Forward

Liases Foras was approached by XYZ developer to conduct Best Use Analysis and Design Brief development which helps them to take decision on future development plan for their ABC location located in Kandivali- East, Mumbai Maharashtra. The project is framed and developed under the head of MAHADA Redevelopment Policy. Following are the key statistical details of the project.

- The site is approximately XXX acres of the continuous land parcel.
- Cumulative development potential of the subject site is XXX sq.ft. of BUA (Built up area) as mentioned by XYZ developers.
- After the rehabilitation, built up area available for sale is 38,08,271 sq.ft.

While, there are many ways to arrive at the recommendations related to product, price and phasing, we have considered rationales, which according to urban economics are most crucial for success of any location. All the recommendations and suggestions mentioned in the report are directly or indirectly governed by scientifically laid down theories and methodologies of Urban Economics. We hope the report will be helpful to XYZ developersto envisage the project and its future market outlook.

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Chapter: 1: Introduction

Aim

Aim of the study is to suggest the ideal development mix for the ABC project and develop the design brief for master planner.

Objectives

- Identify the potential of the subject-site with regards to all the formats of real estate such as residential, commercial, retail and hospitality sectors.
- Recommendation on the relative shares of residential, retail and commercial, hotel and educational development at the subject site.
- Specific recommendations regarding products, their prices and amenities.
- Specific timelines for various development elements (phase wise development).
- Determining the market efficient achievable outright/ lease rates for various elements.
- Defining the master planning and design brief considering the present and future market trends.
- A detailed financial model for various options to be calculated that is total revenue, total cost, monthly cash flow, Peak Negative Cash flow, Equity & Debt component, Return on Investment, Return on Equity, NPV, IRR

Site Location

The subject site is located 26km from the Lower Parel[1]- considered as a point of destination.

Figure 1 Site Location Drawing

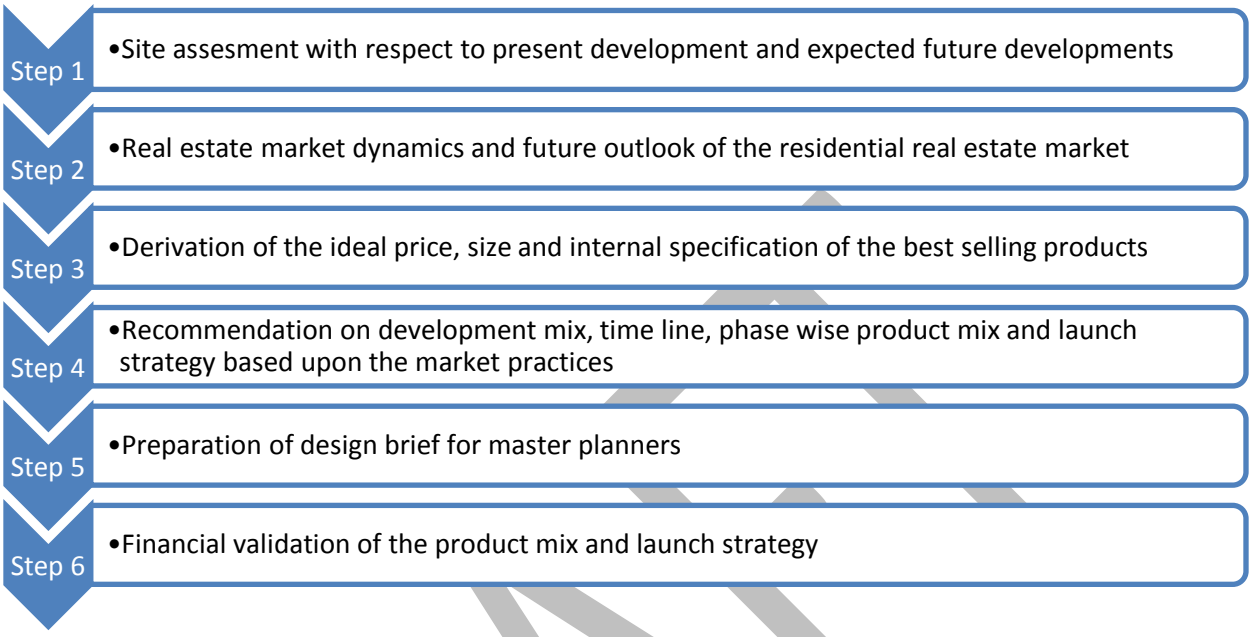
(Source: Liases Foras, Base Image: Google Earth)

[1] The economic activity in MMR falls towards island city, which draws maximum number of employees, but considering the net flow of employees in the MMR Lower Parel comes as an epicenter of MMR.

Study Approach

Approach to study has been divided into six key steps or components:

Figure 2 Study Approach



Study Components

In this section, the major components of the study as defined in the study approach section are described briefly.

Site Assessment and Prospected Future Development

Site has been studied with following key parameters:

- Historical development and growth of the location.
- Geographical and socio cultural importance of the subject site.
- Existing building use and proposed land use of surrounding areas.
- Population dynamics, income profiling and upward mobility to determine the up-gradation of demand and future population demand.
- Present state of physical infrastructure (water, sewage, road, etc.) and social infrastructure (education, health, etc.).
- Proposed key infrastructure development and its impact on the subject site.

Real Estate Market- Past Present and Future Outlook

Real estate market assessment of the past and present is based upon the existing data base of the Liases Foras. The market analysis has been executed at three levels, Macro market (MMR and Western Suburb), Micro Market and Location. Along with this, a spatial band analysis or the distance band analysis is done to understand the distance wise market dynamics of residential market.

Based upon the historical trend and events, future market outlook has been forecasted. Prospected cumulative supply into the market has

been estimated based upon the prospected development potential and future scope of redevelopment into the market.

Product Assessment and Related Recommendations

Market products in the various segments (residential, commercial, retail, educational and healthcare) have been analyzed based upon primary and secondary marketable supply and sales.

Based upon the sales, supply and unsold inventory we have recommended the various products in each segment of the market.

Recommendation on Development mix, Timeline, Phase Wise Product Mix and Launch Strategy

Development mix has been derived by integrating the site attributes, development control regulations and the market demand. Final development mix is suggested after getting the financial testing of various development mixes.

Project timeline has been derived based upon the study of projects with similar scale integrated with the construction timeline and market sales-share capturing method.

Phase wise product mix is derived based upon the study of historical development of an established 'destination to live in' like Lokhandvala Complex in Andheri West.

Launch strategy is primarily subjected to projected market behavior and the financial balancing.

Preparation of Design Brief for Master Planning Exercise

Design brief has been developed based upon the prevailing design practice in the Indian context. A total of 11 projects have been shortlisted from a dataset of 982 projects which are having primary marketable supply of more than 500 units. Criteria for short listing are as follow:

- Regional setting of the project with reference to its location, connectivity, surroundings, neighborhood characteristics, etc.
- Zoning, space configurations, organization patterns, unit designs.
- Hierarchy of open spaces and its interaction with built forms.
- Methods for provision of basic infrastructure and innovative techniques used to develop sustainable habitat.
- Design consideration for energy efficiency and cost saving measures.
- List of amenities provided and the maintenance charges.
- USP of the projects and reason for the commercial success.
- List of consultants involved in the projects.

Shortlisted projects have been studied for the following criteria.

- Integration of various movements (Pedestrian, Vehicular, cycle) in the master plan.
- Consideration on street design and urban design guidelines.
- Built to open ratio.

– Innovation in controlling the micro climate condition through landscape or any other similar ways.
– Technological innovation for sustainable development.

Shortlisted projects have been further compared to characteristics of development mix to derive the design brief.

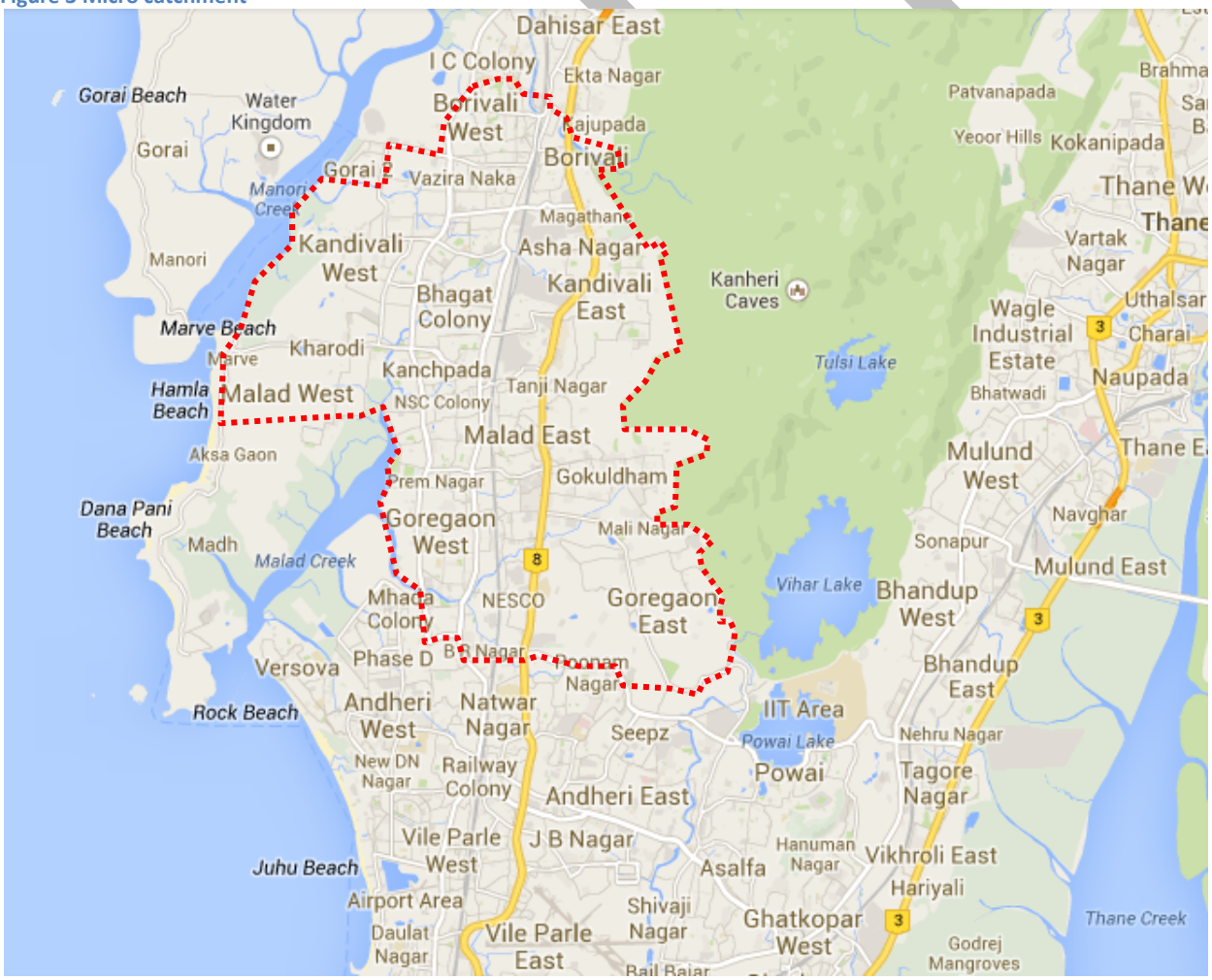
Catchment Definitions

Macro catchment: Mumbai Metropolitan Region (MMR) has been considered as the macro catchment for the study along with a study of western suburb.

Micro Catchment: Goregaon, Jogeshwari, Malad, Kandivali and Borivali have been considered as the micro catchment for the study.

Spatial Band Analysis: A spatial band of 10 to 36 Km is considered for this analysis.

Figure 3 Micro catchment



(Source: Liases Foras, Base Image: Google Maps)

Chapter: 2: Site Assessment

Site Characteristics

ABC project is under the MHADA redevelopment scheme. It is approximately 20 year old settlement developed by MHADA.

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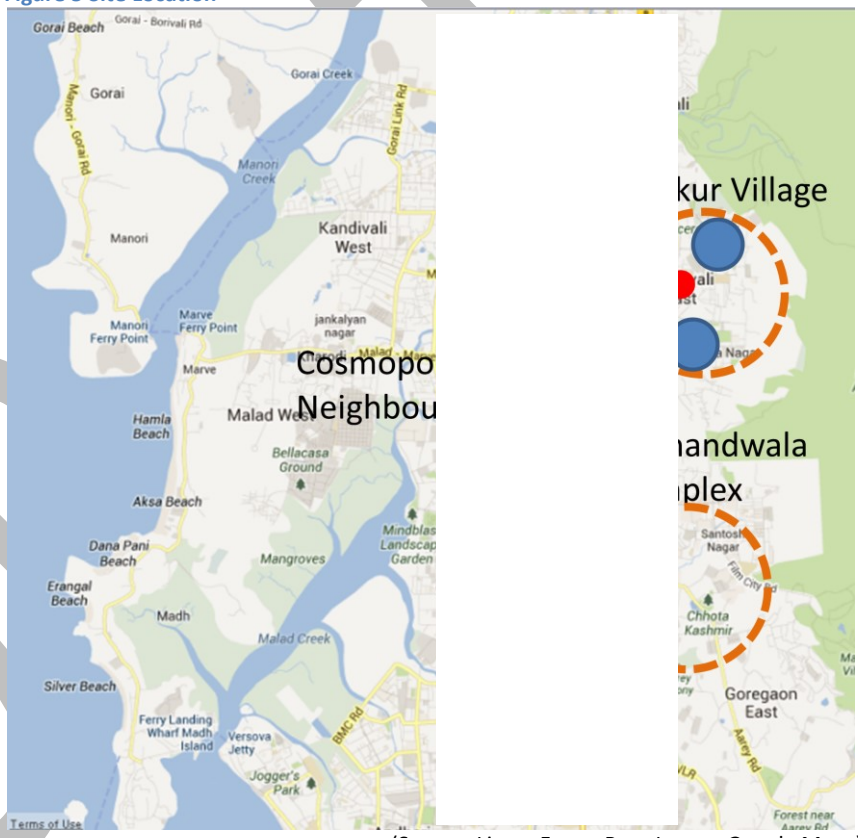
Figure 4 Site Location in the context of MMR

Figure 5 Site Location



(Source: Liases Foras, Base Image: Google Maps)

Historic Development

Thakur Village is amongst one of the planned developments of 1990s. First inhabitants of the location were the Captains of Army & Navy, employees of airlines and small entrepreneurs. Key projects developed before 2000 were Samta Nagar (MHADA society), Challenger Towers, Viceroy Towers Phase-1 and Gokul Concorde. Development concentration in pre-2000 era was in close proximity to Western Express Highway. The images below show the morphology study of Thakur Village area from pre 2000s until 2012.

Figure 6 Pre 2000 Development

Figure 7 Development during 2000-03

Figure 8 Development during 2003-04

Figure 9 Development during 2004-06

Figure 10 Development during 2006-10

Figure 11 Development during 2010-12

Existing Land Use and Neighbourhood Profile

Kandivali East is a part of the R-south Ward of Mumbai which has seen maximum population growth during the period of 2001-2011[2] where a population of 5,89,887 in 2001 increased to 6,91,229.

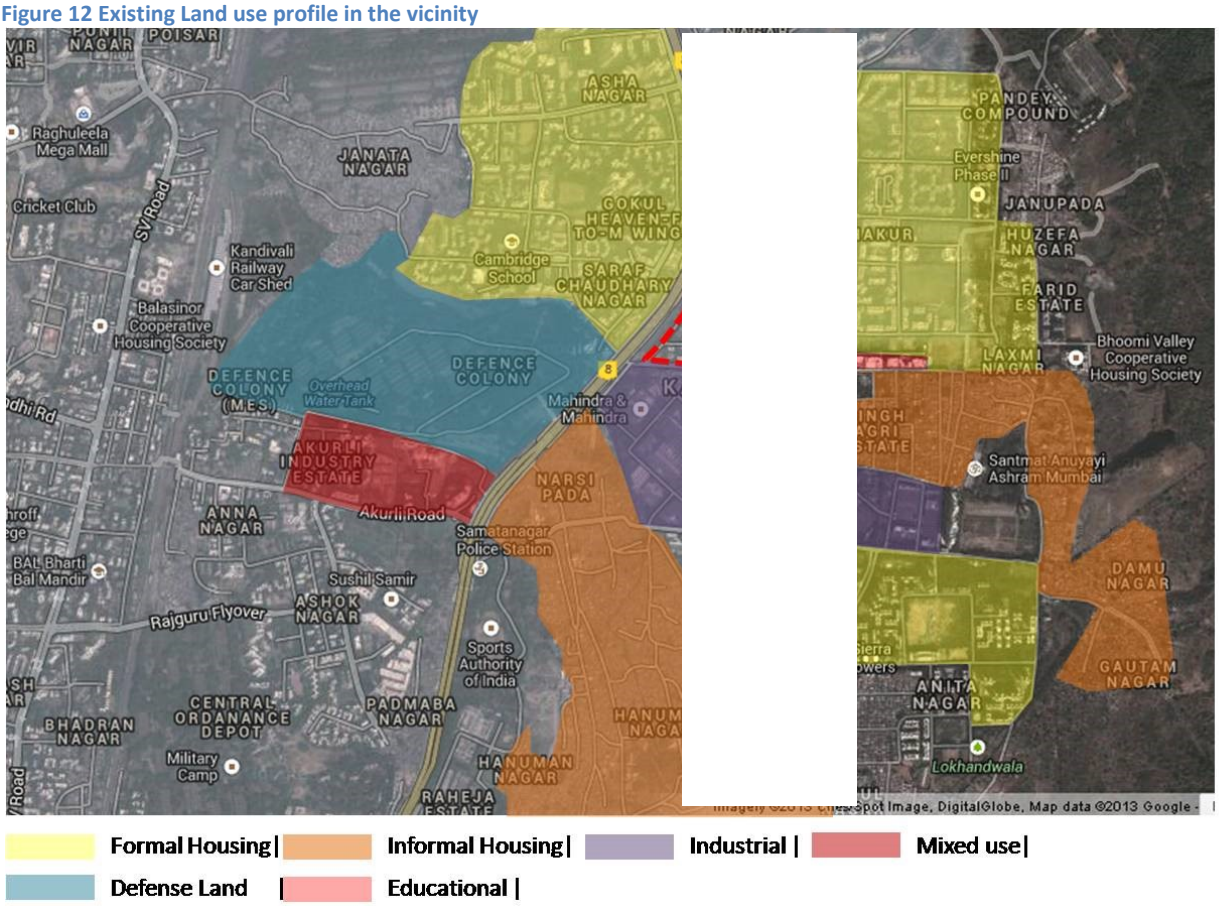
Key reason behind the growth is the increased real estate supply at a reasonable cost range. The projects that got ready and occupied in the first half of decade were projects like Evershine Millennium Park, projects of Vasant and Valley of Flower by Gundecha Developers, etc.

Within the defined catchment of Samta Nagar 42% of land is under formal housing whereas 28% of land is under informal housing (slum), 12% is defense land, 10% is industrial land while remaining 8% is under mixed use or educational activities.

As mentioned in the previous section, growth of the location was primarily observed during the 2001-11 period and historically it had the cosmopolitan culture and hence the location turned out as one of the prime cosmopolitan location to reside in the western suburb.

[2] Census 2001 and Census 2011

Figure 12 Existing Land use profile in the vicinity



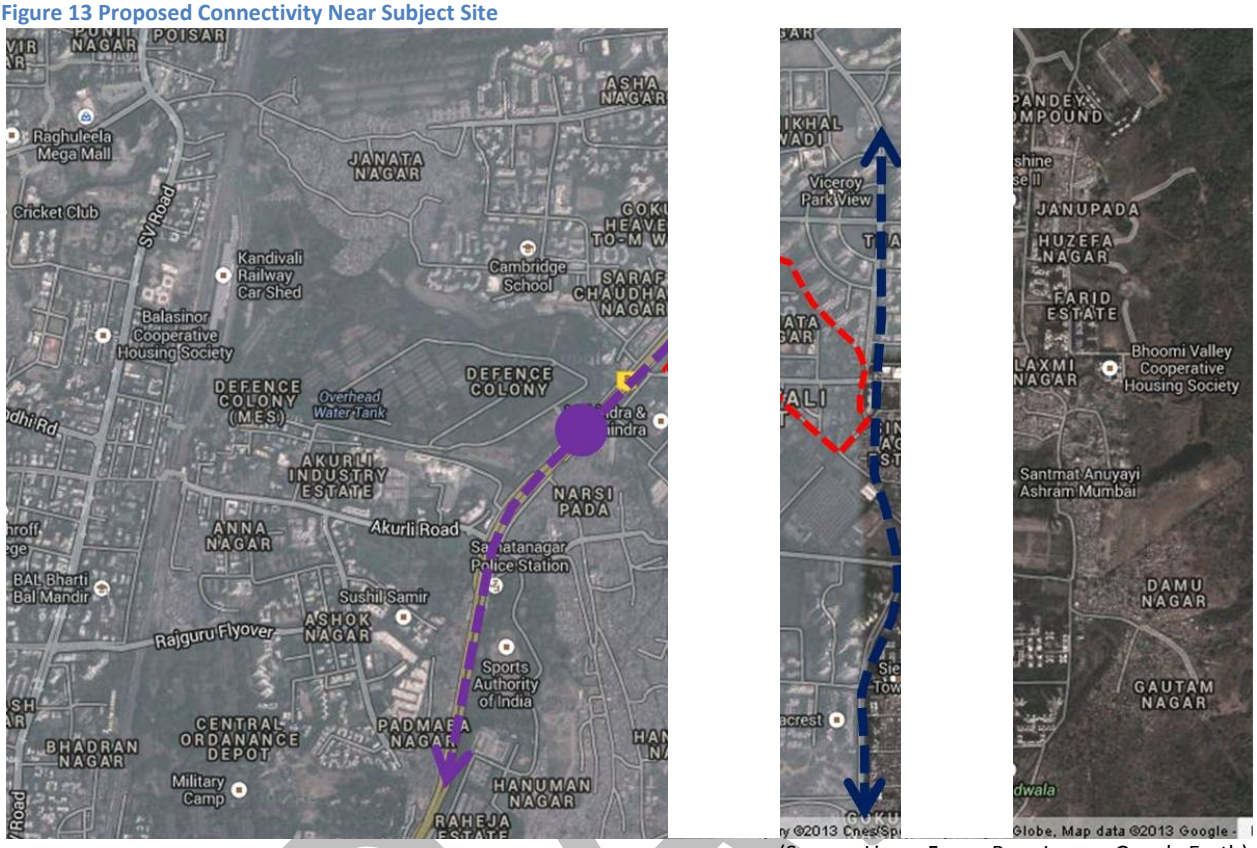
(Source: Liases Foras, Base Image: Google Earth)

Proposed Connectivity

Based upon the Proposed Development Plan 1991-2011 of Municipal Corporation of Greater Mumbai and Mumbai Metropolitan Regional Development Authority's Proposed Transport study, two key developments identified which are going to impact the subject site directly or indirectly are:

1. Proposed road connecting Lokhandwala, Kandivali (E) to Thakur Village
2. Proposed Metro connectivity from Andheri (E) to Dahisar (E)

Figure 13 Proposed Connectivity Near Subject Site



(Source: Liases Foras, Base Image: Google Earth)

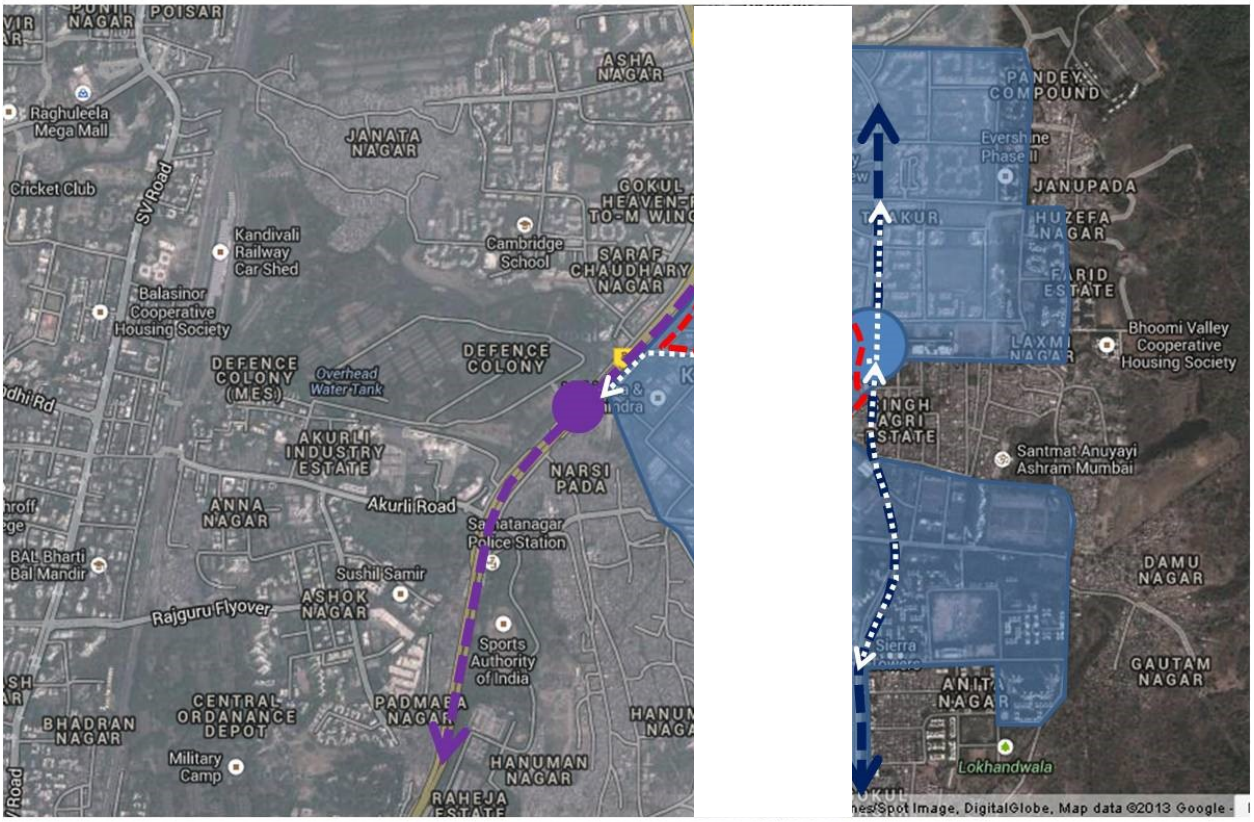
Impact of the Proposed Connectivity

Considering the thriving retail fabric at Thakur Village and deficit of the retail at Lokhandwala Complex, Kandivali East being the connecting path will increase the movement from Lokhnadwala Complex and Kandivali East to the Thakur village. The proposed road connectivity will also improve the position of the junction at Samta Nagar Police station.

