public utility with 100 m. buffer zone within the periphery of the site. This Solid waste site occupies the 263 ha of the total notified area.

1.8.4. OTHER PROPOSALS

The layout approved for “Mega City” project by MMRDA in villages Nilaje, Ghesar & Usarghar is incorporated in Draft Development Plan.

1.9. DEVELOPMENT CONTROL REGULATIONS

- Overall procedure of obtaining permission from MMRDA will be on the lines of Gorai – Manori Notified Area for which MMRDA is SPA and also the Kalyan Dombivali Municipal Corporation for the rest of the Development Control Regulations.

1.9.1. FSI

The proposed FSI scheme for proposed Draft Development Plan is as followed. The Value of the FSI assigned to every plot shall depend upon-

- The size of the holding under development of which the plot forms a part and;
- The width of road on which the plot abuts,
- The use assigned to the plot in the development plan.

▪ **FSI FOR RESIDENTIAL LAND USE**

The permissible FSI in the Residential Zone is as per the following table.

- i) The basic FSI for any plot is 1.0 and any additional FSI above 1.0 will be purchased as premium FSI. The premium to be charged for additional FSI by Planning Authority shall be as per the rate of land stipulated in the Stamp Duty Ready Reckoner of Govt. of Maharashtra for the relevant year of development permission.

- ii) The additional FSI to be made available on payment of premium by the Planning Authority shall be granted without any condonation in the requirement of marginal open spaces, fire fighting provisions, structural safety, health safety etc.
- iii) The maximum FSI allowed in plotted housing schemes is 1.5 irrespective of the plot size and the right of way. The maximum FSI allowed in the group housing schemes will be 2.0.
- iv) Maximum FSI allowed for Rental Housing is 4.0. The provisions of Govt. Notification No. TPS – 1208 / MMR / CR – 393 / 08 / UD – 12 dated 4th November 2008 in respect of Rental Housing projects in the jurisdiction of KDMC, AKBSNA, TMC, BNMC, VVNA etc. shall be made applicable in the Draft DCRs.

Maximum Permissible FSI in Residential Land use

Plot Size	Proposed ROW of Adjacent Road	
	Less than 24 M	24 M and Above
Upto 2000 sq mts	1.0	1.5
Above 2000 sq mts	1.5	2.0

▪ **FSI FOR COMMERCIAL LAND USE**

The permissible FSI in the Commercial Zone is as under:

- i) The basic FSI for any plot is 1.0 and any additional FSI above 1.0 will be purchased as premium FSI. The premium to be charged for additional FSI by Planning Authority shall be as per the rate of land stipulated in the Stamp Duty Ready Reckoner of Govt. of Maharashtra for the relevant year of development permission.
- ii) The additional FSI to be made available on payment of premium by the Planning Authority shall be granted without any condemnation in the requirement of marginal open spaces, fire fighting provisions, structural safety, health safety etc.
- iii) In the Commercial zone, the maximum permissible FSI is 2.0.

Maximum Permissible FSI in Commercial Land Use- Growth Center / CBD

Plot Size	Max. Permissible FSI
Upto 2000 sq mts	1.5
Above 2000 sq mts	2.0

Maximum Permissible FSI in Commercial Land Use- Other than Growth Center / CBD

Plot Size	Proposed ROW of Adjacent Road	
	Less than 24 M	24 M and Above
Upto 2000 sq mts	1.0	1.5
Above 2000 sq mts	1.5	2.0

▪ **APPLICABILITY OF ADDITIONAL FSI IN RESIDENTIAL AND COMMERCIAL ZONE.**

- i) The lands adjacent to roads only shall be considered for application of respective permissible additional FSI.
- ii) The respective permissible additional FSI shall be calculated for the area falling within the belt width mentioned for respective ROW on which the plot is abutting, although the FSI may be consumed in part of plot which is not falling within the mentioned belt width. Provided that in case of overlapping of two or more different widths of belts, the development

for additional FSI will be granted for the category of higher of the reckonable additional FSI in the above table.

Land Area to be considered for Application of Respective Maximum Permissible FSI

Available ROW	Width of Belt of which the land area to be considered for application of Respective Maximum allowed FSI
24 M wide	75 M
30 M wide	100 M
45 M wide	150 M
100 M wide	250 M

▪ **FSI FOR OTHER LAND USE**

The permissible FSI is as per the following table in the Other Land use Zones as described in below table.

Maximum Permissible FSI in Other Land Use

Land use categories	Base FSI	Maximum Permissible FSI
Public & semi public (amenities, utilities, religious, institutional)	1.0	1.0
Industrial	1.0	1.5
No Development Zone	0.1	0.1

1.9.2. HEIGHT OF BUILDING:

- There will be no height limitation for the proposed buildings subject to no condonation in parking requirements, marginal open spaces, fire fighting provisions, health and structural safety requirements.

1.9.3. PARKING

- All new residential development shall have stilt parking as a statutory requirement.
- Off street parking standards are in line with the KDMC provisions.

OFF-STREET PARKING – RECOMMENDATIONS			
No.	Occupancy	Parking area as Percentage to the Total Built-up Area	Share of Designated Visitors Parking to be provided on the ground (% to total parking)
1	Residential	40%	15%
2	Lodging establishments - hotels, guest houses etc.	40%	15%
3	Commercial – Offices, Restaurants etc.	60%	15%
4	Educational	35%	15%
5	Institutional - Hospital, Medical Institutional Building	35%	15%

1.9.4. IMPLEMENTATION OF RESERVATIONS FOR PUBLIC AMENITIES AND FACILITIES

- The reservations for public amenities and facilities are calculated for entire projected population of 12.48 lacs up to year 2028 instead of the practice of TP&VD, Govt. of Maharashtra of calculating reservations for 10 years.
- The norms followed for calculating reservations are of TP&VD, Sanctioned DPs of MCGM, Pune, Thane, Navi Mumbai and AKBSNA.
- The proposed reservations shall be developed as per the Policy of Accommodation Reservations, / ADR / TDR / Acquisition etc.
- Total area of 953.48 ha is reserved for public & semi public amenities / utilities and open spaces, i.e. recreational gardens and playgrounds.

Type of Public Amenities/Utilities	Sector 1		Sector 2		Sector 3		Sector 4		TOTAL	
	Nos.	Area (Ha)	Nos.	Area (Ha)	Nos.	Area (Ha)	Nos.	Area (Ha)	Nos.	Area (Ha)
Public Amenities										
Aminities Cluster: PHC-Maternity Home-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	11	4.40	8	3.23	9	3.61	12	4.81	40	16.04
Secondary School	9	7.22	9	7.22	9	7.20	9	7.21	36	28.85
College	1	4.00	1	3.91	1	4.00	1	4.01	4	15.92
Hospital	1	3.24	1	3.70	2	13.10	1	3.53	5	23.56
Fire Station	1	0.75	2	3.25	2	1.50	2	1.53	7	7.03
Police Station	1	0.75	2	1.76	2	1.72	2	3.26	7	7.50
Post Office	2	1.50	1	0.50	1	0.50	1	0.50	5	3.01
Telephone Exchange	2	1.35	1	0.35	1	0.35	1	0.35	5	2.41
Cremation/Burial Ground	1	2.50	1	2.56	1	2.51	1	2.50	4	10.07
Slaughter House	1	3.06							1	3.06
Community Centre: Hall, Library	1	0.35	1	0.36	1	0.35	1	0.35	4	1.41
Art Gallery and Museum	1	1.00							1	1.00
Town Hall	1	1.53							1	1.53
Swimming Pool/Gymnasium/Sports' Complex					1	1.54			1	1.54
Infrastructure Services	10	3.01	9	2.73	9	2.71	12	3.61	40	12.06
Water Reservoirs & Distribution System	1	1.77	1	1.92	2	5.48	1	2.51	5	11.68
Electrical Sub Stations			1	0.31	1	6.00	1	2.00	3	8.32
Sewage Treatment Plants	1	25.62	1	35.05		0.00			2	60.66
Solid Waste Regional Landfill Site					1	67.55	2	107.72	3	175.27
Transport Terminus	2	2.48	1	1.44	2	3.07	2	3.06	7	10.05
Parking	7	6.93	6	3.90	1	0.92	2	1.46	16	13.22
Retail & Veg. Market	10	1.57	10	1.52	10	1.56	10	1.56	40	6.20
SUB TOTAL	69	74.55	56	73.70	56	173.93	61	190.40	242	512.58
Open & Recreational Spaces										
Playgrounds	30	57.37	26	50.90	22	47.26	27	51.41	105	206.96
Recreational Gardens	51	85.30	40	48.86	34	44.33	33	55.47	158	233.95
SUB TOTAL	81	142.67	66	99.76	56	91.59	60	106.88	263	440.90
TOTAL	150	217.22	122	173.46	112	265.52	121	297.28	505	953.48

1.10. PLAN IMPLEMENTATION & PHASING

- The appropriate authority for implementation of reservations shall be by Planning Authority/ Local Authority.
- The Phasing of implementation is being worked out.

1.11. PLAN FINANCING

The costs to be incurred for acquisition and infrastructure development and the revenues to be generated from different sources as discussed above are summarized below.

Summary of Estimated Costs and Revenues

Particulars	Estimates (Rs. Crores)
COSTS	
Acquisition Costs	3353.34
Development Costs	1669.40
Total Costs	5022.74
REVENUES	
Development Charges	542.78
Premium Charges	3463.26
Sale of Public/ Semi public Amenities	366.80
Sale of Commercial Lands	1466.80
Total Revenue	5839.64
NET SURPLUS	816.90

Report on

DRAFT DEVELOPMENT PLAN
FOR
27 VILLAGES OF KALYAN AND AMBARNATH TEHSIL
THANE DISTRICT
MAHARASHTRA

October 21, 2011



Mumbai Metropolitan Region Development Authority



Technical Assistance:

Centre for Environmental Planning & Technology (CEPT), Ahmedabad

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1. Introduction

1.1. NEED FOR A NEW PLAN

Mumbai is the capital of the State of Maharashtra and one of the largest cities of India, with a population of about 12 million in 2001, located on the western coast of Maharashtra. Greater Mumbai Urban Agglomeration is the world's 4th most populous metropolitan area, with a population density of 27,209 persons per square km (2001 census). The 1973 Regional Plan of the Mumbai Metropolitan Region (MMR) envisioned the metropolis as a poly-centric development with successful growth centers at significant junctions.

The MMR Plan of 1996 identified a number of growth centers in the hinterland of Greater Mumbai as exhibiting feeble developmental patterns due to an exponential growth in the population of the metropolis and a number of consequent infrastructural constraints.

Dombivali, Kalyan, Ulhasnagar, Ambarnath and Badlapur were identified as such significant urban growth centers ; strategic connecting hubs between Greater Mumbai and the rest of Maharashtra, presenting tremendous development potential by offering opportunities of decongesting Greater Mumbai.

The Urban Development Department, Government of Maharashtra by Notification No. TPS/1299/1910/CR-34/2000/UD-12, dated 9th August 2006 published in Maharashtra Government Gazette dated 7th December 2006 has appointed Mumbai Metropolitan Region Development Authority (MMRDA) as the 'Special Planning Authority' (SPA) under sub section (1) of section 40 of the Maharashtra Regional and Town Planning Act, 1966 for better planning of the area of 27 villages of Kalyan and Ambarnath Tehsils in Thane District. Subsequently, after a competitive bidding and evaluation process of the technical & financial proposal, MMRDA has commissioned on 22nd July 2008 CEPT (Centre for Environment Planning & Technology), Ahmedabad as a Consultant for the project "Preparation of Draft Development Plan for 27 villages of Kalyan & Ambarnath Tehsils of Thane District".

The Development Plan put forth by CEPT Ahmedabad will be within the framework of the provisions specified in the MR & TP Act, 1966. The Development Plan aims to provide a holistic framework that rationalizes the future vision for the Notified Area. The focus will be on developing guidelines that prioritize the provision of adequate infrastructure, a better

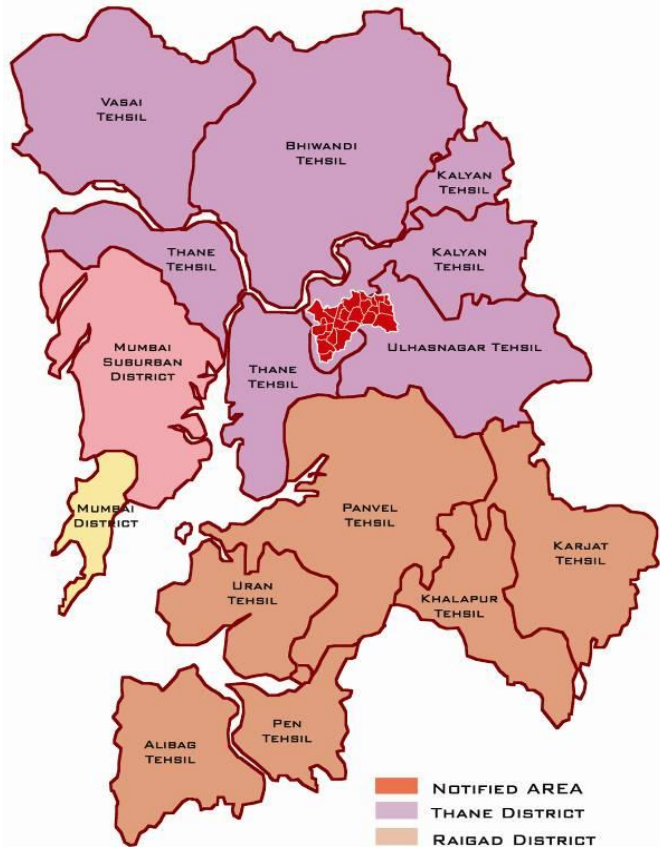


Figure 1: Notified Area and Surroundings Jurisdiction within MMR.

Source: MMR Plan 1996-2011

living environment and an increase in the economic prosperity of the area by generating employment opportunities, promoting inclusive development and encouraging a comprehensive growth pattern.

The Notified Area, comprising the 27 villages of the Kalyan and Ambarnath Tehsils, was part of the Kalyan Complex Notified Area (KCNA) from 15th March 1976 till 22nd July 1992. In 1992, the status of these villages was changed from being part of the KCNA to being included within the Kalyan Municipal Corporation.

In 1996, a draft development plan for the area within the Kalyan Municipal Corporation limits, including the 27 villages, was prepared by the Kalyan - Dombivali Municipal Corporation. However, the Government of Maharashtra did not sanction the proposals of the draft development plan for the 27 villages. As a result, the issue of adopting an integrated development strategy centered on enabling the socio-economic prosperity of this area remains yet to be addressed.

In July 2002, this was further revised and the villages were excluded from the Kalyan–Dombivali Municipal Corporation limits and were made part of the Kalyan and Ambarnath Tehsils. The Zilla Parishad of Thane was appointed in December 2005 as the planning authority for the 27 villages. As these villages have never been within the jurisdiction of one sole authority, and most of the previous planning efforts being confined to urban centers, the Notified Area lacks an integrated development strategy that would enable the emergence of a consistent and regular growth pattern.

As per the letter dated 11th January 2007 from the Urban Development Department, Government of Maharashtra, the proposal / Regulations in the sanctioned Regional Plan for Mumbai Metropolitan Region (1996 – 2011) are applicable for the proposed development in the area of these 27 villages till the Development Plan is prepared.

The objective of the consultancy is to prepare a Development Plan (DP) under statutory provisions of Chapter III of the MR&TP Act, 1966 and to prepare development control regulations for the Notified Area whereas content defined by section 22 of the Act, to bring about orderly and planned development of the area. Table No 1.1 shows the Name and Area of the villages falling under Notified Area.

1.2. HISTORICAL SIGNIFICANCE OF THE NOTIFIED AREA

The historical significance of the Kalyan and Ambarnath Tehsils stems from the past importance of Kalyan as a commercial node, the rapid industrial growth of Dombivali and the religious settlement of Ambarnath that evolved as a result of the existence of the Ambarnath temple in this area.

While the town of Kalyan is not included within the project area, its historical commercial importance has been instrumental in the recognition and evolution of the region as a strategic growth area. Kalyan was a port for more than two millennia until siltation and the rise of Mumbai eclipsed it and its sister ports, Sopara, Thane, Vasai, etc. Some of the various historical monuments that still exist here, such as Durgadi Fort, Shenale Tank, Rameshwar Temple, Jarimari and Maruti Temple, etc., display the past splendor of the town.

Dombivali, a municipal town in the Kalyan tehsil, is located at a distance of 4 kms from Kalyan and is an important transit node for the area. A growing industrial centre, Dombivali is well-connected to the Island City and to Thane, and boasts a number of co-operative

housing societies. The MIDC Industrial Estate in Dombivali, a center for manufacturing a variety of industrial and consumer goods, provides employment to a large number of people.

Ambarnath is a settlement of recent origin that came into existence sometime around 1951. While the Ambarnath temple is believed to have been constructed more than 900 years ago, the growth of Ambarnath as an urban centre took place mainly after the setting up of industrial estates here in 1922-23. Major industries such as Dharamasi Morarjee Chemicals (DMC), Western India Match Company (WIMCO) etc., came into being after 1930 generating employment opportunities, attracting development and promoting growth in the surrounding areas. The urban centers of Dombivali, Kalyan, Ulhasnagar, Ambarnath and Badlapur, amongst others, were identified by the Bombay Metropolitan Regional Plan 1970 – 91 as areas exhibiting strategic significance in terms of the economic advantages and ecological benefits they offered. These were specified as important urban growth centers, presenting a significant level of industrial development & a variety of economic activities because of their ease of accessibility to Brihan Mumbai and other significant locations within the MMR.

Table No. 1:1: Areas of Villages within the Notified Area

No.	Tehsil Name	Village Name	Total Village Area		% of Total Notified Area
			Sq.km	Ha	
1	Kalyan	Ghesar	1.67	167.32	3.45
2		Hedutane	4.03	402.77	8.32
3		Nandivali turfe Ambarnath	0.64	63.94	1.32
4		Davadi	2.63	262.57	5.42
5		Pisavali	1.08	108.44	2.24
6		Golivali	1.60	160.18	3.31
7		Sonarpada	1.49	148.73	3.07
8		Mangaon	1.41	140.58	2.90
9		Kole	1.65	164.79	3.40
10		Nilaje	2.82	282.38	5.83
11		Katai	1.07	107.24	2.21
12		Usarghar	1.90	189.75	3.92
13		Gharivali	0.81	81.41	1.68
14		Sandap	0.51	51.30	1.06
15 & 16		Bhopar (Deslapada)	4.47	447.30	9.24
17		Nandivali – Panchanand	1.51	150.75	3.11
18		Asade	1.56	155.74	3.22
19		Sagaon	1.17	117.48	2.43
20		Ambarnath	Chinchapada	1.04	103.58
21	Adivali – Dhokali		1.79	179.40	3.70
22	Umbroli		1.91	190.96	3.94
23	Bhal		2.12	212.01	4.38
24	Dwarli		1.02	102.01	2.11
25	Manere		2.36	235.56	4.86
26	Vasar		4.54	453.82	9.37
27	Ashele		1.63	163.38	3.37
Total of Notified Area for 27 villages			48.43	4843.40	100.00

Source: Village Cadastral Maps, MRSAC base map (2008), Aerial Image (2008)

1.3. PREVIOUS REGIONAL PLANNING EFFORTS

The earlier planning efforts in the Notified Area were mostly confined to the urban areas of Kalyan, Dombivali, Ulhasnagar and Ambarnath. However, the Regional Planning efforts of 1973 and 1996 do present guiding principles for the development of all areas outside the urban limits of municipalities and corporations.

The Notified Area lacks a comprehensive development strategy, due to sequential changes in administrative jurisdiction. Most previous planning efforts in the areas of Ulhasnagar, Kalyan, Dombivali and Ambarnath concentrated on housing refugees and regulating society.

1.3.1. REGIONAL PLANS

A number of planning initiatives have been implemented in Mumbai, such as the Modak-Meyer Plan of 1948; the Study Group on Problems of Mumbai (Barve study group), 1958; and the Development Plan of Greater Mumbai, 1964.

However, when in 1965 it was recognized that Mumbai's growth impulses would transcend the Municipal boundaries into a much larger region, a committee appointed under the Chairmanship of Dr. D.R. Gadgil for planning of Mumbai and Pune metropolitan regions, proposed planning at the metropolitan scale and recommended a legislative provision for preparing statutory regional plans.

The history of regional planning for Mumbai dates back to the 1970s, when the first Regional Plan (Bombay Metropolitan Regional Plan 1970-91) was prepared and sanctioned in 1973.

Over time, changes in local & national economic trends, socio-economic characteristics, ecology, organizational policies, occupation patterns etc, have redefined the needs and priorities of Mumbai's urban population to a large extent. To address these changes, the Mumbai Regional Plan was revised and sanctioned as the Mumbai Metropolitan Regional Plan 1996 - 2011.

BOMBAY METROPOLITAN REGIONAL PLAN 1970-91

The initial post-independence years witnessed an increasing gap between declared planned objectives and the achieved reality of urban development in Mumbai. Objectives such as providing for the poor and improving the overall quality of life in the metropolis were repeatedly projected as development goals, while in reality, a very small share of population witnessed an implementation of these objectives in their built environment. Growing stratification and fragmentation in all urban sectors such as housing, transportation, recreation, ownership of land, health and education, produced a visible dualism in the social and economic construct of the metropolis.

The Regional Plan adopted the following framework for its proposals:

- Supporting inter regional dispersal of industries to reduce migration to MMR;
- Promoting growth of Navi Mumbai and other growth centers like Kalyan by restricting growth of industries and offices in Mumbai ; the principle being that such a decentralized growth pattern would be cost effective in terms of investment required for infrastructure development;

- Identifying bulk land acquisitions - the only available option for controlling speculation and recovering land value gains for financing infrastructure improvements; and
- Physically restricting urban growth boundaries to well-defined areas based on the desirable densities and population distribution and conserving the rest of the region as agricultural/rural area.

KEY FEATURES OF the Bombay Metropolitan Regional Plan 1970 - 91;

Certain areas tError! Bookmark not defined.at exhibited strategic significance in terms of the economic advantages and ecological benefits they offered were identified as significant growth centres.

The urban centers of Dombivali, Kalyan, Ulhasnagar, Ambarnath and Badlapur were specified as such important urban growth areas, presenting a significant level of industrial development & a variety of economic activities because of their ease of accessibility to Brihan Mumbai and other significant locations within the MMR.

In view of the non-availability of adequate funds & investment towards maintaining the desired level of infrastructure for MMR's ballooning population, Greater Mumbai's population was to be restricted to 7 million.

The setting up of new industries, offices and commercial establishments in Greater Mumbai was to be banned, and certain economic activities were to be relocated to the new growth centres.

MUMBAI METROPOLITAN REGIONAL PLAN 1996-2011

The Mumbai Metropolitan Region extends over an area of 4355 sq.kms. The MMR comprises Municipal Corporations of Greater Mumbai, Thane, Navi Mumbai, Kalyan-Dombivali, Ulhasnagar, Mira-Bhayandar, 14 municipal councils, 982 villages and 5 Notified Areas.

For the purpose of determining population distribution, MMR has been divided into eight sub-regions based on the existing settlement pattern, planning and administrative convenience and transport linkages. Figure 2 shows the 8 sub regions of MMR.

Despite major deviations from the Bombay Metropolitan Regional Plan, 1973, its primary spatial development strategy, viz. creating a poly-nucleated structure through development of Growth Centers, continued to guide the strategic direction of the revised Regional Plan.

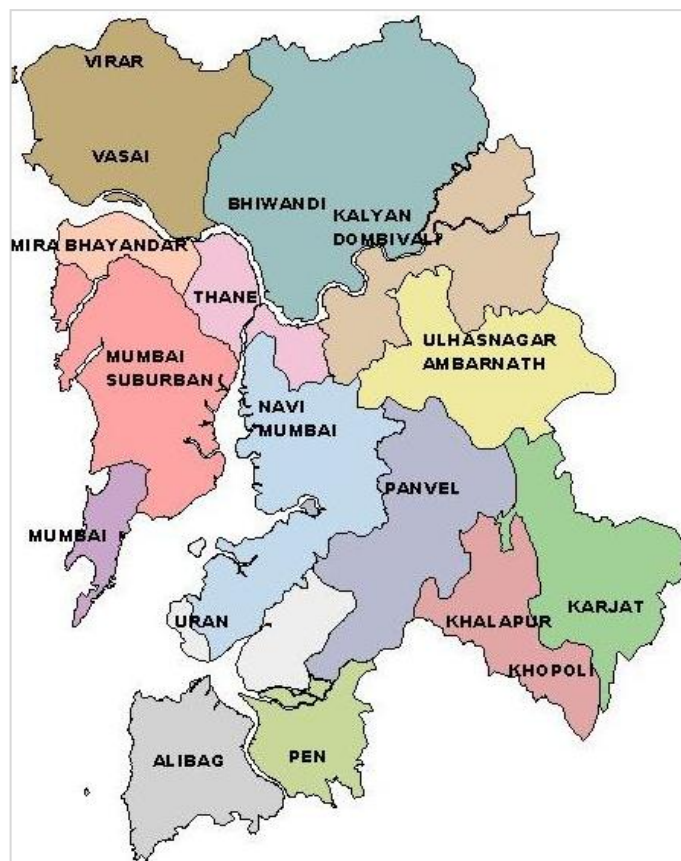


Figure 2: MMR Sub Regions.

Source: MMR Plan - 1991

Table No. 1:2: MMR Sub Regions

No	Region	Areas Included
1	Greater Mumbai	Island city, (Western suburbs, Eastern suburbs.)
2	Western Region	Mira-Bhayander, Vasai-Navghar, Nallasopara, Virar, Vasai-Virar Notified Area (VVNA) coastal part, Vasai-Virar Notified Area rural part, Remaining area of Vasai tehsil.
3	North-East Region	Thane Municipal Corporation (TMC), Kalyan Municipal Corporation (KMC), Ulhasnagar, Ambarnath, Badlapur, Bhiwandi, Rural, South Kalyan & North Kalyan.
4	Navi Mumbai Region	Navi Mumbai Municipal Corporation (excluding 15 villages), NMMC (15 villages), Panvel, Uran.
5	Neral Karjat Region	Neral, Khalapur
6	Panvel -Uran Region	Uran (outside Navi Mumbai), Rasayani, Panvel, rest of Panvel, Khopta, Rest of Uran & Karnala
7	Pen Region	Pen
8	Alibag Region	Alibag

Source: MMR Plan: 1996- 2011

The strategic goal of the Regional Plan proposal was **“to promote and sustain growth with social justice in a resource-efficient manner and in consonance with the goals of national development planning”**.

In context of the liberalization policies introduced in 1991, the critical components and recommendations made by the MMRDA in the new plan were as follows.

Economic Development

Land and taxation policies

Coastal management regulation policy

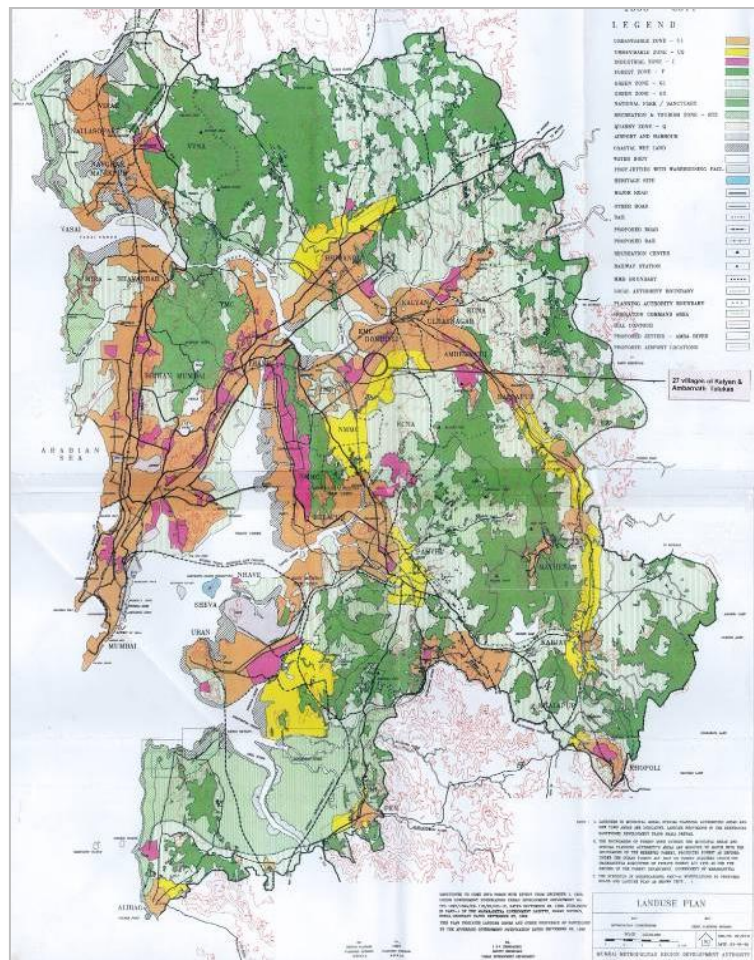
Transportation Policies

Housing & Slum Redevelopment

The proposed land use of the entire MMR is shown in Figure 3.

Figure 3}: MMR Regional Land Use Plan: 1996 – 2011.

Source: MMR Plan: 1996 – 2011.



Policy formulations that encourage distinct development roles of public and private organizations rather than a heterogeneous plan perspective for the cross section of society are also supportive inferences of this new twofold direction of growth being propagated. The new plan, based on the above dualism, uses Bombay's role as an international finance centre to justify the promotion of investment in intra-city mega projects. Consequently, developing strategic solutions for crucial problems such as housing, employment and infrastructure for a large part of the population takes a backseat.

Thus, the new plan integrates the ongoing drive to realise the immense opportunities offered by Mumbai with the economic liberalization policies of the country; the goal being not only an economic recovery of Mumbai, but also an augmentation of the city's role as an international business and finance centre.

EMERGING GROWTH PATTERN IN THE SUB REGION & NOTIFIED AREA

In the MMR urban growth continues to spread primarily along transport corridors. This fact has played a major role in determining the emerging pattern of growth in the sub-region.

Further, the Kalyan Complex, including Ulhasnagar, exceeded its population growth estimate of 8 lakhs in 1991 as projected in the Regional Plan, and grew to acquire a population of 13.82 lakhs.

Due to the consequent extensive construction activities in the absence of a comprehensive planning and development strategy, widespread haphazard development that has led to the inability of this area to develop as a well-structured urban centre can be observed here.

Subsequently, the process of acquiring land for the Kalyan Growth Center was stopped and in the plan of the Kalyan Complex which is approved in November 1990.

The proposal for establishing a new town at Kalyan (so far referred to as the Kalyan Growth Center) was obliterated, giving rise to the need for new initiatives in terms of physical planning, infrastructure provision and housing in order to salvage the situation.

The adjoining Figure 4 shows the urban sprawl (Built-up area) has been computed in CTS for MMR Study using Satellite images of 2001. This shows, Kalyan – Dombivali – Ulhasnagar areas witnessing contiguous urban expansion, justify the need of the new plan for the Notified Area of 27 villages.

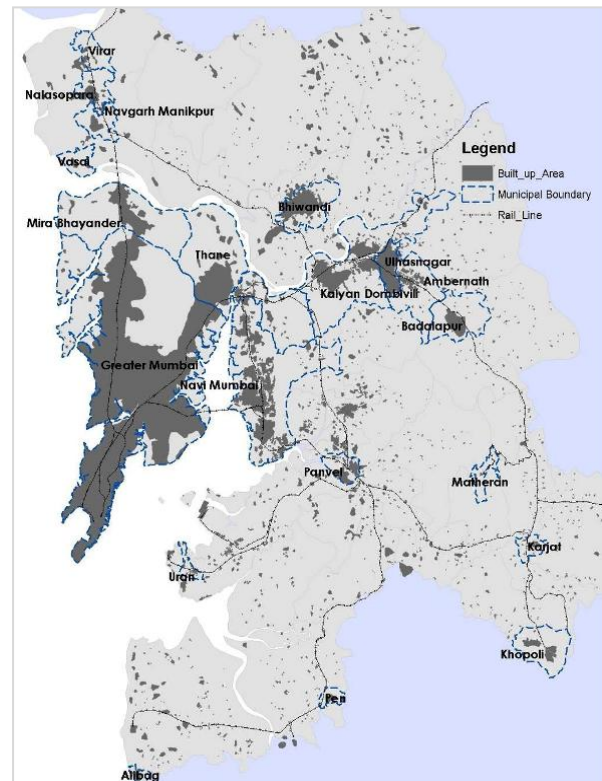


Figure 4: Urban Sprawl of the MMR

Source: Integrated Mobility Plan for the Thane City (year 2008), CTS, Lea Associated South Asia Pvt. Ltd.

NOTIFIED AREA REGIONAL LAND USE (AS PER REGIONAL PLAN 1996)

The Notified Area falls within the jurisdiction of the Mumbai Metropolitan Region. The 50 sq. km. (approximately) total area is distributed under four primary land use zones as per the Mumbai Metropolitan Regional Plan 1996-2011. The Proposals / Regulations in the sanctioned Regional Plan for MMR (1996–2011) are applicable to the proposed development in the area of these 27 villages till the Development Plan is (Sanctioned)

Land use zones included within the Notified Area, in accordance with the provisions of the sanctioned Regional Plan, are Urbanizable zones, (U – 1 and U – 2), Industrial Zone (I) and Green Zone (G-1).

The distribution of these zones across the Notified Area is shown in Map No 2.

1.3.2. DEVELOPMENT PLANS

DRAFT DEVELOPMENT PLAN KALYAN, 1996-2016

In 1992, the 27 villages comprising the Notified Area were removed from the jurisdiction of KCNA and were included in Kalyan Municipal Corporation. In 2002, this was further revised and these villages were excluded from the Kalyan–Dombivali Municipal Corporation limits, making them part of the Kalyan and Ambarnath Tehsils and under direct jurisdiction of Thane Zilla Parishad. In 2004 the Thane Zilla Parishad was appointed as the planning authority for these 27 villages.

Under the MRTP act, 1966, the plan was prepared in 1996, for Kalyan Dombivali Municipal Corporation by the special unit headed by DDTP Government of Maharashtra. The aim of the plan was to integrate land use and to provide better services and infrastructure quality to the city. The draft plan covers erstwhile Kalyan & Dombivali municipal council along with adjoining 61 villages, covering an area of 104 sq km. These 61 villages include the 27 villages of the Notified Area, which are the part of Ambarnath and Kalyan Tehsils. Prior to the formulation of this plan, development activities and vision for the 61 villages, including the 27 villages of the Notified Area, were governed by the provision of sanctioned regional and zonal plans prepared by MMRDA. So as to develop a municipal corporation for this entire area including the 61 villages, this jurisdiction was divided into eight sectors. Among these, Sectors 4 and 8 include majority of the villages listed in the Notified Area.

Map No 3 shows the earlier proposed draft development plan of the KDMC including 27 villages for the planning year of 1996 – 2016.

- Sector 4 covered an area of 2023.72 hectare and covers Chinchpada, Ashele, Manere, Adivali Dhokali, Mangaon, Sonarpada, Kole and Part of Dwarli. As per the draft development plan, major commercial and industrial development was observed along the Shilphata Road, and a few residential developments along the Chinchpada road. The draft development plan proposed developable area of 2000 featuring the establishment of City Park, sports complex, hospital and GPO.
- Sector 8 comprised Nilaje, Ghesar, Katai, Kole, Umbroli, Bhal & Vasar villages and is reserved for residential development.
- The other sectors included the corporation area of Kalyan-Dombivali and were designated for several public utilities ad social amenities.

For the year 2016, the overall projected population of the area was around 20 lakh. Sector 8 (part of the Notified Area) was estimated to constitute a major share (around 40%) of the total projected population and was identified as a high development potential area due to the presence of Ambarnath pipe line and Shilphata Road. As per the proposed land use, 69.13% of the area was designated as developable area. Of which 46% was proposed to be put aside for residential use, while industrial and commercial activities were estimated to constitute 9.11% and 3.82% respectively of the developable area. The development control regulations adopted in the draft development plan were in accordance with those of the Thane Municipal Corporation with appropriate specific modifications to suit the local context.

Salient features of the draft development plan were as follows:

- Where land reserved for public use is concerned, development rights will be transferred to the owners of such land.
- The concept of accommodation is provided concerning amenities like markets and shopping centers identified in the development plan. According to this, the owner can develop the amenity concerned according to the norms and can subsequently make changes to the built-up space free of cost so as to utilize the full FSI permitted for the concerned plot.
- Recommendations pertaining to congested areas, such as improvements to narrow roads, inadequate infrastructural facilities and environmental pollution are also included,
- Slum redevelopment proposals were to be provided for an FSI of 2.5 within the notified and declared slum area.

1.4. REGIONAL TRAFFIC AND TRANSPORTATION

Transport infrastructure is of key importance in determining urban land use patterns. Efficient transport provides mobility to citizens. This is essential for the development of skilled urban labour market. Historically, the sea port and railways have been key features influencing the phenomenal growth of Mumbai.

With most jobs being concentrated in the island city and the suburbs, the exponential population growth across the Mumbai Metropolitan Region (MMR) has resulted in increased travel demands on road and rail networks all over the region.

Commuters have been facing increasingly longer travel times, congestion on public transport systems, delays on road networks etc. - issues that have compounded over time and need to be reviewed and addressed at various levels to continue easy movement across the region. This section outlines the various relevant proposals put forth towards addressing these issues.

1.4.1. COMPREHENSIVE TRANSPORTATION STUDY FOR MMR - TRANSFORM STUDY

Transport plays a key role in shaping the growth of a city and its land use pattern. Transportation also provides mobility to the people which are the essence of urban life.

MMR is one of the fastest growing metropolitan regions and economic power house of the country. With a geographical spread of about 4,350 square km, it comprises 7 municipal

corporations 13 municipal councils and 996 villages. The Region's present population is about 21 million, which is expected to grow to about 34 millions by the year 2028, with the distinction of becoming the largest metropolitan region in the world. The workforce participation rate is anticipated to reach about 45% by the year 2028 (37% in 2005). Mumbai aspires to be one of the globally competitive cities in the world but does not qualify on several grounds with transportation inadequacies being a notable shortcoming.

To support this scale of economic development there are many inter-related transport challenges. The first challenge is to improve MMR's public transport system to accommodate the growth of population and employment. This can be achieved by capacity enhancements to the existing suburban railway system; creating new metro corridors; connecting major existing and planned activity centers of the region; providing exclusive bus lanes to reinforce rail based transit with a higher order road based public transport system. Transit First is a guiding principle.

The second challenge is to create a hierarchical system of roads and freeways to meet a wide spectrum of travel desires, including goods vehicles and the projected large increases in traffic entering and leaving the MMR.

The third challenge is to structure the most effective institutional arrangements to efficiently implement the proposed regional transport plan in a timely and comprehensive manner. An integral part of process is the mobilization of resources from traditional as well as new funding opportunities. International experiences in resource mobilization can provide useful insights into successful financing mechanisms.

There are various studies been commissioned by MMRDA to derive the future transportation strategies for MMR. These are as follows:

- 1962 Bombay Traffic & Transportation Study by Wilbur Smith Associates: Prepared Road network plan mainly for MCGM area
- 1983 CTS study by CRRI (Central Road Research Institute): Prepared a master road network plan for BMR (Bombay Metropolitan Region) based on extensive home interviews and other surveys
- 1992 CTS study by WS Atkins: Travel demand was estimated using the 1978 household survey data collected by CRRI and updated to 1992 by supplementary surveys. Recommended enhancement of sub-urban rail system, additional highway corridors, etc. and investment proposals up to 2011. The study recommended review/ updating of data every 10 years.
- All subsequent studies used only updated CRRI matrices and no fresh Home Interview surveys were carried out.
- It has been over 25 years since the last comprehensive regional transport study was undertaken for the region. Most of the previous transportation studies were limited to MCGM study area.
- World Bank recommended fresh for MMR to formulate MUTP phase - II components and a comprehensive transportation strategy for the metropolitan region
- The Government of Maharashtra through MMRDA with technical assistance from World Bank under MUTP has embarked on the Comprehensive Transportation Study (CTS) for

MMR known as (**TRAN**sportation Study **FOR** the region of **M**umbai) with prime objective of identifying travel pattern of residents in MMR and recommending long term comprehensive transportation strategy for MMR up to 2028.

They have recommended number of measures to improve the transportation situation in MMR based on which MMRDA has evolved the future transportation strategy for MMR. The salient features of this strategy are described below.

- The length of metro network for the horizon year 2016 and 2021 is 208 km and 318 km respectively, which further expands to 435 km by 2028. Most of the metro network proposed by 2016 is located in MCGM and Navi Mumbai. The metro lines considered are of twin track, one track per direction.
- Total length of new suburban rail network is approximately 248 km. The majority of the new suburban rail network corridors are required by 2016, with minimal addition thereafter. Only twin track corridors have been proposed, with one track per direction.
- The highway network, which includes higher order transport network (fully access controlled) and arterial corridors for the horizon year 2016 and 2021 is 982 km and 1,229 km respectively. The 2021 network is further required to be developed and augmented by another 510 km by 2028 to be extending over 1,740 km. It is recommended that, all major sea-links and bridges will have the lane configuration reflecting 2028 requirements. Most of the higher order transport network has been considered to have at least eight (8) lane divided main carriageway by 2028. However, for 2021/2016 they shall be of six (6) lane divided carriageway only.
- Along some of these corridors, Exclusive Bus Lanes (EBL) have been proposed for the horizon years where the travel demands on parallel metro corridors were insufficient to justify investments in a metro line for the time horizons being considered. The approximate length of EBL network proposed by 2016, 2021 and 2028 is 165 km, 112 km and 79 km respectively.
- Based on studies made by other agencies provisions have been made in the budgets for Passenger Water Transport (PWT) on the west coast, east coast and on other routes. The proposed investment by the horizon year 2016 is about Rs.480 crores.
- Inter-State bus terminals, inter-city/ intra regional bus stations, major/ minor truck terminals, inter-city rail terminals have been proposed as part of transport plan for the horizon years 2016 (Rs.1126 crores), 2021 (Rs.2038 crores) and 2028 (Rs. 3040 crores).
- Road safety measures, traffic management measures are being recommended. These measures include intersection improvements, flyovers/ interchanges, pedestrian facilities (FOBs and Subways), ROBs/ RUBs, footpath improvements, traffic signal installation/ Area Traffic Control Systems, etc. An approx. investment needed for these is assessed to be Rs 5860 crores by 2016.
- Along the entire higher order road/highway network and on proposed new and upgraded arterial roads it is recommended to have footpath facilities on either side with guard rails (typically of to 2.0 m width). This is for safe movement of pedestrians. The cost for footpaths is included in the roadway costs.

- Safety measures within the existing suburban railway stations like FOBs for non-rail commuters, provision of guard rails between the tracks to avoid crossing of tracks by rail commuters, etc. have been proposed. Budget provisions for these improvements are Rs.480 crores.
- The total cost of transport network for the horizon year 2028, 2021 and 2016 is Rs. 2.07, Rs. 1.64 and Rs 1.34 lakh crores respectively at 2005-06 prices which is approximately US\$ 50.41, US\$ 40.10 and 32.73 billions respectively.
- Alternative institutional arrangements have been examined such as “Reinforcing the coordinating role of MMRDA” and “Establishing a new Unified Metropolitan Transport Authority (UMTA)”.
- The total infrastructure investment is proposed to be funded by 47% by private investment in PPP format, 27% by borrowings, 13% by SPV and 12% by Government own funds. This allows enough cushions to allow for uncertainties.

The recommendation of this study is analyzed and incorporated wherever applicable in the proposed draft development plan of Notified Area of 27 Villages.

2. Notified Area Profile

2.1. PHYSICAL ASPECTS

2.1.1. LOCATION

In the context of the Mumbai Metropolitan Region, the Notified Area of 27 Villages is strategically situated at the Mumbai – Thane conurbation and assumes physically central location in MMR.

It forms the part of the North – Eastern Sub Region of the MMR.

The Notified Area is conveniently located near the Central Railway corridors, which provides suburban connection to Mumbai, and inter city connections to Karjat, Pune and beyond.

It also provides strategic rail and road connectivity to other important cities like Bangalore, Pune and Nasik as well as to regional Maharashtra.

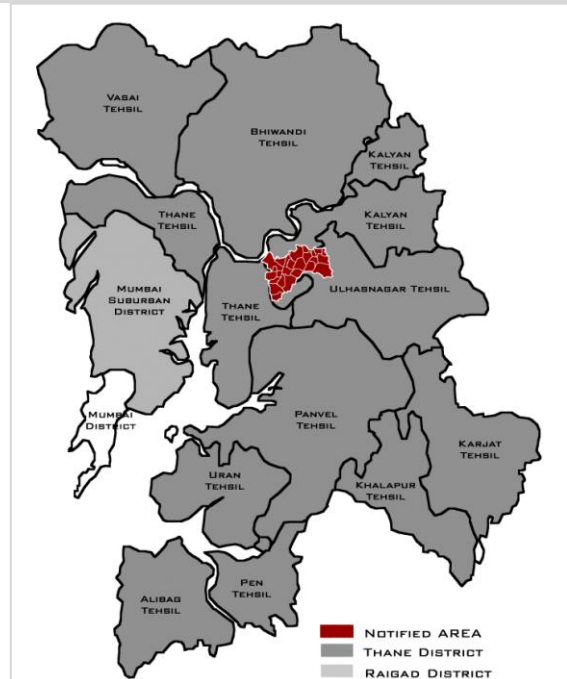


Figure 5: Location of Notified Area within MMR.

Source: MMR Plan, 1996 – 2011.

2.1.2. ADMINISTRATIVE BOUNDARIES & AREA

In 2006, the Govt. of Maharashtra officially notified the 27 villages as a separate Notified Area and appointed MMRDA as the Special Planning Authority for developing the Area. Earlier to this, the 27 villages were part of KDMC for the period from 1992 to 2002, which were then excluded from the KDMC limits making them under direct jurisdiction of Thane Zilla Parishad.

Out of these 27 villages in the Notified Area, 19 villages are in Kalyan Tehsil and remaining 8 are in Ambarnath Tehsil. List of these villages are given in Table No. 2.1. On the northeast of the Notified Area is Ulhasnagar Municipal Corporation, on its north and northwest lies the Kalyan-Dombivli Municipal Corporation, and on its west is Thane Municipal Corporation. The boundaries of the Notified Area can be defined as follows:

On the West: Beginning from the River Ulhas, along the western boundary of the village Bhopar (Kalyan Tehsil) in the north to village Ghesar (Kalyan Tehsil) in the South adjoining the Thane and Navi Mumbai Municipal Corporation Boundaries.

On the East: Along the western boundary of the Ulhasnagar Municipal Corporation and Ambarnath Municipal council Area, starting from the northern boundary of the village Ashele (Ambarnath Tehsil) up to the southern boundary of the village Vasar (Ambarnath Tehsil).

On the North: Starting from the River Ulhas, along the northern boundary of village Bhopar (Kalyan Tehsil) up to the eastern edge of the village Ashele (Ambarnath Tehsil). Also these

can be outgrowth of KDMC along with MIDC area. These villages are Nandivali Panchanand, Sagaon, Asade, Pisavali and Chichapada.

On the South: Along the northern boundary of the AKBS Notified Area and Navi Mumbai Municipal Corporation, starting from the western edge of Ghesar Village (Kalyan Tehsil) extending upto the eastern edge of Vasar Village (Ambarnath Tehsil).

Map No 04 shows the Notified Area and surrounding jurisdictions.

The total Notified Area is 48.43 sq. kms. The largest land area in the Notified Area is of Vasar village (453.82 ha) in Ambarnath Tehsil, while the minimum area is of Sandap village (51.691 ha) of Kalyan Tehsil. (Refer Map: Updated Base Map of Notified Area gives details of the 27 villages in the Notified Area). Deslapada village of Kalyan Tehsil is included in Bhopar village as per revenue records. Figure 6 shows the area distribution of villages falling in Notified Area.

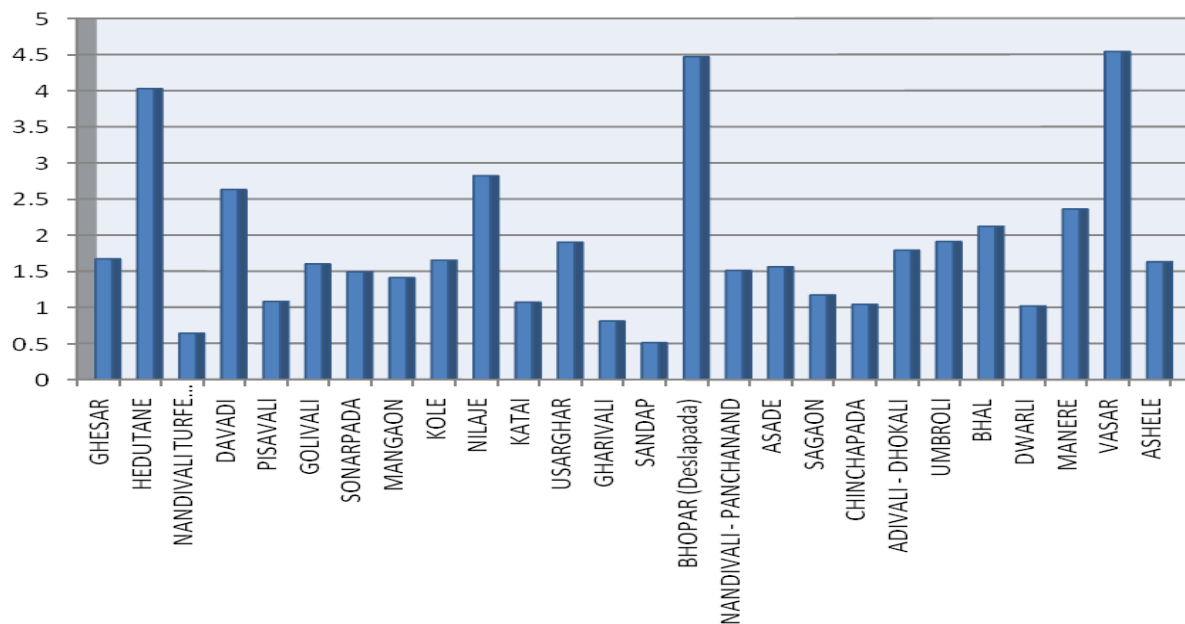


Figure 6: Area Distribution of Villages in the Notified Area (In sq.km)

Table No. 2:1: Area Distribution of Villages in the Notified Area

No	Tehsil Name	Village Name	Total Village Area (as per Revenue Map)		Village Area in the Notified Area		Village Area outside the Notified Area	
			Sq.km	Ha	Area (Ha)	%	Area (Ha)	Authority
1	Kalyan	Ghesar	1.67	167.32	167.32	3.81	0.00	
2		Hedutane	4.03	402.77	402.77	9.17	0.00	
3		Nandivali turfe Ambarnath	0.64	63.94	63.94	1.46	0.00	
4		Davadi	2.63	262.57	262.57	5.98	0.00	
5		Pisavali	1.08	108.44	108.44	2.47	0.00	
6		Golivali	1.60	160.18	160.18	3.65	0.00	
7		Sonarpada	1.49	148.73	129.48	2.95	19.25	MIDC
8		Mangaon	1.41	140.58	140.58	3.20	0.00	
9		Kole	1.65	164.79	164.79	3.75	0.00	
10		Nilaje	2.82	282.38	282.38	6.43	0.00	
11		Katai	1.07	107.24	107.24	2.44	0.00	
12		Usarghar	1.90	189.75	189.75	4.32	0.00	
13		Gharivali	0.81	81.41	81.41	1.85	0.00	
14		Sandap	0.51	51.30	51.30	1.17	0.00	
15 & 16		Bhopar (Incl. Deslapada)	4.47	447.30	390.61	8.90	56.69	Ulhas River
17		Nandivali – panchanand	1.51	150.75	150.75	3.43	0.00	
18		Asade	1.56	155.74	9.70	0.22	146.04	MIDC
19		Sagaon	1.17	117.48	9.46	0.22	108.01	MIDC
20		Ambarnath	Chinchapada	1.04	103.58	103.58	2.36	0.00
21	Adivali – dhokali		1.79	179.40	179.40	4.09	0.00	
22	Umbroli		1.91	190.96	190.96	4.35	0.00	
23	Bhal		2.12	212.01	212.01	4.83	0.00	
24	Dwarli		1.02	102.01	102.01	2.32	0.00	
25	Manere		2.36	235.56	208.26	4.74	27.30	UMC
26	Vasar		4.54	453.82	453.82	10.34	0.00	
27	Ashele		1.63	163.38	67.01	1.53	96.38	UMC
TOTAL			48.43	4843.40	4390.16	100.00	453.23	

Source: Village Cadastral Maps, MRSAC Nagpur Base Map (2008), Aerial Image (2008)

Out of total 48.83 sq.km of total area, 1.24 sq.km area of Ashele and Manere villages falls under urban area of Ulhasnagar Municipal Corporation. Another 0.57 sq.km area of Bhopar village is excluded from the Notified Area as it falls under Ulhas River and has not been assigned any revenue survey number. Total of Notified Area is 46.63 sq.km after exclusion of 1.8 sq.km of both areas.

Out of the total 46.63 sq km of remaining Notified Area 2.73 sq km area falls under the existing MIDC Estates spread over the villages of Sonarpada, Asade, Sagaon. After exclusion of MIDC area, remaining Notified Area is 43.90 sq.km, taken as planning area boundary.

Hedutane, Bhopar (including Deslapada) and Vasar are the largest villages occupying 8.32%, 9.24% and 9.37% respectively of the Notified Area. Nandivali Turfe Ambarnath, Gharivali and Sandap are the smallest villages occupying only 1.32%, 1.68% and 1.06 % respectively of the Notified Area.

2.2. ACCESS AND CONNECTIVITY

Transport plays a key role in shaping the growth of a city and its land use pattern. Transportation also provides mobility to the people which are the essence of urban life. MMRDA commissioned a comprehensive transportation study of MMR through WS Atkins International. WS Atkins submitted the report in April 1994. They have recommended number of measures to improve the transportation situation in MMR based on which MMRDA has evolved the future transportation strategy for MMR. The salient features of this strategy are described below.

The Regional Plan for MMR 1996-2011 has recognized the importance of the public transport and hence stressed on the improvement of the public transport especially suburban railways. It has recommended:

- Replacement of level crossings with road over bridges;
- Introduction of new rolling stock with radically improved design;
- Longer trains running at 3 minutes headway and Enhancement of power supply and signaling;
- Construction of additional corridors viz. Borivili to Virar, Kurla to Thane etc.

2.2.1. REGIONAL CONNECTIVITY

The Region is well connected to the surrounding Urban Centers like Kalyan, Ulhasnagar, Ambarnath, Kulgaon-Badlapur through the State Highways 40 & 43 and the MDR. The Notified Area is also connected to the Mumbai Suburban Rail which cuts across the area connecting to Thane, Kalyan. Map No 04 shows the regional linkages in the Notified Area.

2.2.2. RAIL NETWORK

RAILWAY LINES

The Notified Area is serviced by Central Railway lines. The central railway suburban train services serving as the primary mass transportation system for Mumbai and its hinterland,

pass through the Notified Area, connecting it with Kalyan, Dombivali, Thane and Mumbai in the North and West and Ambarnath and Badlapur in the East.

There is a single track connection between Vasai Road on the Western Railway and Diva on the Central Railway, which also passes through the Notified Area. There is also a railway line passing through the Notified Area that provides a link at Nilaje Station to Panvel, Konkan railway.

The Kalyan railway station is a very important junction linking the Notified Area with the north-east sub-region and the rest of MMR. From this junction, there is a bifurcation of railway lines – Mumbai-Bhusawal- Nagpur line and the Mumbai-Pune line of the Central Railways.

The key locations and villages in and around the Notified Area are well-connected to and easily accessible from Kalyan, Dombivali, Thane, Diva, Ambarnath and Badlapur train stations through Kalyan-Dombivali Municipal Transportation and MSRTC buses.

RAILWAY STATIONS

Kalyan Railway Station: The station is located around 3 kilometers from the Notified Area and provides accessibility to Mumbai CST and the eastern sub-urban centers including Ulhasnagar, Ambarnath and Badlapur. Kalyan Municipal Transportation buses connect the railway station to the villages in the Notified Area.

Dombivali Railway Station: The station is located around 1 kilometer from the Notified Area and connects the Notified Area to Mumbai CST and the eastern sub-urban centers including Thane, Diva and Mumbra.

Thakurli Railway Station: The station is located around 2 kilometers from the Notified Area and lies in between Dombivali & Kalyan railway stations.

Nilaje Railway Station: The station is located in south-west part of the Notified Area at Nilaje village. It is located at a distance of around 1.2 kilometer from SH40, one of the main regional transportation links passing through the Notified Area.

REGIONAL BUS SERVICE

A high frequency of Kalyan-Dombivali Municipal Transport buses is observed in the Notified Areas, which run along the major transportation axis and have frequent stops along these routes.

The bus-stops of this service are also located close to the villages in Notified Area.

2.3. PHYSIOGRAPHY

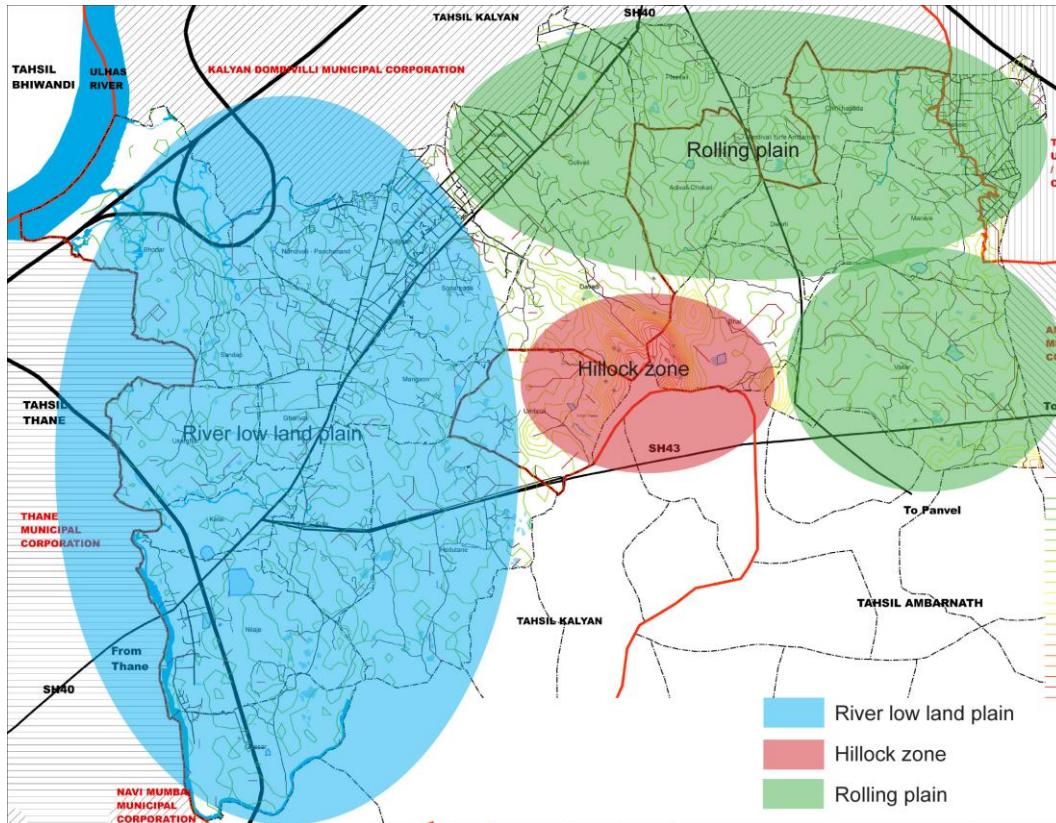
2.3.1. TOPOGRAPHY

The Notified Area lies along the western foot plain of the Western Ghats and is characterized by rolling topography. There are a few elevated land forms present in the southern part of Notified Area and rest of the part exhibits rolling landscape sloping towards north western direction. Map No 05 shows the Topography of the Notified Area with contour Interval of 5 m.

The north-western part of the Notified Area features the Ulhas river low land plain. According to its physiographic, the Notified Area can be categorized in to three broad zones

- 1) River low land plain
- 2) Hillock zone
- 3) Rolling Plain

Figure 7: Physiographic zones of the Notified Area



Source: Land Sat data processed; primary survey.

RIVER LOW LAND PLAINS

River low land plains are present in the north-western part of the project area along the Ulhas River. The Ulhas River meanders for a stretch of 1 kilometer along the north-western fringe of the Notified Area adjoining Bhopar Village and forming a crescent shape. The plains along the river feature level less land devoid of deviation and are hence liable to monsoon inundation. There are a few ephemeral rivulets flowing along the plain that merge into the main stream. Littoral & fluvial deposition characterizes this zone. Sparse mangrove outgrowth & fluvial deposit outgrowths are present in the plain.

HILLOCK ZONES

These consist of elevated land forms, 95 to 100 meters above mean sea level, in the form of hillocks with abrupt slopes to the adjoining plains. Hillocks rise occasionally from adjoining plains.

Extensions of the Western Ghats, these hillocks are predominantly seen in the Umbroli, Bhal and Davdi village of project area. These hills are relict features and are presently in denudation phase.

ROLLING PLAINS

A large part of the Notified Area falls under the rolling plain topography. This physiographic zone features minor variations in relief with elevation varying between 20 to 50 meters above mean sea level. Thick tree covers are present along the lower tract.

2.3.2. DRAINAGE AND SLOPE

The Notified Area is characterized by north-flowing seasonal streams that merge into the Ulhas River. The Ulhas River originates in the western slopes of Sahayadhri from between the Bhor and Thal ghats and further turns north from Kalyan and merges with the Thane creek. One of the main tributaries of the Ulhas River flows along the southern western periphery and then turns north-west. This tract along the stream is characterized by fertile agricultural land. There are a few ephemeral streams in the interior part of the project area. These streams are seasonal and are formed due to outlets of local ponds & reservoirs. During summer these streams turn dry and are used for farming. Gandhi Nalla is one of the significant streams flowing in the north western part of the project area. There is a gradual slope from the south west to north east. The slope is steep towards the southern part and becomes gradual in the northern part of Notified Area.

2.3.3. STRATIGRAPHY AND STRUCTURE

Structurally Cretaceous period formations constitute the significant formations in the Notified Area. The Notified Area is composed of rocks of basaltic lava of Deccan Trap. The Deccan Volcanism marks a very important event in the geological history of this part. The Trap is extensively intruded by dolerite dykes along the fractures. Intrusive plugs and dykes of alkaline derivations and sills are quite common.

2.3.4. VEGETATION

This region features the presence of discretely distributed unclassified forests, interspersed within agricultural land over an area much smaller than that of the agricultural land. Dense green cover can be observed at intervals along the hillocks in the southern fringe of the Notified Area.

The forests are sub tropical and are characterized by rich species of timber including Mahogany and Sal. The interior of this region shows scrub vegetation along eroded land. A sparse distribution of mangroves along the lowland of the Ulhas River characterizes the Notified Area.

2.3.5. WATER BODIES

ULHAS RIVER

Ulhas river, about 135 km long, rises in the rainy ravines of the Bhor Ghat and bound by the steep scarps of the Sahyadri and Matheran ridge, flows northwards after leaping over a depth of 90 metres in two waterfalls one below the other. The valley opens out steadily as the river flows past Karjat toward the north. Near Badlapur, the river is dammed and used for a drinking water reservoir.

It supplies drinking water to Badlapur, Ambarnath and Kalyan. It is also one of the major sources of water for water in the Notified Area which is distributed by MIDC. After its confluence with Kalu and Bhatsa, east of Kalyan, the river turns west and flows through

Mumbra ridge, later it turns northwards to flow for about 10 km through a picturesquely forest-clad hill country and then turning west again to develop an estuary.

About 3 km. wide, joins the sea south of Vasai. An island, namely Panju island, just east of the estuary on the river is used by the Western Railway for a bridge to connect Salsette with Vasai. The river is distinctly tidal as far as Kalyan, which is reported by historians as a port during the historic past.

PONDS, LAKES & WETLANDS

The Notified Area is characterized by the presence of a numerous water bodies. These water bodies are uniformly distributed in the Notified Area. Majority of them are seasonal water bodies in the form of ponds and small pools and are in the low lying areas of the Notified Area. There is a major water body located in the Nilaje village which being used for agriculture and farming purpose.

The southern part of Notified Area exhibits presence of few perennial water pools in the Ghesar and Hedutane villages. These often are seen as clusters of small water bodies covering a large area of land. Due to the rocky terrain the rain water does not percolate in to the sub surface so therefore there is availability of water throughout the year

The Notified Area lies in the catchment area of the river Ulhas. Majority of the streams and rivulets drains towards north and merges in to the master river. Dasai is the major stream flowing along the southern fringe of the Notified Area and eventually drain in to Ulhas River near Bhopar village. The tract along Bhopar village features well defined network of streams and rivulets exhibits marshy and swampy land.

Map No 5 shows the existing natural features in the Notified Area, including contours, streams, local ponds, creek, reservoirs etc.

2.4. CLIMATE

The Notified Area has a warm and humid climate for most of the year and witnesses four seasons; winter, from December to February, followed by summer from March to May, the south-west monsoon season from June to September and the post-monsoon season from October to November.

TEMPERATURE

The month of March to June experiences high temperatures, with a maximum of about 38 degree centigrade in the month of May. The mean daily maximum temperature during May is 34.3°C.

With the onset of monsoon by about the first or second week of June, the temperature starts falling, increasing again from the beginning of October till the end of November. During this period, the days remain warm, while the nights get progressively cooler. After November, temperature decreases again touching the lowest levels in January. The Mean daily minimum is 15.56 degree centigrade during the month of January.

RAINFALL

The average annual rainfall in the Notified Area is 2200 mm to 2300mm. South-western seasonal winds bring copious rainfall by the first week of June which continues till late

September and constitutes around 90% of the annual rain fall. The number of rainy days during the year generally ranges between 80 to 95 days.

HUMIDITY

During monsoons, the relative humidity in the Notified Area exceeds 90 percent. There is a decrease of relative humidity after the withdrawal of the southwest monsoon. The driest part of the year is the period from November to April when the relative humidity in the afternoons is less than 65 percent.

WINDS

The usual prevailing wind direction during the year is west–north west. The mean wind direction in December varies between west-north-west to east-north-east and in June the dominant wind direction is south-west.

Though wind direction is subject to considerable diurnal and seasonal variations, there is little fluctuation in the velocity during the dry season. During the wet season however, wind velocity gradually increases reaching the peak value of about 15.5 mph in the month of July with the direction of west-south-west.

2.5. POPULATION AND DEMOGRAPHY

In order to understand the characteristics and growth dynamics of the Notified Area as well as for predicting future development trends within the region, having a clear picture of the demographic profile of the region is important.

This section of the report deals with describing population characteristics and growth pattern. Existing census information from various sources is used to carry out demographic study and analysis. This section will analyze the demographic profile at the levels of district, tehsils and villages in order.

2.5.1. DATABASE, SOURCES AND METHODOLOGY

Decadal primary census data is the main source of information for formulating the demographic profile and its analysis. Primary census data for 1981 and 2001 for the Notified Area have been used to determine the trend of population growth.

DATA LIMITATIONS

The Notified Area comprises 27 notified villages of the Kalyan and Ambarnath Tehsils of Thane District. These villages have undergone a number of administrative changes between 1981 and 2006, causing many discrepancies in the census data available for the region. Village level data is available for 1981 only.

In 1991 these villages became a part of the Kalyan-Dombivli Municipal Corporation (KDMC) due to which no data at village level for this period is available. Available census data for 2001 is in the form demography of the wards that were formed by these villages being part of the KDMC.

In 2002, these villages were excluded from the corporation and again became a part of Kalyan and Ambarnath Tehsils. The 2008 village-wise population has been obtained by the project team from the Kalyan and Ambarnath Tehsil Panchayat Samiti.

Thus, in order to standardize the database, the method of interpolation has been used to arrive at the 2001 village-wise population for the 27 villages within the Notified Area. This is explained in the following section.

METHODOLOGY

LIMITATIONS OF DATA

1981: Data for Village Level as per Census

1991: Data Available for wards. The ward boundaries are not matching with the 2001 ward boundaries. Thus this information has not been considered for any calculations or temporal analysis.

2001: Data Available for Wards, as per Census. The 9 wards of Kalyan Dombivali Municipal Corporation comprises of 27 villages.

2008: Data Available for Villages as per Kalyan and Ambarnath Panchayat Samiti.

ASSUMPTIONS

All the calculations and analysis is based on the following assumptions:

1. The areas of the villages are constant for the years 2001 and 2008
2. The ratio of the village population in 2001 to the ward of 2001 will be same for the year 2008 village population to the erstwhile ward.

PROCEDURE

The steps followed to interpolate the demographic data village wise are:

Step 1:

*Merging of the villages as per the wards allocated in year 2001
Summing up the population to obtain the total population for 9 wards
(Table below shows the procedure followed)*

The table here shows the population of Chinchpada and Asade villages as per Panchayat Samiti (2008). Population of Chinchpada and Asade villages are summed to get the population of erstwhile ward no. 21 (in 2001 census).

Village	Population (2008 - Panchyat Samiti)
Chinchpada	1000
Ashele	13700
TOTAL	14700

Ward	Village	Population (2008 - Panchayat Samiti)
Erstwhile Ward 21 (part of Corporation)	Chinchpada	1000
	Ashele	13700
	Total Population	14700

Step 2:

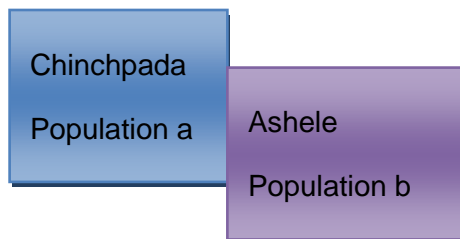
The population figures available from gram Panchyat Samiti for villages of year 2008 is summed to obtain the population of erstwhile 9 wards.

Table A	
Erstwhile Ward (2001)	Population (2008)
Ward 21 (part of Corporation)	14700

Table B	
Ward (2001)	Population (2001) As per census
Ward 21 (part of Corporation)	13612

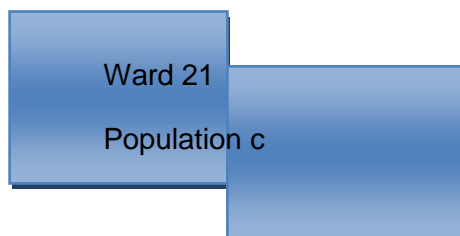
Table A shows the population of erstwhile ward 21 for the year 2008 as obtained from the Panchayat Samiti records. Table B shows the population of ward 21 for year 2001 as per census 2001.

Year 2008



Total Population = a + b
Population Chinchpada = a
Population Ashele = b

Year 2001



Total Population = c
Population Chinchpada = $\frac{a}{(a+b)} \times c$
Population Ashele = $\frac{b}{(a+b)} \times c$

Step 3:

Deriving the population for the villages for year 2001.