Considering the proposed metro station at Mahindra & Mahindra Factory the future pedestrian traffic will be encouraged to use the Samta Nagar Route to reach the Thakur Village. This strategic location will enhance the viability of the convenient retail activity.

Considering the prevailing trend of the industrial to residential conversion in surrounding region, there is a likely chance that Mahindra & Mahindra Industry will also go under a similar land use conversion. The development of Mahindra & Mahindra factory will bring together the Thakur Village and Lokhandwala Complex. Kandivali East can even act as a township in itself.

Figure 14 Impact of the Proposed Connectivity



(Source: Liases Foras, Base Image: Google Earth)

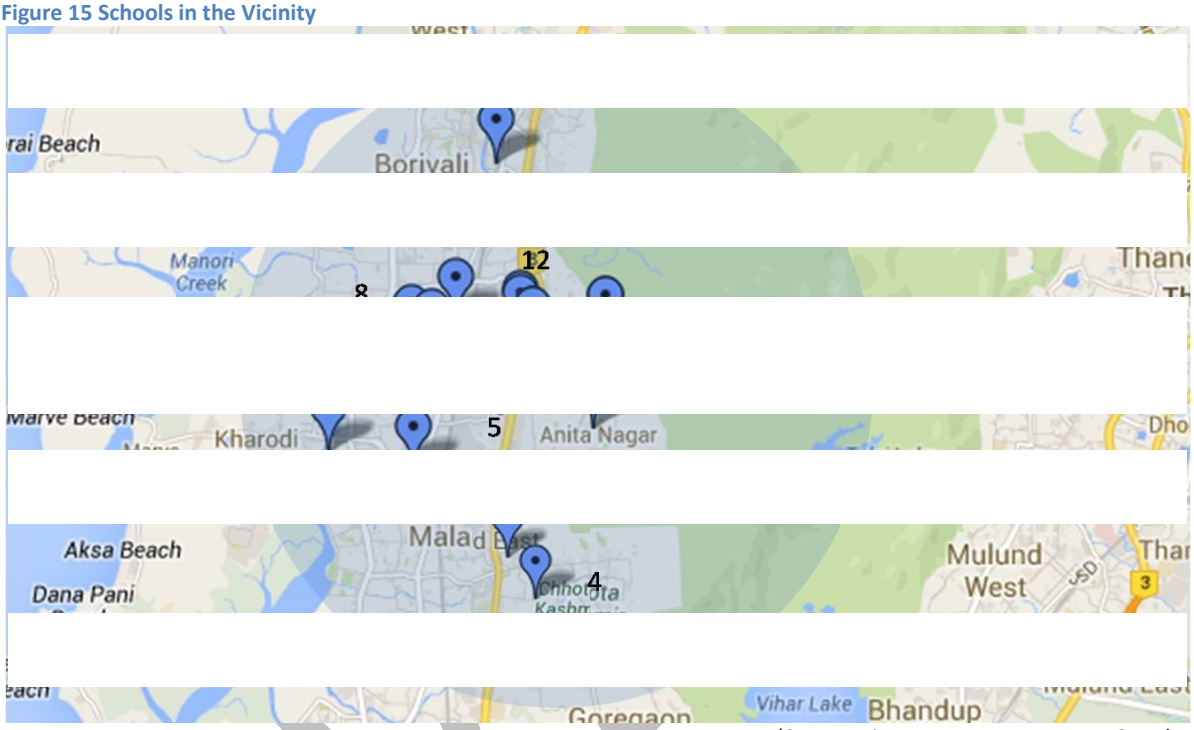
State of Social Infrastructure

This section deals with the social infrastructure (including schools, hospitals and recreational spaces) within the radius of 10 Km from the location. The demographic profile that already exists there shows that private facilities are going to be used majorly and so the same is focused in the section.

Education Facility

There are a number of small and big schools in the area considered for study. Out of all the schools, there are some 13 well-known schools, which can be seen in the image below. The names of these schools along with their distance from the subject site are given in the following table.

Figure 15 Schools in the Vicinity



(Source: Liases Foras Base Image- Google Maps)

Table 1 Schools Available in 10 Km Radius from the Subject Site

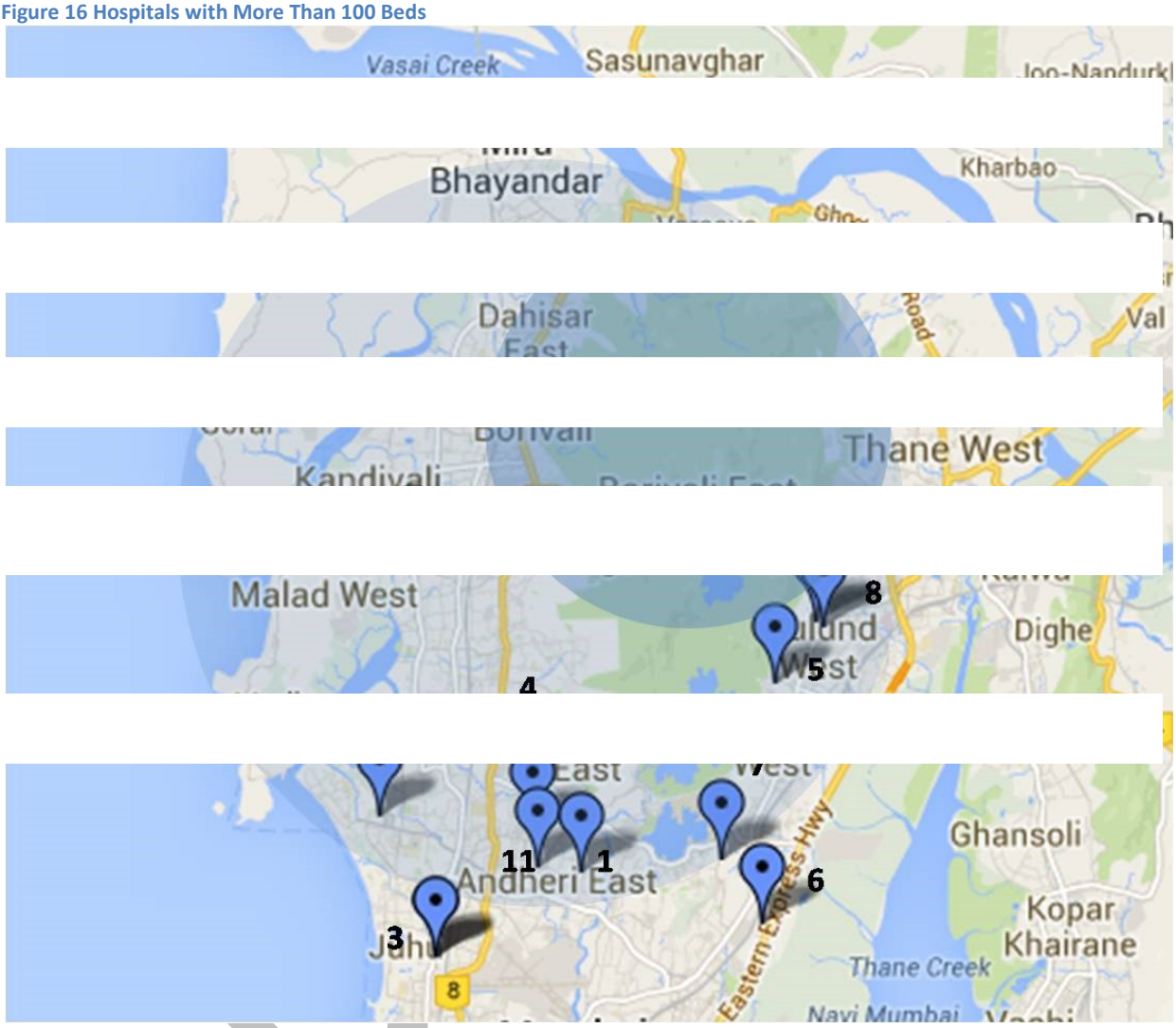
Sr. No.	Well Known Schools in 10 km radius	Travel Distance
1	Gundecha School	1.5 km
2	Lokhandwala Foundation School	2.5 km
3	Oberoi International	5.7 km
4	Children's Academy	1.9 km
5	Witty International	4.5 km
6	Ryan International	6.2 km
7	Kapol Vidyanidhi International School	5.6 km
8	Swami Vivekananda International School	6.7 km
9	Our Lady Of Remedy High School	4.5 km
10	St. Lawrence High School	1.7 km
11	Thakur Vidya Mandir High School	1.0 km
12	VIBGYOR High	5.0 km
13	Cambridge School	6.5 km

(Source: Liases Foras)

Healthcare Facility

There are a number of small and big hospitals and dispensaries in the area considered for study. The hospitals with more than 100 beds in an aerial distance of 20 km along with their distance from the subject site are given in the following table.

Figure 16 Hospitals with More Than 100 Beds



(Source: Liases Foras, Base Image: Google Maps)

Table 2 Hospitals with more than 100 beds in 25 km radius

Sr. No.	Hospitals having above 100 beds	No. of Beds	Travel Distance
1	ESIC Model Hospital Cum ODC	300	12km
2	Kokilaben Dhirubhai Amana Hospital and Medical Research Institute	750	12 km
3	Balabhai Nanavati Hospital	343	15 km
4	Holy Spirit Hospital	300	11 km
5	Fortis Hospital Ltd	264	22 km
6	Godrej Memorial Hospital	111	21 km
7	L.H. Hiranandani Hospital	188	16 km
8	E.S.I.S. Hospital	400	24 km
9	Zenith	100	6 km
10	Vertex	100	25 km
11	Seven hills Healthcare Pvt. Ltd (Proposed)	1500	15 km
	Total	2963	

(Note: Municipal hospitals are not marked in this list)
(Source: Liases Foras)

Retail (Cum Recreation)

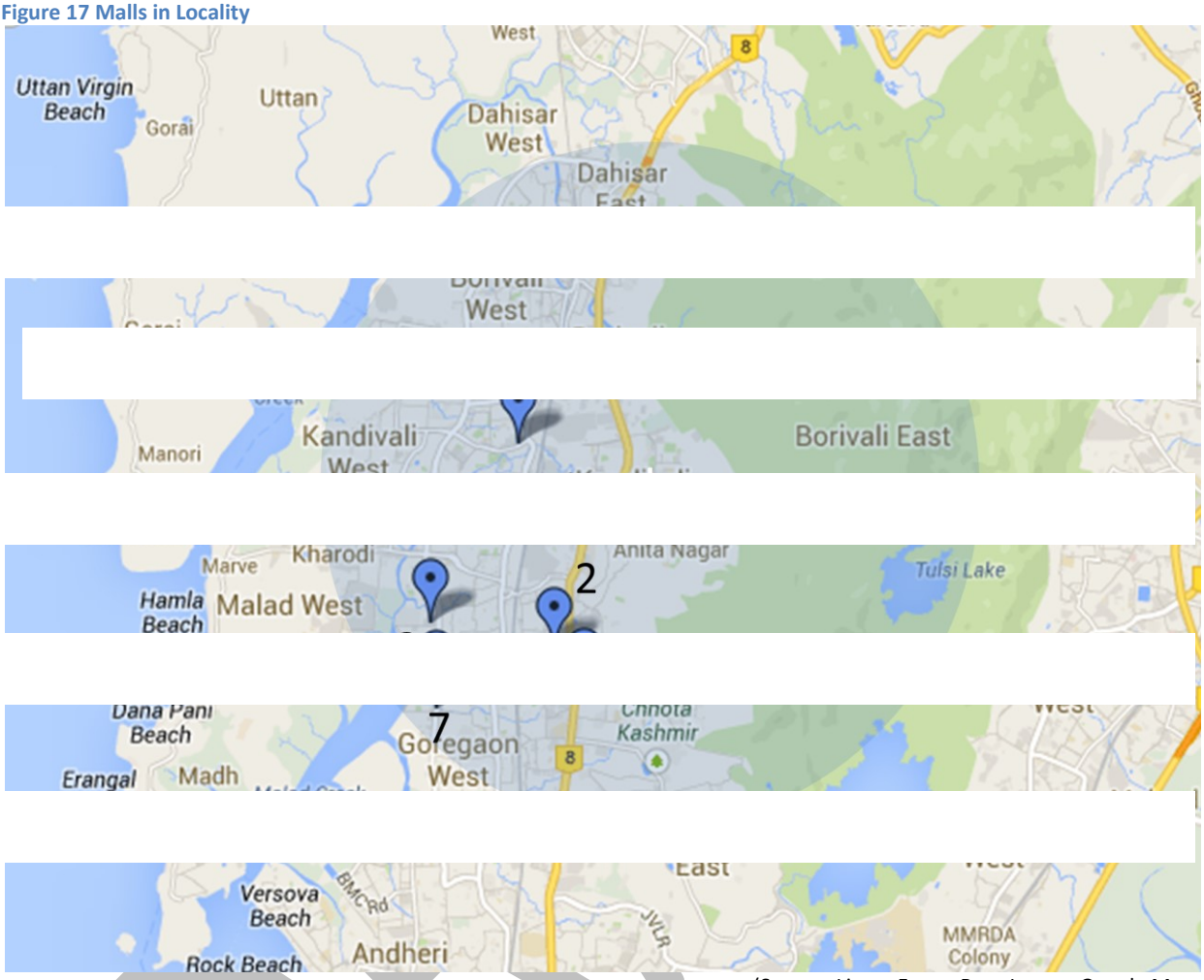
This is one of the major requirements with a residential cluster as for survival as well as convenience a retail cluster is required within close reach. As per the famous urban planning theory or concept – the Neighbourhood Concept a convenience shopping is required within a radius of 500 meters but considering the sizes of the cities and increase in convenient distance due to motorization and other factors this distance can be taken up to 3-5 Km. So the following image shows the availability of large retail clusters (or malls) in a radius of 5km the names of the same along with their distance from subject site is given in the table below.

Table 3 Malls Available in 5 Km Radius from the Subject Site

Sr. No.	Malls	Travel Distance
1	Grovels 101	1.9 km
2	The Mall	4.5 km
3	Oberoi Shopping Mall	4.5 km
4	Raghuleela Mega Mall	4.8 km
5	Infinity Mall 2	5.7 km
6	In Orbit	6.8 km
7	Hyper City	7.1 km

(Source: Liases Foras)

Figure 17 Malls in Locality



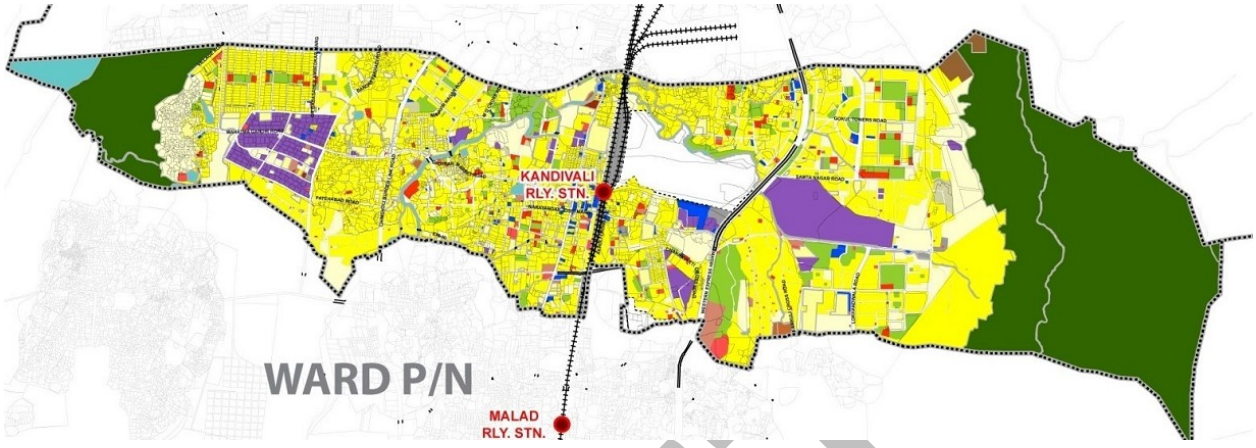
(Source: Liases Foras, Base Image: Google Maps)

For a population of 22lacs we have 6 malls in the vicinity. The current vector does not need a new recreation place. However, with the future proposed demography and upliftment in the floating population due to commercial base may out rightly increase the possibility of retail.

Ward Characteristics

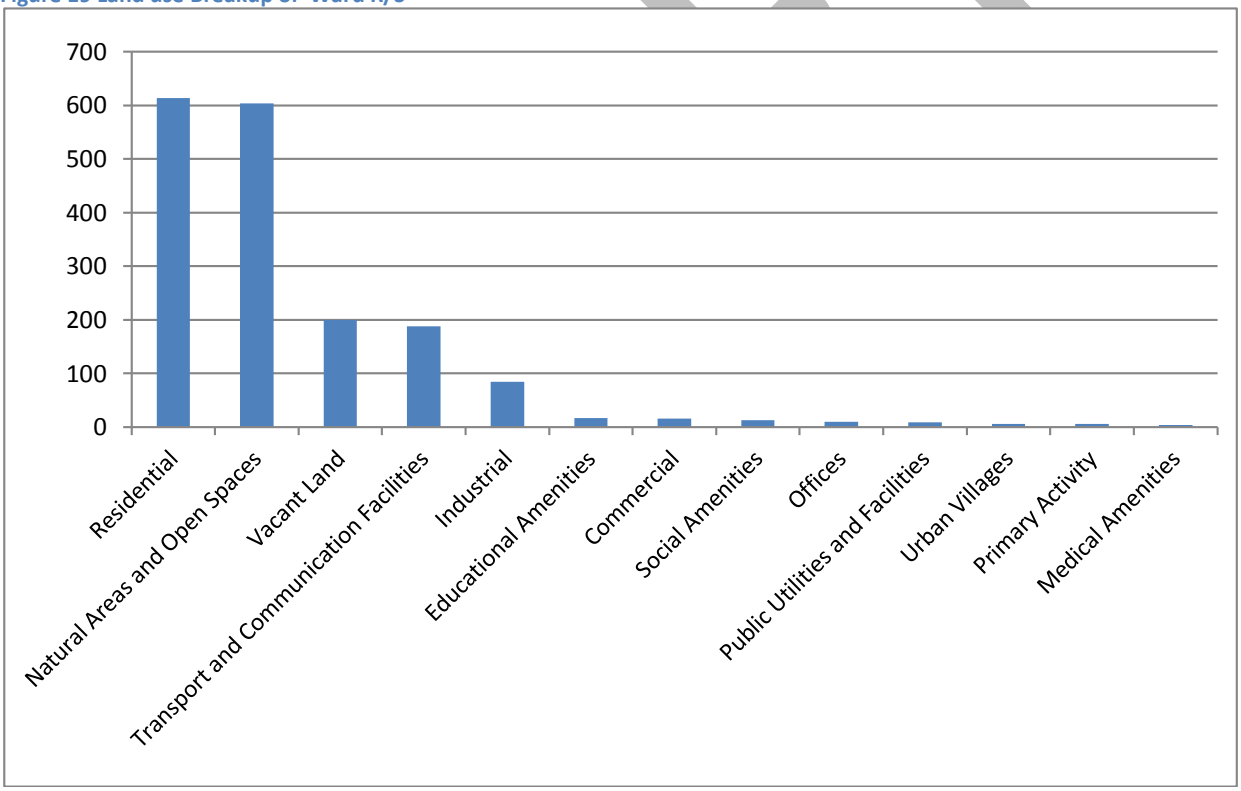
Ward R/S (in which the subject site falls) has an area of 18.31 sq.km. and population of 5,89,887 persons with density of 322 PPH. Of the total land area, 35% of the land area is under residential and 34% under natural and open spaces

Figure 18 Ward P/N and R/S



The graph below shows the land use distribution of the ward under consideration.

Figure 19 Land use Breakup of Ward R/S



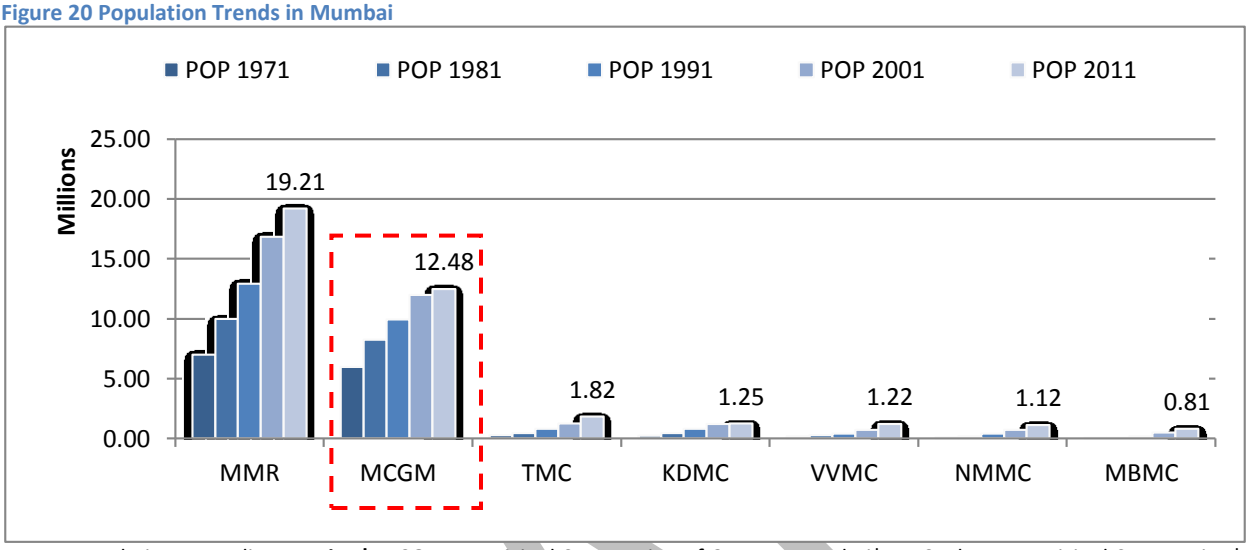
Future Housing Dynamics of R-South Ward

The section will discuss the future housing need of R/S ward based upon the population increase over the past decades. The graph below shows the population of last 5 decades at various levels.

Comparative Population Dynamics of MMR

It can be observed from the graph below that the growth rate of MCGM has decreased in the last decade whereas that of other smaller municipal corporations have increased indicating saturation of Greater Mumbai area resulting in shift of population growth from core to the peripheral corporations.

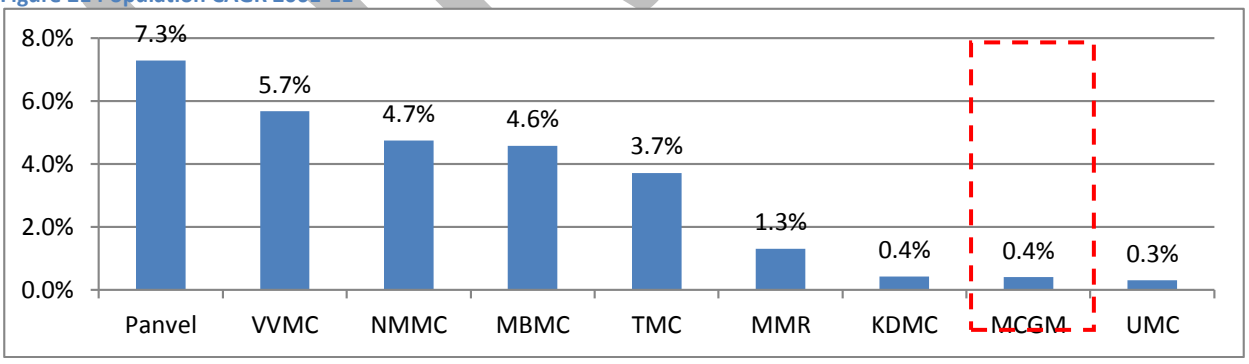
Figure 20 Population Trends in Mumbai



MMR: Mumbai Metropolitan **Region| MCGM:** Municipal Corporation of Greater Mumbai| **TMC:** Thane Municipal Corporation| **KDMC:** Kalyan Dombivali Municipal Corporation| **VVMC:** Vasai Virar Municipal Corporation |**NMMC:** Navi Mumbai Municipal Corporation | **MBMC:** Mira Bhayander Municipal corporation|

The graph below shows that the population growth in MCGM is one of the slowest (0.4%) in the MMR region with the maximum growth witnessed in Panvel region in 2001-11.

Figure 21 Population CAGR 2001-11



Population Dynamics of Ward R/S

This ward falls under the MCGM area and as seen above the growth rate has decrease in the area in past decade. This section looks at the population dynamics of ward R/S and checks the dynamics of this ward in the past decades. The following table gives the population

Table 4 Ward Population

Ward	1991	2001	2007	CAGR 1991-2001
P-N	561,938	798,775	1,290,000	3.58%
P-S	354,984	437,849		2.12%
R-C	303,489	513,077		5.39%
R-N	196,045	363,827		6.38%
R-S	393,723	589,887	829,127	4.13%

Future Housing Need Assessment

For estimating the housing need, the 2007 population data collected by the MCGM during the Pulse polio campaign is considered.

The growth rate is derived, keeping in mind the density should not be more than 600 persons per hectare. In addition, the analysis is done considering the housing gap on 2011 as ZERO, and vacant housing stock is going to be utilized as rental units.

Table 5 Population Projection

Particulars	Values
CAGR (a)	1.95%
Base Population of 2007 (b)	829,127
Projected population for 2020 (c=b*(1+a)^13)	1,065,749
Incremental increase (d= c-a)	236,622
Household size (e)	4.5
Housing demand (f = d/e)	52,583
Population in Informal Housing (g = f*0.50)	26,292
Population Assumed to be Accommodated in Rental Housing (h = f*0.20)	10,517
Housing requirement between 2007 -2013 (i = f-g-h)	13,146
Annual housing demand (j= (g + h)/13)	1,011

Chapter 3 Residential Market Dynamics

Introduction

In this chapter, the residential market dynamics are discussed in detail to find out the most feasible product and cost range for the subject site. Detailed surveys of the residential market were carried out in the MMR region which includes the catchment area. There were some 35 projects in the catchment, i.e. the Bhugaon & Bavdhan area, the details of which are given above in chapter 2. There are more projects in Bavdhan as compared to Bhugaon because of its proximity to the city.

The residential market was studied at four levels so that the inferences are neither biased as per the micro trends nor inconsiderate of the local conditions & location characteristics. These four levels are:

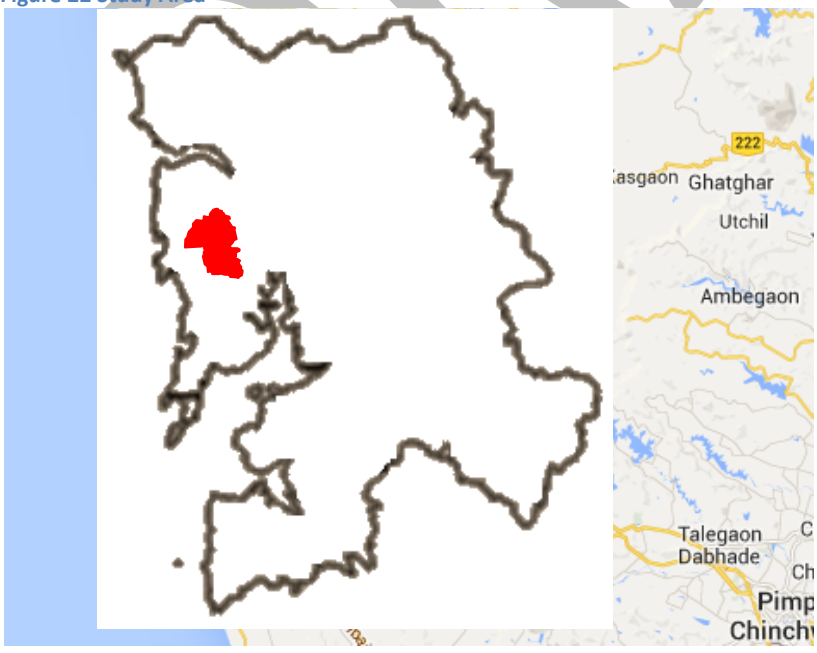
Macro Level:

- MMR- overall
- Western Suburb – consisting of Bandra (E & W), Khar (W), Santacruz (E & W), Juhu, Ville Parle (E & W), Andheri (E & W), Jogeshwari (E & W), Goregaon (E & W), Malad (E & W), Kandivali (E & W) and Borivali (E & W).
- Distance Band Analysis- locations falling in the distance band of 24 to 30Km in the western & central suburb.

Micro Level:

- Catchment- including Borivali, Kandavali, Malad, Goregaon and Jogeshwari.
- Location : Kandavali East

Figure 22 Study Area



(Source: Liases Foras, Base Image: Google Maps) 

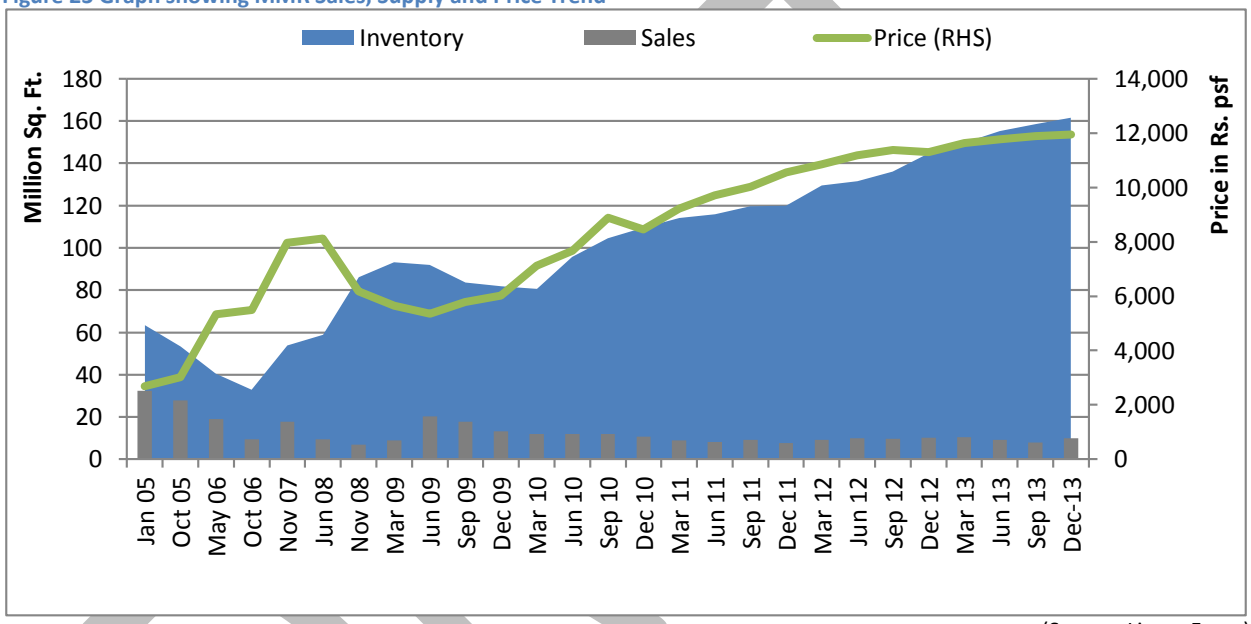
MMR Market Dynamics

To understand and project the growth and future of the city, affecting the real estate of different regions, the basic character of the real estate market of MMR is studied in the section below.

The graph below gives the inventory and sales pattern of MMR from January 2006 along with the price trend in the region.

It shows that inventory of MMR is piling up whereas the sales is decreasing with increasing prices. The inventory in the region has been increasing from March 2010.

Figure 23 Graph showing MMR Sales, Supply and Price Trend



(Source: Liases Foras)

The table below gives the market particulars of last five quarters including sales, unsold, price, average size, etc. along with the quarter on quarter change and year on year change. It can be clearly seen that the unsold stock is increasing whereas the sales is decreasing on the yearly basis. On the other hand, on quarterly basis the sales can be observed to have increased by a good 26%.

The price on the other hand has increased by 6% affecting sales velocity badly, which has dropped by 13% from 1.35% to 1.18% in last 12 months.

Table 6 MMR Market Dynamics

Particulars	Trailing 12 Months					QoQ change	YoY change
	Q3 12-13	Q4 12-13	Q1 13-14	Q2 13-14	Q3 13-14		
Unsold Stock (Mn. Sq.ft.)	134.4	139.3	146.1	150.6	151.6	1%	13%
(In Units)	1,19,104	1,23,907	1,30,192	1,33,594	1,34,711	1%	13%
Sales (Mn. Sq.ft.)	10.3	10.4	9.2	7.8	9.9	26%	-4%
(In Units)	9,987	10,325	9,083	7,771	10,147	31%	2%
Value of Stock Sold (Rs. Cr.) (BT)	9,224	9,373	8,683	7,233	8,661	20%	-6%
Wt. Avg. Price Per Sq.Ft.	11,295	11,627	11,765	11,878	11,956	1%	6%
Wt. Avg. Cost of Flat (Rs. Lac)	117	119	122	123	124	1%	6%
Wt. Avg. Area Per Flat (Sq.ft.)	1,096	1,090	1,092	1,091	1,089	0%	-1%
Sales Velocity (%)	1.35%	1.33%	1.12%	0.93%	1.18%	27%	-13%

QoQ = ((Q2 13-14/ Q1 13-14)-1)%
YOY = ((Q2 13-14/ Q2 12-13)-1)%

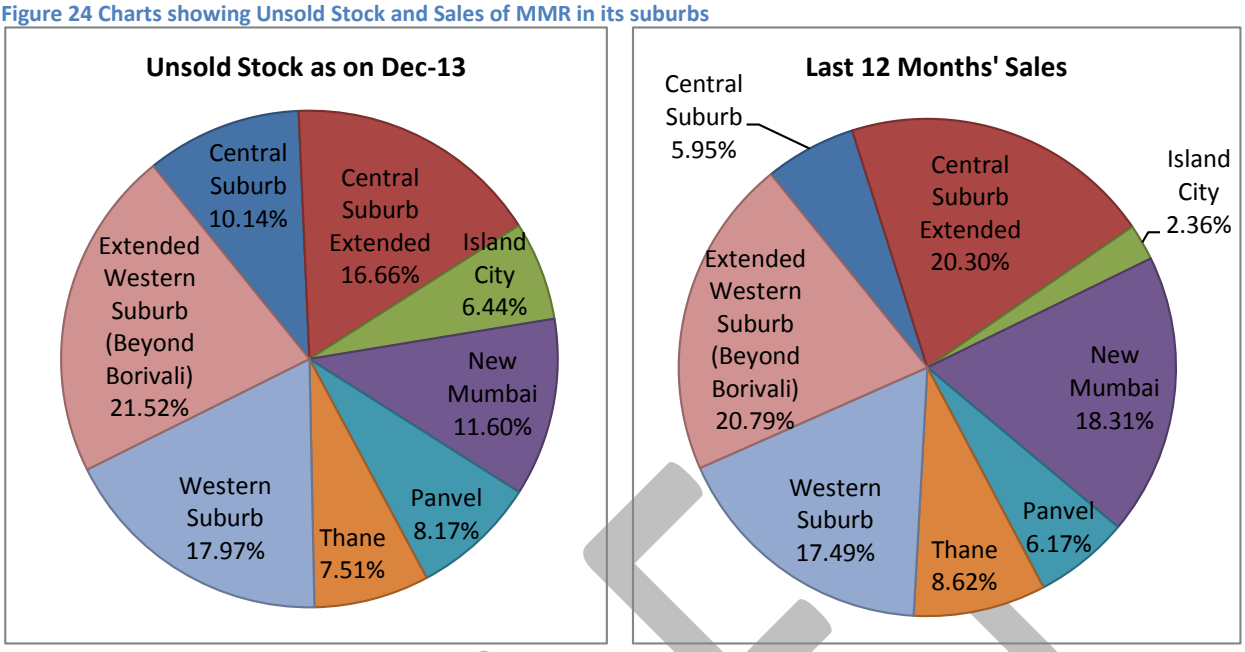
(Source: Liases Foras)

Inter Suburb Performance

In this section the distribution of the MMR market supply and last 12 months' sales within different suburbs (or smaller parts) is looked into so as to understand which area in the city is performing well in terms of both supply and sales and hence the growth directions of the city.

The share of Extended Western Suburb (Beyond Borivali) is the highest in terms of sales as well as unsold stock which is approximately 21% in both sales and unsold stock closely followed by extended central suburb. Western suburb (which contains the catchment and the subject site) has equal share of unsold stock as well as the sales in last 12 months and is discussed in detail in the next section.

Figure 24 Charts showing Unsold Stock and Sales of MMR in its suburbs

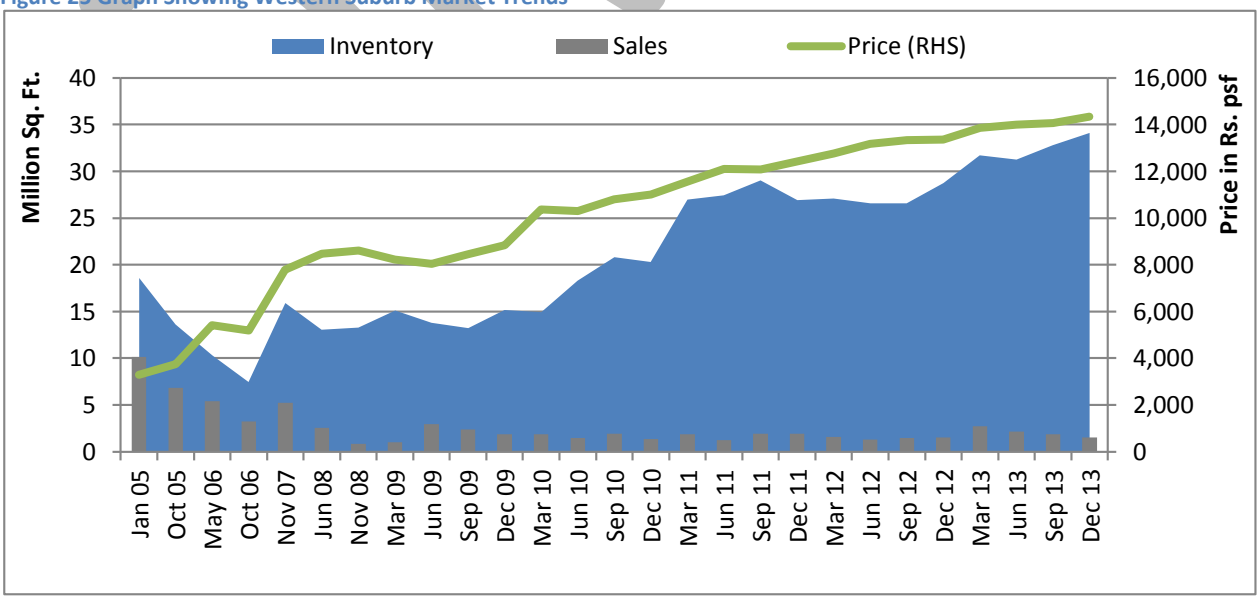


(Source: Liases Foras)

Western Suburb- Market Dynamics

As seen from the above pie charts, the share of western suburb in overall MMR market is more than 17% in both sales and unsold stock. As the subject site is located in this suburb, it is studied in detail in this section. The graph below shows the inventory and sales pattern of Western Suburb from January 2006 along with the price trend in the region.

Figure 25 Graph Showing Western Suburb Market Trends



(Source: Liases Foras)

It can be noticed that after the slowdown in 2008 the market could never perform the way it did before. Also the slight correction in price in December-12 brought an improvement in the market in terms of both sales and supply in the next quarter. Although this improvement was temporary and the sales have been diminishing since then.

The table below gives a better insight of market dynamics in last five quarters in Western Suburb. It can be noticed that with the soaring prices the sales has been dwindling which also results in lessening sales velocities. The sales have decreased by 18% from last quarter whereas the unsold stock has increased by 5%.

Table 7 Western Suburb Market Dynamics

Particulars	Trailing 12 Months					QoQ Change	YoY change
	Q3 12-13	Q4 12-13	Q1 13-14	Q2 13-14	Q3 13-14		
Unsold Stock (Mn. Sq.ft.)	27.2	29.0	29.1	30.9	32.6	5%	20%
(In Units)	19,283	20,741	21,131	22,522	24,204	7%	26%
Sales (Mn. Sq.ft.)	1.5	2.7	2.1	1.9	1.5	-18%	1%
(In Units)	1,149	2,196	1,623	1,457	1,254	-14%	9%
Value of Stock Sold (Rs. Cr.) (BT)	2,012	3,429	3,055	2,419	2,352	-3%	17%
Wt. Avg. Price psf	13,347	13,866	13,993	14,059	14,344	2%	7%
Wt. Avg. Cost of Flat (Rs. Lac)	192	195	197	198	201	2%	5%
Wt. Avg. Area Per Flat (Sq.ft.)	1,384	1,370	1,360	1,361	1,349	-1%	-3%
Sales Velocity (%)	1.04%	1.79%	1.27%	1.10%	0.89%	-19%	-14%

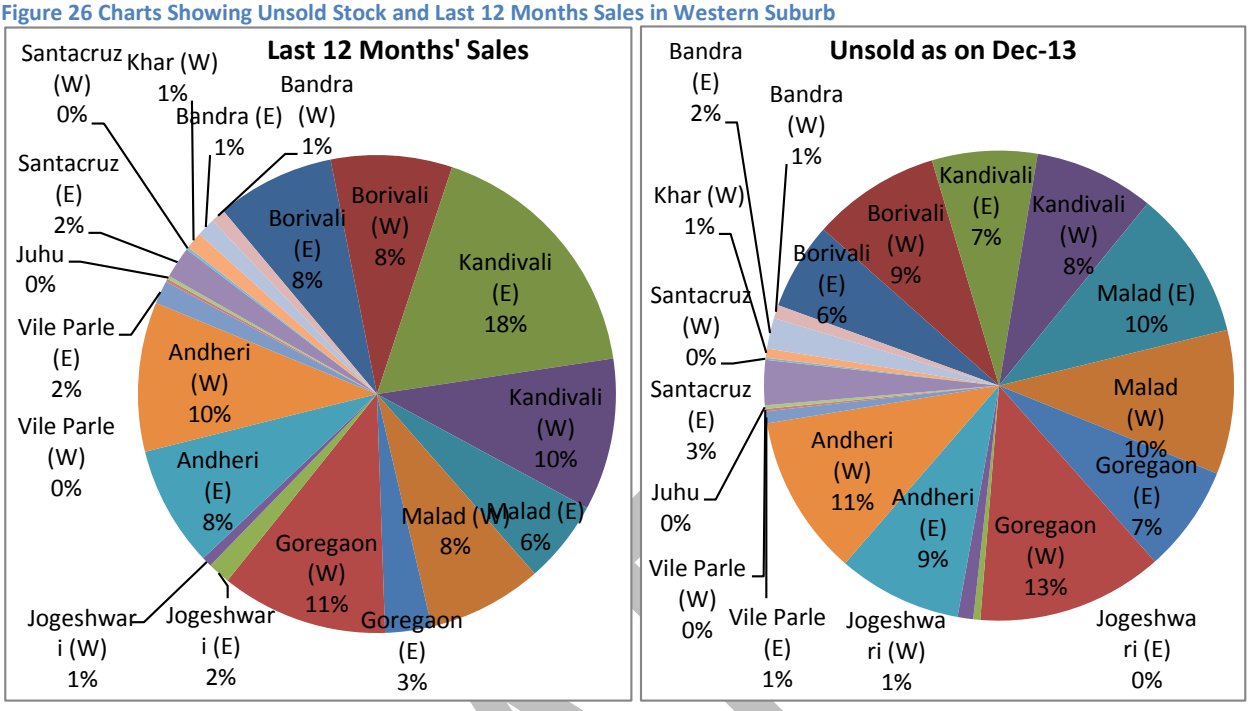
(Source: Liases Foras)

Inter Location Market Dynamics in Western Suburb

This section discusses the breakup of the market sales and supply in western suburb among the various locations falling in it.

The charts below give the market breakup of sales in last 12 months and the unsold stock as on December-2013 among the various locations in western suburb. It can be seen that Kandivali contributes 28% of sales in last 12 months and just 15% of the unsold stock in the western suburb.

Figure 26 Charts Showing Unsold Stock and Last 12 Months Sales in Western Suburb



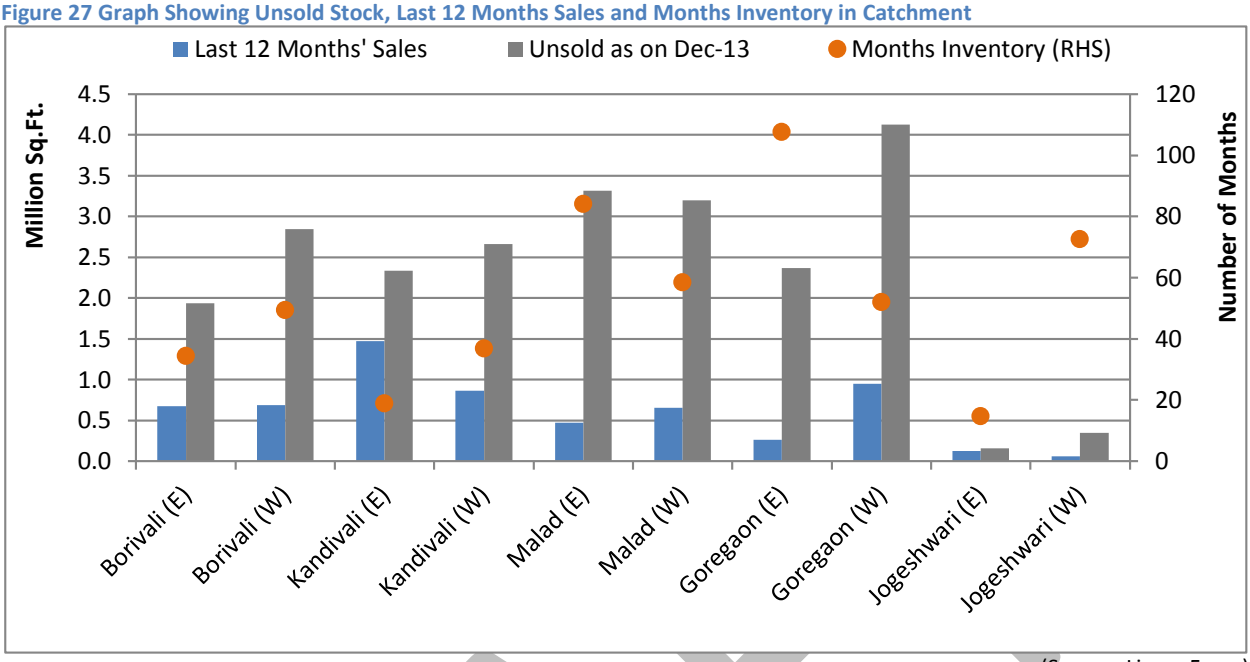
(Source: Liases Foras)

It can be seen from the above two sections that the locations of Borivali, Kandivali, Malad, Goregaon and Andheri are coming up as major locations in the suburb (both in terms of sales and supply) so the following section will look in details of these locations in form of a catchment analysis. In the catchment instead of Andheri Jogeshwari is considered as Andheri is far-off from the subject site and hence will have lesser impact on it.

Catchment Market Dynamics

The section will explain the respective position of Kandivali market with reference to the adjoining micro markets within the Western Suburb. The graph below gives the sales and unsold stock breakup of the market in various locations along with the number of months required to shed off this unsold stock. It shows that Kandivali East is one of the well performing locations in the suburb with maximum share of sales, smaller gap between sales and unsold stock and hence lesser months inventory in spite of having a considerable amount of supply in the market.

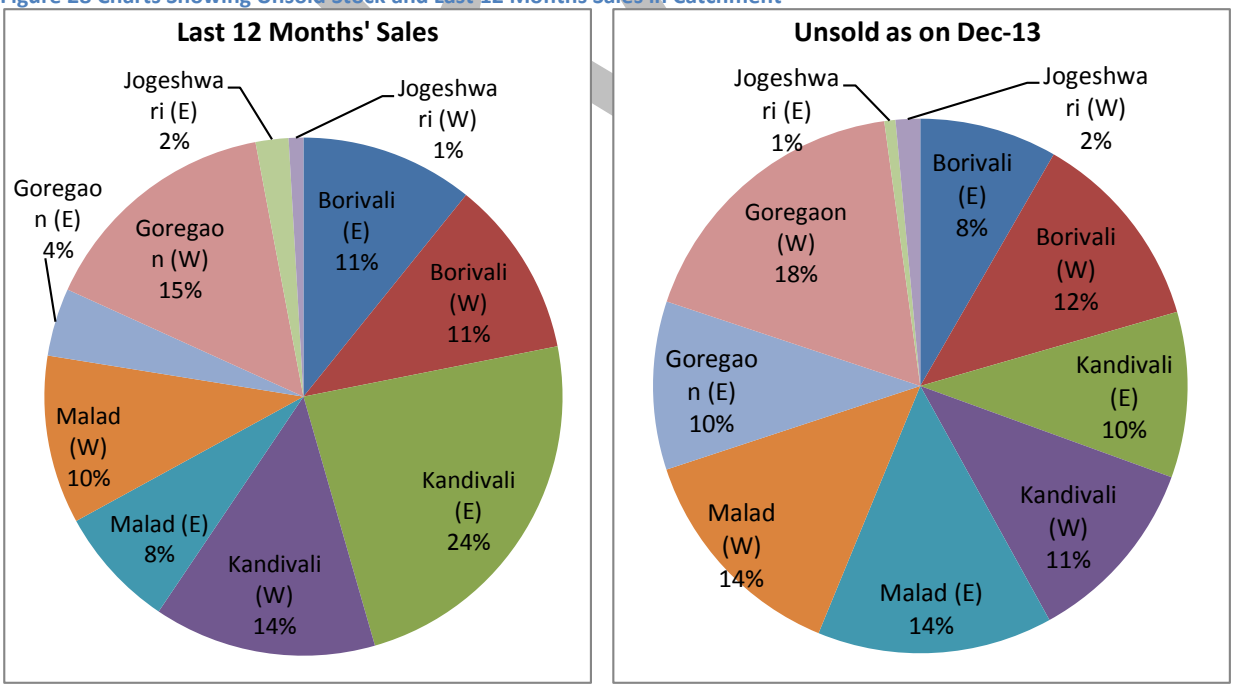
Figure 27 Graph Showing Unsold Stock, Last 12 Months Sales and Months Inventory in Catchment



(Source: Liases Foras)

In the catchment if we see the share of sales and unsold stock of Kandivali East (as shown in the pie chats below) it can be observed that it holds maximum share of sales of 25% whereas a nominal share of unsold stock of just 10%.