The ratio of population share of the villages to the respective wards for year 2008 is considered for calculating the population of village.

Tables below shows the procedure followed in the stage

Table A		Table B	
Village	Population (2008)- Panchayat Samiti	Village	Population (2001)- As per Census
Chinchpada	1000	Chinchpada	926
Total of Ward 21	14700	Total of Ward 21	13612

The share of Chinchpada village population to the population calculated of the erstwhile ward 21 is calculated from the table A. The calculated ratio (of population share of Chinchpada village to the total population of erstwhile Ward 21 in 2008) will be used to derive the population of the village for the year 2001, by applying the ratio to the population of Ward 21 in 2001.

The Demographic Profile for the Notified Area is thus established and analyzed based on the information derived by the method explained above.

2.5.2. POPULATION DISTRIBUTION

DISTRICT LEVEL

Thane comprises of 8.39% of Maharashtra state's population while Kalyan and Ambarnath Tehsil (Thane District) comprises of 1.32% and 0.38% respectively. Table 2.2 below shows population share (%) of Thane District, Kalyan and Ambarnath Tehsils to the Maharashtra State for year 2001.

Table No.2:2: Share of Population of Thane District, Kalyan & Ambarnath Tehsil in Maharashtra State Population - 2001

Sr.No	Level	Population (2001)	% of State Population
1	Maharashtra	96,87,8627	100%
2	Thane (District)	8,131,849	8.39%
3	Kalyan (Tehsil)	1,276,614	1.32%
4	Ambarnath (Tehsil)	366,501	0.38%
Source: Census 2001			

A notable difference can be observed between the urban and rural share of total population within the Notified Area. Kalyan Tehsil has the highest share of urban population among the state and district. Table 2.3 shows urban-rural share of Thane district, Kalyan and Ambarnath Tehsils for year 2001.

Table No. 2:3: Share of Urban & Rural Population in Thane District, Kalyan and Ambarnath Tehsils - 2001

No	Level	Population (2001)	Share of Urban Pop. (%)	Share of Rural Pop. (%)
1	Maharashtra (State)	96,87,8627	42.43	57.57
2	Thane (District)	8,131,849	72.58	27.42
3	Kalyan (Tehsil)	1,276,614	93.49	6.51
4	Ambarnath (Tehsil)	366,501	82.33	17.67
Source: Census 2001				

As per 1981 census, the population of the 26 villages is 35,023. The Notified Area became part of this corporation in 1991; hence village level population data is not available. In 2001, these 26 villages were combined under 9 wards and had a total population of 1, 30,409.

As per Tehsil Panchyat samiti 2008, the total population of the Notified Area is 1, 68,460. Table 2.4 shows population share (%) of Notified Area to Thane district. Notified Area constitutes 1.60% of total population of Thane district.

Table No. 2:4: Population Share of Notified Area in Thane District - 2001

Level	Population (2001)	Population share (%)
Notified Area	1,30,409	1.60
Thane (District)	8,131,849	100
Source: Census 2001		

VILLAGE LEVEL

Distribution of population has been analyzed in terms of population share of the village to the total population of Notified Area; however because of administrative changes in the villages, there is discrepancy in the census data. The demographic data is available for villages for year 1981 and then after the villages were included in Kalyan Dombivali Municipal Corporation, so therefore data is available at ward level for year 2001. So for the temporal analysis of demographic & socioeconomic aspects for the 27villages the ward level figures were segregated on village level.

Table No. 2:5: Population Distribution- Notified Area Villages – 1981, 2001 and 2008

No	Tehsil	Village Name	Total population (% of total)					
			1981	% of total	2001	% of total	2008	% of total
1	Kalyan	Ghesar	252	0.72	297	0.23	697	0.30
2		Hedutane	1524	4.35	2630	2.02	6174	2.63
3		Nandivali Turfe Ambarnath	217	0.62	2047	1.57	5250	2.23
4		Davadi	428	1.22	4122	3.16	5116	2.18
5		Pisavali	2002	5.72	19401	14.88	31840	13.54
6		Golivali	4601	13.14	12497	9.58	25000	10.63
7		Sonarpada	3394	9.69	7733	5.93	16894	7.18
8		Mangaon	841	2.40	1754	1.35	3833	1.63
9		Kole	763	2.18	1988	1.52	4668	1.98
10		Nilaje	1872	5.35	5442	4.17	12775	5.43
11		Katai	952	2.72	3869	2.97	1784	0.76
12		Usarghar	526	1.50	1815	1.39	837	0.36
13		Gharivali	1064	3.04	3110	2.38	1434	0.61
14		Sandap	505	1.44	717	0.55	331	0.14
15		Bhopar (Incl.Deslapada)	1382	3.95	3999	3.07	7984	3.39
16		Nandivali Turfe Panchanand	2399	6.85	12771	9.79	25500	10.84
17		Asade	1605	4.58	14440	11.07	21000	8.93
18		Sagaon	783	2.24	3433	2.63	7500	3.19
Sub Total 1			25110	71.70	102066	78.27	178617	75.94
19	Ambar	Chinchpada	670	1.91	5385	4.13	10800	4.59
20	nath	Adivali Dhokali	1413	4.03	4310	3.30	5349	2.27

21		Umbroli	615	1.76	649	0.50	805	0.34
22		Bhal	1331	3.80	1454	1.12	1805	0.77
23		Dwarli	832	2.38	944	0.72	2421	1.03
24		Manere	1527	4.36	3124	2.40	8010	3.41
25		Vasar	2804	8.01	4250	3.26	10898	4.63
26		Ashele	721	2.06	8227	6.31	16500	7.02
Sub Total 2			9913	28.30	28343	21.73	56589	24.06
Total Population of Notified Area			35023	100.00	130409	100.00	235205	100.00
Source: Census 1981 & 2001, Panchayat Samiti 2008								

Part of Kalyan Tehsil in Notified Area constitutes almost three fourth of population. From year 1981 to 2008 there is increase from 70% to 76% in population share of part of Kalyan Tehsil to the total population of Notified Area. Table 2.5 shows the population for the villages in Notified Area, for year 1981, 2001 and 2008. In 1981, Golivali, Sonarpada, Vasar, Nandivali turfe Panchanand, Pisavali villages had a population of more than 2000. There were only few villages with a population less than 500 which includes Nandivali, Turfe Ambarnath and Ghesar. The population of all other villages varied between 501-2000.

2.5.3. POPULATION DENSITY

Traditional rural-urban migration exists in India as villagers seek to improve opportunities and lifestyles. In 1991, 39 million people migrated in rural-urban patterns of which 54% were female. The average population density of the Notified Area in 2001 was 2698 persons/sq.km., which was lower than the Kalyan Tehsil, indicating the pattern of migration of people from villages towards urban areas.

Most of the villages have a population density range of 251-500 persons/sq.km., followed by 501-700 and Above 900. Table 2.7 shows population density range for the 27 villages in the year of 1981.

Table No. 2:6: Population Density: Kalyan Tehsil, KDMC, Notified Area - 2001

No	Details	Persons/ sq.km. (2001)
1	Kalyan Tehsil	3,855
2	Kalyan - Dombivali Municipal Corporation (KDMC)	8,700
3	27 Villages of Notified Area	2,698
Source: Census 2001		

Table No. 2:7: Population Density - Notified Area Villages - 1981

No	Population Density (persons/sq.km.)	No. of villages	Name of villages
1	0-250	3	Ghesar, Davadi, Sagaon, Sonarpada
2	251-500	8	Kole, Usarghar, Hedutane, Bhopar, Nandivali Turfe Ambarnath, Asade Golivali, Ashele, Umbroli
3	501-700	5	Nilaje, Chinchpada, Manere, Bhal, Vasar
4	701-900	2	Adivali Dhokali, Dwarli
5	Above 900	5	Katai, Gharivali, Sandap, Nandivali Turfe Panchanand, Pisavali
Source: Census 1981			

Katai, Gharivali, Sandap, Nandivali turfe Panchanand, Pisavali had a much higher population density in 1981. Now, however there is a more or less equal population density in all the villages of the Notified Area. In year 2001 & 2008, Pisavali village with a population density of more than 25,000 person / sq.km, registered its share of 5 % (1981) to 15 % (2008) of the total population of Notified Area. Table 2.8 shows the population density for 27 villages in the year of 2001.

Table No. 2:8: Population Density - Notified Area Villages - 2001

No	Population Density (Persons/sq.km.)	No. of villages	Name of villages
1	Below 1000	8	Bhal, Umbroli, Nandivali turfe Ambarnath, Usarghar, Hedutane, Ghesar, Bhopar, Chinchpada
2	1001-3000	9	Kole, Davadi, Adivali-Dhokli, Gharivali, Vasar, Nilaje, Sandap, Dwarli, Manere
3	3001-5000	3	Sagaon, Asade, Katai
4	Above 5001	3	Nandivali turfe Panchanad, Ashele, Pisavali
Source; Census 2001			

In 2008, Nandivali turfe Panchanand and Ashele reached a population density of more than 5000 person / sq km. During this period, 8 villages in the Notified Area had a population density lower than 1000 person per sq km, while rest of the 18 villages is more than 1,00 persons / sq.km.other . The Average density in the Notified Area is observed to increase from 2698 persons/sq.km (2001) to 3354 persons/sq.km. (2008) (Refer Table No. 2.9).

OBSERVATIONS

Drastic variation in density pattern is observed in the Notified Area from 1981 to 2001. Even from 2001 to 2008 within span of only 3 years about 29 percent change in the density is observed. Highest population density is in Asade village followed by Pisavali village of Kalyan Tehsil during 2008.

Lowest population density is in Usarghar village (Kalyan Tehsil) and Umbroli village (Ambarnath Tehsil) during 2008. Some of the villages show drastic variation (increase) in the population density pattern which includes Ashele, Sagaon, Asade and Pisavali.

Table No. 2:9: Summary of Population Density in Notified Area – 1981, 2001 & 2008

No	Tehsil	Village Name	Village Area	Total population			Population density (persons/sq.km)		
			(sq.km)	1981	2001	2008	1981	2001	2008
1	Kalyan	Ghesar	1.67	252	297	697	150.61	177.44	416.57
2		Hedutane	4.03	1524	2630	6174	378.38	652.98	1532.95
3		Nandivali turfe Ambarnath	0.64	217	2047	5250	339.37	3201.85	8210.68
4		Davadi	2.63	428	4122	5116	163.00	1569.84	1948.31
5		Pisavali	1.08	2002	19401	31840	1846.18	17891.01	29361.87
6		Golivali	1.60	4601	12497	25000	2872.44	7801.97	15607.69
7		Sonarpada	1.49	3394	7733	16894	2282.06	5199.30	11359.19
8		Mangaon	1.41	841	1754	3833	598.24	1248.01	2726.59
9		Kole	1.65	763	1988	4668	463.00	1206.60	2832.63
10		Nilaje	2.82	1872	5442	12775	662.93	1927.07	4524.01
11		Katai	1.07	952	3869	1784	887.75	3608.22	1663.60
12		Usarghar	1.90	526	1815	837	277.21	956.73	441.11
13		Gharivali	0.81	1064	3110	1434	1307.02	3820.64	1761.53
14		Sandap	0.51	505	717	331	984.43	1397.69	644.42
15		Bhopar (Including Deslapada)	4.47	1382	3999	7984	308.96	893.95	1784.91
16		Nandivali turfe Panchanand	1.51	2399	12771	25500	1591.36	8471.75	16915.21
17		Asade	1.56	1605	14440	21000	1030.53	9271.59	13483.62
18		Sagaon	1.17	783	3433	7500	666.52	2922.22	6384.32
Total population of villages of Kalyan Tehsil in Notified Area			32.03	25110	102066	178617	784.03	3186.91	5577.12
19	Ambarnath	Chinchpada	1.04	670	5385	10800	646.86	5199.02	10427.07
20		Adivali-Dhokali	1.79	1413	4310	5349	787.64	2402.49	2981.69
21		Umbroli	1.91	615	649	805	322.06	339.66	421.55
22		Bhal	2.12	1331	1454	1805	627.79	685.98	851.36
23		Dwarli	1.02	832	944	2421	815.58	925.46	2373.21
24		Manere	2.36	1527	3124	8010	648.24	1326.03	3400.40
25		Vasar	4.54	2804	4250	10898	617.87	936.49	2401.50
26		Ashele	1.63	721	8227	16500	441.30	5035.45	10099.02
Total population of villages of Ambarnath Tehsil in Notified Area.			16.41	9913	28343	56589	604.18	1727.45	3448.99
Total Population & Population Density of Notified Area.			48.43	35023	130409	235205	723.11	2692.51	4856.20

2.5.4. AVERAGE HOUSEHOLD SIZE

The average household size in the Notified Area is 4.30 (2001) which is lower than the national average of 5. The average household size in the villages ranges from 4.05 to 5.30 in 2001. It has decreased as compared to 1981 (4.06 to 7.48) indicating a shift in spatial distribution of population. (Refer Table No. 2.10).

Table No. 2:10: Average Household Size- Notified Area Villages – 1981, 2001 and 2008

No	Tehsil	Village Name	Total No. of Households			Household Size		
			1981	2001	2008	1981	2001	2008
1	Kalyan	Ghesar	45	92	163	5.60	4.76	3.07
2		Hedutane	258	784	645	5.91	4.47	6.20
3		Nandivali turfe Ambarnath	29	78	906	7.48	5.12	0.71
4		Davadi	75	913	1426	5.71	4.18	3.15
5		Pisavali	509	4627	5618	3.93	4.19	4.61
6		Golivali	1118	2951	3161	4.12	4.23	3.80
7		Sonarpada	737	979	3076	4.61	4.06	3.90
8		Mangaon	191	979	1022	4.40	4.06	8.32
9		Kole	122	669	1341	6.25	4.47	2.54
10		Nilaje	323	761	1373	5.80	4.49	2.84
11		Katai	164	1083	755	5.80	4.43	4.64
12		Usarghar	76	260	240	6.92	4.23	3.34
13		Gharivali	190	455	187	5.60	4.32	7.67
14		Sandap	88	368	183	5.74	4.47	6.56
15		Bhopar (Deslapada)	241	831	441	5.73	3.97	8.73
16		Nandivali- Panchanand	520	3326	7587	4.61	4.05	2.07
17		Asade	395	3445	7412	4.06	4.19	1.75
18		Sagaon	192	1200	1295	4.08	4.14	11.58
Sub Total 1			5273	23801	36831	4.76	4.21	4.75
19	Ambar nath	Chinchpada	103	217	-	6.50	4.27	-
20		Adivali-Dhokali	324	1014	-	4.36	4.19	-
21		Umbroli	105	177	-	5.86	4.32	-
22		Bhal	196	406	-	6.79	4.19	-
23		Dwarli	128	235	-	6.50	5.30	-
24		Manere	245	470	-	6.23	5.30	-
25		Vasar	410	1176	-	6.84	5.30	-
26		Ashele	117	2880	-	6.16	4.40	-
Sub Total 2			1628	6575	-	6.09	4.70	-
Total No. of Households in Notified Area			6901	30376	36831	5.075	4.30	4.75

Source: Census 1981 & 2001, Panchayat Samiti 2008, primary village survey

OBSERVATIONS

The average household size in the Notified Area has decreased over a period of time.

- In 1981 household size is 5.075 which is decreased to 4.75 in 2008.
- Decrease in household size may be either due to migration or formation of nuclear family in the area. However number of households has increased from 1981 to 2008 which indicates more formation of nuclear family.
- Villages falling under the Ambarnath Tehsil have more household size as compared to Kalyan Tehsil.
- In 1981 Nandivali turfe Ambarnath has the highest household size but it has reduced drastically in 2008.
- Lowest household size was observed in Pisavali in 1981 however in 2001 and 2008 household in this village has increased.
- There is a drastic variation in household size from 1981 to 2008 in some of the villages like Nandivali turfe Ambarnath, Sagaon, Mangaon and Asade.

2.5.5. LITERACY RATE

Literacy rate in the Notified Area is 69%, which is comparable to the literacy rates at district and corporation levels, while Tehsil and KDMC have higher literacy rates. Table 2.11 shows literacy rate of Thane District, Kalyan Tehsil and Notified Area.

Table No. 2:11: Literacy Rate- Thane District, Kalyan Tehsil, KDMC & Notified Area – 2001

Details	Population	Literates	% of Literates
District - Thane	8131849	5635799	69
Kalyan Tehsil	1276614	994521	78
KDMC	1193512	944745	79
27 villages	130409	89431	69
Source: Census 2001			

The literacy rate in the Notified Area in 1981 was 46%, which increased to 68% in year 2001. Literacy rate has been calculated for the 26 villages as per the 1981 census; however for year 2001 literacy rate is calculated for villages as per the wards literacy level, hence villages in the one ward have the similar literacy rate. Table below shows the literacy rate of 26 villages (Notified Area) for year 1981, 2001 & 2008.

For year 1981, there is a wide variation among villages in terms of the percentage of literates. Kole and Nandivali turfe Ambarnath have much a much higher literacy rate among all villages, while a large number of villages fall within the range of 41-55 % literate population.

There is over all increase in literacy rate and literacy rate varies between 60% to 83% for the villages in year 2001. Pisavali village is observed to have highest literacy rate of 83% in year 2001 (Refer Table No. 2.12).

Table No. 2:12: Village wise Literacy Rate of Notified Area – 1981, 2001 & 2008

No.	Village name	Literate (%)					
		1981	%	2001	%	2008	%
1	Ghesar	252	46.03%	297	59%	697	60%
2	Hedutane	1524	33.79%	2630	59%	6174	60%
3	Nandivali turfe Ambarnath	217	72%	2047	63%	5250	80%
4	Davadi	428	49.07%	4122	64%	5116	70%
5	Pisavali	2002	59.44%	19401	64%	31840	68%
6	Golivali	4601	37.99%	12497	67%	25000	65%
7	Sonarpada	3394	49.41%	7733	68%	16894	75%
8	Mangaon	841	61.16%	1754	68%	3833	70%
9	Kole	763	72.08%	1988	59%	4668	63%
10	Nilaje	1872	43.48%	5442	59%	12775	70%
11	Katai	952	37.61%	3869	63%	1784	60%
12	Usarghar	526	51.90%	1815	63%	837	70%
13	Gharivali	1064	62.50%	3110	63%	1434	63%
14	Sandap	505	61.19%	717	63%	331	60%
15	Bhopar (Including Desalpada)	1382	43.32%	3999	74%	7984	80%
16	Nandivali –Panchanand	2399	63.40%	12771	74%	25500	90%
17	Asade	1605	49.78%	14440	83%	21000	90%
18	Sagaon	783	51.09%	3433	68%	7500	65%
19	Chinchpada	670	53.28%	5385	75%	10800	65%
20	Adivali-Dhokali	1413	47.91%	4310	64%	5349	75%
21	Umbroli	615	32.68%	649	64%	805	60%
22	Bhal	1331	28.17%	1454	62%	1805	70%
23	Dwarli	832	60.82%	944	63%	2421	65%
24	Manere	1527	43.03%	3124	63%	8010	70%
25	Vasar	2804	20.72%	4250	63%	10898	65%
26	Ashele	721	41.19%	8227	75%	16500	90%
Total Literates (Avg. Literacy Rate)		35023	49%	130409	66%	235205.1	74%

Source: Census 1981 - 2001, Village Panchayat Samiti 2008

2.5.6. SEX RATIO

The Notified Area has a sex ratio 746 females: 1000 males, which is lower than that of KDMC, Kalyan Tehsil and Thane District. A larger number of males are migrating to the Notified Area due to the employment potential offered here. Table 2.13 shows sex ratio for Thane District, Kalyan Tehsil and Notified Area for the year 2001.

Table No. 2:13: Sex Ratio- Thane District, Kalyan Tehsil, KDMC & Notified Area - 2001

No	Details	Total Population	Sex Ratio
1	District - Thane	8131849	858
2	Kalyan Tehsil	1276614	886
3	KDMC	1193512	884
4	27 villages - 10 wards of corporation	130409	746

Source: Census 2001

Sex ratio at the village level has declined from 809 (1981) to 746 (2001). This may be due to high female mortality. The highest female proportion per 1000 male is recorded in Ghesar village (1118) and the lowest is in Pisavali (486) in 1981. Out migration of male population to the adjoining areas for economic reasons accounts for the higher sex ratio at corporation, tehsil and district level.

2.6. SOCIO-ECONOMIC PROFILE

2.6.1. WORKFORCE PARTICIPATION RATIO

Workforce participation is a ratio of total worker to total population. The Notified Area had a total of 52,658 workers, which accounts for 40% Work Force Participation Ratio in 2001. KDMC and Kalyan Tehsil had a lower WFPR while the district showed marginally higher WFPR than Notified Area.

Table 2.14 shows Work Force Participation Rate for Thane District, Kalyan Tehsil and Notified Area for the year 2001.

Table No. 2:14: WFPR- Thane District, Kalyan Tehsil, KDMC & Notified Area - 2001

No	Details	Total Workers Population (2001)	WFPR (2001)
1	District - Thane	3179981	39
2	Kalyan Tehsil	438345	34
3	KDMC	403577	34
4	26 villages - 10 wards of corporation	52658	40
Source: Census 2001			

The WFPR of these villages in 1981 was 35% in 1981 and increased to 40% by 2001 due to increased availability of job opportunities during last two decades in villages and surrounding areas.

Work force participation rate has been sourced for the 26 villages as per the 1981 census; however for year 2001 it is calculated for villages as per the ward level; hence villages in the one ward have the similar work force participation rate.

Table 2.15 and 2.16 shows the work force participation rate of 26 villages (Notified Area) for year 1981 & 2001 respectively. For year 1991 ward information available from census are not matching with the concerned villages so therefore work force participation ratio is not calculated.

Table No. 2:15: WFPR - Villages of Notified Area -1981

No.	Villages	Total Population	Total Workers	Total Non workers	WFPR
1	Chinchpada	670	218	452	33
2	Ashele	721	280	441	39
3	Manere	1527	372	1155	24
4	Vasar	2804	827	1977	29
5	Dwarli	832	185	421	22
6	Nandivali turfe Ambarnath	217	74	143	34
7	Adivali-Dhokali	1413	653	760	46
8	Davadi	428	111	317	26
9	Bhal	1331	372	959	28
10	Umbroli	615	196	419	32
11	Pisavali	2002	1032	970	52
12	Golivali	4601	1696	2455	37
13	Sagaon	783	283	500	36
14	Sonarpada	3394	1240	2154	37
15	Mangaon	841	342	499	41
16	Hedutane	1524	717	807	47
17	Kole	763	206	557	27
18	Nilaje	1872	502	1370	27
19	Ghesar	252	71	181	28
20	Usarghar	526	159	367	30
21	Katai	952	336	616	35
22	Gharivali	1064	375	689	35
23	Sandap	505	126	379	25
24	Bhopar (Including Desalpada)	1382	450	932	33
25	Nandivali turfe Panchanand	2399	838	1561	35
26	Asade	1605	622	983	39
TOTAL		35023	12283	22064	35
Source: Census 1981					

- According to these figures, the highest WFPR in the Notified Area in 1981 was in Pisavali (52) and the lowest was in Dwarli (22). In year 2001, Golivali (Ward 32) & Pisavali (Ward 51) had highest work force participation rate of 51 and 44% in 2001 (refer Table No. 2.16).
- Majority of the population in this part is made up of skilled and unskilled labors employed in the heavy & chemical industries of Maharashtra Industrial Development Corporation.
- Work force participation ratio increased from 35% in 1981 to 40 % in 2001 in Notified Area.
- Rest of villages in the project area having work force participation rate between 33% to 40%.
- Table below shows workforce participation ratio of wards for year 2001.

Table No. 2:16: WFPR – Villages of Notified Area - 2001

Wards	Villages	Total Population (2001) (as per census)	Total Workers (2001) (as per census)	WFPR
21	Chinchpada	13612	4448	33
	Ashele			
30	Manere	10365	3563	34
	Vasar			
	Dwarli			
	Nandivali turfe Ambarnath			
31	Adivali-Dhokali	10535	4917	47
	Davadi			
	Bhal			
	Umbroli			
32	Pisavali	19401	8592	44
51	Golivali	12497	6313	51
52	Sagaon	12920	5127	40
	Sonarpada			
	Mangaon			
53	Hedutane	10357	4119	40
	Kole			
	Nilaje			
	Ghesar			
54	Usarghar	9512	4038	42
	Katai			
	Gharivali			
	Sandap			
55	Bhopar (Including Desalpada)	16770	6221	37
	Nandivali turfe Panchanand			
66	Asade	14440	5320	37
TOTAL		130409	52658	40
Source: Census 2001				

2.6.2. EMPLOYMENT STRUCTURE

The Notified Area had a total of 47,742 main workers as per census 2001, accounting for 91% of the workforce at that time.

Table 2.17 and 2.18 shows employment structure of villages of Notified Area for the year 1981 and 2001 respectively.

Table No. 2:17: Main & Marginal Workers in the Notified Area - 1981

No	Villages	Total Workers	% Main Workers	% of Marginal Workers
1	Chinchpada	218	99	1
2	Ashele	280	100	-
3	Manere	372	100	-
4	Vasar	827	99	1
5	Dwarli	185	99	1
6	Nandivali turfe Ambarnath	74	43	57
7	Adivali-Dhokali	653	98	2
8	Davadi	111	100	-
9	Bhal	372	100	-
10	Umbroli	196	100	-
11	Pisavali	1032	100	-
12	Golivali	1696	65	35
13	Sagaon	283	100	-
14	Sonarpada	1240	100	-
15	Mangaon	342	100	-
16	Hedutane	717	64	36
17	Kole	206	100	-
18	Nilaje	502	90	10
19	Ghesar	71	89	11
20	Usarghar	159	95	5
21	Katai	336	100	-
22	Gharivali	375	99	1
23	Sandap	126	96	4
24	Bhopar (Including Desalpada)	450	70	30
25	Nandivali turfe Panchanand	838	93	7
26	Asade	622	100	-
TOTAL		12283	90	10

The share of main worker to the total workers in 1981 for Notified Area was 90% in 1981 and marginally decreased by 1% to 89% by 2001.

According to the census data, a high share of main workers is at the Municipal Corporation level followed by the Kalyan Tehsil, indicating the presence of agricultural activities. The share of marginal workers is higher in district and villages as compared to corporation and Tehsil and is determined by non primary/ tertiary activities.

In 1981& 2001, majority of the villages in Notified Area have a higher than 90% share of the main workers. In 1981, Nandivali Turfe Ambarnath village has an exceptionally larger percentage of marginal workers, constituting more than 50% of total workers within the village. However by 2001 the share of marginal worker decreases to 17% (refer Table 2.17, 2.18). No significant change is observed in the share of main workers to the total workers from 1981 to 2001 in Notified Area. The share of main workers to the total workers is exceptionally higher because workers are employed on regular basis in the manufacturing units of MIDC Dombivali.

Table No. 2:18: Main & Marginal Workers in the Notified Area - 2001

Wards	Villages	Total Workers (2001) (as per census)	% Main Workers	% Marginal Workers
21	Chinchpada	4448	91	9
	Ashele			
30	Manere	3563	83	17
	Vasar			
	Dwarli			
	Nandivali turfe Ambarnath			
31	Adivali-Dhokali	4917	92	8
	Davadi			
	Bhal			
	Umbroli			
32	Pisavali	8592	94	6
51	Golivali	6313	99	1
52	Sagaon	5127	93	7
	Sonarpada			
	Mangaon			
53	Hedutane	4119	76	24
	Kole			
	Nilaje			
	Ghesar			
54	Usarghar	4038	77	23
	Katai			
	Gharivali			
	Sandap			
55	Bhopar (Desalpada)	6221	94	6
	Nandivali turfe Panchanand			
66	Asade	5320	95	5
TOTAL		52658	89	11

2.6.3. OCCUPATIONAL STRUCTURE

In context of the Notified Area, the percentage of primary workers at district level is relatively higher (17%), while at KDMC level it accounts for only 1%. The table 2.19 shows occupational structure at Thane District, Kalyan Tehsil, KDMC and Villages of Notified Area.

Table No. 2:19: Workers Profile- Thane District, Kalyan Tehsil, KDMC & Notified Area - 1981

No	Details	Total Workers	% Primary Workers	% Non-Primary Workers
1	District - Thane	2782008	17	83
2	Kalyan Tehsil	405907	3	97
3	KDMC	381539	1	99
4	27 villages – 9 wards of corporation	47742	5	95

According to above table, in 1981, the share of non-primary workers was high at the corporation and tehsil levels, while the villages showed a marginally lower share as compared to Corporation and Tehsil. The share of non primary worker to the main workers in 1981 for Notified Area was 68%, which increased to 93% in 2001. Table 2.20 and 2.21 shows the share of primary & non primary workers to the main workers of 26 villages (Notified Area) for year 1981 & 2001 respectively.

The share of non-primary workers to the total workers is high which reflect that economies mainly depend on the service and manufacturing activities present in the Notified Area. There are only few villages where the share of primary workers are high while rest of villages having exceptionally low share of primary workers. Adivali-Dhokali & Nandavali Turfe Ambarnath villages characterize by the presence of 98% & 88 % of primary workers to the main worker in 1981. However, their share of primary workers decreased substantially in 2001 and lower down to 20%. By year 2001 the share of non primary workers varies in the range of 70% to 100% for the villages in the Notified Area (Refer Table No. 2.21).

Table No. 2:20: Occupational Structure –Village wise- 1981

No	Villages	Total Main Workers	% Primary Workers	% Non-Primary Workers
1	Chinchpada	216	63	37
2	Ashele	280	77	23
3	Manere	371	65	35
4	Vasar	816	76	24
5	Dwarli	184	48	70
6	Nandivali turfe Ambarnath	32	88	13
7	Adivali-Dhokali	639	9	91
8	Davadi	111	54	46
9	Bhal	372	79	21
10	Umbroli	196	68	32
11	Pisavali	1030	6	94
12	Golivali	1102	8	92
13	Sagaon	283	6	94
14	Sonarpada	1240	54	46
15	Mangaon	342	8	92
16	Hedutane	457	54	46
17	Kole	206	52	48
18	Nilaje	450	23	77
19	Ghesar	63	70	30
20	Usarghar	151	48	52
21	Katai	336	35	65
22	Gharivali	373	35	65
23	Sandap	121	21	79
24	Bhopar (Desalpada)	316	81	19
25	Nandivali turfe Pachanand	783	8	92
26	Asade	619	2	98
TOTAL		11089	32	73

Table No. 2:21: Occupational Structure –Village wise- 2001

Wards	Villages	Total Main Workers (2001) (as per census)	% Primary Workers	% Non- Primary Workers
21	Chinchpada	4039	5	95
	Ashele			
30	Manere	2947	30	70
	Vasar			
	Dwarli			
	Nandivali turfe Ambarnath			
31	Adivali-Dhokali	4510	13	87
	Davadi			
	Bhal			
	Umbroli			
32	Pisavali	8117	1	99
51	Golivali	6249	1	99
52	Sagaon	4755		100
	Sonarpada			
	Mangaon			
53	Hedutane	3133	10	90
	Kole			
	Nilaje			
	Ghesar			
54	Usarghar	3099	5	95
	Katai			
	Gharivali			
	Sandap			
55	Bhopar (Desalpada)	5863	1	99
	Nandivali turfe Panchanand			
66	Asade	5030		100
TOTAL		47742	7	93

- In all the 9 wards, including 26 villages of the Notified Area, the percentage of primary workers is varies from 1 – 30.
- Ward no. 30 having 30% of primary workers.
- Percentage of non-primary workers is varying from 70 to 100.
- Ward no 52 and 66 having all people employed in non primary activities.

2.7. INDUSTRIAL AND EMPLOYMENT PROFILE

The industrial profile of the Notified Area is established on the basis of information received from DIC (District Industrial Center), Thane. Information is regarding the various MIDC industrial units as well as the registered non-MIDC industries within the 27 villages.

This profile does not take into account the unregistered industrial units in the Notified Area. Thane district comprises of 11228 industries and have substantial share to the industrial output in Mumbai Metropolitan Region. There are 12 Maharashtra Industrial Development Corporation (MIDC) estates in Thane district of which one MIDC falls within the Notified Area.

The data obtained from the district industrial centers shows that there are around 283 industrial establishments in the Notified Area. Notified Area is characterized by presence of 258 industrial units in the MIDC estate of the Notified Area. These industrial units are the registered units under section 2m (1) and 2m (2) of Factories Act 1948.

2.7.1. INDUSTRIAL UNITS UNDER MIDC ESTATE

The area boasts well-demarcated industrial plots and sheds, residential and commercial plots, developed as Phase-I and II and a residential zone.

Below is the Layout of MIDC Dombivali located in Notified Area.

Figure 8: Layout of MIDC of Notified Area

Source: MIDC, Dombivali.

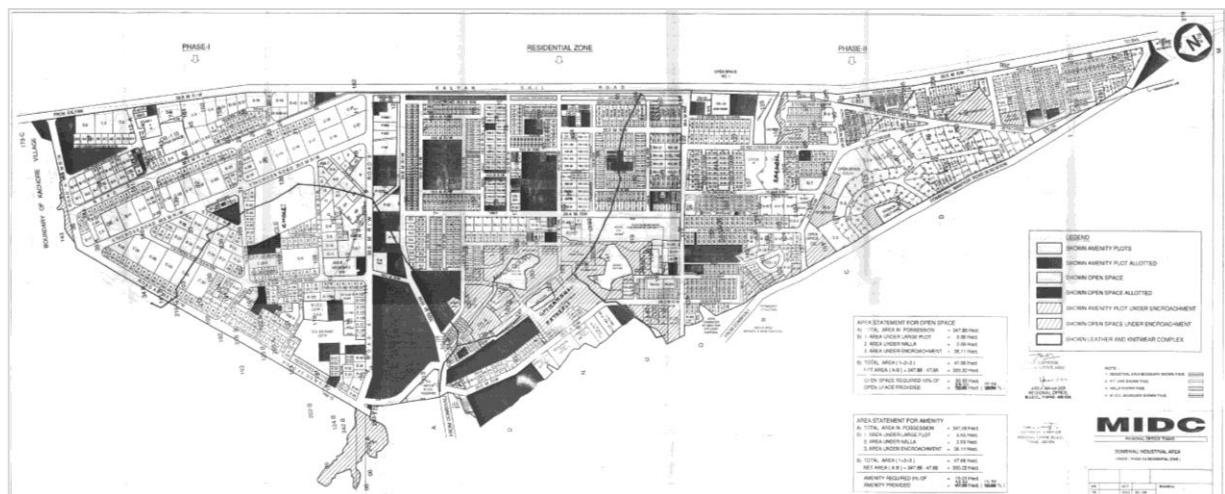


Table No. 2:22: Area distribution in MIDC area in Notified Area

S.No.	Details		Area
1	Industrial Zone	Phase I	97.11 Ha
2	Industrial Zone	Phase II	147.74 Ha
3	Residential Zone		103.03 Ha
4	Total		347.88 Ha

Source: MIDC Dombivali

Majority of the industries are chemical industries which comprises of 40% of total industrial units (102 units are chemical industries out of 258 units). This is followed by Engineering and Electronics industries, which comprises of 35% of total industrial units.

Textile industrial units are 7%, Pharmaceutical units are 5%, Leather and tannery units are 1% and miscellaneous industrial units are 13%, which makes the composition of the estate. Total composition of number of units based on type of industries in MIDC estate is described in below Table No. 2.23.

Table No. 2:23: Type of Industry and Number of Units in MIDC Dombivali

Type of Industry	Number of units	Percentage
Chemical	102	40
Textile	19	7
Pharmaceutical	12	5
Engineering & Electronics	90	35
Leather & Tannery	2	1
Miscellaneous	33	13
Total	258	100
Source: MIDC Dombivali		

2.7.2. INDUSTRIAL UNITS OTHER THAN MIDC ESTATE

Apart from MIDC estate, there are 25 industrial enterprises in the Notified Area. These industrial units are mainly small scale units and located in the Sonarpada village of the Notified Area. These industrial units are mainly chemical and engineering types. Manufacturing units are located along State Highway 40 (Shil Road). Most of them are running at household level and majority of the units have employed less than 10 workers. Table below shows the number of industrial enterprise in the villages of Notified Area.

Table No. 2:24: Industrial units outside of MIDC area

Village	Industrial units	Industry type
Sonarpada	16	Chemical, Engineering
Manpada	3	Engineering & Electronics
Bhopar	2	Chemical
Adivali-Dhokali	2	Chemical
Sangoan	2	Chemical
Source: MIDC Dombivali		

2.7.3. ESTIMATION OF EXISTING EMPLOYMENT FIGURE

Due to non-availability of employment figure for the Notified Area, employment estimation is carried out through the ratio method.

- Ratio of industrial units in the Notified Area to the total industrial units in Thane district is considered for estimating the number of industrial workers in Notified Area.
- The obtained ratio gives the number of industrial workers to the whole sum of industrial workers in Thane district.

Table No. 2:25: Comparison of Number of Industries and employment of Notified Area to Thane District

Area	No. of Industries	Capital investment (lakh)	Employment
Thane District	11228	493,947	1,39,324
Notified Area	283	NA	3511 (Estimated)
Source: MIDC Dombivali			

3. Analysis of the Existing Situation in the Notified Area

3.1. UPDATED BASE MAP

Base map refers to the most accurate spatial database within a data system that depicts the fundamental map elements, such as topography, political divisions, cadastral divisions, roads, water bodies, etc. It also serves as a reference system for integrating other spatial information with a higher level of accuracy.

Preparation of an accurate and updated Base Map was the first and foremost activity for the preparation of the Development Plan of the Notified Area. The aim of this exercise was to identify the key physical features (including natural i.e. major river and water bodies, and manmade features); accurate administrative boundaries of state, district, tehsil, urban area, villages; identify linkages which includes roads (National and State Highway) and railway lines; built and un-built; agriculture, waste land and barren land. Henceforth, this Base Map is the principal source representing diverse spatial information, procured from different sources.

Preparation of Base Map has ensured identification of ambiguities and rectifying the errors. The errors have been rectified by the juxtaposition of the multiple features on one spatial level and adjusting the spatial information to a common scale. The rectification of errors also involved the cross verification for any duplication while identifying the spatial features.

3.1.1. AVAILABLE INFORMATION / SOURCES

The Preparation of Base map involved the procurement of information from authentic sources to provide accurate spatial information. The Table below shows the information used and their source.

Table No. 3:1: The available information and its sources.

No	Spatial Data	Sources	Features
1	A. Base map – 1:5000	MMRDA(village cadastral maps processed by MRSAC Nagpur)	Village boundaries, survey boundaries with numbers
	B. Land cover map	MMRDA (January 2007, Quick Bird Satellite Image processed by MRSAC Nagpur)	Natural features – water bodies, forest, green cover
3	Kalyan, Ambarnath Tahsil maps, District Census Hand Book Thane	Census of India 2001	Administrative boundaries, major road & railway
4	Top sheet – 1:50000	Survey of India – 1976	Spatial coordinates, major roads & railways.
5	Cadastral Map	Taluke Inspector of Land Records – Ambarnath & Kalyan Tehsil	Village boundaries, survey boundaries with numbers
6	Land sat / Digital Elevation	Global Land Cover	Spatial Co-ordinates and

No	Spatial Data	Sources	Features
	Model (SRTM)	Facility, University of Maryland	Contour lines at 5m interval
7	LISS-IV Satellite image (Image Date: "ImgOrbit:22223 Scene No:035 Date : 28-Jan-2008 Dmporbit: 22223)	NRSA Hyderabad	Land cover features
8	Road Alignment and Section	MIDC, MRSAC base map, Aerial Image, Revenue Map	Road ROW, Section, Alignment
9	Water Supply Network	MIDC, KDMC	Pipeline alignment
10	Transmission Network	MSEB, MIDC	Alignment and coverage
11	Existing Railway Land	Railway Department	Alignment, ROW
12	Proposed Dedicated Freight Corridor	DFCC, Central Railway Department	Alignment, ROW

3.1.2. METHODOLOGY

The process of preparation of base map was a lengthy and tedious process, which required lot of to and fro, changes, modifications and rectifications. The overall process of updating the Base Map for the Notified Area was very fruitful and a learning process for the entire team.

The Data prepared by MRSAC, Nagpur (January 2008) was provided by MMRDA. This was verified and updated by using LISS IV Aerial Image (28 January 2008) also with consultation and discussions with MMRDA officials followed by subsequent ground verifications.

This was evaluated at various instances through table discussions, presentations and site verifications.

The stage of Updated Base Map was completed in 10 (Ten) steps listed below:

- **Step 1: Extracting key features from the Maps procured from MMRDA (MRSAC Nagpur database)**
- **Step 2: Rectifying the projection and co-ordinates of Map**
- **Step 3: Verification of the alignments of existing linkages**
- **Step 4: Verification of the village names and areas**
- **Step 5: Cross verification of plot boundaries of map prepared by MMRDA with the cadastral map**
- **Step 6: Procurement, Classification and Integration of Aerial Image**
- **Step 7: Digital Ground Control Points Survey (DGPS)**
- **Step 8: Site Verification**
- **Step 9: Incorporation of Service & Utilities Data given by various authorities**
- **Step 10: Incorporation of Existing Railway land and DFCC alignment**

STEP 1: EXTRACTING KEY FEATURES FROM THE MAPS PROCURED FROM MMRDA (MRSAC NAGPUR DATABASE)

This stage involved identifying the key physical features (including natural i.e. major river and water bodies, and manmade features); accurate administrative boundaries (state, district, tehsil, urban area, villages); identify linkages which includes roads (National, State Highway and Major District Roads) and railway lines; built and un-built; agriculture, waste land and barren land.

From the information provided by MMRDA (processed by Maharashtra Remote Sensing Application Centre, Nagpur) following details have been extracted.

A. Physical Features & Administrative Boundaries: Village boundary, Plot boundary & survey number, transport linkages

B. Land cover: Includes built up, agriculture land, waste land, plantation, scrub, hillock, tree cover.

STEP 2: RECTIFYING THE PROJECTION AND CO-ORDINATES OF MAP

Once the spatial features were located, then the next task was to rectify the projection and co-ordinates of the map. Map projection systematically projects locations from the surface of a spheroid to representative positions on a flat surface using mathematical algorithms. Land Sat Image was used as reference for projection. The UTM projection is the relevant projection to represent the geometric accurateness of the map. World UTM Zones represents the Universal Transverse Mercator (UTM) zones of the world.

Toposheets map was used to refer the latitude and longitude of the project area. Table 3.2 below gives the description of the Toposheets of the Notified Area (SOI 1976). The referenced latitudinal and longitudinal extent was slightly beyond the jurisdiction of the Notified Area, however after verification the co-ordinates were found to be accurate.

Table No. 3:2: Topo sheet identifying the Project area

No.	Description of Map	Scale	Latitude	Longitude
1	47E/4/NE	1:25,000	19° 5' E	73° 7' 30" E
2	47E/4/NW	1:25,000	19° 7' 30" N	73° 0' E

STEP 3: VERIFICATION OF THE ALIGNMENTS OF EXISTING LINKAGES

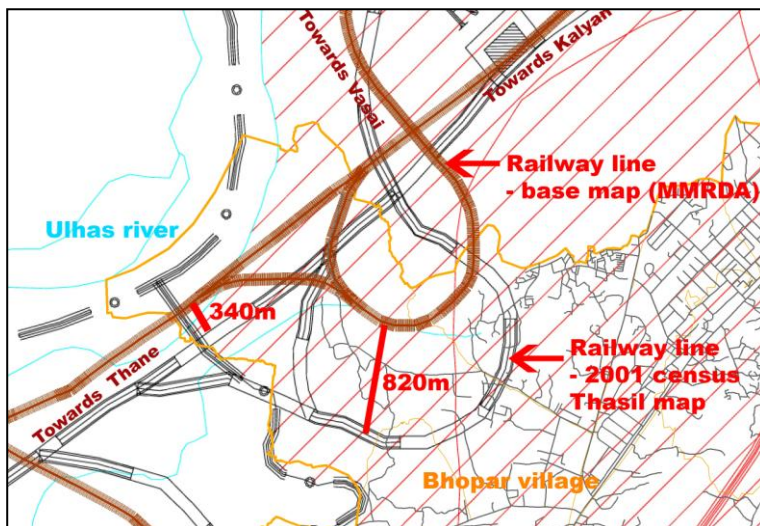
Tehsil level census maps (2001) are used in this stage to cross check and update the physical features (road & railway network) for the project area.

The census map of each Tehsil i.e. Kalyan and Ambarnath obtained from District Census Hand Book was combined in a mosaic and adjusted with the scale of Base Map prepared by MMRDA.

The Tehsil map was then super imposed on the Updated map obtained from the previous steps and the errors were marked in terms of shift and alignment in the physical features of

the overlapped map. Figure 9 shows the variation in the displacement and alignment in railway routes.

Figure 9: Variation in the displacement and alignment in railway routes.



There is a major shift in the alignment of the railway line marked in Bhopar village of Kalyan Tehsil. The western part of the Notified Area, railway line connecting Vasai to Kalyan (north) and Thane (south west), forming a loop has a shift of 820 m as shown in the Figure 9.

The central line (i.e. Broad gauge line coming from Thane and connecting Dombivali, Kalyan) was also observed to have a shift varying from 180 to 340m.

However alignments of physical features (major roads & railway routes) in updated MMRDA drawing coincided with the physical features of Toposheets and did not show any variation in terms of displacement and/or alignment. Thus the Tehsil Census Map (2001) was ruled out for use as an authentic source of data for capturing administrative and physical features while updating the Base Map.

STEP 4: VERIFICATION OF THE VILLAGE NAMES AND AREAS

The actual area representing cadastral data is 48.79 Sq.km. Also, it was found that Desalpada is a hamlet which is a part of Bhopar Revenue village; hence total 26 numbers of revenue villages comprise the Notified Area.

There are 2 major rivers passing through Notified Area. Generally Census maps show the half part of the physical feature (River) within both of the adjoining area, if any river passes. Ulhas and Dasai river passes from adjoining villages of Bhopar, Samdap, Nilaje and Ghesar villages. Therefore the Notified Area is about 48.43 sq.km, after exclusion of river areas from above villages.

The super-imposing of Census map with the updated map revealed that a portion of Ashele and Manere villages of Ambarnath Tehsil are included within the jurisdiction of Ulhasnagar Municipal Corporation. After exclusion of Ashele and Manere urban area, the actual area for the 27 villages of Notified Area is 46.63 sq.km.

Notified Area comprises of MIDC area, which is a special planning authority, and hence shall be excluded from the Notified Area while preparing a development plan.

After exclusion of MIDC area, the total of Notified Area is about 43.90 sq.km. which is taken as the planning area for preparation of Development Plan.

Listed below is the chronology of area statement, prevailing in Notified Area.

Table No. 3:3: Chronology of sequences for base map area.

No.	Chronology of sequences	Area (Sq.km)
A	Total Notified Area (Earlier as per cadastral maps and satellite image)	48.79
B	Exclusion of Ulhas river & Dasai river part from Bhopar, Sandap, Nilaje & Ghesar villages	48.43
C	Exclusion of Manere - Ashele urban part (Included in UMC)	46.63
D	Total Notified Area after exclusion of MIDC area	43.90

STEP 5: CROSS VERIFICATION OF PLOT BOUNDARIES OF MAP PREPARED BY MRSAC WITH THE CADASTRAL MAP

This stage involved the verification of plot level information in the updated base map drawing with the cadastral map (procured from Tehsil Inspector of Land Record), as Cadastral maps are authentic source for cross checking the above mentioned information.

There are 4 to 5 major types of error, which were identified during correlation of the updated MMRDA map with the cadastral maps.

Table No. 3:4: Cross verification of errors with example in the map prepared by MMRDA

No	Errors	Examples
1	Ponds and Gaothan area is not mentioned in MRSAC drawing, which was then figured out by Cadastral maps	All the 26 villages
2	Presence of survey number in the plot without having any survey number in cadastral map	In Ashele village survey number 69 is marked in MMRDA map which is not mentioned in cadastral map
3	Various mistake identified in survey numbers like wrong survey number	In Gharivali village Survey no 41, 42 is mentioned in MRSAC map which /is survey number 52, 57 in Gharivali village of cadastral map.
4	Repetition of survey number	Survey number 157 is repeated twice in Nilaje village mentioned in MMRDA map.

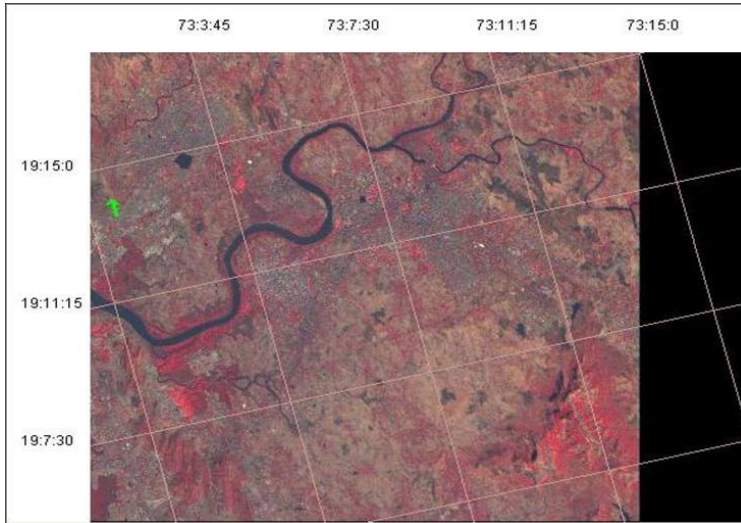
PROCUREMENT, CLASSIFICATION AND INTEGRATION OF AERIAL IMAGERY

LISS IV, an aerial image has been procured from NRSA for the Notified Area and surroundings. LISS IV image is used to carry out the land cover and physical features of any particular area. The acquisition time and scene No of the Aerial image is as follows.

“ImgOrbit: 22223 Scene No: 035 Date: 28-Jan-2008 Dmporbit: 22223 - Aerial imageries of NRSA required to be updated through ground surveys. The ground survey work was conducted by CEPT team with the help of MMRDA technical and drawing staff and the Existing Land Use Map was prepared to comply with the legal provisions in Section 25 of the Act.

LISS IV image gives the authentic land cover dataset after getting done super wise classification in ERDAS software. It is an automatic process by which the pixel values are classified into the different categories as per the existing land cover.

Figure 10: LISS IV Image of Notified Area – 2008



Geo referencing of Aerial image with available base map is the critical and important task, which needs to be taken care to get the accurate positioning of Notified Area. This exercise is done while updating the base map. Map No 6 shows the Geo referenced aerial image with MMRDA base map.

The thumbnail of the Liss IV Aerial Image of Notified Area is shown in Figure 10.

Source: NRSA Hyderabad, India
– January 2008

STEP 6: GROUND CONTROL POINTS SURVEY (GPS SURVEY)

There are certain errors representing the alignment shift, when correlate 2 village cadastral maps. GPS is advisable tool to eliminate such alignment error though gives the accurate map alignment. There are about 12 GPS points were taken with the assistance of MMRDA Kalyan officials, comprising of major landmarks of entire Notified Area. Listed below are the GPS points taken while joint site survey.

Table No. 3:5: List of GPS Points taken of Notified Area.

No.	GPS Point	Location	North	East
1	1	Pisavali-Golivali Village entry	19 deg. 13' 06.00"	73 deg. 07' 09.58"
2	2	Entry point 2 Golivali	19 deg. 12' 59.72"	73 deg. 07' 03.17"
3	3	Left Side corner of Hotel Nandi Palace	19 deg. 12' 34.9"	73 deg. 06' 39.45"
4	4	Regency junction road	19 deg. 12' 18.72"	73 deg. 06' 26.27"
5	5	MIDC junction near Manpada Police station	19 deg. 11' 16.38"	73 deg. 05' 32.16"
6	6	Main cross junction to SH43 (Hotel Kushala Paradise)	19 deg. 10' 20.14"	73 deg. 04' 59.16"
7	7	Railway over bridge near Nilaje	19 deg. 9' 56.91"	73 deg. 04' 35.13"
8	8	Bridge above the river near Nilaje	19 deg. 09' 46.46"	73 deg. 04' 24.42"
9	9	Entry Point to Kole on SH 43	19 deg. 10' 16.77"	73 deg. 05' 12.80"
10	10	Intersection of railway track near Bhopar	19 deg. 12' 04.09"	73 deg. 04' 28.56"
11	11	Temple on Bhopar Tekri	19Deg 11' 45.19"	73 deg 04' 33.86"

12	12	junction of SH 43 & Haji Malang Road	19 deg. 10' 50.98"	73 deg. 08' 30.47"
Source: Primary Survey				

STEP 8: SITE VERIFICATION

There are series of site verification held with the assistance of MMRDA Staff to obtain better accuracy in the Base Map.

Such site verification includes the mapping of major landmark structures, measuring the road width, identifying and adjusting the structures featuring of social amenities and major built-up.

These sequences of site verifications were held during time period of September 2008 to March 2009.

Listed below are the few samples of building layout visited and adjusted in the Base Map exercise.

Table No. 3:6: List of Properties verified for base map.

Sr. No	Village Name	Project name	Survey no / Hissa. No	Remarks
1	Golivali	Deshmukh homes	146 & 147	Checked & updated
		Regency estate	80, 81/1,2 , 87/2, 88/2, 121/7, 122/1,2, 179	Checked & updated
2	Nandivali Panchanand	Kasturi Memorial School	6	Checked & updated
		Holy Angel School	43/2,3, 74/7	Checked & updated
		Asha Angan building	36/5,11	Checked & updated
3	Vasar	Ideal college	21/11	Checked & updated
4	Bhopar	Lodha regency Saibaba colony	239/2, 3, 242/8, 37pt, 44/5, 235/2,3, 236/1pt, 233/1,2,3, 46/1, 47/2,3, 48/6,7, 233/2	Checked & updated
5	Nilje	Lodha heaven	133/4b,4d,5, 135/4,5,6,7,136/1 225/1,233/3,4 236/1,2,161/4a 203/5,205/1	Checked & updated
6	Pisavali	Anmol Garden Building	32/2, 30/1, 2,5,7, 33/14	Checked & updated
		Sunrise valley Building	26/1, 27/1	Checked & updated
Source: Primary Survey				

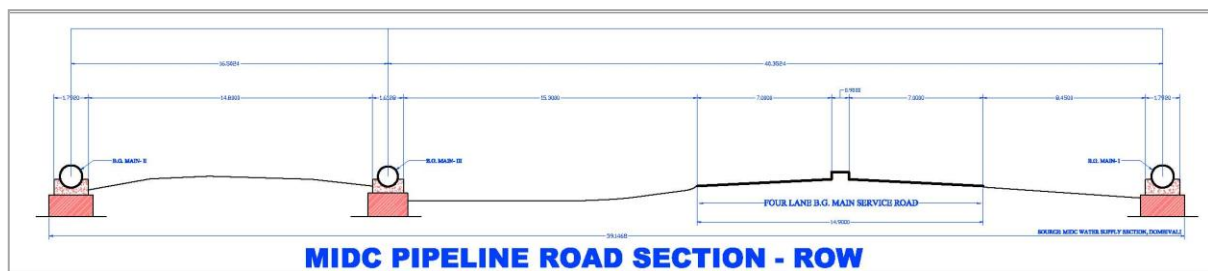
STEP 9: INCORPORATION OF SERVICE & UTILITIES DATA GIVEN BY VARIOUS AUTHORITIES

Purposely few of the significant physical features like MSEB & MIDC Power line, MIDC water Supply lines, MSRDC State Highway section, PWD Road Section, MIDC Pipe Line Road Section is incorporated and allocated in terms of its cross section along with its centre line on the Updated Base Map.

There is state highway 43 passing through west – east direction of Notified Area, commonly known as MIDC Pipeline road. It has pipeline both the side of the road surface, which is important feature to locate on Base Map. The MIDC Dombivali has provided the details of road section; it is verified and incorporated in Notified Area base map.

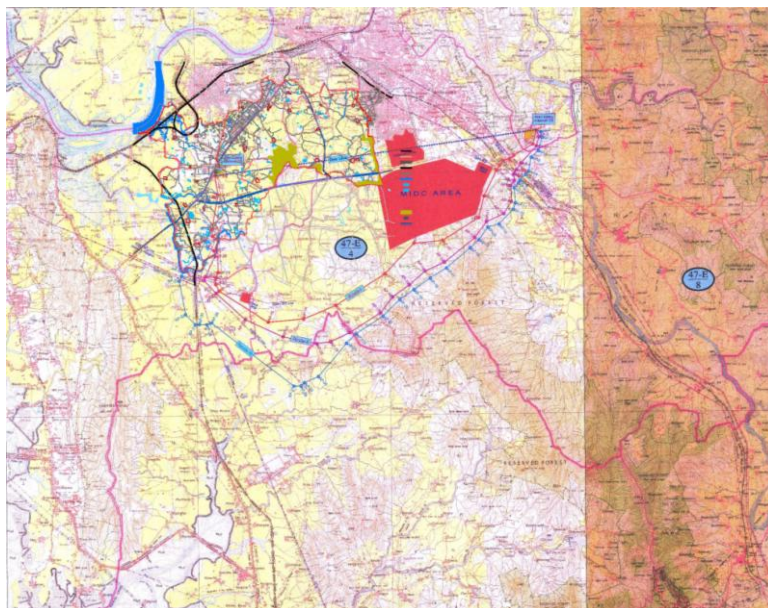
Below is showing the MIDC pipeline road section having details of ROW and alignment of pipelines.

Figure 11: Section of MIDC Pipeline Road



Source: MIDC Dombivali

Figure 12: Overlaid Notified Area profile on MSEB data (Source: MSEB Kalyan)



The transmission line alignment and its coverage are the other important features incorporated in base map. The relevant data from MSEB and MIDC is collected, discussed and incorporated for updating the base map. MSEB has provided the transmission line network overlaid on Toposheets.

The Notified Area map is overlaid on data provided by MSEB and captured the High Tension Transmission line network. Below is showing the transmission line network of Notified Area.

STEP 10: INCORPORATION OF EXISTING RAILWAY LAND AND DFCC ALIGNMENT

There are two railway lines, diva panvel and diva vasai passing to north – south of Notified Area. The details like railway line alignment, land properties and ROW are collected discussed and incorporated in Notified Area Base Map. Also, Notified Area is falling in the

route of Delhi Mumbai Industrial corridor. The Central Railways' Dedicated Freight Corridor Corporation department declared acquisition of land for alignment of Western Dedicated Freight Corridor wide Notification No. 778 (E) dated 16th March 2009.

CEPT team collected and incorporated the relevant data with the guidance of DFCC officials.

The Central railway, CST has provided the details of Diva – Vasai railway alignment with cadastral details. The data provided by DFC also has existing railway details with proposed corridor alignment overlaid on cadastral maps.

3.1.3. AREA STATEMENT AS PER THE UPDATED BASE MAP

The total project area is 43.90 sq.km after the exclusion of the aforesaid features. The total built up area is 1.75 sq.km, which is about 4% of total project area. Table below shows the area statement of Notified Area.

Table No. 3:7: Area Statement for Notified Area as per Updated Base Map

Base Map Categories	Area (Ha)	% of Sub Total	% of Total
NATURAL FEATURES			
River / Streams / Nallas	30.78	11.57	0.70
Ponds (As per Revenue Map) *	11.16	4.20	0.25
Water Bodies	39.31	14.78	0.90
Marshy Land	5.28	1.98	0.12
Hillock	179.49	67.47	4.09
Total of Natural Features	266.02	100.00	6.06
UTILITIES			
Water Supply Pipelines	2.84	85.02	0.06
Transmission Network	0.50	14.98	0.01
Total of Utilities	3.34	100.00	0.08
TRANSPORTATION NETWORK			
Roads (SH+MDR+Pucca)	65.10	40.52	1.48
Kutchha Roads	11.33	7.05	0.26
Railway Property (ROW)	84.25	52.43	1.92
Total of Transportation Network	160.68	100.00	3.66
Brick Kiln	23.82	-	0.54
Defense Land	0.68	-	0.02
Built-up Footprint	175.74	-	4.00
Vacant Area	3759.89	-	85.64
Total Available Planning Area	4390.16	-	100.00
Existing MIDC Area	272.86		
Excluded Area (Ashele, Manere Urban Part + Ulhas, Dasai River Part)	180.37		
Total Notified Area	4843.40		
Source: Updated Base Map of Notified Area			

*Note: Ponds (As per Revenue Map) includes a pond in Ashele village near survey no. 51 as per the revenue map, which is at present encroched by buildings. The pond is included as part of the Base Map.

Total vacant area occupies about 3760 ha, which is about 85% of the total of Notified Area. The area covered by natural features is about 266 ha, which consists of river, ponds and big chunk of hillock located at southern part of the Notified Area. The Notified Area has several water bodies due to undulating topography which spreads over the entire region.

Map No. 7 shows the updated base map of the Notified Area.

3.2. EXISTING LAND USE SURVEY

A Development Plan lays down the framework for guiding growth and development in a town/city. This is done through 3 instruments –

- 1) Land Use Zoning Plan that determines the use of each land parcel in the development area
- 2) Structural Road Network Plan that guides laying of trunk the infrastructure in the development area
- 3) Development Control Regulations that determine the built form in the development area

An understanding of the existing/prevalent land use and land cover pattern, development intensities across the development area, road network pattern and the urban form is extremely critical to:

- To understand the problems related to growth/development such as conflicting uses of land, traffic congestion, location of undesirable uses, inefficient patterns of movement, pressure on infrastructure, densities etc.
- To get a sense of the development trends.
- Make rational proposals so as to reduce / correct the problems listed above.

A reasonably accurate and updated existing Land use map is an essential prerequisite for preparing a development plan for any area. Appreciation of existing land use pattern is necessary for the preparation of development plan. Section 25 of the MR&TP Act, 1966 also makes it necessary to conduct the surveys and preparation of existing land use map. Before carrying out any kind of physical surveys it is necessary to prepare base map to a prescribed scale showing various physical & natural features such as structures, transportation network, rivers, lanes & Nallas, hills etc.

Conventional practice is to depend on the available village cadastral maps. However, these maps being prepared long ago do not indicate the latest development. Also there are chances to foreseen resolution errors. In view of this, it became necessary to obtain aerial photographs and correlate with other data sources.

This can be prepared by undertaking an actual physical survey and then overlaying the cadastral information. Along with this a good resolution satellite image can be used as a base on which the surveyed and cadastral information can be overlaid.

This process also results in a reasonably accurate and updated existing land use map that is adequate for the purposes of preparing a Development Plan. This method has been adopted for preparing the existing land use Map for Notified Area of 27 villages of Kalyan & Ambarnath Tehsils. The base map for the Notified Area has been prepared prior to carry out field survey.

3.2.1. MAP SOURCES AND INTERPRETATION OF RELEVANT ASPECTS

There is a need to obtain accurate base map prior to carry out physical survey for any area, on which existing land use has been identified. Base Map provides the accurate administrative boundaries, built form location, physical & natural features. Built form uses and other land cover information is the task to be carried out and updated after generating base map.

Procurement, classification and correlation of aerial images with cadastral information is the important task prior to carry out physical survey. This task is associated at the time of base map preparation. MMRDA had provided the GIS database comprising of land cover and built form of the Notified Area. This database has updated based on the aerial images procured by CEPT at the time of preparation of base map of Notified Area. Detail approach and methodology regarding the correlation of aerial image and MMRDA base map features has been explained in the earlier section of “updated base map”. CEPT used data from three sources prior to carrying out the physical survey of the Notified Area for the identification of the built uses and land cover. There were various data and methods used to correlate and finalize the built form location and land cover. These are explained as follows.

NOTIFIED AREA BASE MAP

The base map of the Notified Area was prepared with the correlation of MMRDA base map and aerial images as explained earlier. Updated Base map gives the built form location which needs to be updated and identified thorough physical survey. This base map comprises of following information. Table 3.8 shows the various sources of data used for extracting information for updating the base map.

Table No. 3:8: Updated Base Map Features Used in Physical Survey

No	Base Map Features	Data Set
1	Physical Features	Roads (SH, MDR, other roads), Railway line, Railway land
2	Natural Features	Rivers, Water Bodies / Ponds, Nallas, Hillocks / Hills
3	Administrative Features	Village Boundary, survey plot boundary & numbers.
4	Built footprint (Existing & New)	Built form location and new additional built form location

MRSAC MAP

MMRDA has provided an authentic and fairly accurate base map prepared by MRSAC (Maharashtra Remote Sensing Application Centre, Nagpur) for Notified Area. This map is prepared by using Quick Bird aerial image for the timeframe of January 2007, which has fairly new and accurate database. Quick Bird Image is meant for fairly accurate physical features, though it comprises of 0.6 meter resolution.

INTERPRETATION AND PLACEMENT OF FEATURES EXTRACTED FROM MRSAC MAP

The Table below shows the key features extracted from the MRSAC map and their relevance.

Table No. 3:9: Key Features Used in Existing Land Use Survey from MRSAC Base Map

No	Extracted Key Features	Values	Relevance
1	Building Footprint	Polygons	Needs to be verified and updating for new built-up (Task is done at the time of updating base map preparation)
2	Land Cover Information		
2.1	Agriculture	Polygons	Fairly accurate and needs to be updated from Aerial image & Physical Survey.
2.2	Waste Land	Polygons	Fairly accurate and needs to be updated from Aerial image & Physical Survey.
2.3	Open Land	Polygons	Fairly accurate and needs to be updated from Aerial image & Physical Survey.
2.4	Plantation	Polygons	Fairly accurate and needs to be updated from Physical Survey.
2.5	Scrub	Polygons	Fairly accurate and needs to be updated from Physical Survey.
2.6	Hillock	Polygons	Fairly accurate and needs to be updated from Aerial image & Physical Survey.
2.7	Tree Cover	Polygons	Fairly accurate and needs to be updated from Aerial image & Physical Survey.
	Manmade Features		
2.8	Brick Kiln	Polygons	Fairly accurate and needs to be updated from Aerial image & Physical Survey.
2.9	Residential	Polygons	Needs to be updated from Aerial image & Physical Survey.
2.10	Industrial	Polygons	Piagio Factory is shown as only industrial so needs to be updated from MIDC Layout and physical survey.
2.11	Electrical Sub station	Polygons	Needs to be updated from Physical Survey.
	Physical Features		
2.12	Rivers / Ponds	Polygons	Fairly accurate and needs to be updated from village Cadastral Map, Aerial image & Physical Survey.
2.13	Road & Rail Network	Polygons	Fairly accurate and needs to be updated from Aerial image & Physical Survey.
2.14	Railway Land	Polygons	Fairly accurate and needs to be updated from Aerial image & Physical Survey.
Source: MRSAC Map			

PROCUREMENT & INTERPRETATION OF AERIAL IMAGERY

LISS IV, an aerial image has been procured from NRSA for the Notified Area and surroundings. LISS IV image is used to carry out the land cover and physical features of any particular area.

Aerial imageries of NRSA required to be updated through ground surveys. The ground survey work was conducted by CEPT team with the help of technical and drawing staff and the existing land use map was prepared to comply with the legal provisions in Section 25 of the Act.

NRSA LISS IV images are available in 3 different bands. Correlation of all bands is an important task which resulted into false color compiled image.

Geo referencing of Aerial image with available base map is the critical and important task, which needs to be taken care to get the accurate positioning of Notified Area. This exercise is done while updating the base map.

LISS IV image gives the authentic land cover dataset after getting done super wise classification in ERDAS software. It is an automatic process by which the pixel values are classified into the different categories as per the existing land cover.

The Existing land use survey has been carried out for the classification of features as observed in satellite imageries and through field survey.

3.2.2. DATA INTERPRETATION AND CORRELATION OF ALL THREE SOURCES

As explained earlier, there are 3 data sources. These data sources are geo referenced and correlated with each other to formulate the accurate land cover region and built up region. Detailed approach and methodology regarding the same has been explained in following section.

APPROACH AND METHODOLOGY FOR CORRELATION OF DATABASE

All three sources are correlated with each other to identify the built use part and land cover part of the Notified Area. After carried out these 2 broad zones, physical survey has been approached. Land cover information is carried out through classification of Aerial images. Built form is identified through Notified Area Base map and MMRDA base map.

CORRELATION OF LISS IV DATABASE AND NOTIFIED AREA BASE MAP

The major information and features extracted from aerial images and Notified Area base map are as follows:

- **Aerial Image** – Land cover classification, Transportation network, Natural features.
- **Notified Area base Map** – Existing built up and New updated built up

Based on correlation of both sources, detail land cover and built location has been identified.

CORRELATION OF MRSAC MAP AND AERIAL IMAGE

After correlation of the MMRDA base map and classified aerial image, precise land cover polygons has extracted. There is a discrepancy of few road width details in MMRDA Base map, which has rectified from the Aerial image. While state highways and Major district road width are fairly accurate in MMRDA base map. There are two types of discrepancies in road width detail. These are as follows.

- **Other roads** – Majority of the other roads are shown as 6 meter width.
- **MIDC roads** – All roads are having 12 meter width.

Based on the classification of aerial image all road width detail is rectified. Map no 9 shows the correlated MMRDA base map and Aerial image.

VISUAL REFERENCING (GOOGLE PRO DATA)

After generating the land cover, settlement profile, physical and natural features of the Notified Area; next task is to carry out physical land use survey. The Google pro images have been geo referenced with given MRSAC map built up profile as explained in updating of base map task. These images are solely useful for visual referencing of the Notified Area.

3.2.3. LAND USE SURVEY METHODOLOGY

APPROACH AND METHODOLOGY

Existing land use map is prepared by undertaking an actual physical survey for the entire project area. It is very time consuming task. The Notified Area comprises of 48 sq.km area, though it is necessary to divide whole database into reasonable scale for convenience and accuracy. Two major aspects, readable scale and convenient drawing size are identified prior to physical survey.

LAND USE SURVEY GRID


The Notified Area of 27 villages comprises area of 4859.65 Ha, which is large to accommodate in physical survey. After getting the aligned aerial image with MMRDA base map and relevant features, the important task is to divide whole image into various grids to carry out the land use survey. For this, we had distributed the overall 48.6 sq.km area into equal grids into 1:1000 scales with A2 size (297 mm x 420 mm) datasheets for convenience and accurate visual appreciation. All three sources follows same land use survey grids and given to the members of physical survey team.

LAND USE SURVEY PERFORMA

The detailed Performa has prepared and carried along with land use survey grid map to note down the details of observed features on site.

FEATURES ADOPTED IN LAND USE SURVEY

There are major four features identified and adopted in the land use preparation of the study area. These are;

- **Physical Features** These features are further subdivided into number of layers and **Error! Bookmark not defined**.ategories related to the Notified Area.
 - **Natural features**
 - **Land cover**
 - **Land use**
- 

3.3. ROAD NETWORK AND TRANSPORTATION

3.3.1. INTRODUCTION

Transport plays a key role in shaping the growth of a city and its land use pattern. Transportation also provides mobility to the people which are the essence of urban life.