Figure 28 Charts Showing Unsold Stock and Last 12 Months Sales in Catchment



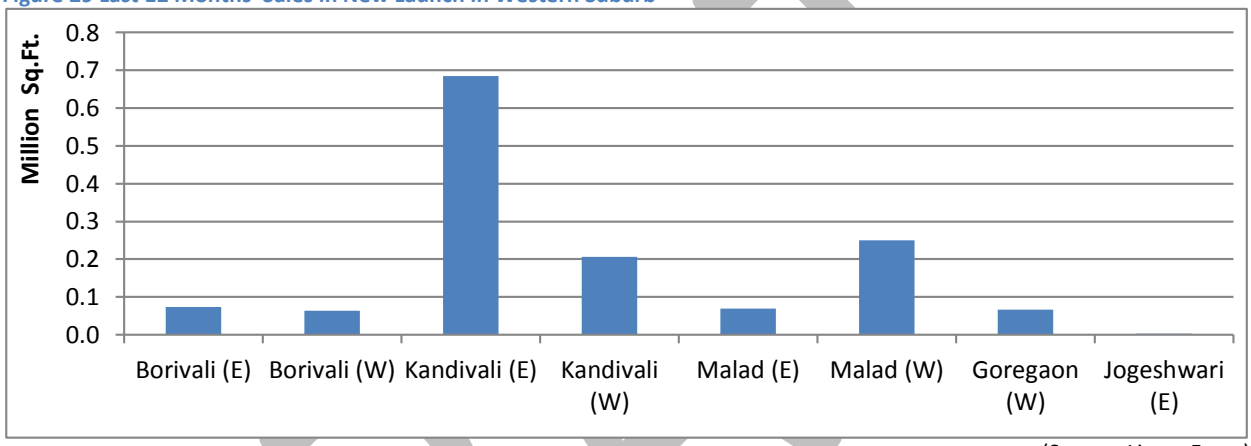
(Source: Liases Foras)

Since March 2009 till December 2012, Kandivali market used to sell approximately 1.58 lacs sq.ft. but after that the overall average has increased to approximately 2.03 sq.ft. per quarter. This can probably happen due to the new launches in the location so the following sections will look at the dynamics of new launches in the suburb.

Inter Location Market Dynamics in Western Suburb - Based upon New Launches

To check the sales pattern of each location and understand the reason behind increase in sales in Kandivali east, the sales in new launches are studied. It is found that here the new launches are performing well with highest share of sales in the western suburb.

Figure 29 Last 12 Months' Sales in New Launch in Western Suburb



(Source: Liases Foras)

Also from the following table it can be seen that the share of sales in new launches has increased over the years in Kandivali, also it has the maximum share in last two years.

Table 8 Last 12 Months' Sales in New Launches in Western Suburb

Location	FY 10-11	FY 11-12	FY 12-13	FY 13-14 (3 Quarters)
Borivali (E)	83,096	33,890	32,996	73,510
Borivali (W)	76,083	19,497	56,342	45,330
Kandivali (E)	83,080	11,505	5,95,265	1,48,632
Kandivali (W)	47,754	0	41,968	1,68,304
Malad (E)	33,038	37,247	22,887	69,704
Malad (W)	69,259	47,755	32,064	2,26,731
Goregaon (E)	7,871	1,718	30,969	-
Goregaon (W)	1,30,287	83,890	59,955	39,828
Jogeshwari (E)	8,787	3,000		3,550

(Source: Liases Foras)

Comparative Market Analysis excluding New Launches in Catchment

Now that it is observed that new launches play a crucial role in sales of a location so this section is focused upon the sales excluding sales in new launches in each location in the catchment.

Table 9 Comparative Market Analysis Excluding the Sales in New Launches in Catchment

Location	Last 12 Months' Sales in New Launch (A)	Last 12 months Sales Total (B)	Last 12 months sales excluding new launch sales (C=B-A)	% sales to overall market	Unsold stock as on Dec 13	% unsold to Overall Market	Months Inventory as per C
Borivali (E)	73,510	6,71,614	5,98,104	12.5%	19,36,686	8.3%	39
Borivali (W)	63,392	6,89,136	6,25,744	13.0%	28,41,814	12.2%	54
Goregaon (E)		2,63,781	2,63,781	5.5%	23,69,746	10.2%	108
Goregaon (W)	66,358	9,48,442	8,82,084	18.4%	41,26,485	17.7%	56
Jogeshwari (E)	3,550	1,27,630	1,24,080	2.6%	1,56,994	0.7%	15
Jogeshwari (W)		56,896	56,896	1.2%	3,45,033	1.5%	73
Kandivali (E)	6,84,680	14,71,796	7,87,116	16.4%	23,32,386	10.0%	36
Kandivali (W)	2,06,714	8,63,673	6,56,959	13.7%	26,60,432	11.4%	49
Malad (E)	69,704	4,72,334	4,02,630	8.4%	33,15,383	14.2%	99
Malad (W)	2,50,195	6,53,430	4,03,235	8.4%	31,94,702	13.7%	95
Grand Total	14,18,104	62,18,733	48,00,629		2,32,79,660		

(All Sales & Unsold Figures in Sq.Ft.)
(Source: Liases Foras)

Summary

This section gives the summary of the market dynamics in terms of sales and supply. It can be seen from the table below that the catchment comprise 16% of MMR market in both sales as well as supply in last 12 months. Whereas Kandivali East is having a share of 4% in sales and 2% in supply in the MMR market. The larger share of sales than the supply shows a preferred market from the buyers' perspective.

Table 10 Comparative Last 12 Months Sales & Unsold

Location	Last 12 Months Sales	% of MMR Sales	Unsold as on Dec-13	% of MMR Supply	Months Inventory
MMR	3,73,34,353		15,16,26,699		49
Western Suburb	82,47,884	22%	3,25,84,284	21%	47
Catchment	60,69,567	16%	2,36,53,132	16%	47
Kandivali (E)	14,71,796	4%	23,32,386	2%	19

(Source: Liases Foras)

Spatial Market (or the Distance Band) Analysis

The section explores the spatial movement of market sales with respect to its distance from CBD. This study helps in understanding the demand pattern in various distance bands which will eventually help in understanding the demand pattern of the subject location, i.e. Kandivali East which falls in the distance band of 27 - 33 Km.

Considering the sprawl and hence the variation in market dynamics of MMR only two suburbs, i.e. Western Suburb and Central Suburb, are considered for the distance band analysis.

The table below gives the location falling in each distance band starting from 9Km to 36Km.

Table 11 Locations in Distance Bands

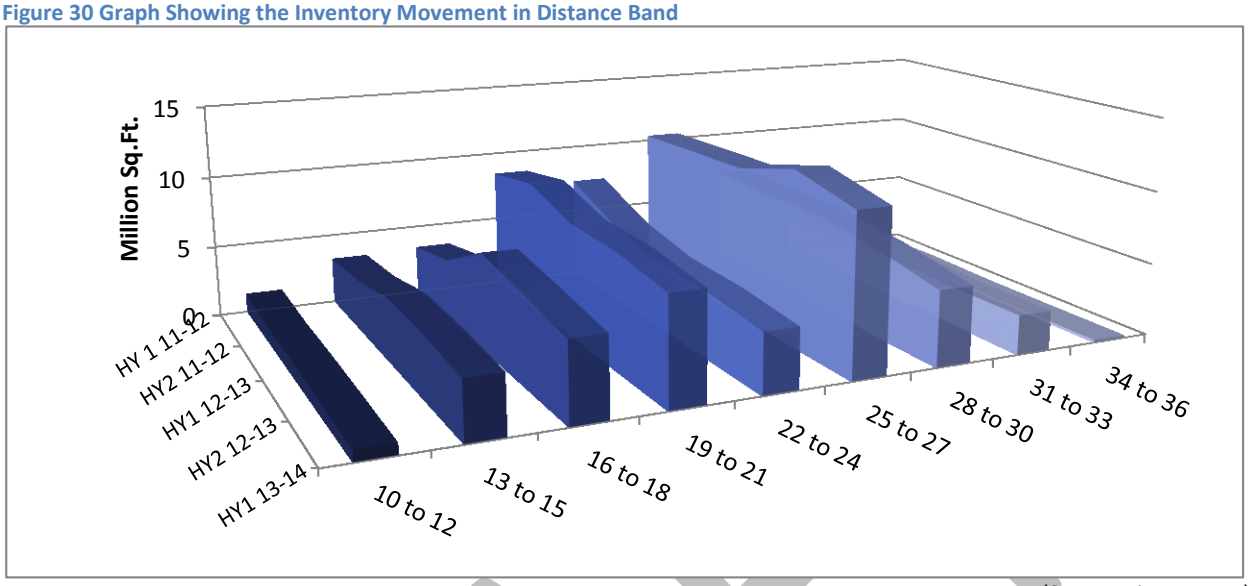
Distance Band	Locations
10 KM -12 KM	Bandra (E), Bandra (W), Khar (W), Santacruz (W), Sion (E)
13 KM -15 KM	Bandra(E), Chembur (E), Chembur (W), Deonar Ghatkopar (E), Santacruz (E), Santacruz(W), Tilak Nagar, Vile Parle(E), Vile Parle (W)
16 KM -18 KM	Andheri (E), Andheri (W), Chembur (E), Chembur (W), Deonar Ghatkopar (E), Govandi, Jogeshwari (W), Juhu, Kurla (W), Tilak Nagar, Vidyavihar (W), Vile Parle (E), Vile Parle (W)
19 KM -21 KM	Andheri (E), Andheri (W), Chembur (E), Chembur (W), Ghatkopar (E), Ghatkopar (W), Goregaon (W), Jogeshwari (E), Jogeshwari (W), Malad (W), Powai, Vikhroli (E), Vikhroli (W), Vile Parle (E), Vile Parle (W)
22 KM -24 KM	Andheri (E), Andheri (W), Goregaon (E), Goregaon (W), Jogeshwari (E), Jogeshwari(W), Kanjurmarg (E), Kanjurmarg (W), Malad (W), Powai, Vikhroli (E), Vikhroli (W)
25 KM -27 KM	Bhandup (E), Bhandup (W), Goregaon (E), Goregaon (W), Kandivali (W), Kanjurmarg(W), Malad (E), Malad (W), Nahur (W)
28 KM -30 KM	Andheri (W), Bhandup (W), Borivali (E), Borivali (W), Goregaon (E), Goregaon (W), Kandivali (E), Kandivali (W), Malad (E), Malad (W), Mulund (E), Mulund (W), Nahur(E), Nahur (W)
31 KM -33 KM	Borivali (E), Borivali (W), Goregaon (E), Goregaon (W), Kandivali (E), Kandivali (W), Malad (W), Mulund (E), Mulund (W), Borivali (E), Borivali (W), Kandivali (W)
34 KM -36 KM	Borivali (W)

Inventory Movement

This section looks at the inventory movement in last 2.5 years on the distance band given in the previous section. It can be noticed that the inventory has gone down in all the locations in last two quarters. The

distance band of 25 to 28 km is having maximum inventory followed by the distance band of 19 - 21 Km and 28 – 30 Km.

Figure 30 Graph Showing the Inventory Movement in Distance Band

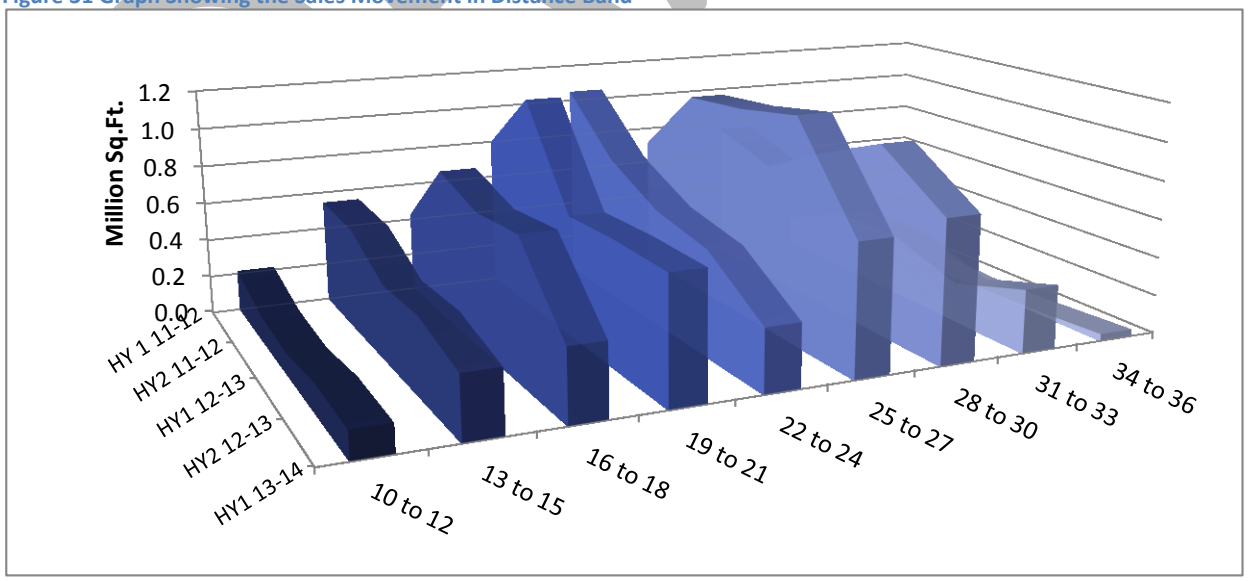


(Source: Liases Foras)

Sales Movement

Like inventory, the sales have also gone down in last two quarters. It can also be seen that the sale have shifted to larger distances (i.e. distance more than 30 Km) with increase in prices in the market. In the distance band of 19-24 Km the sales have diminished drastically in last 1.5 years.

Figure 31 Graph Showing the Sales Movement in Distance Band

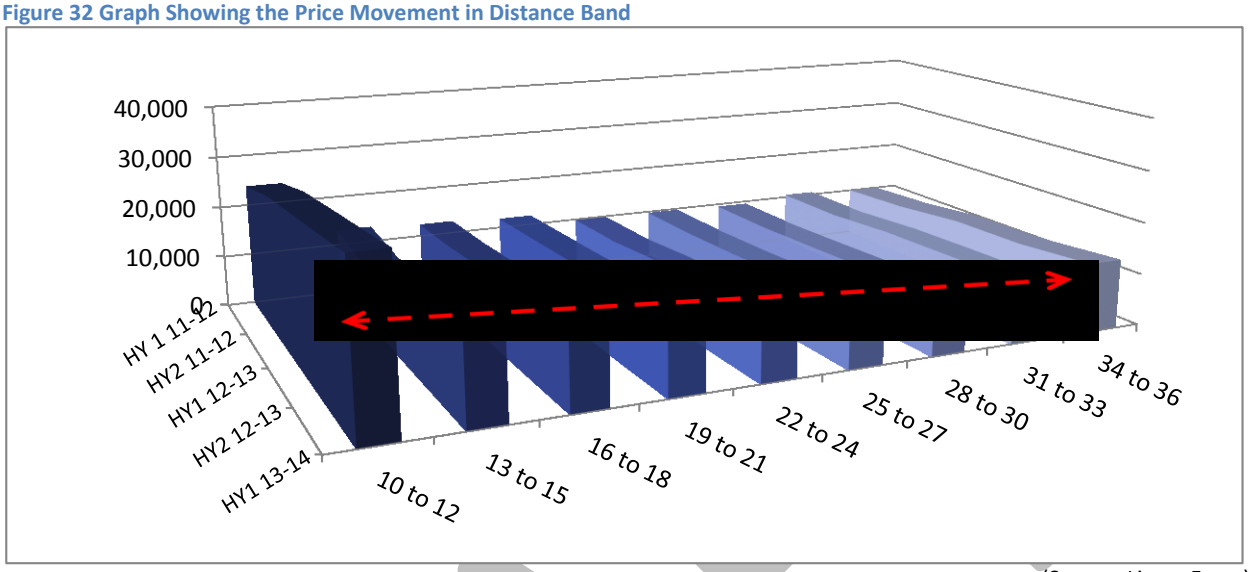


(Source: Liases Foras)

Price Movement

Price arbitrage played a critical role in the improvised sales in the distance band of the 28 Km- 30 Km, as the prices in the adjacent bands are higher than here.

Figure 32 Graph Showing the Price Movement in Distance Band



(Source: Liases Foras)

Table 12 Price Appreciation in Distance Band

Location	Mar-13	Jun-13	Sep-13	Dec-13	% Appreciation
Borivali (W)	12,751	13,246	13,408	13,967	10%
Borivali (E)	11,655	11,908	12,329	12,376	6%
Goregaon (E)	11,840	12,026	12,461	12,924	9%
Goregaon (W)	13,011	13,268	14,070	14,234	9%
Kandivali (E)	11,320	11,358	11,386	11,771	4%
Kandivali (W)	11,411	11,639	11,974	12,266	7%
Bhandup (W)	9,262	9,472	9,481	9,521	3%
Malad (E)	11,631	11,624	11,699	11,746	1%
Malad (W)	11,464	11,101	11,489	11,422	0%
Mulund (E)	10,246	11,053	11,124	11,090	8%
Mulund (W)	10,233	11,484	11,382	11,504	12%
Nahur (E)	9,918	10,191	10,577	10,564	7%
Nahur (W)	9,294	10,242	10,243	10,244	10%

(Source: Liases Foras)

Inference

From the distance band analysis it can be inferred that the distance band of 28-30 Km have a good future perspective of selling due to the shift of the market to higher distance bands and also due to the price arbitrage of the nearby distance bands.

Price Trend Study

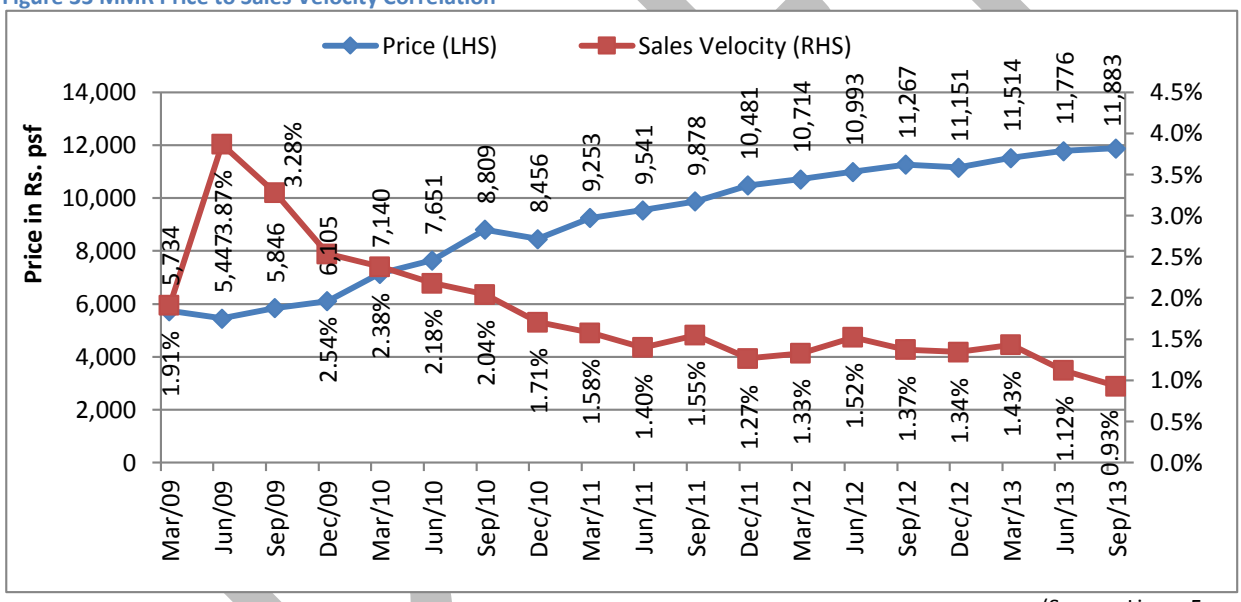
Price is an upshot of various factors like distance from CBD, locational and geographical attributes of the site, surrounding development, economic density, profile of the development, etc. with the main factor determining the base price at a site being its distance from CBD.

Generally it is seen that the sales decreases with the increase in price this section sees if the same trend is there in MMR, western suburb and the catchment markets.

MMR

In MMR market a steep decline in off-take ratios can be seen with the increase in prices. After 2010 the sales velocities have been very low never rising above the 1.5% mark (except for two instances where it grew slightly above 1.5%). This is also the time when the average prices rose above Rs.9,000 psf, hence it can be said that the average prices higher than Rs.9,000 are inefficient and are leading to inefficiencies in the market.

Figure 33 MMR Price to Sales Velocity Correlation

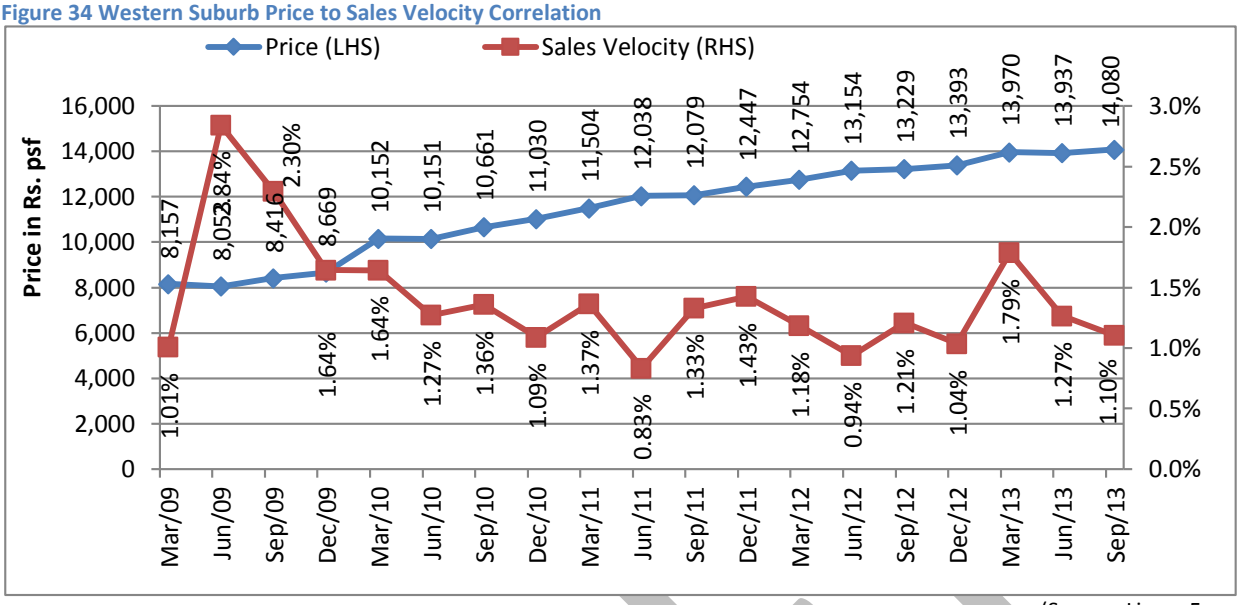


(Source: Liases Foras)

Western Belt

Unlike the MMR market the western suburb market witnessed comparatively more fluctuations in the sales velocities in spite of constantly increasing prices. It is because as the span of analysis reduces the irregularities in any kind of trend is more probable. This is because the effect of each project is more prominent as the lot size reduces. So if there is a new launch in the market the market can show a sudden jump in sales velocities in the location market whereas its effect will not be that prominent in the suburb and city market. In such situations the effect of price & sales correlation reduces.

Figure 34 Western Suburb Price to Sales Velocity Correlation

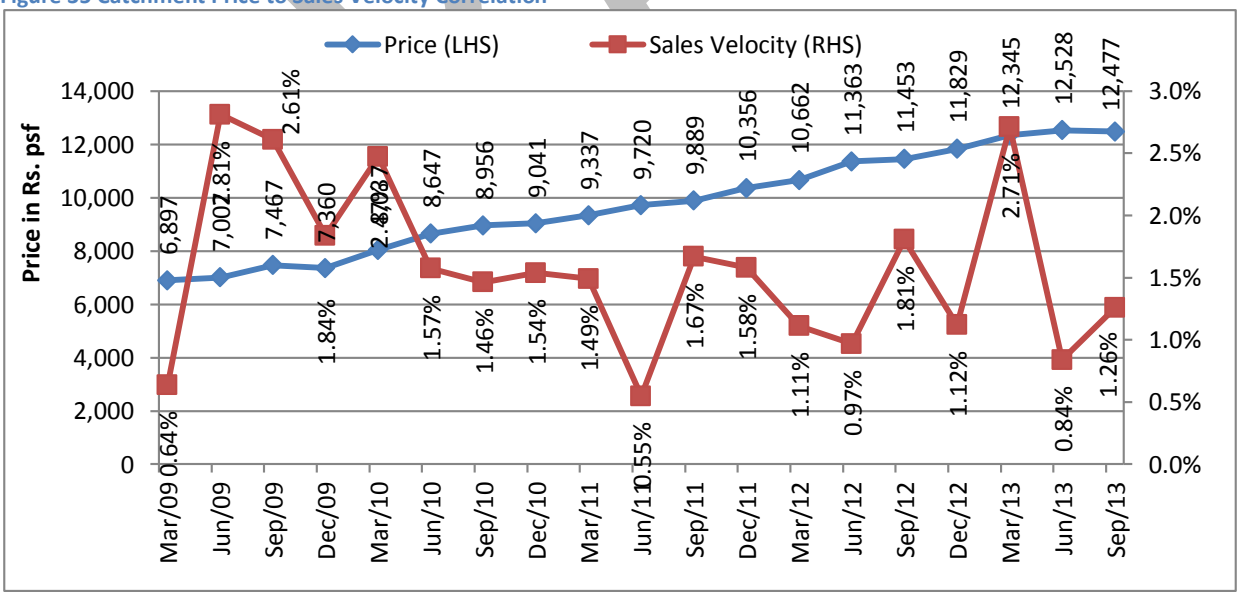


(Source: Liases Foras)

Catchment

The catchment market had been showing an undulation in sales velocities which is hardly getting affected from the price hike every quarter.

Figure 35 Catchment Price to Sales Velocity Correlation

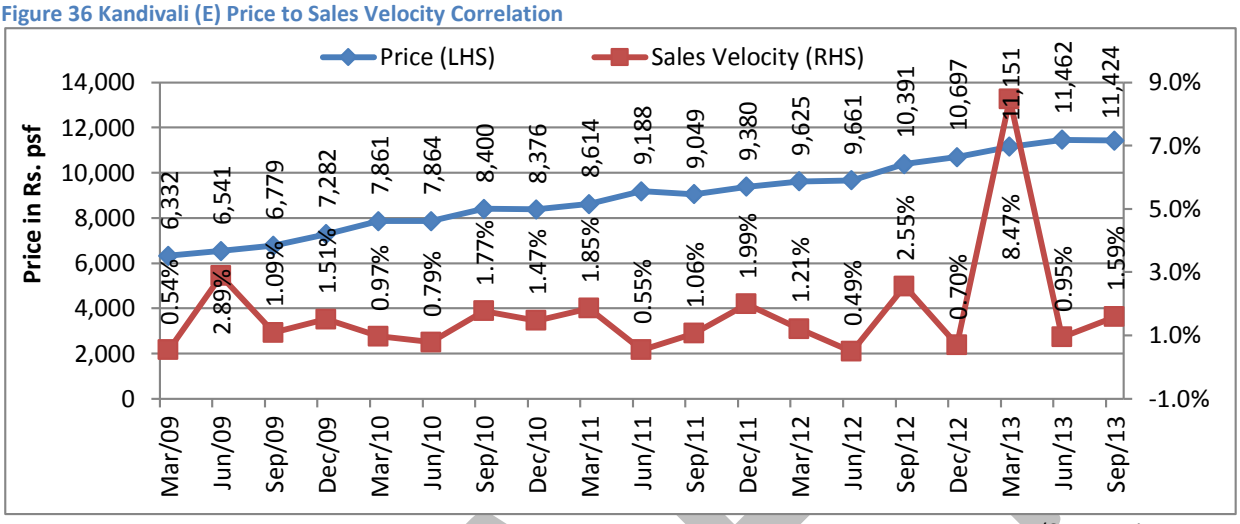


(Source: Liases Foras)

Location- Kandivali (E)

In Kandivali (E) the undulations in sales velocities are much more apparent also the increase in prices is a bit lower than other levels of analysis.

Figure 36 Kandivali (E) Price to Sales Velocity Correlation



(Source: Liases Foras)

Price Determination

Although recently a number of economic centers have come up in MMR and so the effect of these multiple economic hubs have to be considered while determining price for any location. For this same reason a centroid is considered at Lower Parel which is further considered for price determination in the sections to come.

Prices for various time periods at various distances have been considered to determine the correlation of distance and price and hence derive the base price for the location.

Summary- Residential Real Estate Market Movement

This section gives a summary of this chapter with an overview of last 4 financial years. It can be observed that although the supply is increasing overall in the MMR and western suburb market in last 4 years but the swell in the catchment market in last year has been a good 25%.

Table 13 Market Summary of Supply

Supply	FY 09-10	FY 10-11	FY 11-12	FY 12-13	YoY
MMR	131.31	149.74	157.07	183.30	17%
Western Suburb	22.60	32.09	32.29	36.08	12%
Catchment	6.90	9.59	8.84	11.01	25%
Kandivali (E)	1.98	2.27	1.95	2.31	19%

(Source: Liases Foras)

In terms of sales if the market movement is studied, it can be observed that in Kandivali (E) the sales have increased by 167% last year and if swell in last four years is seen it is 55%.

Table 14 Market Summary of Sales

Sales	FY 09-10	FY 10-11	FY 11-12	FY 12-13	YoY
MMR	62.67	44.46	34.82	42.02	21%
Western Suburb	9.11	6.74	6.69	7.08	6%
Catchment	3.00	2.10	2.20	3.07	40%
Kandivali (E)	0.88	0.72	0.51	1.36	167%

(Source: Liases Foras)

If the price movement is looked at it is found that in spite of price rise by 3% in MMR, Suburb and catchment market the prices in Kandivali (E) has decreased by 1% in the year.

Table 15 Comparative Price Movement

Location	Mar-13	Jun-13	Sep-13	Dec-13	% Appreciation
MMR	11,627	11,765	11,878	11,956	3%
Western Suburb	13,866	13,993	14,059	14,344	3%
Catchment	11,891	12,084	12,223	12,296	3%
Kandivali (E)	11,297	11,462	11,424	11,166	-1%

(Source: Liases Foras)

Although an improvement in the sales of Kandivali (E) market on an yearly basis is observed, a fall in the sales velocities is observed on the quarterly basis

Table 16 Comparative Sales Velocity Movement

Location	Mar-13	Jun-13	Sep-13	Dec-13
MMR	1.3%	1.1%	0.9%	1.2%
Western Suburb	1.8%	1.3%	1.1%	0.9%
Catchment	1.8%	1.3%	1.2%	0.8%
Kandivali (E)	8.5%	1.0%	1.6%	0.9%

(Source: Liases Foras)

Inferences

From the above study of residential market dynamics it is observed that Kandivali is a location with good future prospects. It is one of the developing locations of western suburb in the sense that it has lot of development potential from slum redevelopment.

The residential real estate prices in MMR are moving towards inefficiencies and a correction is foreseen (even if it's a slow one) to bring the market back on track. In such situations a budding locations witness a lesser impact of slowdown due to improvement in markets and comparatively lower prices being offered here. If western suburb is being talked about then Kandivali can be considered as one such location.

Now that it is recognized that Kandivali will develop at a reasonably good pace; the next section focuses on the pace of development, i.e. future projection of the pace and kind of development that can happen in the future with the help of past trend and study of similar cases of development in the city landscape.

Once the pace and phase of development is identified the typologies which should be developed on the subject site, that will support and intensify the development process, will be identified with help of product & cost range analysis which is given in the sections to come.

Chapter 4 Residential Real Estate Market - Future Outlook

Introduction

Based upon the historical market behaviour on new launch, supply and sales the future outlook of the residential real estate market supply and sales trend behaviours are projected in this section. This in turn will help in arriving at the recommendation on the launch strategy for the project on the subject site. This section will also focus on assessment of market share capturing and price point's behavior of the projects of similar scale to understand the market pattern of launch quantity and pricing strategy.

Study Area Definition

The present study area is defined taking the following locations as boundaries: from Aarey Road on South, Borivali station to Omkareshwar temple road on the North, Western Railway line as the boundary on the West side and National park on the East side. The total area of the study area as defined is 4895 acres.

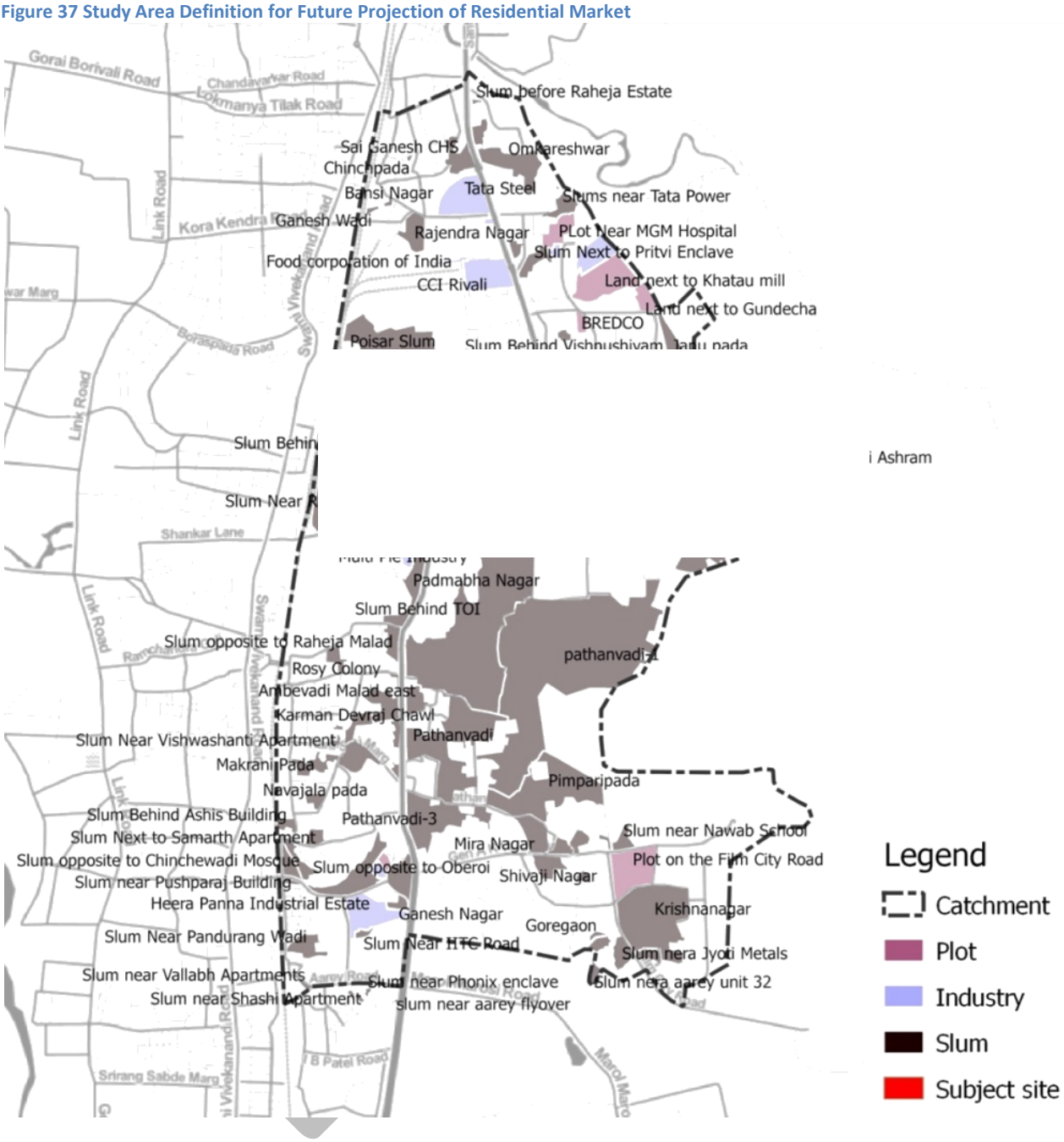
Out of the total area of 4895 acres, slum area is 26%, vacant land under residential use is 3% and 5% of the industrial land hence the developable land in the study area comes out to be:

Table 17 Existing Land use of Developable Land in Study Area

Particulars	Area in Acres
Industry	227.10
Plot	147.74
Slum	1260.63

(Source: Liases Foras)

Figure 37 Study Area Definition for Future Projection of Residential Market



(Source: Liases Foras)

Approach and Key Assumptions

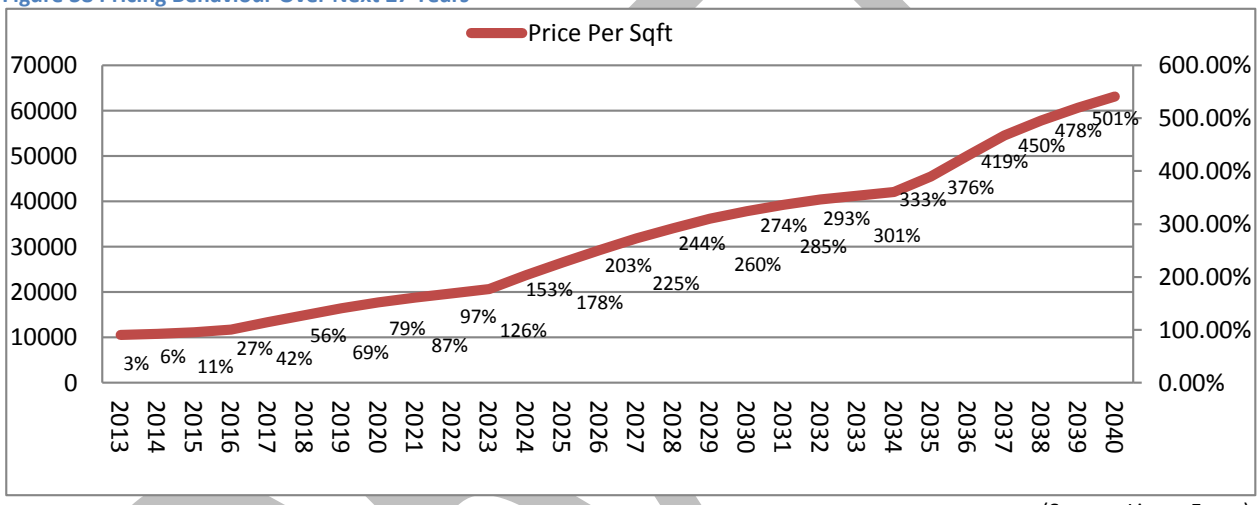
Based on the market trend studied above and the study area as defined following assumptions are made to proceed with the future projections. The 187 million sq.ft. of the potential future supply of the study area is approximately 22 times of the supply by XYZ Developer. At the current pace of development, it'll take around 60 years for this supply to come in the market. As per the projections XYZ Developer's 8 million Sq.ft. of

residential component of the supply will complete with around 81million sq.ft. of the total market supply.

Particulars	Area
Cumulative Development Potential	186,494,375 sq.ft.
New supply trend on an Average	3,009,760 sq.ft.
Average Annual Sales	2,507,202 sq.ft.

Pricing behavior is expected to be inefficient since the location is reaching to the state of maturity. As a result, the sales velocities will remain moderate ranging from 1.7 to 2.1% per month. Slow sales will also keep the supply magnitude regulated.

Figure 38 Pricing Behaviour Over Next 27 Years

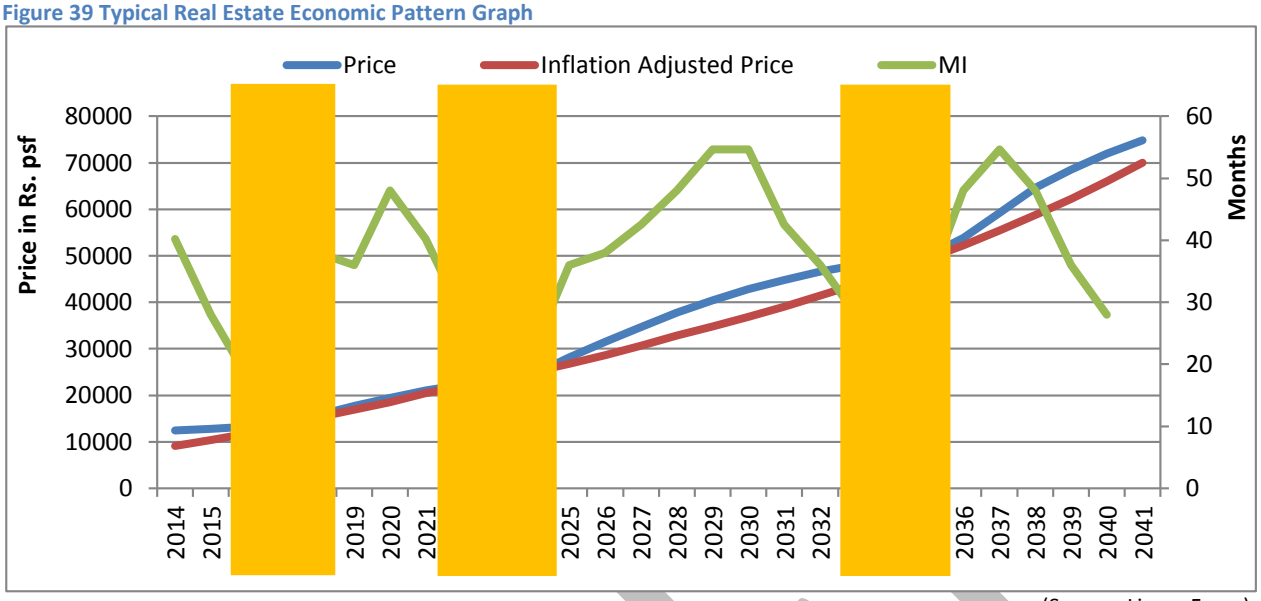


(Source: Liases Foras)

Typical Real Estate Economic Pattern

A typical real estate economic pattern helps in determining the supply pattern of a market as it can be noticed that when market price will match the inflation adjusted price, market will show improvement in sales and respectively increase in new launch numbers. This pattern can be clearly seen in the graph below which shows the projected prices and the inflation adjusted price till 2041 along with the months inventory. The average inflation assumed for the time duration is that of 8% approximately. As the prices increases a slowdown in the market in terms of sales is seen. This slowdown results in piling up of inventory and hence an increase in the months inventory. When this situation happens, the market starts correcting itself and as the prices again start nearing or matching the inflation adjusted prices the sales increases which in turn provoke the introduction of new launches in the market with which the prices again start increasing.

Figure 39 Typical Real Estate Economic Pattern Graph

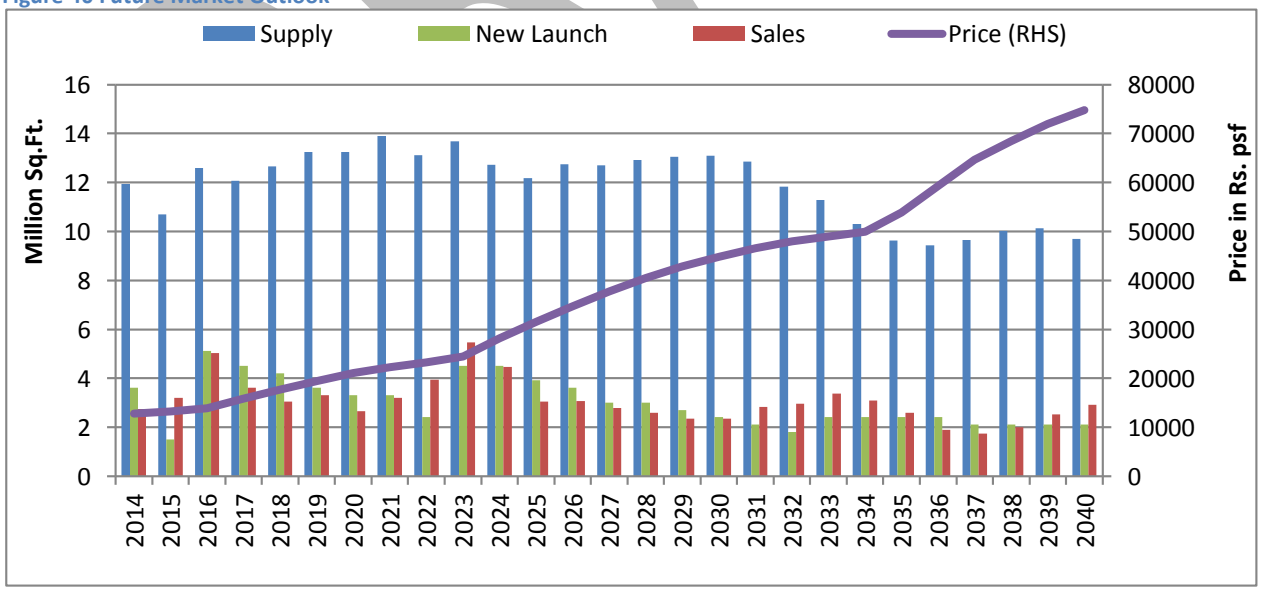


(Source: Liases Foras)

Future Market Outlook and Ideal Strategy for Launches

Based on the typical market cycles followed in the past and the effects of inflation and other factors a future projection of supply and sales in the study area is done. This projection also considered the effects of price and inflation adjusted price and their relation. As explained earlier the sales and new launch numbers improve when the market price matches the inflation adjusted price.

Figure 40 Future Market Outlook



(Source: Liases Foras)

As seen from the graph above the years, which seem crucial in terms of new launch (based upon the new launch and sales relation), are 2015, 2016, 2019, 2022-2024, 2031-2035, 2038 and 2039. However, it is recommended that the project is launched a year prior to the crucial duration. This helps the project to make its stand in the market while other players are just entering the market. Hence, the key launch years as suggested are 2014, 2016, 2019 and 2022.

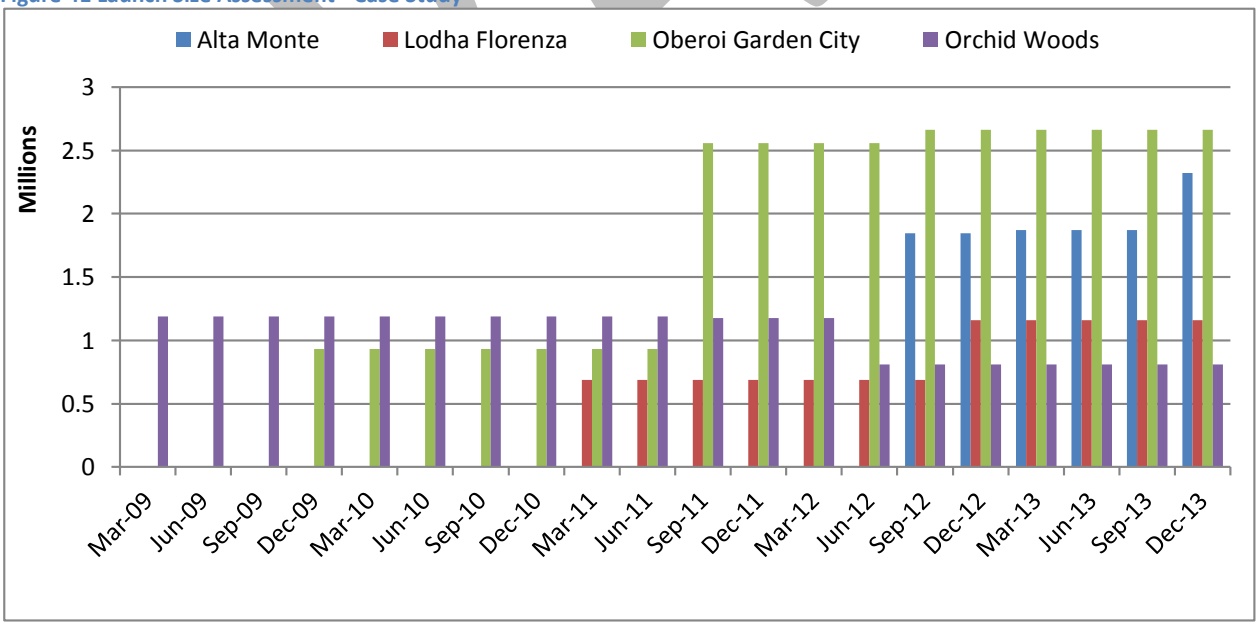
Assessment on the Launch Size

Present high rise construction has increased the supply size and also extended the time required for the construction. To understand the launch pattern and construction time required a total of four projects with similar scale in the catchment are studied. The four projects selected for the launch size assessment are Alta Monte, Lodha Florenza, Oberoi Garden City and Orchid Woods.

It was found that considering the prevailing trends of construction in the marketable projects, duration of at least five years is required to complete a project.

From the study of the launch size during a time frame of five year by a single project, it was found that an average of 1.15 -1.75million sq.ft. is being introduced in the market.