Mumbai Metropolitan Region Development Authority (MMRDA) has commissioned a Comprehensive Transportation Study for MMR entitled “TRANSFORM” (Transportation Study for the Region of Mumbai) which aims to formulate a comprehensive strategy for the Mumbai Metropolitan Region by identifying future travel requirements till the year 2028. The principal objectives of this study are:

- Capturing current travel patterns of residents of MMR covering all Municipal Corporations & Councils as well as the Rural Portions of (MMR), and
- Using the above to assess future travel requirements in the region.

Key outputs of this study include a Comprehensive Transportation Plan that addresses Commuter Rail Development; Highway Network Development; Bus System Development; and Water Transport System Development.

The recommendation of this study is analyzed and incorporated wherever is applicable in the proposed draft development plan of Notified Area.

3.3.2. ROAD NETWORK IN NOTIFIED AREA

The road network in the Notified Area comprises classified roads as well as non classified roads. The classified roads are 2 State Highways (SH43 and SH40) and 1 Major District Road (MDR 62) - connecting Vasar and Kalyan - passing through the Notified Area connecting it to the rest of the Mumbai Metropolitan Region.

The non classified roads are, other approach & internal roads link the villages to these major roads. Approach and internal roads include roads under the MIDC estate that falls within the Notified Area.

STATE HIGHWAY

State Highway 43 & State Highway 40 are the main transportation corridors for the Notified Area. These two highways are characterized by the intensive development that has occurred along their sides and form the growth corridors in the Notified Area.

Table No. 3:10: Details of State Highways in Notified Area

Name of Road	Length (Km)	Type of Road
State Highway 40	8.3	Pucca Tar Roads
State Highway 43	4.2	
TOTAL	12.5	

State Highway 40 runs longitudinally about 8.3 kilometers in the western part of Notified Area providing access to the Kalyan Municipal Corporation. Branching off from National Highway 4 (Thane–Bangalore Highway) at Shilphata Junction, it continues up to Bhiwandi, where it connects with National Highway 3 (Mumbai-Agra Highway). State Highway 40

connects the Notified Area with all the key locations including Thane Municipal Corporation, Kalyan Dombivali Municipal Corporation & the urban center of Bhiwandi.

MAJOR DISTRICT ROAD

MDR 62 passes through the Notified Area connecting the villages Pisavali, Nandivali Ambarnath, Dwarli and Vasar village. This MDR connects the Notified Area to Hajimalang. This MDR is a 2-lane wide Tar Road. The road surface is observed to be in a good condition. This road, however, does require widening to accommodate the increasing traffic volumes and expected increase due to the proposed development in and around the area.

OTHER ROADS

The entire MIDC area is connected through Tar Roads connecting the industrial pockets. Majority of the villages are connected through pucca roads. These access roads, however, are not following a geometric pattern with respect to the connecting major road or highway. Also majority of the roads are not having proper width.

There is no storm water drainage along any of these roads. The surface condition of the village roads is also found to be in a bad condition.

VILLAGE ROADS

These are the roads which connect Gaothan to major access roads. All villages have at least Gaothan road with varying width. There are various kutcha roads providing the inter connectivity to villages as well as to the major approach roads. The Notified Area has poor interconnectivity and inadequate road network.

3.3.3. TRAFFIC & TRANSPORTATION

EXISTING TRAFFIC SCENARIO

The Thane Municipal Corporation has commissioned the study named “Integrated Mobility Plan (IMP) for the city of Thane (July 2008)”. This document has various useful information related to the Notified Area regional road network, it is analyzed and incorporated to judge the existing transportation system of the Notified Area.

As per this report, detailed traffic survey was carried out only on Shilphata junction falling in the Notified Area. This survey was carried out for the entire day at hourly intervals. According to this survey, traffic increased gradually from 5 A.M in the morning and peaked in the noon (11- 12 A.M). Afterwards it started declining and increased again during late evening hours.

In the total morning peak period intersection traffic observed is 16530 PCUs (10269 vehicles), and total evening peak period intersection traffic is 22,021 PCUs (15,100 vehicles). The maximum movement observed in the evening peak hour is 1625 PCU from Mumbai to Kalyan-Phata followed by Kalyan-Phata to Mumbai. Hourly variation during morning and evening peak period is more or less uniform. The morning peak hour intersection volume is 25.60% of morning peak period intersection volume. The evening peak hour intersection volume is 19.98% of evening peak period intersection volume. As per the study maximum proportion of 2 wheelers followed by cars and auto rickshaw is passing from the junction.

TRAFFIC SURVEY FOR NOTIFIED AREA

This section describes the existing traffic conditions in the Notified Area and is primarily based on visual observation and secondary data obtained from the Mumbai Metropolitan Regional Development Authority. The following data consists of traffic surveys that were conducted for the three main junctions within the Notified Area:

1. Katai Junction on State Highway 40 & 43
2. MIDC Junction on State Highway 40 & MIDC road
3. Vasar Junction on State Highway 43 & Hajimalang Road

EMPIRICAL STUDY

The surveys for the junctions stated above were carried out over three time-spans:

- 1) 8 am to 9 am
- 2) 11:30 am to 12:30 pm
- 3) 5 pm to 6 pm

The intention here was to arrive at a PCU count for the Notified Area and the traffic composition here, by segregating the share of public transportation & freight vehicles from the total count. Subsequently a comparative analysis has been carried out for information collected for the surveyed nodes in order to understand the intensity of traffic flow and their relative significance. PCU count is calculated by following the standards of LEA Associate PVT LTD. The table below indicates the standards used to convert traffic counts to PCU.

Table No. 3:11: Standards for Converting Traffic Count to PCU count

No	Vehicle Type	PCU Value
1	Two Wheeler	0.5
2	Auto Rickshaw(3W)	0.75
3	Maxi Cab(3W)	1
4	Taxi	1
5	Car/ Jeep/Van (other than Taxi)	1
6	Mini Bus	1.5
7	BEST (SD)	3
8	BEST (DD)	3
9	Other Buses	3
10	LCV	2
11	2-Axle Truck	3
12	3-Axle Truck	3
13	MAV	4.5
14	Tractor with trolley	4.5
15	Tractor with out trolley	3
16	Cycle	0.5
17	Animal Drawn	6
18	Others	6
Source: PCU Count standards by LEA Associates		

KATAI JUNCTION ON SH 40 & 43

The State Highway 43 branches off from Shilphata-Kalyan State Highway 40 at this junction. Principal characteristics of this junction are as follows:

Geometry & Traffic Conflicts: Shilphata-Kalyan State Highway 40 has a 4 lane divided configuration while State Highway 43 has two lanes undivided configuration. Footpaths and pavements are observed at this junction. Users do not follow the stopping of vehicle behind the stop line.

Activity: Mixed Land-use with residential and commercial activities is observed near the junction. Small shops and hawkers have positioned themselves near the junction, causing heavy traffic and pedestrian volumes near this junction. These in turn have resulted in illegal parking near the junction.

INTERSECTION TRAFFIC ANALYSIS

Observation: The total morning traffic observed is 3939 PCUs (2736 vehicles) and the total evening traffic observed is 5580 PCUs (4068 vehicles). The table ahead shows the PCU count for the three surveyed span at Katai Junction.

Table No. 3:12: PCU Count for Katai Junction

PCU Count		
Morning (8 - 9)	Afternoon (11.30 - 12.30)	Evening (5 - 6)
816	918	1056
402	561	624
117	140	252
96	90	168
900	450	828
168	360	600
648	864	468
792	1044	1584
3939	4427	5580
Source : Primary Survey by CEPT team – Aug 2008		

Peak Hour: Among the three surveyed time span the highest traffic is seen during the evening time period (5 pm to 6 pm). The total PCU count is 5580.

Traffic composition: Maximum percentage of private vehicles is seen on the road during the three time duration. There is diverse traffic vehicles are seen on the road including auto rickshaw, six seated, bus (state, local), and light carrying vehicle, medium lorry and heavy trucks.

Share of Public Transportation & Freight: Vehicle Share of freight vehicle is higher than the public transportation. In the morning time public transportation is 20% while freight vehicle is 21%. The table below shows the share of public transportation & freight vehicles to the total traffic count.

Table No. 3:13: Share of Public Transportation Freight Vehicles PCU At Katai Junction

Public share			Freight Vehicles		
Time Duration	Total number	%	Time Duration	Total number	%
Morning	96	9	Morning	168	16
Afternoon	72	6	Afternoon	288	26
Evening	192	13	Evening	372	26
Source : Primary Survey by CEPT team– August 2008					

VASAR JUNCTION ON SH 43 & HAJIMALANG ROAD

This is a four-pronged junction, formed by Shilphata- Kalyan State Highway 40 & Hajimalang road. Key characteristics of these intersections are as:

Geometry & Traffic Conflicts: Badlapur State Highway (SH 43) has a two-lane undivided configuration, while Hajimalang road has only 1 lane. There is a linear intersection of these two roads having symmetrical alignment. Hajimalang Road is narrower than SH 43 and displays a few conflict points where it intersects the State Highway.

Activity: Land use near the junction is mainly of retail type of shops and catering to the need of the people residing in the adjoining village.

INTERSECTION TRAFFIC ANALYSIS

Observation: The total morning traffic observed is 951 PCUs (1020 vehicles) and the total evening traffic observed is 1908 PCUs (1452 vehicles). As compared to other two junctions less traffic movement is observed on this road during the entire day. The table below shows the PCU count for the three surveyed time-spans at Vasar Junction.

Table No. 3:14: PCU Count at Vasar Junction

PCU Count			
POINT 3	Morning (8 - 9)	Afternoon (11.30 – 12.30)	Evening (5 - 6)
Car	156	324	384
Bike	300	222	252
Auto	27	9	72
6 seated	60	12	60
Bus	0	144	108
Small lorry	192	72	168
Medium-sized lorry	108	360	396
Trucks	108	396	468
TOTAL	951	1539	1908
Source : Primary Survey by CEPT team– August 2008			

Peak Hour: Among the three surveyed time span the highest traffic is seen during the evening time period (5 pm to 6 pm). The total PCU count is 1908.

Traffic composition: Maximum percentage of private vehicles is seen on the road during the all three surveyed spans.

Share of Public Transportation & Freight Vehicle: Share of public transportation is higher than the freight vehicles. In the morning time public transportation is 34% while freight vehicle is only 15%. The table below shows the share of public transportation & freight vehicles as compared to the total traffic count.

Table No. 3:15: Share of Public Transportation & Freight Vehicles At Vasar Junction

Public share			Freight Vehicles		
Time Duration	Total number	%	Time Duration	Total number	%
Morning	1308	34	Morning	564	15
Afternoon	1056	32	Afternoon	432	13
Evening	936	30	Evening	576	18

Source : Primary Survey by CEPT team– August 2008

VOLUME / COVERAGE RATIO ANALYSIS OF NOTIFIED AREA ROAD JUNCTIONS

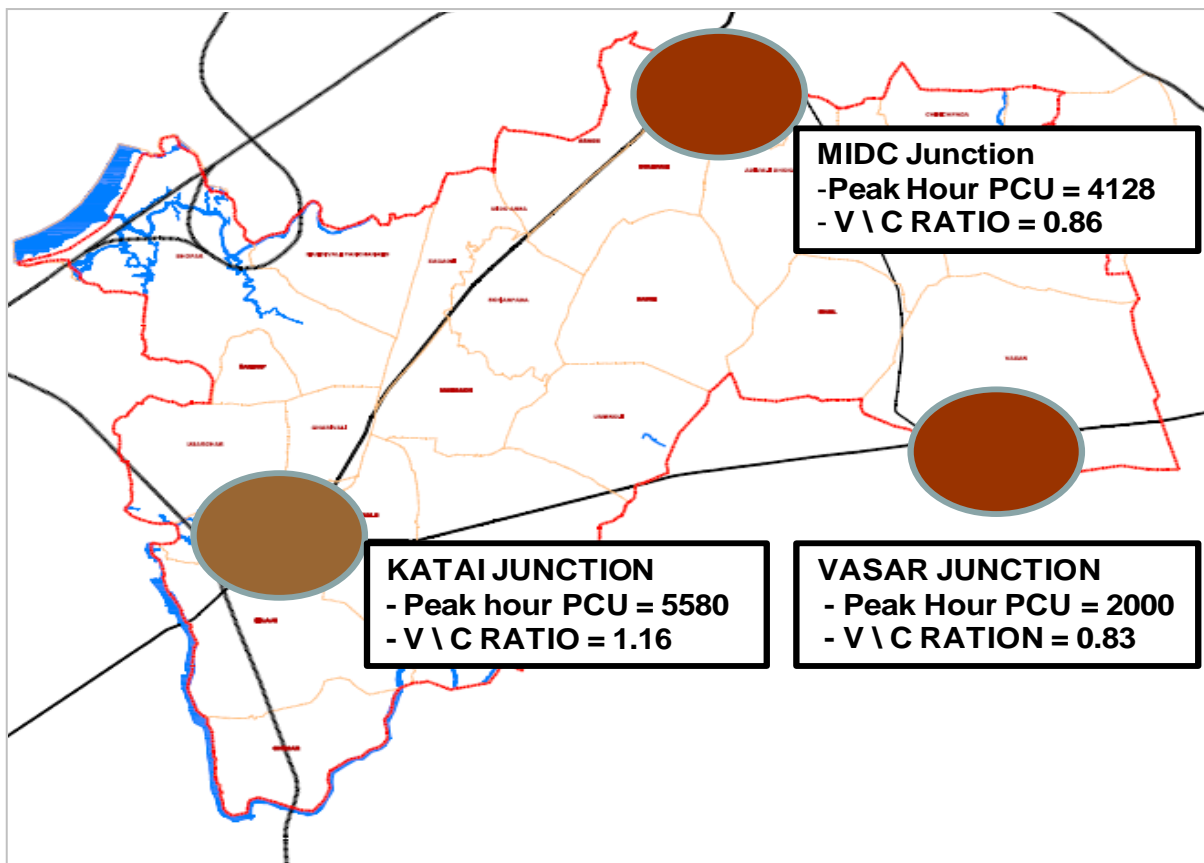
This ratio is derived based on the PCU counts (Volume of traffic) and width of the road (coverage). It helps to identify the threshold capacity of the particular road being able to cater the existing and future traffic load. The more V/C ratio is indicating the inadequate road width to cater the existing traffic. The V/C ratio of any road is desirable to less than 1 for flawless traffic.

There are 3 junctions traffic counts are gathered and its V/C ratio is analyzed, as explained in following figure.

RESULT

Major traffic movements are concentrated on relatively few roads, resulting in major points of congestion where east-west movements intersect the north-south corridors.

Figure 13: Volume / Coverage Ratio Analysis of the Notified Area



TRAFFIC & TRANSPORTATION PROBLEMS WITHIN THE NOTIFIED AREA

The problems of transport network can be summarized as follows:

- Inadequate development of road network especially towards Gaothan.
- Very narrow roads with inadequate road geometry.
- Poor quality of roads.
- Poor interconnectivity amongst Gaothan.

Problems of traffic:

- Traffic volume exceeds the road capacities particularly the State Highways.
- Inadequate width of roads connecting major urban centers around the Notified Area.
- Lack of traffic management systems.

Problems of public transport

- Lack of efficient public transport services to serve as a feeder to the rail system.
- Inadequate number of bus terminals/depots.
- Heavy pressure on the existing rail network.

Problems of Intermediate Public Transport System (IPT)

- In the absence of adequate public transport, auto rickshaws become the sole mode of transport available to the public.
- Inadequate stands for auto rickshaws.

3.4. SOCIAL INFRASTRUCTURE AND AMENITIES

Social Infrastructure includes facilities for education, health, recreation, cultural and social activities, which make city life fuller and richer. However, all of these facilities are not provided by private market at appropriate locations. 'Reserving' land for these facilities at right locations therefore forms an important component of a development plan. Before providing for new facilities, it is necessary to evaluate the availability of existing facilities in order to assess the present deficiency.

This assessment is performed for eight facilities, viz.,

- Educational,
- Health and Medical,
- Recreational,
- Social and Cultural,
- Cremation and Burial Grounds,
- Commercial Bank,
- Credit/ Cooperative society,
- Community Hall,
- Religious places,
- Gardens/Playground

3.4.1. EDUCATIONAL FACILITIES

The inadequate opportunities offered to rural areas and the lower classes are perhaps the greatest challenge facing the so called urbanized rural areas and pose a major threat to the growth and development of the metropolitan regions.

In an age when the best jobs require higher levels of skills and knowledge than ever before in history, some children do not have even the primary level of education.

Inadequate social infrastructure provision-in terms of education and health care facilities is observed as a critical issue in the Notified Area.

The Notified Area has four levels of educational facilities. Table 3.16 shows the distribution of educational facilities at the village level and its adequacy in the Notified Area.

Table No. 3:16: Educational Facilities in the Notified Area

Sr. No.	Village	Population ('01)	Primary				Middle				Secondary		
			Pvt	Pub	Norm	Supply	Pvt	Pub	Norm	Supply	Pvt	Norm	Supply
Kalyan Tehsil													
1	Ghesar	297		1		+1							
2	Hedutane	2,630	1	1	1	+1							
3	Nandivali turfe Ambarnath	2,047	3		1	+2	3			+3	3		+3
4	Davadi	4,122	2	1	1	+2	2		1	+1	1		+1
5	Pisavali	19,401	6	1	4	+3	3		2	+1	1	2	-1
6	Golivali	12,497	5	2	3	+4	5		1	+4	1	1	
7	Sonarpada	7,733	4	1	2	+3	2		1	+1	2	1	+1
8	Mangaon	1,754	3	1	1	+3	2	1		+3	1		+1
9	Kole	1,988	2	1	1	+2	1			+1	1		+1
10	Nilaje	5,442	5	1	2	+4	5	1	1	+5	3	1	+2
11	Katai	3,869		1	1	-		1		+1			
12	Usargar	1,815		1	1	-							
13	Gharivali	3,110	1	1	1	+1		1		+1			
14	Sandap	717		1		+1							
15 & 16	Bhopar (Deseplada)	3,999	3	2	1	+4	2	1		+3	1		+1
17	Nandivali - Panchanand	12,771	8	1	4	+5	4		1	+3	3	1	+2
18	Asade	14,440		1	4	+1			1	-1		1	-1
19	Sagaon	3,433		1	1	-							
Ambarnath Tehsil													
20	Chinchapada	5,385	1	1	2	-						1	-1
21	Adivali-Dhokali	4,310		1	1	-		1		+1			
22	Umbroli	649		1		+1							
23	Bhal	1,454		2		+2		1		+1			
24	Dwarli	944	1	1		+2	1			+1			
25	Manere	3,124		1	1	-		1		+1			
26	Vasar	4,250	1	2	1	+2	1	1		+2	1		+1
27	Ashele	8,227	6	1	2	+5	4	1	1	+4	3	1	+2

*TP & VD, Govt. of Maharashtra Norms have been used to gauge the adequacy of supply

Here, it should be noted that several educational institute has both lower and higher level of services, and hence it is considered as separate entity, although spatially it is not a separate entity. The schools which have higher secondary and primary facilities are considered at two levels of services to gauge with existing standard.

PRIMARY EDUCATION

Out of total 27 villages there is only 1 village in Notified Area where public primary school is not present. There are total 97 primary schools (26 public + 71 private) in the Notified Area, with a uniform spatial distribution. As per the state town planning norms, there should be one primary school for a population of 3500.

Here the supply is more than adequate for the given population as there are 96 schools for a population of 1,30,409. This adequacy is justified on the basis of presence of private schools, however considering exclusively the public schools, the adequacy may not be sufficient.

MIDDLE SCHOOLS

Out of total 27 villages middle schools are present in 15 villages. There are total 54 middle schools (10 public + 44 private) in the Notified Area, with an even spatial distribution. As per state town planning norms, there should be one middle school for a population of 10000. Here the supply is adequate for the given population as there are 54 schools for a population of 1,30,409. There are few villages like Davadi, Pisavali, Golivali, Sonarpada, Kole, Nandivali – Panchanand and Dwarli, where the secondary schools are adequate in number however there is absence of public middle schools. Holy Angel English School and Little Flower English School are among the English schools in the Notified Area.

SECONDARY EDUCATION

A total number of 34 secondary schools are present in the Notified Area. Out of total 27 villages in the Notified Area, secondary schools are present in 14 villages. Asade and Golivali are characterised by the presence of maximum number of secondary schools. It is noted that a village having population more than 5000 exhibits presence of secondary school, except Chinchpada village. There is an adequacy of secondary schools in the Notified Area as a whole. It is observed that there is no public secondary school in the Notified Area.

COLLEGES

A total number of 6 colleges are present in the Notified Area out of which two are pharmacy colleges whereas one is for engineering education. As per the state town planning norms, one college is required for a population of 1.5 – 2.5 lacs. Accordingly 6 colleges in the Notified Area is more than adequate. The table shows the villages having college facilities.

Table No. 3:17: Colleges located within the Notified Area

Sr. No	Village	College
1	Golivali	S. K Bose College
2	Sonarpada	(1) S. V. Pharmacy and Engineering College (2) G. R. Patil Degree College (3) P. V. Johadale Engineering College
3	Chinchapada	Teachers' Training College
4	Vasar	Ideal Pharmacy College
Source: Panchayat Samiti		

SUMMARY OF EDUCATIONAL FACILITIES

Due to the territorial and jurisdiction changes that this area has undergone, the villages have been devoid of adequate planning efforts which stayed concentrated to the urban areas and hence even today these villages lack proper public utilities and social amenities. Majority of the population of the Notified Area is primary and secondary school going population. However, majority of schools lacks basic facilities such as toilets, libraries, science laboratories etc. Only few Schools in the region have play areas of adequate size.

All the villages of the Notified Area are observed to have primary schools except the Nandivali Turfe Ambarnath village, it number includes the private as well as public schools. The latter alone does not meet the minimum requirements of primary education within the Notified Area.

These schools however lack in basic infrastructure like safe drinking water facilities & sanitation for the school children. As per the State Govt. revised norms each primary school should have an open area of about 0.32 - 0.4 ha.

Middle schools are existing in 15 villages and total 34 secondary schools (located in 14 villages), thus the Notified Area experiences a moderate level of secondary education. Asade and Golivali are characterized by the presence of maximum number of secondary schools. As per the Govt revised norms, one secondary school is required for a population of 10000. With a total population of 1.3 lakh there is adequacy of senior secondary school, however there is absence of public secondary school Also, with the envisaged development and growth of the area this number is expected to go up. This would further increase the demand of educational facilities in the Notified Area to the level of the Urban Areas of the rest of MMR.

With six (6) colleges, including two (2) colleges of pharmacy and one (1) for engineering education, the Notified Area is observed to have a majority of its youth educated in the vocational & technical field A large number of the youth travels to the nearby Urban Areas for Higher Professional Education.

This clearly illustrates low to moderate level of educational facilities in the Notified Area leading to a variable economic & livelihood pattern.

The major problems identified from surveys regarding the educational facilities are

- Schools (except primary schools) are not evenly distributed in the developed areas of the Notified Area.
- Many Schools do not have sufficient land and are substandard in terms of space.
- Many buildings are very old; need to repairs and up-gradation.
- Majority of schools do not have essential facilities like Library, Playground, and Laboratories etc.

3.4.2. HEALTH FACILITIES

The Notified Area is characterised by presence of three levels of health facilities. The table shows distribution of health facilities at village level in Notified Area.

Table No. 3:18: Existing Health Facilities in the Notified Area

Sr. No.	Village Name	Population ('01)	Sub-Centers	PHCs		Clinics		Hospitals		Vet. Dispensary
			Pub	Pub	Pvt	Pvt	Pub			
Kalyan Tehsil										
1	Ghesar	297								
2	Hedutane	2,630								
3	Nandivali turfe Ambarnath	2,047								
4	Davadi	4,122	1			2				
5	Pisavali	19,401				1				
6	Golivali	12,497	1			10				
7	Sonarpada	7,733	1			5	1			
8	Mangaon	1,754				3				
9	Kole	1,988				2				1
10	Nilaje	5,442			1			2		
11	Katai	3,869				1				
12	Usarghar	1,815								
13	Gharivali	3,110				1				
14	Sandap	717				1				
15 & 16	Bhopar (Deslapada)	3,999				2				
17	Nandivali - Panchanand	12,771						2		
18	Asade	14,440			1	2	3			
19	Sagaon	3,433								
Ambarnath Tehsil										
20	Chinchapada	5,385				1				
21	Adivali-Dhokali	4,310								
22	Umbroli	649								
23	Bhal	1,454								
24	Dwarli	944								
25	Manere	3,124				1				
26	Vasar	4,250								
27	Ashele	8,227				1				
Source: Census 2001, Village Panchayat Samiti and Primary Survey										

Here it should be noted that at various places the health clinics are run as mixed use with commercial setup. It is considered as mixed use in existing land use, due to its commercial nature.

PRIMARY HEALTH – SUB CENTRE

Out of the total 27 villages in the area, primary health sub centers are present in four villages only. There are 6 villages having population more than 5000 that lack primary health sub centre facilities. As per the state town planning norms, there should be one primary health sub centre per population of 10,000, hence there is a high inadequacy of primary health sub centre in Notified Area as there are only 3 centers instead of 13 for a population of 1,30,408.

PRIMARY HEALTH CENTERS - PHC

There are two Primary Health Centers in the Notified Area. The PHCs have a relatively larger catchments area and population threshold. Currently the health centers are located in the villages of Davadi, Golivali, Sonarpada, Nilaje and Asade. Many large centers to the eastern and north-western part of the Notified Area are left unserved by the public health centers. Villages like Hedutane, Katai, Bhopar, Nandivali – Panchanand, Adivali Dhokali and Vasar have substantial size of population but still lack health facilities. As per the state planning norms the Notified Area should have around four to five PHCs in total. The present number of PHCs is highly inadequate.

MATERNITY AND CHILD CARE CENTERS

There is no facility for the Maternity and Childcare centers. As per the UDPFI guidelines, one maternity and child centre is required for population of 60,000. Therefore a minimum of two maternity centers need to be provided. However there are private hospitals on which provide services for maternal and child care.

GENERAL OBSERVATIONS

It is evident from the table that there is not a single Community Health Centre in the total area. As per the state planning norms a CHC should be provided per population of 1,00,000. There are total 36 private clinics and 8 private hospitals in the area on which majority of population are dependent. The veterinary hospital is also inadequate as one veterinary hospital is required for a population of 50,000.

SUMMARY OF HEALTH FACILITIES

The situation of inadequate social facilities does not stop at the Education sector. It is further compounded by the poor medical facilities in the Notified Area, which makes it impossible for the villagers to get the specialized medical assistance. Majority of population residing in the Notified Area is dependent on 36 private clinics and 8 private hospitals in the area. However for further specialized medical aid the villagers travel to Kalyan- and Thane urban centers. The existing medical facilities in areas need to be strengthened, and require attention in the preparation of the development plan.

Major problems associated with the health sector are:

- Inadequate number of health centers and beds to cope up with the demand.
- Lack of availability of specialized treatment for which people have to depend upon Mumbai.
- Uneven spatial distribution of health facilities.

3.4.3. OTHER SOCIAL AMENITIES

POST OFFICE

Only two Post offices are present in the Notified Area, one in Sonarpada and the other in Nandivali Turfe Panchanand villages.

BANKS AND CO OPERATIVES

The Notified Area features the presence of three commercial banks in Asade. As per the UDPFI guidelines (one commercial bank for 25000 populations) there should be 5 commercial banks in the given area. Hence there is inadequacy of as because of presence of only three commercial banks. All the banks are located in village Asade and hence other areas remain unserved

COMMUNITY HALLS

The presence of community hall is found only in three villages of the area. Two halls are present in village Bhopar, one in Nandivali Turfe Panchanand and one in Asade.

VEGETABLE MARKET / MUNICIPAL MARKET

There is no designated vegetable market and municipal markets are observed while doing existing land survey. There are few informal vendors along with other commercial shops at Vicconakka road, nearby Hedutane village main road, Ghesar village road, Nandivali Panchanand village.

RELIGIOUS PLACES

The area is characterized by the presence of religious places in many villages. The below table indicates the number of religious places in the villages where they are present.

Table No. 3:19: Religious Places in Notified Area

Sr. No.	Village	No. of Religious Places	Sr No.	Village	No. of Religious Places
1	Pisavali	2	11	Hedutane	3
2	Golivali	2	12	Ghesar	1
3	Kole	2	13	Ashele	5
4	Katai	6	14	Mangaon	1
5	Davadi	3	15	Sagaon	10
6	Asade	9	16	Nandivali Turfe Panchanand	7
7	Sonarpada	2	17	Bhopar	6
8	Vasar	2	18	Dwarli	2
9	Nandivali Turfe Ambarnath	1	19	Chinchpada	1
10	Nilaje	3	20	Manere	2

GARDENS / PLAYGROUNDS

Out of total 27 villages, the public gardens and playgrounds are present only in two villages. One garden is located in Pisavali and four in village Asade. Other villages like Nandivali turfe Panchanand, Manere etc. which are of substantial size, do not have public gardens/playground.

SUMMARY OF RECREATIONAL, SOCIAL AND CULTURAL FACILITIES

Recreational facilities include parks, playgrounds, sports complexes and other open spaces while social and cultural facilities include community centers, social welfare centers, town halls, cinema/drama theaters, museums, homes for elderly people, orphanages, public libraries, public assembly halls etc.

Although the most important social facilities required are education & health, however, other social facilities like post office, commercial banks, community halls, cremation grounds and graveyards, playgrounds etc are equally important for providing a Good Quality of Life to the residents.

At present, recreational facilities in the planning area are limited to small playgrounds and gardens developed by individual gram samities in few villages. The Villages towards northern part of the Notified Area being picturesque has several potential places along Ulhas River, which could be developed into picnic spots with a little effort from the governing authority.

The Notified Area has only two (2) Post offices located in Sonarpada and Nandivali Turfe Panchanand. As per the UDPFI guidelines (one commercial bank for a population of 25,000) there should be 5 commercial banks in the given area. However, amongst 27 villages only three (3) commercial banks are located in the villages Asade. Bhopar, Nandivali Turfe Panchanand and Asade are the only three villages having community hall. Declaring the area as a Notified Area with an attempt to bring it at par with the urban areas in the region would require up-gradation of the existing social facilities and addition of new facilities for the projected threshold population.

3.5. HOUSING SECTOR

3.5.1. INTRODUCTION

Shelter is a basic human need after food and clothing. The residential development of Notified Area is in the form of small, medium and large settlements. The Gaathan areas of the villages are compact settlements speckled all over the Notified Area.

Connectivity of the Notified Area to the surroundings developed areas, especially the existing urban centers like Kalyan, Dombivali, Ulhasnagar and Ambarnath, has played a significant role in the development of the area during last two decade. Large number of residential buildings and private development has sprung up in and around the study area.

The North East Sub Region of MMR over the last two decades has experienced this development boom. The use however is limited to either residential accommodation or industrial areas with municipalities like Thane, Kalyan, Ambarnath, Bhiwandi, Diva and Ulhasnagar acting as 'dormitories' or 'bedroom communities', keeping the city of Mumbai (or greater Mumbai) as the focus of the entire MMR.

This section elaborates the Housing Sector Scenario of the Notified Area in terms of existing stock, household size and available infrastructure facilities.

3.5.2. EXISTING HOUSING SITUATION IN NOTIFIED AREA

Census information, acquired from the Directorate of Census, Regional Office, Mumbai, for the year 2001 is acquired and extracted for understanding the existing Housing Sector Scenario of the KDMC Area.

It should be noted here that the Notified Area was a part of the KDMC jurisdiction in the year 2001. Due to change in administrative boundaries and jurisdiction of the Notified Area over years, housing information at the village level is not available.

Table No. 3:20: Share of Notified Area Population to KDMC Population- 2001 Census

Sr.No	Particulars	Nos.
1	Population of KDMC (incl. 27 Villages)- 2001	1,193,512
2	Population of Notified Area of 27 Villages- 2001	130,409
3	Share of Notified Area Population to Total KDMC Population- 2001	10.9 %

Hence, the number of houses for Notified Area has been estimated based on the ratio of Notified Area population to KDMC population for the year 2001. The proportion of vacant houses and occupied houses is assumed to be same as KDMC.

HOUSING STOCK

Table No. 3:21: Existing Housing Stock- 2001 Census

Total Number	Notified Area	KDMC	Thane District		
			TOTAL	Urban	Rural
Census Houses	39,365	361,151	2,360,563	1,816,873	543,690
Vacant Houses	5,483	50,303	365,413	311,434	53,979
Occupied houses	33,882	310,848	1,995,150	1,505,439	489,711

Source: Housing Tables, Census 2001

The total numbers of census houses in Kalyan Dombivali Municipal Corporation (KDMC) in the year 2001 are recorded as 361,151. The population of Notified Area accounts 10.9% of KDMC population, based on which the census houses in Notified Area is estimated to be 39,365 for the year 2001. Out of these 14 percent house are recorded as vacant and remaining 86% as occupied. The occupancy rate of Notified Area and KDMC is found to be higher than the Thane district.

NUMBER OF HOUSEHOLDS AND HOUSEHOLD SIZE

With 30,376 total number of households, Notified Area accounts for 10.98% of total households in KDMC and 2.38% of Thane District (Urban).

Table No. 3:22: Census Houses and Households

Details	Total Census Houses	Total number of Households	Average Household Size
Notified Area of 27 Villages	39365	30376	4.30
KDMC (incl. 27 Villages)	361151	276586	4.31
Thane (Urban)	1816873	1271923	4.64
Maharashtra (Urban)	11,192, 394	8069526	5.08

Source: Housing Tables, Census 2001

OCCUPANCY RATE

A comparison between KDMC and surrounding corporations of the region shows that KDMC and the surrounding corporations have a higher Occupancy rate in the range of 70-90%, which is comparable to the 84% occupancy rate of Thane district. The proportion of vacant houses and occupied houses in Notified Area is assumed to be same as KDMC.

Figure 14- Housing Stock- 2001 Census

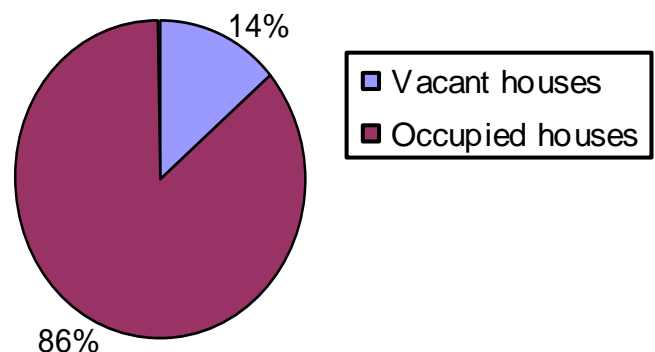


Table No. 3:23: Census Houses and Occupancy Rate – Comparison between Municipal Corporations

Details	Total number of census houses	Total number of occupied houses	Total number of vacant houses	Occupancy Rate
Notified Area	39,365	33,882	5,483	86.07
KDMC	361,151	310848	50303	86.07
Ulhasnagar Municipal Corporation	150,967	133561	17406	88.47
Thane Municipal Corporation	372,343	323367	48976	86.85
Ambarnath Municipal Council	59,197	49661	9536	83.89
Badlapur Municipal Council	34,692	24467	10225	70.53
Bhiwandi Municipal Council	151,660	132669	18991	87.48
Mira-Bhayandar Municipal Council	182,148	132734	49414	72.87
Thane District	2,360,563	1,995,150	365,413	84.52
Source: Housing Tables, Census 2001				

3.6. UTILITIES AND SERVICES

This section highlights the existing status, adequacy and Level of services of physical infrastructure of the Notified Area.

3.6.1. WATER SUPPLY

SOURCES OF WATER SUPPLY

At present there are two sources of surface water supply in the project area; Ulhas and Barvi River. Water released from Shahad water works (Ulhas River) and Jambhul water works (Barvi River) is distributed in the villages.

Barvi Dam: MIDC has constructed a dam across Barvi River, a tributary of Ulhas River. This dam is located at about 16 km. from Badlapur railway station. Water stored in the Barvi dam is released through Barvi River in to the Ulhas River and stored behind the weir constructed on down stream of the confluence of Ulhas River and Barvi River near Jambhul village. The present capacity of the dam is 180 mcm (900 mld) @ 62 m.RL (Reduced Level in meters). This capacity is proposed to be increased to 382 mcm @ 73 m.RL.

Maharashtra Industrial Development Corporation (MIDC) Dombivali is responsible for supplying water to all villages within the project area.

WATER TREATMENT PLANTS

There are 2 water treatment plants in operation for provision of water supply for Notified Area. The present capacities and the expansion potential of each plant are given in the below table.

Table No. 3:24: Capacities of Existing Water Treatment Plants

Name of Water works and Agency owning it.	Existing Filtration capacity (in mld)	Max. Limit of possible expansion (in mld)
Shahad (MIDC, KMC, Century Rayon, National Rayon, Amar Dye)	400	500
Jambul (MIDC)	890	1060
Total	1344	1614
Source: MIDC Dombivali Water Supply Department		

MIDC SHAHAD WATER WORKS:

The MIDC Shahad water works is located near the Shahad railway station on Ulhas river. A weir is constructed by the National Rayon Corporation (NRC) around the year 1964-65 at this location. The main source of water supply for this weir is the water released from Barvi Dam. Filtered water is supplied by MIDC to Kalyan, Ulhasnagar, National Rayon, Shahad industrial area and Mharal, Varap. The present capacity of the MIDC water works is 400 mld, out of which Ulhasnagar get 62 mld and Kalyan 90 mld. There are proposals to increase the capacity of this water works to 500 mld by the year 1997.

MIDC JAMBHUL WATER WORKS:

The Jambhul water works is located on the Ulhas River near village Jambhul. Barvi dam water is released in the Barvi river which is further arrested at the weir constructed by the MIDC on down streams of confluence of Ulhas River and Barvi River near village Jambhul. The capacity of water treatment plant, which at present is 890 mld is proposed to be increased to 1060 mld. This is one of the major water works of MIDC. From this water works, MIDC supplies filtered water to Notified Area, Ambarnath, additional Ambarnath and Badlapur industrial areas and for certain areas in Ambarnath Municipal Council & southern area of Ulhasnagar Municipal Corporation in AKBSNA. MIDC Jambhul also supplies water to certain areas in Kalyan and Thane.

WATER DISTRIBUTION NETWORK

From the sources mentioned above, water is distributed in the villages through three distribution lines.

JAMBHUL WATER PIPELINE

The source of this water pipe line is at Jambhul water works. It runs along Badlapur state highway 43. There are three main trunk lines with diameters of 1772 mm which continue up to Katai at the junction of State Highway 43 & 40. Vasar, Umbroli, Hedutane, Kole & Katai are the five villages which get supplied water by the Jambhul Water Pipeline

KATAI –VICCONAKKA PIPE LINE

Katai- Vicconakka pipe line is a continuation of the Jambhul water pipe line and runs along State Highway 40 up to Vicconakka. There are two main trunk lines with diameters of 600 mm. Most of the villages in the project area are covered by the Katai- Vicconakka Water pipe line.

NAVADI PHATA-TATA POINT PIPE LINE

Navadi phata–Tata point pipeline line is sourced at Shahad water works and Kalyan–Hajimala road and continues up to Kalyan-Hajimala & Badlapur state highway junction near Bhal village. There are two main trunk lines of 1200 mm diameter providing water supply to Dwarli, Nandivali turfe Ambarnath, Chinchpada, Adivali and Bhal villages within the project area.

Table No. 3:25: Water Distribution Network in the Notified Area

Distribution line	Dia. of Pipeline (mm)	Villages
Jambhul water works (Badlapur line)	1772	Ashele
		Manere
		Vasar
		Umbroli
		Hedutane
		Kole
		Katai
Katai to Vicconakka line	600	Gharivali
		Sandap
		Bhopar
		Manapada
		Usarghar
		Ghesar
		Nilaje
		Sonarpada
		Nandivali turfe Panchanand
		Sagaon
		Davadi
		Asade
		Golivali
Pisavali		
Nevali phata to TATA Point	1200	Dwarli
		Bhal
		Adivali – Dhokli
		Chichpada
		Nandivali turfe Ambarnath
Source: KDMC Water Supply dept & MIDC.		

Most of the villages are covered under Katai to Vicco Naka distribution line. Ashele and Manere villages are not covered under MIDC water distribution line.

The quantity of water supplied to the industries within the project area is 18 MLD, while the water supply to the residential parts of the project area is 23 MLD.

INTERNAL NETWORK & WATER SUPPLY

From the main distribution lines water is distributed to the villages through village-level tapping point. Feeder pipelines along the approach road provide water supply to the villages. Usually the diameter of feeder pipelines is between 50 to 100 mm diameter, with the exception of a few villages like Hedutane and Bhopar villages where the diameters of feeder pipelines are 100 & 150mm. The Table 3.32 shows water consumption of the villages for the Notified Area.

The diameter of distribution pipelines in most villages is 50 mm. Total quantity of water supply in the project area is 468875 cu.m. per month (16 MLD). Ashele and Manere villages are not covered under water distribution coverage. Umbroli, Asade, Pisavali, Nandivali turfe Panchanand and Sagaon villages show a trend of receiving lesser water supply as compared to the other villages.

**Table No. 3:26: Water Distribution - HH Coverage, Duration and Average Consumption-
Village wise**

N o.	Villages	Pop (2008)	Village level tapping point	Size of pipe (mm)	Total consump tion (cu.m.) per month	AVG.
						LPCD
1	Ghesar	697	-	50	14880	712
2	Hedutane	6174	-	100	24397	132
3	Nandivali turfe Ambarnath	5250	-	-	-	-
4	Davadi	5116	Venktesh hotel	50	8928	58
5	Pisavali	31840	Tata Distribution	50	6820	7
6	Golivali	25000	Fish market, Pandurang wadi	80	19220	26
7	Sonarpada	16894	Main entry road	80	33542	66
8	Mangaon	3833	entry point from highway	-	-	-
9	Kole	4668	Entry point to village	80	33511	239
10	Nilaje	12775	-	50	9703	25
11	Katai	1784	Near Katai bus stop	50	20057	375
12	Usarghar	837	-	-	-	-
13	Gharivali	1434	-	-	-	-
14	Sandap	331	Manpada	-	-	-
15	Bhopar (Desalpada)	7984	-	150	205158	857
16	Nandivali turfe Panchanand	25500	-	50	6820	9
17	Asade	21000	High way-Vicco naka	50	6541	10
18	Sagaon	7500	-	50	6820	30
19	Chinchpada	10800	-	-	-	-
20	Adivali-Dhokali	5000	Hajimalang road line	50	5349	36
21	Umbroli	900	-	50	805	30

N o.	Villages	Pop (2008)	Village level tapping point	Size of pipe (mm)	Total consump tion (cu.m.) per month	AVG.
						LPCD
22	Bhal	2000	Hidal college, Near bus stop	40	1805	30
23	Dwarli	2000	Near Ganpati mandir	50	2421	40
24	Manere	8010	-	-	-	-
25	Vasar	10898	-	80	32054	98
26	Ashele	16500	-	-	-	-
TOTAL		235205			468875	66
Source: Village survey						

HOUSEHOLD COVERAGE (VILLAGE LEVEL)

Information gathered from the Gram Panchayat of the villages in the project area demonstrates that water supply in majority of the villages is by MIDC.

Table 3.26 gives details of the household coverage / supply and duration of water supply in the different villages.

This information shows that amongst the villages, there is a large variation in the shares of households supplied with water. 100% households in Usarghar, Gharivali, Bhopar, Vasar and Asade are supplied with water, while Nandivali turfe Panchanand, Nilaje, Kole, Sonarpada, Adivali-Dhokali villages have very few households connected by water supply. The average duration of water supply is 11 hours, while most villages have 2-5 hour water supply.

Table No. 3:27: Details of Household Coverage / Supply and Duration of Water Supply-
Village wise

No.	Villages	Pop (2008)	H/H covered (%)	Duration of supply
1	Ghesar	697	-	-
2	Hedutane	6174	59	4
3	Nandivali turfe Ambarnath	5250	96	2
4	Davadi	5116	56	24
5	Pisavali	31840		3
6	Golivali	25000	-	-
7	Sonarpada	16894	35-	7
8	Mangaon	3833	80	4
9	Kole	4668	30	4-5
10	Nilaje	12775	13	24
11	Katai	1784	73	24
12	Usarghar	837	100	24
13	Gharivali	1434	100	-
14	Sandap	331	52	2
15	Bhopar (Desalpada)	7984	100	8

No.	Villages	Pop (2008)	H/H covered (%)	Duration of supply
16	Nandivali turfe Panchanand	25500	10	2-3
17	Asade	21000	100	4
18	Sagaon	7500	-	5
19	Chinchpada	10800	-	-
20	Adivali-Dhokli	5349	40	6
21	Umbroli	805	80	-
22	Bhal	1805	17	2-3
23	Dwarli	2421	-	3
24	Manere	8010	-	-
25	Vasar	10898	100	24
26	Ashele	16500	-	-
TOTAL		235205		

3.6.2. SEWERAGE

All surveyed villages have open surface drains where waste-water from households is discharged into open fields located at lower levels. Sewage drains follow the slopes thus created. There is no STP (sewage treatment plant) in the project area. Wastewater collected in the open surface drains is discharged into Kalyan khadi, Agriculture field, Nalla and River.

INDUSTRIAL EFFLUENT

The project area includes the Dombivali Industrial Area, developed by Maharashtra Industrial Development Corporation (MIDC). Large industrial areas usually pose a significant threat to surrounding water bodies. In this case, this threat has been avoided to some extent by MIDC.

The Dombivali Industrial Area has been developed in two phases; Phase I and Phase II. Categories like textile processing dye and chemical industries are the predominant industry types located in Dombivali. Effluent from these industries is treated in the Common Effluent Treatment Plant (CETP) provided by MIDC. For Phase I, CETP is provided – Dombivali Better Environmental System Association (DBESA) - with a capacity of 1.50 MLD.

Effluent from industries in Phase II is sent to the Dombivali Common Effluent Treatment Plant (DCETP) which has a capacity of treating 14 MLD. Residual effluent from industries in Phase I is also sent to DCETP as this CETP has the technology to reduce the pH of effluent from 5.5 to 5.9 during treatment.

For some industries with Effluent Treatment Plants (ETP), MIDC provides an underground effluent collection system. This system collects treated effluent from the industrial units of the area and discharges it into the Kalyan creek through a disposal line and approved discharge location point. The network of this effluent collection system adds up to 33 k.m.

There has been a strong effort to ensure that all effluent meets the standards established by the Maharashtra Pollution Control Board. After treatment effluent is let into Gandhi nalla which in turn drains into the Ulhas River.

MPCB conducts regular tests by taking samples at various points towards ensuring proper treatment of effluent and preventing the river from contamination. Samples are taken from nallas at Bhopar Start colony, Dombivali, nalla near CETP Chemicals and the nalla near CETP textiles, Dombivali phase I. The table 3.34 shows effluent quality from the above mentioned sampling points.

Sample taken from outlet near CETP has high COD content which ensures improper treatment. As the sample is from industrial area it is highly acidic and has concentration of heavy metals also at higher level.

Sample I consist of more of domestic effluent hence has high TDS and slightly more concentration of heavy metals however it is lesser as compared to CETP outlet sample. Both samples prove that more amount of treatment need to be given in order to maintain the quality of water body into which it is drained.

Table No. 3:28: Water Quality

Parameter	Sample I	Sample II	Standard *
Temperature	-	-	-
pH	-	8.8	5.5 to 9.0
Turbidity NTU	8.78	42.9	
Conductivity μ s	10570.0	6343.0	
Dissolved Oxygen	BDL	Nil	
B.O.D 3 days 270C	145.0	460.0	30
C.O.D	404.0	1232.0	250
Suspended Solids	116.0	204.0	
F.D.S	3978.0	NA	
T.D.S	4792.0	3740.0	
% Free Ammonia	9.71	15.40	
Total Ammo Nitrogen	180.39	42.48	50
Nitrate Nitrogen	2.76	0.001	10
Nitrite Nitrogen	0.03	2.31	
T.K. N	249.2	67.26	100
T.R.C	-	-	1.0
Fluoride	-	-	2.0
Chlorides	1250.0	990.0	
Ca Hardness	640.0	68.0	
Mg Hardness	180.0	48.0	
Total Hardness	820.0	116.0	
Total Alkalinity	190.0	764.0	
Detergent	-	-	
Boron	1.5	NA	
Phenolic compounds			
Sulphate	1575.0	801.2	
Phosphate	8.2	0.11	
Sodium	NA	906.0	
Iron	-	-	3.0
Copper	0.02	0.45	3.0
Zinc	0.04	0.51	5.0

Parameter	Sample I	Sample II	Standard *
Nickel	0.2	0.11	3.0
Cadmium	0.01	BDL	2.0
Lead	-	-	0.1
Mercury	0.007	0.005	
Sample I Nalla water sample at Bhopar star colony, Sample II Nalla near CETP chemical. Note- *General Standard for Inland surface water.			

3.6.3.

3.6.4. SOLID WASTE MANAGEMENT

Solid waste is a type of waste that includes predominantly household waste i.e. domestic waste along with commercial and industrial wastes. They are in either solid or semisolid form and generally exclude industrial hazardous wastes. The term residual waste relates to waste left from household sources containing materials that have not been separated out or sent for reprocessing. Solid waste management has become one of the most important components of physical infrastructure.

Of all surveyed villages in the project area, only 2 villages - Asade and Mangaon - have door to door waste collection services, provided by the respective Gram Panchayats.

Community collection is carried out in 3 villages.

Very few villages have solid waste collection and disposal equipment - 2 have dustbins and 1 has a tractor. 17 workers have been employed by the Gram Panchayat to collect and dispose generated solid waste in the villages.

Villages with greater proximity to corporation area have considerably better solid waste management facilities as compared to the ones further away. There is a distinct lack of hygiene due to the dumping of solid waste at various places in the project area. Only 3 villages - Pisavali, Nandivali turfe Ambarnath, Sandap - have specific dumping places at village level. In case of villages which do not have adequate dumping facilities, waste is dumped along MIDC lines, in areas outside villages and in forest areas, thus posing threat to health and environment.

3.6.5. POWER SUPPLY

Electricity is supplied through the Maharashtra State Electricity Board (MSEB) in all villages. An average hour of electricity supply is 17. Almost 93% households have electricity connections (average as per Primary Survey and discussions), while all villages have a 6-7 hour load shedding per day.

3.7. ENVIRONMENTAL STATUS

3.7.1. INTRODUCTION

All living and non-living things that occur naturally on earth are the components of Natural environment. Constructed surroundings that provide the setting for human activity, ranging from the large-scale civic surroundings to the personal places are elements of Built environment. There is a need to study these elements and the impacts of these one over the other units to keep a check on the balance of ecosystem.

3.7.2. WATER

Water is an essential element of life for survival. Access to safe drinking water has improved steadily and substantially over the last decades. However, fast urbanization in this region has led to scarcity of water supply.

The Low lying stretches of Ulhas and Dasai River are under the influence of Tidal effect. The low lying lands across these rivers show sparse mangroves. The development is governed by the provisions of Coastal Regulation Zone notification 19th Feb 1991, amended from time to time by the Ministry of Environment & Forest, Govt. of India.

3.7.3. AIR

A clean air supply is essential to our own health and that of the environment. But due to the rapid growth and industrialization the quality of the air we breathe has deteriorated considerably. Rising industrial and energy production, the dramatic rise in traffic on our roads all contributing to air pollution leading to serious health problems.

AIR POLLUTION

Air pollution is the introduction of chemicals, particulate matter or biological materials that cause harm or discomfort to humans or other living organisms, or damages the natural environment, into the atmosphere. Air pollutants can be in the form of solid particles, liquid droplets or gases. Pollutants are natural or man-made.

Pollutants can be classified into two categories either primary or secondary. Primary pollutants are substances directly emitted from a process such as vehicular emission, exhaust from factories. On the other hand secondary pollutants are not emitted directly. These form of pollutants formed only through interaction in the air. However there are some pollutants which may be primary as well as secondary.

Major primary pollutants by human activity include; Sulphur oxide (SO_x), Nitrogen oxide (NO_x), Carbon monoxide, Carbon dioxide, Volatile organic compounds (VOCs), Particulate matter, Toxic metals, Chlorofluorocarbons, Ammonia.

Health effects caused by air pollutants may range from difficulty in breathing, respiratory and cardiac problems. However health effects of air pollution varies depending on the type of pollutant, the degree of exposure and individuals health status.

Air quality data for the study area is obtained from the regional pollution control office of Kalyan. Data is available for 2008 (6 months: January - June) and 2007 (6 months: July - December). Terrace of CETP, MIDC, Phase II, where air quality measurement is carried out. SO₂, NO_x, RSPM parameters measured at an interval of 4 hours. 24 hours average reading is also estimated for these parameters. Minimum, maximum and average is estimated from 24 hours average data. It is compared with national ambient air quality standards in order to get an idea about air quality in the region.

Table No. 3:29: Air Quality Comparison - 2007 & 2008- Terrace of CETP, MIDC

Terrace of CETP, MIDC, Phase II, (Air Quality ($\mu\text{g}/\text{m}^3$))							
Parameters	2007			2008			National Std.
	Min	Max.	Average	Min	Max.	Average	
SO ₂	10	66.5	34.29	18.3	66.2	39.10	120
NO _x	14.8	81.7	38.12	34.7	74.5	56.61	120
RSPM	25.7	188	74.15	36	262.7	104.56	150

Air quality, in 2007, is fairly good as compared with national standards. Maximum RSPM level is 188 $\mu\text{g}/\text{m}^3$, which is more than the national standard. In 2008, air quality is fairly good as compared with national standards. While maximum RSPM level is 263 $\mu\text{g}/\text{m}^3$, which is very high than the national standard.

Figure 15: Air Quality Parameter- 2007

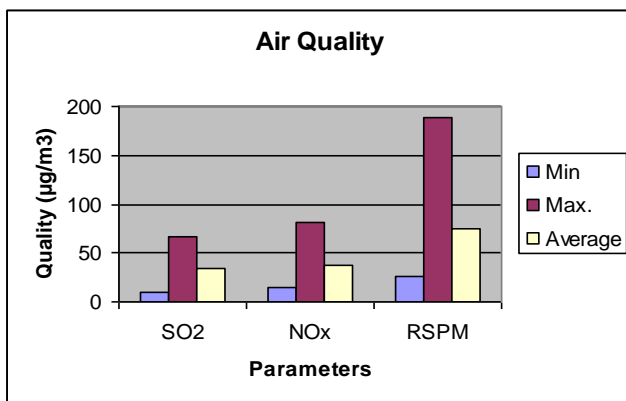
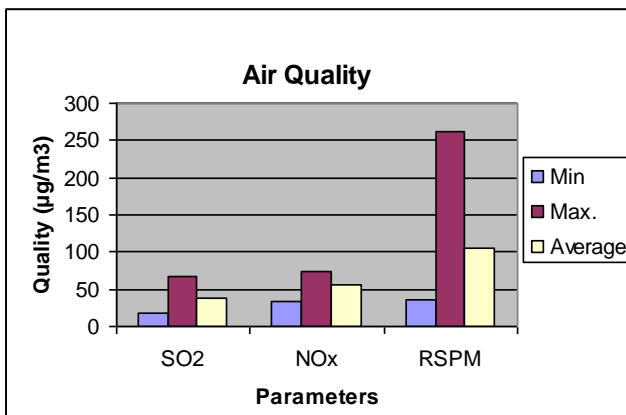


Figure 16: Air Quality Parameter- 2008



Average air quality has deteriorated in the MIDC area from 2007 to 2008. There is a drastic variation in NO_x and RSPM level in the area. This indicates increase in industrial activities as well as vehicular movements in the area.

Table No. 3:30: Ambient Air Quality (2007)

Terrace of CETP, MIDC, PhII,				Terrace of CETP, MIDC, PhII,			
Date	Quality Parameters (24 hrs. avg.)			Date	Quality Parameters (24 hrs. avg.)		
	SO ₂	NO _x	RSPM		SO ₂	NO _x	RSPM
2/7/2007	20.3	30.7	77.3	10/10/2007	40.8	37.7	44
4/7/2007	16.7	27.8	70.3	11/10/2007	26.8	37.7	56.3
14/7/2007	14.5	24.2	47.7	17/10/2007	27.7	40.3	62.3
15/7/2007	23.8	28.7	60.7	18/10/2007	38.2	33	69.3
16/7/2007	15.5	28.7	41	24/10/2007	32.7	42.5	85.7
17/7/2007	12.7	29.3	57	25/10/2007	46.5	39.7	93.7
1/8/2007	19.2	32.7	35	1/11/2007	46.5	39.3	118.7
2/8/2007	10	14.8	40.7	7/11/2007	45.5	40.5	101
8/8/2007	33	19.5	41	8/11/2007	36.3	42.3	165.7
9/8/2007	18	21	25.7	14/11/2007	66.5	39.5	79
15/8/2007	19	31.8	33.7	15/11/2007	38.5	43	96
16/8/2007	51.7	34.8	39	21/11/2007	28.8	81.7	82.7
22/8/2007	36	29	50	22/11/2007	39	73	178
23/8/2007	36.3	31.8	39.3	28/11/2007	37.7	42.5	151.7
5/9/2007	33.2	31.5	34.3	29/11/2007	50.2	34.2	188
6/9/2007	33.2	32.7	35	5/12/2007	38	37.5	152.7
12/9/2007	23.8	34	35.7	6/12/2007	49.2	40.7	173.7
13/9/2007	27.5	33.2	49.7	12/12/2007	35.7	40.5	59
19/9/2007	24.7	36	41	13/12/2007	41.8	39.3	73.3
20/9/2007	48.8	37.3	38.7	19/12/2007	50.2	78	115.7
26/9/2007	49	35.3	39.7	20/12/2007	47.5	45.2	58.3
27/9/2007	24.2	33.3	25.7	26/12/2007	55.2	43.5	111.3
1/10/2007	39.5	44.8	40.3	27/12/2007	44	55	165.7
3/10/2007	27.8	40.2	46	Avg	34.30	38.12	74.15
4/10/2007	24.5	40.2	33	Max.	66.50	81.70	188.00
				Min	10.00	14.80	25.70

Table No. 3:31: Ambient Air Quality (2008)

Terrace of CETP, MIDC, PhII,				Terrace of CETP, MIDC, PhII,			
Date	Quality Parameters (24 hrs. avg.)			Date	Quality Parameters (24 hrs. avg.)		
	SO ₂	NO _x	RSPM		SO ₂	NO _x	RSPM
2/1/2008	52.2	54.3	144.7	7/2/2008	46.3	52.5	89
3/1/2008	46.5	54	218.3	13/2/2008	42.8	64	110.7
9/1/2008	38.7	52.2	183.3	14/2/2008	57.2	58.7	104.3
10/1/2008	34.8	55.5	95.7	20/2/2008	41	70.5	128
16/1/2008	44.7	48.5	177.3	21/2/2008	41.5	65.8	262.7
17/1/2008	48.8	53.8	216.7	27/2/2008	47.7	74.5	236
23/1/2008	51.2	51.3	114.3	28/2/2008	34.5	67.5	203.3
24/1/2008	48.8	52.2	178.3	5/3/2008	40.3	74.3	96
30/1/2008	38.2	50	146	30/4/2008	32.3	64	46
6/3/2008	50.7	62	108	5/5/2008	18.7	54.2	67.3
12/3/2008	48.3	63.8	81.7	6/5/2008	18.3	53.5	66.7
13/3/2008	57.5	66.7	93.3	12/5/2008	29.8	57.5	51.3
19/3/2008	66.2	51	161	13/5/2008	23.7	65.3	70
20/3/2008	60	54	66	19/5/2008	26.7	66.8	84
26/3/2008	39.8	55.2	66.7	20/5/2008	27.7	69.5	87.7
27/3/2008	35.2	58	109.3	27/5/2008	23.8	62.8	47.7
2/4/2008	48.5	66.8	91.6	30/5/2008	20.7	58.5	60.3
3/4/2008	32.2	72.3	73	4/6/2008	36.2	48.8	36
9/4/2008	56.1	34.8	158	5/6/2008	37	55	44
10/4/2008	43.2	38.7	122	11/6/2008	41.7	69.3	37
16/4/2008	29	36.2	92.6	12/6/2008	33.2	74.3	48.3
17/4/2008	37	34.7	70.3	18/6/2008	23.3	46.3	45.7
23/4/2008	38.3	48.3	112.3	19/6/2008	25.5	46.5	36.3
24/4/2008	34.3	45	118.4	26/6/2008	24.3	52.5	37
6/2/2008	41.2	47	93.7	27/6/2008	39.5	51.5	40.3
				Avg	39.10	56.61	104.56
				Max	66.2	74.5	262.7
				Min.	18.3	34.7	36

3.8. LAND OWNERSHIP AND BUILDING PERMISSIONS

3.8.1. LAND OWNERSHIP

There are mainly three sources to obtain the data related to Land ownership. These are

- 1 Land Records, MMRDA Land cell
- 2 Mahabhulekh website
- 3 Tehsildar Land Records – Kalyan and Ambarnath divisions.

These Land ownership details have been obtained and overlaid with various other authorities list and generates the final list. This detail comprises of government land with 7/12 information. Government land in the Notified Area comprises mainly state government land, prantik land, forest land and grazing land. Table below shows the government land distribution in Notified Area. All sub plots (Hissa Number) Maps been collected from the respective TILR offices and updated in base map. There are instances where many hissa number maps are unavailable or unable to identify.

Table No. 3:32: Area of Government Lands in Notified Area

No	Village name	Area (sq.m)
1	Gharivali	6800
2	Asade	17500
3	Sonarpada	135840
4	Sandap	55770
5	Kole	92610
6	Katai	109550
7	Nandivali turfe Ambarnath	216425
8	Pisavali	25050
9	Mangaon	106880
10	Hedutane	542724
11	Golivali	30760
12	Sagaon	12830
13	Davadi	59000
14	Bhopar	214434
15	Nilaje	524720
16	Nandivali turfe Panchanand	142580
17	Usarghar	17380
18	Adivali Dhokali	80039
19	Chinchpada	5130
20	Umbroli	2600
21	Bhal	141000
22	Manere	115690
23	Vasar	617155
24	Ashele	28370
25	Dwarli	205350
26	Ghesar	199930
Total Government Land in Notified Area		3706117

3.8.2. BUILDING PERMISSION BY VARIOUS AUTHORITIES

Considering the future proposal for Notified Area in terms of allocating and providing social amenities & public utilities, it is imperative to figure out the spatial distribution of approved building permitted by the concern authority.

In context of Notified Area, following are the four main authorities that approved building permissions in the Notified Area.

- 1 Kalyan Dombivali Municipal Corporation
- 2 Thane Zilla Parishad
- 3 Mumbai Metropolitan Regional Development Authority

BUILDING PERMISSION UNDER THANE ZILLA PARISHAD

The Zilla Parishad of Thane was appointed in December 2005 as the planning authority for the Notified Area after the exclusion of it from KDMC in July 2002. In its capacity as the planning authority for the area, the Thane Zilla Parishad identified some lands as Zilla Parishad Lands and also granted building permissions for various purposes.

BUILDING PERMISSION BY KDMC

As per the registered records of KDMC it has started giving permission from 1983 year, in the Kalyan Dombivali Notified Area. However in 1983 not a single building permission is given in Kalyan and Dombivali. From year 1984 to 2008 building permissions is noted down which contains details about survey number, application date, permission date, area of building and village name (refer annexure:). Total 368 building permission is granted of which maximum is in the Dombivali complex.

In Kalyan Complex (part of KDMC), Nandivali, Pisavali, Chinchpada villages have more building permission as compared to other villages over a period of time. Maximum number of building permission is given from 1998 to 2002 in Kalyan. Total 53 building permission is granted from 1984 till 2007. In Dombivali Complex (part of KDMC), has the long list of building permission approved by the KDMC from 1984. In Nandivali, Asade Golivali, Bhopar, Nilaje maximum building permission is given. In year 1994 to 1999 more building permission is given. Total 315 building permission is granted in Dombivali from 1984 till 2008.

All possible data is considered for further tasks of planning proposal.

3.9. LAND PRICES

3.9.1. MIDC LAND PRICES

Maharashtra Industrial Development Corporation as a prime body for development and management of industrial estates set up in strategic locations. It has several setups in Thane District including the major setup in Dombivali MIDC.

This has had a considerable effect on land prices of the district, and hence the Notified Area. Since employment opportunities made available by the setting up of these MIDC estates has encouraged people to migrate to these centers, the population pressure and consequent demand for built space has pushed the land prices upwards. The table below gives an

indication of comparative industrial, residential and commercial land prices in the different MIDC Estates set up within Thane district. Below table shows the land prices in three categories.

Table No. 3:33: Land Prices (Year 2008) Of MIDC Estates within Thane District

Thane District MIDC Estate	Industrial land prices (Rs per sq mt)	Industrial land prices (Rs per sq mt)	Commercial Land prices (Rs per sq mt)
Add.Amber nath	1800	3,600	7,500
Addl Murbad	700	1,400	1,700
Ambarnath	2000	4,000	8,000
Badlapur	2000	4,000	6,000
Dombivali	6000	12,000	25,000
Kalyan- Bhiwandi	1500	3,000	4,500
Murbad	700	1,400	1,700
Tarapur	2000	3,000	6,000
Thane	10,200	23,200	30,500

At the district level, Wagle Estate in Thane has the highest land prices in all three - industrial, residential and commercial - sectors, followed by Dombivali. The lowest land prices in all three sectors are found in Murbad and Addl. Murbad. For all other MIDC Estates, industrial land prices range between Rs. 1500 - Rs. 2000 per sq.m., residential land prices range between Rs. 3000 - Rs. 4000 per sq.m., and commercial land prices range between Rs. 6000 - Rs. 8000 per sq.m. Of all these MIDC Estates, the only one that falls within the Notified Area is Dombivali. As apparent from the table 3.33, land prices within the Dombivali MIDC Estate fall within the higher price range for industrial, residential and commercial property, indicating that for future development in this vicinity, the existence of the MIDC Estate here and its impact on land prices needs to be taken into account.

The Notified Area falls under the jurisdiction of MMRDA and is surrounded by the Kalyan–Dombivali Municipal Corporation, Ambarnath Municipal Corporation & Ulhasnagar Municipal Corporation. These form a set of urban centers displaying contiguous development characterized by commercial agglomerations. Categorized as an intensive urban development zone by the Mumbai Metropolitan Regional Plan, the area formed by the above urban centers exhibits vigorous growth and spatial expansion beyond its jurisdiction.

The Notified Area, being located in the immediate vicinity of the above mentioned urban cluster, has witnessed tremendous land pressure and a subsequently marked increase in land prices.

However the increase in land prices is mainly confined to the key locations which have good access and connectivity to the adjoining urban centers. Hence it is imperative to understand the spatial variation in land prices within the Notified Area to identify potential sites for the allocation of new developmental activities.

3.9.2. LAND PRICES ACQUIRED FROM READY RECKONER

Land prices have been sourced from ready reckoner which is an official source of land prices. The commercial and institutional building exhibits highest land prices in the Notified Area, followed by industrial residential and open spaces. The maximum land value of institutional and commercial building is in Nandivali turfe Panchanand village. Table below shows the Ready Reckoner land value for the villages in Notified Area.

Nandivali turfe Panchanand village is having the highest land value for the different built form usage. This can be explained because of its close proximity to Kalyan Dombivali Municipal Corporation and Maharashtra Industrial Development Corporation. Bhopar and Nilaje Villages having relatively average land value than to Nandivali turfe Panchanand and proceeded by the other villages listed in the above table. These villages include Pisavali, Gharivali, Katai, Sagoan and Sonarpada. Land value is only available for the villages located along the ShilPhata road in the Notified Area. The land value ranges for open land ranges between Rs. 1,800 to 4,800 per sq.m. While the land value of residential building ranges between Rs. 9,200 to 18,000 per sq.m.

Table No. 3:34: Ready Reckoner Land Prices for Year 2008

No	Village	Rate (Rs. per sq.m.)			
		Open Land	Residential	Industrial / Offices	Commercial
1	Sagaon	2000	10000	12500	15000
2	Sonarpada	2000	10000	12500	15000
3	Nandivali Turfe Panchanand	4800	18000	22000	27000
4	Bhopar	4200	17000	21000	25000
5	Sandap	2000	10000	12500	15000
6	Usarghar	2000	10000	12500	15000
7	Kole	1800	9200	12000	16000
8	Mangaon	1800	9200	12000	16000
9	Nilaje	3300	14000	18000	21000
10	Gharivali	2000	10000	12500	15000
11	Katai	2000	10000	12500	15000
12	Pisavali	2000	10300	12800	15400
13	Nilaje	3300	14000	18000	21000
14	Golivali	2600	12500	15500	19000
Average		2557	11729	14736	17886
Source: Ready Reckoner- 08					

4. Findings of Existing Situation Analysis

4.1. INTRODUCTION

Urban growth and development patterns are largely affected by the availability of developable land. A key step in the process of determining future land uses and land form is conducting land suitability analysis for the concerned area, which helps in identifying the actual amount of land available for future growth and hence helps determine whether the carrying capacity of the land would be able to meet the projected population needs.

Land suitability analysis is supported by the SWOT analysis of the area, whereby a detailed investigation is carried out towards identifying and outlining the strengths, weaknesses, opportunities and threats of the site. This process enables a comprehensive understanding of the issues, needs and assets of the concerned site, which can then be explored further for the formulation of the development plan.

Existing land use analysis through interpretation of satellite images and ground verification of the same has enabled the identification major changes in land uses that have taken place in the Notified Area in the recent past.

The cumulative result of the understanding acquired from the SWOT Analysis, Land Suitability Analysis and Land Use Analysis conducted for the Notified Area, further aided by a keen insight of the existing morphology, is the creation of a development plan that is both, visionary and implementable.

This chapter attempts such a comprehensive analysis of information and data concerning the Notified Area and identifies potential areas for future developments. The issues of concern, on the basis of which the analysis is carried out, are identified under various development sectors like Environment, Transport, Infrastructure etc, and are elaborated below.

A thorough understanding of these issues will further help in articulating the Vision and Development Objectives for a coherent and strategic Development Plan of the Notified Area

4.2. SUMMARY AND FINDINGS OF EXISTING LAND USE ANALYSIS

The Notified Area has total area of 4843.9 Ha and comprises 27 villages of Kalyan and Ambarnath Tehsils of Thane district.

Of this total area, only 533.16 Ha is developed (12.17% of the total Notified Area), while 87.20 Ha (1.99 % of the total area) comprising water bodies, Nallas, defense land and mangroves is not developable.

The rest 3761.72 Ha (85.84 % of the total area), comprising agricultural land, open land, hilly forests, tree cover and brick kilns, is available for development.

4.2.1. LAND USE PATTERN

Table No. 4:1: Existing Land Use Statement- Developed Area, Not Developable & Land Available for Development

No.	Land use Categories	Total Area (in Ha)	% of Total Notified Area
1	Developed Area	708.49	16.14
2	Not Developable (Restricted for Development)	265.44	6.05
3	Land Available for Development	3416.23	77.82
Total of Available Area		4390.16	100.00
Existing MIDC Area		272.86	-
Excluded Area (Ashele, Manere Urban Part + Ulhas, Dasai River Part)		180.37	-
TOTAL OF NOTIFIED AREA		4843.39	

In terms of its morphology, the Notified Area is characterized by flatten and wide spread towards the western side gradually tapering in the eastern direction. The general perception of existing land use and land cover in the Notified Area is as follows:

The Northern part of the Notified Area has a relatively lower share of agricultural land and displays compact and dense settlement. This fact can be attributed to the outgrowth of KDMC (dense commercial and industrial development, including MIDC, along Shilphata Road which passes through the northern part of the Notified Area). The villages that fall within this part of the Notified Area are Nandivali Panchanand, Sagaon, Asade, Pisavali and Chichapada.

The North-west part of the Notified Area is characterized by the presence of a well-defined rail network. Bhopar Village, located in the part of the Notified Area, is a low-lying area of the Ulhas River, and features rivulets, wetlands and swampy lands.

The villages along the **Western part** of the Notified Area, boasting upcoming development, are currently characterized by a predominantly rural landscape with well-defined Gaothan and extensive agriculture fields. These villages are Sandap, Usarghar and Katai.

The Southern part features dense outgrowth of trees and vegetation (Umbroli village) with large tracts of land being used for agricultural purposes, and relatively less built form. Hedutane, Umbroli, Bhal and Kole villages are included in this part of the Notified Area.

The South-Western part of the Notified Area exhibits rapid development, including a new township and commercial activities that have come up over the last few years. Nilaje and Ghesar villages are included in this part of the Notified Area.

The Eastern and North-Eastern parts, comprising Ashele and Manere villages, are characterized by the outgrowth of the Ulhasnagar Municipal Corporation, and exhibit compact development. The share of agricultural land in this part of the Notified Area is also relatively high.

CEPT has defined and categorized the Notified Area into three broad land use categories: Developed Area, Land Available for Development (Permissible for Development Activities) and Not Developable Area (Restricted for Development). The definitions of these land use categories are as follows:

DEVELOPED AREA

Areas which are already developed, comprising settlements (Gaothan and other habitat), other allied developmental activities (Commercial, Public, Semi Public, Institutional, and Industrial) and transportation (Roads, Railway land, Bridges) are included in this category.

NOT DEVELOPABLE AREA

Areas regulated by special authorities (Defense & MIDC), ecologically sensitive areas (Mangroves), and Natural Features (Water Bodies / ponds, Nallas, Rivers) constitute not developable land in the Notified Area.

LAND AVAILABLE FOR DEVELOPMENT

Land occupied by open areas (waste land, open / vacant land), Brick kilns, wet lands (used for recreational development), tree covers, etc are included in this category. Generally these areas can be identified on the basis of their development potential, feasibility, suitability and consultation with stakeholders.

4.2.2. EXISTING LAND USE STATEMENT

As the above table exhibits, around 16 per cent of the project area has witnessed development. With around 6 per cent area identified as restricted area, around 78 per cent land is available for development.

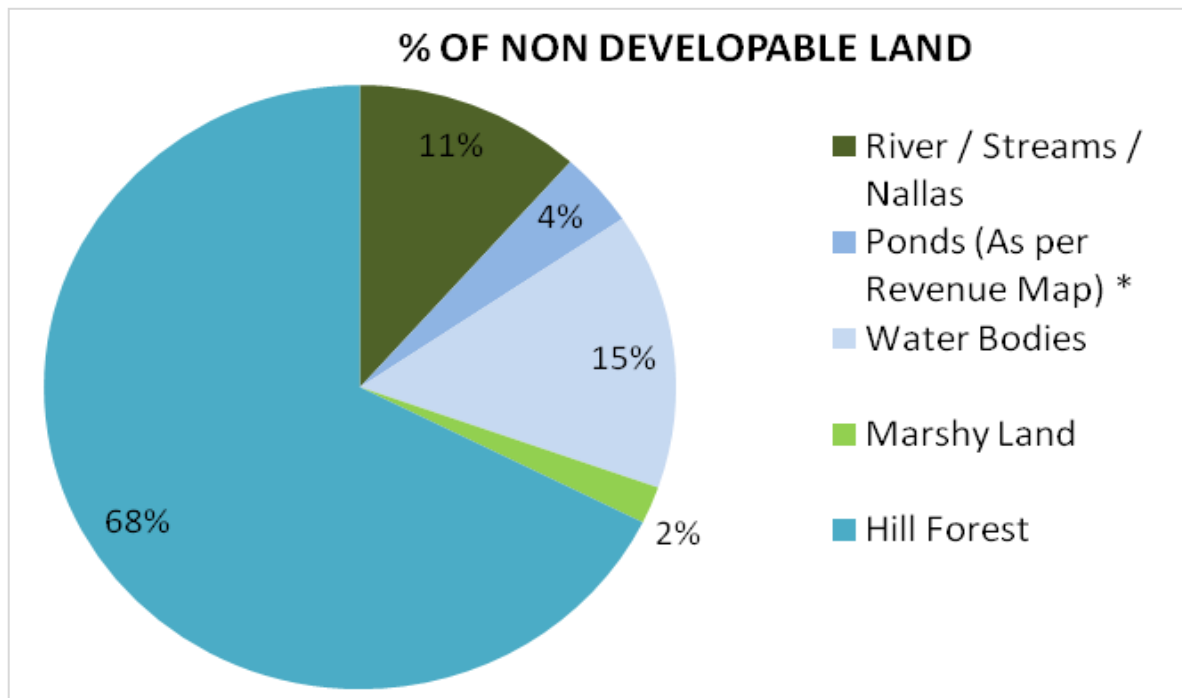
The area that is restricted for development is comprised of defense land, hillock, marshy land, rivers and other water bodies. Now, more than half of the non developable land is covered by hillock, which accounts 68 percent of total 266 ha area, about 6 percent of total Notified Area. Water Bodies like rivers and ponds accounts 19 percent of the total of Notified Area. The marshy land and defense land occupies very marginal share of the total non developable area respectively.

The table below is indicative of the break-up of existing land-use categories for the Notified Area.

Table No. 4:2: Existing Land Use Statement- Detailed Categories- for Notified Area

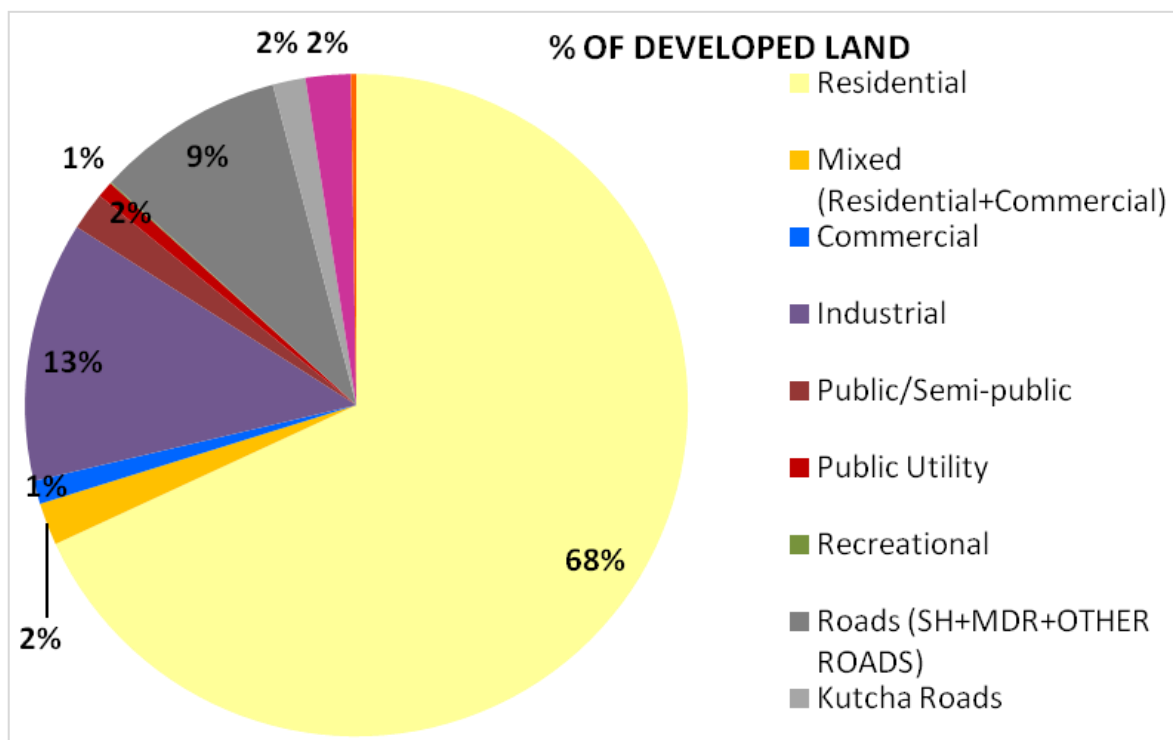
AREA STATEMENT FOR EXISTING LAND USE			
LAND USE CATEGORIES	AREA (HA)	% OF SUB TOTAL	% OF TOTAL
DEVELOPED AREA			
Residential	482.59	68.12	10.99
Mixed (Residential+Commercial)	14.65	2.07	0.33
Commercial	8.04	1.13	0.18
Industrial	90.08	12.71	2.05
Public/Semi-public	13.16	1.86	0.30
Public Utility	5.67	0.80	0.13
Recreational	0.42	0.06	0.01
Roads (SH+MDR+OTHER ROADS)	65.10	9.19	1.48
Kutchha Roads	11.33	1.60	0.26
Railway	15.56	2.20	0.35
Religious	1.89	0.27	0.04
Sub Total 1	708.49	100.00	16.14
UNDEVELOPED AREA			
Agriculture	1320.90	35.88	30.09
Agriculture Plantation	46.30	1.26	1.05
Open	1447.06	39.30	32.96
Scrub	382.68	10.39	8.72
Tree Cover	125.99	3.42	2.87
Brick Kiln	23.82	0.65	0.54
Marshy Land	74.08	1.69	1.69
Defense	0.68	0.25	0.02
River / Streams / Nallas	30.78	0.84	0.70
Ponds *	10.58	0.29	0.24
Water Bodies	39.31	1.07	0.90
Hillock	179.49	4.88	4.09
Sub Total 2	3681.67	100.00	83.86
Total (1+2)	4390.16	100.00	100.00
Existing MIDC Area	272.86	5.63	
Excluded Area (Ashele, Manere Urban Part+Ulhas, Dasai River Part)	180.37	3.72	
TOTAL OF NOTIFIED AREA	4843.39	100.00	
*Note: Ponds- It excludes the pond in Ashele village near survey no. 51, which is at present encroached by buildings, although it is presented as pond in the revenue map.			

Figure 17 : Breakup of Non Developable Area Land Use Categories



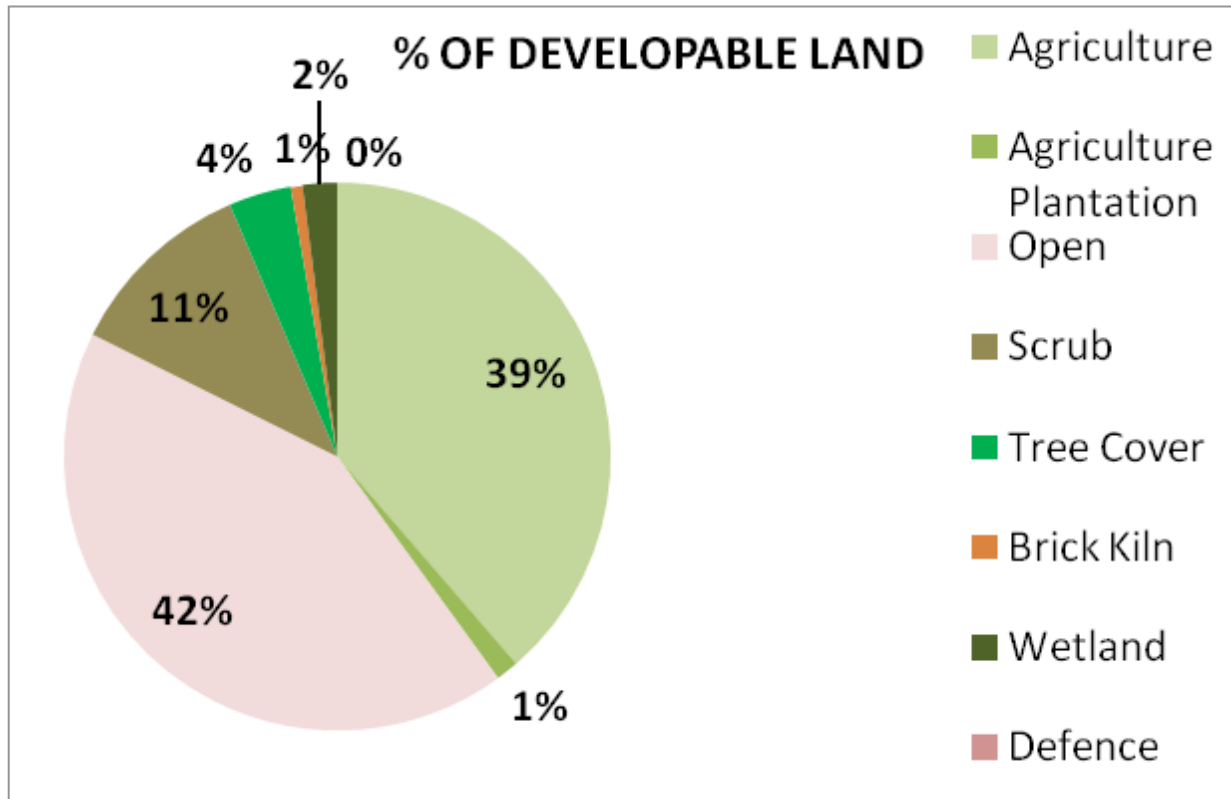
The Notified Area is surrounded by beautiful natural features as hillocks, ponds and patches of undulating land parcels, which taken shape of water bodies. These natural resources need to be conserved and it will serve as potential recreational spaces for Notified Area. Among the Non developable land, hillock covers 66 percent of the total area, while ponds and water bodies occupies 19 percent respectively

Figure 18: Breakup of Developed Area Land Use Categories



Among the developed land, more than half of the area is of residential development (68%), followed by industries and roads occupying around 13 and 9 per cent respectively. Then, there are mixed use and public- semi public development covering 2.per cent respectively. Kachcha roads and railway land also accounts around 1 - 2 per cent each. The land under commercial development and public utility is found to be very low, i.e. 1 percent respectively. Area for recreation, being 0.06 percent, is significantly low.

Figure 19: Breakup of Developable Area Land Use Categories



4.2.3. COMMERCIAL DEVELOPMENT: ESTABLISHMENT AND SHOPS

Majority of the commercial activities are observed along the State Highway 40. Predominantly the retail shops and general stores are marked. Few of the established ments are primarily ancillary activities to the industrial units in the MIDC.

The Ashele village which falls in the Ambarnath Tehsil features dense development. Major part of the village is covered with built structures of high intensity. In this developed area mixed use of commercial and residential is observed along the service roads. The inner built mass is purely residential where as the road side development is of mixed nature consisting of commercial on the ground floor and residential on the upper floors. This pattern is observed throughout the village and its extension in the Manere village.

Existence of state highway and the developed MIDC area has led to the development of major purely commercial activities along the highway which are part of the village; Pisavali, Golivali, Sonarpada and Mangaon. This development forms the linear pattern along the highway.

These establishments consist of Engineering Workshops, garages; automobile shops, etc that fulfill the miscellaneous requirements of MIDC area and also cater to the needs of

nearby villages. Several other commercial activities like hotels, restaurants, and eating joints have sprung up along this highway

Other commercial development is present at the junction of two state highway passing through the Notified Area and extends towards the adjoining village, Kole and Katai. These are primarily hotels and restaurant along the road.

Apart from it few of shops and establishment are seen in the Gaothan area of villages in the Notified Area

In case of land available for development, the highest portion is vacant/open land (42%), followed by land under agriculture (39%). But agriculture practices are marginally witnessed in the Notified Area, as majority of the land is uncultivated. Around 11 per cent of the developable area is scrub land, while the tree covers around 4 per cent. Out of the Total open / vacant land, major share is in Hedutane village and least share is in Ashele village. Ashele village is foreseen outgrowth of Ulhasnagar Municipal Corporation.

Figure 20: Percentage Share of Open / Vacant Land

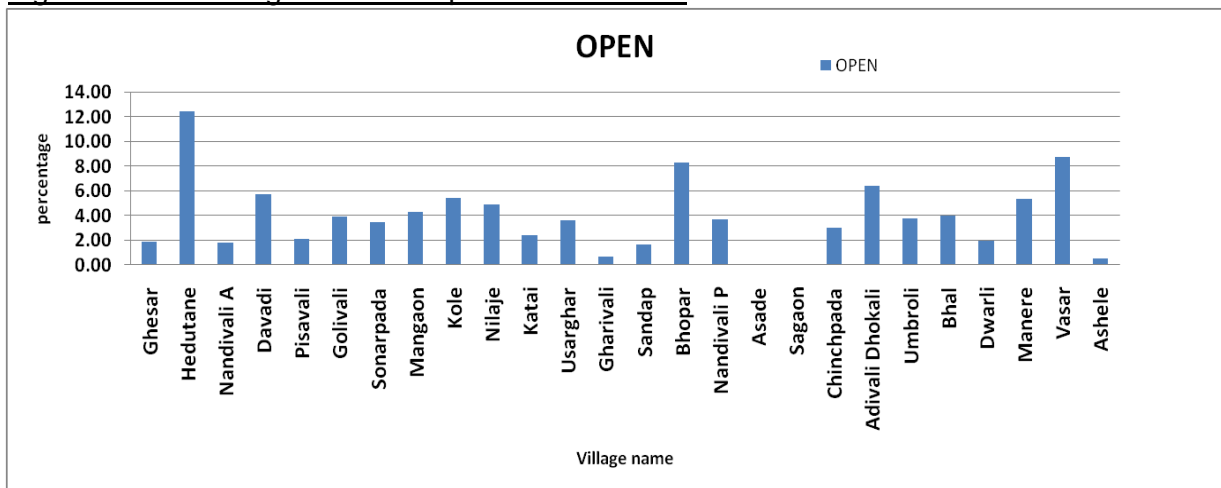
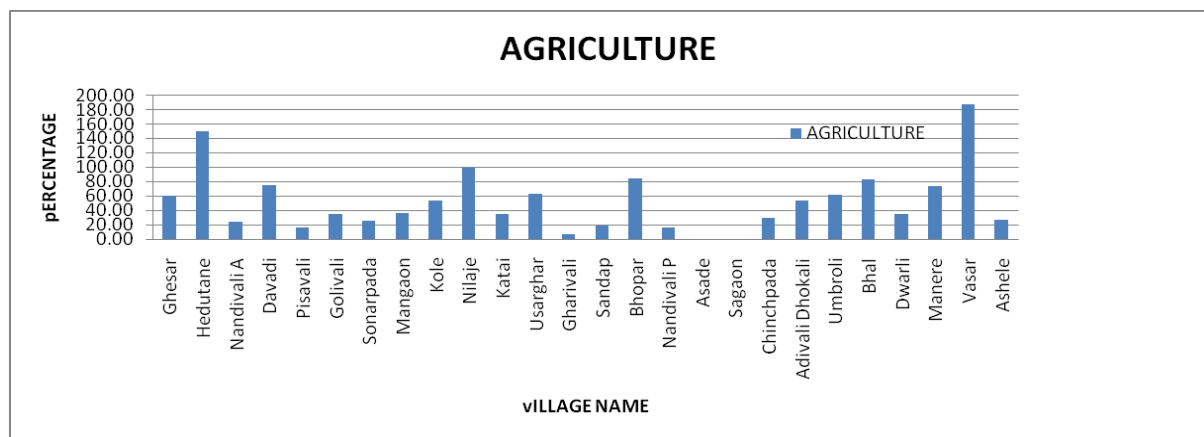


Figure 21: Percentage Share of Agriculture Land



Vasar and Hedutane village has maximum percentage share of Agriculture land while Gharivali village has least share. Majority of the revenue land has been occupied by Piaggio factory land, which is yet closed.

4.3. LAND SUITABILITY & LAND POTENTIAL ANALYSIS

4.3.1. INTRODUCTION

Conventional land use development decisions are ideally guided by a single parameter i.e. short term economic gains, while ecological and social parameters, offering advantages over the long run are generally adopted as secondary parameters.

Environmental Land Suitability Analysis is a process of determining the fitness of a specific land parcel to support a well-defined activity or land use. The primary objective of suitability analysis is to identify conservation and developable zones. Land suitability and land potential analysis act as tools for rationalizing proposed land use patterns and land cover for future development scenarios. The basic premise of suitability analysis is that any landscape has intrinsic characteristics that are either suitable or unsuitable to different extents for the activities being planned and the revelation of these relationships through detailed evaluation and assessment helps make the process of identification of land that is suitable for building, or suitable for development of various land uses, more informed and efficient.

4.3.2. APPROACH AND METHODOLOGY

Environmental Land Suitability evaluation supports a preferential decision to provide for certain types of activities within a given landscape. Such suitability is determined through a systematic, multi-factor analysis of the different conditions of the landscape.

This exercise involves the identification of two broad zones viz., Conservation and Development zones.

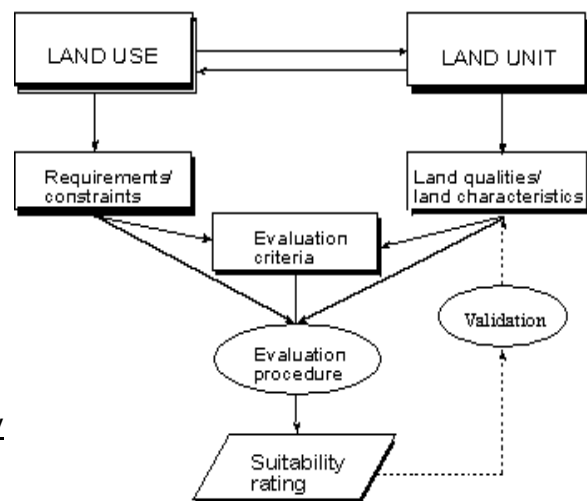


Figure 22: Main Components of Land Suitability Assessment

No development zones are usually ecologically highly sensitive areas, categorized so due to the presence of critical environmental/ physical features. The areas apart from the conversation zones as apparent from the suitability analysis will be demarcated and used for development activities.

Two types of criteria viz., constraints and factors, are used for identifying non-developable land and developable lands. Constraints, Boolean in nature, serve to exclude certain areas from consideration.

For e.g. Sediment land, water bodies etc are physical constraints and excluded from the developable zones. The excluded zones are the no development zones.

Factors are generally continuous in nature and indicate the relative suitability of certain areas for development. Factors are incorporated by categorizing different developable zones.

4.3.3. LAND SUITABILITY ANALYSIS & ENVIRONMENTAL DETERMINANTS

Land suitability is determined by a different set of factors such as slope, drainage, vegetation and water bodies. Variations can be observed in the characteristics of these factors based on the specific study areas. These environmental determinants were studied for the entire Notified Area for the purpose of identifying highly / moderately environmentally sensitive portions of land and thus ascertain the suitability / non suitability of these areas for development.

Land suitability analysis for the Notified Area has been carried out on the basis of the following parameters.

No DEVELOPMENT ZONE (NDZ)

No development zones are strictly not to be disturbed and no other uses to be allowed in these zones except those permitted under the relevant legislation. Some exceptions have been outlined such as settlements by tribes and other indigenous people living within protected zones; such activities are allowed with CRZ under the CRZ act. Activities such as industrial and mining which are at conflict with the interests of conservation are strictly prohibited within no development zones.

In the Notified Area, the following have been identified for inclusion within the No development zone:

- Coastal Regulation Zone, Mangroves, Wet Lands
- Water bodies (Rivers, streams, ponds)

COASTAL REGULATION ZONE

The coastal Regulation Zone (CRZ) shall mean the zones notified by the Govt. of India Deptt. Of environment, forests and Wild life's notification under the Environment (protection) Act 1986 and rules 5(3) (d) of Environment (protection) Rules, 1986 dated the 19th February 1991. The development of coastal regulation zone will be in accordance with Ministry of Environment and Forest Notification dated 19th February 1991 as amended from time to time.

The development is regulated as per the provisions of MOEF notification dated 19th Feb 1991 as amended from time to time as applicable in the stretch along Ulhas River, Nallas and also along the Dasai river having the tidal effect.

MANGROVES

Mangroves are highly ecologically sensitive natural features and play an important role in maintaining the ecological balance of river water and the sustenance of flora and fauna.

Rapid developments like housing, industrialization, pollution and increasing population of Mumbai has resulted into degradation of mangroves. The lands falling within 250 mt. buffer provided to mangroves along with the area under mangroves are considered to be not suitable, while the area falling outside the buffer is considered to be suitable for development.

The very small patches of Mangroves are observed at two locations only near Ulhas River in Bhopar village.

WETLANDS

Like mangroves, wetlands are also an important part of the ecosystem. Wetlands generally differ from other water bodies based on their water level and on the types of plants that thrive within them. The lands falling within 125 mt. buffer provided to wetlands along with the area under wetlands are considered to be not suitable, while the area falling outside the buffer is considered to be suitable for development. Conservation of wetlands within the Notified Area has been proposed in order to maintain the environmental stability of the area.

WATER BODIES

While the River Ulhas, not passing through the Notified Area, flows close to its boundary, a number of small and large streams, ponds (seasonal and permanent) and river tributaries are observed in the Notified Area. Also, as mentioned in the "Existing Land Use" section of Chapter 3, several small and large drainage routes are also seen to be passing through the Notified Area.

Drainage ways have been categorized into three types – primary, secondary and tertiary. Primary drainage ways are categorized as 'highly environmentally sensitivity', as any development in or near them can alter the local hydrology and water flow paths, as well as cause damage to local ecology by loss of water-gathering areas to construction. Hence a buffer zone (or 'no development' zone) is reserved on either side of drainage ways. For ponds and other smaller water bodies the width of buffers is decided based on the water body's catchment area.

The land that falls within primary buffer zones is considered least suitable for development, that within secondary or tertiary buffer zones is moderately suitable, and those not included within any buffer areas are considered most suitable for development.

4.3.4. LAND FORM & LAND COVER DETERMINANTS

In addition to environmental constraints, land suitability is also affected by existing land form and land cover. Land can be categorized as not suitable for development if any of these hold true: the slope is >30%, has reserved forest, has unclassified forest and/ or has dense tree plantation.

The following land form & land cover determinants have been considered to assess the development suitability of the Notified Area.

SLOPE

When sloping land is concerned, its suitability for development is assessed on the basis of the gradient of the slope. Slope analysis uses contour data towards determining the gradient of slopes throughout the Notified Area. The slope of an area is the ratio of the difference between the highest and lowest altitude points of the place (rise) to the horizontal distance measured between the points (run). The slope angle or degree of slope is determined by: $\tan\theta = \text{rise/run}$. The larger the rise and the shorter the run, the steeper is the slope. Slope is also represented in terms of slope percentage (%). The slope percentage is determined by the following formula:

$$\text{Slope \%} = (\text{rise/run}) \times 100.$$

Here, slopes have been categorized into the following: Flat terrains (0–5%), Gradual slopes (5-10%), Moderate slopes (10-30%), and Steep slopes (> 30%).

Evidently, steeper the slope, less suitable is the land for urban development. Land with steep slopes is environmentally sensitive and should not be disturbed. Areas with very steep slopes are not suitable for development, while areas with low slopes are highly suitable for development.

LAND COVER DETERMINANTS

Under land cover determinants the following six categories have been identified to assess land suitability, as shown in below table 4.3.

Table No. 4:3: Land Cover Determinants

Land cover determinants	Rating	Weightage
Developed area	5	6
Scrub land	4	
Open land	3	
Agriculture Plantation	2	
Tree cover	1	
Unclassified Forest	0	

Ranking/ rating is given to each of these land cover types based on the priority of the parameter. Here, a lower rating is assigned to the most important land cover determinants (land under this category not being suitable for development) while the highest rating is assigned to the less important land cover determinants (land under this category being most suitable for carrying out development). As mentioned earlier, the Notified Area has a forest reserve in villages of Hedutane, Umbroli, Davadi, Adivali Dhokali, Pisavali, Chinchpada, Manere and Vasar. It is also observed that the lands vested with Forest Department from villages Adivali Dhokali, Pisavali, Davadi and Hedutane are encroached by significantly vast number of buildings. This forest reserve is proposed to be entirely conserved and not to be utilized for future development. Figure 23 below shows this area as most environmentally sensitive and not developable.

Besides the forest area, the Toposheets and the primary survey of the Notified Area has also identified some areas with scattered vegetation. These do not need to be conserved, but the existing vegetation should be incorporated in the layout of the trees existing in the Notified Area. These areas are demarcated as moderately suitable. The master plan would allow development in these areas with certain restrictions implemented at policy level. Areas with sparse or no environmentally sensitive vegetation areas are considered most suitable for development.

Based on these factors, development suitability has been mapped under three ratings i.e. not suitable, moderately suitable and most suitable. This enables identification of land that is suitable for development and for different land uses. It differentiates between the most sensitive and hence not developable and the least sensitive and hence most developable.

Figure 23 below shows most suitable land for development identified based on the various factors mentioned.

BRICK KILN

Rapid urbanization and consequent population growth give rise to the need for more physical urban infrastructure such as houses, buildings, roads, railways, etc., and while the brick industry fulfils the growing demand of urban expansion, the increasing use of land for brick kilns adverse effects soil quality of any area. Land used by brick kilns loses its top fertile soil, thereby making the area low-lying and consequently prone to water logging. Both of these factors render land less suitable for future development.

With a significant share of land (23 Ha) in the Notified Area being used by brick kilns, this factor needs to be taken into consideration while conducting the land suitability analysis of the area. Land falling within less than 50 mt. distance from brick kiln is least suitable for development, while land beyond a distance of 100 mt. is highly suitable for development.

4.3.5. INDEX OF ENVIRONMENTAL LAND SUITABILITY

Based on the different criteria of environmental land suitability, a composite land suitability map has been prepared to identify land most suitable for development, by giving weightage and rating to each of the parameters outlined above and then overlapping all the individual suitability maps. Weightage was assigned on a scale of 1 to 10, where 1 is least influential and 10 is most influential; for example, since slopes are a very crucial criteria for development, slope analysis was given highest weightage (highest weightage has been given to rivers and marshy land. A composite map by overlaying all these factors was then prepared which enabled identification of the most sensitive land not suitable for building.

4.3.6. DEVELOPMENT ZONE

Once the no development zone is demarcated by providing buffer zones all along the highly sensitive areas, the remaining area can be identified as developable for activities with differential intensities. According to conventional approaches, the selected parameters are given relative weightage and rating, given the context of the study area. The rationale for this process is detailed below.

At sub-regional level, North-Eastern sub-region has the largest amount, i.e. 96.5 sq. km, of developable land within municipal boundaries. Within this sub-region, KDMC boasts the maximum urbanizable land (35.4 Sq. km) followed by Thane (27.3 Sq. km), Ambarnath (18 Sq. km), Bhiwandi (9.3 Sq. km), Badlapur (5.3 Sq. km) and Ulhasnagar (1.2 Sq. km).

The highest share of developable land is constituted by vacant/open land (43%), followed by land under agriculture (35%). Around 9% of the developable area is scrub land, while the hillocks cover around 4.7%. Out of the total open / vacant land, the major share is in Hedutane village and least share is in Ashele village (the outgrowth of Ulhasnagar Municipal Corporation).

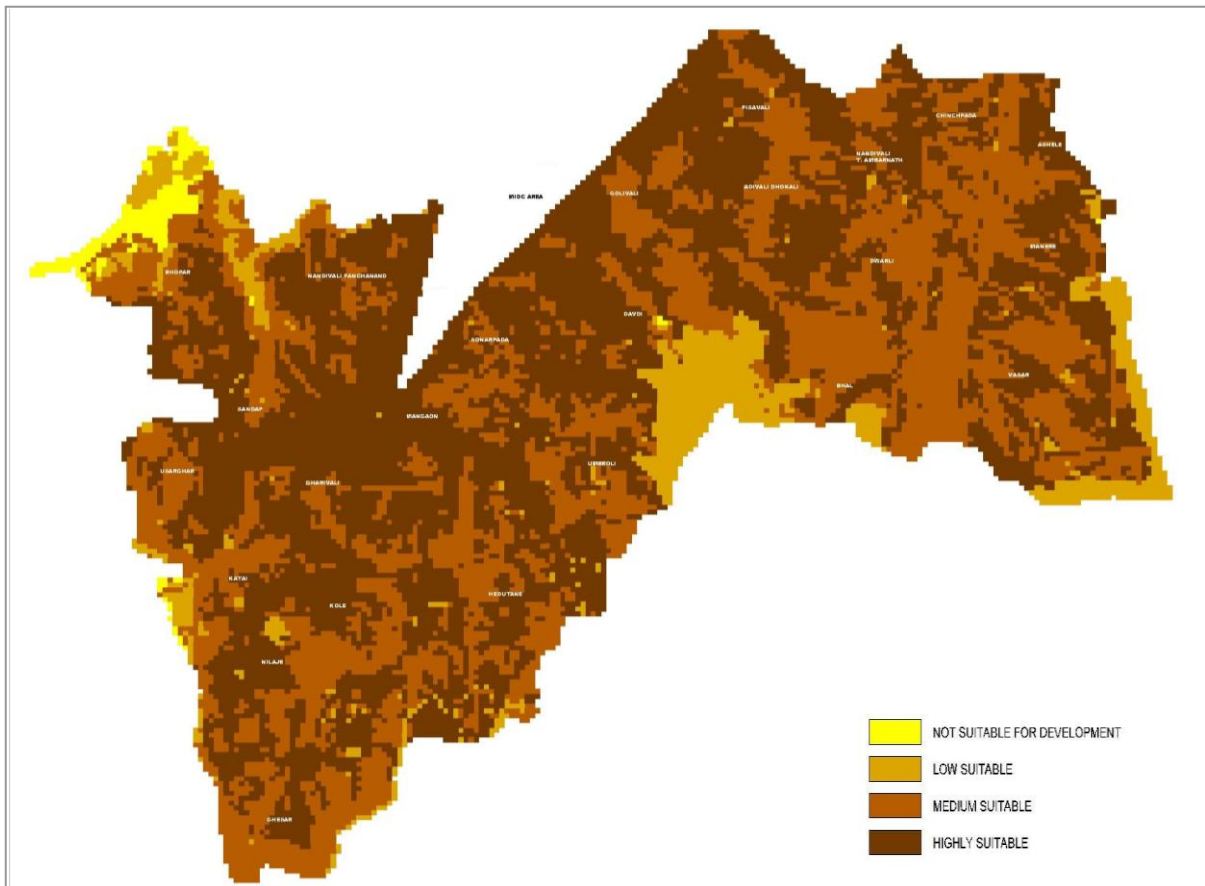
Out of the total site area, about 1.40% area is not developable. 98.60% land area is developable of which 51.01% is highly suitable for development. 39.69% land is moderately suitable and rest 7.9% is least suitable for carrying out development.

Table No. 4:4: Categories and % Share of Land Suitability Parameter

Categories	Area (Ha)	%
Not Developable	61.46	1.40
Developable		
Least suitable	346.82	7.90
Moderately suitable	1742.45	39.69
High suitable	2239.42	51.01
TOTAL AREA	4390.16	100.00
Source: Land Suitability Index		

Mangaon, Nandivali turfe Panchanad, Sandap, Davadi and Pisavali villages have high amounts of highly suitable land. The largest share of land moderately suitable for development falls in the Dwarli, Chinchapada, Manere and Vasar villages. Least developable land is scattered in the entire site and mostly located along the edges of the site area. Land identified as not-developable is that which is closest to the Ulhas river.

Figure 23: Index of Land Suitability



4.4. ISSUES OF CONCERN

4.4.1. NEED FOR IMPROVED ACCESS & CONNECTIVITY

The road network in MMR has developed in a predominantly north-south direction. East-west movement is constrained by the Western and Central Railway tracks which also, in principle, run along the length of the Island City. Consequently, most road traffic movements are restricted to relatively fewer roads, resulting in major congestion where east-west movements intersect the north-south corridors.

With most jobs being concentrated in the island city and the suburbs, the exponential population growth across the Mumbai Metropolitan Region (MMR) has resulted in increased travel demands on road and rail networks all over the region.

The Notified Area is connected by road and rail network (Central railway line) to the surrounding areas.

Dombivali and Kalyan station are the closest and most important link connecting the Notified Area to the rest of Metropolitan Region.

The single track connection between Vasai Road on the Western Railway and Diva on the Central Railway also passes through the Notified Area. Another railway line passing through the Notified Area provides linkage to Panvel and Konkan railway lines.

The road network in the study region is governed by SH42, SH43, & MDR 62. While the area is well-connected to the surrounding urban centers, connectivity to internal rural settlements within the Notified Area is observed to be quite poor, and though all the Gaathan areas have accessibility, the width of these access roads is insufficient and the surface condition is of inferior quality.

4.4.2. INTRINSIC GROWTH OF VILLAGES

The Notified Area falls within the Extended Suburbs category, which has been witnessing the largest share of population growth. The North-East sub-region which contains the Notified Area is expected to reach a population of around 5.3 million by 2013.

Of the areas comprising the North-East sub-region, Bhiwandi, Thane Municipal Corporation (TMC) and Kalyan Dombivali Municipal Corporation (KDMC) are expected to witness the highest concentrations of populations.

4.4.3. MAJOR LAND USE CHANGES

A key finding of the land use survey is the alarming rate at which new developments are taking place in the Notified Area. Most of the new built fabric being organized in the form of townships & commercial complexes alongside the agricultural land, the observed land use changes largely concern the revenue land of villages and are a result of increased accessibility to the adjoining major urban centers & industrial hub.

4.4.4. RIBBON DEVELOPMENT ALONG MAJOR ROADS

The Notified Area is characterized by the presence of State Highway-40 which runs horizontally for a length of about 8.3 kilometers cutting across the western part of the Notified Area. Passing through the Thane Municipal Corporation and connecting the Kalyan Corporation area with Greater Mumbai, this road acts as the main spine of the Notified Area featuring intensive development organized along it in a linear manner. This growth, generating a dense linear urban form along the road, is categorized as ribbon development of commercial establishments and residential townships. Table 4.3 below shows the land use distribution along this highway as one move from north to south.

Table No. 4:5: Ribbon Development along Shilphata Road (SH-40)

No	Village	Location in Notified Area	Direction to SH- 40	Land use	Remarks
1	Pisavali	North	east	Commercial	Eating joints
2	Golivali	North	east	Commercial	Machinery shop
3	Asade	North	west	Industrial	Chemical. Textile units
4	Sonarpada	Central	west	Township	Regency
5	Kole	South	east	Commercial	Hotel & lodges
6	Nilaje	South	west	Town ship	Green park society
7	Ghesar	South	east		

Source: Land Use Survey

Large retail and commercial activity is observed along SH-40 in Pisavali village located in the northern part of the Notified Area. These retail shops are characterised mainly by eating joints, restaurants and automobile repair shops. A large share of these commercial activities is housed in shanty structures that have encroached upon public land.

Widespread haphazard urban growth can be observed along the part of SH-40 that passes through Golivali village. Development along this stretch of the highway displays a predominance of machinery & manufacturing shops that cater to the repairing of heavy cargo vehicles commuting on the highway.

Large masses of built-up fabric housing industrial units exist along the western side of SH-40 that passes through Asade village. These industrial units are part of the MIDC Industrial Estate which features plotted development and mainly consist of chemical, dye textiles & heavy machinery units. An increased traffic movement, especially in terms of commercial & heavy vehicles, can be observed on the State Highway because of these industrial units.

New upcoming townships catering to the high income group section of society can be observed in the villages located along the central and southern parts of SH-40. Amongst these, Sonarpada and Sagaon villages are landmarks, and offer a number of mushrooming real estate agencies. The fact that open & vacant land were being sold to real estate agencies was confirmed through land use survey. The Regency township in Sonarpada village is one of the largest residential townships proposed in the Notified Area and occupies a considerable amount of land along SH-40. Direct access to the main road and the presence of adequate infrastructure facilities have been identified as key factors causing rapid growth of such development in the Notified Area.

A sudden increase in the number of hotels was observed in Katai & Kole villages, aligned axially along the SH-40.

New and imminent commercial activities can also be observed along the length of SH-40 in Nilaje and Ghesar villages. The built-form housing these activities can be clearly distinguished from the Gaothan area of the villages. The land use survey demonstrates that new developments within these villages are confined to the inner parts of the villages and depend on external factors like ease of access and connectivity to the surrounding urban centers & industrial hubs.

In addition to SH-40, the other two major roads SH-43 and MDR are also characterized by linear (ribbon) development, though in lesser concentration than SH-40.

4.4.5. INADEQUATE PHYSICAL INFRASTRUCTURE

The Notified Area, part of the North-East sub-region, acts as an extension to Greater Mumbai. With rapid development occurring in the areas around Kalyan, Bhiwandi, Thane, Ulhasnagar, Kulgaon and Badlapur since the past two decades, these urban areas have experienced extensive growth. The rural areas however, suffering from inadequate infrastructure facilities, have been unable to cope with this swelling growth of the urban areas.

A major physical infrastructure issue that needs to be addressed in the Notified Area is the inappropriate and unhygienic disposal of waste water & sewerage through open drains that follow the natural slope of land and its discharge, without any treatment, into Kalyan khadi, agriculture fields, Nallas and the Ulhas River.

MIDC Dombivali, responsible for the distribution of water to all the villages within the Notified Area, extracts water from the Ulhas and Barvi rivers, chlorinates it and then distributes it to all the villages. The quality of this water is often inferior due to the contamination of ground and surface water that results from the absence of a STP (Sewage Treatment Plant) in the Notified Area. Also, no Water Treatment Plant exists in the Notified Area.

There is a non-existent Solid Waste Collection & Disposal System in the entire Notified Area, except two villages (Asade and Mangaon). Asade and Mangaon are the only villages to have door-to-door waste collection services provided by the respective Gram Panchayats. It is observed that villages located in proximity to urban areas (like Kalyan & Dombivali) have considerably better solid waste management systems as compared to the ones further away.

Power networks are supplied and operated by Maharashtra State Electricity Board (MSEB) which maintains a fairly good supply in the Notified Area with approximately 93% households having electricity connections. However, average electricity supply to all households is limited to 17 hours daily with all villages experiencing a 6-7 hour load shedding per day.

4.4.6. LOWER LEVEL OF SOCIAL FACILITIES

The provision of inadequate opportunities to rural areas and the lower classes is perhaps the greatest challenge facing the so called urbanizing rural areas and poses a major threat to the growth and development of metropolitan regions. In an age where the best jobs require higher levels of skills and knowledge than ever before in history, some children do not even have access to the most basic kind of education facilities. Inadequate social infrastructure

provision in terms of education and health-care facilities is a critical issue in the Notified Area that needs to be addressed.

As a result of the territorial and jurisdiction changes that this area has witnessed, along with the fact that most planning efforts have been limited to urban areas has led to the Notified Area lacking a comprehensive planning strategy. Consequently, even today, these villages lack adequate public utilities and social amenities.

All the villages of the Notified Area are observed to have primary schools (private and / or public) except the Nandivali Turfe Ambarnath village.. Public schools alone do not meet the minimum requirements of primary education within the Notified Area and a few private schools can also be seen in some villages. These schools however lack basic infrastructure like safe drinking water facilities & sanitation for the school children. As per the UDPFI guidelines each primary school should have an open area of 0.2 ha.

With middle schools existing in 15 villages and a total of 34 secondary schools (located in 14 villages), the Notified Area, it can be said that a moderate level of secondary education exists in the Notified Area. Asade and Golivali villages have the maximum number of secondary schools. With a total population of 1.3 lakh there is an adequate provision of secondary education in the Notified Area despite a marked absence of public secondary school. With the envisaged development and future growth of the area, the population is expected to increase, which would further increase the demand of educational facilities in the Notified Area to the level of the urban areas of MMR.

With six colleges, including two for pharmacy and one for engineering education, the Notified Area is observed to have a majority of its youth being educated in vocational & technical fields. A large share of the youth travels to the nearby urban areas for Higher Professional Education, clearly demonstrating the low to moderate level of educational facilities in the Notified Area leading to a variable economic & livelihood pattern.

The situation is further compounded by the poor medical facilities in the Notified Area, which make it impossible for villagers to get specialized medical assistance.

Majority of the population residing in the Notified Area is dependent on 36 private clinics and 8 private hospitals in the area. For further specialized medical aid, the villagers travel to the surrounding urban centers of Kalyan-Dombivali and Thane.

Although the most important social facilities required are education & health, other social facilities like post offices, commercial banks, community halls, cremation grounds and graveyards, playgrounds etc also play a very important role in providing a good quality of life to the residents.

The Notified Area has only two post offices located in Sonarpada and Nandivali Turfe Panchanand.

As per the UDPFI guidelines (one commercial bank for a population of 25,000) there should be 5 commercial banks in the given area. However, amongst 27 villages only three commercial banks are located in the villages Asade, Bhopar and Nandivali Turfe Panchanand and Asade are the only three villages having community hall.

The area having been declared as a Notified Area, attempting to bring it at par with the urban areas in the region would require up-gradation of the existing social facilities and addition of new facilities for the projected threshold population.

4.4.7. ENVIRONMENTAL CONCERNS

WATER LOGGING & LOCAL FLOOD

Kole and Katai villages are vulnerable to flood hazards due to possible overflowing from the nearby Nallas, also part of the Bhopar village due to proximity to Ulhas River.

The Focus Group Discussion during field surveys revealed that the lower parts of the Gaothan of these villages were submerged and have experienced water logging for the last 5 years.

AIR POLLUTION LEVEL

Air quality is fairly good on the whole except for the drastic variation in NO_x and RSPM levels in the MIDC Dombivali area between 2007 and 2008. The presence of these pollutants in the atmosphere can be attributed to the various industries present in these areas which emit large amounts of smoke loaded with NO_x and RSPM.

SOIL & WATER CONTAMINATION

The rivulets and seasonal tributaries of the River Ulhas flowing through Bhopar and Nandivali villages are highly polluted due to the disposal of industrial effluents from the MIDC estate. This situation is made worse by the waste water and sewerage from households which is disposed off in untreated form and discharged in the same way to the riverbed.

These factors result in ground water & surface water contamination in the area.

4.4.8. POOR QUALITY HOUSING FOR INDUSTRIAL WORKERS

Majority of the workers in industrial units of MIDC Dombivali are migrants from other states and are employed as daily wage workers. These workers do not receive a high compensation for their labour and are hence forced to live within limited resources.

During the field survey it was observed that industrial housing in Golivali and Pisavali villages within the Notified Area, owned primarily by labourers employed in the MIDC estate, exhibited extremely poor housing conditions.

4.4.9. LOW QUALITY OF LIFE IN GAOTHAN AREAS

During the field survey it was observed that the villages located in the southern part of Notified Area (Hedutane, Davadi & Bhal), exhibit a low quality of life. A distinct lack of basic infrastructure facilities and poor access to important activity nodes and major transportation network can be observed in these villages.

These villages, located in close proximity to MIDC Dombivali, display an acute shortage of housing facilities as a result of which a large share of residential structures are temporary dwelling units being used by workers employed in the industrial units in MIDC Dombivali.

4.4.10. HAPHAZARD OUTGROWTH & SQUATTER SETTLEMENTS

Migration of people from distant rural areas to the urban areas of Kalyan, Ambarnath and Ulhasnagar has spurred off the process of rapid urbanization of the villages structures on the periphery of these urban centers in turn resulting in unstructured and irregularized development in these areas. The primary survey showed widespread unplanned and haphazard development in Pisavali and Golivali villages, with most of the dwelling units being shanty structures in squatter settlements.

4.4.11. IMPACT OF SURROUNDING DEVELOPED AREAS

The rapidly exhausting land supply in Greater Mumbai due to geographical constraints the island city is subject to has led to conscious efforts of promoting growth outside the municipal corporation boundary. The urban sprawl map of MMR Regional Plan 1991 clearly illustrates the pattern in which the major urban built-up areas have developed in the east around the Central Railway line spanning across Dombivali, Kalyan, Ulhasnagar, Ambarnath and Badlapur urban areas.

In the MMR, urban growth continues to spread primarily along transport corridors. The Kalyan Complex, including Ulhasnagar, has already exceeded its growth targets with 13.82 lakhs population in 1991 against the 8 lakhs projected in the Regional Plan. Despite this large population increase, the development of a new growth center in this area has been discouraged because of inadequate planning and development efforts coupled with rampant unauthorized construction activities in the area.

The Notified Area is formed by the outward expansion of Kalyan and Ulhasnagar towns and exhibits a mix of rural-urban landscapes. Dispersal of heavy industries in this area has aggravated urbanization here and poses a serious threat to the carrying capacity of the area. These pressures from the growing urban areas of Kalyan & Ulhasnagar along with the MIDC Estates covering almost 2.73 sq km of the area have resulted in haphazard development concentrated along the major roads. The areas along major transport corridors exhibit urban sprawl featuring uncontrolled and irregular expansion of built form. Consequently, internal areas, away from these major transport corridors, have been experiencing pressures on existing infrastructure, resulting in bad road conditions, poor water quality and power cuts.

The Regional Plan 1991 and the office policy proposed hitherto have forced the establishment of many industrial units and office complexes in the suburban areas. The North East sub-region, having been subject to increasing industrial development over the last two decades, has lead to a major influx of industrial workers migrating to the Notified Area. Insufficient housing provision for these industrial workers has given rise to many squatter settlements and shanty structures in the Notified Area, especially in the Asade and Chinchpada villages, which are dense outgrowths of the Ulhasnagar urban center

New initiatives in terms of physical planning, infrastructure and affordable housing provisions are urgently needed for this area to salvage the situation.

4.4.12. SPATIAL INTERACTION WITH GREATER MUMBAI & REST OF MMR

Despite the rapid growth and increase in density of several areas of Greater Mumbai, outer areas (extended suburbs) provide many more opportunities for large-scale development, especially for employment in industries, commercial development and the services sector as well as for residential intensification.

Though the North-East sub-region of MMR, including the Notified Area, has experienced a massive development boom over the last two decades, new land uses here have mostly been limited to either residential accommodation or industrial activities. Municipalities like Thane, Kalyan, Ambarnath, Bhiwandi, Diva and Ulhasnagar act as 'dormitories' or 'bedroom communities' - the city of Mumbai (or Greater Mumbai) remaining the focus of the MMR. Clustering of economic activities in the Notified Area is a consequence of the functional interdependence of these activities with the diverse economic activities present in the rest of MMR.

Orderly and planned growth of the Notified Area is not only important for the North-East sub-region but for all of MMR, particularly given the context of the significant contribution of the sub-region to MMR's economy. The future vision for the Notified Area therefore needs to necessarily be framed as a Growth Centre by the expansion of its economic base and the generation of adequate employment opportunities for the workers here, along with the provision of adequate infrastructure facilities & better living environment.

4.4.13. EMERGING GROWTH TREND & POTENTIAL

Mumbai's business opportunities and its high standard of living attract migrants from all over India making the city a potpourri of many communities and cultures. Pressures created by this expanding population have led to the exhaustion of available land for development in the Greater Mumbai region. Peripheral areas, as a result have begun to play a more dominant role in growth and employment generation to support the city's populace. This is clearly reflected in the significantly higher population expansion in the suburbs of Mumbai as compared to that in the Island City.

The Notified Area, bounded by the urban centers of Kalyan & Dombivali, has increasingly been subject to such rapid population increases and consequent development pressures. The last two decades have witnessed a distinct shift from the secondary sector to the tertiary sector with increasing employment & growth rate in the latter in Thane district.

As per the MMR Regional Plan 1996-2011 the population of the Mumbai Metropolitan Region (14.5 million in 1991) is estimated to be 23.5 million, 25.6 million and 25.8 million in 2011, 2021 and 2028 respectively. The corresponding figures for Greater Mumbai (9.9 million in 1991) are estimated at 14.8 million, 15.4 million and 15.3 million. These figures clearly indicate that the share of Greater Mumbai in accommodating the total population of the MMR is expected to drop from 68.28% in 1991 to 59.5% in 2028. The population of the North-east sub-region on the other hand, is expected to grow at a fairly rapid pace.

The population expansion being witnessed by MMR and the changing population dispersal trend across the region has greatly impacted the north-east sub-region and a dense spatial growth pattern is emerging within the sub-region and the Notified Area. In view of this, the Development Plan is required to be proposed for target population that will absorb the fairly growing population shift in the North-East sub-region of MMR.

4.5. SWOT ANALYSIS

4.5.1. STRENGTHS

- Proximity to urban centers like Kalyan, Ulhasnagar, Ambarnath & Bhiwandi
- A very rapid growth rate, much higher than Greater Mumbai
- Mostly undeveloped except for MIDC Estate, outskirts of Kalyan & Ulhasnagar urban centers & other scattered developments in villages
- A very highly share of agricultural land within the Notified Area (39 %) and that too not productive. Majority of the agriculture land is been vacant.
- No major environmental constraints except a small share of land under steep slopes and forest areas
- Existing and Proposed access & connectivity to surrounding region & Greater Mumbai through major roads, highways & Railway Network.
- Proposal of 100 M wide Multi-Modal Corridor from Alibaug to Virar passes through Notified Area, thus providing an opening for future growth.
- Availability of basic utilities such as power, water, etc.

4.5.2. WEAKNESSES

- Not all land is under MMRDA – there may be need for some land acquisition especially for the development of trunk infrastructure
- Some plots available for development have specific development permissions attached. These will need to be taken into consideration while planning & assigning Land Use Zoning.
- Absence of housing for industrial labour has resulted in proliferation of slums / encroachments which are spreading rapidly throughout the Notified Area
- Low-lying area towards the north-west part and reserved forest towards the south-east part of the Notified Area have rendered these small shares of land unfit for development.

4.5.3. OPPORTUNITIES

- Develop the Notified Area as a Growth Centre serving Greater Mumbai, adjacent urban centres and its hinterland.
- Develop and enhance the Trade & Commerce sector along with the Industrial sector, which already has a trailing presence in Thane District.
- Provide a suitable environment for the growth of high-density service industry, with adequate green open space and recreational opportunities

4.5.4.

4.5.5. THREATS

- Slum development spreading across the site can cause future problems while acquiring land.
- Unauthorised development can pose problem in implementation of proposals for Infrastructure, Public/Semi public Utilities, Open Spaces etc.
- Improved infrastructure in the Notified Area can result in future pressures from surrounding urban areas.
- The environmentally sensitive areas, if not taken care of, can get affected by expected growth and urbanization.
- The location of Proposed Solid Waste Regional Landfill site nearby hillock and centre of the Notified Area is reducing the potential urbanizable land and is also inharmonious with the nature of the existing environmentally sensitive area like hillock.

5. Development Issues, Vision and Objectives

5.1. INTRODUCTION

The Notified Area is part of the North-East sub-region of MMR and is strategically located along important connecting routes between Greater Mumbai and the southern and eastern parts of Maharashtra. The rapidly exhausting land supply in Greater Mumbai, along with the locational benefits offered by the North-East sub-region, has led to a significant population shift to the Notified Area and its surrounds.

Being part of the sub-region offering the largest amount of developable land (96.5 sq km) within municipal boundaries (Source: IMP for Thane & CTS for MMR, 2008), the Notified Area presents tremendous growth potential in terms of becoming an economically prosperous and environmentally sustainable development. The land potential offered by the sub-region shows that KDMC has maximum urbanizable land (35.4 Sq. km) followed by Thane (27.3 Sq. km), Ambarnath (18 Sq. km), Bhiwandi (9.3 Sq. km), Badlapur (5.3 Sq. km) and Ulhasnagar (1.2 Sq. km).

While manufacturing has always played an important role in establishing the commercial significance of the Notified Area, the recent growth of tertiary sector activities has further enhanced this area's economic growth potential. This advantage is compounded by the large tracts of urbanizable land and the relatively low land prices offered by the area as compared to other parts of MMR.

5.2. DEVELOPMENT ISSUES

5.2.1. REGIONAL LEVEL ISSUES

The following have been identified as critical issues that need to be addressed immediately for strategic and comprehensive development of the Notified Area to take place in the future.

- The existing industrial development is observed in the form of a ribbon development along the existing Shilphata Road (SH 40).
- The existing State Highways and Major District Roads in the Notified Area require up-gradation in terms of widening for better connectivity and accommodating the increasing traffic volumes.
- The area also requires improved connectivity to nearby urban centers.
- The region at present has inadequate sewerage and storm water drainage facilities. There is an immediate requirement for safe collection and conveyance of domestic waste water.
- It is vital to develop an amalgamated growth management strategy for the area including the MIDC Estate and the village settlements (Gaathan).

5.2.2. SETTLEMENT LEVEL ISSUES

Provision of adequate and appropriate infrastructure is required to enable more regulated growth of the Notified Area in the future. The following are critical issues concerning the industrial area that are required to be addressed immediately:

- **Poor maintenance of the basic facilities and services:** The numerous changes in the administrative jurisdiction of the Notified Area have caused haphazard development in the entire area, and poor maintenance of the basic services provided to the Gaathan.
- **Inadequate Fire Safety facilities:** There is not a single fire station in the entire Notified Area. This facility if required is obtained from the nearby urban centers.
- **Inadequate specialized Health facilities:** The Notified Area lacks specialized hospitals and health facilities and the industrial workers and village residents have to travel 5-15 km to avail these services.
- **Absence of Leisure and Recreational Facilities:** The Notified Area doesn't have planned recreational facilities, in spite of having ample natural resources like ponds, water bodies, hills are in and around the area.

5.3. VISION STATEMENT AND DEVELOPMENT OBJECTIVES

The vision of this Development Plan is "To develop the Notified Area into an economically prosperous and environmentally sustainable region offering an equitable setting where people can live, work and prosper."

The vision perceived for this region is further enumerated in the following specific development objectives:

- Development of the Notified Area as a Growth Centre.
- Provision of high class infrastructure and social facilities for enhancing the quality of life in the 27 villages within the Notified Area.
- Propose a phase-wise development plan that corresponds to the estimated growth potential & future trends of the region
- Environmental responsiveness with due consideration for site topography, existing natural features and existing industrial locations
- Conservation of existing environmental sensitive areas and other natural features
- Effective implementation strategies to apprehend the vision perceived
- High Intensity use of land
- Provision of adequate social amenities & basic infrastructure to the residents of the Notified Area.

5.4. MAJOR OBJECTIVES OF THE DEVELOPMENT PLAN

The concept plan for the Notified Area, developed around the aspiration to connect and keep pace with global opportunities, seeks to simultaneously respond to the following issues,

- The provision of a better living environment in the 27 village settlements constituting the Notified Area,
- Enabling economic growth of the area by way of appropriately strategizing ongoing and perceived development,
- Conserving the natural features of the areas like ponds, hillocks, wetlands etc, and protecting the existing reserved forests and other environmentally sensitive areas.
- Providing for moderate to high intensity land use with appropriate provision of social & physical infrastructure
- Envisioning the Notified Area as a Growth Centre for the entire surrounding region, instead of being only a dormitory of the Mumbai Metropolitan Region, and providing a growth and development strategy accordingly.
- Creating a balance between conservation of resources and quality of life by protecting natural features, promoting high-intensity land use, emphasizing the promotion and use of an efficient public transport system and non-vehicular modes of transport, providing adequate social and physical infrastructure to all, emphasizing provision of adequate affordable housing for the poor and encouraging the growth of informal activities in appropriate locations.
- Adopting innovative land development mechanisms for easy implementation of the plan proposal with adequate generation of resources by interlinking building regulations, emphasizing intensity of land use where land and infrastructure availability are concerned.
- Appropriately balancing different land uses and flexibility by by implementing urban design guidelines that encourage the creation of nodes, focal points and controlled edges along major roads and public domains. Simultaneously, emphasis should also be on leaving the interior areas flexible so as to accommodate future growth and help create a strong image and character of the Notified Area.

5.5. CONCEPT PLAN DEVELOPMENT

5.5.1. PLANNING PRINCIPLES

The Development Plan for the Notified Area has evolved from a comprehensive understanding of area studies, land suitability analysis and population/ employment projections carried out for the area.

The process so far has involved an exploration of several alternatives, for each of which, certain principles, laid down with a view to achieving the vision for the Notified Area, have been primary guiding factors. While the conceptual studies may differ in their design, the approach and underlying concerns, as briefly stated below, are the same.

Economic and Industrial growth of the Notified Area would be key in the process of its future development. With ecological sustainability being a major design criterion, the development plan emphasizes the need for good education and health among the resident of the Notified Area, and the according provision of adequate infrastructure and civic amenities here.

The following guiding factors/principles taken into account while designing the Development Plan for the Notified Area in order to achieve the above stated vision:

IMAGE OF THE CITY

The 'counter magnets' identified by Regional Plan 1996 should reflect the image of Greater Mumbai as the financial capital of the nation and a trade & commerce hub.

The Notified Area, being one such Growth Centre node, is envisaged as an extension of Greater Mumbai that would enable further growth of the city by offering a quality living environment for the increasing population here, as well as furthering the city's image as the national financial capital by providing space for commercial and industrial activities to grow..



Figure 25: Market Areas in Greater Mumbai

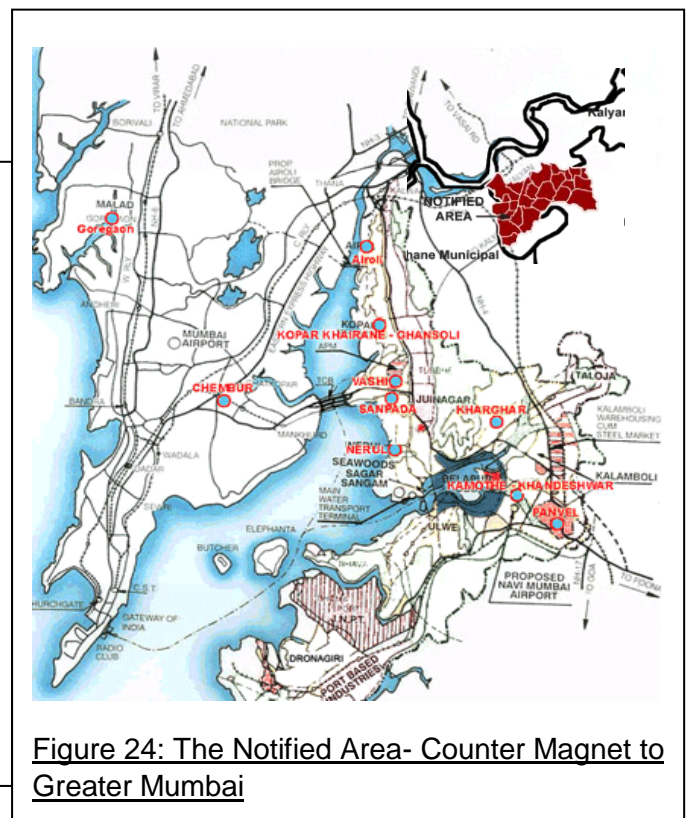


Figure 24: The Notified Area- Counter Magnet to Greater Mumbai

BALANCE BETWEEN RESOURCE CONSERVATION & QUALITY OF LIFE

The Notified Area has a significant amount of green cover in the form of reserve forests and farmland, and is dotted with water bodies through the site. An appropriate balance between built and un-built areas is proposed to be established so as to provide a good quality of life to the people inhabiting the area.

MOBILITY, ACCESSIBILITY AND CONNECTIVITY

An efficient road network is a primary requirement of the Development Plan. Considering the envisaged development of the Notified Area, the growth of the area would be greatly enhanced by the provision of private and public infrastructure that would afford easy accessibility and connectivity within the area, as well as facilitate connectivity between the Notified Area and the surrounding urban hubs. The state highways flanking and passing through the Notified Area can be used to advantage in linking the area with its surroundings.

HIGH INTENSITY DEVELOPMENT SUPPORTED BY MASS TRANSIT SYSTEM

A key proposal of the Development Plan is to encourage public transportation by incorporating an efficient mass transit system to complement the rapid development of the Notified Area. This would also help in linkage the area more effectively with Greater Mumbai and other surrounding urban areas. The road network would also be designed in accordance with the mass transit system.

USE OF PUBLIC TRANSPORT & WALK TO WORK

Pedestrianisation is a major part of the Development Plan proposed for the Notified Area. Wide footpaths proposed along the roads would be well-integrated with the green belts along the major movement arteries, forming an intricately woven network of routes that encourage efficient pedestrian and vehicular movement throughout the Area. This would be further complemented with the proposed open space network system.

ENERGY AND ECOLOGY

The incorporation of effective energy conservation and sustainability methods features will be key in the development of the Notified Area. Energy conservation is a major issue that needs to be tackled while planning the development of any new area. Efficient measures towards conserving the natural surroundings will be adopted, since a balance between natural and man-made surroundings significantly enhances the quality of life of residents while also affording a better working environment for the otherwise formal corporate sector.

HIGH CLASS INFRASTRUCTURE

Provision of basic and effective infrastructure is a necessity for any area to grow and develop with the desired effectiveness. Rapid growth of industrial & service sectors in the area calls for the provision of world-class facilities and civic amenities for effective development.

AN EQUITABLE ENVIRONMENT: WHERE PEOPLE CAN ASPIRE, GROW AND HAVE CHOICES

Providing people an environment that enables growth, sustenance and affords an equitable lifestyle will be the ultimate goal of the project, in conformance with the vision for the area.

IMPLEMENTATION EFFICIENCY

The Development Plan outlines the projections and infrastructure demands for 2028. It also outlines proposed planning norms, zoning regulations and development control guidelines to regulate the development process for achieving the overall vision and goals. An implementation strategy will also be designed and recommended to be followed rigorously to achieve the desired development objectives.

EFFICIENT MANAGEMENT AND MAINTENANCE

An efficient management and maintenance system is imperative in order to take care of the provided facilities. The role of the service-providing authority does not end by simply providing the basic services and infrastructure facilities; monitoring, management and maintenance are equally crucial in enabling efficient working of systems.

5.5.2. EVOLUTION OF THE CONCEPT PLAN

Concept plan alternatives for the Notified Area were designed on the basis of the programme brief, with a view to implement the desired design principles and to test the workability and feasibility of achieving the project objectives.

These alternatives helped envisage physical manifestations of the vision and programme brief proposed for the project area.

Three alternative Concept Plan proposals were drawn up. The main goal of each was to create a logical and efficient road network in response to the natural features.

The conceptual alternatives have been very useful in verifying feasibility of higher FAR, land designated for roads and open spaces, plot typology and built form character, etc. of the proposed programme.

All plans exhibit formation of a major spine – from the south-west to the north-east direction. The concept is to develop the vertical spine as the main commercial/offices spine, exhibiting high-density development. In contrast, the routes perpendicular to the main spine are proposed to house the development with educational, public-semi public institutions etc.

The various concept studies exhibit explorations into the width of the spines and the alignment of the grid roads. The grid sizes vary in the different concept plans, as do their connectivity patterns with the major highways around the site.

The plans also exhibit initial explorations in the development of open spaces and plazas as part of the green belt system.

5.5.3. PROPOSED CONCEPT PLAN

The proposed Development Plan is based on the central theme of an organic grid criss-crossing the site forming the main skeletal frame of the Notified Area. The grid size is approximately 0.5 km x 0.5 km, with variations at some places to respond to the immediate context.

These variations are required due to existing development, topography, water bodies etc. The attempt has been to respect the natural topography and cause minimum impact on the landscape.

This principle results in the creation of an organic grid pattern that grows out of its regional context. The ribbon-like grid forms the structure for the area, with major roads of the grid connecting with existing major roads and highways within and bordering the study area. To the extent possible, the roads have been designed so as to follow the pattern of existing roads.

The main feature of the Development Plan is the formation of a major spine – from south-west to north-east direction. The concept is to develop the vertical spine as the main commercial/ offices spine, with high-density development along the road edges. In contrast to this, the roads perpendicular to this spine would be developed as institutional / residential belts with educational, public-/ semi-public institutions and amenities. The main spine would feature networks of interconnected open spaces and green areas along and around the existing water bodies, drainage ways and green buffer areas integrated within the layout.

The envisioned major commercial belt with high-rise built-up areas with high FSI defining the built form of the area will serve as the main artery. This will be supported with cross-axes with ample green open areas interwoven with residential areas and amenities at various levels.

The main commercial spine, about 500-900 mts wide, would feature a wide green belt in the middle, forming a linear park along its entire stretch. Buildings facing this green belt are envisaged to be of lower density than the road-facing commercial/office buildings and could be of institutional nature, like art galleries, convention halls or museums.

The idea is to create a dynamic open space belt in the middle with various recreational and leisure activities that stretch along the entire commercial spine.

The following sections illustrate the various components defining the spatial configuration of the Proposed Development Plan for the Notified Area.

LINEAR DEVELOPMENT

The Notified Area is already growing due to its strategic location with respect to the State Highway 40 connecting Kalyan & Thane and the alignment of western railway.

The Development Plan aims to organize future growth pattern in response to these connecting routes and develop a high-intensity linear development along the high-speed transport corridor.

The concept plan would be centered on developing a linear development pattern along the proposed major road passing through the Notified Area.

This road would be the central spine for the area, housing major commercial activities, corporate sectors and other activity centers. The concept is to develop the central spine as the main commercial/ offices spine, with high-density development.

Figure 26: The Central Spine with Pedestrian.