Figure 41 Launch Size Assessment - Case Study



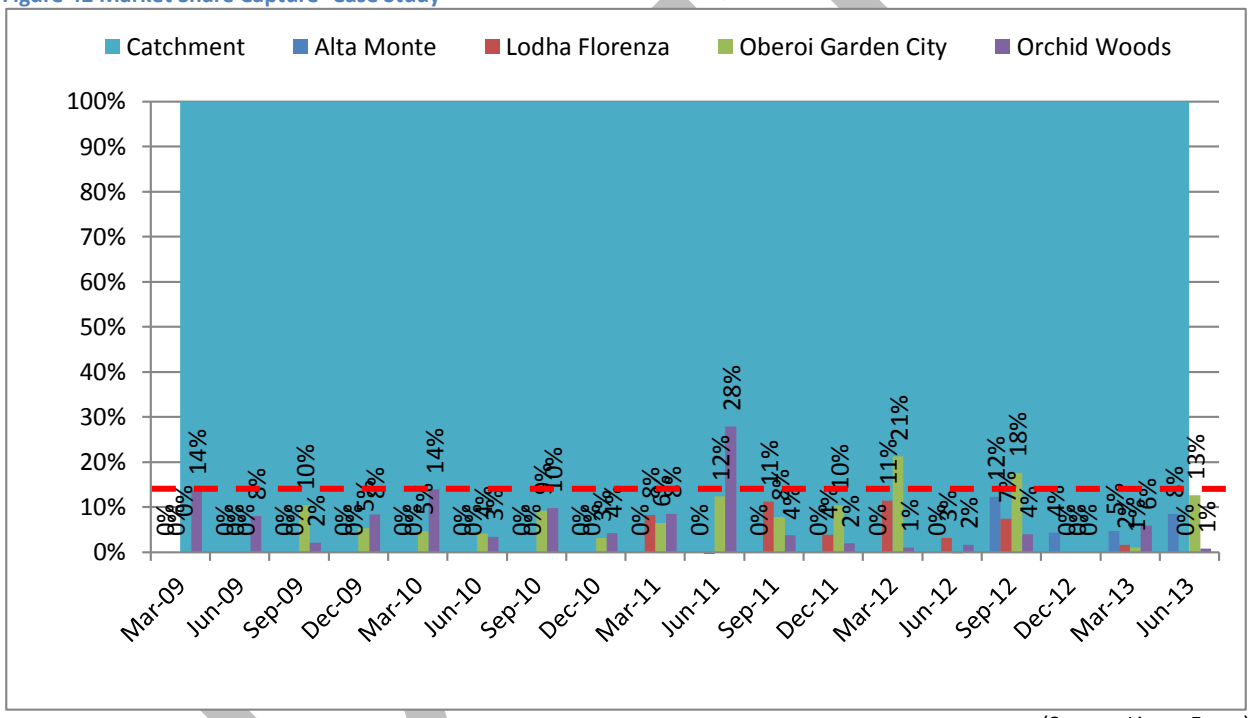
(Source: Liases Foras)

Assessment on Market Share Capture

This section finds out the maximum share of market in term of sales that a single project can capture at any given point of time. The same projects are studied here as in the previous section for the assessment of market share capture. The findings of this analysis will help in deciding the maximum launch size of a project as one tend to introduce a maximum of twice the amount of market share that can be captured by the project.

It was found that at a given supply in the range of 1.25 - 2.5million sq.ft. one can capture a maximum of 14% of market share of sales.

Figure 42 Market Share Capture- Case Study



(Source: Liases Foras)

Product Launch Cycle and Strategy

From the above study, the launch size and time are more or less clear but the strategy in terms of phasing and target audience needs to be studied. To do the same a case study of an identical geography developed earlier in the timeline is done in this section. For the study of product launch strategy Lokhandwala in Andheri West is studied as it is at a similar distance from Lower Parel as the subject site. It has also emerged as an enviable destination.

Case Study- Lokhandwala Complex

Lokhandwala complex is approximately 138.59 acres of planned development. It was developed in four phases as given below:

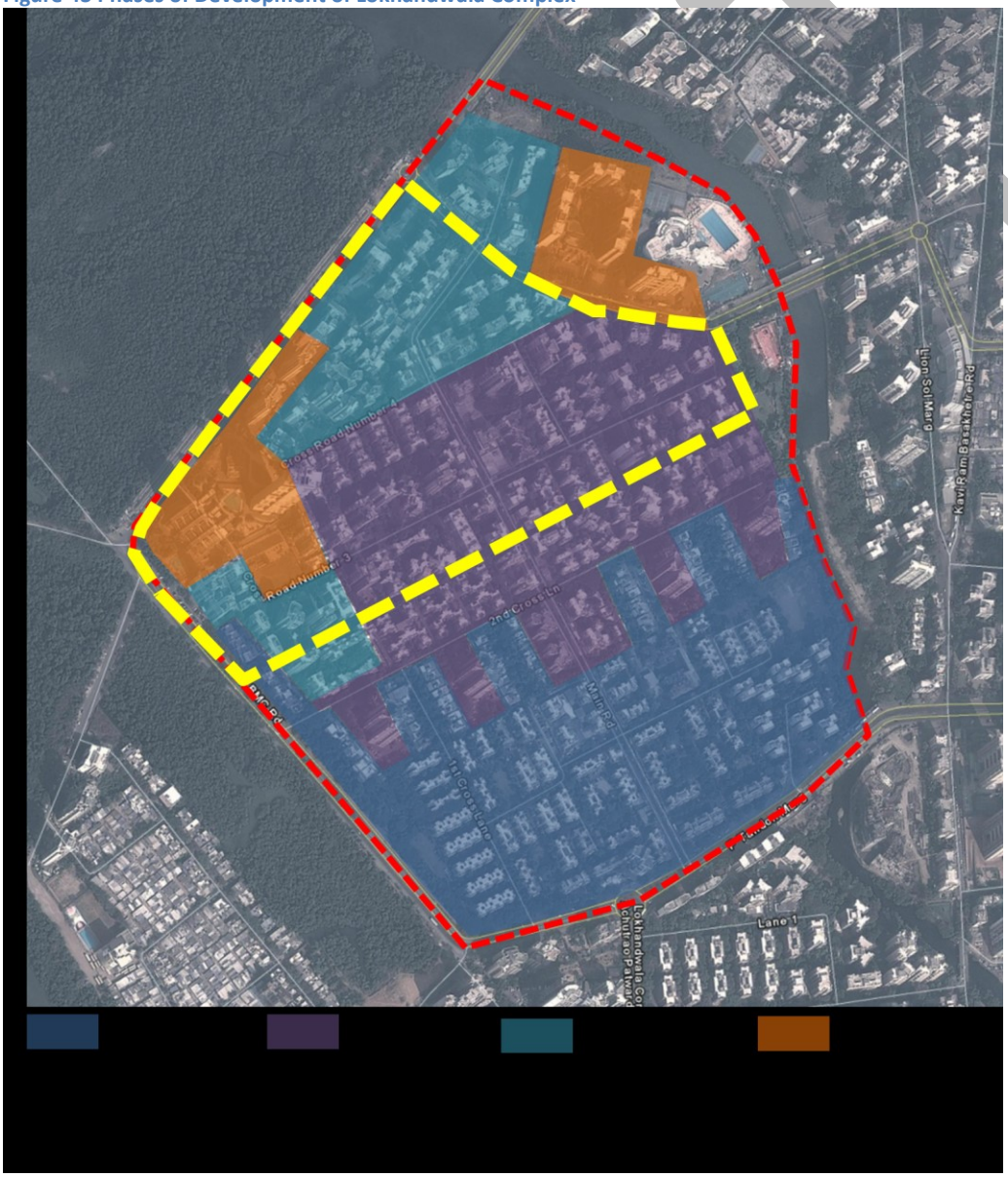
- Phase-1: Primarily targeted to the affordable and low-end

housing and villas.

- Phase-2: More focused to mid segment with 2BHKapartments as the major product offered.
- Phase-3: Introduction of premium products catering to upper middle segment with development of 2BHK and 3BHK apartments.
- Phase-4: Introduction of ultra luxury products to bring the demographic upliftment with products like, Green Acres, Oberoi-119, Oberoi-120, etc.

The image below shows the four phases of development of the Lokhandwala complex.

Figure 43 Phases of Development of Lokhandwala Complex



(Source: Liases Foras)

Inference: Typical Pattern of Development

From the above case study of Lokhandwala complex it was found that there is a typical pattern of development of any location depending upon its characteristics like distance from CBD, nearby development, etc. It was observed that development usually takes place in four phases which are explained in the image below:

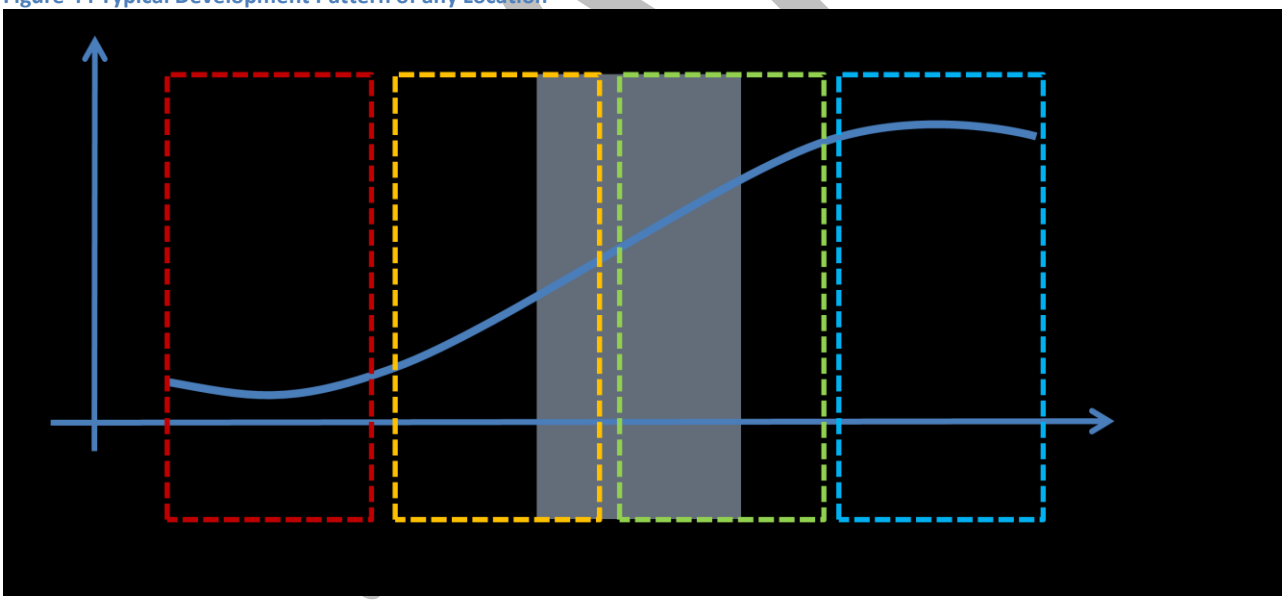
Phase 1- Introduction of the affordable housing and lower middle segment housing largely to bring the demographic density

Phase 2- Enhanced products to satisfy the upgradation demand and bring the middle or upper middle section of demography with established formal retail, and some social and physical infrastructure

Phase 3- Lifestyle driven products introduced in the extremely developed patches of the location and introduction of luxury product

Phase 4- Very less development potential largely catering to ultra luxury segment

Figure 44 Typical Development Pattern of any Location



Suggested Product Launch Strategy with respect to Time

As identified earlier Kandivali East will have similar pattern of development as the case selected (Lokhandwala Complex). Hence considering the present stage of the location, Thakur village is likely to see the development more towards Phase-2 and 3 (shown by blue in the graph above) in the recent time.

Looking at the project launch horizon of the 22 years, initial 12 to 15 years any product launched by XYZ developersshould be in the

convenient product range like 2BHK and 3BHK with little variation in the sizes for the aspirant buyers. Although a small segment of the 4BHK not can also be integrated with 3BHK's which should not be more than 10% to 15% in each phase.

Post 15 years an ultra luxury product similar to Green Acres can be introduced catering to the high-end demography.

The products feasible in the market and the suggestions on product mix are discussed in detail in the next section.

Chapter 5 Product and Cost Range Analysis

Introduction

In this chapter the MMR and catchment markets are studied for the various cost ranges and different products offered in the market so as to comprehend the best suited product and its cost range for the subject site.

Product Analysis

The section will discuss the available and efficient typologies in the macro & the micro market, their supply, sales, price, size, etc. and the best projects offering them in the catchment.

First to have an understanding of the best performing product the supply and sales of the major typologies are given below for MMR the western suburb and the catchment. This will show that how the different typologies are performing at different levels of markets ranging from macro to micro market. At this stage studying the MMR market is not very sagacious because of its geographic span, variety of cost and typology across, etc. hence the catchment market is studied to have a better understanding of the typology and its cost range.

It was observed that **2BHK is the most supplied and sold typology** followed by 3BHK apartments. It comprises almost 39% of the MMR market, 38% of the Suburb market and 37% of catchment market in terms of supply.

Table 18 Catchment Breakup into Typology

Flat Type	Last 12 Months Sales	% of Total Sales	Unsold as on Dec-13	Months Inventory Based on Last 12 months' sales	Avg. Size	Product Efficiency
1BHK	5,02,740	8%	19,08,801	46	658	19%
2BHK	26,53,724	43%	84,73,936	38	1,126	100%
3BHK	20,32,301	33%	81,37,270	48	1,735	76%
4BHK	2,55,085	4%	20,90,162	98	2,827	9%
Others	7,74,883	12%	26,69,491	41	1,695	29%

(Source: Liases Foras)

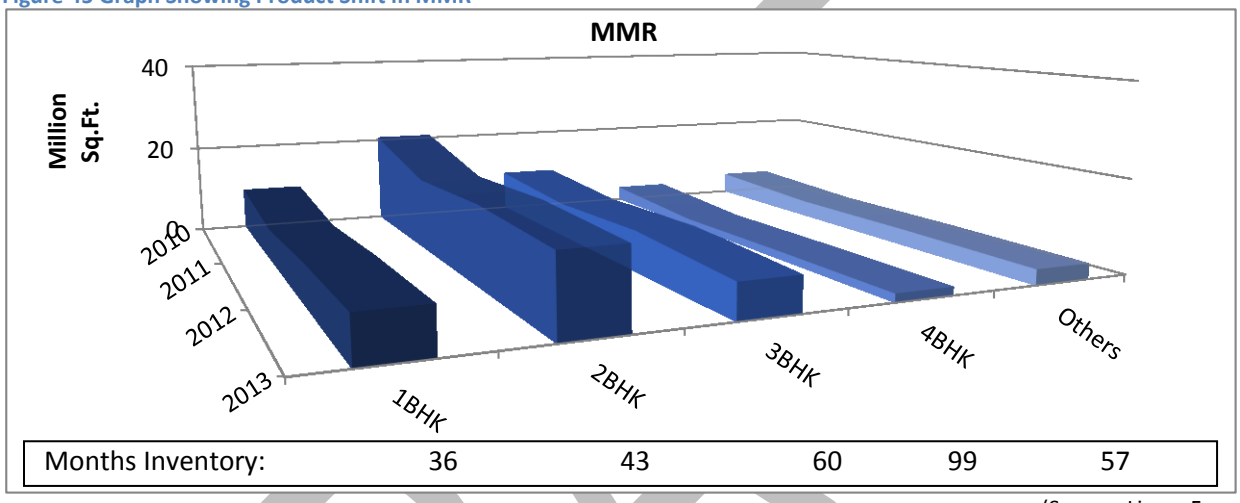
The table above gives the market breakup of sales of last 12 months and the unsold stock among major typologies being offered. It can be observed that the 2BHK apartments are performing best in catchment market comprising 43% of the sales in last 12 months and about 36% of the unsold stock. These are followed by 3BHK apartments which comprise 33% of sales and 35% of unsold stock of the catchment market.

Product Shift

With time, increasing population, decrease in developable land and changing profile of a region; a shift in typology can be seen in the region. In this section two graphs are given to check the typology shift in MMR and the catchment if there is any.

From the graph below it can be observed that in the MMR market the share of 1BHK is increasing whereas that of 4BHK and other typologies is decreasing. 2 and 3 BHK apartments are having more or less the same share of 43% and 20% respectively.

Figure 45 Graph Showing Product Shift in MMR

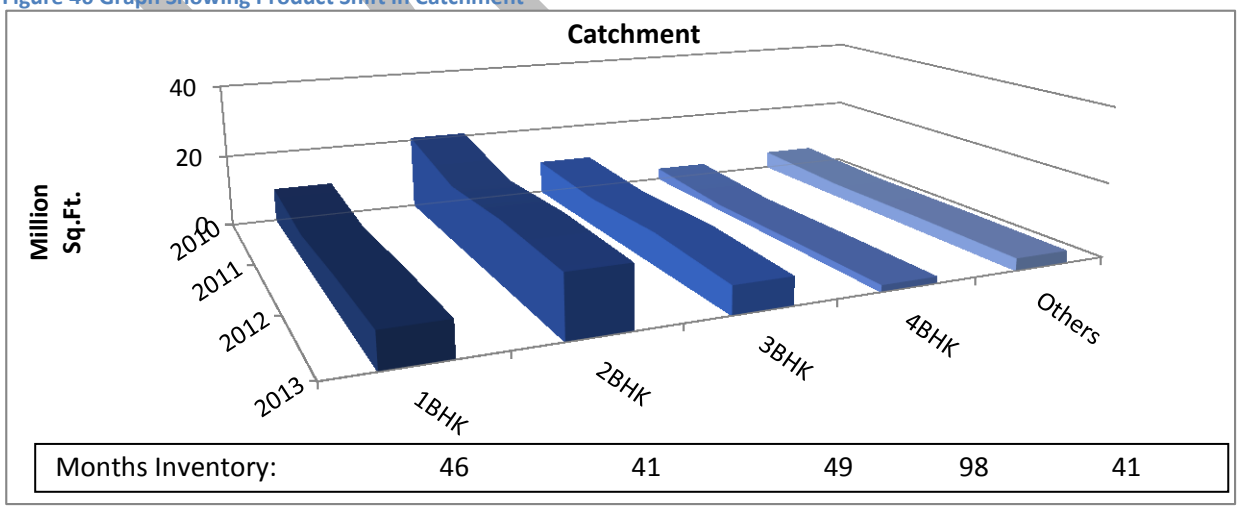


Months Inventory:	36	43	60	99	57

(Source: Liases Foras)

The graph below demonstrates the increase of 2BHK and 3BHK apartments in the catchment along with a slight increase in 1BHK apartments. It also shows that sales in last 12 months of typologies other than 1, 2, 3 and 4 BHK have also increased.

Figure 46 Graph Showing Product Shift in Catchment



Months Inventory:	46	41	49	98	41

(Source: Liases Foras)

Product Mix in Immediate Vicinity

The immediate vicinity comprises of all the building of Thakur Village, Thakur Complex and Lokhandwala. Altogether there are around 46,550 units available in these three locations. The product mix of these 46,550 units is given in the table and chart below.

Figure 47 Existing Product Composition in Immediate Vicinity of Subject Site

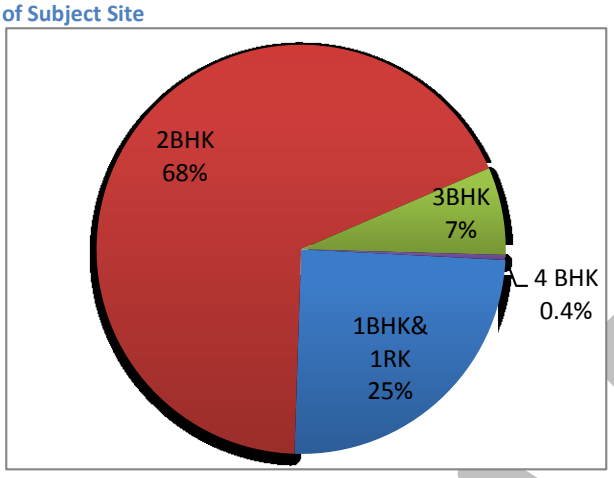


Table 19 Product Mix in Immediate Vicinity of Subject Site

	1BHK & 1RK	2BHK	3BHK	4 BHK
Thakur Village	3,800	13,300	1,843	57
Thakur Complex	4,845	10,821	436	48
Lokhandwala	2,850	7,524	946	80
Total	11,495	31,645	3,225	185
% of Total Supply	24.7%	68.0%	6.9%	0.4%

(Source: Liases Foras)

Product Rational

While calculating demand of a particular typology, the people residing in smaller typology than that play an important role. For example there are just 185 units of 4BHK in the immediate vicinity and around 3,225 units of 3BHK format. These 3,225 households can be potential buyers of 4BHK units in future because of their need for upgradation. The potential demand of 4BHK due to upgradation can be expected from the people residing in 3BHKs of Thakur Village and Thakur Complex as most of the 3BHK units are of more than a decade old. In Lokhandwala complex, most of the 3BHKs are recently constructed and so a demand from people residing here should not be considered.

The largest demand for up-gradation appears to be for 3 BHK, as a whopping 68% of the products are 2 BHK. Substantial number of these people would desire to upgrade. Most of these people would be considering 3BHK apartment as the next house but a few people may consider moving to a 4 BHK as well.

Keeping this in mind, Luxury 3 BHK products with master sizes are also recommended.

The small size of the existing 4 BHK apartments offered in the market along with the sluggish sales velocities of current projects offering 4 BHK, does not suggest that one should venture into this segment right away.

In case of large sized apartments (4 BHK and above) it is observed that a significant section of buyers prefer moving closer to the CBD instead of just upgrading themselves at the same location. Due to this reason more demand for 4BHKs is seen as one move southwards.

Keeping this in context, it is suggested that a limited supply of 4 BHK is integrated with 3BHK apartments in first ten year and as the project and location gets established, larger units can be introduced in the later stages.

Demand for Premium Products

Now that it is identified that a few premium products can be suggested on the subject site, this section checks the feasibility of the same. The main question that arises here is that if Luxury 3BHK and 4BHk apartment can be sold in the current market with just the demand for upgradation.

It is presumed that the people who moved in the area decades ago in smaller flats and are out of their house mortgage are the potential buyers. Assuming that the person will sell his 2 BHK or 3 BHK and move in a larger sized apartment. The existing house can be estimated to be the same cost as the current selling cost of 2 BHK or 3 BHK.

The tables below show the cost ranges of the units as per the projected prices and the income ranges required to buy the respective unit considering the affordability at one third of the monthly income.

Table 20 Pricing Behaviour of various Typologies

Product type	Year	2014	2016	2020	2024	2029	2032
	Price	10,815	14,719	20,736	29,937	38,301	51,776
	SUBA	**Unit Cost in Rs. Lacs**					
1 BHK Extended	720	78	106	149	216	276	373
2 BHK	1200	130	177	249	359	460	621
2 BHK Premium	1440	156	212	299	431	552	746
2.5 BHK	1440	156	212	299	431	552	746
3 BHK	1632	177	240	338	489	625	845
3 BHK Luxury	1760	190	259	365	527	674	911
4 BHK	2400	260	353	498	718	919	1,243

(Source: Liases Foras)

Table 21 Eligible Income Levels for various Typologies

Product type	Year	2014	2016	2020	2024	2029	2032
	Price	10,815	14,719	20,736	29,937	38,301	51,776
	SUBA	**Monthly Incomes in Rs. Lacs**					
1 BHK Extended	720	1.30	1.77	2.49	3.59	4.60	6.21
2 BHK	1200	2.16	2.94	4.15	5.99	7.66	10.36
2 BHK Premium	1440	2.60	3.53	4.98	7.18	9.19	12.43
2.5 BHK	1440	2.60	3.53	4.98	7.18	9.19	12.43
3 BHK	1632	2.94	4.00	5.64	8.14	10.42	14.08
3 BHK Luxury	1760	3.17	4.32	6.08	8.78	11.23	15.19
4 BHK	2400	4.33	5.89	8.29	11.97	15.32	20.71

(Source: Liases Foras)

Hence at one third of income levels plus the cost of sold units there still comes a small bracket of people who could afford to buy a larger sized unit. It is thus identified that there is a very less demand of luxury products and large sized products in the catchment.

It is important to note that it is an upgradation demand so the buyers' aspirational need with respect to space and amenities needs to be fulfilled. Hence the carpet area of the upgraded unit has to be larger than his existing units.

Inference

From the above sections it can be inferred that 2BHK and 3BHK apartments are the ideal typologies for the subject site followed by 1BHK apartments.

Typology Wise Cost Range Analysis

The section will discuss the available and efficient cost ranges in various typologies (as identified in the section above) in the catchment market along with their supply, sales, price, size, etc.

1BHK- Cost Range Analysis in Catchment

In the catchment, 1BHKs are found in cost ranges of Rs.41 lacs to Rs.1.29 crores, the detailed dynamics of which are given in the table below. Efficiency percentile in the table is a representation of the performance of the cost range in the market (only within the typology).

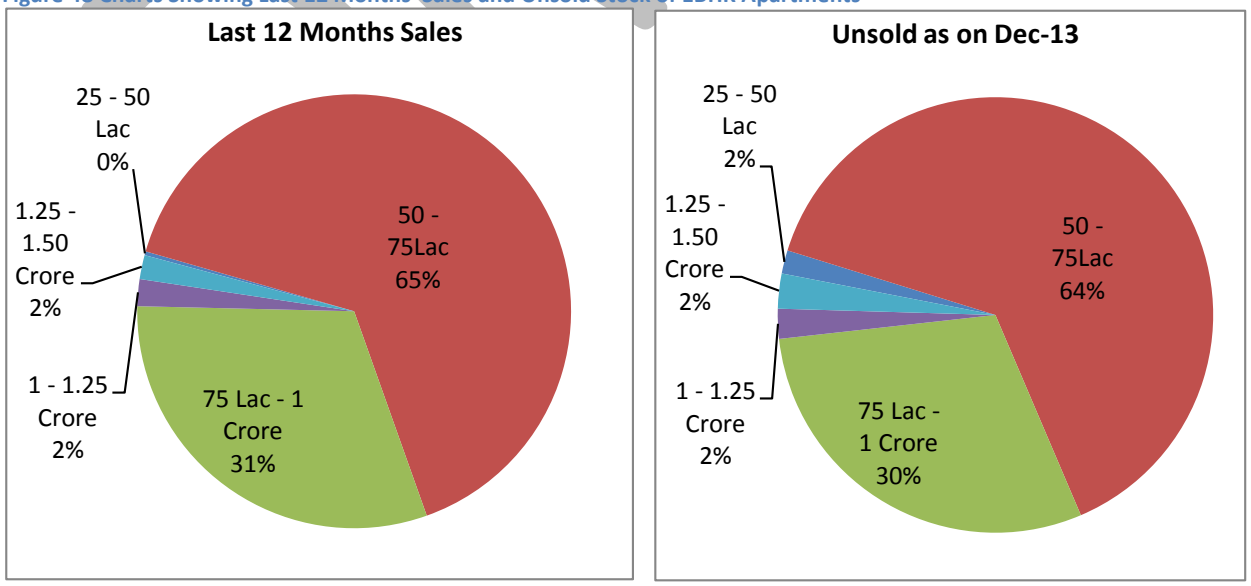
Table 22 Cost Range Wise Market Dynamics of 1BHK Apartments in Catchment

Cost Range	Last 12 Months Sales	Unsold as on Dec-13	Months Inventory Based on Last 12 Months' Sales	Avg. Size	Wt. Avg. Price	Product Efficiency
25 Lac - 50 Lac	1,439	33,134	276	470	8,544	0%
50 Lac - 75Lac	3,27,342	12,17,584	45	634	9,774	100%
75 Lac – 1.0 Crore	1,54,884	5,66,228	44	711	11,755	47%
1.0 - 1.25 Crore	10,075	42,355	50	709	14,559	3%
1.25 - 1.50 Crore	9,000	49,500	66	807	17,000	3%

(Source: Liases Foras)

The charts below represent the sales in last 12 months and the unsold stock as on December 2013 of the 1BHK apartments in the catchment market. From these charts it can be observed that the cost range of Rs.50-75 lacs is performing well in the market followed by apartments with costs in between Rs.75 lacs to Rs.1 crore.