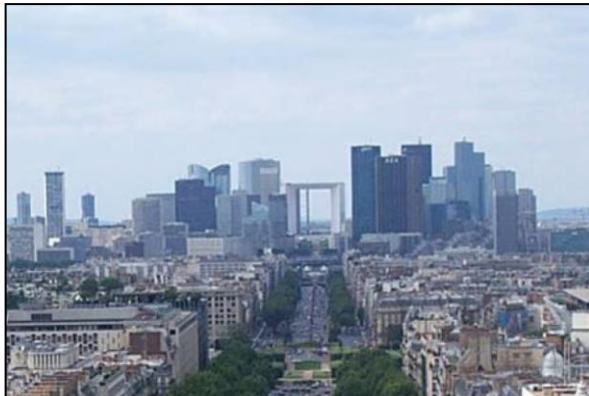


Figure 27: Green Spaces weaved with built form



Figure 28 : The Central Spine with High rise buildings

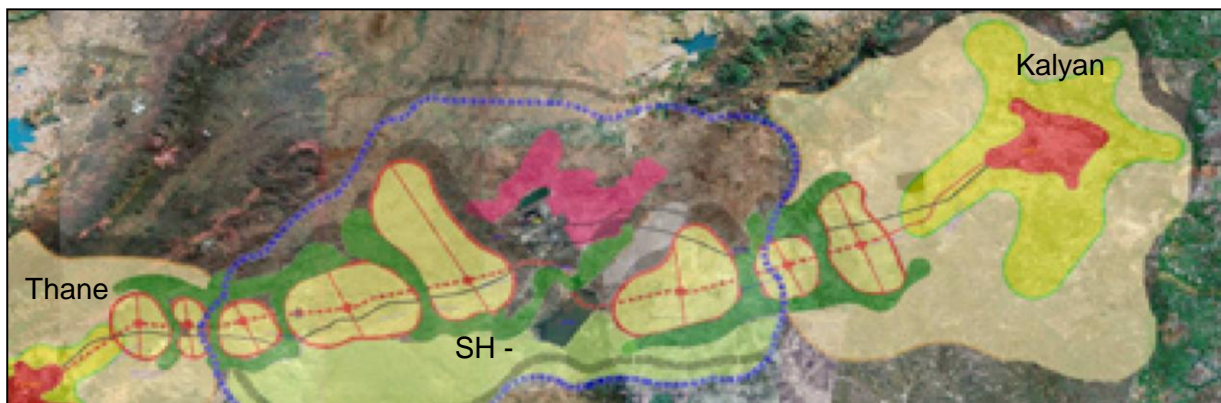


Figure 29: Linear Development along the transport corridor Connecting Thane & Kalyan

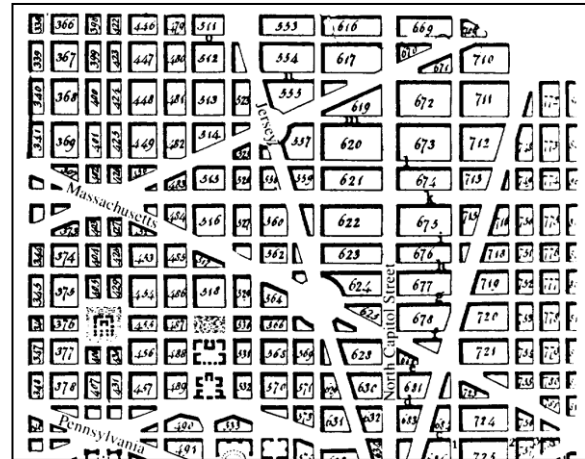
GRID-IRON PATTERN

Following a grid-iron pattern for the proposed road network is an important tool in achieving the development objectives for the Notified Area.

This orthogonal street pattern criss-crossing the whole area, deforming locally due to topography and water bodies, forms the structure for the area.

The proposed roads follow the grid connecting them to the existing major highways and divide the whole area into similar sized sectors.

Figure 30: Grid Iron Pattern



MODULAR DEVELOPMENT

The Concept Plan proposes development of independent and self-sustained modules of residential areas along with the required set of amenities, green spaces and commercial activities. These modules are independent and yet related with each other.

OPEN SPACE NETWORK

The open green area network provided along major roads weaves through the proposed built form and can be accessed by all residents of the region. These open spaces networks act as breathers to the high activity and density zones, especially along the central spine.



Figure 31: Green/ Open Spaces Acting as Breathers.

ACTIVITY ZONES

The envisioned major activity belt (central spine) will serve as the main artery, supported by cross axes of commercial/retail and office blocks.

The commercial spine will feature a wide green belt in the middle, forming a linear park along the entire stretch of the spine.



BUILT FORM

High-rise high-density built form is proposed along the central spine of the Notified Area, while low-rise low-density built fabric is proposed around the green open spaces.

Buildings facing the green belt are envisaged to be of lesser density than the road-facing commercial/office buildings and could be of institutional nature, like art galleries, convention halls or museums.

The idea is to create a dynamic open space belt offering recreational and leisure activities along the central stretch of the main spine.

The entire spine is envisaged to form the core of the region, with large public spaces supported by shopping malls, theatres, libraries and other institutional buildings.



Figure 32: Proposed Built Form of the Central Spine

AMENITIES WEAVED WITH THE OPEN SPACE NETWORK

The amenities are proposed to be situated close to the green spaces, interwoven in the entire site, in an attempt to make these open spaces a part of regular public usage and not backyards of buildings.

Based on the urban design guidelines & spatial planning principles stated above, a Draft Development Plan was envisaged and prepared for the Notified Area.



Figure 33: Civic Spaces woven with Green

6. Projections and Planning Norms Adopted

6.1. POPULATION PROJECTION

The preparation of a development plan for the notified area entails an assessment of the future demand of the planning area for various land uses, public amenities and transportation needs, which in turn requires population estimations for the area for a time span of 20 years to assess.

Population projections for the notified area have been carried out for the years 2011, 2021, by the following methods:

- 1) **Situation-based projections**
- 2) **Deterministic approach**

6.1.1. SITUATION-BASED POPULATION PROJECTIONS (TREND BASED)

Situation-based projections for any area are carried out on the basis of the context and previous trends exhibited by the area. For the notified area, Trend-based scenario and Share and Shift method are used for calculating estimated future populations.

TREND-BASED SCENARIO

According to Census data, the population of the notified area was 35,000 in 1981 and 1,30,400 in 2001. While demographic data for 1981 was organized according to the villages, 2001 population figures for the notified area are organized in terms of wards due to changes in administrative boundaries. 1991 population figures for the notified area are not available due to the same reason.

Table No. 6:1: Population Projection – Trend Based Scenario

Description	Persons	Persons / ha
1981 Population (26 villages)	35000	
2001 Population (10 wards)	130400	
Overall CAGR (%)	11	
Projected Population 2011	308117	
Projected Population 2021	728035	
Projected site level density (persons/ha)		166

As indicated by above table 6.1, considering the overall compound annual growth rate (CAGR) of 11% for the notified area and a projected site level density of 166 persons/Ha, the projected population for this area is 3,08,117 for 2011 and 7,28,035 for 2021.

6.1.2. SHARE AND SHIFT METHOD

Development activities and consequent population growth in the notified area being influenced by external factors, the notified area cannot be considered as an individual entity

while projecting the population for this area ; its relationship with the surrounding urban centers and MMR needs to be considered.

METHODOLOGY FOLLOWED (SHARE AND SHIFT ANALYSIS)

Population projection for the notified area is carried out on the basis of share and shift analysis which gives a more precise estimate of the expected future population. With the history of the notified area as being part of Kalyan-Dombivali Municipal Corporation (KDMC), and KDMC being part of urban MMR, this method has especially high relevance for estimating the population of the notified area, since the comparative share of units to its succeeding spatial level gives the estimated figure greater accuracy and helps avoid discrepancies. The following steps are followed for this method of population projection:

- To distinguish the relative share of MMR urban to Maharashtra urban for the years 1981, 1991 and 2001.
- Identifying the population share of Greater Mumbai, Kalyan and Thane Corporation towards the population composition of MMR urban for 1981, 1991 and 2001.
- Calculating the change in the population share of the notified area in the composition of the Kalyan-Dombivali Municipal Corporation over the years 1981, 1991 and 2001.
- The population share of the notified area to KDMC is assumed for the years 2011, 2021 & 2028 on the basis of the change in population share calculated above, leading to the population estimation for the notified area for these years.

Table 6.2 is indicative of the population projections calculated on the basis of the share and shift method.

OBSERVATIONS

1. As apparent from table 6.2, more than 50% of Maharashtra is rural, with a 7% increase in the share of the urban population of Maharashtra from 1981 to 2001. MMR, on the other hand, is a predominantly urban area with a very low share of rural population.
2. The share of MMR urban to Maharashtra urban is observed to be largely constant between 1981 and 2001, implying that the other urban centers apart from MMR (Nagpur, Pune, Nasik, etc.) have maintained their roles over time.
3. It is also observed that the population share of Greater Mumbai towards constituting the MMR urban population has consistently decreased over the 1981 – 2001 period. This is indicative of the much more rapid growth of other urban centers in MMR as compared to the growth of Greater Mumbai.
4. A consistent increase is observed in the population share of Thane urban to MMR urban and an even higher increase is observed in the share of Thane urban to the total urban population of Maharashtra. This increase can be attributed to the inclusion of a number of high growth urban hubs such as Thane, Kalyan Municipal Corporation (KMC), Ulhasnagar, Ambarnath, Badlapur and Bhiwandi in Thane urban.
5. The notified area, being located close to Thane urban, the rapid growth of Thane urban also assigns the notified area with the possibility of a very rapid growth rate in the future.

THE FINAL ESTIMATIONS

The population of the notified area in 2001 was approximately 1.5 lakhs and constituted 13% of the total Kalyan-Dombivali population. The assumption being that by 2028 the notified area will reach a total population of 26% of the total population of Kalyan-Dombivali, the estimated population of the notified area in 2028 is estimated to be 11,62,397. This figure has been checked with shift analysis to ensure that there isn't any anonymous growth or discrepancy in these calculations.

Table No. 6:2: Population Projection- Share and Shift Method

Population Projection							
No	Indicators	1981	1991	2001	2011	2021	2028
1	Maharashtra	62,780,000	78,750,000	96,752,000	117,786,000	142,852,000	172,950,000
	Maharashtra Urban	21,990,000	30,500,000	41,000,000	53,003,700	69,997,480	95,122,500
	Maharashtra Rural	40,790,000	48,250,000	55,752,000	64,782,300	72,854,520	77,827,500
	Maharashtra Urban to total Maharashtra	35%	39%	42%	45%	49%	55%
2	MMR (Total)	11,091,792	14,534,364	18,893,059	25147311	32927386	45485850
	Urban	9,837,116	13,378,249	17,845,935	23851665	32198840.8	44707575
	MMR Urban to Maharashtra Urban	45%	44%	44%	45%	46%	47%
	MMR Urban to total MMR	89%	92%	94%	96%	98%	99%
	Rural	1,254,676	1,156,115	1,047,124	1295646	728545.2	778275
	MMR rural to Maharashtra rural	3%	2%	2%	2%	1%	1%
3	Greater Mumbai	8,243,405	9,925,891	11,914,398	15026549	18353339.3	24589166.3
	Greater Mumbai to total MMR Urban	84%	74%	67%	63%	57%	55%
4	Thane Urban	1,486,220	3,393,207	5,902,473	9010629	14699470.8	24731850
	Thane urban to Maharashtra Urban	7%	11%	14%	17%	21%	26%
5	Thane Municipal Corporation	474,366	803,389	1,261,517	1908133.2	2897895.67	4470757.5
	Thane MC to MMR Urban	5%	6%	7%	8%	9%	10%
6	Kalyan Dombivali MC	578,353	820,089	1,193,266	1908133.2	2897895.67	4470757.5
	KDMC to MMR Urban	6%	6%	7%	8%	9%	10%
7	Notified Area	35000	65000	150000	343464	637537	1162397
		6%	8%	13%	18%	22%	26%

6.1.3. DETERMINISTIC APPROACH

Population projections by way of deterministic approach mainly consider the land utilization pattern of the concerned area and its projected site density.

CARRYING CAPACITY BASIS (HIGH INTENSITY LAND UTILIZATION)

This method considers high intensity with maximum land utilization. Below Table 6.3 shows the projected population on Carrying Capacity Basis.

Table No. 6:3: Population Projection- Carrying Capacity Method

Existing Population (2001) in existing residential area	1,30,400
Projected Population in Proposed Residential area	
Proposed Gross Residential Area (Ha)	1605.73
A. Rental Housing	
Land area under Rental Housing (Ha) (area based on the estimate to accommodate around 2 lacs population in rental housing)	105.73
Dwelling Units under rental housing (as per Proposed Maximum Permissible FSI of 4.0, and assuming consumed FSI is 80% of max permissible and Dwelling Unit size of 75 sqm)	45,112
Population under rental housing (assuming HH size of 4.5)	2,03,006
B. Group Housing	
Total Land area under Group Housing (Ha) (85% of proposed residential area minus land under rental housing)	1259.14
Land area estimated to have Maximum permissible FSI of 1.5 (Ha) (as per proposed DP plan and DCRs)	479.93
Land area estimated to have Maximum permissible FSI of FSI 2.0 (Ha) (as per proposed DP plan and DCRs)	779.21
Dwelling Units under Group Housing (assuming consumed FSI is 80% of max permissible, 10% of BUA to be occupied by shops/offices as part of shipline, and Dwelling Unit size of 80 sqm)	2,05,048
Population under group housing (assuming hh size of 4.5)	9,22,717
C. Plotted Development	
Land area under plotted development (Ha) (15% proposed residential area)	240.86
Dwelling Units under plotted development (as per Proposed Maximum Permissible FSI of 1.5, and assuming consumed FSI is 75% of max permissible and Dwelling Unit size of 100 sqm)	27,097
Population under plotted development (assuming HH size of 4.5)	1,21,935
Total Dwelling Units- For 20 years	2,77,318
Total projected population- For 20 years	12,47,658
Projected Site level density (persons per Ha)- For 20 years	284
Projected Residential area density (persons per Ha)- For 20 years	777
Total projected population- For 10 years	6,45,255
Projected Site level density (persons per Ha)- For 10 years	147
Projected Residential area density (persons per Ha)- For 10 years	402

The gross residential area shall be 36.5% of the total notified area, which comes to be around 1606 Ha.

As indicated in the table above, proposed residential development in the notified area is categorized as rental housing, group housing and plotted residential development, the assumption being that 85 % of the proposed area will be occupied by group housing (including rental housing) and 15 % by plotted development. The land area for rental housing schemes is allocated based on the envisaged estimate of housing around 2 lacs of population in rental housing projects.

The maximum permissible FSI is 1.5 for plotted development, varies from 1.5 to 2.0 for group housing, and is 4.0 for rental housing. Assumption of consumed FSI, and dwelling unit sizes differ for plotted development, group housing and rental housing categories, while assumed household sizes (4.5) are the same for all the three types of development. Projected population under rental housing, group housing and plotted development is 203006, 922717 and 121935 respectively. Total projected population for the notified area is 1247658. The total population projected for 10 years comes to be 645255.

6.2. EMPLOYMENT PROJECTION

While employment generation and balanced development will continue to be amongst the major objectives of the Development Plan for the notified area, the present context makes it necessary to have a more comprehensive strategy while determining the objectives in view of the expressed concerns.

Investment in industry has a multiplier effect on employment generation as rapid industrialization can create large scale employment directly and indirectly and this can absorb the under-employed of primary sector while also providing employment to the educated unemployed. Parameters of sustainable development should underscore our efforts of industrialization in future.

A comprehensive understanding of the future growth of the local economy is imperative for formulating an appropriate development strategy for the notified area. More specifically, such an understanding would help identify probable locations for employment centers and propose corresponding improvements to the transport network and other infrastructure services to meet future requirements.

6.2.1. TREND BASED PROJECTION

In accordance with the trend followed by the notified area over previous decades, employment projections have been carried out for 2011, 2021 & 2028. The projections give detailed village-wise estimated shares of work force to the total population.

Table No. 6:4: Employment Projection – Trend Based

No	Village Name	WFPR 1981%	WFPR 2001%	WFPR 2011%	WFPR 2021%	WFPR 2028%
1	Ghesar	28	40	46	52.00	58
2	Hedutane	47	40	36.5	33.00	39
3	Nandivali Turfe Ambarnath	34	34	34	34.00	40
4	Davadi	26	47	57.5	68.00	74
5	Pisavali	52	44	40	36.00	40

No	Village Name	WFPR 1981%	WFPR 2001%	WFPR 2011%	WFPR 2021%	WFPR 2028%
6	Golivali	37	51	58	65.00	71
7	Sonarpada	37	40	41.5	43.00	49
8	Mangaon	41	40	39.5	39.00	45
9	Kole	27	40	46.5	53.00	58
10	Nilaje	27	40	46.5	53.00	58
11	Katai	35	42	45.5	49.00	55
12	Usarghar	30	42	48	54.00	60
13	Gharivali	35	42	45.5	49.00	55
14	Sandap	25	42	50.5	59.00	65
15	Bhopal (Desalpada)	33	37	39	41.00	47
16	Nandivali-Panchanand	35	37	38	39.00	45
17	Asade	39	37	36	35.00	41
18	Sagaon	36	40	42	44.00	50
19	Chinchpada	33	33	33	33.00	39
20	Adivali-Dhokali	46	47	47.5	48.00	54
21	Umbroli	32	47	54.5	62.00	68
22	Bhal	28	47	56.5	66.00	72
23	Dwarli	22	34	40	46.00	52
24	Manere	24	34	39	44.00	50
25	Vasar	29	34	36.5	39.00	45
26	Ashele	41	33	29	25.00	31
	Notified Area (Avg)	35	40	42.5	45.00	51

Since information about residence workers was not available, workforce participation rate for the future has been estimated.

Workforce participation rate has been calculated on the basis of the average incremental growth rate.

In 1981, the average workforce participation rate (WFPR) for the notified area was 35%, while it was 40% in 2001. Assuming a continuous increase in WFPR in the future, the WFPR for 2028 is projected to increase to 51%.

As apparent from table a few villages, viz., Hedutane, Pisavali, Golivali, Sonarpada, Mangaon, Asade, Sagaon, Adivali – Dhokali and Ashele, had higher individual WFPR than the average WFPR of the notified area in 1981.

In 2001, a considerable positive change in WFPR can be observed in some villages, including Davadi, Sandap, Bhal, while in Hedutane, Ashele, Pisavali, Mangaon and Asade villages, a decrease in WFPR can be observed as compared to the 1981 figures.

Projected average WFPR for the notified area is 42.5% in 2011 and 45% in 2021.

Ghesar, Davadi, Golivali, Kole, Nilaje, Usarghar, Sandap, Umbroli and Bhal villages are estimated to have a WFPR higher than 50% in 2021, further including Dwarli, Adivali-Dhokali, Gharivali, and Katai in 2028 as having a WFPR higher than 50%. With 50% of the villages estimated to have a WFPR higher of higher than 50%, the average WFPR for the notified area is estimated to be 51%.

6.2.2. DETERMINISTIC APPROACH

This method follows the one third share of proposed population will be working population in the notified area. The working population includes the resident workers and workers employed in the area apart to the notified area.

Table No. 6:5. Employment Projection – Deterministic Approach

Projected Population	12,47,658
WPR (%)	35%
Total Main Workers	4,36,680
Workers Distribution	
Secondary Sector (Industries) (15% of total main workers)	65,502
Tertiary Sector (Office, Shops, Hotels, Entertainment, Education & Health) (85% of total main workers)	3,71,178
Jobs containment ratio (%)	60%
No. of workers contained / working on site	2,62,008
Domiciled jobs : Non domiciled jobs (1:1.25)	
Non domiciled workers	3,27,510
Total workers/ jobs on site	5,89,518
Workers in Secondary Sector (Industries)	88,428
Workers in Tertiary Sector (Finance, Insurance, Retail, Public & Semi Public Services)	5,01,090
Workers in Formal Commercial Area (80% of workers in tertiary sector)	4,00,872
Workers in commercial activities and services other than commercial, as part of Shop Line (20% of workers in tertiary sector)	1,00,218
Land Required for Industries (Ha.)	
Industrial workers	88,428
BUA / worker (sqm)	15
Total BUA (sqm)	13,26,420
Total Land (assuming average FSI utilisation of 0.75) (Ha)	177
Land Required for Retail, Commercial & Offices (Ha)	
Retail, Commercial & Offices workers (80% of tertiary workers)	4,00,872
BUA / worker (sqm)	25
Total BUA (sqm)	1,00,21,800
Total Land (assuming average FSI utilisation of 1.8) (Ha)	556

80% of the workers in notified area will be occupant in tertiary sector and rest will be employed in secondary sector. 60% of the total worker will be the resident worker while other workers employed beyond the jurisdiction of Notified Area.

The land under industries and retail activities has been proposed based on the estimated workers in the concerned sectors. The combined strength of domiciled workers and non domiciled workers employed in industries and retail sector accounted for estimation of land requirement.

6.3. DELINEATION OF PLANNING UNIT AND POPULATION DISTRIBUTION

6.3.1. RATIONALE ADOPTED IN DELINEATION OF PLANNING UNIT

For the formulation of detailed land use proposals, Notified Area is divided into planning sectors. The statutory requirements laid down by the amended MR&TP Act, 1966 also endorse this concept. In order to facilitate proper distribution of social infrastructure throughout the planning area in a balanced manner, notified area is divided into suitable planning sectors on the basis of the neighborhood planning principle. There are four planning sectors are defined for the notified area.

The criteria adopted for the delineation of planning sectors is as follows:

- Optimum population size ranging between 3 lacs to 4 lacs persons based on the sector.
- The optimum physical size ranging from 1000 ha. To 1200 ha.
- The availability of proposed higher order public amenities within easy walking distance.
- The extent of developed area vis-à-vis the extent of open and vacant area available for future potential development
- Existing road system and the administrative boundaries.
- Geographical and manmade barriers such as rivers, hills, rail lines, roads etc.

6.3.2. DISTRIBUTION OF POPULATION

The proposed distribution of social amenities and neighborhood planning wise population is distributed among the planning sectors. The population forecast for 2028 for the planning sectors is arrived at by considering the following factors:

- Uniform distribution of proposed higher order social amenities for balanced development of Growth Centre.
- Proposed Population density
- Proposed Vision and development objectives.
- Existing built-up and vacant areas, and.
- Accessibility and other locational attributes.

The population distribution as per the proposed Development Plan for each sector is presented in the following table no. 6.6.

Table No. 6:6: Proposed Planning Sector wise Population Distribution

Population Projection- Sector wise	Sector 1	Sector 2	Sector 3	Sector 4	Total Notified Area
Existing Population (2001)	14,226	27,600	63,151	25,431	1,30,409
Existing Population (2008)	26,098	47,419	84,750	55,458	2,35,205
Proposed Gross Residential Area (Ha)	345.12	422.58	453.62	384.41	1605.73
Population - Rental Housing	43,632	53,425	57,350	48,599	2,03,006
Population - Group Housing	1,97,795	2,43,682	2,57,833	2,23,679	9,22,717
Population - Plotted Devp.	26,208	32,090	34,447	29,191	1,21,935
Total Projected Pop. (2028)	2,67,635	3,28,649	3,49,894	3,01,480	12,47,658
Proposed Density at Residential area level (pop. per Ha)	775	778	771	784	777
Proposed Density at Total area level (pop. per Ha)	238	324	336	249	284

As the table exhibits, the projected population is 267635, 328649, 349894 and 301480 for sector 1, 2, 3 and 4 respectively.

6.3.3. EMPLOYMENT PROJECTION FOR PLANNING SECTOR

Table No. 6:7: Proposed Planning Sector wise Employment Distribution

Employment projection- sector wise	Total Notified Area	Sector 1	Sector 2	Sector 3	Sector 4
Gross Industrial Area (Ha)	194.98	0.0	54.88	0.0	140.10
% of Industrial Area to Total Industrial Area	100%	0%	28.1%	0%	71.9%
Employment in Secondary Sector (as per % of Industrial Area in each Sector)	88,428	0	24,848	0	63,580
Gross Commercial Area (in Ha)	526.73	258.44	65.08	65.76	137.45
% of Commercial Area to Total Commercial Area	100%	49.0%	12.4%	12.5%	26.1%
Employment in Commercial Zone (as per % of Commercial Area in each Sector)	4,00,872	1,96,688	49,530	50,047	1,04,607
Commercial Activity as part of Shop line (% of shipline area in sector to total shipline Area)	100%	22%	26%	28%	24%
Employment in Shop Line (as per the % of shop line in each sector)	1,00,218	22,048	26,057	28,061	24,052
Employment in Tertiary Sector	5,01,090	2,18,736	75,587	78,108	1,28,659
Total Employment	5,89,518	2,18,736	1,00,435	78,108	1,92,239

6.4. PLANNING NORMS ADOPTED

One of the important objectives of preparing a development plan is to develop various civic facilities to support the future population. The provision of the amenities shall be adequate in terms of number and area of amenities. In the proposed plan, these amenities are provided at various levels, depending on the nature of the particular amenity. The quantity and area of each amenity depends on the level at which the amenity is being provided, and the size of population it is envisaged to support.

Several planning standards are being adopted by various authorities depending on local situation. Planning standard recommended in 1999, by Town Planning & Valuation Department- Govt. of Maharashtra, and those adopted by several authorities in preparation of DP, i.e. Revised DP of Mumbai, DP of Ambarnath Kulgaon Badlapur and Surroundings Notified Area, Thane Municipal Corporation and Pune have been studied. The planning standards adopted by CIDCO-VVNA have also been studied.

As all these standards suggested by different authority are presented in different formats, the norms of all the various authorities has been standardized in terms of its base unit i.e. area required (in sq. mts.) per 10000 population. The assessment is mainly aimed to identify the total land required for public amenities, to serve a particular amount of population i.e. 10000 or 10 lacs, as per the standards suggested/adopted by various authorities. The standards adopted by proposed DP has also been mentioned along with the other standards. For each amenity, the area to be provided for every 10000 population as per the standards by various authorities has been calculated and presented below in Table No 6.7.

A flexible approach has been adopted in such cases where area isn't available and therefore area allotted for amenities deviate from specified area standards. The idea behind this is to provide for an amenity even if it is not meeting space standards, rather than depriving the planning sector of such an amenity altogether.

After comparing the norms suggested by several authorities, the norms to be adopted in the proposed Development Plan has been determined, which are mentioned in the Table No 6.7 along with the reference based on which it has been adopted.

6.4.1. COMPARATIVE STANDARDS BY VARIOUS AUTHORITIES AND ADOPTED IN PROPOSED DEVELOPMENT PLAN

Table No. 6:8: Comparison of Norms Recommended by Various Authorities and Norms Adopted in Proposed Development Plan

Type of Facilities	Area to be provided per 10000 population (in Sq.m.) - As per Norms recommended/adopted by Various Authorities									
	of Govt. Maha- rashtra	AKBSNA	Revised Mumbai D.P.	TMC	Pune	CIDCO- VVNA	Norms adopted for DP of Notified Area of 27 Villages			
							Norms Adopted	Reference for Norms Adopted	Public Provi- sion	Private Provi- sion
EDUCATIONAL FACILITIES										
Primary School	12000	12275	5520	5520	12000	4822	5520	Revised Mumbai DP, TMC	1130	4390
Secondary School	11250		4140	4140	11250		4140	Notified Area of 27 Villages	1660	2480
College						560	1100	Notified Area of 27 Villages	1100	
Sub Total	23250	12275	9660	9660	23250	5382	10760		3890	6870
HEALTH FACILITIES										
Dispensary	2500	2500	138	138	2500	600	145	Revised Mumbai DP, TMC	73	72
Health Centre							425		425	
Maternity Home			418	418						
General Hospital				1672	2500	1000	1672	TMC	1672	
Regional Hospital						700				
Sub Total	2500	2500	556	2228	5000	2300	2242		2170	72
SOCIO-CULTURAL FACILITIES										
Community Centre						300	521	Notified Area of 27 Villages	116	405
Library	500	500	200	2000	500	400	430	Revised Mumbai DP, AKBSNA, Pune	239	191
Town Hall							70		70	
Art Gallery/Museum						100	70	CIDCO-VVNA	70	
Swimming Pool/Gymnasium							105	Notified Area of 27 Villages	105	
Sub Total	500	500	200	2000	500	800	1196		600	596
PUBLIC UTILITIES										
Fire Station			600	650		800	600	Revised Mumbai DP	600	

Type of Facilities	Area to be provided per 10000 population (in Sq.m.) - As per Norms recommended/adopted by Various Authorities									
	Govt. of Maharashtra	AKBSNA	Revised Mumbai D.P.	TMC	Pune	CIDCO-VVNA	Norms adopted for DP of Notified Area of 27 Villages			
							Norms Adopted	Reference for Norms Adopted	Public Provision	Private Provision
Police Station						500	500	CIDCO-VVNA	500	
Post Office						300	300	CIDCO-VVNA	300	
Telephone Exchange							155	Notified Area of 27 Villages	155	
Bus Terminus							428	Notified Area of 27 Villages	428	
Retail/ Vegetable/ Municipal Market	2000	2000	1000	400		250	1000	Revised Mumbai DP	500	500
Burial Ground							715	Notified Area of 27 Villages	715	
Slaughter House							215	Notified Area of 27 Villages	215	
Sub Total	2000	2000	1600	1050	0	1850	3913		3413	500
INFRASTRUCTURE SERVICES										
Water Supply							1600	Notified Area of 27 Villages	1600	
Electricity							1600	Notified Area of 27 Villages	1600	
Sewage Treatment Plant							5000	Notified Area of 27 Villages	5000	
Sub Total							8200		8200	
Total Area / 10000 Pop. (Sq.m.)	28250	17275	13816	14938	28750	10332	26311		18273	8038
Total Area for 10 Lacs Pop. (Ha)	282.50	172.75	138.16	149.38	287.50	103.32	263.11		182.73	80.38
Total Area for 12.5 Lacs Pop. (Ha)	353.13	215.94	172.70	186.73	359.38	129.15	328.89		228.41	100.48

EDUCATIONAL FACILITIES

SCHOOL

The standards recommended by Govt. of Maharashtra suggest an area of 12000 and 11250 sq. mts. for primary school and secondary school for every 10000 population. The DP of AKBSNA provides an area of 12275 sq. mts. combined for primary and secondary school. While the Revised DP of Mumbai and DP of Thane provides 5520 and 4140 sq.m. per 10000 population, for primary and secondary school respectively.

As the Notified Area is proposed to have development of higher intensity and have higher density, it is not preferred to follow the higher standards as prescribed by Govt. of Maharashtra. This space standard does not exhibit efficient use of space and are observed to be unnecessarily large. Hence, the plan proposes to develop the amenities at higher intensities as well, and adopts the standards which are on the lines of Revised DP of Mumbai and DP of Thane. The proposed DP provides the standard for primary school same as provided in Revised DP of Mumbai and DP of Thane, while the standard for secondary school is marginally higher than the Revised DP of Mumbai and DP of Thane.

The proposed Development Plan of Notified Area provides 5520 and 4140 sq.m. per 10000 population for primary and secondary school respectively.

COLLEGE

For provision of College, only CIDCO-VVNA suggests specific standard which is 560 sq. mts. per 10000 population. The DP envisages the area as comprised of four sectors having 3.0-3.5 lacs population. To provide adequate facility for higher education, the plan proposes a college of around 40000 sq.m. area for each sector, which comes to be 1100 sq.m. per 10000 population. The standard suggested by CIDCO-VVNA is perceived to be inadequate and hence the Proposed DP shall follow the same standards as it is following presently.

HEALTH FACILITIES

DISPENSARY, HEALTH CENTRE

As per Govt. of Maharashtra, norms 2500 sq.m. area has to be provided for dispensary/health centre for every 10000 population. The Revised DP of Mumbai provides 138 and 418 sq.m. per 10000 population for dispensary/health centre and maternity home respectively. The DP of Thane also adopts the same standard and it also suggests of providing hospitals with an area of 1672 sq.m. per 10000 population. The proposed DP earlier provided an area of 295 and 275 sq.m. per 10000 population for dispensary and health centre respectively. Here, the health centre is envisaged to include the facility of maternity home also, and hence exclusive provision of maternity home has not been proposed.

Although the provision of total area for these facilities is observed to be adequate based on the standards adopted by Revised DP of Mumbai and DP of Thane, the area provided for each of the two facilities differ from the ones adopted by the above mentioned DPs and hence, the same has been updated accordingly. The norm for dispensary, as presently adopted by proposed DP, is 145 sq.m. per 10000 population, and the norm for health centre/maternity home is 425 sq.m. per 10000 population.

HOSPITAL

For provision of hospitals, an area of 1672, 2500 and 1700 sq.m. per 10000 population has been suggested by DP of Thane, Pune and CIDCO-VVNA respectively. The proposed DP provides 1670 sq.m. per 10000 population for hospitals based on the DP of Thane.

The DP proposes to provide facility of dispensary at local community level (6000-8000 population), and health centre at zone level (30000-40000 population). The facilities at local community level are proposed to be developed through private sector, while health centre and hospitals are to be provided by public authority.

SOCIO-CULTURAL FACILITIES

COMMUNITY CENTRE, LIBRARY/TOWN HALL

In case of Community Centre, only CIDCO-VVNA suggests specific standard which is 300 sq.m. area per 10000 population. For provision of library/town hall, The DP of AKBSNA and Pune, and the Govt. of Maharashtra guidelines suggest an area of 500 sq.m. per 10000 population. While, the Revised DP of Mumbai and Thane suggest 200 sq.m. and 2000 sq.m. per 10000 population respectively.

The standards earlier adopted for the proposed DP were 521 sq.m. for community hall, and 418 sq.m. for library per 10000 population. Apart from this, the plan proposes to have a town hall at overall site level with an area of 35 sq.m. per 10000 pop.

The standards adopted in the proposed DP for community hall is 521 sq.m. Considering the guidelines of GoM and DP of AKBSNA as reference, the total area provided for library/town hall is proposed to be 500 sq.m. per 10000 pop. Accordingly, the area for library and town hall is proposed to be 430 sq.m. and 70 sq.m. per 10000 population respectively.

The 521 sq.m. of community hall is distributed at three different levels- community, neighborhood and sector- so that the proposed community facilities will be well-distributed in an hierarchical manner. Similarly, the facility of library is provided at neighborhood and sector level. The facilities provided at local community level are proposed to develop through private sector, while the facility at neighborhood level is to develop partly by public authority and partly by private sector.

ART GALLERY/MUSEUM

The norm for art gallery/museum is provided only by CIDCO-VVNA, which suggests an area of 100 sq.m. per 10000 population. Considering the norm provided by CIDCO-VVNA to be too high, the norm adopted in the proposed DP is 70 sq.m. per 10000 population.

SWIMMING POOL/GYMNASIUM/ SPORTS COMPLEX

The area provided for Swimming Pool/Gymnasium/Sports Complex in the proposed DP is 105 sq.m. per 10000 population.

PUBLIC UTILITIES

FIRE STATION, POLICE STATION, POST OFFICE, TELEPHONE EXCHANGE

The standards adopted by Government of Maharashtra and AKBSNA do not suggest any specific norms for provision of amenities like fire station, police station, post office, and telephone exchange. The Revised DP of Mumbai and DP of Thane, respectively, suggest an area of 600 and 650 sq.m. per 10000 pop. for fire station. CIDCO-VVNA suggest an area of 800, 500, and 300 sq.m. per 10000 pop. for providing fire station, police station, and post office respectively. None of the standards provide any norm regarding telephone exchange.

Considering these, the proposed DP provides an area of 600, 500, 300 and 155 sq.m. per 10000 pop. for fire station, police station, post office and telephone exchange respectively.

VEGETABLE/ MUNICIPAL MARKET

The guidelines of GoM, DP of AKBSNA, Revised DP of Mumbai, and DP of Thane, respectively, suggest an area of 2000, 2000, 1000, 400 sq.m. per 10000 population to be reserved for vegetable/municipal market. The proposed DP provides 1000 sq.m. per 10000 pop. for vegetable/municipal market, based on the Revised DP of Mumbai.

CREMATION/BURIAL GROUND AND SLAUGHTER HOUSE

None of the authorities provide specific standard regarding the area to be provided for cremation / burial ground and slaughter house. The standards of several authorities suggest of providing adequate amount of land depending upon the local situation and need for such amenities. The proposed DP shall provide an area of 570 and 215 sq.m. per 10000 population for cremation/burial ground and slaughter house respectively.

INFRASTRUCTURE FACILITIES

Standards for provision of infrastructure facilities have not been given by any of the authorities as mentioned in the table. Proposed DP incorporates the provision of these facilities, after considering the nature and scale of the facilities, and the spatial organization. The norms adopted by proposed DP are as mentioned above in Table No 6.7.

TOTAL AREA REQUIRED FOR AMENITIES AS PER STANDARDS ADOPTED BY VARIOUS AUTHORITIES

GOVERNMENT OF MAHARASHTRA (REVISED)

As the table presents, the total land required for amenities to serve 10 lacs population is around 282.50 Ha as per Govt. of Maharashtra recommendations. These 282.50 Ha is meant to accommodate facilities of primary and secondary school, dispensary/health centre, library & town hall, and vegetable/municipal market only and does not include all the other amenities which are very essential to be provided in the proposed Development Plan.

DP OF AKBSNA

The norms adopted in DP of AKBSNA suggest an area of 172.75 Ha for providing primary & secondary school, dispensary/health centre, library & town hall and vegetable/municipal market for 10 lacs of population.

REVISED DP OF MUMBAI AND DP OF THANE MUNICIPAL CORPORATION

The norms suggested by Revised Mumbai DP includes norms regarding primary school, secondary school, dispensary/health centre, maternity home, library & town hall, fire station and vegetable/municipal market. DP of Thane Municipal Corporation also mentions norms about hospital in addition to the amenities mentioned by Revised Mumbai DP. The norms incorporated in the Revised DP of Mumbai, and DP of Thane are quite different than those recommended by Govt. of Maharashtra.

As per the standards adopted by Revised DP of Mumbai and DP of Thane, the area required for primary school and secondary school add up to 9660 sq.m. for every 10000 population instead of 23250 sq.m. area as mentioned by Govt. of Maharashtra. In another case, while Govt. of Maharashtra recommends an area of 2500 sq.m. per 10000 population for dispensary/ health centre, the area required for health facilities- dispensary/health centre, maternity home, hospital- adds up to 2228 sq.m. per 10000 population as per DP of Thane.

As per Revised DP of Mumbai and DP of Thane, the amenities for which they have provided specific standards shall spread over an area of 138.16 Ha and 149.38 Ha, respectively, to serve 10 lacs of population.

DP OF PUNE

The standards mentioned by DP of Pune are very much on the lines of the ones recommended by Govt. of Maharashtra. Though, it mentions norm about hospital in addition to the norms suggested by Govt. of Maharashtra, it does not mention norms for any other amenities. The area required only for the amenities for which it has provided specific standards, comes to be 287.50 Ha for 10 lacs of population.

CIDCO-VVNA

The standards suggested by CIDCO-VVNA give norms for more type of amenities compared to other authorities. It provides specific standards for college, community centre, art gallery/museum, and public utilities like police station, post office in addition to the ones, whose norms have been provided by other authorities too. The total area required for all these amenities to serve 10 lacs of population adds up to 103.32 Ha.

6.4.2. AREA PROVIDED FOR AMENITIES IN PROPOSED DP OF NOTIFIED AREA

After comparing the norms suggested by several authorities, the norms to be adopted in the proposed Development Plan has been finalized, which are mentioned in the table along with the reference based on which it has been determined.

The total area required for various amenities as per standards adopted by proposed DP comes to be 2.63 Ha per 10000 population. Out of these amenities, some of them are proposed to be developed by private developers, while others shall be developed by public authorities, details of which are as mentioned in Table No 6.6. Primary school, dispensary and community centre are proposed to be developed at local community level and are to be developed by private sector. While, secondary school, health centers/ maternity homes are proposed to be provided at neighborhood level and shall be partly (50%) develop by private sector, and partly (50%) by public authorities. The amenities that are proposed at higher levels shall be provided by public authorities. Accordingly, the area to be provided for amenities by public authorities and private sector comes to be 1.83 Ha and 0.80 Ha per 10000 population respectively.

Thus, the area to be developed for amenities by public authorities and private sector in the Notified Area shall be 263.11 Ha and 328.89 Ha for population of 10 lacs and 12.5 lacs, respectively, amounting to 6.06% and 7.49% of total Notified Area.

RECREATION / OPEN SPACES

The guidelines by Government of Maharashtra and DP of AKBSNA suggested to, provide open spaces having total area of 6000 sq.m. per 1000 population in various forms like gardens, parks, playgrounds, wherein the open spaces are distributed across two levels. In the proposed DP, the open spaces are distributed across five levels, ranging from central/site level to local community level. The distribution of open spaces is largely based on the concept and planning principles adopted for preparing the plan.

Table No. 6:9: Provision and Distribution of Open Spaces in Proposed DP of Notified Area.

Level of Provision	Norms (sq.m. / cap)	Area per Facility (Sq.m)	No. of Nodes	Total Area (Ha)	Area Provided per 10000 pop. (Sq.m)	Public Provision (Ha)	Private Provision (Ha)
Community	1.25	8667	180	156.0	12500		156.0
Neighborhood	0.75	12480	75	93.6	7500	46.8	46.8
Zone	1.25	43333	36	156.0	12500	156.0	
Sector	1.00	312000	4	124.8	10000	124.8	
Site/Central	1.00	1248000	1	124.8	10000	124.8	
Total	5.25			655.2	52500	452.4	202.8

Though there is difference in terms of distribution of open space, there is no significant difference in terms of amount of total open space that needs to be provided. The standard suggests total open space of 6 sq.m. per person for 10 year population. The proposed DP provides 440.90 Ha of RG & PG which is at the rate of 6.83 sq.m. per person for 10 years population of 6.45 lakh. Thus, the provision of open spaces exceeds the norm of 6 sq.m. per person. These open spaces are provided in the form of Recreational Gardens (RG) of 233.95 Ha and Playgrounds (PG) of 206.95 Ha.

The proposed DP is to provide 5.25 sq.m. open space per person, out of which 3.625 sq.m. shall be public provision while the rest 1.625 sq.m. shall be developed through private developers in form of internalized open spaces. Since the provisions of open spaces are being made for 20 years entire population of 12.48 lacs and considering the vast area categorized as No Development Zone and Forest which is meant to be open as well, the open spaces provided in the Development Plan is perceived to be adequate. The open area developed by public provision together with No Development Zone and Forest Zone comprises an area of 881 ha, which comes to be about 7 sq.m. per person.

The above planning standards specify norms for various public amenities to be provided in the town. These amenities are generally meant for providing facilities and services to the area and can be broadly classified in following groups.

- a) Recreational and open spaces,
- b) Educational facilities,
- c) Medical facilities,
- d) Socio-cultural facilities,
- e) Public Amenities,
- e) Utilities and Infrastructure Services,
- f) Markets and Shopping Centers- Commercial facilities,
- g) Transportation facilities,

The above broad categories are now shown in the Draft Development Plan. Area of individual reservation is proposed according to the level at which it is being envisaged to function while keeping in view that the overall provision is in line with the adopted planning standards. The authorities while implementing the proposals of the Development Plan shall assign definite appropriate purpose from the above broad categories enlisted in the D. C. Regulations, considering the need and financial capacity. Further, authorities can encourage the participation of private sector for the implementation. The mechanism of accommodation reservation shall also be considered and applied as per the Government sanctioned DP of AKBSNA.

7. Planning Proposals

7.1. INTRODUCTION

The proposed Development Plan is prepared such that it conforms to the regional plan proposed by MMRDA for this region. The relevant policies of the Regional Plan regarding allocation of lands for various uses especially urban and industrial use have been reviewed for the formulation of zoning proposals of the development plan.

The Proposal in sanctioned regional Plan of MMR which requires amendment and hence approval of State Government under Section 27 of MR&TP Act, wherever is necessary for the proposed zoning of the Notified Area.

According to the employment projections, the notified area is expected to absorb a considerable number of workers in the tertiary sector. Envisaged as a counter-magnet towards decongesting Greater Mumbai & Navi Mumbai, land uses within the notified area are focused on providing commercial and office space.

The large buffer zones around natural drainage ways will be developed to form a continuous, well-connected open space network tying together the reserved forest areas in the south and the Ulhas River bed in the north of the notified area. Manufacturing and other industrial uses are located in the Eastern corner and the North-western corner of the notified area.

The programme brief mentioned earlier presents the proposed land use distribution for the notified area. It should be noted that the notified area has a comparatively lesser share of land occupied solely by residential activities. This is in accordance with the idea of developing the area as a Growth Centre in the form of major trade & commerce hub, with large numbers of commercial establishments and office spaces. Also, as the plan envisages high intensity land utilization, higher area shall be provided for roads and open spaces. Hence, the proposed plan provides around 37% of total area for residential development.

An integrated open space network, mainly consisting of interconnected green spaces around natural drainage ways features as a major component in this proposal. Internal parts of the notified area will predominantly house residential and mixed-use activities. Developed with luxury hotels, restaurants, shopping malls, recreational clubs, sports facilities, parks, convention halls and art galleries, the notified area is envisioned to offer a rich quality of life to its residents.

7.2. INTEGRATION OF VARIOUS REGIONAL PROPOSALS

METROPOLITAN REGIONAL TRANSPORTATION NETWORK:

The TRANSFORM report exhibits proposals regarding the regional transportation network. The important components of regional transportation proposed there in are metropolitan regional roads, multi modal corridor and metro rail network. The notified area has been superimposed on these proposals and the regional transportation network falling in the notified area has been identified.

As per proposed metropolitan regional road network, there are three such regional roads passing through the notified area. Out of the three, alignment of two roads falls on existing SH 43 and partly on MDR 62. While another road, proposed to run in north-south direction,

is located in western part of the notified area. These regional roads are proposed to be 100 M wide in general. It is important to note that the report also mentions that these roads shall be at least 80 M wide.

Now, the initial proposal regarding 100 m wide Multi-Modal Corridor confirms that the proposed north-south aligned regional passing through east part of notified area has to be developed as Multi-Modal Corridor, while the outcome of the further process of identifying more precise details and alignment confirmed that the proposed north-south aligned regional road passing through west part of the notified area has to be developed as Multi-Modal Corridor with metro rail as central spine.

The TRANSFORM report also presents the network of proposed metro rail. The proposed metro rail passes through the notified area, and hence it has been incorporated in preparing the proposed transportation plan. The proposed metro rail is running north-south, along with the proposed Multi-Modal Corridor.

PROPOSED DFC LAND:

Ministry of Railway, Govt. of India has proposed the special railway project named Western Dedicated Freight Corridor. The proposed freight corridor passes through the notified area and the intension of land acquisition has been declared. The details about the proposed DFCC land coming within the notified area has been collected and incorporated while preparing the transportation network. The proposed corridor runs north-south and passes through the west part of the notified area. In most parts, it runs parallel to the existing railway land.

PROPOSED SOLID WASTE MANAGEMENT SITE:

MMRDA has proposed a Solid Waste Management Regional Landfill Site, having an area of 382 Ha, near Nevali Airport. Most part of this site, measuring 265.96 Ha, falls within the notified area, spreading over part of Adivali Dhokali, Dwarli, Bhal and Davadi villages. The proposed site spreads over a large area in the central part of notified area.

Alternatives of proposed Development Plan, accommodating the above-mentioned proposals, have been prepared and presented before the evaluation committee. The above-mentioned proposals were discussed and several decisions were made regarding the alignment and ROW of regional transportation network, and the location of solid waste management site.

As mentioned above, the alignments of multi-modal corridor and metro railway are running parallel, within the notified area. It has been decided that within the notified area, the multi-modal corridor shall itself accommodate the metro rail within its ROW. The multi-modal corridor shall be 100 M wide.

In another instance, the proposed DFCC freight railway is running parallel to existing railway line, in the south-west part of the notified area. This effects the built-up around Gaothan of Ghesar and Nilaje villages. One of the regional roads was initially proposed to run parallel to this, which in turn may affect the Gaothan significantly. The said regional road is then proposed to shift eastwards, the same being proposed as Multi-Modal Corridor.

The other regional road is located on SH43 and is proposed to be 100 M wide. Furthermore, the evaluation committee has asked to propose a mono-rail, connecting the proposed metro-terminus to Dombivali railway station.

Although several alternatives of proposed plan with regard to inclusion or exclusion of proposed solid waste management site have also been prepared and discussed, the proposed draft Development Plan incorporates the solid waste regional landfill site at the same location as it is proposed in Regional Plan of MMR.

All these have been then incorporated in preparing the proposed draft Development Plan.

7.3. ZONING PROPOSAL

Land use zoning proposals are based on the population and the employment projections of the year 2028 given above for individual planning sectors, and the accessibility and locational attributes of the planning sectors and the availability of lands for development

The evolution of the plan has been a simultaneous process of developing the road network and determining proposed land uses. The proposed transportation network has been developed so that it supports the spatial allocation of land uses. The allocation of land for various activities shall be in relevance to proposed transportation network and vice versa. Also, each land use shall be placed in accordance with the other land uses. All together, all land uses and transportation network, shall make the plan comprehensive.

Considering all the above aspects, in the Draft Development Plan, the following major zones have been proposed as per the requirement.

- **Residential Zone (R – Zone)**
- **Commercial Zone (C – Zone)**
- **Industrial Zone (I – Zone)**
- **No Development Zone (NDZ)**
- **Forest**

7.3.1. RESIDENTIAL (R – ZONE)

The Residential Zone (R-Zone) covers all the existing residential development areas within the Notified Area and areas newly being opened up for the development considering their potential.

Residential Zone is pure residential area in which major commercial and industrial activities are not allowed, however some shopping user for day-to-day needs has been allowed. Also, there is a provision of mixed use defined through shop line. These is allowed to plots situated along existing or proposed roads having width above 18 M. or more and plots along roads specifically shown with shop line on the map. On these plots commercial activities as mentioned in the Development Control Regulations are allowed along with residential users.

The residential development is planned to be comprised of several zones and neighborhoods, adjoined by 30 M wide arterial roads. While the 24 M roads passes through the residential areas. Around 1600 Ha area (36.5% of total notified area) is to be developed as residential zone. Out of this, around 1040 Ha area shall be available for net residential development, while other area shall be for internal roads, amenities and open spaces.

RENTAL HOUSING

It is proposed to provide earmarked areas for development of rental housing schemes. These residential areas shall develop more intensively, and hence allows the group housing schemes to have maximum FSI of 4.0. The plan envisages development of rental housing on 14 sites, as per the 14 relevant applications, admeasuring about 25 Ha and the same is identified in the proposed land use plan. The plan also envisages development of rental housing of about another 75 Ha near to the commercial zones, along the 45 M wide spine road, to provide proximity to business districts and the public transport facility.

PROPOSED RESIDENTIAL USE

Gross residential zone will include all existing residential development, internalized open spaces, retail, internalized public and semi public spaces, proposed internal roads and net plot areas (excluding internalized amenities, open spaces and roads). While this zone occupies a total land area of 36.5%, the share of the existing residential area within the proposed residential zone is 8.7%. Internalized open spaces, retail and internalized public and semi public activities are allowed with residential uses. These activities are proposed to be developed at the community level as well as neighborhood level (50%). Here, the lands presently under industrial use in Gharivali village are proposed to have residential zone. The proposal of Mega City Project in villages Nilaje, Katai, Usarghar etc. is also taken cognizance in the Draft Development Plan.

Table No. 7:1: Proposed Gross Residential Area

Details	Area (Ha)	Distribution
GROSS RESIDENTIAL	1605.73	36.5%
Internalized Open Spaces (at Community level & 50 % of neighborhood level)	230.0	5.2%
Retail (Community & 50 % neighborhood level)	14.0	0.3%
Internalized Public-Semi public (at Community level & 50 % of neighborhood level)	110.0	2.5%
Proposed Internal roads	271.0	6.2%
Proposed Residential (Net plot excluding internalized amenities , open spaces , roads)	980.7	22.3%

7.3.2. COMMERCIAL ZONE (C – ZONE)

The commercial activities shall be supported by higher order road network, public transportation in order to make it functionally efficient. Furthermore, the commercial activities may be of different hierarchical level and have its influence zone accordingly. Hence, these activities shall be distributed over the planning area, envisaging their level of operation and influence.

The proposed Development Plan has identified a Growth Centre in the central part of eastern half of notified area, located partly in Sector-3 and partly in Sector-4. One of the proposed 100 m wide regional roads is passing through this commercial area. It is connected to the other parts of Notified Area by the 45 M wide central spine road passing from the North of Growth Centre.

The 45 M wide central spine leads to south-west part and connects to the Central Business District located in central part of the western half of notified area. The proposed Multi-Modal

Corridor passes through the Central Business District area. A metro terminus is proposed on the multi-modal corridor within the CBD area. The area is proposed to have another terminus for it shall also provide connectivity to Dombivali railway station through proposed mono-rail.

The terminus is also provided access by an exclusive pedestrian road. This road is envisaged to have pedestrian oriented commercial activities along it. The area is envisaged to have high intensive development.

Apart from the above-mentioned Growth Centre, a Central Business District is proposed west to the growth centre. The CBD is located around Mangaon and Sandap villages. There is a mono rail proposed connecting Dombivali Railway station and Proposed Metro Station passing through the CBD. There are two other sub-CBDs proposed in the plan. These sub-CBDs are located in Sector- 1 and 3, having one sub-CBD each. The commercial area for Sub-CBD of Sector-1 is planned in proximity to the Nilaje railway station, located on the existing Diva-Panvel railway line.

Certain other pockets of commercial activities have been identified based on the road network, location of CBD and Sub-CBDs, and overall land use plan. All the important commercial zones are linked through mono-rail, which further connects to metro terminus on one end and Dombivali railway station on the other.

This will accommodate city level amenities, public utility buildings, headquarters of commercial establishments, wholesale establishments, bus depots, exhibition grounds, etc. Necessary regulations governing these zones have been clearly spelt out in the draft development control regulations

7.3.3. INDUSTRIAL ZONE (I – ZONE)

All the major industrial areas excluding the jurisdiction of existing MIDC industrial estates are designated as the Industries Zone (I-Zone). The uses permitted in this zone are given in the Development Control Regulations.

At present, there are several planned industrial estates in MIDC Dombivali, which are under utilised or are lying vacant deprived of activity due to lack of interest from industrialists. There is a need to upgrade / rejuvenate them with policy interventions supported by respective institutions. It leads to the direct enlistment of the Notified Area.

The industrial area is proposed on the southeast corner of the notified area. The location is determined based on the proximity to the regional transportation network, and existing small scale industries of Ulhasnagar. These shall provide the industrial areas with strong linkages to the surrounding areas of the region. The area is identified on the periphery, to restrict the heavy traffic, from entering the inner parts of the notified area.

7.3.4. NO DEVELOPMENT ZONE (NDZ)

The hillock located in the central part of the notified area has been identified as no development zone. The marshy land located around the Ulhas River is also identified to have no development. The uses usually permitted in this zone are mainly agricultural and allied users, forestry etc. However considering the trends now seen in and around town a number of other uses are allowed in this zone. Their exhaustive list, extent and other regulations controlling the development are given in D. C. Regulations.

7.3.5. FOREST

The areas which are reserved forest, protected forest, classified and unclassified as defined under the Indian Forest Act, 1947 and the areas acquired under Maharashtra Acquisition of Private Forests Act, are designated as Forest Zone (F-Zone) in the Revised Development Plan. This is a highly restrictive zone where development is allowed according to D.C. Regulations subject to the clearance from the Forest Department. There are around 253 Ha of forest lands in the Notified Area. There are densely built structures existing on some of these lands, but the land is actually owned by Forest Department. Such lands are retained as Forest in the Draft Development Plan.

7.4. ROAD NETWORK AND TRANSPORTATION

7.4.1. INTRODUCTION

Transportation planning is an integral part of any development plan. The analysis of the existing transportation scenario of the Notified Area as explained in the Chapter-3 & 4, brings forth the persisting transportation problems of the region in terms of inadequate roads, lack of parking spaces, inefficient public transport etc. Proposals for transportation should evolve a mechanism to tackle these problems ensuring a minimum level of service for carrying out various transportation activities.

The proposed transportation network is primarily based on the way overall development plan has been conceptualized. The road network has been developed along with the overall spatial configuration of the plan. Several aspects of existing situation, and the above mentioned regional proposals had a significant effect on the evolution of transportation network.

The important aspects of existing situation that were taken into consideration while preparing the proposed transportation network are as follows.

- Topography
- Existing Road Pattern
- Existing Development on the Site
- Existing Linkages to Nearby Suburban Railway Stations
- Existing Linkages to Surrounding Development
- Existing Social Facilities and Amenities
- Existing Railway Land
- Water bodies

Topography, existing built-up and existing roads played important role in development of proposed transportation network. This results in the creation of an organic pattern that grows out of its regional context. The hillock located in the central part of the notified area, the existing development along the SH40, and the proposed solid waste management site has

been strong guiding factors for the evolution of the central spine. The spine runs from southwest to north-east direction, and then turns southwards and meets the SH43.

The major road network is spaced at approximately 1 km x 1 km to create sub-sectors. The grid size varies at different places within the notified area, mainly due to existing development, topography, water bodies etc. The attempt has been to respect the natural topography and cause minimum impact on the landscape and existing development. The grid, defining the sub-sectors for internal development, would form the basis for further detailed development of the area.

The major roads, running along the grid, have been connected to the existing major roads and highways within and bordering the notified area. The proposed road pattern strengthens the connectivity to the nearby suburban railway stations and the neighboring development. To the extent possible, the roads have been placed in synchronization with the existing roads, of the notified area and of the adjoining areas.

7.4.2. PROPOSED HIERARCHY OF ROAD NETWORK

The proposed Development Plan for the Notified Area exhibits a definitive hierarchy in its structure (refer Map No 11 for Road Hierarchy). Apart from the regional roads, the other proposed road network consist hierarchy of 45m, 30m, and 24m wide roads. Other than these, 6 m to 12 m wide roads are proposed as Gaothan approach roads. Based on the Plan, the road network can be seen as made up of the regional roads, main central spine, the perpendicular arterial roads, the sub-sector roads and the Gaothan approach roads.

REGIONAL ROADS- 100 MTS WIDE

There are three regional roads planned in the area, out of which, one is 100 M wide multi-modal corridor, running north-south in the western part of the notified area. Another 100 M wide regional road, also running north-south, is located in eastern part. The third regional road, also proposed to be 100 M wide, is running east-west.

SPINE ROADS- 45 MTS WIDE

The proposed plan for the notified area has one major spine cutting across the area. This central spine is proposed to be 45 M wide, forming the commercial/ office spine having high intensity development along it. These roads, along with part of regional road, are planned to integrate the BRTS route. Part of the spine is proposed to have mono-rail.

Figure 34: Proposed 45 M wide Road Section – Central Mass Transport Bay - Elevated



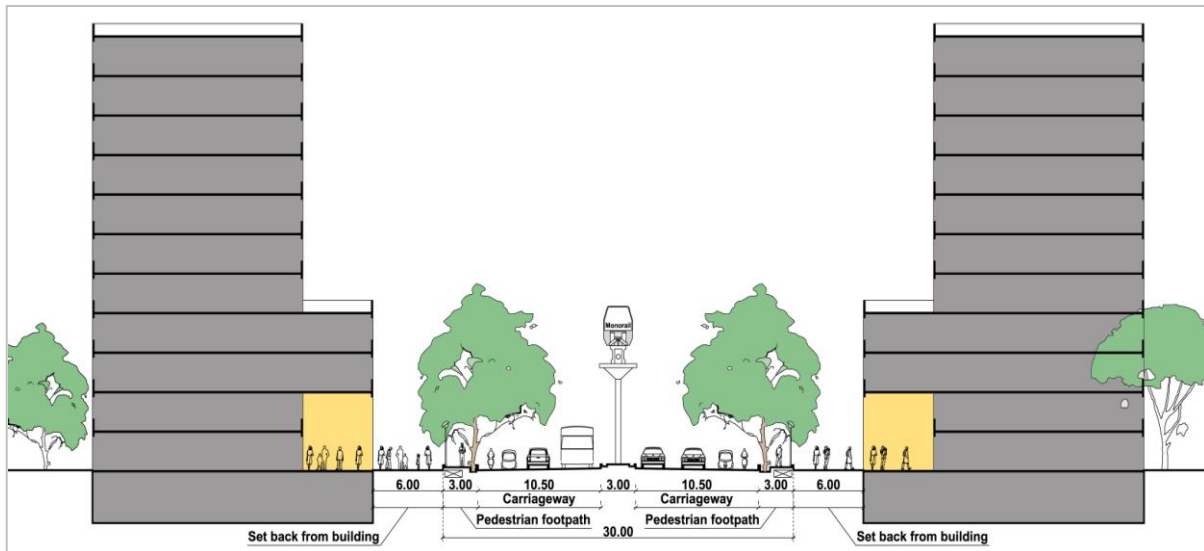
Figure 35: Proposed 45m. wide Road Section – Central Mass Transport Bay - Surface



ARTERIAL ROADS- 30 MTS WIDE

The perpendicular arterial roads connecting the Central Spine and Regional Roads are 30 M wide. There are adequate numbers of arterial roads, cutting across the central spine at a distance of around 1 km. Some of the 30 M roads are proposed to have mono-rail.

Figure 36: Proposed 30m. Wide Road Section



SECONDARY ROADS – 24 MTS WIDE

These roads run within the grid formed by arterial and spine roads, and are planned to be 24 M wide. These roads connect the residential areas to the arterial roads from where adjacent sub-sector can be accessed.

TERTIARY ROADS – 18 MTS WIDE

Other than the 24 M wide road that cuts across the sub-sector and connects to 30 M or 45 M wide roads, the sub-sectors are also provided with 18 M wide roads that run within the sub-sector and connect to 24 M and 30 M wide roads within the sub- sector or on the periphery of the sub-sector.

GAOTHAN APPROACH ROADS- 12 TO 6 MTS WIDE

The development around Gaothan is provided connectivity by planning 12 M to 6 M wide approach roads.

7.4.3. PROPOSED EXISTING ROAD WIDENING

Table No. 7:2: Proposed Existing Road widening

Proposed Width of Road	Widening of Roads- Length in Km				Total
	Sector 1	Sector 2	Sector 3	Sector 4	
100 M wide road	3.18	0.00	0.83	3.07	7.08
45 M wide road	0.00	0.00	0.00	0.00	0.00
30 M wide road	3.88	4.60	4.02	1.01	13.51
24 M wide road	1.35	1.50	0.89	0.42	4.16
18 M wide road	1.30	1.00	0.54	0.00	2.84
12 M wide road	1.59	2.40	2.00	0.38	6.37
TOTAL	11.30	9.50	8.28	4.88	33.96

7.4.4. PROPOSED NEW ROADS

Table No. 7:3: Proposed New Roads

Proposed Width of Road	Proposed New Roads- Length in Km			
	Sector 1	Sector 2	Sector 3	Sector 4
100 M wide road	3.98	3.43	0.11	1.91
45 M wide road	2.76	0.99	4.35	4.50
30 M wide road	12.23	10.13	5.59	10.19
24 M wide road	16.04	13.01	14.44	19.35
18 M wide road	7.51	3.94	4.69	8.08
12 M wide road	1.01	-0.07	0.53	1.02

7.4.5. PROPOSED BUS ROUTES

Public transportation systems, such as the Bus Rapid Transit System, are proposed along the 45mts central spine. Dedicated bus lanes along these roads will allow for fast and uninterrupted movement of the buses, which serve as the main transportation system within the area, connecting the land uses within notified area to each other and to the surrounding regions.

Figure 37: Proposed BRTS Central Spine



The proposal also recommends connecting these routes to the other major roads along the grid which will offer an internal bus service connecting the entire area. The BRTS and local bus systems together will form an efficient integrated and well-connected public transportation network. The proposed roads and other infrastructure will provide efficient regional connectivity with Greater Mumbai, its airport, railway stations and other major transportation nodes, while an integrated pedestrian and open space network will offer an aesthetically pleasing built environment for the residents of the Notified Area.

7.4.6. IMPORTANT FEATURES OF PROPOSED TRANSPORTATION NETWORK

Although above aspects are taken into account while preparing the proposed transportation network, the evolution of the master plan mainly aimed to achieve the salient features as described below.

SPATIAL PATTERN OF ROAD NETWORK

The main feature of the Development Plan is the overall structure of the road network. The road network is developed such that it forms a major central spine that runs from southwest to north-east direction, and then turns southwards and meets SH43 in the east part of notified area. Thus, the central spine runs around the hillock, although at distance. While roads transverse to the main spine are in form of radial roads focusing towards the hillock. These radial roads in turn connect the CBD and Growth Centre located on east and west part of the notified area respectively. This overall organization gives a unique identity to the plan.

The proposed transportation network is based on the central theme of a loose grid criss-crossing the site to form the main structural frame of the notified area. The grid size is approximately 1 km x 1 km, with marginal variation as per the existing conditions. This structural grid is bordered by 30 M arterial roads, with one of the side adjoined by 60 or 80 M wide roads.

CHARACTERISTICS OF DEVELOPMENT AND ACTIVITIES

The concept is to develop the main central spine as the commercial/ offices spine, with high density development along the road edges. In contrast to this, the perpendicular roads would be developed as mixed and residential use. Most of the higher order public-semi public institutions and amenities are planned along the central spine or arterial roads. While the internal sub-sector roads are planned to have residential development with neighborhood level amenities and open spaces along it. The wider open space and green areas, interconnected along and around the water bodies, drainage ways, are integrated along the arterial roads.

TRAFFIC AND CONNECTIVITY

The proposed road network would increase connectivity within the region, simultaneously helping alleviate traffic problems. The sub-sector roads passing through the residential areas are planned such that they discourages through traffic, as much as possible. These roads are planned to form a staggered pattern by providing T or Y junctions. Thus, the residential areas are planned to be safe and quiet with respect to traffic movement. There are 12 M wide roads provided, either by widening existing roads or providing new roads, to strengthen the connectivity to village gaothans.

The proposed pattern of road network also links with the roads leading to the railway stations located outside the notified area, but have a strong impact on the movement pattern. These link roads are proposed to be widened to carry the traffic that will be generated once the notified area is fully developed.

PUBLIC TRANSPORT AND PEDESTRIAN MOVEMENT

The route of Public Transport is also identified to strengthen the public transport. The 45 M wide central spine, and 100 M wide SH43 are to be developed as BRTS or monorail route.

There are five main bus terminuses proposed on this route and are located at around 2.5-3.5 km distance from one another. The route is proposed to have several stops, at distance of 1 km, while the feeder bus route is proposed to have bus stops at 0.5 km distance from one another. Hence, the bus stops are planned such that, one can find a station at 5-7 minutes walking distance from homes.

The roads approaching to the metro station proposed within notified area are planned to be 30 M wide Pedestrian Street having commercial activities on both sides. The roads linking to the railway stations outside the notified area are envisaged to cater heavy pedestrian traffic, and hence are planned to be developed as avenues having wide footpaths with tree lines on either sides. These roads are proposed to have mixed land use along the edges.

7.5. DEVIATION FROM REGIONAL PLAN OF MMR: 1996-2011

7.5.1. PROPOSAL OF REGIONAL PLAN OF MMR IN NOTIFIED AREA

The Notified Area falls within the jurisdiction of the Mumbai Metropolitan Region. The Notified Area is distributed under four primary land use zones as per the Mumbai Metropolitan Regional Plan 1991-2011.

The Proposals / Regulations in the sanctioned Regional Plan for MMR (1991–2011) are applicable to the proposed development in the area of these 27 villages till the Development Plan is sanctioned.

THE BROAD LAND USE ZONES OF THE NOTIFIED AREA IN ACCORDANCE WITH THE REGIONAL PLAN

- **Urbansiable Zone (U 1) – Intensive use**
- **Urbanisable Zone (U 2) – Extensive use**
- **Green Zone (G 1)**
- **Industrial Zone (I)**
- **Coastal Wet Land**
- **Transportation**

The total area under U1 and U2 zones within the Notified Area is admeasuring about 3910 Ha, which is about 79% of the total area. The table below shows the villages, its respective zoning and area as per the Regional Plan of the MMR.

Here, it should be noted that, this Regional Plan included the part of the existing MIDC area situated in the Notified Area, which is not taken under the jurisdiction of the Planning Authority of this Draft Development Plan.

The Industrial Zone (I Zone) of MMR within the Notified Area measures about 460 Ha including the MIDC Dombivali area, which is about 9.5 % of the total area.

The Green Zone (G Zone) near Vasar, Bhal and Dwarli villages is about 524.70 Ha, which is of 11% of the total area of Regional Plan prevailing in the Notified Area.

The Coastal wet land consists 13.27 Ha area which is about 0.27 % of the total area.

Transportation consists of 36.76 Ha area, it is about 0.76% of the total area.

Refer below table for the list of villages, area and land uses as per the Sanctioned Regional Plan of the MMR prevailing in the Notified Area.

Table No. 7.4: List of Villages of Notified Area and Landuse of Sanctioned Regional Plan.

Sr.No	Village Names	Landuse of Sanctioned R.P of MMR	Area (Ha)	% with total
1	Part of Vasar, Bhal, Dwarli, Bhopar, Nandivali Panchanand	Green Zone - G 1	524.7021	10.83
2	Part of Nandivali Panchanand,Asade, Ghesar, Nilaje, Katai, Sandap, Usharghar, Kole, Hedutane, Gharivali, Mangoan, Umbroli, Sonarpada, Davdi, Golivali, Sagoan, Adivali Dhokali, Pisavali, Dwarli, Nandivali Ambarnath, Manere, Ashele, Chinchpada,	Urbanisable Zone - U 1	2650.19	54.72
3	Part of Hedutane, Umbroli, Davdi, Bhal, Dwarli, Manere, Vasar villages.	Urbanisable Zone - U 2	1158.798	23.92
4	Part of Usharghar, Gharivali, Katai, Sandap, Asade, Bhopar villages.	Industrial Zone	459.6581	9.50
4	Coastal Wet Land		13.27911	0.27
5	Transportation		36.76815	0.76
6	Total of notified area villages		4843.396	100

Source: MMR Plan.

7.5.2. SECTION 27 OF MR & TP ACT: PROVISION OF REGIONAL PLAN TO BE CONSIDERED

Where any area within the jurisdiction of a Planning Authority is included in a Region, the Planning Authority or as the case may be, the said officer shall have regard to, and be guided by, the proposals made in any draft Regional plan, or any final Regional plan, as the case may be, while preparing the draft Development plan:

Provided that, where the Planning Authority or the said officer is of the opinion that any provision of a draft Regional plan or the final Regional plan, as the case may be, needs any modification, the Planning Authority or as the case may be the said Officer may carry out such modification,

- (a) in the case of a draft Regional plan, with the concurrence of the Regional Board; and
- (b) in the case of a final Regional plan, with the approval of the State Government.

7.5.3. DEVIATION FROM REGIONAL PLAN

The proposed draft development plan envisages the Notified Area as high density urban area within an overall purview of the Macro principles of the Sanctioned Regional Plan. There are certain deviations in the form of land use zones from the Sanctioned Regional Plan considering the holistic development of the Notified Area. These deviations are proposed for consideration under the purview of the Section 27 of MR & TP Act.

Below is the table showing the deviation of Proposed zoning in the Sanctioned Regional Plan of MMR.

Table No. 7:5: Deviation in the Sanctioned Regional Plan according to Proposed Draft DP.

No.	Village Names	Landuse of Sanctioned R.P of MMR	Area (Ha)	% with total	Proposed DP uses
1	Part of Vasar, Bhal, Dwarli, Bhopar, Nandivali Panchanand	Green Zone - G 1	524.70	10.83	Residential (R Zone). Commercial (C Zone) Industrial (I) Zo
2	Part of Nandivali Panchanand, Asade, Ghesar, Nilaje, Katai, Sandap, Usharghar, Kole, Hedutane, Gharivali, Mangoan, Umbroli, Sonarpada, Davdi, Golivali, Sagoan, Adivali Dhokali, Pisavali, Dwarli, Nandivali Ambarnath, Manere, Ashele, Chinchpada,	Urbanisable Zone - U 1	2650.19	54.72	Residential (R Zone). Commercial (C Zone)
3	Part of Hedutane, Umbroli, Davdi, Bhal, Dwarli, Manere, Vasar villages.	Urbanisable Zone - U 2	1158.79	23.92	Residential (R Zone). Commercial (C Zone) Industrial (I) Zo
4	Part of Usharghar, Gharivali, Katai, Sandap, Asade, Bhopar villages.	Industrial Zone	459.65	9.50	Residential (R Zone). Commercial (C Zone) Industrial (I) Zo
4	Coastal Wet Land		13.27	0.27	Reservation
5	Transportation		36.768	0.76	Transportation
6	Total of Notified Area Villages		4843.39	100	

7.6. SOCIAL INFRASTRUCTURE AND AMENITIES

A key objective in preparing the development plan for the notified area is the provision of an appropriate level of community facilities at various levels i.e. community, neighborhood, zone, sector & site/CBD level.

As per this proposal, the notified area will consist of 180 community level nodes, 75 neighborhoods, 36 zones, 4 sectors by the target year. Table below shows the proposed number of facilities at different levels.

Table No. 7:6: Requirement of Amenities Distribution

Level	Threshold Population (Range)	Numbers of Facilities
Community	6000-8000	180
Neighborhood	15000-18000	75
Zone	30000-40000	36
Sector	3-3.5 Lacs	4
Site/CBD	12-14 Lacs	1

- The numbers of nodes at various levels, as mentioned above, are determined by the population estimated for the notified area by the target year.
- There will be one set of high-end facilities at site/central level serving all inhabitants of the notified area.

The following broad strategies for development and implementation of social infrastructure are adopted:

- The existing facilities should be continued irrespective of their meeting required planning standards.
- For the existing facilities which may need expansion, necessary land has been provided, wherever possible.
- Social amenities are generally provided to take care of the needs of the projected population of 10 years as per the guidelines of Town Planning & Valuation Department, Govt. of Maharashtra. Here, efforts are given to provide the amenities up to the 2028 (20 years plan period), so number of reservations are for higher side rather than the required.
- Care has been taken to reserve feasible, generally open and locationally suitable sites for such facilities as far as possible, in order to make the implementation easier.
- New provisions have been made in the DC Regulations to pool the areas for the public purpose from the lands which will be newly brought into development.

The program for providing amenities exhibits that the amenities are envisaged to function at various different levels, based on the nature, scale and need of such facility. There are certain amenities that are provided at any one level, while certain amenities are proposed at several levels. The area of amenities is proposed according to the level at which it is being envisaged to function while keeping in view that the total area provided for any amenity is in line with the adopted planning standards. The program based on which the reservations for amenities are proposed is mentioned below in Table No. 7.5. A detailed List of reservations proposed in the Notified Area explaining the purpose, area, survey number etc is given in the Annexure 1.

Table No. 7:7: Distribution and Requirement of Amenities at Various Levels

Levels (Threshold Population- Range)	Type of Facility	Area per Facility (Sq. m)	Nos. of Facilities	Total Land Area (Ha)	Area Provided per 10000 pop. (Sq. m)	Public Provision (Ha)	Private Provision (Ha)
Community (6000 - 8000)	School (Primary, Secondary)	2829	180	50.92	4080		50.92
	Community Hall	232	180	4.18	335		4.18
	Convenience shopping	236	180	4.24	340		4.24
	Recreation/Open spaces (@ 1.25 sqm/cap)	8667	180	156.00	12500		156.00
	Sub Total (Amenities)	3295		59.34		0.0	59.34
	Sub Total (Open Spaces)	8667		156.00		0.0	156.00
Neighborhood (15000 - 18000)	School (Primary, Secondary)	7650	75	57.38	5580	28.69	28.69
	Dispensary	250	75	1.88	150	0.94	0.94
	Community Hall	233	75	1.75	140	0.88	0.88
	Library	636	75	4.77	382	2.38	2.38
	Retail Commercial & Services	549	75	4.12	330	2.06	2.06
	Recreation/Open Space (@ 0.75 sqm / cap)	12480	75	93.60	7500	46.80	46.80
	Sub Total (Amenities)	9318		69.90		34.95	34.95
	Sub Total (Open Spaces)	12480		93.60		46.80	46.80
Zone (30000 - 40000)	Primary Health Centre	1473	36	5.30	425	5.30	
	Sub Post Office	312	36	1.12	90	1.12	
	Police Post	121	36	0.44	35	0.44	
	LPG Godowns	520	36	1.87	150	1.87	
	Water reservoirs and distribution	1439	36	5.18	415	5.18	

Levels (Threshold Population- Range)	Type of Facility	Area per Facility (Sq. m)	Nos. of Facilities	Total Land Area (Ha)	Area Provided per 10000 pop. (Sq. m)	Public Provision (Ha)	Private Provision (Ha)
	Electric Substation	1439	36	5.18	415	5.18	
	Markets (Retail/Vegetable)	1144	36	4.12	330	4.12	
	Recreation/Open Space (@ 1.25 sqm / cap)	43333	36	156.00	12500	156.00	
	Sub Total (Amenities)	6448		23.21		23.21	0.0
	Sub Total (Open Spaces)	43333		156.00		156.00	0.0
Sector (3.0 - 3.5 lacs)	College	35000	4	14.0	1100	14.0	
	Hospital	33000	4	13.2	1040	13.2	
	Community Centre – Library	1500	4	0.6	48	0.6	
	Community Centre- Hall	1500	4	0.6	48	0.6	
	Post & Telegraph	4500	4	1.8	140	1.8	
	Telephone Exchange	3250	4	1.3	100	1.3	
	Police Station	6250	6	3.75	290	3.75	
	Fire Station	8675	6	5.20	415	5.20	
	Bus Terminal	11000	6	6.6	515	6.6	
	Parking	8000	6	4.8	370	4.8	
	Electric Receiving Substation	20000	2	4.0	310	4.0	
	Water Reservoirs and Distribution	20000	4	8.0	620	8.0	
	Crematorium & Burial Ground	22500	4	9.0	715	9.0	
	Recreation/Open Space (@ 1 sqm / cap)	312000	4	124.80	10000	124.80	
	Sub Total (Amenities)	175175		72.85		72.85	0.0
	Sub Total (Open Spaces)	312000		124.80		124.80	0.0

Levels (Threshold Population- Range)	Type of Facility	Area per Facility (Sq. m)	Nos. of Facilities	Total Land Area (Ha)	Area Provided per 10000 pop. (Sq. m)	Public Provision (Ha)	Private Provision (Ha)
CBD (12 - 14 lacs)	Regional Hospital	80000	1	8.0	632	8.0	
	Town Hall	9000	1	0.9	70	0.9	
	Art Gallery & Museum	9000	1	0.9	70	0.9	
	Swimming Pool, Gymnasium	13500	1	1.35	105	1.35	
	Head Post Office	9000	1	0.9	70	0.9	
	Telephone Exchange	9000	1	0.9	70	0.9	
	Police Station- Head	22000	1	2.2	175	2.2	
	Fire Station	23500	1	2.35	185	2.35	
	Electric Receiving Substation	52000	1	5.2	415	5.2	
	Water Reservoir and Distribution	27000	1	2.7	215	2.6	
	Slaughter House	27000	1	2.7	215	2.7	
	Sewage Treatment Plants	300000	2	60.0	5000	60.0	
	Recreation/Open Space(@ 1 sqm / cap)	1248000	1	124.80	10000	124.80	
	Sub Total (Amenities)	581000		88.1		88.1	0.0
	Sub Total (Open Spaces)	1248000		124.80		124.80	0.0
Total (Amenities)				313.40		219.11	94.29
Total (Open Spaces)				655.20		452.40	202.80

7.6.1. COMMUNITY LEVEL FACILITIES

One community hall of 232 sq.m. area and one shopping area of 236 sq. mt area is proposed to be provided at community level. Hence, at community level node, an area of 3295 sq.m. is proposed to be reserved for amenities. All these amenities proposed at community level shall be developed by private developers, owners as internalized amenities. Community facility providers will mainly be private owners, and no authority will hold reservations on land for providing the services and utilities at community level.

7.6.2. NEIGHBORHOOD LEVEL FACILITIES

A senior secondary school is proposed to be provided at neighborhood level, along with other public amenities such as library, dispensary and religious buildings.

A total land area of 9318 sq.m. is to be provided for public amenities for each neighborhood level node. The total number of nodes estimated at this level in the notified area is 75. Amenities proposed at neighborhood level shall totally comprise an area of 69.9 Ha, of which half shall be developed by public provision and the other half shall be developed by private players.

7.6.3. ZONE LEVEL FACILITIES

At zonal level, civic utilities like sub post-office, police post, LPG godown are provided. Water reservoirs and distribution systems, a primary health center police post and many other public amenities are provided at this level. The proposed total area for all these amenities is 6448 sq.m. for each node. Total area of amenities provided at zone level comes to be 23.2 Ha.

7.6.4. SECTOR LEVEL FACILITIES

Sector level amenities include college, hospital, community centers, fire and police station, bus terminal, electric substation, water treatment plants, having total proposed area is 175175 sq.m. Total area of these sector level amenities of all four sectors adds up to 72.8 Ha area.

7.6.5. SITE/CBD LEVEL FACILITIES

Site level or central level or central business district (CBD) level amenities forms the highest level in the hierarchy of development proposed in the notified area. Hence facilities and amenities provided here are of a much higher level as compared to community, neighborhood, sector and zonal levels. Total area proposed to be occupied by public amenities at this level is 88.1 Ha. This includes town hall, museum & art gallery, swimming pool/ gymnasium/ sports complex, regional hospital. It also includes the head level offices of public utilities, i.e. post office, police station, etc.

The public amenities provided in the proposed land use map are summarized below.

Table No. 7:8: Sector wise Summary of Proposed Reservations

Type of Public Amenities/Utilities	Sector 1		Sector 2		Sector 3		Sector 4		TOTAL	
	No.	Area (Ha)	No.	Area (Ha)	No.	Area (Ha)	No.	Area (Ha)	No.	Area (Ha)
Public Amenities										
Aminities Cluster: PHC- Maternity Home-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	11	4.40	8	3.23	9	3.61	12	4.81	40	16.05
Educational Facilities										
School	9	6.91	9	7.22	9	7.20	9	7.21	36	28.54
College	1	4.00	1	3.91	1	4.00	1	4.01	4	15.92
Health Facilities										
Hospital	1	3.24	1	3.70	2	13.10	1	3.53	5	23.56
Public Utilities										
Fire Station	3	1.58	2	3.25	2	1.50	2	1.53	9	7.87
Police Station	1	0.75	2	1.76	2	1.72	2	3.26	7	7.50
Post Office	2	1.50	1	0.50	1	0.50	1	0.50	5	3.01
Telephone Exchange	2	1.35	1	0.35	1	0.35	1	0.35	5	2.41
Infrastructure Services	11	3.23	9	2.73	9	2.71	12	3.61	41	12.28
Water Reservoirs & Distribution System	1	1.77	1	1.92	2	5.48	1	2.51	5	11.68
Electrical Sub Stations			1	0.31	1	6.00	1	2.00	3	8.32
Sewage Treatment Plants	1	25.62	1	35.05		0.00			2	60.66
Solid Waste Regional Landfill Site					1	117.81	2	148.15	3	265.96
Cremation/Burial Ground	1	2.50	1	2.56	1	2.51	1	2.50	4	10.07
Slaughter House	1	3.06							1	3.06
Socio-Cultural Amenities										
Community Centre: Hall, Library	3	1.10	1	0.36	1	0.35	1	0.35	6	2.17
Art Gallery and Museum	1	1.00							1	1.00
Town Hall	1	1.53							1	1.53
Swimming Pool /Gym / Sports' Complex					1	1.54			1	1.54
Transportation Facilities										
Transport Terminus	2	2.48	1	1.44	2	3.07	2	3.06	7	10.05
Parking Lot	7	6.93	6	3.90	1	0.92	2	1.46	16	13.22
Markets										
Retail/Vegetable Market	10	1.57	10	1.52	10	1.56	10	1.56	40	6.20
Sub total: Public Amenities	69	74.55	56	73.70	56	173.93	61	190.40	242	512.58
Recreation/ Open Spaces										
Playground	30	57.37	26	50.90	22	47.26	27	51.41	105	206.95
Garden	51	85.30	40	48.86	34	44.33	33	55.47	158	233.95
Sub total: RG/PG	81	142.67	66	99.76	56	91.59	60	106.88	263	440.90
TOTAL	150	217.22	122	173.46	112	265.52	121	297.28	505	953.48

7.7. OPEN & RECREATIONAL SPACE NETWORK

7.7.1. PROPOSED OPEN SPACE NETWORK

An integrated open space network formed by interconnected green buffer areas around natural drainage ways as well as waterbodies such as lakes and ponds scattered all over the notified area, is an important feature of the proposal for the notified area. This network will include the commercial green, the institutional belt and the green around the natural drainage ways.

The open spaces located within the commercial centers will act as a dynamic and active belt with proposed wide interconnected pedestrian walkways that would be integrated with the pedestrian network of the entire area. Social and civic amenities will form major nodes and points of interest along this green belt and offer connections to the arterial roads. The arterial roads are proposed to have a wide open green belt running through the middle, along the natural drainage paths. Water bodies and landscape elements are proposed to be woven into the open space network to form focal points and design features. The serene environs of the institutional green space along some of the arterial roads will be in contrast to the dynamic and vibrant green belt along the commercial spine.

Figure 38: Proposed Open Space Network



7.7.2. EXISTING POND / LAKE SIDE OPEN SPACES

There are several natural water bodies in the Notified Area. These can be utilised as prominent local recreational space at village level. It is desirable to uplift the lake edge and its surrounding precinct. The proposed DP has provided open and recreational spaces along with neighborhood level amenities. It is necessary to prepare a Lake Development Plan with the advice of local participation.

7.7.3. PROVISION OF OPEN/RECREATION SPACE WITHIN THE PROPOSED SOLID WASTE REGIONAL LANDFILL SITE

The proposed site of solid waste regional landfill site spreading over significantly large area, around 265.9 Ha within the Notified Area. As per the standards for provision of open spaces in layouts, the said solid waste regional landfill site shall also provide around 20% of the area as open and recreational spaces. The area of these open spaces shall be considered while comparing the total provision of open spaces with the adopted norms.

7.8. PROPOSED LAND USE STATEMENT

7.8.1. PROPOSED LAND USE BREAKUP OF THE NOTIFIED AREA

The proposed land use distribution pattern is based on the population and employment projections for individual planning sectors, local accessibility and locational attributes of these sectors and the availability of land for development.

In response to the derived requirements of the notified area, the table below shows the proposed zones and land use composition here.

Table No. 7:9: Proposed Land Use Breakup of Notified Area

No	Land use Classification	Notified Area	
		Area (Ha)	% of Total Area
1	Residential Zone	1605.73	36.58
2	Commercial Zone	526.73	12.00
3	Industrial Zone	194.98	4.44
4	Public Semi Public	512.58	11.68
5	Open / Recreational	440.90	10.04
6	Transportation - Roads	613.12	13.97
7	Transportation - Railway	126.98	2.89
Developable Area		4021.72	91.61
8	No Development Zone	79.86	1.82
9	Forest	253.10	5.77
10	Ponds	9.85	0.22
11	Rivers / Nallas	25.63	0.58
Non developable Area		368.44	8.39
Total		4390.16	100.00
12	Existing MIDC Zone	272.86	5.63
13	Excluded part from notified area	180.37	3.72
Total of Notified Area		4843.40	100.00

- According to the proposed land use pattern, residential activities will constitute 36.5% of the total notified area, while commercial use & office and industrial use will occupy 12.0% and 4.4% of the total area.
- The shares of Open/Recreation Spaces and No Development Zone and Forest Zone will be 12.18, 1.82 and 5.77 % in the proposed land use.
- Total 8.4 % area shall be conserved as undevelopable area.
- Land used for transportation will constitute 16.87% of the total notified area.

7.8.2. PROPOSED PLANNING SECTOR LAND USE DISTRIBUTION

The land use distribution in the proposed Development Plan is presented in sector wise manner in the following table.

Table No. 7:10: Planning Sector wise Land use Distribution

No	Land use Classification	Sector 1		Sector 2		Sector 3		Sector 4	
		Area (Ha)	%	Area (Ha)	%	Area (Ha)	%	Area (Ha)	%
1	Residential Zone	345.12	30.69	422.58	41.88	453.62	43.57	384.41	31.75
2	Commercial Zone	258.44	22.98	65.08	6.42	65.76	6.32	137.45	11.35
3	Industrial Zone	0.00	0.00	54.88	5.41	0.00	0.00	140.11	11.57
4	Public Semi Public	74.55	6.63	73.70	7.27	173.93	16.71	190.40	15.73
5	Open / Recreational – Total	142.67	12.69	99.76	9.84	91.59	8.80	106.88	8.83
5.1	Open / Recreational	144.19	12.82	99.19	9.78	93.78	9.01	106.88	8.83
5.2	SWM Buffer	0.00	0.00	0.00	0.00	50.26	4.83	40.43	3.34
6	Transportation – Roads	204.22	18.16	131.33	12.95	108.31	10.40	169.27	13.98
7	Transportation – Railway	54.57	4.85	72.41	7.14	0.00	0.00	0.00	0.00
8	Defense Land	0.69	0.06	0.00	0.00	0.00	0.00	0.00	0.00
Developable Area		1080.23	96.06	919.79	90.72	893.21	85.79	1128.51	93.22
9	No Development Zone	0.00	0.00	79.86	7.88	0.00	0.00	0.00	0.00
10	Forest	28.63	2.55	0.00	0.00	146.50	14.07	77.97	6.44
11	Ponds	5.94	0.53	0.47	0.05	1.32	0.13	2.11	0.17
12	Rivers / Nallas	9.74	0.87	13.79	1.36	0.14	0.01	1.97	0.16
Non Developable Area		44.31	3.94	94.11	9.28	147.96	14.21	82.06	6.78
Total		1124.57	100.00	1013.86	100.00	1041.17	100.00	1210.56	100.00

As the table presents, the sector 1 and sector 4 have around 30.5 % and 31.7% of its area under residential zone respectively. This is mainly because, a significantly large portion of sector 1 and 4 are occupied by the CBD and commercial growth centre, and therefore share of commercial is observed to be higher in these sectors. As the solid waste management/ land fill site is located in sector 3 and 4, the area occupied by public/ semi public is observed to be significantly higher in these sectors than others.

7.8.3. COMPARISON OF EXISTING AND PROPOSED LAND USE

The comparison of existing and proposed land use provision will give the idea about thrust of policy interventions at zoning level as well as provision of social amenities distribution. It also acts as a guiding tool to analyze the adopted rationale approach for spatial standards. It also realises the importance of provided vision for the overall balanced development of the entire region – both at macro and micro level.

Table No. 7:11: Comparison of Existing and Proposed Land use Distribution

No	Land use Classification	Existing		Proposed	
		Area (Ha)	% of Total	Area (Ha)	% of Total
1	Developable Land				
1.1	Residential + Mixed	497.24	11.33	1605.73	36.58
1.2	Commercial	8.04	0.18	526.73	12.00
1.3	Industrial (Non MIDC)	90.08	2.05	194.98	4.44
1.4	Public/Semi-public	18.83	0.43	512.58	11.68
1.5	Recreational / open + Religious	2.31	0.05	440.90	10.04
1.6	Roads	76.43	1.74	613.12	13.97
1.7	Railway	15.56	0.35	126.98	2.89
	Sub Total: Developable Land	708.49	16.14	4021.04	91.59
2	Vacant / Open / Agriculture Land	3415.554	77.80019	0.00	0.00
3	Non Developable Land				
3.1	River / Streams / Nallas	26.80	0.61	25.64	0.58
3.2	Ponds	9.41	0.22	9.85	0.22
3.3	No Development Zone + Marshy Land	49.74	1.13	79.86	1.82
3.4	Forest	179.49	4.09	253.10	5.77
3.5	Defense Land	0.68	0.02	0.68	0.02
	Sub Total: Non Developable Land	266.12	6.06	369.10	8.41
4	Total Available Area	4390.16	100.00	4390.16	100.00
5	Existing MIDC Area	272.86		272.86	
6	Excluded part from notified area	180.37		180.37	
7	Total Notified Area	4843.40		4843.40	

IMPORTANT FEATURES ADOPTED IN PROPOSED DEVELOPMENT PLAN AS COMPARED WITH EXISTING DEVELOPMENT.

- The Notified area is an integral part of the MMR. Growth of the Notified area is influenced by predominantly development of Mumbai, Thane and Navi Mumbai. As the impact of migration and rapid urbanization, greater Mumbai is witnessing tremendous pressure on the land. While, the existing notified area is yet not addressed the urban character due to various territorial changes. It is the prime location, as majority of the area is lying vacant at comparison with other urban setup of the MMR. Though, the Vision is developed to accommodate as counter magnet of the Mumbai while

accommodating the ample population. So, it's assumed to be high density development in the Notified Area. The existing Residential along with mixed development is only about 11 % of the total area, while the proposed is about 37 %. It is about 300 percentages ahead than existing.

- The commercial development is prime factor to cater such robust urban development in the coming future. At present the notified area is mainly focused on agriculture and allied activities along with certain contribution on tertiary sectors. Though, it is evident to developed large scale service sector, to provide the sustainable foundation for the economy. The existing commercial development is below 1%, while the proposed is taken as above 12%. It is way beyond the general expectation but necessary to support the high density development.
- There is a well established industrial estate within the notified area developed by MIDC. At present many of these establishment are closed are lying seek and ideal. So, it is important to regain it instead of providing more setup. Though, only service industries are envisaged along the eastern part near Vasar village and Bhopar village. It is provided to 4.4%, which is 2% more than the existing use.
- The notified area lacks the provision of public semi public amenities due to its earlier dormitory nature of the development. It is necessary to provide the Public and semi Public spaces as per the standards to cater such large scale development. At present it is below 1%, while it is provided nearly 10%.
- Transportation is also one of the fundamental of the economic growth as well as equitable development. The notified area lacks the provision of balanced transportation at compared to the standard. It is less than 2% of the total while it is provided more than 16%.
- The proposed development plan has given thrust on the Public Transit System supported by Metro and Monorail, as necessary provision for efficient and rapid public transportation. It is provided as 3% of the total area, instead of the existing area of below 1 %.
- To preserve the natural ecosystem, proposed development plan had given enough provision. The notified area is having unprotected forests, which is considered into forest zone. It is about 5.7% of the total area.
- The north west of the notified area is lying on the wetland of the Ulhas River; it needs to be conserved for majority type of development. There are certain kind of uses are permitted according to the permission given by respective authorities. This area is considered under No Development zone, it is about 1.8% of the total area.

7.9. DEVELOPMENT PROPOSALS

7.9.1. FLOOR SPACE INDEX

The proposed FSI scheme for proposed Draft Development Plan is defined based on three aspects -

- The size of the holding under development of which the plot forms a part and;
- The width of road on which the plot abuts,
- The use assigned to the plot in the development plan.

The maximum permissible FSI for various zones/land uses are as specified in the following tables.

Table No. 7:12: Maximum Permissible FSI in Residential Land use

Plot Size	Proposed ROW of Adjacent Road	
	9 M to 24 M	24 M and Above
Upto 2000 sq mts	1.0	1.5
Above 2000 sq mts	1.5	2.0

The above mentioned FSI is applicable to group housing developments only, while the maximum FSI allowed in plotted housing schemes is 1.5 irrespective of the plot size and the right of way. The maximum FSI allowed in the group housing schemes will be 2.0. Maximum FSI allowed for Rental Housing projects is 4.0. The provisions of Govt. Notification No. TPS – 1208 / MMR / CR – 393 / 08 / UD – 12 dated 4th November 2008 in respect of Rental Housing projects in the jurisdiction of KDMC, AKBSNA, TMC, BNMC, VVNA etc. is to be made applicable in the Notified Area.

Table No. 7:13: Maximum Permissible FSI in Commercial Land Use

Plot Size	Proposed ROW of Adjacent Road	
	9 M to 24 M	24 M and Above
Upto 2000 sq mts	1.0	1.5
Above 2000 sq mts	1.5	2.0

THE ABOVE MENTIONED FSI IS APPLICABLE TO COMMERCIAL DEVELOPMENT OTHER THAN THE 'GROWTH CENTER AND CBD' AREAS. THE MAXIMUM FSI ALLOWED WILL BE 2.0 DEPENDING ON THE CONDITIONS OF PLOT SIZE AND WIDTH OF ABUTTING ROAD. WHILE, THE COMMERCIAL USE THROUGHOUT THE GROWTH CENTER AND CBD CAN AVAIL FSI OF 2.0, IRRESPECTIVE OF THE WIDTH OF ABUTTING ROAD, PROVIDED THAT THE PLOT LARGER THAN 2000 SQ.M. SIMILARLY, THE PLOTS UPTO 2000 SQ.M. SHALL BE ALLOWED 1.5 FSI, IRRESPECTIVE OF WIDTH OF ABUTTING ROAD.

Table No. 7:14: Maximum Permissible FSI in Commercial Land Use: Growth Centre & CBD

Plot Size	Max. Permissible FSI
Upto 2000 sq mts	1.5
Above 2000 sq mts	2.0

APPLICABILITY OF ADDITIONAL FSI IN RESIDENTIAL AND COMMERCIAL ZONE (OTHER THAN GROWTH CENTRES & CBD)

The additional maximum FSI as specified in relation to the ROW of 24 M and above shall be permitted only to the plots adjacent to respective roads. If the plot does not extend upto such road and does not get direct access from such road, it shall not be permitted respective additional maximum FSI.

The respective permissible additional FSI shall be calculated for the area falling within the belt width mentioned for respective ROW (refer following table) on which the plot is abutting, although the FSI may be consumed in part of plot which is not falling within the mentioned belt width. For example, if a plot falling within proposed residential or commercial (other than Growth Centre/CBD) zone and measuring 50 M front and 150 M depth is located adjacent to proposed 30 M wide road. Though the plot shall be permitted 2.0 FSI, but it shall not be applicable to total plot area of 7500 sq.m. The FSI 2.0 shall be applicable to the plot area upto 100 M belt from the 30 M wide road, which comes to be 5000 sq.m. (50 m front x 100 m belt width). The rest 2500 sq.m. area shall be permitted FSI of previous range, i.e. 1.5.

Provided that in case of overlapping of two or more different widths of belts, the development for additional FSI will be granted for the category of higher of the reckonable additional FSI in the above table.

Table No. 7:15: Land Area to be considered for Application of Respective Maximum Permissible FSI

Available ROW	Width of Belt of which the land area to be considered for application of Respective Maximum allowed FSI
24 M wide	75 M
30 M wide	100 M
45 M wide	150 M
100 M wide	250 M

The above-mentioned system of belt width wherein the additional FSI is permitted shall not be applicable to plots abutting roads of less than 24 m width. And the respective maximum permissible FSI for plots abutting such roads shall be permitted for the whole plot.

As the FSI for commercial use within Growth Centre and CBD is not linked with the width of road abutting to plot, the above table shall also be not applicable for Growth Centres and CBD.

Table No. 7:16: Maximum Permissible FSI in Other Land Use

Land use categories	Base FSI	Maximum Permissible FSI
Public & semi public (amenities, utilities, religious, institutional)	1.0	1.0
Industrial	1.0	1.5
No Development Zone	0.1	0.1

The base FSI for any plot, falling within proposed residential, commercial, industrial and public-semi public land uses, is 1.0 and any additional FSI above 1.0 will be purchased as

premium FSI. The premium to be charged for additional FSI by Planning Authority shall be as per the rate of land stipulated in the Stamp Duty Ready Reckoner of Govt. of Maharashtra for the relevant year of development permission.

The additional FSI to be made available on payment of premium by the Planning Authority shall be granted without any condonation in the requirement of marginal open spaces, fire fighting provisions, structural safety, health safety etc.

Based on the above mentioned FSI regulations and the proposed Land Use Map, the maximum FSI that may be generated is mapped. Map No. 13 presents the Maximum Permissible FSI for the Notified Area, as per the Draft Development Plan.

As per this map, the land area that shall be permitted various FSIs has been estimated and is presented in the following tables.

Table No. 7:17: Area under Various FSI- Residential Use Zone

RESIDENTIAL LAND USE							
Sectors	FSI 1.5		FSI 2.0		FSI 4.0 (Rental)		Total
	Area (Ha)	%	Area (Ha)	%	Area (Ha)	%	Area (Ha)
Sector 1	132.97	38.5	207.32	12.9	4.83	1.4	345.12
Sector 2	154.98	36.6	256.53	16.0	11.07	2.6	422.58
Sector 3	185.60	40.9	259.64	16.2	8.38	1.8	453.62
Sector 4	128.94	33.5	255.47	15.9	0.0	0.0	384.41
TOTAL	602.49	37.5	978.95	61.0	24.29	1.5	1605.73

Table No. 7:18: Area under Various FSI- Commercial Use Zone

COMMERCIAL LAND USE							
Sectors	FSI 1.5		FSI 2.0		FSI 2.0 (Growth Centre & CBD)		Total
	Area (Ha)	%	Area (Ha)	%	Area (Ha)	%	Area (Ha)
Sector 1	0.0	0.0	0.0	0.0	258.44	49.1	258.44
Sector 2	0.0	0.0	0.0	0.0	65.08	12.4	65.08
Sector 3	10.57	2.0	55.19	10.5	0.0	0.0	65.76
Sector 4	0.12	0.2	7.32	1.4	130.01	24.4	137.45
TOTAL	10.69	2.2	62.51	11.9	281.4	85.9	526.73

7.9.2. DEVELOPMENT RIGHTS (DR)

It is proposed to grant Development Rights (DRs) against surrendering the land for public amenities / recreational open space to the planning authority, and against expenditure incurred for developing public amenity.

1) Development rights (DRs) due to surrendering of land for new roads, road widening, public amenities / recreational open space to the planning authority.

The owner shall be entitled to utilize Development Rights (DRs) equivalent to 1.25 times the area of land surrendered for new roads, road widening, public amenity, recreational open space, regular line of street and that under reservation / designation proposed in his holding free of encumbrance and free of cost.

2) Development rights (DRs) for developing public amenity.

Where the owner develops a public amenity or recreational open space reserved / designated in the development plan or constructs a public road within regular line of street at his cost and hands it over to the Planning Authority free of cost and free of rent, he shall be entitled for additional DRs as mentioned below, subject to specific conditions stipulated in DCRs.

Table No. 7:19: Value of Development Rights for Developing Amenities

No	Type of Development	Value of DRs
1	For constructing a building and developing the site.	DRs equivalent to the constructed built up area (excluding architectural features).
2	For constructing road.	DRs equivalent 25% of the area covered by the Road (length X right of way).
3	For Development of recreational opens spaces designated in the Development Plan.	DRs equivalent to 15% of the area developed.
4	Construction of ancillary buildings in Recreational open spaces referred to above.	DRs equivalent to the constructed built up area (excluding architectural features).

7.9.3. CEILING ON CONSUMPTION OF FSI / DR IN A HOLDING

- In no case, the total FSI consumed in a plot shall exceed the maximum permissible FSI of the subject plot. The maximum permissible FSI varies based on land use zones, plot size and the width of road on which the plot abuts.
- Here, it is important to note that the DRs granted against developing amenities shall be free of FSI.
- In case where maximum permissible FSI is 1.5, it is mandatory to consume 0.25 FSI by means of TDRs for attaining the maximum permissible FSI limits. While, in case where maximum permissible FSI is 2.0, it is mandatory to consume 0.50 FSI by means of TDRs for attaining the maximum permissible FSI limits.
- Residual FSI / DRs which cannot be consumed in the holding / adjoining plot in view of the aforesaid ceiling shall be allowed to be carried to and utilised on other plots in the form of Transferable Development Rights (TDR).

8. Estimated Infrastructure & Proposals

8.1. STANDARDS / GUIDELINES FOR INFRASTRUCTURE ESTIMATION

A key objective in preparing the development plan for the notified area is the provision of an appropriate level of community facilities supported by balanced infrastructure development. The provision of infrastructure is a vital parameter for the sustainable growth of any area, with the optimum utilisation of natural resources and technical parameters.

There are several standards and guidelines given by institutions like Urban Development Plan Formulation and Implementation (UDPFI), Town and Country Planning Organization, Ministry of Urban Development, Govt. of India; Central Public Health and Environmental Engineering Organization (CPHEEO), Ministry of Urban Development, Govt. of India; National Building Organization (NBO) and World Bank Environment Health and Safety (EHS) Policy for the quantification and qualitative aspect for balanced infrastructure development of any habitation.

Below are the adopted standards / guidelines for the quantification of infrastructure sector like water supply, sewerage and solid waste of the Notified Area.

Table No. 8:1: Standards / Guidelines for Infrastructure Estimation for Notified Area.

Sr.No	Service Head	Adopted in DP of Notified Area
1	Water Supply	135 lpcd
2	Sewerage	80 % of projected water demand
3	Solid Waste	250 - 500 gm/pcpd
4	Underground Drainage System	Min. 60 % coverage
5	Storm Water Drainage	Min. 130% of proposed road length
8	Street Light	30 m. c/c pole spacing

Based on the quantification of infrastructure, its development cost is derived by prevailing market rate for the same considering only the provision of Trunk infrastructure.

8.2. TRAFFIC & TRANSPORTATION

FORECASTING TRAVEL FOR PROPOSED ACTIVITIES

Trip generation forecasting for the villages in the notified area is required in order to estimate required infrastructure for the area.

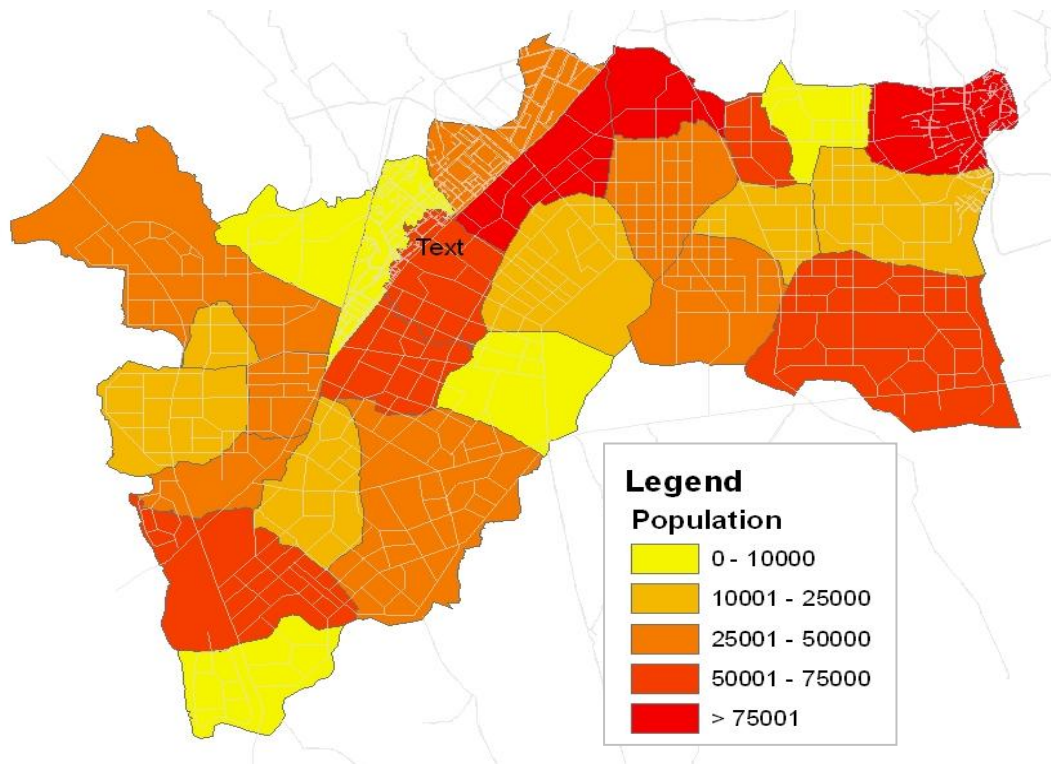
Trip generation estimates are derived by using population residing in villages and work force participation ratios of the area.

Trip attraction in each village is estimated under different trip generating activities like industrial, commercial and public land.

TRIP PRODUCTION

Figure 8.2 shows the population distribution in the different villages in the study area while Figure 8.3 shows the WFPR of the different villages.

Figure 39: Village wise Population Distribution

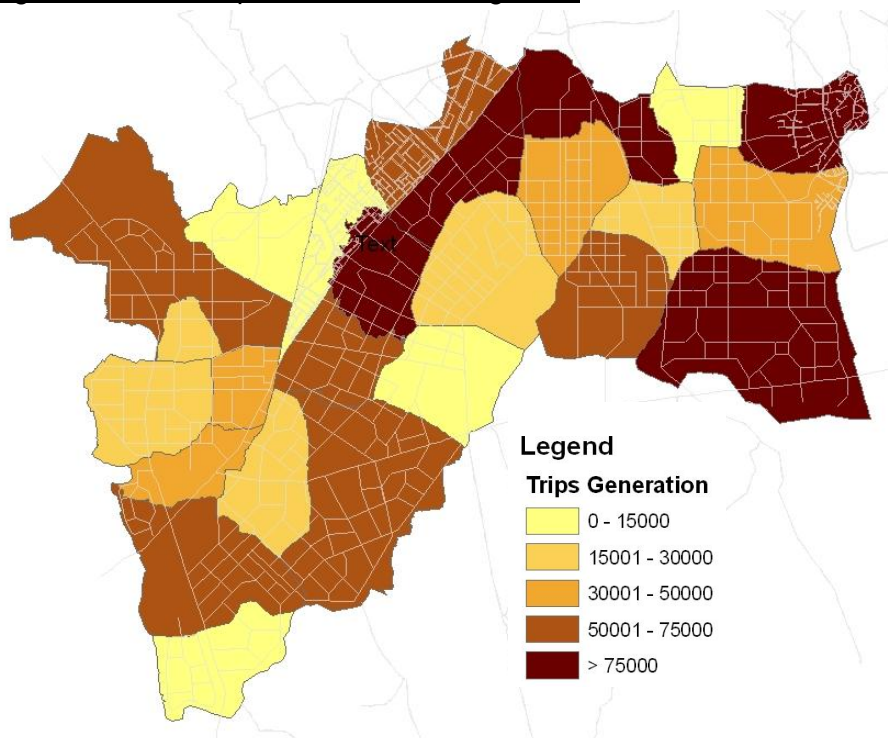


Total number of workers in the different zones was computed from the two variables above and used to calculate trip generation using the following equation

$$\text{Trip Generation} = 2.25 (\text{Total working population}) + 0.7 \times (\text{Total non-working population})$$

Figure 40 shows established total trip generations in each village zone.

Figure 40: Total Trip Generation - Villagewise



TRIP ATTRACTION

To establish trip attraction, areas under different trip generating activities were first identified for each village zone.

Figures 41, 42 and 43 show areas under industrial, public, and commercial land uses in the Notified Area.

Figure 41 : Village wise Industrial Land Use

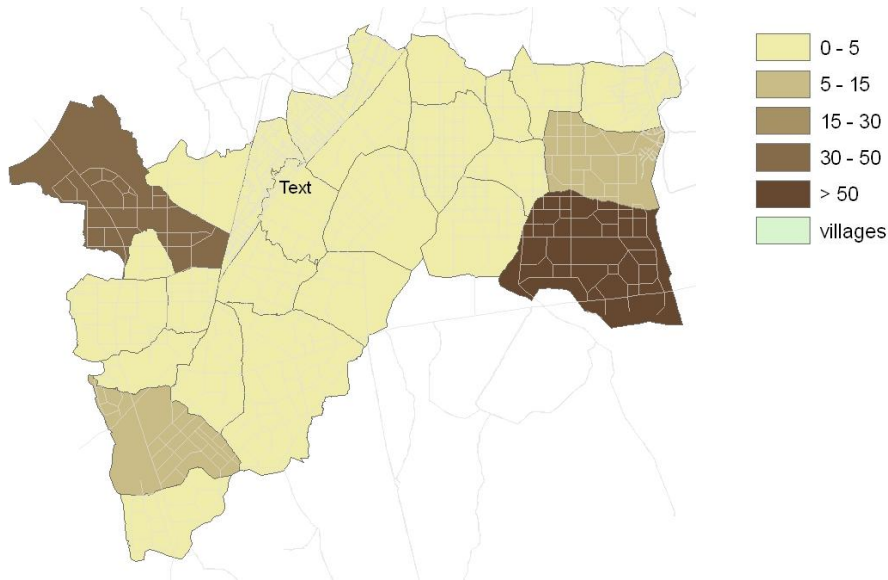


Figure 42: Village wise Public Land use

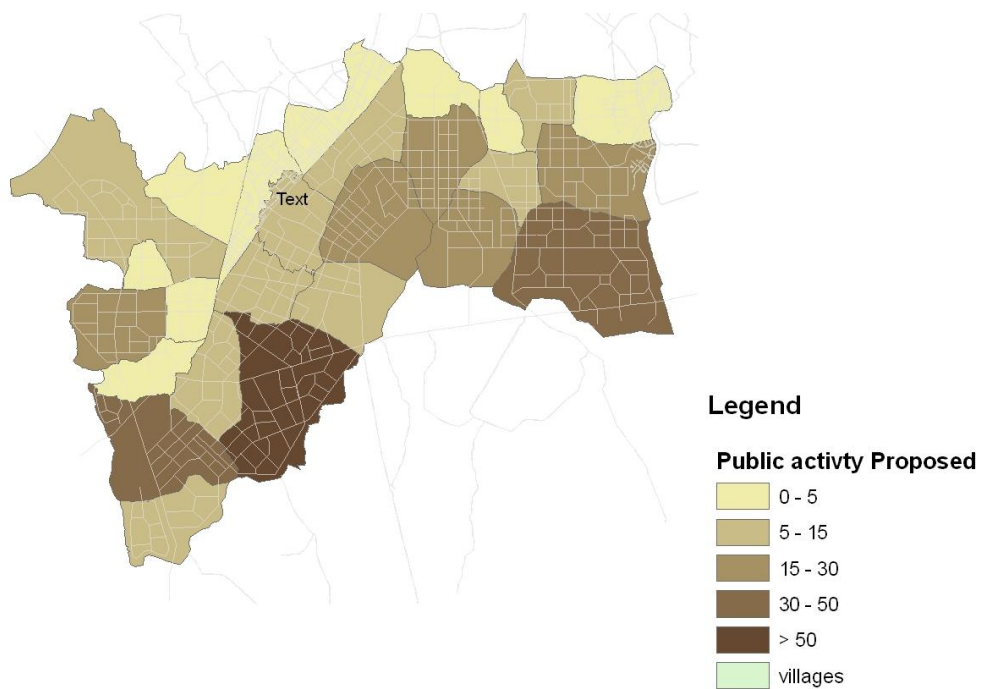


Figure 43: Village wise Commercial Land Use

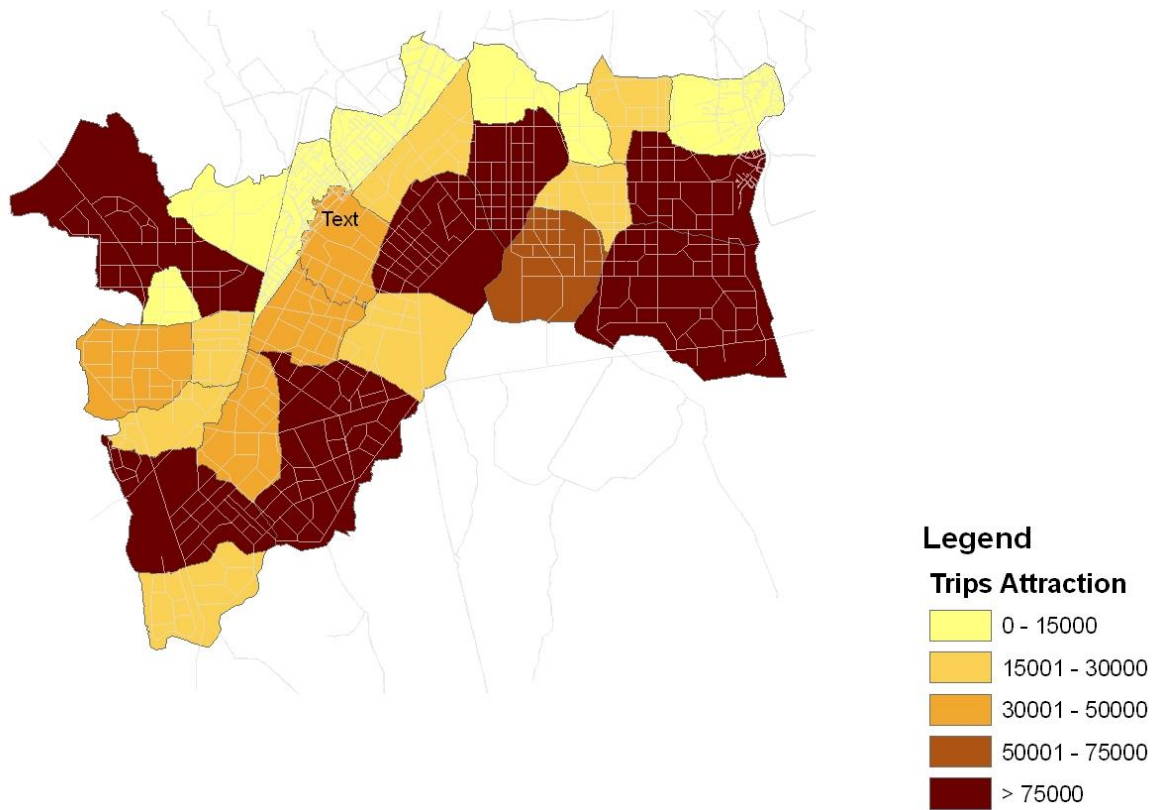
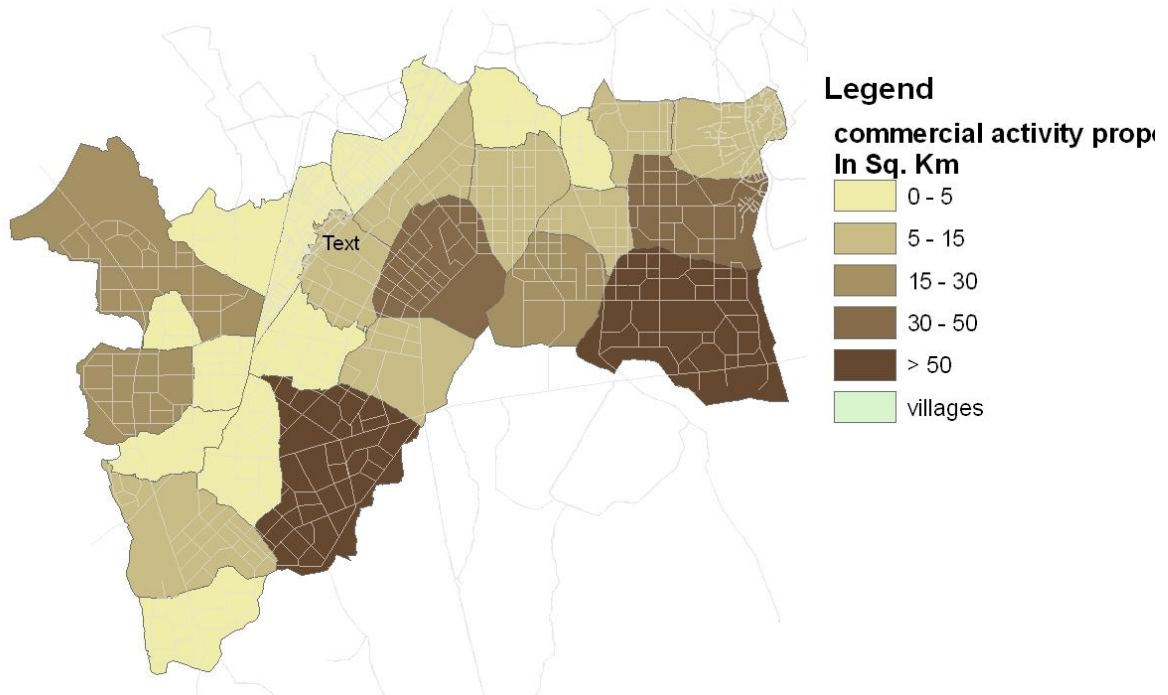


Figure 44: Village wise Trip Attraction

The weightings on the basis of which the total number of trips attracted by each zone was computed were : 38 % for industrial land use, 14 % for Institutional land use and 48 % for commercial land use. The total trip attractions in each zone are shown in Figure 44.

TRIP DISTRIBUTION

The distribution of trips between different zones was worked out using the following equation

Trip Distribution Equation

Double Constraint Gravity Model

$$T_{ij} = (\text{Proportionality Factor}) \times (\text{Attraction}(i)) \times ((\text{Production}(j)) \times (\exp(-\beta) \times (C_{ij})))$$

Where i and j are villages

Proportionality factor = 1

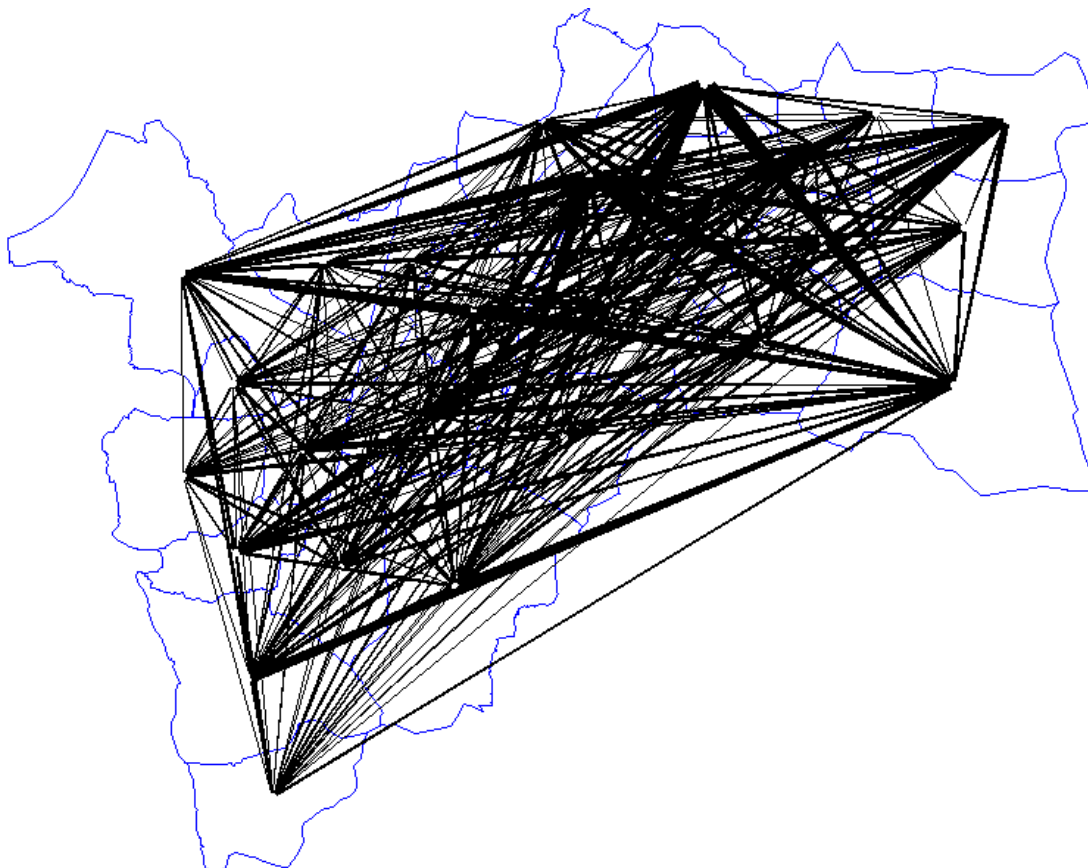
$$\beta = -.0001063$$

C_{ij} = Travel time between villages i and j (derived based on road-width and average speed on different section of road)

Target Mean Trip Length: 5022.2750 mts (= 5 Kilometers)

Figure shows the desire lines between zones as a result of this trip distribution

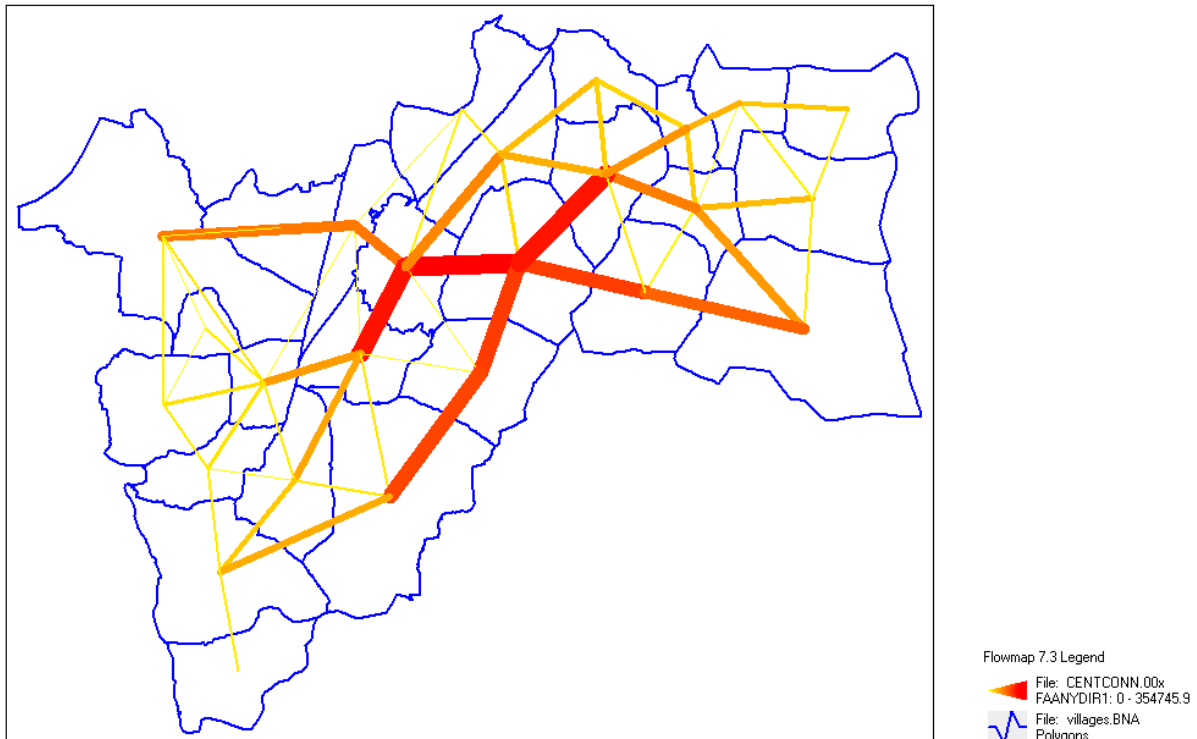
Figure 45: Desire Lines



TRIP ASSIGNMENT

Trips were assigned to the network generated by connecting the centroids of all village zones. All or nothing assignment was done. The result of the trip assignment to this imaginary network is shown in figure 49.

Figure 46: Flow on Network



8.3. WATER DEMAND

8.3.1. POPULATION ESTIMATION AND FUTURE WATER SUPPLY

Future water demand for the notified area is estimated based on the projected population of the area. Population projections for 2028 have been carried out adopting carrying capacity basis. For infrastructure development in the notified area this population is taken into consideration.

The projected population is divided into four zones of water supply, adopting the same planning sector as proposed water zones for with an equal distribution water supply trunk network infrastructure in these zones. All four zones have population ranges from 3 to 4 lakhs.

The approach of self sustainable unit is developed by creating water zones as per the delineated Planning Sectors. Every water zones has provided the decentralized water supply delivery mechanism by the provision of ESR/GLSR at appropriate locations keeping in mind the technical aspects.

This approach is enhanced by keeping the provision of Central Storage system whenever it required.

8.3.2. WATER ZONES AND POPULATION: 2028

Table No. 8:2: Proposed Water Zones for Projected Water Demand

Sr.no	Plannin sector / proposed water zones	Village name	Existing population (2001)	Proposed population (2028)
1	1	Ghesar	297	
2		Nilaje	5442	
3		Kole	1988	
4		Katai	3869	
5		Hedutane	2630	
Total of Sector 1 - Water Zone 1			14226	267635
6	2	Usharghar	1815	
7		Gharivali	3110	
8		Sandap	717	
9		Mangaon	1754	
10		Bhopar	3999	
11		Nandivali Turfe Panchanad	12771	
12		Sagaon	3433	
Total of Sector 2 - Water Zone 2			27600	328649
13	3	Umbroli	649	
14		Sonarpada	7733	
15		Davadi	4122	
16		Golivali	12497	
17		Adivali Dhokali	4310	
18		Pisavali	19401	
19		Asade	14440	
Total of Sector 3 - Water Zone 3			63151	349894
20	4	Bhal	1454	
21		Vasar	4250	
22		Dwarli	944	
23		Manere	3124	
24		Nandivali Turfe Ambarnath	2047	
25		Chinchpada	5385	
26		Ashele	8227	
Total of Sector 4 - Water Zone 4			25431	301480
TOTAL OF NOTIFIED AREA			130409	1247658

Water demand for 2028 is calculated considering per capita per day (lpcd) water supply of 135 liters. This water demand is inclusive of transmission loss which is 15% of the actual demand. Fire fighting demand is also taken into a consideration which is 2% of the total demand including transmission losses. Based on this, water infrastructure would be provided for water supply in the notified area.

Table below shows water demand for 2028 in the 4 water zones.

8.3.3. WATER DEMAND 2028

Table No. 8:3: Projected Water Demand for Notofied Area

Projected Water Supply Demand for year 2028 @ 135 lpcd						
No	Description	Proposed Water Zones				Total of Notified Area
		Sector 1	Sector 2	Sector 3	Sector 4	
1	Proposed Population	267635	328649	349894	301480	1247658
2	Projected Water Demand @ 135 lpcd	36130725	44367615	47235690	40699800	168433830
3	Water Demand @ MLD	36.13	44.37	47.24	40.70	168.44
4	15 % O & M loss	5.42	6.66	7.09	6.11	25.27
	Sub Total 1	41.55	51.03	54.33	46.81	193.71
5	2 % Fire Fighting	0.83	1.02	1.09	0.94	3.88
6	Grand Total Water Demand	42.38	51.05	55.42	47.75	197.59

Water Demand for zone 1 is 36.13 MLD and with O & M losses and provision of fire fighting is 42.38 MLD.

Water Demand for zone 2 is 44.37 MLD and with O & M losses and provision of fire fighting is 51.05 MLD.

Water Demand for zone 3 is 47.24 MLD and with O & M losses and provision of fire fighting is 55.42 MLD.

Water Demand for zone 4 is 40.70 MLD and with O & M losses and provision of fire fighting is 47.75 MLD.

The Gross Water Demand for the Notified Area is about 198 MLD for the planning year 2028.

8.3.4. SOURCE OF WATER TO MEET FUTURE DEMAND

The Water Supply Project Planning of MMR has been studied wherein the sources for supplying water to all the sub-regions of MMR have been identified. The Notified Area falls under North-East Sub-region of MMR ((Refer Figure 51).

Table No. 8:4: Propped Water Supply Projects of MMR

Sub Region	Area Included	Water Sources		
		Present	Proposed Up to 2028	
1	MCGM	Bruhan Mumbai	Bhatsa, Vaitarna, Modak sager, Tanse, Vihar, Tulshi	Middle Vaitarna: 477 mld Pinjal Project: 697 mld Gargai Project: 452 mld
2	Western Sub-Region	1. Western sub-region 2. Vasai 3. Navghar-Manikpur 4. Nalasopara 5. Virar	Surya Project- 100 mld Usgaon M.I.Tank- 20 mld Pelhar M.I.Tank- 10 mld	Surya Project: 300 mld Susari Project: 200 mld Pinjal Project: 533 mld

Sub Region	Area Included	Water Sources	
		Present	Proposed Up to 2028
	6. Vasai-Virar 7. Rural Area		
3	Corporation Areas: Thane, Kalyan- Dombivali, Ulhasnagar, Bhivandi-Nijampur, Ambarnath Rural Areas: Badlapur, Bhivandi, Kalyan	1. Ulhas River 2. Barvi Project	Shahi Project: 90 mld
4	1. NMMC 2. Panvel 3. Uran and Rural Area	Morbe Project: 450 mld Hetawane Project: 150 mld	Balganga Project: 354 mld
5	1. Neral 2. Karjat 3. Khalapur 4. Panvel and Uran Rural Area 5. Rasayani 6. Khopta		Poshir Project: 1190 mld
6	1. Pen city and Rural area 2. Alibag city and Rural area		Amba River
Source: MMR Sub Region Wise Water Supply Project Planning, MMRDA			

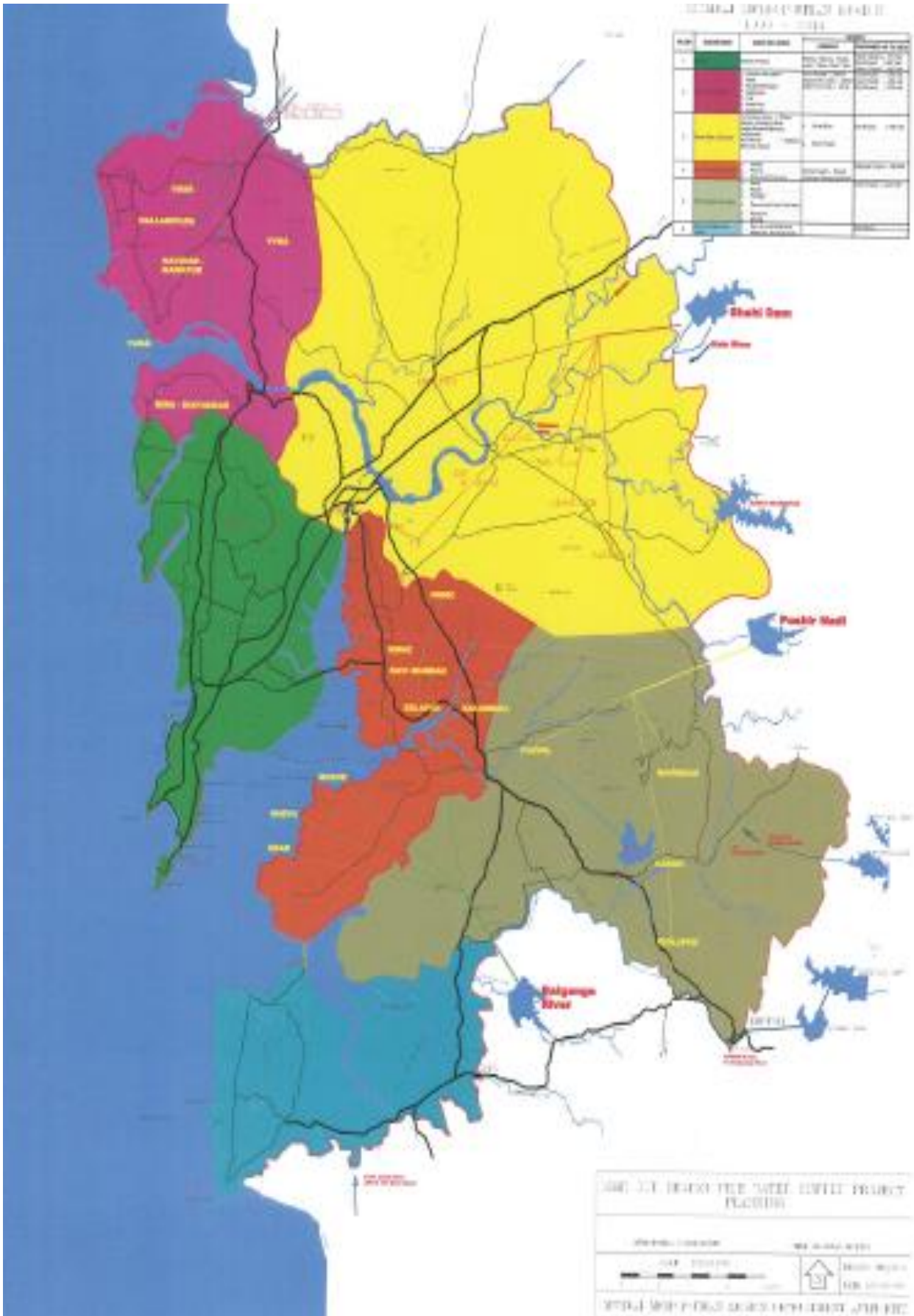
As per the said water supply project of MMR, the Corporation areas of North-East Sub-region and the surrounding rural areas shall be supplied the water from Ulhas River and Barvi Project as per the present provision.

The proposed increase in the demand up to 2028 shall be met by water supply from Shai Project.

The Barvi Reservoir and Shai Dam are located, respectively, in the East and North-East of the Notified Area on the periphery of the MMR (Refer Figure 47).

The below is shown the proposed water supply system for the said project.

Figure 47: Proposed Water Supply Sources for MMR.



8.4. ESTIMATED SEWAGE GENERATED

Sewage generation for the notified area is estimated on the basis of the projected water demand of Notified Area, since 80% of total water-supply is usually discharged as a wastewater. According to these figures, total sewage generation in the notified area would be about 158 MLD.

Accordingly, the proposal recommends having 2 sewage treatment plants in 2 different zones for the efficient waste water management.

The table below shows sewage generation for the year 2028 in notified area.

8.4.1. SEWAGE GENERATION – 2028

Table No. 8:5: Estimated Sewage Generation – year 2028

Estimated Sewerage Generation - year 2028 @ 80 % of Proposed water demand						
No	Description	Proposed Water Zones				Total of Notified Area
		Sector 1	Sector 2	Sector 3	Sector 4	
1	Proposed Population	267635	328649	349894	301480	1247658
2	Projected Water Demand	42.38	51.05	55.42	47.75	197.59
3	Estimated Sewerage Generation	33.90	40.84	44.34	38.20	158.07

8.5. ESTIMATED SOLID WASTE

Assuming an average 250 gram per capita waste generation, estimated solid waste generation in the notified area is 312 MT for 2028 population. While solid waste generation is calculated according to the different zones, the proposal recommends having a single solid waste landfill site for the entire notified area.

8.5.1. SOLID WASTE GENERATION – 2028

Table No. 8:6: Estimated Solid Waste – year 2028

Estimated Solid Waste - year 2028 @ 250 gm / per capita.						
No	Description	Proposed Solid Waste Management Zones				Total of Notified Area
		Sector 1	Sector 2	Sector 3	Sector 4	
1	Proposed Population	267635	328649	349894	301480	1247658
2	Estimated Solid Waste (in Grams)	66908750	82162250	87473500	75370000	311914500
4	Estimated Sewerage Generation (in Tones)	66.91	82.16	87.47	75.37	311.91

9. Plan Financing and Implementation

This chapter summarizes the costs of implementing the draft development plan for the Notified Area, possible sources of revenue and implementation mechanisms.

9.1. PROJECT COST

9.1.1. INTRODUCTION

There are two types of costs estimated – Land Acquisition Costs and Development Costs. These have been estimated for major trunk infrastructure, necessary for the development of plan proposals. There are several large scale regional projects that will require detailed feasibility estimates prior to implementation.

LAND ACQUISITION COSTS

The Land Acquisition for public purpose is the sole responsibility of the SPA for the ten year planning horizon from the sanction of the plan. The Notified area comprises about 370 ha of Government land. An effort has been given to accommodate the majority of the public purposes activities on such land to reduce the cost factor and increase the viability of plan. After deducting this institutional land, private lands accommodating the proposed public purpose activities are required to be acquired. It is desirable to acquire all land by authority for proper implementation of the plan. However there are possible tools like accommodation reservation and TDR.

THE ACQUISITION COSTS ARE ESTIMATED BASED ON THE READY RECKONER RATES OF 2011, AND ARE SUMMARIZED IN THE TABLE BELOW. IT IS IMPORTANT TO NOTE THAT THE READY RECKONER RATES OF 2011 ARE NOT AVAILABLE FOR ALL THE VILLAGES OF NOTIFIED AREA, AND HENCE THE SECTOR WISE AVERAGE RATES HAVE BEEN DERIVED FROM THE AVAILABLE RATES.

Table No. 9:1: Ready Reckoner Rates- 2011 and Average Rates Derived for Estimations

Sector No.	Village Name	Ready Reckoner Rates- 2011				Average Land Rate (adopted for estimations)
		Open Land				
		General	Along Roads	Rest	Jirayati *	
Sector 1	Ghesar	-	-	-	57	
	Nilaje **	-	9400	6000	-	7133
	Kole **	-	3300	3800	-	3633
	Katai **	-	3300	3000	-	3100
	Hedutane	-	-	-	65	
	Average for Sector 1					4622
Sector 2	Usarghar	2400	-	-	-	2400
	Gharivali ***	-	3200	-	-	2880
	Sandap	3300	-	-	-	3300
	Mangaon	3800	-	-	-	3800
	Bhopar	10600	-	-	-	10600
	Nandivali turfe Panchanand	10300	-	-	-	10300
	Sagaon	4300	-	-	-	4300

	Average for Sector 2					5369
Sector 3	Umbroli	-	-	-	56	
	Sonarpada	4300	-	-	-	4300
	Davadi	-	-	-	68	
	Golivali	6000	4900	-	-	5450
	Adivali Dhokli	-	-	-	56	
	Pisavali	4250	-	-	-	4250
	Asade	6000	4900	-	-	5450
	Average for Sector 3					4863
Sector 4	Bhal	-	-	-	56	
	Vasar	-	-	-	30	
	Dwarli	-	-	-	30	
	Manere	-	-	-	30	
	Nandivali Ambarnath	-	-	-	65	
	Chinchpada	-	-	-	59	
	Ashele	-	-	-	59	
	Average for Sector 4 ****					4951
Average for Notified Area						4951
Notes:						
* The rates provided for Jirayati Lands are not considered for deriving average rates.						
** The average rate is derived by assigning 1:2 ratio to value of lands along the road vis-à-vis other lands.						
*** The average rate is assumed to be 90% of the rate provided for lands along the road.						
**** The rate adopted for Sector 4 is average of the rates derived for Sector 1, 2 and 3.						

THE ACQUISITION COST IS ESTIMATED CONSIDERING THE BASIC ASSUMPTION THAT ABOUT 50% OF THE LAND TO BE ACQUIRED SHALL BE ACQUIRED BY MONETARY COMPENSATION, WHILE REST 50% SHALL BE ACQUIRED BY AWARDED TDR EQUIVALENT TO 1.25 TIMES THE AREA OF LAND SO ACQUIRED.

Table No. 9:2: Area of Lands to be acquired and Acquisition Cost

Reservation Details	Notified Area	Sector 1	Sector 2	Sector 3	Sector 4
AMENITIES & OPEN SPACES					
Area of Amenities & Open Spaces (Ha)	953.47	217.22	173.46	265.52	297.27
Reservations on Public Land (Ha)	120.30	62.78	8.73	8.13	40.66
Reservations on Private Land (Ha) (Land needs to be acquired)	833.17	154.44	164.73	257.38	256.61
Cost of Land to be Acquired (in Rs. Crore)	4120.41	713.81	884.45	1251.65	1270.49
Cost of Acquisition (in Rs. Crore) (50% acquisition by monetary compensation)	2060.21	356.91	442.23	625.83	635.25
ROADS					
Area of Roads (Ha)	613.12	204.22	131.33	108.31	169.27
Reservations on Public Land (Ha)	87.90	35.10	12.52	17.01	23.27
Reservations on Private Land (Ha) (Land needs to be acquired)	525.22	169.12	118.81	91.30	146.00
Cost of Acquisition (in Rs. Crore)	2586.27	781.68	637.90	443.99	722.70
Cost of Acquisition (in Rs. Crore)	1293.13	390.84	318.95	221.99	361.35

(50% acquisition by monetary compensation)					
Total Cost of Acquisition (in Rs. Crore)	3353.34	747.75	761.18	847.82	996.60

DEVELOPMENT COST

Development cost is basically the cost of construction / developments derived based on the prevailing market rates and practices into the Notified Area. Majority of the all public buildings and civic amenities need to be constructed either by Authority or through private interventions. This is as summarized below and the total development cost for developing the public amenities is derived.