Figure 48 Charts Showing Last 12 Months' Sales and Unsold Stock of 1BHK Apartments



(Source: Liases Foras)

The projects offering 1BHK apartments having maximum sales in last 12 months in the region are given in the table below:

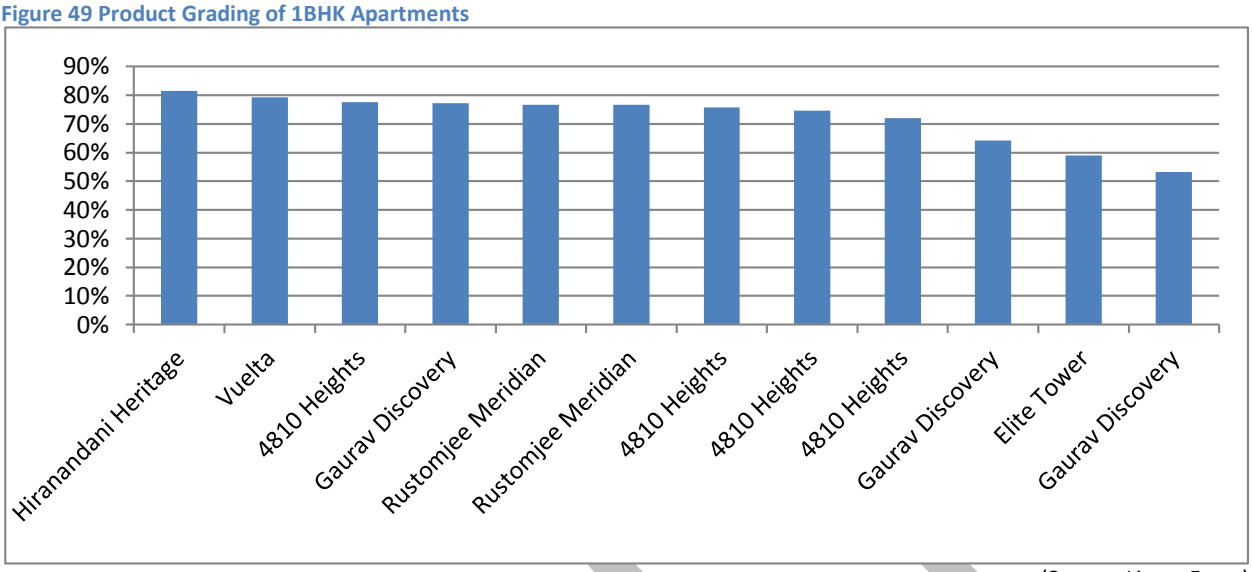
Table 23 Best Performing 1BHK Projects in the Catchment Market

Project Name	Location	Flat Cost	Average Size	Wt. Avg. Price of Unsold Stock as on Dec-13	Last 12 Months Sales	Unsold Stock as on Dec-13
Gaurav Discovery	Malad (W)	67	668	9,402	74,490	70,625
Vedic Heights	Kandivali (E)	56	600	9,350	35,400	13,200
Bhoomi Legend	Kandivali (E)	73	709	10,425	24,105	17,020
Manavsthal	Malad (W)	66	678	10,500	20,890	3,892
Parinee Essence	Kandivali (W)	69	694	9,850	19,432	80,504
Rustomjee Meridian	Kandivali (W)	67	684	9,850	19,161	19,161
The Era	Kandivali (W)	69	720	10,000	18,720	44,640
Sun and Moon	Borivali (E)	73	735	10,000	12,495	12,495
Landmark	Jogeshwari (E)	66	600	11,000	11,400	51,600
Mauli Pride	Malad (E)	54	633	9,500	8,907	74,594

(Source: Liases Foras)

Some of the projects offering 1BHK in the catchment were graded based on their specifications and design attributes, the grades in term of percentages achieved are given in graph below. Along with that the floor plans of the project which have received maximum grades are given.

Figure 49 Product Grading of 1BHK Apartments

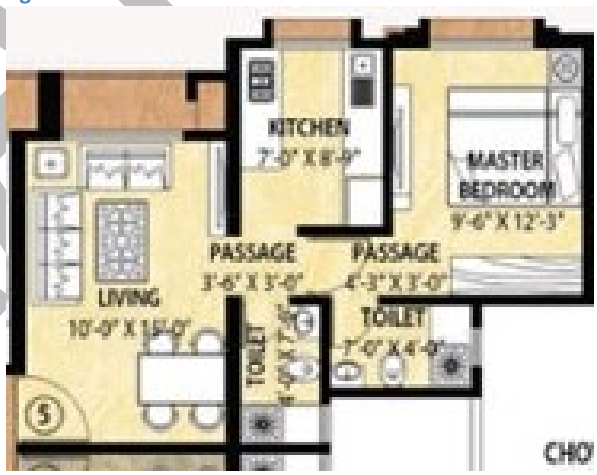


(Source: Liases Foras)

The images below are the floor plans 1BHK units of the projects which have achieved highest grade among the competitive projects.

Figure 50 Hiranandani Heritage- Pristine- Floor Plan 1BHK

Figure 51 The Era- Vuelta- Floor Plan 1BHK



2BHK- Cost Range Analysis in Catchment

2BHK apartments in the catchment are available in cost range of Rs. 74 lacs to Rs. 2.51 crores. The cost range wise market dynamics of 2BHK apartments are given in the table below. Also it is observed that this is the best performing product in the market.

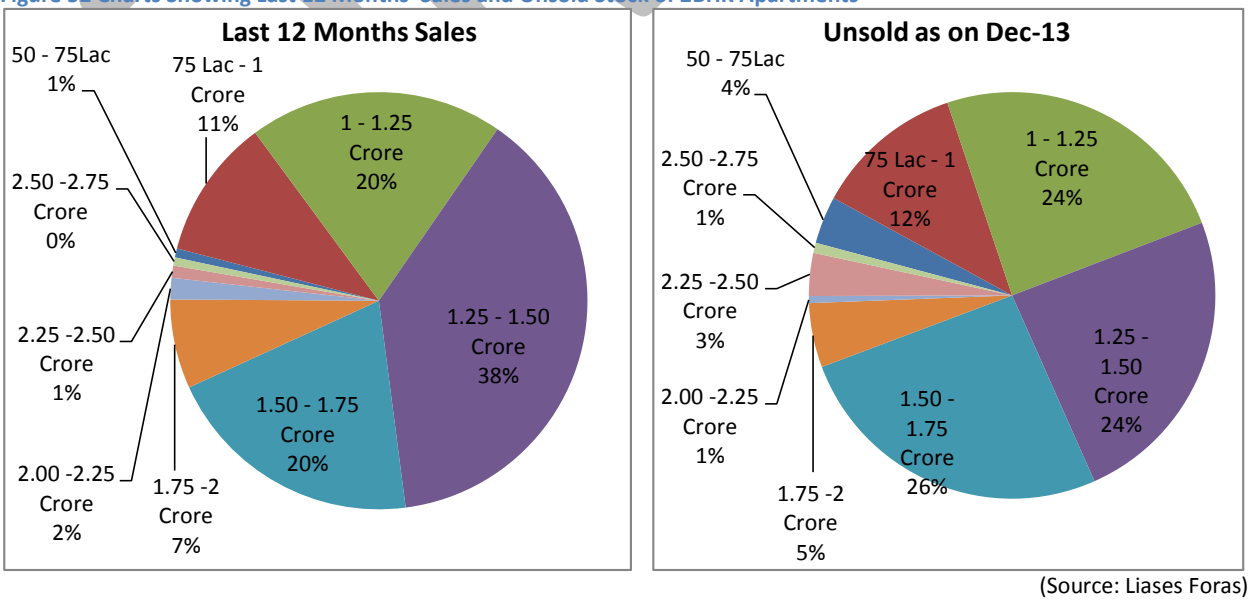
Table 24 Cost Range Wise Market Dynamics of 2BHK Apartments in Catchment

Cost Range	Last 12 Months Sales	Unsold as on Dec-13	Months Inventory Based on Last 12 months' sales	Avg. Size	Wt. Avg. Price	Product Efficiency
50 Lac - 75Lac	18,600	3,20,160	207	802	9,156	2%
75 Lac - 1 Crore	2,88,336	10,08,152	42	959	9,255	28%
1 - 1.25 Crore	5,23,672	20,62,672	47	1,048	10,247	50%
1.25 - 1.50 Crore	10,16,693	20,48,430	24	1,126	11,769	100%
1.50 - 1.75 Crore	5,36,921	21,96,127	49	1,240	12,705	51%
1.75 -2 Crore	1,83,614	4,33,791	28	1,251	14,181	18%
2.00 -2.25 Crore	44,070	47,280	13	1,366	16,026	5%
2.25 -2.50 Crore	25,114	2,88,833	138	1,329	18,349	2%
2.50 -2.75 Crore	16,705	68,491	49	1,671	15,000	2%

(Source: Liases Foras)

The charts below represent the sales in last 12 months and the unsold stock as on December 2013 of the 2BHK apartments in the catchment market. From these charts it can be observed that the cost range for 2BHK which is performing well in the nearby competitive markets is that of Rs.1.25 -1.50 crore followed by the cost ranges of Rs.1 to 1.25 crore and Rs. 1.5 to 1.75 crore.

Figure 52 Charts Showing Last 12 Months' Sales and Unsold Stock of 2BHK Apartments



(Source: Liases Foras)

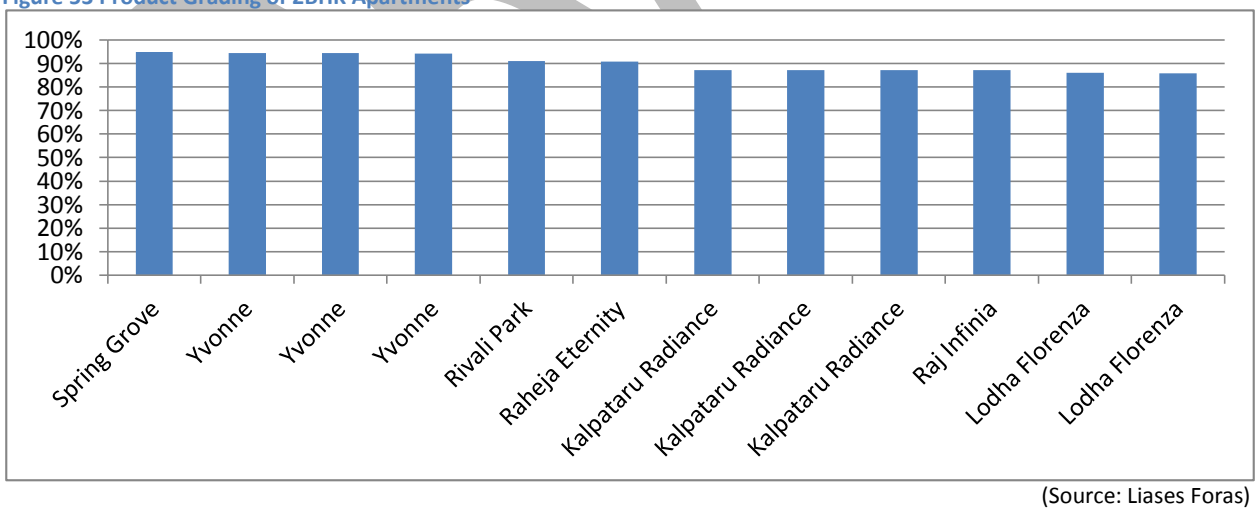
The best performing 2BHK project in the region are given in the table below:

Table 25 Best Performing 2BHK Projects in the Catchment Market

Project Name	Location	Flat Cost	Average Size	Wt. Avg. Price of Unsold Stock as on Dec-13	Last 12 Months Sales	Unsold Stock as on Dec-13
Lemon Trees (Spring Grove)	Kandivali (E)	144	1,120	13,000	2,38,560	38,080
S S						
Raj Infinia	Malad (W)	146	1,125	-	68,625	-
Alta Monte	Malad (E)	145	1,290	10,660	52,890	2,65,740
Rivali Park	Borivali (E)	145	1,325	11,250	38,391	89,420
Adney	Borivali (W)	133	1,095	12,500	27,375	95,265
Shaswat Residency	Borivali (E)	129	1,127	11,300	27,240	1,04,880
The Meadows Phase - I	Goregaon (W)	134	1,073	12,500	26,833	2,20,033
Kesar Aashish	Kandivali (W)	142	1,220	12,000	23,180	15,860
Ekta Garden III	Borivali (E)	137	1,188	12,000	22,563	23,750

(Source: Liases Foras)

Figure 53 Product Grading of 2BHK Apartments

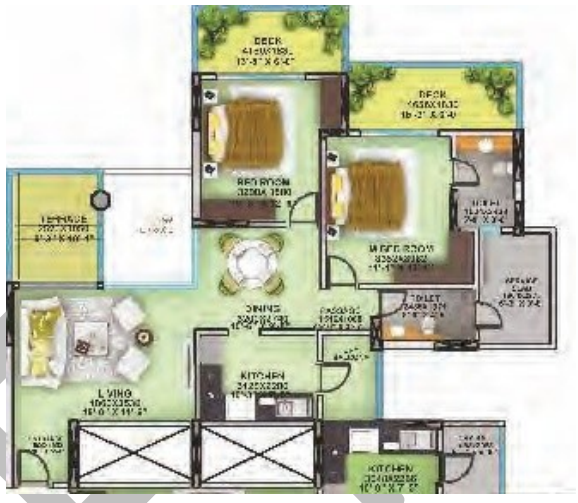


(Source: Liases Foras)

The images below are the floor plans 2BHK units of the projects which have achieved highest grade among the competitive projects.

Figure 54 Spring Grove- Lokhandwala - Floor Plan 2BHK

Figure 55 Yvonne- Nahar - Floor Plan 2BHK



3BHK- Cost Range Analysis in Catchment

In the catchment, 3BHKs are found in the cost range of Rs. 84 lacs to Rs. 3.33 crores. The detailed cost range wise market dynamics of 3BHK units are given in the table below.

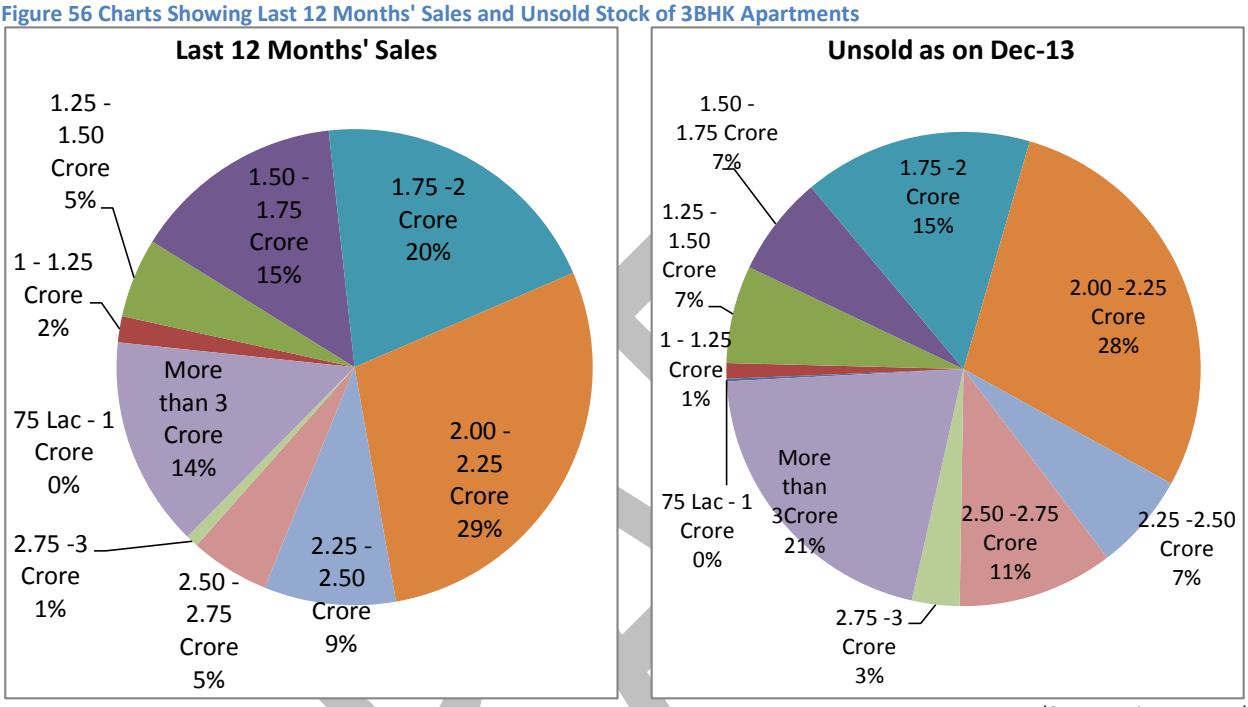
Table 26 Cost Range Wise Market Dynamics of 3BHK Apartments in Catchment

Cost Range	Last 12 Months Sales	Unsold as on Dec-13	Months Inventory Based on Last 12 months' sales	Avg. Size	Wt. Avg. Price	Product Efficiency
75 Lac - 1 Crore	0	14,400		1,200	7,000	0%
1 - 1.25 Crore	36,064	86,184	29	1,368	9,000	6%
1.25 - 1.50 Crore	1,09,859	5,41,640	59	1,442	9,353	19%
1.50 - 1.75 Crore	2,93,003	5,56,641	23	1,479	10,969	52%
1.75 -2 Crore	4,11,502	12,70,419	37	1,592	11,395	71%
2.00 -2.25 Crore	5,83,196	23,19,367	48	1,655	12,645	100%
2.25 -2.50 Crore	1,82,046	5,38,196	35	1,884	12,450	32%
2.50 -2.75 Crore	1,09,340	8,64,815	95	2,014	13,175	18%
2.75 -3 Crore	17,113	2,64,584	186	2,022	13,015	3%
More than 3Crore	2,90,177	16,81,023	70	1,990	16,973	49%

(Source: Liases Foras)

The charts below represent the sales in last 12 months and the unsold stock as on December 2013 of the 2BHK apartments in the catchment market. From these charts it can be observed that the 3BHK apartments within the cost range of Rs.2-2.25 crores are performing well in the market with maximum supply and sales. These are closely followed by the apartments in cost range of Rs.1.75 – 2 crores.

Figure 56 Charts Showing Last 12 Months' Sales and Unsold Stock of 3BHK Apartments



(Source: Liases Foras)

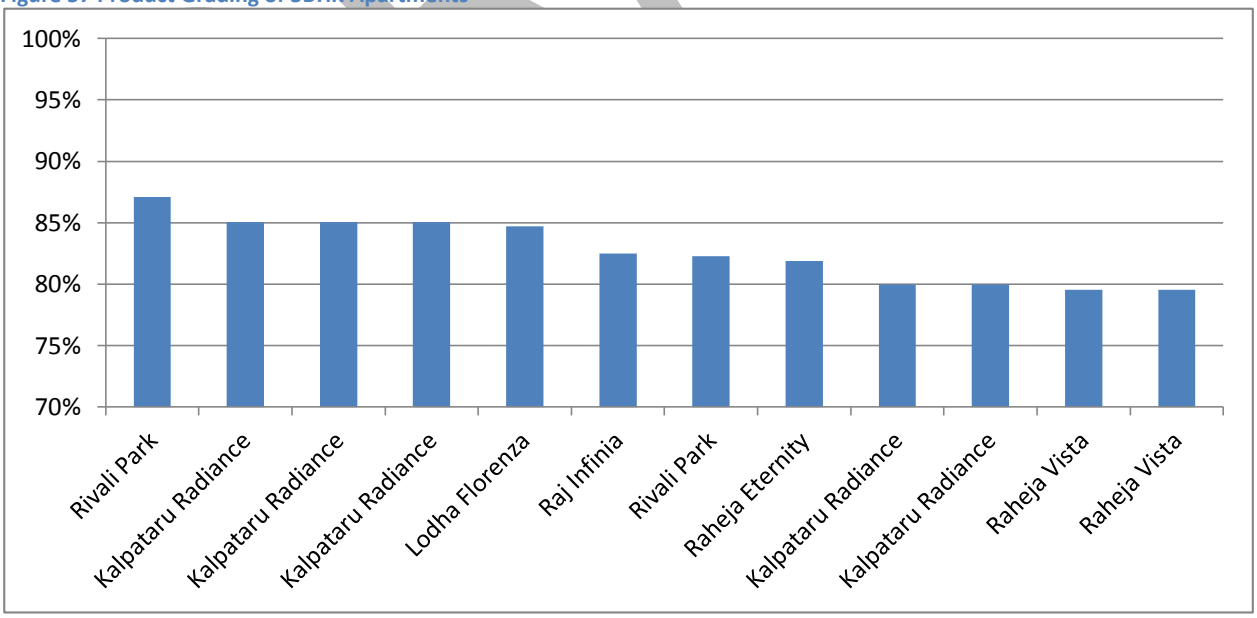
The top ten 3BHK projects (with respect to sales) in the region within the best performing cost range are given in the table below. Nutan Annex and Ambrosia are there in the list as these have good sales in last quarter but because these are completely sold now the weighted average prices of the unsold stock are not given in the table.

Table 27 Best Performing 3BHK Projects in the Catchment Market

Project Name	Location	Flat Cost (Rs. Lacs)	Avg. Size (Sq.Ft.)	Wt. Avg. Price of Unsold Stock as on Dec-13	Last 12 Months Sales	Unsold Stock as on Dec-13
Alta Monte	Malad (E)	214	1,833	12,000	80,265	4,35,600
Raj Infinia	Malad (W)	206	1,565	13,500	75,120	62,600
Oberoi Splendor	Jogeshwari (E)	207	987	0	51,324	0
Eternity	Kandivali (E)	205	1,689	12,500	43,172	1,17,276
The Meadows Phase - I	Goregaon (W)	209	1,670	12,500	38,410	1,30,260
Ekta Tripolis	Goregaon (W)	216	1,532	14,400	36,690	2,42,063
Mayfair Greens	Kandivali (W)	207	1,630	0	26,475	0
Kesar Aashish	Kandivali (W)	202	1,680	12,000	23,520	26,880
Nutan Annex	Goregaon (W)	207	1,675	0	20,100	0
Ambrosia	Borivali (E)	216	1,960	0	19,600	0

(Source: Liases Foras)

Figure 57 Product Grading of 3BHK Apartments



(Source: Liases Foras)

The images below are the floor plans 3BHK units of the projects which have achieved highest grade among the competitive projects.

Figure 58 Rivali Park- Goregaon - Floor Plan 3BHK

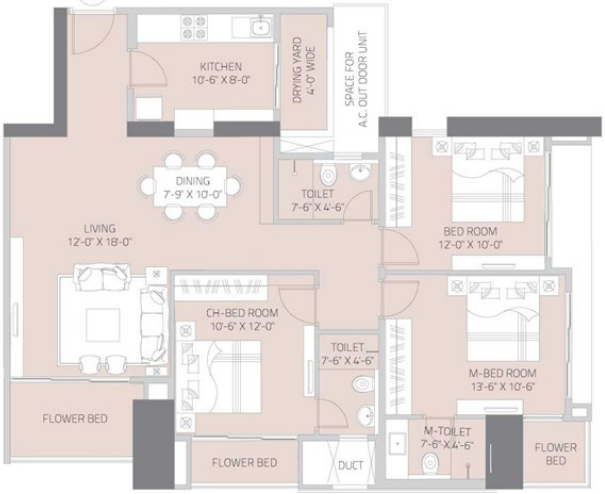
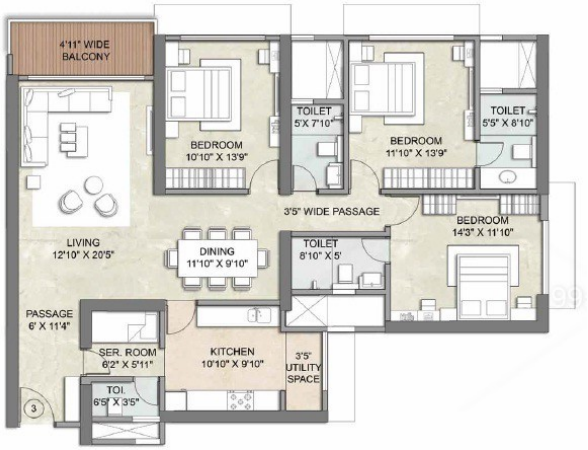


Figure 59 Kalpataru Radiance- Goregaon - Floor Plan 3BHK



4BHK- Cost Range Analysis in Catchment

In the catchment, the supply as well as sales of 4BHKs are less and comprise only 4% of the market sales in last 12 months. These are found with the costs ranging from Rs.2.40 crores to Rs. 4.34 crores. The market dynamics of 4BHK apartments in the catchment are given in the table below.