Table No. 9:3: Estimated Costs for Development of Amenities

Type of Facility	Total Reserved Land (in Ha)	Development by Authority (in Ha)	Development Cost (in Rs.Lacs)
Public Amenities			
Aminities Cluster: PHC-Maternity Home-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	16.05	8.02	2808.30
Educational Facilities			
School (Primary, Secondary)	28.54	14.27	4280.82
College	15.92	4.00	1200.00
Sub Total	44.46	18.27	5480.82
Health Facilities			
Hospital	23.56	9.30	2790.00
Socio-Cultural Amenities			
Community Centre: Hall, Library	2.17	1.08	379.17
Town Hall	1.53	1.53	612.55
Art Gallery & Museum	1.00	1.00	301.01
Swimming Pool/Gym/Sports Com.	1.54	1.54	616.42
Sub Total	6.24	5.14	1371.0
Public Utilities			
Fire Station	7.87	7.87	1179.76
Police Station	7.50	7.50	2248.66
Post Office	3.01	3.01	901.97
Telephone Exchange	2.41	2.41	721.92
Crematorium / Burial Ground	10.07	10.07	302.05
Slaughter House	3.06	3.06	306.08
Sub Total	33.92	33.92	5660.44
Transportation Facilities			
Transport Terminal	10.05	10.05	2009.40
Parking	13.22	5.36	321.60
Sub Total	23.27	15.41	1845.0
Markets (Retail/Vegetable Market)	6.20	3.10	1085.52
Total Amenities	144.3	93.16	22065.24

9.1.2. CAPITAL INVESTMENT REQUIREMENT

Apart from the development cost for public amenities, costs shall be incurred in development of proposed infrastructure, roads, water supply network and sewerage network being the major component. The costs for developing such infrastructure have been calculated based on gross expenditure per unit land area for the total Notified Area. The cost for development of roads has been estimated to be 180 Rs./Sq.m. of the Notified Area, while the same is 90 and 60 Rs./ Sq.m. for development of water supply network and sewerage network respectively. The total capital investment requirement is summarized in the following table.

Table No. 9:4: Summary of Costs

Components of Capital Investment	Costs (Rs. Crores)
A. Land Acquisition Costs	
Land Acquisition: For Amenities & Open Spaces	2060.21
Land Acquisition: For Roads	1293.13
Sub Total: Land Acquisition Costs	3353.34
B. Development Costs	
Development of Roads	790.23
Development of Water Supply Network	395.11
Development of Sewerage Network	263.41
Development of Public/Semi public Amenities	220.65
Sub Total: Development Costs	1669.40
TOTAL CAPITAL INVESTMENT	5022.74
Note: The costs are estimated based on rates prevailing in the year 2011.	

9.2. REVENUES

9.2.1. ESTIMATION OF REVENUES

Generally, development planning projects are not leveraged revenue component due to its social perspective. Simultaneously, an authority has to generate the initial capital needed to thrust the implementation process. There are several tools like Development Charges, Premium from granting of Additional FSI, Additional Development rights, Saleable components of Public Semi avenues and most important is salable government lands.

The Draft Plan and DCR propose the maximum permissible FSI of 2.0 for residential and commercial zones. The revenues are estimated in accordance with the provisions of draft DP report and DCR, and are presented below.

DEVELOPMENT CHARGES

The MR&TP Act 1966 empowers the Planning Authority to levy development charges while granting the development permission upto a maximum of Rs. 350 per sq.m. Also, there are certain innovative mechanisms as Vasai – Virar authority has adopted to collect the development charges up to 350, 700 and 525 for residential, commercial and industrial development respectively.

The development charges as per the Govt. of Maharashtra notification in force from 1st March, 2011 will be applicable in the 27 villages Notified Area. According to this, the development charge for residential development shall be 0.5% and 2.0% of Ready Reckoner Rates for land and built-up respectively. While for commercial and residential, it shall be 2.0 and 1.5 times of residential respectively.

The Ready Reckoner Rates of 2011 have been considered to derive the development charges applicable in the Notified Area. The revenues estimated to come up from development charges are presented in the table below.

Table No. 9:5: Revenue from Development Charges

Type of Develop-ment	Area	FSI		Max. permi-ssible BUA (Lac Sq.m.)	BUA consumed * (Lac Sq.m.)	Development Charges		Revenues from Development Charges		
		Base	Max			For Land (Rs./ Sq.m.)	For Built-up (Rs./ Sq.m.)	Land (Rs. Crore)	Built-up (Rs. Crore)	Total (Rs. Crore)
Residential										
Plotted	240.86	1.0	1.5	36.13	27.10	25	100	6.02	27.10	33.12
Group Housing	479.93	1.0	1.5	71.99	57.59	25	100	12.00	57.59	69.59
	779.21	1.0	2.0	155.84	124.67	25	100	19.48	124.67	144.15
Rental Housing	105.73	1.0	4.0	42.29	33.83	25	100	2.64	33.83	36.48
Sub Total	1605.73			306.25	243.19	25	100	37.50	209.36	246.86
Commercial										
Commercial	87.36	1.0	2.0	17.47	14.85	130	290	0.53	2.73	3.26
	157.95	1.0	3.0	47.39	40.28	130	290	3.13	22.50	25.63
Growth Centre	281.42	1.0	4.0	112.57	95.68	130	290	22.68	163.27	185.95
Sub Total	526.73			177.43	150.81	130	290	26.34	188.50	214.84
Industrial	194.98	1.0	1.5	29.25	24.86	97	217	7.31	37.29	44.60
TOTAL	2327.44			564.14	459.84	-	-	73.79	468.99	542.78

Note: * The consumed BUA figures are same as envisaged for deriving projected population.

Any shortfall in the revenue from development charges will have to be met with by enhancing the rates of development charge from time to time by the Planning Authority.

PREMIUM CHARGES ON ADR (ADDITIONAL DEVELOPMENT RIGHTS)

The proposed FSI system as prescribed in the Draft DCR is presented in following table. In residential use and commercial use other than the Growth Centre, the maximum FSI to be allowed is subject to the plot size, and the width of abutting road as prescribed in the DCR. The overall system of Base FSI, FSI to be permitted on premium and FSI to be permitted through TDR is presented in the following table.

Table No. 9:6: Base FSI, FSI on Premium, FSI through TDR and Maximum Permissible FSI

Type of Development	Area (Ha)	FSI			
		Base FSI	on Premium	through TDR	Max. FSI
Residential	1500.00				
Plotted	240.86	1.00	0.25	0.25	1.50
Group Housing	478.59	1.00	0.25	0.25	1.50
	780.55	1.00	0.50	0.50	2.00
Commercial	526.73				
Commercial	10.69	1.00	0.25	0.25	1.50
	62.51	1.00	0.50	0.50	2.00
Growth Centers	453.53	1.00	0.50	0.50	2.00
Industrial	194.98	1.00	0.25	0.25	1.50

The amount of built-up area that is to come up by means of FSI on premium is calculated accordingly. The average of the Ready Reckoner Rates of 2011 as derived in Table no. 9.1 is adopted as premium rate.

It is important to note that the Ready Reckoner Rates of all the villages are not available, and hence the sector wise average and the average for the Notified Area have been derived from the available rates. Similarly, the rates are mainly available for the open land, and hence the premium charges adopted hereunder for commercial and industrial development are same as for residential development. The premium rate adopted is 4950 Rs./ sq.m., the average derived from Ready Reckoner Rates of 2011.

As the DP shall get sanctioned and the implementation gets started, the Ready Reckoner Rates for commercial and industrial use shall also get precisely determined which shall be higher than the rates of open land of Ready Reckoner 2011. Thus, the revenues likely to be generated when such rates would be applied shall be higher than the estimated revenues as presented below.

Table No. 9:7: Revenue from Premium Charges

Type of Development	Area (Ha)	Max. FSI	BUA at Max. Permissible FSI		BUA at Base FSI		BUA at FSI on Premium		BUA at FSI through TDR		Premium Rate (Rs./sq. m.)	Revenue from FSI on Premium (Rs. Crore)
			Permissible	To be Consumed *	Permissible	To be Consumed *	Permissible	To be Consumed *	Permissible	To be Consumed *		
			(Lac Sq.m.)	(Lac Sq.m.)	(Lac Sq.m.)	(Lac Sq.m.)	(Lac Sq.m.)	(Lac Sq.m.)	(Lac Sq.m.)	(Lac Sq.m.)		
Residential												
Plotted	240.86	1.50	36.13	27.10	24.09	20.47	6.02	3.97	6.02	2.65	4950	196.72
Group Housing	479.93	1.50	71.99	57.59	47.99	43.19	12.00	8.40	12.00	6.00	4950	415.74
	779.21	2.00	155.84	124.67	77.92	70.13	38.96	30.00	38.96	24.55	4950	1484.98
Sub Total	1500.00	-	263.96	209.36	150.00	133.80	56.98	42.37	56.98	33.19	4950	2097.44
Commercial												
Commercial	87.36	1.50	1.60	1.36	1.07	0.96	0.27	0.23	0.27	0.17	4950	11.25
	157.95	2.00	12.50	11.25	6.25	5.94	3.13	2.81	3.13	2.50	4950	139.24
Growth Centre	281.42	2.00	90.71	81.64	45.35	43.09	22.68	20.41	22.68	18.14	4950	1010.24
Sub Total	526.73	-	104.81	94.25	52.67	49.99	26.07	23.45	26.07	20.82	4950	1160.73
Industrial	194.98	1.50	29.25	24.86	19.50	17.55	4.87	4.14	4.87	3.17	4950	205.09
TOTAL	2221.71	-	398.02	328.47	222.17	201.33	87.92	69.96	87.92	57.18	4950	3463.26

Note: * The consumed BUA figures are same as envisaged for deriving projected population.

SALEABLE COMMERCIAL & PUBLIC SEMI PUBLIC AMENITIES

The proposed plan has developed 2 major commercial locations; and the Authority can generate revenue from it. Apart from this, selling some of the public/semi public amenities is also envisaged to earn revenues.

The sale rate of public/semi public amenities and public lands in commercial zone is assumed to be Rs. 10000 and 40000 per sq.m. respectively, considering the Ready Reckoner Rates Of 2011, the level of population, infrastructure and development proposed in the draft DP and the envisaged demand for such lands. The revenue from the sale of public lands in commercial zone and saleable public/semi public amenities are as mentioned in the following table.

Table No. 9:8: Revenue from Sale of Commercial Lands and Public Amenities

Particulars	Area (Ha)	Sale Rate (Rs./sq.m.)	Revenues from Sale (Rs. Crore)
Public/ Semi public Amenities	36.68	10000	366.80
Commercial lands	36.67	40000	1466.80
Total	273.31	-	1833.60

9.2.2. SUMMING UP ESTIMATED COSTS AND REVENUES

The costs to be incurred for acquisition and infrastructure development and the revenues to be generated from different sources as discussed above are summarized below.

Table No. 9:9: Summary of Estimated Costs and Revenues

Particulars	Estimates (Rs. Crores)
COSTS	
Acquisition Costs	3353.34
Development Costs	1669.40
Total Costs	5022.74
REVENUES	
Development Charges	542.78
Premium Charges	3463.26
Sale of Public/ Semi public Amenities	366.80
Sale of Commercial Lands	1466.80
Total Revenue	5839.64
NET SURPLUS	816.90

9.3. PHASING FOR PLAN IMPLEMENTATION

The phasing programme for implementing the Development Plan has been developed considering the locations, present development pattern, direction of growth, availability of public lands, priority, nature and scale of facilities and the overall vision envisaged for the effective development of the Notified Area (Refer Map No. 14). The programme proposes the plan implementation in 4 phases of 5 years period.

PHASE 1

Giving consideration to available existing infrastructure i.e. major thoroughfare wide road, and other basic physical and social infrastructure, and the direction and pace of urban sprawl, the areas along the existing SH 43 and along the road connecting SH43 to Dombivali are to be developed earliest.

Other than these, the area of proposed Mega City Project and part of the proposed Growth Centre/CBD and its surrounding residential area shall also be developed in Phase 1.

The proposed 100 M wide regional road that is partly aligned on Hajimalang road, and the one aligned on SH40 shall be strengthened to 30 M carriage way. Significant portion of the proposed 45 M wide central spine shall also be developed up to 24 M width.

Following table presents the areas for several components that will be developed and served in Phase 1.

Table No. 9:10: Phase 1 - Implementation of DP

Components	Sector 1	Sector 2	Sector 3	Sector 4	Notified Area
	Area (Ha)	Area (Ha)	Area (Ha)	Area (Ha)	Area (Ha)
Roads	48.21	33.54	40.46	53.73	175.93
Amenities	7.73	2.51	9.10	14.41	33.74
Open	15.85	9.51	6.98	37.22	69.56
Residential	123.41	188.83	269.93	139.31	721.48
Commercial	0.00	0.00	35.46	64.65	100.10
Industrial	0.00	0.00	0.00	0.00	0.00

The reservations for public- semi public amenities and recreation/open spaces that shall be developed in Phase 1 are as mentioned below.

Table No. 9:11: Phase 1- Reservations for Amenities and Open Spaces

Sectors	Amenities	Open Spaces
Sector 1	WS1, AM7, UT6, AM10, UT9, M9, SC6, SC9, M8, UT8, CT4, SC8	G34, G38, G41, G42, G43, G44, G45, G46, G47, PG 22, PG26, PG27,
Sector 2	M10, UT9, AM8, M8, SC6, UT7, AM6, M7, AM5, UT6	G24, G25, G26, G27, G29, G30, G37, PG15, PG16, PG17, PG23, PG25, PG26
Sector 3	SC3, AM3, UT3, M3, UT4, AM4, M7, UT7, AM7, SC7, M8, PS2, M9, AM8, UT8, FS2, TT2	G24, G26, G27, G28, G29, PG11, PG12, PG13, PG16, PG20, PG21
Sector 4	AM1, UT1, M1, M4, SC4, AM4, UT4, WS1, M5, HP1, PA1, PO1, TE1, CT1, AM9, UT9, SC6, AM7, UT7	G1, G2, G11, G12, G17, G19, G20, G21, G22, PG1, PG7, PG8, PG9, PG12, PG16

PHASE 2

In second phase, the part of proposed Growth Centre/CBD area that is falling in sector 1 shall be developed, as there are comparatively significant amount of public lands are available here. Hence, the opportunity shall be exercised to develop a large portion of the CBD in Phase 2. The vacant area located in between the two pockets developed in Phase 1 (Mega City Project and the development along SH40) shall be provided with roads and amenities in this phase. The areas initiated in Phase 1 shall be strengthened by developing remaining 24 M and 18 M wide roads. The SH 43 (Kalyan-Shil Road) shall also be resurfaced to full 30 M ROW. The areas located in north-east of the Notified Area, adjacent to Ulhasnagar Municipal Corporation shall be developed in this phase.

The proposed MMC shall be developed up to 60 m width, while the other two 100 m wide proposed roads shall also be widened to 60 m width. The part of the 45 M wide central spine developed in Phase 1 shall now be widened to full 45 m ROW, while the remaining part of this central spine shall be developed up to 30 m width. Considering the proposed DFC corridor, the industrial area proposed along it shall be partly developed in Phase 2.

Following table presents the areas for several components that will be developed and served in Phase 2.

Table No. 9:12: Phase 2- Implementation of DP

Components	Sector 1	Sector 2	Sector 3	Sector 4	Notified Area
	Area (Ha)	Area (Ha)	Area (Ha)	Area (Ha)	Area (Ha)
Roads	129.50	58.78	42.52	69.45	300.25
Amenities	64.16	20.74	145.00	21.35	251.26
Open	103.44	43.30	30.73	37.02	214.48
Residential	196.55	161.04	75.87	167.86	601.32
Commercial	241.21	21.21	14.11	29.05	305.58
Industrial	0.00	30.94	0.00	33.26	64.19

The reservations for public- semi public amenities and recreation/open spaces that shall be developed in Phase 2 are as mentioned below.

Table No. 9:13: Phase 2- Reservations for Amenities and Open Spaces

Sectors	Amenities	Open Spaces
Sector 1	CG1, AM8, UT7, M7, SC7, CL1, PS1, FS1, TE2, PO2, PA5, M4, UT4, AM4, CT3, AM5, UT5, SC4, M5, TT2, TT1, PA4, M6, HP1, PA7, SC5, UT1, FS3, SC10, AM11, CT5, M10, PA2, UT2, AM2, CT1, M2, PA3, CT2, PO1, TE1, PA1, AM3, UT3, M3, SC2, SLH1	G2, G5, G6, G7, G8, G9, G10, G11, G12, G13, G17, G18, G19, G20, G21, G22, G23, G24, G25, G28, G32, G33, G35, G36, G39, G40, G48, G49, G50, G51, PG5, PG6, PG7, PG8, PG9, PG10, PG11, PG12, PG14, PG15, PG16, PG17, PG18, PG19, PG20, PG23, PG24, PG29, PG30
Sector 2	PA5, SC8, M9, PA6, EL1, TT1, CT3, SC9, PS2, FS2, PA3, CL1, WS1, M5, SC4, PA2, AM4, UT5, M6, SC5, UT3, AM2, SC3, M3	G10, G11, G12, G13, G14, G17, G18, G19, G20, G21, G22, G28, G33, G34, G35, G36, G38, G39, PG6, PG7, PG8, PG10, PG12, PG13, PG14, PG18, PG20, PG21, PG22, PG24

Sector 3	TT1, SC4, M4, UT5, AM5, SC5, M6, SC6, UT6, AM6, PO1, TE1, CT2, HP2, PA1, UT9, AM9, SC9, M10, WS2, SWM1	G11, G12, G14, G15, G20, G21, G22, G23, G25, G30, G31, G32, G33, G34, PG7, PG8, PG9, PG10, PG17, PG18, PG19
Sector 4	SC1, M2, UT2, AM2, CG1, SC2, UT3, AM3, M3, FS1, TT1, M6, AM6, UT6, PS1, TT2, CL1, SC7, UT8, AM8, M7, EL1, AM10, UT10	G3, G4, G7, G8, G9, G10, G15, G16, G18, G23, G27, G33, PG2, PG3, PG4, PG5, PG10, PG11, PG13, PG14, PG18, PG19, PG27

PHASE 3

The programme suggests to implement most of the infrastructure and amenities by Phase 3. Considering the context of Mumbai Metropolitan Region- its population growth, spatial constraints of Greater Mumbai, rapid increase in shift of population in the North-East Sub Region of MMR, it is preferred to intervene in all the geographical extent of the Notified Area and provide a sound base of infrastructure to facilitate the future development in all the part of Notified Area by Phase 3. The 100 M wide MMC, 100 m wide regional roads, 45 m wide central spine and all other roads having width of 24 M and above is proposed to be in place by end of this phase. The north-west part of CBD, the further west residential area, the residential area located west and east of the hillock shall be developed here.

Following table presents the areas for several components that will be developed and served in Phase 3.

Table No. 9:14: Phase 3- Implementation of DP

Components	Sector 1	Sector 2	Sector 3	Sector 4	Notified Area
	Area (Ha)	Area (Ha)	Area (Ha)	Area (Ha)	Area (Ha)
Roads	26.51	37.57	21.00	44.94	130.01
Amenities	2.66	49.50	18.18	152.99	223.32
Open	23.39	34.74	26.95	25.93	111.00
Residential	25.16	72.70	107.82	77.24	282.93
Commercial	17.23	43.87	16.20	43.75	121.05
Industrial	0.00	23.94	0.00	106.85	130.79

The reservations for public- semi public amenities and recreation/open spaces that shall be developed in Phase 3 are as mentioned below.

Table No. 9:15: Phase 3- Reservations for Amenities and Open Spaces

Secotrs	Amenities	Open Spaces
Sector 1	SC1, AM1, UT1, M1, PA6, AM6	G1, PG2, G3, PG1, G4, G26, G27, G28, G29, G30, G31
Sector 2	CG1, UT1, PA1, AM1, UT2, M2, SC2, STP1, M4, UT4, AM3, PS1, PO1, TE1, HP1, SC7, AM7, UT8	G3, G4, G5, G6, G7, G8, G9, G16, G40, G41, PG4, PG5, PG9, PG11, PG19
Sector 3	SC1, AM1, UT1, CG1, WS1, M2, M5, FS1, PS1, HP1, CT1, CL1	G1, G3, G4, G10, G16, G19, PG1, PG2, PG4, PG6, PG14, PG16, PG22

Secotrs	Amenities	Open Spaces
Sector 4	SC3, SC8, M9, M8, UT12, AM12, PA2, FS2, PS2, SWM1, SWM2	G5, G6, G24, G25, G28, G29, G30, G31, G32, PG6, PG15, PG17, PG20, PG22, PG23, PG25

PHASE 4

The areas that are primarily developed in Phase 3, shall be provided with the remaining lower hierarchy roads and amenities in Phase 4.

Following table presents the areas for several components that will be developed and served in Phase 4.

Table No. 9:16: Phase 4- Implementation of DP

Components	Sector 1	Sector 2	Sector 3	Sector 4	Notified Area
	Area (Ha)	Area (Ha)	Area (Ha)	Area (Ha)	Area (Ha)
Roads	0.00	1.44	4.33	1.15	6.93
Amenities	0.00	0.96	1.65	1.65	4.26
Open	0.00	12.21	26.93	6.70	45.85
Residential	0.00	0.00	0.00	0.00	0.00
Commercial	0.00	0.00	0.00	0.00	0.00
Industrial	0.00	0.00	0.00	0.00	0.00

The reservations for public- semi public amenities and recreation/open spaces that shall be developed in Phase 4 are as mentioned below.

Table No. 9:17: Phase 4- Reservations for Amenities and Open Spaces

Secotrs	Amenities	Open Spaces
Sector 1	-	-
Sector 2	SC1, M1	G15, PG1, PG2, PG3
Sector 3	M1, AM2, UT2, SC2	G2, G5, G9, G17, G18, PG3, PG5, PG15
Sector 4	M10, AM11, UT11, SC9	PG21, PG24, PG26

10. Institutional Mechanism for Implementation of Draft Development Plan

10.1. INTRODUCTION

The implementation of the Development Plan consists mainly of:

Acquisition of the lands required for various public users including roads,

Construction and development of the sites so acquired for the public purposes including construction of the roads,

The development control on the entire developmental activities through Development Control Regulations framed under the development plan.

10.2. EXISTING SETUP OF IMPLEMENTING AGENCIES

There are mainly three agencies are responsible for the overall implementation of the existing functions of the Notified Area. In the case of Notified Area, MMRDA has been appointed as the SPA. MMRDA is exercising the development control under provisions of the MR&TP Act, 1966 as directed by the State Government. The District Collectorate, Thane issues the Non Agricultural permission under the provisions of Maharashtra Land Revenue Code, 1966.

The responsibility of implementation of these proposals rests with Zilla Parishad and Village Panchayats.

10.2.1. LOCAL AUTHORITIES

As the MMRDA is SPA for the Notified Area is assisted by the respective existing local authorities like Zilla Parishad and the Village Panchayats for the development permission.

10.2.2. EXISTING SETUP OF GRANTING BUILDING PERMISSION

MMRDA is appointed as SPA for the Notified Area has powers to grant the development permission and also guide the District Collectorate for the balanced development of the area. The District Collectorate Thane is responsible to provide the NA permission prevailing in the Notified Area.

10.2.3. EXERCISE THE DEVELOPMENT CONTROL

MMRDA is collectively taking care of the development control by guiding the rest of the authorities whenever necessary, and also it is proposed to Delegation of Powers to Collector in lines with the Sanctioned DP of AKBSNA.

In the case of unauthorized construction in the Notified Area, MMRDA has due power to exercise along with the respective Local Authorities.

The Z.P. should be responsible for the implementation of the DP and the Collector will exercise the development control. MMRDA will assist the Collector and Zilla Parishad whenever necessary.

10.3. IMPLEMENTATION OF RESERVATIONS

It is vital to propose the agency / authority for local governance for the successful implementation of the Draft DP proposals. The appropriate authority as suggested under the manner of development of reservation sites in these Draft Development Control Regulations are assigned the tasks mentioned therein till the formation of new Urban Local Body unless otherwise specified in the list.

10.4. INSTITUTIONAL MECHANISM

As the entire area under 27 villages is considered as a single planning unit, the Government of Maharashtra should consider the proposal for constituting as Municipal Council for the area as the existing population of year 2008 is 2,35,205. In future the population will increase manifold as the development potential of the notified area is very high and with proper provision of infrastructure like roads, mass transit systems, water supply, electricity and other public – semi public utilities etc.

The population is expected to reach upto 6.45 lacs in next 10 years. This will necessitate formation of a Municipal Corporation in the future.

11. List of Reservations

Government Departments / Planning Authority / Local Authority will be Appropriate Authority for implementing the reservations till the formation of New Urban Local Body. The cost of acquisition mentioned in the table is calculated based on sector wise average rate derived from the rates of Ready Reckoner 2011 (refer Table No. 9.1).

Table No. 11.1: Details of Proposed Reservations- Sector 1

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
1	G1	Recreation/Open Space	Garden	Hedutane	62	3741.3	1.55	Private	542.1
				Hedutane	243p	3544.7		Private	
				Hedutane	266p	1505.3		Private	
				Hedutane	242p	602.7		Private	
				Hedutane	X	855.5		Private	
				Hedutane	260part , 61,9 p	2386.1		Private	
				Hedutane	244p	607.6		Private	
				Hedutane	63p	2227.8		Private	
2	SC1	Educational Facilities	School: Primary, Secondary	Hedutane	242 p	8045.9	0.80	Private	371.9
3	PG1	Recreation/Open Space	Playground	Hedutane	242 p	10145.2	1.01	Private	468.9
4	WS1	Public Utility	Water Reservoir and Distribution-Sector Level	Hedutane	65	2020.2	1.77	Private	819.2
				Hedutane	66	1927.2		Private	
				Hedutane	67 p	22.6		Private	

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Hedutane	68 p	106.4		Private	
				Hedutane	70 p	122.4		Private	
				Hedutane	71 p	24.6		Private	
				Hedutane	242 p	13500.8		Private	
5	AM1	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Hedutane	74 p	2122.9	0.40	Private	184.9
				Hedutane	242 p	1877.2		Private	
6	M1	Market	Retail/Vegetable Market	Hedutane	242	1519.2	0.15	Private	70.2
7	UT1	Public Utility	Water Distribution, Electric Substation-Neighbourhood Level	Hedutane	242	3003.3	0.30	Private	138.8
8	PG2	Recreation/Open Space	Playground	Hedutane	75 p	841.3	5.74	Private	1853.8
				Hedutane	76	449.0		Public	
				Hedutane	77	2475.1		Private	
				Hedutane	78 p	1559.8		Private	
				Hedutane	79	13424.6		Private	
				Hedutane	241 p	16820.2		Public	
				Hedutane	242 p	21808.0		Private	
9	SLH1	Public Utility	Slaughter House	Hedutane	80	2855.4	3.06	Private	188.0
				Hedutane	81	1211.5		Private	
				Hedutane	241	26541.1		Public	
10	PG3	Recreation/Open Space	Playground	Hedutane	82 p	10718.9	1.76	Private	495.4
				Hedutane	240 p	6836.9		Public	
11	PG4	Recreation/Open	Playground	Hedutane	86	7260.3	3.85	Private	1781.3

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
		Space		Hedutane	87 p	15841.5		Private	
				Hedutane	88 p	9997.9		Private	
				Hedutane	89 p	941.5		Private	
				Hedutane	91 p	4498.7		Private	
12	G2	Recreation/Open Space	Garden	Hedutane	94 p	863.3	0.09	Private	39.9
13	G3	Recreation/Open Space	Garden	Hedutane	49 p	43723.9	7.75	Private	3584.3
				Hedutane	50 p	2646.3		Private	
				Hedutane	51	7485.5		Private	
				Hedutane	52 p	1052.0		Private	
				Hedutane	53 p	1606.9		Private	
				Hedutane	54 p	8476.2		Private	
				Hedutane	55 p	7454.5		Private	
				Hedutane	242 p	2770.4		Private	
				Hedutane	246 p	2334.1		Private	
14	G4	Recreation/Open Space	Garden	Hedutane	48	2057.2	0.21	Private	95.1
15	G5	Recreation/Open Space	Garden	Hedutane	30 p	322.5	1.92	Private	888.7
				Hedutane	33 p	11423.3		Private	
				Hedutane	46 p	5067.3		Private	
				Hedutane	206 p	2414.5		Private	
16	G6	Recreation/Open Space	Garden	Hedutane	25 p	5628.3	1.53	Private	706.3
				Hedutane	29 p	4739.6		Private	
				Hedutane	206 p	3694.4		Private	

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Hedutane	208	1218.8		Private	
17	PG5	Recreation/Open Space	Playground	Hedutane	21 p	1433.7	1.21	Private	560.5
				Hedutane	22 p	4800.6		Private	
				Hedutane	263 p	5892.4		Private	
18	PO1	Public Utility	Post Office- Sector Level	Kole	24 p	800.8	1.00	Private	463.1
				Kole	77 p	9219.1		Private	
19	TE1	Public Utility	Telephone Exchange- Sector Level	Kole	24 p	5095.2	1.00	Private	462.7
				Kole	77 p	4915.6		Private	
20	PA1	Transport Facility	Parking Lot	Kole	76 p	2818.5	0.28	Private	130.3
21	G7	Recreation/Open Space	Garden	Kole	22 p	177.3	0.81	Private	373.4
				Kole	23 p	887.4		Private	
				Kole	76 p	6063.8		Private	
				Kole	77 p	951.3		Private	
22	CT1	Socio Cultural Amenities	Art Gallery and Museum: Site Level	Kole	20 p	3394.4	1.00	Private	463.8
				Kole	25 p	1735.1		Private	
				Kole	26 p	4183.3		Private	
				Kole	77 p	537.3		Private	
				Kole	78 p	183.6		Private	
23	AM2	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Kole	20 p	2306.8	0.40	Private	185.2
				Kole	78 p	1700.7		Private	
24	UT2	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Kole	20 p	2241.8	0.30	Private	138.9
				Kole	79 p	762.7		Private	

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
25	PG6	Recreation/Open Space	Playground	Kole	14 p	1787.8	1.16	Private	420.5
				Kole	15 p	1102.2		Private	
				Kole	16 p	1792.5		Private	
				Kole	74 p	2474.9		Public	
				Kole	76 p	4415.8		Private	
26	G8	Recreation/Open Space	Garden	Kole	12p	32.1	1.38	Private	636.8
				Kole	13 p	1855.3		Private	
				Kole	29 p	9.5		Private	
				Kole	31 p	1761.8		Private	
				Kole	79 p	10119.4		Private	
27	PG7	Recreation/Open Space	Playground	Kole	31 p	1572.2	1.74	Private	806.3
				Kole	32 p	5665.2		Private	
				Kole	79 p	10208.0		Private	
28	PA2	Transport Facility	Parking Lot	Kole	79 p	6012.7	0.60	Private	277.9
29	G9	Recreation/Open Space	Garden	Kole	25p	5821.0	6.29	Private	2907.4
				Kole	77p	26342.1		Private	
				Kole	26p	2490.7		Private	
				Kole	93p	631.0		Private	
				Kole	79p	26233.6		Private	
				Kole	27	1384.9		Private	
30	G10	Recreation/Open Space	Garden	Hedutane	19p	825.7	1.30	Private	601.5
				Hedutane	259A	8325.5		Private	
				Hedutane	259B/5 p	493.8		Private	

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Hedutane	259B/4	3049.0		Private	
				Hedutane	262p	63.7		Private	
				Hedutane	259B/1 3p	255.5		Private	
31	CT2	Socio Cultural Amenities	Town Hall: Site Level	Hedutane	19 p	657.2	1.53	Private	707.8
				Hedutane	259A p	4757.6		Private	
				Hedutane	259B p	863.4		Private	
				Hedutane	259B/2	696.2		Private	
				Hedutane	259B/3 p	336.6		Private	
				Hedutane	259B/7 p	367.3		Private	
				Hedutane	259B/8	511.4		Private	
				Hedutane	259B/1 9	2403.6		Private	
				Hedutane	259B/1 9p	499.1		Private	
				Hedutane	259A p	1469.7		Private	
				Hedutane	260B/4	644.9		Private	
				Hedutane	260B/5	1050.8		Private	
				Hedutane	260B/8	616.7		Private	
				Hedutane	261 p	439.5		Private	
32	M2	Market	Retail/Vegetable Market	Hedutane	212 p	368.8	0.16	Private	17.0
				Hedutane	18 p	1239.2		Public	

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
33	G11	Recreation/Open Space	Garden	Hedutane	212p	9540.5	1.30	Private	602.7
				Hedutane	17p	1366.1		Private	
				Hedutane	259B/15	844.1		Private	
				Hedutane	259B/14p	1069.8		Private	
				Hedutane	259A	218.0		Private	
				Hedutane	259B/13p	1.8		Private	
34	G12	Recreation/Open Space	Garden	Hedutane	10p	10723.5	2.26	Private	1044.3
				Hedutane	15p	2666.3		Private	
				Hedutane	16p	5606.6		Private	
				Hedutane	12p	470.6		Private	
				Hedutane	14p	127.9		Private	
				Hedutane	212p	2348.0		Private	
				Hedutane	294p	651.9		Private	
35	PA3	Transport Facility	Parking Lot	Hedutane	14 p	7492.4	0.80	Private	370.3
				Hedutane	16 p	190.6		Private	
				Hedutane	212 p	328.8		Private	
36	PG8	Recreation/Open Space	Playground	Hedutane	207p	11182.8	1.38	Private	636.4
				Hedutane	32p	220.6		Private	
				Hedutane	265p	2365.1		Private	
37	PG9	Recreation/Open Space	Playground	Hedutane	98 p	1274.7	0.86	Private	58.9
				Hedutane	98 p	7285.5		Public	

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
38	G13	Recreation/Open Space	Garden	Hedutane	84p	1127.9	1.11	Private	512.1
				Hedutane	87p	8926.6		Private	
				Hedutane	239p	1025.8		Private	
39	PG10	Recreation/Open Space	Playground	Hedutane	103p	2114.9	0.21	Private	97.8
40	SC2	Educational Facilities	School: Primary, Secondary	Hedutane	237 p	6544.4	0.80	Private	370.0
				Hedutane	106 p	989.3		Private	
				Hedutane	103 p	133.8		Private	
				Hedutane	236 p	338.3		Private	
41	PG11	Recreation/Open Space	Playground	Hedutane	106p	1765.0	0.95	Private	440.2
				Hedutane	237p	6891.3		Private	
				Hedutane	129p	867.4		Private	
42	M3	Market	Retail/Vegetable Market	Hedutane	237 p	1518.8	0.15	Private	70.2
43	UT3	Public Utility	Water Distribution, Electric Substation-Neighbourhood Level	Hedutane	190 p	61.4	0.30	Private	138.8
				Hedutane	221 p	2266.0		Private	
				Hedutane	252 p	676.0		Private	
44	AM3	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Hedutane	221 p	1942.6	0.40	Private	185.0
				Hedutane	252 p	493.4		Private	
				Hedutane	152 p	561.9		Private	
				Hedutane	151 p	1005.7		Private	
45	PG12	Recreation/Open Space	Playground	Hedutane	190p	2828.3	3.54	Private	1634.5
				Hedutane	152p	22189.5		Private	
				Hedutane	216p	8993.7		Private	
				Hedutane	154p	1335.3		Private	

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Hedutane	155p	15.9		Private	
46	PG13	Recreation/Open Space	Playground	Hedutane	223p	18084.5	2.50	Public	320.2
				Hedutane	146p	1153.0		Private	
				Hedutane	158p	1140.3		Private	
				Hedutane	159p	4635.4		Private	
47	G14	Recreation/Open Space	Garden	Hedutane	Xp	5224.9	1.25	Private	578.5
				Hedutane	142p	4924.5		Private	
				Hedutane	143p	1416.3		Private	
				Hedutane	225p	389.8		Private	
				Hedutane	226p	184.0		Private	
				Hedutane	164p	376.3		Private	
48	G15	Recreation/Open Space	Garden	Hedutane	Xp	1967.3	1.37	Private	633.8
				Hedutane	227	11744.6		Private	
49	G16	Recreation/Open Space	Garden	Hedutane	Xp	3394.8	0.34	Private	156.9
50	STP1	Public Utility	Sewage Treatment Plant	Hedutane	217p	14873.7	25.62	Private	5403.5
				Hedutane	179	661.9		Public	
				Hedutane	180p	3779.3		Private	
				Hedutane	250p	930.0		Private	
				Hedutane	218p	33277.2		Private	
				Hedutane	159p	16572.2		Private	
				Hedutane	Xp	3563.0		Private	
				Hedutane	181	1061.4		Private	
				Hedutane	174p	13801.0		Private	

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Hedutane	182p	5891.3		Public	
				Hedutane	175	1929.5		Private	
				Hedutane	172	13079.2		Private	
				Hedutane	173	7146.6		Private	
				Hedutane	171	1178.8		Private	
				Hedutane	170	1028.9		Private	
				Hedutane	169p	3841.6		Private	
				Hedutane	166p	846.1		Private	
				Hedutane	223p	132736.4		Public	
51	G17	Recreation/Open Space	Garden	Hedutane	217p	3497.6	0.65	Private	294.6
				Hedutane	185p	1747.2		Private	
				Hedutane	255p	1129.3		Private	
				Hedutane	186p	165.8		Public	
52	PG14	Recreation/Open Space	Playground	Hedutane	Xp	5405.3	13.52	Private	249.8
				Hedutane	183	3790.5		Public	
				Hedutane	184p	12720.4		Public	
				Nilaje	61	2317.0		Public	
				Nilaje	Khadi p	1654.8		Public	
				Nilaje	219p	89763.5		Public	
				Nilaje	62p	19520.5		Public	
53	G18	Recreation/Open Space	Garden	Nilaje	63p	27890.6	6.25	Public	297.1
				Ghesar	33p	28112.3		Public	
				Ghesar	30p	737.0		Private	
				Ghesar	31p	5001.5		Private	

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Ghesar	32	690.0		Private	
				Ghesar	Khadi p	108.3		Public	
54	G19	Recreation/Open Space	Garden	Nilaje	58p	3211.3	2.13	Private	159.0
				Nilaje	55p	150.7		Private	
				Nilaje	56p	8667.0		Public	
				Nilaje	63p	9221.5		Public	
				Nilaje	59p	77.0		Private	
55	AM4	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Hedutane	193 p	432.8	0.40	Private	184.9
				Hedutane	217 p	3568.6		Private	
56	UT4	Public Utility	Water Distribution, Electric Substation-Neighbourhood Level	Hedutane	193 p	477.8	0.30	Private	138.9
				Hedutane	217 p	2528.2		Private	
57	PG15	Recreation/Open Space	Playground	Hedutane	195p	12969.0	1.99	Private	918.7
				Hedutane	192p	332.0		Private	
				Hedutane	217p	4715.2		Private	
				Hedutane	194p	1860.6		Private	
58	G20	Recreation/Open Space	Garden	Kole	81p	6556.1	0.83	Private	382.5
				Hedutane	214p	1719.8		Private	
59	G21	Recreation/Open Space	Garden	Kole	81p	11161.6	1.15	Private	532.5
				Kole	46p	359.8		Private	
60	TT1	Transport Facility	Transport Terminus- CBD/Site Level	Hedutane	214p	4815.9	1.00	Private	462.2
				Kole	81p	5184.1		Private	
61	PA4	Transport Facility	Parking Lot	Kole	47p	4189.0	2.62	Private	1212.9

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Kole	81p	14339.3		Private	
				Kole	45	2180.6		Private	
				Kole	46p	2667.7		Private	
				Kole	110p	2865.6		Private	
62	TT2	Transport Facility	Transport Terminus- Sector Level	Kole	47 p	13267.8	1.48	Private	684.7
				Kole	58 p	870.0		Private	
				Kole	85 p	675.6		Private	
63	G22	Recreation/Open Space	Garden	Kole	52p	602.0	1.23	Private	567.6
				Kole	98p	5214.5		Private	
				Kole	57p	4456.8		Private	
				Kole	53p	2006.2		Private	
64	CT3	Socio Cultural Amenities	Community Centre: Hall, Library- Sector Level	Kole	52	1750.3	0.35	Private	161.7
				Kole	99	1749.1		Private	
65	G23	Recreation/Open Space	Garden	Nilaje	54	780.9	0.46	Private	43.8
				Nilaje	56p	3697.6		Public	
				Kole	Xp	5.8		Private	
				Kole	82p	161.1		Private	
66	PA5	Transport Facility	Parking Lot	Nilaje	52 p	120.4	0.80	Private	5.6
				Nilaje	56 p	7916.7		Public	
67	M4	Market	Retail/Vegetable Market	Nilaje	52 p	450.0	0.20	Private	20.8
				Nilaje	56 p	1504.7		Public	
68	PG16	Recreation/Open Space	Playground	Kole	83p	2082.6	2.64	Private	1222.0
				Kole	64p	121.6		Private	
				Nilaje	44p	599.9		Private	

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Nilaje	45	2740.5		Private	
				Nilaje	46p	9652.7		Private	
				Nilaje	47p	1991.3		Private	
				Nilaje	48p	222.1		Private	
				Nilaje	49p	457.9		Private	
				Nilaje	41p	2663.0		Private	
				Nilaje	42p	5577.2		Private	
				Nilaje	231p	330.8		Private	
69	G24	Recreation/Open Space	Garden	Kole	61p	3819.1	0.85	Private	392.2
				Kole	105p	851.4		Private	
				Kole	89p	1144.4		Private	
				Kole	83p	1234.0		Private	
				Kole	106p	1437.1		Private	
70	AM5	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Kole	61 p	1144.0	0.40	Private	185.1
				Kole	106 p	2046.4		Private	
				Kole	105 p	814.6		Private	
71	UT5	Public Utility	Water Distribution, Electric Substation-Neighbourhood Level	Kole	105 p	724.1	0.30	Private	137.1
				Kole	106 p	2241.8		Private	
72	M5	Market	Retail/Vegetable Market	Kole	105 p	1230.6	0.15	Private	71.3
				Kole	89 p	311.4		Private	
73	SC4	Educational Facilities	School: Primary, Secondary	Kole	92 p	2317.9	0.80	Private	368.4
				Kole	89 p	5364.5		Private	
				Kole	83 p	33.4		Private	

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Kole	105 p	253.7		Private	
74	PG17	Recreation/Open Space	Playground	Kole	92p	1198.7	0.12	Private	55.4
75	PG18	Recreation/Open Space	Playground	Kole	69,103p	664.7	1.02	Private	464.8
				Kole	92p	1326.5		Private	
				Kole	68p	388.3		Private	
				Kole	67p	6466.4		Private	
				Kole	90p	476.9		Private	
				Kole	91p	733.4		Private	
				Kole	Defence Land	143.7		Public	
76	G25	Recreation/Open Space	Garden	Kole	10p	1350.0	1.24	Private	407.4
				Kole	89p	1836.1		Private	
				Kole	14p	2770.5		Private	
				Kole	74p	3605.6		Public	
				Kole	9p	2857.8		Private	
77	G26	Recreation/Open Space	Garden	Katai	137p	420.9	0.72	Public	297.6
				Katai	100p	385.7		Public	
				Katai	Xp	6439.8		Private	
78	PA6	Transport Facility	Parking Lot	Katai	45 p	2607.5	0.60	Private	278.4
				Katai	46 p	1812.4		Private	
				Katai	95 p	925.5		Private	
				Katai	136	678.6		Private	
79	AM6	Public Amenities	Amenities Cluster- Neighbourhood	Katai	43 p	396.9	0.40	Private	185.1

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
			Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Katai	95 p	3606.8		Private	
80	G27	Recreation/Open Space	Garden	Katai	92p	1062.9	2.03	Public	648.2
				Katai	Xp	5611.6		Private	
				Katai	42p	2107.1		Private	
				Katai	95p	2247.6		Private	
				Katai	43p	1698.0		Private	
				Katai	71p	1821.7		Private	
				Katai	96p	5171.3		Public	
				Katai	49p	320.7		Private	
				Katai	94p	218.1		Private	
81	G28	Recreation/Open Space	Garden	Katai	40p	163.8	0.22	Private	102.5
				Katai	Xp	2054.4		Private	
82	G29	Recreation/Open Space	Garden	Katai	92p	167.8	1.57	Public	708.4
				Katai	39p	3405.2		Private	
				Katai	38p	8570.6		Private	
				Katai	38p	186.9		Public	
				Katai	Xp	520.2		Private	
				Katai	123p	2831.4		Private	
83	G30	Recreation/Open Space	Garden	Katai	40p	1133.9	2.35	Private	1087.6
				Katai	36p	3182.9		Private	
				Katai	37p	11422.4		Private	
				Katai	32p	143.1		Private	

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Katai	20p	3972.3		Private	
				Katai	123p	1259.3		Private	
				Katai	Xp	2417.9		Private	
84	G31	Recreation/Open Space	Garden	Katai	123p	272.6	0.44	Private	203.0
				Katai	109p	4119.9		Private	
85	G32	Recreation/Open Space	Garden	Katai	3p	3563.9	1.02	Private	275.3
				Katai	4p	2109.8		Private	
				Katai	Xp	282.2		Private	
				Katai	Pondp	4241.2		Public	
86	PG19	Recreation/Open Space	Playground	Katai	2p	2562.6	0.26	Private	118.4
87	SC5	Educational Facilities	School: Primary, Secondary	Nilaje	6p	3536.4	0.80	Private	370.1
				Nilaje	7p	4470.6		Private	
88	G33	Recreation/Open Space	Garden	Nilaje	6p	2332.2	0.27	Private	123.2
				Nilaje	5p	334.0		Private	
89	UT6	Public Utility	Water Distribution, Electric Substation-Neighbourhood Level	Nilaje	3p	1935.7	0.31	Private	145.0
				Nilaje	218 p	667.7		Private	
				Nilaje	X p	533.7		Private	
90	AM7	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Nilaje	2p	2968.4	0.40	Private	185.4
				Nilaje	X p	436.8		Private	
				Nilaje	218 p	265.7		Private	
				Nilaje	219 p	341.1		Private	
91	G34	Recreation/Open Space	Garden	Nilaje	PONDp	2259.6	0.23	Public	0.0

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
92	G35	Recreation/Open Space	Garden	Nilaje	12p	10603.1	2.53	Private	817.8
				Nilaje	10p	2504.5		Private	
				Nilaje	17p	3461.7		Private	
				Nilaje	13p	1123.8		Private	
				Nilaje	Pondp	7573.4		Public	
93	M6	Market	Retail/Vegetable Market	Nilaje	22 p	421.8	0.15	Private	57.3
				Nilaje	23 p	677.7		Private	
				Nilaje	23 p	239.5		Public	
				Nilaje	25 p	139.4		Private	
				Nilaje	POND p	45.7		Public	
94	HP1	Health Facilities	Hospital- Sector Level	Nilaje	20 p	676.6	3.24	Private	1453.4
				Nilaje	21 p	2949.6		Private	
				Nilaje	22 p	2930.7		Private	
				Nilaje	23 p	298.2		Private	
				Nilaje	23 p	133.9		Public	
				Nilaje	27 p	810.7		Public	
				Nilaje	28 p	6644.5		Private	
				Nilaje	30 p	5942.7		Private	
				Nilaje	31 p	12003.3		Private	
95	PG20	Recreation/Open Space	Playground	Nilaje	29p	5198.3	0.82	Private	377.1
				Nilaje	30p	1687.1		Private	
				Nilaje	32p	1274.0		Private	
96	G36	Recreation/Open	Garden	Nilaje	87p	10838.5	1.73	Private	801.8

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
		Space		Nilaje	234p	3506.8		Private	
				Nilaje	86p	400.3		Private	
				Nilaje	75p	2601.0		Private	
97	PA7	Transport Facility	Parking Lot	Nilaje	75 p	12118.7	1.22	Public	3.2
				Nilaje	85 p	70.2		Private	
98	FS1	Public Utility	Fire Station- Sector Level	Nilaje	39 p	319.8	0.75	Private	152.9
				Nilaje	69 p	4196.4		Public	
				Nilaje	70 p	2988.2		Private	
99	PS1	Public Utility	Police Station- Sector Level	Nilaje	69 p	7504.3	0.75	Public	0.0
100	TE2	Public Utility	Telephone Exchange- Sector Level	Nilaje	53 p	1607.9	0.35	Public	0.0
				Nilaje	69 p	1917.1		Public	
101	PO2	Public Utility	Post Office- Sector Level	Nilaje	53 p	3332.4	0.50	Public	0.0
				Nilaje	69 p	1692.6		Public	
102	PG21	Recreation/Open Space	Playground	Nilaje	69p	7754.6	0.78	Public	0.0
103	G37	Recreation/Open Space	Garden	Nilaje	69p	7510.8	1.01	Public	119.1
				Nilaje	53p	53.6		Public	
				Nilaje	68p	2577.0		Private	
104	PG22	Recreation/Open Space	Playground	Nilaje	80p	5463.1	1.06	Private	489.6
				Nilaje	81p	1857.9		Private	
				Nilaje	73p	137.4		Private	
				Nilaje	84p	224.9		Private	
				Nilaje	79p	2909.7		Private	
105	SC6	Educational	School: Primary, Secondary	Nilaje	80 p	313.9	0.80	Private	369.9

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
		Facilities		Nilaje	81 p	3179.7		Private	
				Nilaje	82 p	4509.1		Private	
106	G38	Recreation/Open Space	Garden	Ghesar	111p	891.1	0.47	Private	216.2
				Ghesar	110p	1114.0		Private	
				Ghesar	Gaothan p	2672.2		Private	
107	PG23	Recreation/Open Space	Playground	Ghesar	26p	354.9	0.54	Private	131.7
				Ghesar	27p	2556.9		Public	
				Ghesar	5p	2451.3		Private	
				Ghesar	25p	4.4		Private	
				Ghesar	4p	38.8		Private	
108	CL1	Educational Facilities	College	Ghesar	27 p	4850.2	4.00	Public	329.1
				Ghesar	33 p	2935.5		Public	
				Nilaje	66 p	25093.5		Public	
				Nilaje	65 p	7119.6		Private	
109	M7	Market	Retail/Vegetable Market	Ghesar	27 p	1501.3	0.15	Public	0.0
110	AM8	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Ghesar	27 p	4003.5	0.40	Public	0.0
111	UT7	Public Utility	Water Distribution, Electric Substation-Neighbourhood Level	Ghesar	27 p	3004.1	0.55	Public	0.0
112	PG24	Recreation/Open Space	Playground	Ghesar	6p	6099.9	2.87	Private	347.4
				Ghesar	27p	3854.0		Public	

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Ghesar	23p	1315.8		Private	
				Ghesar	5p	100.1		Private	
				Ghesar	17p	17345.6		Public	
113	SC7	Educational Facilities	School: Primary, Secondary	Ghesar	17 p	370.7	0.80	Public	52.3
				Ghesar	23 p	1130.6		Private	
				Ghesar	27 p	6505.7		Public	
114	CG1	Public Utility	Cremation/Burial Ground	Ghesar	20 p	1598.9	2.50	Private	622.9
				Ghesar	34 p	9578.6		Private	
				Ghesar	21 p	2300.3		Private	
				Ghesar	33 p	10017.4		Public	
				Ghesar	36 p	1524.5		Public	
115	G39	Recreation/Open Space	Garden	Ghesar	34p	1202.0	5.65	Private	1760.8
				Ghesar	36p	18428.0		Public	
				Ghesar	20p	14597.8		Private	
				Ghesar	35p	8181.4		Private	
				Ghesar	14p	3974.6		Private	
				Ghesar	37p	1745.2		Private	
				Ghesar	38p	446.5		Private	
				Ghesar	52p	7949.2		Private	
116	G40	Recreation/Open Space	Garden	Ghesar	9p	1874.5	0.71	Private	143.4
				Ghesar	10p	1228.5		Private	
				Ghesar	112p	4001.0		Public	
117	PG25	Recreation/Open Space	Playground	Ghesar	38p	6238.0	0.62	Private	288.3

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
118	PG26	Recreation/Open Space	Playground	Ghesar	113p	1209.1	1.14	Private	526.0
				Ghesar	53p	3814.4		Private	
				Ghesar	58p	6356.7		Private	
119	G41	Recreation/Open Space	Garden	Ghesar	66p	4510.5	6.59	Private	3046.1
				Ghesar	70p	17345.5		Private	
				Ghesar	69	6153.2		Private	
				Ghesar	71p	7641.1		Private	
				Ghesar	68p	909.5		Private	
				Ghesar	72	8244.9		Private	
				Ghesar	73p	10107.4		Private	
				Ghesar	74	5802.2		Private	
				Ghesar	75p	1400.7		Private	
				Ghesar	76p	3789.7		Private	
120	SC8	Educational Facilities	School: Primary, Secondary	Ghesar	63p	2039.2	0.85	Private	394.0
				Ghesar	73p	3198.6		Private	
				Ghesar	64p	414.2		Private	
				Ghesar	97p	1539.0		Private	
				Ghesar	96p	212.0		Private	
				Ghesar	76p	1121.0		Private	
121	CT4	Socio Cultural Amenities	Community Centre: Hall, Library	Ghesar	76p	2360.4	0.59	Private	271.4
				Ghesar	77p	2175.0		Private	
				Ghesar	91p	396.1		Private	
				Ghesar	96p	939.9		Private	
122	UT8	Public Utility	Water Distribution, Electric Substation-	Ghesar	76p	1608.3	0.30	Private	139.5

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
			Neighbourhood Level	Ghesar	77p	1409.9		Private	
123	AM9	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Ghesar	76p	1827.6	0.40	Private	186.6
				Ghesar	77p	2210.2		Private	
124	FS2	Public Utility	Fire Station- Sector Level	Ghesar	76p	747.2	0.49	Private	226.2
				Ghesar	77p	3631.8		Private	
				Ghesar	78p	514.0		Private	
125	M8	Market	Retail/Vegetable Market	Ghesar	87p	813.7	0.15	Private	69.9
				Ghesar	89p	51.2		Private	
				Ghesar	91p	648.4		Private	
126	G42	Recreation/Open Space	Garden	Ghesar	94p	70.7	0.70	Private	325.6
				Nilaje	99p	6.0		Private	
				Nilaje	98p	6215.1		Private	
				Nilaje	103p	752.3		Private	
127	PG27	Recreation/Open Space	Playground	Nilaje	107p	8482.9	0.91	Private	419.9
				Nilaje	130p	601.7		Private	
128	G43	Recreation/Open Space	Garden	Nilaje	104p	385.4	0.04	Private	17.8
129	G44	Recreation/Open Space	Garden	Nilaje	104p	560.6	0.75	Private	346.2
				Nilaje	109p	5194.5		Private	
				Nilaje	121p	18.2		Private	
				Nilaje	122p	1657.9		Private	
				Nilaje	123p	59.5		Private	

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
130	SC9	Educational Facilities	School: Primary, Secondary	Nilaje	108p	4592.2	0.80	Private	370.6
				Nilaje	130p	1372.9		Private	
				Nilaje	125p	780.7		Private	
				Nilaje	124p	1140.4		Private	
				Nilaje	123p	132.5		Private	
131	M9	Market	Retail/Vegetable Market	Nilaje	124 p	693.5	0.15	Private	69.8
				Nilaje	123 p	712.4		Private	
				Nilaje	122 p	104.3		Private	
132	G45	Recreation/Open Space	Garden	Nilaje	148p	152.8	0.83	Private	179.1
				Nilaje	149p	203.1		Private	
				Nilaje	150p	3519.6		Private	
				Nilaje	229p	4430.4		Public	
133	UT9	Public Utility	Water Distribution, Electric Substation-Neighbourhood Level	Nilaje	122 p	49.8	0.30	Private	138.8
				Nilaje	121 p	2633.4		Private	
				Nilaje	119 p	7.0		Private	
				Nilaje	120 p	130.3		Private	
				Nilaje	112 p	181.8		Private	
134	AM10	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Nilaje	121 p	4002.8	0.40	Private	185.0
135	G46	Recreation/Open Space	Garden	Nilaje	118p	2337.8	1.60	Private	519.6
				Nilaje	119p	317.9		Private	
				Nilaje	120p	27.8		Private	

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Nilaje	121p	3751.2		Private	
				Nilaje	207p	46.3		Private	
				Nilaje	206p	4219.9		Private	
				Nilaje	158p	541.5		Private	
				Nilaje	Pondp	4769.5		Public	
136	G47	Recreation/Open Space	Garden	Nilaje	228p	2043.0	0.91	Public	322.7
				Nilaje	162p	4091.5		Private	
				Nilaje	208p	995.7		Private	
				Nilaje	209	327.5		Private	
				Nilaje	Xp	1149.0		Private	
				Nilaje	163p	100.8		Public	
				Nilaje	164p	417.6		Private	
137	PG28	Recreation/Open Space	Playground	Nilaje	165p	2400.2	0.94	Private	420.4
				Nilaje	227p	310.3		Public	
				Nilaje	164p	535.5		Private	
				Nilaje	166p	6159.6		Private	
138	UT10	Public Utility	Water Distribution, Electric Substation-Neighbourhood Level	Nilaje	164p	984.5	0.22	Private	101.6
				Nilaje	166p	1214.7		Private	
139	FS3	Public Utility	Fire Station- Sector Level	Nilaje	164p	550.3	0.34	Private	158.9
				Nilaje	210p	2887.5		Private	
140	SC10	Educational Facilities	School: Primary, Secondary	Nilaje	166p	449.4	0.45	Private	207.6
				Nilaje	192p	4041.3		Private	
141	M10	Market	Retail/Vegetable Market	Nilaje	192p	1409.8	0.15	Private	70.7
				Nilaje	194p	119.8		Private	

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
142	AM11	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Nilaje	166p	3375.2	0.40	Private	182.7
				Nilaje	186p	77.0		Private	
				Nilaje	192p	500.7		Private	
143	CT5	Socio Cultural Amenities	Community Centre: Hall, Library	Nilaje	166p	879.9	0.16	Private	76.1
				Nilaje	186p	738.6		Private	
				Nilaje	215p	27.2		Private	
144	PG29	Recreation/Open Space	Playground	Nilaje	166p	1862.5	1.33	Private	615.6
				Nilaje	214p	5332.7		Private	
				Nilaje	215p	1173.1		Private	
				Nilaje	167p	18.3		Private	
				Nilaje	185p	2796.2		Private	
				Nilaje	169p	2136.9		Private	
145	G48	Recreation/Open Space	Garden	Nilaje	214p	301.9	6.63	Private	3064.0
				Nilaje	185p	4820.4		Private	
				Nilaje	184p	230.3		Private	
				Nilaje	183p	1486.1		Private	
				Nilaje	168	943.5		Private	
				Nilaje	169p	10781.7		Private	
				Nilaje	215p	40.0		Private	
				Nilaje	170	1332.6		Private	
				Nilaje	171p	5899.2		Private	
				Nilaje	176p	11656.0		Private	
				Nilaje	172p	4063.8		Private	

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Nilaje	173p	321.2		Private	
				Nilaje	174p	2122.1		Private	
				Nilaje	175p	7728.4		Private	
				Katai	83p	192.8		Private	
				Katai	14p	110.2		Private	
				Katai	16p	7154.8		Private	
				Katai	124	1137.6		Private	
				Katai	82	1696.5		Private	
				Katai	18p	4202.9		Private	
				Katai	11p	55.5		Private	
				Katai	122p	13.8		Private	
146	PG30	Recreation/Open Space	Playground	Nilaje	188p	4456.8	0.92	Private	423.3
				Nilaje	185p	3936.8		Private	
				Katai	9p	435.0		Private	
				Katai	10p	329.4		Private	
147	UT11	Public Utility	Water Distribution, Electric Substation-Neighbourhood Level	Katai	8p	2327.3	0.30	Private	136.8
				Katai	11p	632.3		Private	
148	G49	Recreation/Open Space	Garden	Katai	8p	140.7	0.59	Private	270.6
				Katai	11p	1575.0		Private	
				Katai	84p	1302.3		Private	
				Katai	19p	2169.7		Private	
				Katai	21p	121.9		Private	
				Katai	122p	545.9		Private	
149	G50	Recreation/Open	Garden	Katai	11p	193.2	0.42	Private	195.8

RESERVATIONS: SECTOR 1									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs.Lacs)
				Village	Survey No.	Detailed Area (Sq.m.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
		Space		Katai	122p	4044.0		Private	
150	G51	Recreation/Open Space	Garden	Katai	109p	204.2	0.02	Private	9.4

Table No. 11.2: Details of Proposed Reservations- Sector 2

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
1	G1	Recreation/Open Space	Garden	Usarghar	89p	87.1	1.03	Private	552.8
				Usarghar	125p	1892.1		Private	
				Usarghar	74p	2321.1		Private	
				Usarghar	137p	5995.5		Private	
2	G2	Recreation/Open Space	Garden	Usarghar	90p	1353.1	0.14	Private	72.6
3	CG1	Public Utility	Cremation/Burial Ground	Usarghar	70	8828.7	2.56	Private	1374.0
				Usarghar	71	12813.9		Private	
				Usarghar	68	2722.2		Private	
				Usarghar	103	305.3		Private	
				Usarghar	90	921.1		Private	
4	G3	Recreation/Open Space	Garden	Usarghar	70p	14084.4	2.30	Private	1232.7
				Usarghar	68p	5188.7		Private	
				Usarghar	102p	1197.3		Private	
				Usarghar	69p	2489.9		Private	
5	UT1	Public Utility	Water Distribution, Electric Substation-Neighbourhood Level	Usarghar	66p	1291.2	0.32	Private	173.0
				Usarghar	67p	1578.3		Private	
				Usarghar	102p	352.2		Private	
6	PG1	Recreation/Open Space	Playground	Usarghar	39p	1371.8	3.47	Private	1863.4
				Usarghar	41p	8854.2		Private	
				Usarghar	42p	837.1		Private	
				Usarghar	108p	16103.0		Private	

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Usarghar	107p	7540.3		Private	
7	M1	Market	Retail/Vegetable Market	Usarghar	107p	1505.3	0.15	Private	80.8
8	G4	Recreation/Open Space	Garden	Usarghar	105p	6356.6	0.64	Public	0.0
9	SC1	Educational Facilities	School: Primary, Secondary	Usarghar	113p	8061.7	0.81	Private	432.8
10	PG2	Recreation/Open Space	Playground	Usarghar	3p	5203.4	1.15	Private	617.2
				Usarghar	126p	2051.6		Private	
				Usarghar	113p	4240.6		Private	
11	AM1	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Usarghar	2p	2203.8	0.40	Private	215.0
				Usarghar	3p	198.2		Private	
				Usarghar	111p	1602.5		Private	
12	UT2	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Usarghar	1p	259.7	0.30	Private	161.3
				Usarghar	2p	445.4		Private	
				Usarghar	23p	5.0		Private	
				Usarghar	111p	1023.4		Private	
				Usarghar	136p	1271.7		Private	
13	M2	Market	Retail/Vegetable Market	Usarghar	110p	554.9	0.15	Private	80.8
				Usarghar	136p	949.7		Private	
14	G5	Recreation/Open Space	Garden	Usarghar	22p	493.6	0.76	Private	410.0
				Usarghar	110p	6054.6		Private	
				Usarghar	136p	598.5		Private	
				Usarghar	23p	489.4		Private	

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
15	PG3	Recreation/Open Space	Playground	Usarghar	24p	3324.0	0.62	Private	331.3
				Usarghar	124p	75.3		Private	
				Usarghar	25p	2772.1		Private	
16	G6	Recreation/Open Space	Garden	Usarghar	30p	1622.7	0.67	Private	362.0
				Usarghar	31p	2988.1		Private	
				Usarghar	123p	2131.7		Private	
17	SC2	Educational Facilities	School: Primary, Secondary	Usarghar	34p	1319.0	0.81	Private	434.8
				Usarghar	35p	4743.8		Private	
				Usarghar	109p	2035.4		Private	
18	PG4	Recreation/Open Space	Playground	Usarghar	109p	9682.9	0.97	Private	519.9
19	PA1	Transport Facility	Parking Lot	Usarghar	93p	775.3	0.65	Private	351.5
				Usarghar	108p	5770.8		Private	
20	G7	Recreation/Open Space	Garden	Usarghar	93p	14748.5	1.47	Private	791.8
21	PG5	Recreation/Open Space	Playground	Bhopar	227p	20747.5	4.52	Private	2429.4
				Sandap	21p	23377.8		Private	
				Sandap	2p	1123.5		Private	
22	G8	Recreation/Open Space	Garden	Bhopar	90p	6329.5	2.22	Private	1192.0
				Bhopar	67p	1753.1		Private	
				Bhopar	68p	6039.4		Private	
				Bhopar	69p	6473.4		Private	
				Bhopar	223p	1605.1		Private	
23	STP1	Public Utility	Sewage Treatment Plant	Bhopar	83p	38.1	35.05	Private	18416.7

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Bhopar	84p	13265.6		Private	
				Bhopar	85	1065.6		Private	
				Bhopar	260p	465.3		Private	
				Bhopar	224p	14350.4		Private	
				Bhopar	86	831.6		Private	
				Bhopar	87	10248.7		Private	
				Bhopar	88	7487.7		Private	
				Bhopar	223p	45767.2		Private	
				Bhopar	68p	13535.0		Private	
				Bhopar	67p	1991.8		Private	
				Bhopar	90p	6181.4		Private	
				Bhopar	130p	9659.5		Private	
				Bhopar	89p	10273.4		Private	
				Bhopar	129p	5395.2		Private	
				Bhopar	131p	5205.4		Private	
				Bhopar	132	9180.1		Private	
				Bhopar	133	6539.6		Private	
				Bhopar	134p	3900.4		Public	
				Bhopar	134p	4642.5		Private	
				Bhopar	135p	1174.5		Public	
				Bhopar	135p	4586.6		Private	
				Bhopar	136	16311.9		Private	
				Bhopar	137	5911.1		Private	
				Bhopar	138	8226.4		Private	

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Bhopar	139p	9141.7		Private	
				Bhopar	128p	1041.0		Private	
				Bhopar	140p	7915.6		Private	
				Bhopar	142p	4161.0		Private	
				Bhopar	143	10954.9		Private	
				Bhopar	144p	3863.4		Private	
				Bhopar	144p	1258.1		Public	
				Bhopar	145	13634.7		Private	
				Bhopar	146p	10760.8		Private	
				Bhopar	148p	16488.0		Private	
				Bhopar	252p	8532.5		Private	
				Bhopar	155p	8407.7		Private	
				Bhopar	160p	4464.3		Private	
				Bhopar	161p	5089.5		Private	
				Bhopar	162	10634.5		Private	
				Bhopar	163	15117.5		Private	
				Bhopar	164p	837.4		Public	
				Bhopar	165p	261.2		Public	
				Bhopar	251p	11651.6		Private	
24	G9	Recreation/Open Space	Garden	Bhopar	252p	2304.9	0.58	Private	311.1
				Bhopar	141p	2441.9		Private	
				Bhopar	140p	1047.7		Private	
25	G10	Recreation/Open Space	Garden	Bhopar	149p	1507.1	3.01	Private	1614.3
				Bhopar	150p	1370.3		Private	

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Bhopar	125p	5278.7		Private	
				Bhopar	126p	9188.6		Private	
				Bhopar	127p	8387.7		Private	
				Bhopar	128p	525.2		Private	
				Bhopar	252p	3809.5		Private	
26	G11	Recreation/Open Space	Garden	Bhopar	Xp	3649.2	1.76	Private	943.0
				Bhopar	98p	1644.1		Private	
				Bhopar	100p	1302.5		Private	
				Bhopar	250p	139.6		Private	
				Bhopar	101p	1955.9		Private	
				Bhopar	123p	489.5		Private	
				Bhopar	124p	1708.7		Private	
				Bhopar	252p	6674.5		Private	
27	PG6	Recreation/Open Space	Playground	Bhopar	98p	12145.3	1.48	Private	793.8
				Bhopar	92p	2640.5		Private	
28	G12	Recreation/Open Space	Garden	Bhopar	62p	4907.1	0.91	Private	491.1
				Bhopar	244p	1074.0		Private	
				Bhopar	220p	529.7		Private	
				Bhopar	219p	2635.4		Private	
29	UT3	Public Utility	Water Distribution, Electric Substation-Neighbourhood Level	Bhopar	61p	568.8	0.30	Private	160.8
				Bhopar	220p	1400.7		Private	
				Bhopar	62p	8.4		Private	
				Bhopar	244p	1017.0		Private	
30	AM2	Public Amenities	Amenities Cluster- Neighbourhood Level:	Bhopar	219p	3306.2	0.41	Private	217.7

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
			PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Bhopar	15p	749.5		Private	
31	SC3	Educational Facilities	School: Primary, Secondary	Bhopar	219p	2528.7	0.80	Private	430.1
				Bhopar	15p	5481.5		Private	
32	PG7	Recreation/Open Space	Playground	Bhopar	254p	1127.7	0.41	Private	220.0
				Bhopar	219p	2969.7		Private	
33	M3	Market	Retail/Vegetable Market	Bhopar	219p	1515.9	0.15	Private	81.4
34	G13	Recreation/Open Space	Garden	Bhopar	Gaothan p	110.6	0.11	Private	24.8
				Bhopar	95	619.7		Public	
				Bhopar	249P	351.7		Private	
35	G14	Recreation/Open Space	Garden	Bhopar	249p	2542.0	0.25	Private	136.5
36	PG8	Recreation/Open Space	Playground	Bhopar	252p	3386.3	6.81	Private	3655.0
				Bhopar	123p	1315.3		Private	
				Bhopar	121p	11190.8		Private	
				Bhopar	122p	20682.6		Private	
				Bhopar	111p	46.4		Private	
				Bhopar	109p	14881.1		Private	
				Bhopar	108p	6568.1		Private	
				Bhopar	106p	2524.4		Private	
				Bhopar	110p	2587.1		Private	
				Bhopar	Xp	1267.9		Private	
				Bhopar	107p	1300.4		Private	

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Bhopar	248p	2324.9		Private	
37	PG9	Recreation/Open Space	Playground	Bhopar	252p	649.6	6.56	Private	3521.2
				Bhopar	110p	755.6		Private	
				Bhopar	213p	18216.1		Private	
				Bhopar	214p	9312.7		Private	
				Bhopar	5p	743.7		Private	
				Bhopar	246	414.4		Private	
				Bhopar	4p	16170.5		Private	
				Bhopar	215p	3104.5		Private	
				Bhopar	218p	11656.6		Private	
				Bhopar	2p	4245.5		Private	
				Bhopar	3p	313.8		Private	
38	G15	Recreation/Open Space	Garden	Bhopar	11p	3797.7	6.98	Private	3746.1
				Bhopar	13p	67.6		Private	
				Bhopar	21p	679.7		Private	
				Nandivali Panchanand	53p	3252.4		Private	
				Nandivali Panchanand	54p	12521.1		Private	
				Nandivali Panchanand	52p	137.5		Private	
				Nandivali Panchanand	51p	8674.9		Private	
				Nandivali	50	3707.3		Private	

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Panchanand					
				Nandivali Panchanand	86p	12630.5		Private	
				Nandivali Panchanand	87p	8652.0		Private	
				Nandivali Panchanand	90p	8519.9		Private	
				Nandivali Panchanand	78p	1147.3		Private	
				Nandivali Panchanand	48p	5335.2		Private	
				Nandivali Panchanand	49p	273.8		Private	
				Nandivali Panchanand	82p	376.5		Private	
39	G16	Recreation/Open Space	Garden	Bhopar	23p	1235.9	4.58	Private	2457.7
				Bhopar	252p	776.8		Private	
				Bhopar	19p	8798.2		Private	
				Bhopar	20p	3085.0		Private	
				Bhopar	21p	8734.2		Private	
				Bhopar	22p	7329.4		Private	
				Bhopar	245p	11051.9		Private	
				Nandivali Panchanand	86p	3626.5		Private	

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Nandivali Panchanand	87p	1137.9		Private	
40	PG10	Recreation/Open Space	Playground	Bhopar	218p	158.4	4.13	Private	2216.4
				Bhopar	253p	479.6		Private	
				Bhopar	15p	1888.8		Private	
				Bhopar	16p	9538.6		Private	
				Bhopar	244p	1693.3		Private	
				Bhopar	17p	1755.5		Private	
				Bhopar	18p	12767.3		Private	
				Bhopar	14p	12480.2		Private	
				Bhopar	252p	519.5		Private	
41	PA2	Transport Facility	Parking Lot	Bhopar	26p	5467.9	0.55	Private	293.6
42	G17	Recreation/Open Space	Garden	Bhopar	26p	2958.5	0.30	Private	158.8
43	G18	Recreation/Open Space	Garden	Bhopar	26p	371.4	0.38	Private	203.3
				Bhopar	27p	979.9		Private	
				Bhopar	22p	308.6		Private	
				Bhopar	23p	628.0		Private	
				Bhopar	243p	301.8		Private	
				Bhopar	244p	1196.8		Private	
44	G19	Recreation/Open Space	Garden	Bhopar	26p	11.1	0.28	Private	151.8
				Bhopar	27p	2816.6		Private	
45	G20	Recreation/Open Space	Garden	Bhopar	58p	972.7	0.83	Private	329.9
				Bhopar	Pond p	2185.5		Public	

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Bhopar	57p	1326.7		Private	
				Bhopar	26p	1710.9		Private	
				Bhopar	27p	1674.4		Private	
				Bhopar	241p	460.6		Private	
46	UT4	Public Utility	Water Distribution, Electric Substation-Neighbourhood Level	Sandap	10p	3010.7	0.30	Private	161.6
47	M4	Market	Retail/Vegetable Market	Sandap	22p	1584.1	0.16	Private	85.1
48	AM3	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Sandap	10p	4010.0	0.40	Private	215.3
49	PG11	Recreation/Open Space	Playground	Sandap	10p	2109.2	2.26	Private	923.5
				Sandap	10p	1097.1		Public	
				Sandap	11p	896.1		Private	
				Sandap	12p	14077.4		Private	
				Sandap	12p	4286.1		Public	
				Sandap	24p	73.9		Private	
				Sandap	5p	43.0		Private	
50	G21	Recreation/Open Space	Garden	Sandap	11p	264.7	0.76	Private	410.7
				Sandap	24p	7384.4		Private	
51	PS1	Public Utility	Police Station- Sector Level	Sandap	5p	4114.1	0.75	Public	183.0
				Sandap	5p	3367.8		Private	
				Sandap	6p	41.2		Private	
52	FS1	Public Utility	Fire Station- Sector Level	Sandap	1p	57.0	0.75	Public	269.2

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Sandap	1p	1258.2		Private	
				Sandap	4p	3135.2		Private	
				Sandap	22p	621.2		Private	
				Sandap	26p	2447.9		Public	
53	G22	Recreation/Open Space	Garden	Sandap	16p	460.3	1.62	Private	871.0
				Sandap	17p	5782.0		Private	
				Sandap	24p	6564.1		Private	
				Sandap	14p	3417.2		Private	
54	M5	Market	Retail/Vegetable Market	Sandap	14p	796.7	0.15	Public	38.3
				Sandap	14p	297.2		Private	
				Sandap	24p	415.3		Private	
55	CL1	Educational Facilities	College	Bhopar	239p	7812.1	3.91	Private	2099.8
				Bhopar	53p	3484.1		Private	
				Bhopar	240p	10703.0		Private	
				Bhopar	54p	970.3		Private	
				Bhopar	55p	4599.5		Private	
				Bhopar	231p	11252.0		Private	
				Bhopar	232p	288.1		Private	
56	WS1	Public Utility	Water Reservoir and Distribution- Sector Level	Bhopar	240p	7525.6	1.92	Private	1028.9
				Bhopar	231p	5718.4		Private	
				Bhopar	56p	3156.7		Private	
				Bhopar	55p	2762.2		Private	
57	TE1	Public Utility	Telephone Exchange- Sector Level	Bhopar	52p	146.4	0.35	Private	188.6
				Bhopar	239p	502.0		Private	

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Bhopar	240p	2864.4		Private	
58	PO1	Public Utility	Post Office- Sector Level	Bhopar	52p	3.3	0.50	Private	269.1
				Bhopar	240p	5007.9		Private	
59	SC4	Educational Facilities	School: Primary, Secondary	Bhopar	240p	8012.5	0.80	Private	430.2
60	PG12	Recreation/Open Space	Playground	Bhopar	240p	4795.5	1.06	Private	570.7
				Bhopar	52p	1641.0		Private	
				Bhopar	239p	3173.5		Private	
				Bhopar	29p	1019.0		Private	
61	HP1	Health Facilities	Hospital- Sector Level	Bhopar	51p	9667.7	3.70	Private	1985.5
				Bhopar	49p	1212.2		Private	
				Bhopar	233p	2169.5		Private	
				Bhopar	50p	1986.1		Private	
				Bhopar	239p	18844.0		Private	
				Bhopar	52p	3102.0		Private	
62	M6	Market	Retail/Vegetable Market	Bhopar	32p	1459.5	0.15	Private	80.7
				Bhopar	242p	42.6		Private	
63	UT5	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Bhopar	242p	3024.0	0.30	Private	162.4
64	AM4	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Bhopar	243p	4193.6	0.42	Private	225.2
65	PG13	Recreation/Open	Playground	Nandivali	85p	3395.2	0.84	Private	450.4

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
		Space		Panchanand					
				Bhopar	243p	4992.8		Private	
66	PG14	Recreation/Open Space	Playground	Nandivali Panchanand	2p	22.5	0.37	Private	119.0
				Nandivali Panchanand	81p	1519.8		Public	
				Nandivali Panchanand	10p	2193.8		Private	
67	G23	Recreation/Open Space	Garden	Nandivali Panchanand	Pond p	206.4	4.42	Public	2108.9
				Nandivali Panchanand	87p	24.9		Private	
				Nandivali Panchanand	1p	1174.1		Private	
				Nandivali Panchanand	3p	1960.2		Private	
				Nandivali Panchanand	82p	287.8		Private	
				Nandivali Panchanand	4p	4.7		Private	
				Nandivali Panchanand	2p	2086.0		Private	
				Nandivali Panchanand	10p	157.3		Private	

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Nandivali Panchanand	81p	4753.3		Public	
				Nandivali Panchanand	80p	8982.7		Private	
				Nandivali Panchanand	79p	1281.6		Private	
				Nandivali Panchanand	11p	819.4		Private	
				Nandivali Panchanand	12p	5104.8		Private	
				Nandivali Panchanand	47p	7389.1		Private	
				Nandivali Panchanand	77p	367.1		Private	
				Nandivali Panchanand	91p	9321.8		Private	
				Nandivali Panchanand	82p	76.9		Private	
				Nandivali Panchanand	13p	81.9		Private	
				Nandivali Panchanand	45p	158.4		Private	
68	G24	Recreation/Open Space	Garden	Nandivali Panchanand	82p	19.4	0.18	Private	97.0

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Nandivali Panchanand	44p	37.1		Private	
				Nandivali Panchanand	61p	337.8		Private	
				Nandivali Panchanand	82p	698.5		Private	
				Nandivali Panchanand	61p	713.0		Private	
69	G25	Recreation/Open Space	Garden	Bhopar	35p	1962.1	0.20	Private	105.3
70	G26	Recreation/Open Space	Garden	Nandivali Panchanand	58p	1523.8	0.29	Private	155.8
				Nandivali Panchanand	34p	1378.6		Private	
71	G27	Recreation/Open Space	Garden	Nandivali Panchanand	29p	1906.2	0.34	Private	184.6
				Nandivali Panchanand	69p	1532.0		Private	
72	M7	Market	Retail/Vegetable Market	Nandivali Panchanand	28p	1491.2	0.15	Private	82.0
				Nandivali Panchanand	40p	36.3		Private	
73	UT6	Public Utility	Water Distribution, Electric Substation-Neighbourhood Level	Nandivali Panchanand	41p	1555.3	0.30	Private	161.1

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Nandivali Panchanand	42p	1444.7		Private	
74	AM5	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Nandivali Panchanand	15p	198.6	0.40	Private	215.1
				Nandivali Panchanand	Xp	905.7		Private	
				Nandivali Panchanand	42p	1552.9		Private	
				Nandivali Panchanand	41p	892.0		Private	
				Nandivali Panchanand	73p	456.4		Private	
75	PG15	Recreation/Open Space	Playground	Nandivali Panchanand	15p	130.9	1.16	Private	624.9
				Nandivali Panchanand	73p	4163.3		Private	
				Nandivali Panchanand	17p	3631.9		Private	
				Nandivali Panchanand	41p	3713.8		Private	
76	SC5	Educational Facilities	School: Primary, Secondary	Nandivali Panchanand	15p	8004.4	0.80	Private	429.8
77	G28	Recreation/Open Space	Garden	Nandivali Panchanand	71p	9008.4	1.80	Public	481.6

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Nandivali Panchanand	6p	1117.4		Private	
				Nandivali Panchanand	72p	5091.3		Private	
				Nandivali Panchanand	7p	2762.1		Private	
78	PG16	Recreation/Open Space	Playground	Nandivali Panchanand	67p	394.0	0.84	Private	452.4
				Nandivali Panchanand	22p	5350.4		Private	
				Nandivali Panchanand	Xp	2068.4		Private	
				Nandivali Panchanand	25p	613.2		Private	
79	PG17	Recreation/Open Space	Playground	Bhopar	238 p	1185.5	1.07	Private	577.0
				Bhopar	38p	2766.1		Private	
				Bhopar	39p	1152.6		Private	
				Bhopar	259p	488.1		Private	
				Bhopar	236p	5155.3		Private	
80	AM6	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Bhopar	259p	2503.3	0.40	Private	215.0
				Bhopar	39p	319.4		Private	
				Bhopar	236p	321.5		Private	
				Bhopar	40p	860.1		Private	
81	UT7	Public Utility	Water Distribution, Electric Substation-	Bhopar	259p	93.3	0.30	Private	162.2

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
			Neighbourhood Level	Bhopar	40p	1606.3		Private	
				Bhopar	236p	1321.6		Private	
82	SC6	Educational Facilities	School: Primary, Secondary	Bhopar	37p	1979.1	0.80	Private	429.6
				Bhopar	236p	6022.0		Private	
83	M8	Market	Retail/Vegetable Market	Bhopar	37p	336.8	0.15	Private	80.9
				Bhopar	236p	1170.2		Private	
84	G29	Recreation/Open Space	Garden	Bhopar	236p	3720.8	0.62	Private	332.7
				Bhopar	237p	374.7		Private	
				Bhopar	42p	2102.0		Private	
85	G30	Recreation/Open Space	Garden	Bhopar	48p	9947.5	0.99	Private	534.1
86	PA3	Transport Facility	Parking Lot	Bhopar	50p	352.2	0.70	Private	373.7
				Bhopar	232p	5702.3		Private	
				Bhopar	239p	905.0		Private	
87	PG18	Recreation/Open Space	Playground	Bhopar	232p	5851.7	1.14	Private	614.0
				Bhopar	54p	4736.5		Private	
				Bhopar	53p	130.4		Private	
				Bhopar	239p	531.8		Private	
				Bhopar	240p	185.9		Private	
88	G32	Recreation/Open Space	Garden	Sandap	20A p	570.8	0.27	Private	86.2
				Sandap	20A p	508.4		Public	
				Sandap	1p	1034.6		Private	
				Sandap	1p	585.2		Public	
89	SC7	Educational	School: Primary, Secondary	Usarghar	95p	8012.8	0.80	Private	430.2

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
		Facilities							
90	UT8	Public Utility	Water Distribution, Electric Substation-Neighbourhood Level	Sandap	25p	2742.8	0.30	Public	14.2
				Sandap	18p	263.6		Private	
91	AM7	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Gharivali	42A p	4005.5	0.40	Private	215.1
92	PG19	Recreation/Open Space	Playground	Usarghar	95	5658.6	1.99	Private	1068.1
				Gharivali	42Ap	10140.9		Private	
				Gharivali	38p	786.4		Private	
				Gharivali	11p	1569.8		Private	
				Gharivali	37p	1738.8		Private	
93	PA4	Transport Facility	Parking Lot	Gharivali	8p	7513.0	0.84	Private	449.0
				Gharivali	13p	354.7		Private	
				Gharivali	39p	495.8		Private	
94	M9	Market	Retail/Vegetable Market	Gharivali	4p	1507.1	0.15	Private	80.9
95	SC8	Educational Facilities	School: Primary, Secondary	Gharivali	4p	1422.7	0.80	Public	353.3
				Gharivali	4p	4719.6		Private	
				Gharivali	7p	1861.4		Private	
96	G33	Recreation/Open Space	Garden	Ghariwal	5p	116.9	0.79	Private	402.0
				Ghariwal	44p	1099.2		Private	
				Ghariwal	4p	388.7		Public	
				Ghariwal	4p	6272.2		Private	
97	G34	Recreation/Open	Garden	Gharivali	1p	2108.3	2.16	Private	1160.9

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
		Space		Gharivali	Xp	876.4		Private	
				Gharivali	36p	6435.5		Private	
				Gharivali	35p	1672.5		Private	
				Gharivali	132p	10529.0		Private	
98	PA5	Transport Facility	Parking Lot	Gharivali	35p	5737.0	0.80	Private	431.0
				Gharivali	37p	2163.9		Private	
				Gharivali	Xp	126.5		Private	
99	PG20	Recreation/Open Space	Playground	Gharivali	53p	220.0	1.76	Private	946.2
				Gharivali	59p	5779.4		Private	
				Gharivali	27	2553.9		Private	
				Gharivali	46p	7568.3		Private	
				Gharivali	26p	1147.3		Private	
				Gharivali	31p	355.2		Private	
100	G35	Recreation/Open Space	Garden	Gharivali	43p	348.8	0.31	Private	168.8
				Gharivali	57p	870.4		Private	
				Gharivali	25p	1925.0		Private	
101	PA6	Transport Facility	Parking Lot	Gharivali	43p	3319.2	0.36	Private	194.0
				Gharivali	52p	295.0		Private	
102	PG21	Recreation/Open Space	Playground	Gharivali	44p	19385.6	3.48	Private	1779.6
				Gharivali	23p	11523.4		Private	
				Gharivali	23p	1698.1		Public	
				Gharivali	Xp	364.3		Private	
				Gharivali	22p	173.2		Private	
				Gharivali	50p	1699.5		Private	

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
103	G36	Recreation/Open Space	Garden	Gharivali	41p	124.0	1.29	Private	693.0
				Gharivali	12p	547.4		Private	
				Gharivali	14p	5833.7		Private	
				Gharivali	6p	595.7		Private	
				Gharivali	5p	3594.2		Private	
				Gharivali	44p	783.0		Private	
				Gharivali	17p	1430.5		Private	
104	CT3	Socio Cultural Amenities	Community Centre: Hall, Library- Sector Level	Gharivali	42A p	3619.7	0.36	Private	194.3
105	PG22	Recreation/Open Space	Playground	Gharivali	42A p	17.8	0.48	Private	256.9
				Gharivali	42A p	1941.9		Private	
				Gharivali	44	1138.0		Private	
				Gharivali	19p	1687.7		Private	
106	PG23	Recreation/Open Space	Playground	Gharivali	21p	3615.7	0.85	Private	458.6
				Gharivali	55p	2297.2		Private	
				Sagaon	67p	2513.2		Private	
				Sagaon	Xp	115.0		Private	
107	TT1	Transport Facility	Transport Terminus- Sector Level	Gharivali	20p	2212.7	1.44	Private	774.1
				Gharivali	44p	6255.8		Private	
				Gharivali	21p	3581.8		Private	
				Gharivali	55p	1649.3		Private	
				Gharivali	Xp	628.3		Private	
				Sagaon	Xp	86.5		Private	
				Sagaon	67p	2.8		Private	

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
108	EL1	Public Utility	Electric Substation- Sector Level	Gharivali	43p	418.4	0.31	Private	167.1
				Mangaon	71p	2694.2		Private	
109	G37	Recreation/Open Space	Garden	Mangaon	71p	414.6	0.13	Private	69.3
				Mangaon	72p	570.5		Private	
				Mangaon	76p	305.4		Private	
110	PG24	Recreation/Open Space	Playground	Mangaon	66p	1043.8	0.51	Private	273.2
				Mangaon	68p	2369.0		Private	
				Mangaon	65p	117.6		Private	
				Mangaon	69p	1557.7		Private	
111	G38	Recreation/Open Space	Garden	Mangaon	29p	1525.9	1.73	Private	928.8
				Mangaon	27p	3463.3		Private	
				Mangaon	7p	4005.1		Private	
				Mangaon	2p	8305.6		Private	
112	PG25	Recreation/Open Space	Playground	Mangaon	18p	23.7	1.26	Private	676.6
				Mangaon	23p	2975.2		Private	
				Mangaon	22p	2864.0		Private	
				Mangaon	33p	3744.2		Private	
				Mangaon	25p	2543.8		Private	
				Mangaon	24p	451.4		Private	
113	AM8	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Mangaon	25p	1813.6	0.40	Private	215.0
				Mangaon	31p	2190.5		Private	
114	UT9	Public Utility	Water Distribution, Electric Substation-	Mangaon	31p	3004.2	0.30	Private	161.3

RESERVATIONS: SECTOR 2									
ID No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
			Neighbourhood Level						
115	M10	Market	Retail/Vegetable Market	Mangaon	58p	1517.6	0.15	Private	81.5
116	PG26	Recreation/Open Space	Playground	Mangaon	56p	7841.0	1.69	Private	908.1
				Mangaon	57p	233.7		Private	
				Mangaon	55	3916.9		Private	
				Mangaon	51p	4026.6		Private	
				Mangaon	54p	894.6		Private	
117	SC9	Educational Facilities	School: Primary, Secondary	Mangaon	51p	2259.2	0.80	Private	430.0
				Mangaon	54p	5695.2		Private	
				Mangaon	65p	54.5		Private	
118	G39	Recreation/Open Space	Garden	Mangaon	51p	1214.4	0.86	Private	459.2
				Mangaon	53p	7337.7		Private	
119	G40	Recreation/Open Space	Garden	Mangaon	51p	2239.4	0.24	Private	126.4
				Mangaon	52p	114.2		Private	
120	PS2	Public Utility	Police Station- Sector Level	Mangaon	44p	10054.8	1.01	Public	0.0
121	FS2	Public Utility	Fire Station- Sector Level	Mangaon	44p	25016.7	2.50	Public	0.0
122	G41	Recreation/Open Space	Garden	Mangaon	38p	6563.9	0.66	Private	352.4

Table No. 11.3: Details of Proposed Reservations- Sector 3

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
1	G1	Recreation/Open Space	Garden	Sonarpada	22p	3105.3	0.31	Public	0.0
2	TT1	Transport Facility	Transport Terminus- Sector Level	Sonarpada	22p	15045.3	1.50	Public	0.0
3	G2	Recreation/Open Space	Garden	Umbroli	30p	443.6	4.71	Private	2290.5
				Umbroli	31p	22957.2		Private	
				Umbroli	45p	3229.7		Private	
				Umbroli	46p	20470.9		Private	
4	PG1	Recreation/Open Space	Playground	Umbroli	28p	6658.9	0.84	Private	410.9
				Umbroli	38p	1790.6		Private	
5	UT1	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Umbroli	23p	518.4	0.30	Private	145.9
				Umbroli	24p	1521.8		Private	
				Umbroli	64p	959.9		Private	
6	AM1	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Umbroli	23p	3959.0	0.40	Private	194.7
				Umbroli	24p	45.5		Private	
7	G3	Recreation/Open Space	Garden	Umbroli	22p	15707.9	2.48	Private	1207.4
				Umbroli	41p	9120.1		Private	
8	G4	Recreation/Open Space	Garden	Umbroli	Gaothan p	1219.8	0.25	Private	121.9
				Umbroli	15p	1286.3		Private	
9	M1	Market	Retail/Vegetable Market	Umbroli	38p	1502.3	0.15	Private	73.1
10	G5	Recreation/Open	Garden	Umbroli	38p	3799.9	0.42	Private	202.5

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
		Space		Umbroli	39p	364.5		Private	
11	PG2	Recreation/Open Space	Playground	Umbroli	13p	2522.0	1.24	Private	601.5
				Umbroli	55p	9846.5		Private	
12	SC1	Educational Facilities	School: Primary, Secondary	Umbroli	55p	8005.6	0.80	Private	389.3
13	G6	Recreation/Open Space	Garden	Umbroli	9p	5802.1	1.23	Private	598.8
				Umbroli	10p	120.2		Private	
				Umbroli	11p	4246.8		Private	
				Umbroli	52p	404.6		Private	
				Umbroli	62p	1739.4		Private	
14	G7	Recreation/Open Space	Garden	Umbroli	8p	723.8	0.17	Private	81.0
				Umbroli	11p	244.5		Private	
				Umbroli	52p	122.6		Private	
				Umbroli	53p	574.9		Private	
15	G8	Recreation/Open Space	Garden	Umbroli	7p	3146.0	0.31	Private	153.0
16	EL1	Public Utility	Electric Substation- Site Level	Umbroli	52p	2285.2	6.00	Private	2918.8
				Umbroli	6p	10411.6		Private	
				Umbroli	9p	2684.0		Private	
				Umbroli	62p	6109.4		Private	
				Umbroli	5	5325.7		Private	
				Umbroli	4	10051.0		Private	
				Umbroli	3	7072.4		Private	
Umbroli	51p	16055.0	Private						

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Umbroli	10p	26.4		Private	
17	PG3	Recreation/Open Space	Playground	Umbroli	2p	1963.5	3.39	Private	1650.0
				Umbroli	10p	44.6		Private	
				Umbroli	37p	2489.3		Private	
				Umbroli	51p	29432.1		Private	
18	PG4	Recreation/Open Space	Playground	Umbroli	36p	9673.6	1.61	Private	783.6
				Umbroli	47p	747.9		Private	
				Umbroli	48p	3838.4		Private	
				Umbroli	57p	1853.8		Private	
19	G9	Recreation/Open Space	Garden	Umbroli	47p	1295.3	8.11	Private	3834.1
				Umbroli	36p	1497.1		Private	
				Umbroli	48p	18299.9		Private	
				Umbroli	34	12295.0		Private	
				Umbroli	Pond p	2289.4		Public	
				Umbroli	49A p	570.5		Private	
				Umbroli	35p	21321.8		Private	
				Umbroli	33p	23563.5		Private	
20	CG1	Public Utility	Cremation/Burial Ground	Umbroli	33p	10450.7	2.51	Private	1219.9
				Umbroli	42p	9756.4		Private	
				Umbroli	43p	4877.6		Private	
21	WS1	Public Utility	Water Reservoir and Distribution- Site Level	Davdi	113p	29786.3	2.98	Private	1448.5
22	G10	Recreation/Open Space	Garden	Davdi	113p	2445.5	0.90	Private	437.2
				Davdi	116p	4502.4		Private	

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Davdi	7p	2043.0		Private	
23	PG5	Recreation/Open Space	Playground	Umbroli	31p	8503.0	2.43	Private	1182.8
				Umbroli	42p	6550.3		Private	
				Umbroli	46p	4808.3		Private	
				Davdi	116p	4461.0		Private	
24	AM2	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Davdi	116p	4003.3	0.40	Private	194.7
25	UT2	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Davdi	116p	3006.4	0.30	Private	146.2
26	M2	Market	Retail/Vegetable Market	Davdi	116p	1502.0	0.15	Private	73.0
27	SC2	Educational Facilities	School: Primary, Secondary	Davdi	116p	8005.9	0.80	Private	389.3
28	PG6	Recreation/Open Space	Playground	Davdi	11p	4383.8	1.03	Private	502.8
				Davdi	116p	3999.0		Private	
				Davdi	13p	1400.4		Private	
				Sonarpada	21p	556.3		Private	
29	PG7	Recreation/Open Space	Playground	Sonarpada	22p	103.4	3.30	Public	1600.6
				Sonarpada	23p	1394.1		Private	
				Sonarpada	24p	14123.3		Private	
				Sonarpada	18p	980.6		Private	
				Sonarpada	26p	4491.8		Private	
				Sonarpada	27p	2603.4		Private	

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Sonarpada	28p	9320.2		Private	
30	SC3	Educational Facilities	School: Primary, Secondary	Sonarpada	32p	8003.7	0.80	Private	389.2
31	PG8	Recreation/Open Space	Playground	Sonarpada	32p	236.4	0.69	Private	337.0
				Sonarpada	37p	1153.7		Private	
				Sonarpada	38p	5538.7		Private	
32	G11	Recreation/Open Space	Garden	Sonarpada	34p	565.7	1.93	Private	940.4
				Sonarpada	35p	7945.2		Private	
				Sonarpada	36p	14.5		Private	
				Sonarpada	37p	10812.5		Private	
33	AM3	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Sonarpada	36p	1615.1	0.40	Private	194.8
				Sonarpada	37p	2390.4		Private	
34	UT3	Public Utility	Water Distribution, Electric Substation-Neighbourhood Level	Sonarpada	38p	3011.7	0.30	Private	146.5
35	M3	Market	Retail/Vegetable Market	Sonarpada	43p	1033.5	0.15	Private	73.7
				Sonarpada	48p	178.5		Private	
				Sonarpada	49p	303.2		Private	
36	PG9	Recreation/Open Space	Playground	Sonarpada	1p	177.7	0.10	Private	48.5
				Sonarpada	40p	218.9		Private	
				Sonarpada	44p	601.6		Private	
37	G12	Recreation/Open Space	Garden	Sonarpada	1p	2650.2	0.27	Private	128.9

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
38	PG10	Recreation/Open Space	Playground	Sonarpada	2p	9577.8	1.50	Private	730.4
				Sonarpada	3p	6.7		Private	
				Sonarpada	7p	5435.1		Private	
39	SC4	Educational Facilities	School: Primary, Secondary	Sonarpada	1p	1896.8	0.80	Private	389.5
				Sonarpada	2p	3883.2		Private	
				Sonarpada	15p	2228.6		Private	
40	PG11	Recreation/Open Space	Playground	Sonarpada	85p	3736.6	0.37	Private	181.7
41	G13	Recreation/Open Space	Garden	Sonarpada	85p	1013.4	1.16	Private	564.5
				Sonarpada	86p	8832.0		Private	
				Sonarpada	87p	34.8		Private	
				Sonarpada	88p	1727.7		Private	
42	PG12	Recreation/Open Space	Playground	Sonarpada	83p	1526.7	0.90	Private	436.1
				Golivali	68p	5923.9		Private	
				Golivali	69p	1517.9		Private	
43	M4	Market	Retail/Vegetable Market	Sonarpada	78p	844.4	0.15	Private	73.4
				Sonarpada	79p	664.1		Private	
44	G14	Recreation/Open Space	Garden	Sonarpada	66p	2304.7	1.16	Private	566.5
				Sonarpada	67p	7300.2		Private	
				Sonarpada	68p	781.3		Private	
				Sonarpada	78p	1262.9		Private	
45	UT4	Public Utility	Water Distribution, Electric Substation-Neighbourhood Level	Golivali	78p	2471.2	0.30	Private	147.6
				Golivali	79p	564.0		Private	
46	AM4	Public Amenities	Amenities Cluster- Neighbourhood	Golivali	61p	2806.2	0.40	Private	195.0

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
			Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Golivali	67p	1203.6		Private	
47	PG13	Recreation/Open Space	Playground	Golivali	61p	5907.6	0.59	Private	287.3
48	G15	Recreation/Open Space	Garden	Davdi	119p	3766.0	0.75	Private	366.4
				Davdi	120p	3767.5		Private	
49	PS1	Public Utility	Police Station- Sector Level	Davdi	120p	7514.5	0.75	Private	365.4
50	FS1	Public Utility	Fire Station- Sector Level	Davdi	26p	7084.8	0.75	Private	365.1
				Davdi	29p	422.8		Private	
51	UT5	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Davdi	16p	435.7	0.30	Private	146.0
				Davdi	17p	579.4		Private	
				Davdi	120p	1987.5		Private	
52	AM5	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Davdi	15p	2010.4	0.40	Private	195.4
				Davdi	16	450.4		Private	
				Davdi	120p	1556.9		Private	
53	SC5	Educational Facilities	School: Primary, Secondary	Davdi	15p	3815.4	0.80	Private	389.3
				Davdi	120p	4189.2		Private	
54	PG14	Recreation/Open Space	Playground	Davdi	120p	10934.3	1.09	Private	531.7
55	M5	Market	Retail/Vegetable Market	Davdi	119p	2009.6	0.20	Private	97.7
56	G16	Recreation/Open Space	Garden	Davdi	4p	7562.2	0.98	Private	476.8
				Davdi	125p	642.2		Private	

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Davdi	Xp	1600.3		Private	
57	PG15	Recreation/Open Space	Playground	Davdi	119p	184.2	3.27	Private	1579.0
				Davdi	120p	28482.4		Private	
				Davdi	92p	222.1		Public	
				Davdi	3	3803.5		Private	
58	G17	Recreation/Open Space	Garden	Davdi	120p	6213.1	3.79	Private	1792.0
				Davdi	1p	140.8		Private	
				Davdi	92p	2310.3		Private	
				Davdi	92p	222.1		Public	
				Davdi	91	2785.1		Private	
				Davdi	Pond p	783.5		Public	
				Davdi	90	25400.8		Private	
59	G18	Recreation/Open Space	Garden	Davdi	89	4289.9	0.81	Private	395.2
				Davdi	88	1353.0		Private	
				Davdi	87	2483.9		Private	
60	PG16	Recreation/Open Space	Playground	Davdi	67p	4326.3	12.48	Private	6068.0
				Davdi	76p	4550.6		Private	
				Davdi	78p	6945.9		Private	
				Davdi	102p	1845.1		Private	
				Davdi	79p	16126.9		Private	
				Davdi	94	1027.2		Private	
				Davdi	80	6410.9		Private	
				Davdi	81	17001.8		Private	
				Davdi	82	8056.0		Private	

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Davdi	85	19733.3		Private	
				Davdi	86	14463.5		Private	
				Davdi	108	21263.7		Private	
				Davdi	109p	3027.2		Private	
61	CT1	Socio Cultural Amenities	Swimming Pool/Gymnasium/Sports Complex	Davdi	79p	2150.0	1.54	Private	749.4
				Davdi	109p	13260.5		Private	
62	HP1	Health Facilities	Hospital- Sector Level	Davdi	67p	3377.9	3.79	Private	1792.5
				Davdi	74p	10175.0		Private	
				Davdi	75p	6542.1		Private	
				Davdi	76p	8606.0		Private	
				Davdi	77	687.1		Private	
				Davdi	78p	5212.7		Private	
				Davdi	105	1065.2		Public	
				Davdi	109p	2168.9		Private	
				Davdi	79p	90.1		Private	
63	G19	Recreation/Open Space	Garden	Davdi	109p	2273.4	0.41	Private	197.8
				Davdi	74p	1793.2		Private	
64	G20	Recreation/Open Space	Garden	Davdi	71p	1631.3	0.19	Private	92.5
				Davdi	Gaothan p	270.5		Private	
65	M6	Market	Retail/Vegetable Market	Davdi	37p	228.5	0.15	Private	73.1
				Davdi	60p	662.4		Private	
				Davdi	122p	508.9		Private	
				Davdi	61p	103.7		Private	
66	G21	Recreation/Open	Garden	Davdi	37p	514.4	0.31	Private	152.8

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
		Space		Davdi	121p	2627.9		Private	
67	G22	Recreation/Open Space	Garden	Davdi	62p	4742.2	0.52	Private	254.7
				Davdi	55p	495.3		Private	
68	PG17	Recreation/Open Space	Playground	Davdi	54p	3663.6	0.94	Private	458.7
				Davdi	97p	1687.6		Private	
				Davdi	50p	69.8		Private	
				Davdi	52p	1579.9		Private	
				Davdi	53p	2431.4		Private	
69	UT6	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Davdi	38p	1178.3	0.30	Private	146.1
				Davdi	39p	1826.4		Private	
70	AM6	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Davdi	38p	25.6	0.40	Private	194.7
				Davdi	39p	3279.9		Private	
				Davdi	53p	698.7		Private	
71	PO1	Public Utility	Post Office- Sector Level	Davdi	39p	992.2	0.50	Private	243.3
				Davdi	47p	1823.1		Private	
				Davdi	50p	503.7		Private	
				Davdi	53p	714.9		Private	
				Davdi	54p	16.4		Private	
				Davdi	101p	952.8		Private	
72	TE1	Public Utility	Telephone Exchange- Sector Level	Davdi	45p	992.5	0.35	Private	170.7
				Davdi	46p	645.4		Private	
				Davdi	47p	318.1		Private	
				Davdi	101p	1554.7		Private	

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
73	G23	Recreation/Open Space	Garden	Davdi	101p	11919.9	1.40	Private	679.9
				Davdi	44p	1406.1		Private	
				Golivali	52p	654.6		Private	
74	PG18	Recreation/Open Space	Playground	Davdi	121p	5718.1	0.70	Private	340.8
				Golivali	60p	1290.5		Private	
75	SC6	Educational Facilities	School: Primary, Secondary	Golivali	59p	7854.9	0.80	Private	389.3
				Golivali	60p	150.3		Private	
76	G24	Recreation/Open Space	Garden	Golivali	58p	637.7	0.73	Private	353.2
				Golivali	84p	121.8		Private	
				Golivali	86p	2576.5		Private	
				Golivali	87p	3927.2		Private	
77	M7	Market	Retail/Vegetable Market	Golivali	84p	821.0	0.15	Private	73.1
				Golivali	86p	682.9		Private	
78	PG19	Recreation/Open Space	Playground	Golivali	1p	5065.8	2.24	Private	1088.5
				Golivali	38p	6295.0		Private	
				Golivali	52p	633.2		Private	
				Golivali	57p	6432.5		Private	
				Golivali	58p	180.2		Private	
				Golivali	87p	1668.4		Private	
				Golivali	88p	2108.7		Private	
79	UT7	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Golivali	39p	1991.7	0.30	Private	146.0
				Golivali	40p	1010.5		Private	
80	AM7	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post	Golivali	34p	3717.1	0.40	Private	194.8
				Golivali	Xp	287.7		Private	

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
			Office, Police Post, LPG Godown, Community Hall, Library						
81	G25	Recreation/Open Space	Garden	Golivali	33p	9724.5	2.44	Private	1186.0
				Golivali	34p	10788.4		Private	
				Golivali	42p	2238.8		Private	
				Golivali	43p	456.0		Private	
				Golivali	Xp	1179.7		Private	
82	CT2	Socio Cultural Amenities	Community Centre: Hall, Library- Sector Level	Golivali	33p	3505.1	0.35	Private	170.5
83	G26	Recreation/Open Space	Garden	Golivali	11p	1948.2	0.19	Private	94.7
84	SC7	Educational Facilities	School: Primary, Secondary	Golivali	27p	5769.4	0.80	Private	389.3
				Golivali	28p	2236.6		Private	
85	M8	Market	Retail/Vegetable Market	Golivali	28p	1502.0	0.15	Private	73.0
86	PG20	Recreation/Open Space	Playground	Golivali	25p	3178.8	0.88	Private	426.8
				Golivali	28p	5597.7		Private	
87	G27	Recreation/Open Space	Garden	Golivali	22p	5328.3	0.53	Private	259.1
88	PS2	Public Utility	Police Station- Sector Level	Golivali	17p	32.6	0.97	Private	355.3
				Golivali	18p	2403.9		Public	
				Golivali	18p	7222.5		Private	
				Golivali	Xp	50.9		Private	
89	G28	Recreation/Open Space	Garden	Pisavali	8p	3.3	0.51	Private	247.5
				Pisavali	9p	1326.6		Private	

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Pisavali	10p	1013.8		Private	
				Pisavali	12p	1880.2		Private	
				Pisavali	56	865.1		Private	
90	G29	Recreation/Open Space	Garden	Pisavali	7p	264.1	0.16	Private	79.7
				Pisavali	8p	1076.2		Private	
				Pisavali	16p	298.2		Private	
91	M9	Market	Retail/Vegetable Market	Pisavali	3p	1504.8	0.15	Private	73.2
92	PG21	Recreation/Open Space	Playground	Pisavali	4p	1082.4	0.95	Private	303.3
				Pisavali	5p	2565.2		Private	
				Pisavali	6p	2589.8		Private	
				Pisavali	6p	3261.0		Public	
93	AM8	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Pisavali	4p	2112.8	0.40	Private	194.7
				Pisavali	5p	1891.6		Private	
94	UT8	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Pisavali	5p	3005.6	0.30	Private	146.2
95	SC8	Educational Facilities	School: Primary, Secondary	Pisavali	1p	7817.6	0.80	Private	389.3
				Pisavali	46p	187.1		Private	
96	G30	Recreation/Open Space	Garden	Pisavali	45p	5059.5	3.58	Private	1738.6
				Pisavali	46p	15547.9		Private	
				Pisavali	47p	12612.9		Private	
				Pisavali	48p	221.1		Private	
				Pisavali	52p	2309.5		Private	

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Pisavali	51p	1.4		Private	
97	HP2	Health Facilities	Hospital- Site Level	Pisavali	38p	5763.3	9.30	Private	4224.2
				Pisavali	39	9430.1		Private	
				Pisavali	40p	1964.2		Private	
				Pisavali	41p	2266.8		Private	
				Pisavali	42	4618.4		Private	
				Pisavali	43p	14692.1		Private	
				Pisavali	44	2349.1		Private	
				Pisavali	45p	10120.7		Private	
				Pisavali	46p	16490.3		Private	
				Pisavali	48p	5236.0		Public	
				Pisavali	48p	8968.7		Private	
				Pisavali	1p	170.6		Private	
				Adivali Dhokali	11p	5501.8		Private	
				Adivali Dhokali	18p	939.3		Public	
Adivali Dhokali	19p	4527.4	Private						
98	FS2	Public Utility	Fire Station- Sector Level	Pisavali	48p	4115.4	0.75	Public	165.5
				Pisavali	48p	2010.9		Private	
				Adivali Dhokali	11p	1392.4		Private	
99	G31	Recreation/Open Space	Garden	Adivali Dhokali	9p	845.4	0.47	Private	229.6
				Adivali Dhokali	11p	3875.4		Private	
100	M10	Market	Retail/Vegetable Market	Adivali Dhokali	11p	754.9	0.15	Public	36.4
				Adivali Dhokali	11p	748.9		Private	
101	CL1	Educational	College	Adivali Dhokali	42p	1424.4	4.00	Public	1828.8

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
		Facilities		Adivali Dhokali	42p	17052.5		Private	
				Adivali Dhokali	43	6927.4		Private	
				Adivali Dhokali	44p	1012.7		Public	
				Adivali Dhokali	44p	13625.5		Private	
102	G32	Recreation/Open Space	Garden	Adivali Dhokali	58B	1692.3	0.17	Private	82.3
103	G33	Recreation/Open Space	Garden	Adivali Dhokali	57	1428.1	0.14	Private	69.4
104	SWM1	Public Utility	Solid Waste Management Regional Landfill Site	Davdi	106	106655.9	117.81	Private	55745.3
				Davdi	84	4395.9		Private	
				Davdi	83	20436.2		Private	
				Davdi	64	1551.5		Private	
				Davdi	102p	142791.7		Private	
				Davdi	79p	2190.0		Private	
				Davdi	65	11822.5		Private	
				Davdi	66	2530.6		Private	
				Davdi	96	428.8		Private	
				Davdi	63	3852.0		Private	
				Davdi	101	74569.8		Private	
				Davdi	48	3740.2		Private	
				Adivali Dhokali	52	42999.5		Private	
				Adivali Dhokali	53	67005.7		Private	
				Adivali Dhokali	54	31984.0		Private	
				Adivali Dhokali	55	16209.0		Private	

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Adivali Dhokali	56	3212.2		Private	
				Adivali Dhokali	X	6128.8		Private	
				Adivali Dhokali	51	45443.1		Private	
				Adivali Dhokali	49p	745.3		Public	
				Adivali Dhokali	49p	25876.0		Private	
				Adivali Dhokali	50p	3785.9		Public	
				Adivali Dhokali	50p	72228.1		Private	
				Adivali Dhokali	47p	42662.8		Private	
				Adivali Dhokali	45p	5227.1		Public	
				Adivali Dhokali	45p	99995.1		Private	
				Adivali Dhokali	46p	7443.0		Private	
				Adivali Dhokali	36p	14690.7		Public	
				Adivali Dhokali	36p	122361.6		Private	
				Adivali Dhokali	39p	25820.0		Private	
				Adivali Dhokali	39p	489.8		Public	
				Adivali Dhokali	38p	20477.2		Private	
				Adivali Dhokali	38p	965.4		Public	
				Adivali Dhokali	37	18908.6		Private	
				Adivali Dhokali	15p	9052.4		Private	
				Adivali Dhokali	32p	206.8		Public	
				Adivali Dhokali	32p	77362.6		Private	
				Adivali Dhokali	29	7598.3		Private	
				Adivali Dhokali	30	8596.8		Private	
				Adivali Dhokali	60p	5659.4		Public	

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Adivali Dhokali	31	1926.4		Private	
				Adivali Dhokali	22p	3075.9		Private	
				Adivali Dhokali	34p	2699.6		Private	
				Adivali Dhokali	35p	12283.7		Private	
105	PG22	Recreation/Open Space	Playground	Adivali Dhokali	48	28994.2	6.70	Private	3215.5
				Adivali Dhokali	44p	20873.2		Private	
				Adivali Dhokali	42p	10195.1		Private	
				Adivali Dhokali	40p	6059.6		Private	
				Adivali Dhokali	40p	832.1		Public	
106	SC9	Educational Facilities	School: Primary, Secondary	Adivali Dhokali	40p	2040.7	0.80	Private	389.2
				Adivali Dhokali	42p	5962.5		Private	
107	G34	Recreation/Open Space	Garden	Adivali Dhokali	42p	1984.2	2.82	Private	1249.7
				Adivali Dhokali	40p	15800.5		Private	
				Adivali Dhokali	40p	128.4		Public	
				Adivali Dhokali	Pond p	1751.1		Public	
				Adivali Dhokali	15p	624.0		Public	
				Adivali Dhokali	15p	5298.2		Private	
				Adivali Dhokali	14p,16p	2615.3		Private	
108	AM9	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Adivali Dhokali	14p,16p	4004.5	0.40	Private	194.7
109	UT9	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Adivali Dhokali	14p,16p	1077.9	0.30	Private	145.9
				Adivali Dhokali	17p	1922.1		Private	

RESERVATIONS- SECTOR 3									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
110	PA1	Transport Facility	Parking Lot	Adivali Dhokali	17p	7201.4	0.92	Private	350.2
				Adivali Dhokali	17p	369.5		Public	
				Adivali Dhokali	18p	1659.3		Public	
111	WS2	Public Utility	Water Supply- Sector Level	Adivali Dhokali	14p,16p	12009.6	2.50	Private	1209.8
				Adivali Dhokali	15p	6348.6		Private	
				Adivali Dhokali	15p	149.8		Public	
				Adivali Dhokali	17p	5082.2		Private	
				Adivali Dhokali	32p	1436.9		Private	
112	TT2	Transport Facility	Transport Terminus- Sector Level	Adivali Dhokali	14p,16p	8238.3	1.56	Private	658.6
				Adivali Dhokali	17p	5086.7		Private	
				Adivali Dhokali	18p	2064.0		Public	
				Adivali Dhokali	19p	217.9		Private	

Table No. 11.4: Details of Proposed Reservations- Sector 4

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
1	G1	Recreation/Open Space	Garden	Nandivali T. Ambarnath	29p	15724.5	2.02	Private	883.2
				Nandivali T. Ambarnath	29p	2323.2		Public	
				Nandivali T. Ambarnath	30	2114.9		Private	
2	M1	Market	Retail/Vegetable Market	Nandivali T. Ambarnath	18p	175.5	0.15	Private	74.4
				Nandivali T. Ambarnath	20p	270.5		Private	
				Nandivali T. Ambarnath	27p	1056.6		Private	
3	PG1	Recreation/Open Space	Playground	Nandivali T. Ambarnath	23p	5315.1	1.17	Private	577.7
				Nandivali T. Ambarnath	24p	4251.7		Private	
				Nandivali T. Ambarnath	25p	2101.0		Private	
4	AM1	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Nandivali T. Ambarnath	24p	3450.7	0.40	Private	199.6
				Nandivali T. Ambarnath	25p	581.8		Private	
5	UT1	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Nandivali T. Ambarnath	29p	3064.3	0.31	Private	151.7
6	G2	Recreation/Open Space	Garden	Nandivali T. Ambarnath	31p	480.8	0.41	Private	202.7
				Nandivali T. Ambarnath	33p	2305.9		Private	
				Nandivali T. Ambarnath	34p	1286.8		Private	
				Nandivali T. Ambarnath	35p	20.4		Private	
7	G3	Recreation/Open Space	Garden	Chinchpada	36p	5070.7	0.51	Private	251.0
				Chinchpada	36p	75.4		Public	
8	SC1	Educational	School: Primary, Secondary	Chinchpada	1p	862.7	0.80	Private	396.3

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
		Facilities		Chinchpada	2p	160.1		Private	
				Chinchpada	19p	6250.0		Private	
				Chinchpada	20p	732.3		Private	
9	G4	Recreation/Open Space	Garden	Chinchpada	19p	3851.0	0.88	Private	433.8
				Chinchpada	20p	4910.6		Private	
10	PG2	Recreation/Open Space	Playground	Chinchpada	20p	9548.8	1.08	Private	536.0
				Chinchpada	42	1277.2		Private	
11	PG3	Recreation/Open Space	Playground	Manere	63p	11607.3	3.66	Private	1484.9
				Manere	64p	3311.6		Private	
				Manere	65p	5205.6		Private	
				Manere	66p	9868.1		Private	
				Manere	92p	6654.4		Public	
12	G5	Recreation/Open Space	Garden	Chinchpada	9p	6456.8	2.50	Private	1237.3
				Chinchpada	10p	18425.8		Private	
				Chinchpada	11p	51.1		Private	
				Ashele	4p	56.3		Private	
13	AM2	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Chinchpada	10p	4004.9	0.40	Private	198.3
14	UT2	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Chinchpada	10p	3000.0	0.30	Private	148.5
15	M2	Market	Retail/Vegetable Market	Chinchpada	10p	1505.0	0.15	Private	74.5
16	PG4	Recreation/Open	Playground	Chinchpada	3p	5120.7	1.74	Private	859.8

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
		Space		Chinchpada	4p	307.3		Private	
				Chinchpada	5p	11938.7		Private	
17	CG1	Public Utility	Cremation/Burial Ground	Chinchpada	5p	652.6	2.50	Private	1237.2
				Chinchpada	6p	154.7		Private	
				Chinchpada	7p	18606.3		Private	
				Chinchpada	9p	5574.5		Private	
18	G6	Recreation/Open Space	Garden	Chinchpada	8p	471.5	4.01	Private	1986.3
				Chinchpada	9p	9792.0		Private	
				Ashele	4p	26594.1		Private	
				Ashele	28p	1422.8		Private	
				Ashele	29p	1224.6		Private	
				Ashele	64p	613.6		Private	
19	SC2	Educational Facilities	School: Primary, Secondary	Ashele	5p	1056.2	0.80	Private	396.3
				Ashele	26p	6948.0		Private	
20	PG5	Recreation/Open Space	Playground	Ashele	28p	2169.2	1.22	Private	605.9
				Ashele	29p	153.0		Private	
				Ashele	31p	9915.0		Private	
21	G7	Recreation/Open Space	Garden	Ashele	8p	2759.7	0.28	Private	136.6
22	G8	Recreation/Open Space	Garden	Ashele	51p	3967.2	0.40	Private	196.4
23	M3	Market	Retail/Vegetable Market	Ashele	52p	1371.5	0.15	Private	74.6
				Ashele	54p	135.0		Private	
24	AM3	Public Amenities	Amenities Cluster- Neighbourhood	Ashele	52p	1301.4	0.40	Private	198.3

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
			Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Ashele	53p	838.4		Private	
				Ashele	54p	1864.7		Private	
25	UT3	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Ashele	53p	1363.1	0.30	Private	148.7
				Ashele	54p	1043.3		Private	
				Ashele	56p	597.2		Private	
26	PG6	Recreation/Open Space	Playground	Ashele	52p	179.3	3.33	Private	1650.1
				Ashele	54p	1960.5		Private	
				Ashele	55	530.1		Private	
				Ashele	56p	11470.0		Private	
				Manere	85p	4765.8		Private	
				Manere	69p	2195.3		Private	
				Manere	57p	12227.0		Private	
27	SC3	Educational Facilities	School: Primary, Secondary	Manere	69p	298.4	0.80	Private	396.3
				Manere	70p	1139.8		Private	
				Manere	80p	1413.7		Private	
				Manere	85p	5153.3		Private	
28	G9	Recreation/Open Space	Garden	Manere	54p	7753.2	0.78	Public	0.0
29	G10	Recreation/Open Space	Garden	Manere	54p	2843.6	0.28	Public	0.0
30	G11	Recreation/Open Space	Garden	Manere	54p	7137.0	1.43	Public	354.9
				Manere	56	1565.9		Private	
				Manere	57p	3745.6		Private	

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Manere	71p	1856.5		Private	
31	WS1	Public Utility	Water Reservoir and Distribution- Sector Level	Manere	72p	2305.5	2.51	Private	209.2
				Manere	54p	20865.4		Public	
				Manere	57p	649.4		Private	
				Manere	58p	336.4		Private	
				Manere	55p	933.4		Private	
32	UT4	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Manere	57p	2228.1	0.30	Private	148.7
				Manere	58p	775.5		Private	
33	G12	Recreation/Open Space	Garden	Manere	54p	21926.2	5.11	Public	1445.3
				Manere	53p	119.1		Private	
				Manere	58p	13826.1		Private	
				Dwarli	7p	8450.0		Private	
				Dwarli	8	1475.1		Private	
				Dwarli	9p	3161.5		Private	
				Chinchpada	22p	2159.5		Private	
34	AM4	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Manere	58p	4005.9	0.40	Private	198.3
35	SC4	Educational Facilit	School: Primary, Secondary	Chinchpada	22p	7758.3	0.80	Private	396.6
				Chinchpada	24p	251.5		Private	
36	M4	Market	Retail/Vegetable Market	Chinchpada	22p	418.8	0.15	Private	74.4
				Chinchpada	24p	865.3		Private	
				Chinchpada	39p	219.1		Private	

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
37	PS1	Public Utility	Police Station- Site Level	Nandivali T. Ambarnath	8p	19396.0	2.51	Public	0.0
				Nandivali T. Ambarnath	9p	5746.4		Public	
38	PG7	Recreation/Open Space	Playground	Nandivali T. Ambarnath	8p	7799.9	0.97	Public	0.0
				Nandivali T. Ambarnath	9p	1873.1		Public	
39	G13	Recreation/Open Space	Garden	Dwarli	4p	15756.0	1.88	Public	126.0
				Dwarli	5p	2545.8		Private	
				Nandivali T. Ambarnath	9p	531.4		Public	
40	G14	Recreation/Open Space	Garden	Dwarli	4p	6441.2	6.91	Public	1637.9
				Dwarli	37p	1913.8		Private	
				Dwarli	38p	17150.9		Private	
				Dwarli	34p	14017.9		Private	
				Dwarli	34p	2299.7		Public	
				Dwarli	32PART p	27245.3		Public	
41	UT5	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Dwarli	38p	408.4	0.30	Private	148.8
				Dwarli	39p	2596.2		Private	
42	AM5	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Dwarli	34p	230.6	0.40	Public	186.9
				Dwarli	38p	20.4		Private	
				Dwarli	39p	3728.4		Private	
				Dwarli	40p	25.6		Private	
43	SC5	Educational Facilities	School: Primary, Secondary	Dwarli	34p	749.1	0.80	Private	94.0
				Dwarli	34p	6106.4		Public	
				Dwarli	41p	1148.5		Private	
44	M5	Market	Retail/Vegetable Market	Dwarli	1p	57.9	0.15	Private	74.4

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Dwarli	2p	828.5		Private	
				Dwarli	40p	616.3		Private	
45	PG8	Recreation/Open Space	Playground	Dwarli	2p	8591.7	0.86	Private	425.4
46	PG9	Recreation/Open Space	Garden	Dwarli	9p	3333.1	1.76	Private	869.0
				Dwarli	11p	9931.6		Private	
				Dwarli	48p	2720.0		Private	
				Dwarli	43p	1567.3		Private	
47	HP1	Health Facility	Hospital- Sector Level	Manere	44p	2780.0	3.53	Private	1673.1
				Manere	51p	1899.0		Private	
				Manere	54p	1473.2		Public	
				Manere	54p	362.7		Private	
				Manere	53p	17294.7		Private	
				Dwarli	9p	11457.4		Private	
48	AM6	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Manere	44p	3544.6	0.40	Private	198.3
				Manere	48p	461.4		Private	
49	UT6	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Manere	44p	1072.8	0.30	Private	148.5
				Manere	48p	1927.2		Private	
50	PG10	Recreation/Open Space	Playground	Manere	41p	6361.4	2.23	Private	1104.0
				Manere	42p	6002.1		Private	
				Manere	44p	1338.4		Private	
				Manere	49p	7383.3		Private	

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Manere	73	1214.1		Private	
51	M6	Market	Retail/Vegetable Market	Manere	41p	712.3	0.15	Private	74.5
				Manere	73p	793.4		Private	
52	G15	Recreation/Open Space	Garden	Manere	35p	6487.4	1.16	Private	576.2
				Manere	36p	1331.2		Private	
				Manere	24p	3820.1		Private	
53	FS1	Public Utility	Fire Station- Sector Level	Manere	20p	3884.0	0.75	Private	371.5
				Manere	23p	3031.6		Private	
				Manere	24p	27.0		Private	
				Manere	37p	152.2		Private	
				Manere	89p	407.9		Private	
54	G16	Recreation/Open Space	Garden	Manere	2p	1105.7	0.35	Private	173.8
				Manere	86p	2404.8		Private	
55	PG11	Recreation/Open Space	Playground	Manere	2p	2460.0	1.66	Private	822.8
				Manere	11p	7308.9		Private	
				Manere	18PART p	6850.2		Private	
56	TT1	Transport Facility	Transport Terminus- Sector Level	Manere	24p	4325.0	1.50	Private	742.9
				Manere	25p	8978.1		Private	
				Manere	35p	1702.5		Private	
57	SC6	Educational Facilities	School: Primary, Secondary	Manere	27p	6290.6	0.80	Private	396.5
				Manere	33p	1672.0		Private	
				Manere	34p	46.3		Private	
58	G17	Recreation/Open	Garden	Manere	27p	9229.2	3.84	Private	1413.8

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
		Space		Manere	32p	9232.0		Private	
				Manere	30p	521.0		Private	
				Manere	31p	898.0		Private	
				Manere	29p	92.0		Private	
				Manere	Pond p	9874.9		Public	
				Manere	33p	8583.6		Private	
59	AM7	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Manere	27p	1056.7	0.40	Private	186.2
				Manere	29p	2703.1		Private	
				Manere	PONDp	246.5		Public	
60	UT7	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Manere	29p	3006.0	0.30	Private	148.8
61	G18	Recreation/Open Space	Garden	Manere	18PART p	1907.6	1.10	Private	542.9
				Manere	29p	9057.8		Private	
62	EL1	Public Utility	Electric Substation- Sector Level	Vasar	102p	447.7	2.00	Private	366.7
				Vasar	103p	12623.9		Public	
				Vasar	104p	6959.7		Private	
63	CL1	Educational Facilities	College	Vasar	90p	20210.9	4.01	Private	1900.1
				Vasar	102p	2338.8		Private	
				Vasar	103p	1433.8		Public	
				Manere	29p	9277.0		Private	
				Manere	30p	6550.9		Private	
				Manere	PONDp	270.7		Public	

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
64	G19	Recreation/Open Space	Garden	Vasar	74p	4833.4	1.78	Private	881.1
				Vasar	89p	12631.8		Private	
				Vasar	90p	332.0		Private	
65	PG12	Recreation/Open Space	Playground	Vasar	89p	242.0	1.78	Private	881.1
				Vasar	90p	8115.5		Private	
				Manere	31p	9439.6		Private	
66	CT1	Socio Cultural Amenities	Community Centre: Hall, Library- Sector Level	Vasar	89p	1931.5	0.35	Private	174.6
				Vasar	90p	1594.3		Private	
67	G20	Recreation/Open Space	Garden	Manere	45p	1051.0	1.91	Private	641.3
				Manere	46p	7821.2		Private	
				Manere	47p	2072.5		Private	
				Dwarli	19p	2007.1		Private	
				Dwarli	22p	6148.0		Public	
68	PA1	Transport Facility	Parking	Dwarli	19p	7114.6	0.80	Private	353.8
				Dwarli	20p	31.6		Private	
				Dwarli	22p	857.4		Public	
69	TE1	Public Utility	Telephone Exchange- Sector Level	Dwarli	22p	3504.7	0.35	Public	0.0
70	PO1	Public Utility	Post Office- Sector Level	Dwarli	22p	5006.4	0.50	Public	0.0
71	TT2	Transport Facility	Transport Terminus	Dwarli	26p	5423.7	1.56	Private	714.8
				Dwarli	27p	6879.0		Private	
				Dwarli	27p	1144.9		Public	
				Dwarli	28p	2134.0		Private	
72	G21	Recreation/Open Space	Garden	Dwarli	14p	5899.9	1.58	Private	292.1
				Dwarli	14p	263.4		Public	

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Ownership	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Dwarli	30PART p	5447.4		Public	
				Dwarli	31PART p	2906.9		Public	
				Dwarli	29p	1278.5		Public	
73	G22	Recreation/Open Space	Garden	Dwarli	Airport p	9146.9	1.73	Public	0.0
				Vasar	46p	8198.0		Public	
74	PG13	Recreation/Open Space	Playground	Bhal	14p	7383.8	1.35	Private	667.3
				Bhal	18p	6094.1		Private	
75	G23	Recreation/Open Space	Garden	Bhal	9p	1452.1	1.15	Private	570.3
				Bhal	11p	7126.5		Private	
				Bhal	12p	2493.9		Private	
				Bhal	13p	446.9		Private	
76	SC7	Educational Facilities	School: Primary, Secondary	Bhal	5p	1889.1	0.80	Private	329.2
				Bhal	6p	3613.6		Private	
				Bhal	6p	1354.5		Public	
				Bhal	7p	1146.0		Private	
77	UT8	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Bhal	4p	1975.4	0.30	Private	149.3
				Bhal	5p	1040.5		Private	
78	AM8	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Bhal	2p	500.7	0.40	Private	198.5
				Bhal	5p	2945.5		Private	
				Bhal	6p	562.5		Private	
79	PG14	Recreation/Open	Playground	Bhal	1p	297.2	0.98	Public	472.5

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
		Space		Bhal	1p	653.0		Private	
				Bhal	6p	8889.8		Private	
80	M7	Market	Retail/Vegetable Market	Bhal	6p	1536.6	0.15	Private	76.1
81	FS2	Public Utility	Fire Station- Sector Level	Bhal	16p	6668.7	0.78	Public	53.6
				Vasar	46p	1081.6		Private	
82	PG15	Recreation/Open Space	Playground	Bhal	16p	10679.3	1.57	Public	244.2
				Bhal	16p	4866.9		Private	
				Vasar	46p	64.7		Private	
				Vasar	46p	46.5		Public	
83	G24	Recreation/Open Space	Garden	Vasar	46p	247.9	1.60	Private	779.9
				Vasar	46p	277.7		Public	
				Vasar	47p	5998.7		Private	
				Vasar	48p	9505.1		Private	
84	PA2	Transport Facility	Parking	Vasar	84p	903.0	0.66	Private	328.0
				Vasar	81p	405.9		Private	
				Vasar	80p	5315.6		Private	
85	PG16	Recreation/Open Space	Playground	Vasar	79p	7481.0	2.09	Private	876.6
				Vasar	79p	3195.5		Public	
				Vasar	80p	152.8		Private	
				Vasar	84p	10071.5		Private	
86	AM9	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Vasar	77p	1123.0	0.40	Private	198.4
				Vasar	79p	2883.6		Private	

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
87	UT9	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Vasar	88p	1990.8	0.30	Private	149.3
				Vasar	76p	222.0		Private	
				Vasar	77p	803.0		Private	
88	M8	Market	Retail/Vegetable Market	Vasar	76p	1881.8	0.20	Private	99.1
				Vasar	77p	119.1		Private	
89	PG17	Recreation/Open Space	Playground	Vasar	58PART p	2709.6	2.33	Private	572.0
				Vasar	Xp	11698.0		Public	
				Vasar	Xp	2087.8		Private	
				Vasar	60p	1086.3		Private	
				Vasar	61p	5670.6		Private	
90	G25	Recreation/Open Space	Garden	Vasar	74p	3551.8	1.27	Private	628.8
				Vasar	93p	9149.0		Private	
91	PG18	Recreation/Open Space	Playground	Vasar	94p	340.4	1.37	Public	659.5
				Vasar	95p	9048.5		Private	
				Vasar	96p	351.8		Private	
				Vasar	97p	1640.4		Private	
				Vasar	98p	2280.0		Private	
92	AM10	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Vasar	96p	2328.3	0.40	Private	198.3
				Vasar	97p	1676.0		Private	
93	UT10	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Vasar	97p	662.2	0.30	Private	148.8
				Vasar	98p	2342.4		Private	

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
94	G26	Recreation/Open Space	Garden	Vasar	110p	666.7	0.07	Private	35.7
				Vasar	109p	53.8		Private	
95	PG19	Recreation/Open Space	Playground	Vasar	125p	8746.3	1.88	Private	932.9
				Vasar	140p	9859.3		Private	
				Vasar	149p	236.2		Private	
96	G27	Recreation/Open Space	Garden	Vasar	96p	4357.8	4.43	Public	1514.1
				Vasar	96p	10167.3		Private	
				Vasar	97p	1363.7		Private	
				Vasar	98p	4977.1		Private	
				Vasar	142p	1946.9		Private	
				Vasar	140p	7762.7		Private	
				Vasar	141p	4364.9		Private	
				Vasar	POND p	9358.2		Public	
97	SC8	Educational Facilities	School: Primary, Secondary	Vasar	67p	3591.5	0.80	Private	396.4
				Vasar	96p	4414.2		Private	
98	M9	Market	Retail/Vegetable Market	Vasar	67p	289.7	0.15	Private	74.5
				Vasar	68p	1169.5		Private	
				Vasar	96p	46.1		Private	
99	G28	Recreation/Open Space	Garden	Vasar	62p	2896.2	0.59	Private	294.3
				Vasar	64p	3048.0		Private	
100	G29	Recreation/Open Space	Garden	Vasar	37p	3329.8	0.35	Public	8.9
				Vasar	59Part p	180.4		Private	
101	PG20	Recreation/Open	Playground	Vasar	1p	4229.4	0.49	Private	241.6

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
		Space		Vasar	2p	651.2		Private	
102	M10	Market	Retail/Vegetable Market	Vasar	3p	1503.8	0.15	Private	74.5
103	PG21	Recreation/Open Space	Playground	Vasar	3p	17449.2	1.84	Private	908.6
				Vasar	130p	223.6		Private	
				Vasar	144p	679.3		Private	
104	G30	Recreation/Open Space	Garden	Vasar	127p	3311.2	1.18	Private	585.3
				Vasar	Xp	8511.2		Private	
105	PG22	Recreation/Open Space	Playground	Vasar	11p	18804.8	1.88	Public	0.0
106	PG23	Recreation/Open Space	Playground	Vasar	11p	10547.4	1.19	Public	56.6
				Vasar	10p	205.2		Public	
				Vasar	10p	1144.2		Private	
107	PS2	Public Utility	Police Station- Sector Level	Vasar	11p	7506.4	0.75	Public	0.0
108	G31	Recreation/Open Space	Garden	Vasar	32p	1177.5	1.03	Public	178.4
				Vasar	12p	5563.3		Public	
				Vasar	12p	3602.6		Private	
109	AM11	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Vasar	153p	488.4	0.40	Private	76.5
				Vasar	32p	2458.2		Public	
				Vasar	32p	676.7		Private	
				Vasar	34p	380.7		Private	
110	UT11	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Vasar	34p	2498.8	0.30	Public	25.1
				Vasar	34p	507.0		Private	
111	SC9	Educational Facilities	School: Primary, Secondary	Vasar	35p	552.1	0.80	Private	396.5
				Vasar	37p	7456.9		Private	

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
112	PG24	Recreation/Open Space	Playground	Vasar	34p	3850.4	3.35	Public	1356.8
				Vasar	34p	2039.1		Private	
				Vasar	35p	874.9		Private	
				Vasar	163	484.6		Private	
				Vasar	158	3896.0		Private	
				Vasar	37p	3007.2		Private	
				Vasar	38p	14528.2		Private	
				Vasar	33p	2574.2		Private	
				Vasar	33p	2224.5		Public	
113	UT12	Public Utility	Water Distribution, Electric Substation- Neighbourhood Level	Vasar	42p	3000.5	0.30	Public	0.0
114	AM12	Public Amenities	Amenities Cluster- Neighbourhood Level: PHC-Dispensary, Sub Post Office, Police Post, LPG Godown, Community Hall, Library	Vasar	42p	4013.9	0.40	Public	0.0
115	PG25	Recreation/Open Space	Playground	Vasar	28p	5974.5	1.02	Public	74.6
				Vasar	42p	2703.4		Public	
				Vasar	156p	1507.4		Private	
116	G32	Recreation/Open Space	Garden	Vasar	28p	15884.6	1.59	Public	0.0
117	PG26	Recreation/Open Space	Playground	Vasar	13p	1395.2	1.51	Public	680.9
				Vasar	13p	5889.2		Private	
				Vasar	26p	4895.5		Private	
				Vasar	27p	2968.3		Private	

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
118	G33	Recreation/Open Space	Garden	Vasar	56p	2525.9	1.99	Private	985.0
				Vasar	17p	1972.6		Private	
				Vasar	18p	6437.6		Private	
				Vasar	20p	965.4		Private	
				Vasar	21p	7994.4		Private	
119	SWM1	Public Utility	Solid Waste Management Regional Landfill Site	Vasar	18p	73335.0	8.81	Private	4363.8
				Vasar	21p	7513.6		Private	
				Vasar	17p	5871.7		Private	
				Vasar	56p	1418.6		Private	
120	PG27	Recreation/Open Space	Playground	Bhal	78p	44116.5	6.46	Private	2688.3
				Bhal	77p	484.1		Public	
				Bhal	77p	3976.3		Private	
				Bhal	75p	5282.8		Private	
				Bhal	73p	519.8		Private	
				Bhal	74p	386.1		Private	
				Bhal	79p	17.0		Private	
				Bhal	79p	9821.4		Public	
121	SWM2	Public Utility	Solid Waste Management Regional Landfill Site	Bhal	73p	33775.8	139.33	Private	67794.7
				Bhal	74p	6024.1		Private	
				Bhal	75p	5839.3		Private	
				Bhal	76	4331.5		Private	
				Bhal	50	1755.0		Private	
				Bhal	51	1167.3		Private	
				Bhal	52p	20354.6		Private	

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Bhal	52p	3799.7		Public	
				Bhal	POND p	245.0		Public	
				Bhal	53	7900.3		Private	
				Bhal	54	6208.5		Private	
				Bhal	55p	5905.2		Private	
				Bhal	55p	407.2		Public	
				Bhal	63p	29419.9		Private	
				Bhal	63p	912.2		Public	
				Bhal	62	10590.2		Private	
				Bhal	61	9681.9		Private	
				Bhal	60	2323.2		Private	
				Bhal	64p	7699.8		Private	
				Bhal	64p	2697.3		Public	
				Bhal	72	1404.2		Private	
				Bhal	71	72519.5		Private	
				Bhal	70	107303.8		Private	
				Bhal	65	15775.5		Private	
				Bhal	66	11930.7		Private	
				Bhal	69	53635.7		Private	
				Bhal	67p	10745.5		Private	
				Bhal	67p	352.1		Public	
				Bhal	68	80769.6		Private	
				Bhal	59	32955.0		Private	
				Bhal	56p	27699.8		Private	

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Bhal	56p	1164.1		Public	
				Bhal	57	19794.1		Private	
				Bhal	47p	27778.2		Private	
				Bhal	47p	1636.3		Public	
				Bhal	44	26903.8		Private	
				Bhal	43	9410.3		Private	
				Bhal	58	26896.5		Private	
				Bhal	42	30638.7		Private	
				Bhal	41	23077.2		Private	
				Bhal	40	97986.4		Private	
				Bhal	33	21792.3		Private	
				Bhal	34	3736.7		Private	
				Bhal	32	10509.5		Private	
				Bhal	35	26655.0		Private	
				Bhal	36	10647.7		Private	
				Bhal	37	13167.3		Private	
				Bhal	38	1117.9		Private	
				Bhal	39p	97597.8		Private	
				Bhal	39p	12798.4		Public	
				Bhal	27	25954.8		Private	
				Bhal	26	102078.6		Private	
				Bhal	28	18997.5		Private	
				Bhal	29	14637.2		Private	
				Bhal	25	2774.4		Private	

RESERVATIONS- SECTOR 4									
Sr. No.	Site No.	Purpose	Details	Details of Lands to be Reserved					Cost of Acquisition (Rs. Lakhs)
				Village	Survey No.	Detailed Area (Sq. Mts.)	Area (Ha)	Owner ship	
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
				Bhal	24	10717.2		Private	
				Bhal	31	41704.3		Private	
				Dwarli	36	108612.4		Private	
				Dwarli	35	28411.8		Private	