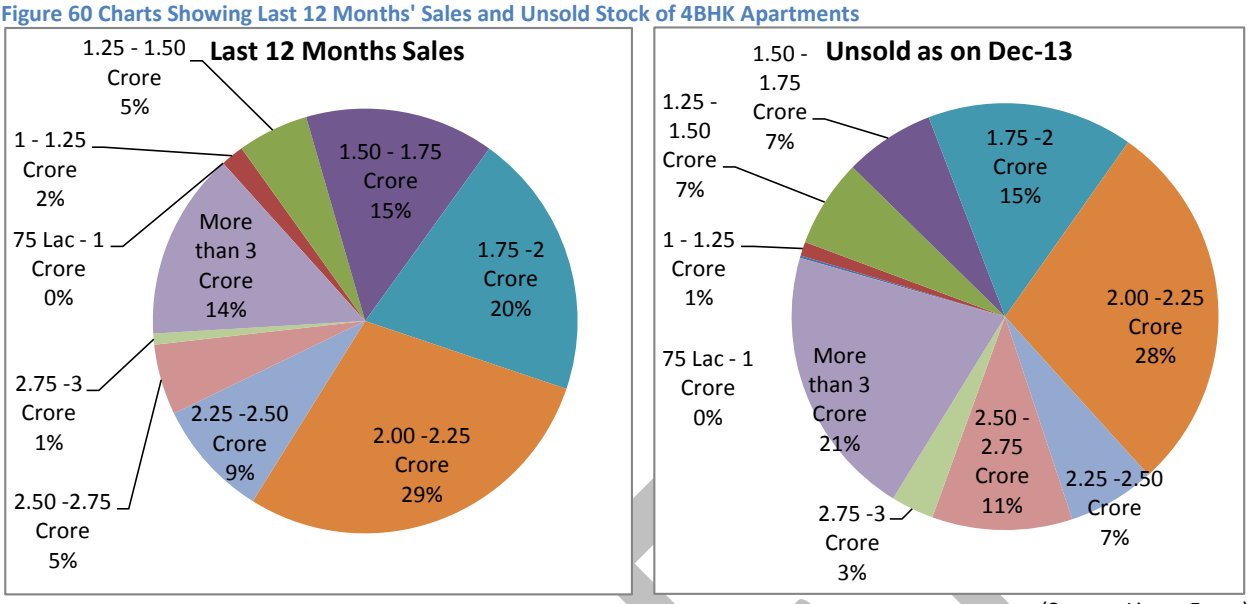
Table 28 Cost Range Wise Market Dynamics of 4BHK Apartments in Catchment

Cost Range	Last 12 Months Sales	Unsold as on Dec-13	Months Inventory Based on Last 12 months' sales	Avg. Size	Wt. Avg. Price	Product Efficiency
2.25 -2.50 Crore	-4,000	53,025		2,525	9,500	-2%
2.50 - 2.75 Crore	15,556	3,21,959	248	2,456	10,805	9%
2.75 -3 Crore	76,715	99,975	16	2,499	11,354	50%
More than 3 Crore	1,66,814	16,15,203	116	2,933	14,081	100%

(Source: Liases Foras)

From the above table and the charts below it can be observed that the 4BHK apartment with cost more than Rs.3crores is performing well in the market with maximum supply and sales in the market followed by the cost range of Rs.2.75-3 crores.

Figure 60 Charts Showing Last 12 Months' Sales and Unsold Stock of 4BHK Apartments



(Source: Liases Foras)

The best performing 4BHK project in the region with cost more than Rs.3crores are as follows:

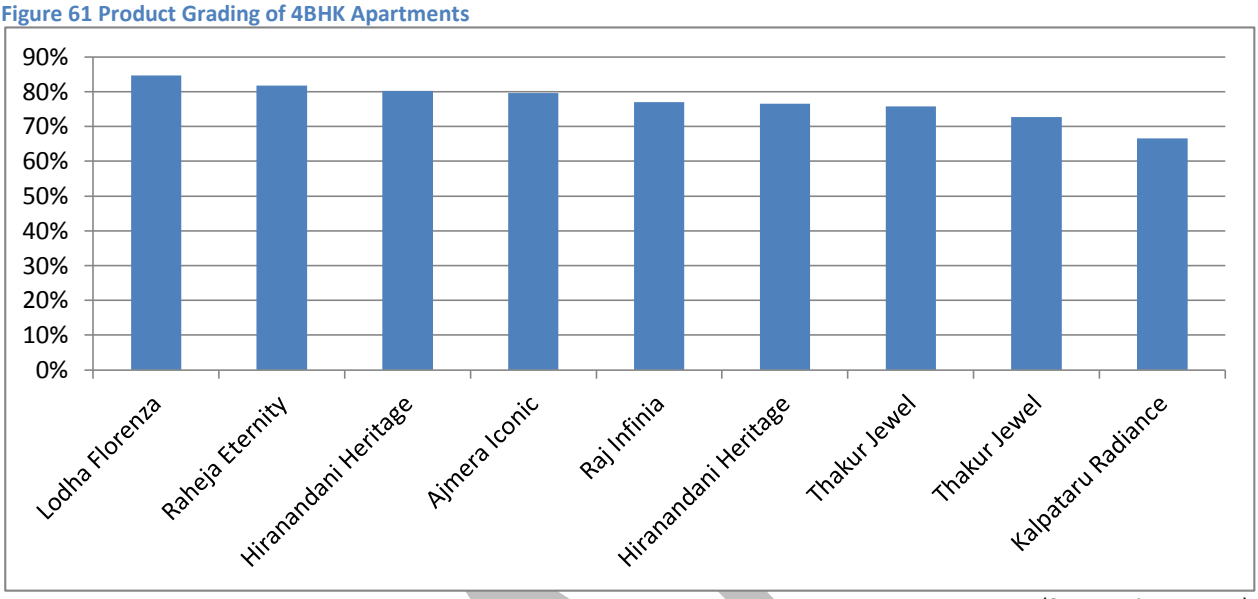
Table 29 Best Performing 4BHK Projects in the Catchment Market

Project Name	Location	Flat Cost (Rs. Lacs)	Avg. Size (Sq.Ft.)	Wt. Avg. Price of Unsold Stock as on Dec-13	Last 12 Months Sales	Unsold Stock as on Dec-13
Aquaria Grande	Borivali (W)	473	3,259	14,500	32,590	65,180
Oberoi Esquire	Goregaon (E)	485	3,230	15,000	25,840	64,600
Orchid Woods	Goregaon (E)	399	2,465	-	17,255	0
Eternity	Kandivali (E)	442	3,400	13,000	13,600	1,15,600
Kalpataru Pinnacle	Goregaon (W)	720	4,000	18,000	12,000	12,000
Kalpataru Radiance	Goregaon (W)	461	3,350	13,761	10,050	87,100
Woodland	Malad (E)	620	4,305	14,400	8,610	12,915
The Corner	Borivali (W)	305	2,100	14,500	8,400	46,200
Auris Serenity	Malad (W)	341	2,525	13,500	7,575	95,950
La Paradise	Borivali (W)	548	3,650	15,000	7,300	51,100

(Source: Liases Foras)

The graph below gives the product grading of 4BHK units of various competitive projects in the catchment.

Figure 61 Product Grading of 4BHK Apartments



(Source: Liases Foras)

The images below are the floor plans 4BHK units of the projects which have achieved highest grade among the competitive projects.

Figure 62 Lodha- Fioranza - Floor Plan 4BHK

Figure 63 Hiranandani Heritage - Floor Plan 4BHK

Typical Unit Sizes and Configuration

The above study and the product grading helped arrive at preferred configuration of various typologies and their respective sizes which are given in the table below.

Table 30 Typical Unit Sizes

	1 BHK	2 BHK	2BHK Premium	3 BHK	3BHK Luxury	4 BHK
Carpet Area	~450	~750	~900	~1020	~1150	~1500
Entrance Foyer			4' X 5'	5' X 8'	6' x 9.8'	10' X 5'
Living-Dinning	10.5’ X 14’					26.67' X 15'
Living		11' X 16.16'	11' X 16.16'	12' X 18'	12.8' X 20.42'	
Dinning		8.67' X 8.75'	8.67' X 8.75'	7.75' X 10'	11.8' X 9.8'	
Kitchen	8' X 10'	8' X 10.67'	8' X 10.67'	8' X 10.67'	10.8' X 9.8'	7.58' X 11.42'
Wet Kitchen						4.92' X 8.58'
Master Bed	10.5' X 12'	11' X 14.16'	11' X 14.16'	11' X 14.16'	11.8' X 14.25'	14.17' X 11.67'
Attached Toilet to Master Bed	4.75' X 7.5'	5' X 8.16'	5' X 8.16'	5' X 8.16'	8.8' X 5'	8.67' X 5.92'
Bed Room-2		10.67' X 12.16'	10.67' X 12.16'	12' X 10.5'	11.8' X 13.75'	14.25' X 10.75'
Attached Toilet to Bed-2			8' X 5'	7.5' X 4.5'	8.8' X 5.42'	8.67' X 5.08'
Study Room			9' X 9.5'			
Bed Room-3				12' X 10'	12' X 10'	10.5' X 15'
Attached Toilet to Bed-3						5' X 7.92'
Bed Room-4						10.5' X 13.08'
Common Toilet	4.75' X 7.5'	8' X 5'	8' X 5'	4.5' X 7.5'	5' X 7.8'	5' X 8.25'

(Source: Liases Foras)

Product Specifications

As per the consumer survey and the project grading done for various

projects the specifications are categorized in the following way:

Table 31 Product Specification

	Average	High end	Premium
FLOORING			
Living room	Vitrified tiles	Imported marble	Imported Marble/Granite/ Engineered Stone/ Italian Marble
Bedroom	Vitrified tiles	Vitrified tiles	Engineered laminated Wooden flooring, Hardwood flooring for Master Bed , laminated for rest
Toilets	Anti-skid ceramic tiles	Anti-skid ceramic tiles	Marble/Granite/Engineered Stone
Balcony/ Deck	Anti-skid ceramic tiles	Pressed clay tiles	Solid Wood Flooring/Granite
Kitchen	Vitrified tiles flooring/ceramic tile dado for 2 feet over a granite counter	Polished vitrified tiles & dado in ceramic	Italian Marble
OTHER FIXTURES			
Kitchen Fixtures	Single bowl single drain steel sink	Granite platform with stainless steel sink and drain board	Kitchen furnished with hob and hood, under counter and overhead cabinets with pull out systems and appliances - washing machine, dryer, dish washer, refrigerator, geyser and oven.
Bathroom Fixtures	Toto/ Hans Grohe	info not available	Standard fixtures + Jacuzzi, steam
Door Shutter	Flush shutters	Teak wood	Double shutter in Teak wood
Door Frame	wooden frames	Teak wood	Teak wood
Windows	Aluminium/ UPVC framed windows with clear glass and provision for mosquito mesh shutters.	Teak wood window	Powder coated Aluminium frames and shutters with clear glass and mosquito mesh shutters

Consumer Preference Study

Other than the standard market analysis from the data a consumer preference study was also conducted for the subject site in which consumer surveys were conducted so as to understand the various aspects of unit design in term of room-to-room relation and requirement of various spaces in a dwelling unit as per the consumer. The questionnaire used for the survey is given in annexure 1.

Methodology

The survey was conducted across all the section of society through stratified random sampling method in the Oberoi Garden, Viceroy Park, Challenger towers, Evershine Millennium Park, Evershine Tower, etc.

The survey was conducted by the Architects and Urban Planners who could amend the questionnaire for desired feedbacks in case of ignorance from the respondents' side. The survey was not merely limited to the house owners, but the qualitative information was also collected from the agents who are in the region for more than a decade and who had seen the evolution of the location and consumer preferences for the particular type of the houses.

Parameters Studied

A qualitative survey of the existing occupants of Thakur Village was conducted so as to understand the general preferences for the unit design aspect with reference to following key points:

- **Preference for the Living and dining relationship**
  (L-shaped, Joint, Separate, Attached to Kitchen)
- **Preferences for the type of the kitchen**
  (Open Kitchen- Enclosed Kitchen)
- **Preferences for Balcony position**
  (Balcony with Living Room, Balcony With Bed Room, Both)
- **Preference for the Balcony against the Bed room Size**
- **Preferences for the Dry Balcony**
- **Preferences for the prayer room in the house**
- **Preferences for the Toilet**
  (Every Bedroom to have attached Toilet, One common toilet for one bedroom and guests and rest attached toilet)
- **Preference for the Window sizes**
  (French Window, Window with the niche below)
- **Preferences for the Servant Toilet**
  (Servant Toilet on the each floor, Servant Toilet within the Apartment)

Through the study the need accentuated through the upward mobility on the economic scale was also accessed.

Key Inferences

From the study the key findings in terms of major spaces in a dwelling units and its design are given below. There were three instances where the user preferences were either mixed and were not giving any clear outcome or were clubbed with another factor like cost, so to make it clear another heading is added to give the final recommendation for the unit design.

Living and dining relationship:

Consumer Response: Mixed response was observed where approximately 36% users preferred L-Shaped, 36% preferred separate

while 29% preferred a joint living-cum-dining room.
Our Recommendation: Living and dining should be L-shaped considering that the guest should not have a visibility when a person is having his/her meal.

Type of the Kitchen:
Consumer Response: Most of the respondents (~85%) prefer an enclosed kitchen.
Our Recommendation: Indian cooking aroma is very strong in nature and it may disturb the person in the adjoining space thus we recommend that the kitchen should be enclosed.
Also the kitchen should be in the interior part of the house not directly accessible or visible from the entrance.

Prayer room:
Consumer Response: Existing dwellers preferred to have the separate prayer room rather than having it with the living room.
Our Recommendation: As the prayer room is an additional feature people may not pay any extra charges for that but if provided within the same cost bracket people may prefer to buy the homes with prayer rooms in it.

- **Balcony position:** Balconies are mostly preferred with the living room by the consumers.
- **Balcony against the bed room Size:** Respondents preferred the bigger size of bed room against the balcony in the bedroom.
- **Dry Balcony:** 79% of existing respondent preferred to have a dry balcony in the house attached with the kitchen.
- The dry balcony should not open into the common open space neither it should be visible from the exterior area this will help to enhance the exterior of the building.
- **Toilet:** Existing users prefer to have one separate common toilet rather than having all the toilets attached to bedrooms.
- **Window sizes:** Existing users prefer to have full height French windows in the house as it gives the sense of grandeur and makes the space more luminous.
- **Servants' Toilet:** Respondents preferred to have a servant's toilet in the common area either one on each floor or couple of them on the parking integrated with drivers lounge.

Other than these the key highlighting point mentioned about the secondary market by the agents was that Gundecha's old products like Valley of Flowers are enticing more demand in the vicinity due to their lesser loading and the layouts offered.

Chapter 6- Recommendations

As predicted MMR market has undergone a correction in the last quarter (December quarter- Q3 13-14) as the prices were unproductive and were not generating enough sales and revenue for the developers to sustain. The quarter also showed stabilised weighted average prices that remained at the same level as the last quarter. However due to the ever increasing cost and ready reckoner prices (which increased from January 2014), reduction in prices is quite difficult. For that matter, even keeping the prices at same level is quite difficult for the developer who will be keen on passing the effect to the buyers. This augmentation of price is likely to have a cascading effect on the entire market.

Like all the locations in MMR, Kandivali has also seen surge in realty, it is instead coming up as a destination. The nearby location in both North and South are offering slightly higher cost ranges resulting in slight demand percolation in this location. Also the area has considerable development potential (as explained earlier) due to the scope for redevelopment. In the last quarter it was one of the top 5 locations of MMR in term of new launches contributing 7% of the total new launches in the region. With this development, the Kandivali (E) market is expected to show an uptick in terms of sales as well.

Residential Product Mix

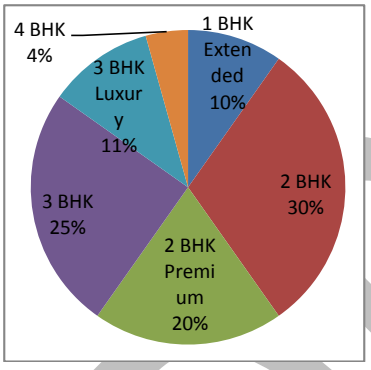
The market dynamics studied in chapter 3 and 5 and the future predictions made in chapter 4, helped in deriving the product mix that can be developed on the subject site. Along with the product mix, the reasons for suggesting the same and the launch plan as per the market prediction and projection are also given in the section to come.

Detailed Residential Product Mix

As per the market study, cases studied and our own perception, the following products are suggested on the subject site. The number and sizes (in terms of built up area as well as super built up area) of each are given in the table below.

Table 32 Suggested Residential Product Mix

Product type	SBUA	Loading	BUA per unit	No of Units	% of unit	Total BUA	Total SBUA
1 BHK Extended	720	60%	450	450	10%	202,500	324,000
2 BHK	1,200	60%	750	1400	30%	1,050,000	1,680,000
2 BHK Premium	1,440	60%	900	900	20%	810,000	1,296,000
3 BHK	1,632	60%	1,020	1150	25%	1,173,000	1,876,800
3 BHK Luxury	1,760	60%	1,100	500	11%	550,000	880,000
4 BHK	2,400	60%	1,500	200	4%	300,000	480,000
Total				4600		4,085,500	6,536,800



As seen from the above table there is maximum number of units for 2BHK and 3BHK as these are the fast moving products of any market. Also for the catchment of the subject site, these appeared to be the best typology to be developed. Nevertheless, the development of any typology should be timed in such a way that it either matches or is just ahead of its time so as to achieve maximum results. If the timing of launch of any typology is not correct, it will not attract the target population and hence will not be a success in the market.

Product Launch Strategy

This section gives the reasoning behind suggesting each typology, the target population and the time around which these can be launched as per the projection and prediction of Kandivali real estate market.

Table 33 Product Launch Strategy

Product	Reason	Launch
1 BHK	Primary to cater existing rental who cannot afford 2BHK but due to affordability can purchase the house. Investor looking for rental incomes.	Initial five years
2 BHK	Convenient product and most of the buyer in the location are looking for the carpet of 725 to 750	Alternate launch for initial 6-7 years
2 BHK Premium	Catering to upgraded demand of the resident presently residing into the 1BHK and 2BHK who cannot buy 3 BHK but the product with study room. Enhanced product to bring a demographic improvement.	Alternate launch with reference to 2 BHK convenient, there should be a significant difference in construction stage
3BHK	Largely catering to upgradation demand of the 2BHK	Unit not more than 400 on the horizon of the first 10years
3 BHK Luxury	To bring the demographic upliftment to the location and attracting the people from the surrounding due to location advantage	Major chunk during the last phase of the project integrated with 4BHK. It should be launched along with the standard 3BHK.
4BHK	Demographic upliftment and catering to inherent up gradation demand of the very limited people	Largely in the last phase

Based on the product launch strategy given above the broad phasing is done. The phases are represented as individual projects in the table below which also gives the number of each typology to be launched in every phase.

Table 34 Project/Phase wise Distribution of Residential Product Mix

	Launch Size SBUA (mn. sq.ft.)	Launch Year	1 BHK Extended	2 BHK	2 BHK Premium	3 BHK	3 BHK Luxury	4 BHK	Total No. of Units
Project A	1.54	2014	225	560	0	345	0	20	1150
Project B	1.23	2017	0	0	450	0	250	60	760
Project C	1.49	2018	225	560	0	345	0	0	1130
Project D	1.23	2019	0	0	450	0	250	60	760
Project E	1.04	2020	0	280	0	460	0	60	800
Total Number of Units			450	1400	900	1150	500	0	4600

Now that the phasing for residential development is in place, the other real estate formats along with amenities can be assessed and set in these phases or projects.

Other Real Estate Formats

Other than residential the real estate formats that can be suggested on the subject site are retail, educational, commercial and healthcare. But the total of all these should not exceed more than 15% of the total BUA permissible on site.

Retail

For a population of 22lacs there are already 6 malls in the vicinity. The current vector does not need a new recreation place. Hence only a convenient retail with fine-dine restaurants, eateries, pubs, etc. is suggested at the subject site. The phase-1 should first introduce the much needed night life in the Kandivali (E) and it should also act as a center for gathering for people.

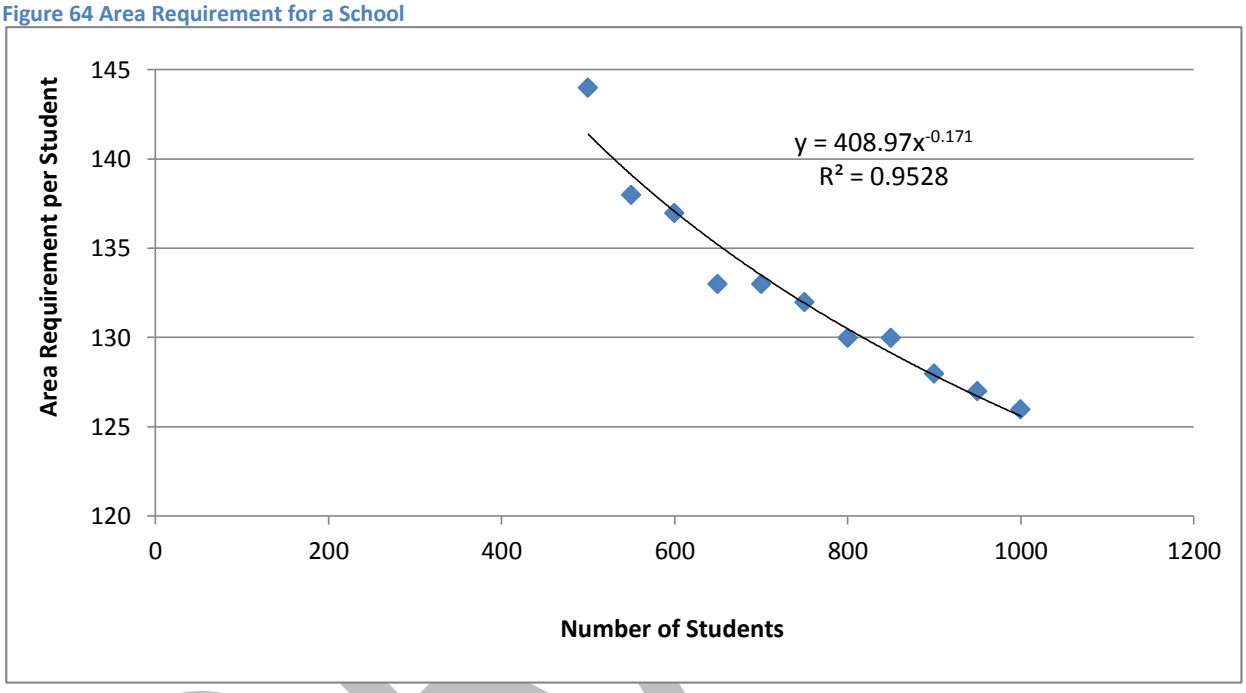
Table 35 Area Calculation for Retail Cluster at Subject Site

Particulars	Values
Number of houses	4600
Shops required per house (1 per 26 house)	177
Average size per shops	283
Area Required for the retail cluster (in sq.ft.)	50,000
SUBA @ 100% loading (in sq.ft.)	1,00,000

Educational

According to the UDPFI standards a school with a capacity of 1000 students is required for a population of 7,500. Our project is adding a population of approximately 20,000 people with almost 4,600 household units. So providing a school is compulsory on the subject site. The following graph shows the student to area ratio and the equation mentioned therein is used to derive the area required for the proposed school on the subject site.

Figure 64 Area Requirement for a School



The table below shows the basic steps used for area calculation for a school for subject site according to which an area of 8.46 hectares is required for the school that is to be developed on subject site.

Table 36 Area Requirement for Proposed School

Particulars	Values
Total Number of Proposed Houses in the Development (a)	4600 houses
Number of Enrolment (1 pupil per 3.23 houses) (b= a/4)	1423 students
Area required per pupil (c= 408.9*(b)$^{-0.17}$) (in sq.ft.)	119
Total SUBA (d= c*b) (in sq.ft.)	1,69,346
BUA by deducting Loading (-50%) (e=d*0.5) (In sq.ft.)	84,673
Area required as per standards	84,673

Healthcare

According the UDPFI standards a 500 bed hospital should be provided per 2.5lac population. Whereas the 5 Km radius from the subject site has a population of approximately 22 lacs people considering the population density of 24,644 people per square kilometer. While calculating the population, area under the national park was deducted.

For a population of 22 lacs, approximately 4,400 beds are required; hence there is a shortage of almost 4,000 beds. Considering there are some small nursing home and health care centers which also contribute a certain number, it will be a productive to introduce a **200 bed** hospital in a project on subject site. Area calculation for a 200 bed hospital is given in the table below:

Table 37 Area Calculation for Hospital at Subject Site

Particulars	Values
Proposed Bed Capacity (a)	200
Space required per bed- as per the international standard (b)	1,345 sq.ft.
SUBA Required for the Hospital (c= a*b)	2,69,097 sq.ft.
BUA Deducting loading (-50%) (d= c*0.5)	1,34,548 sq.ft.

Commercial

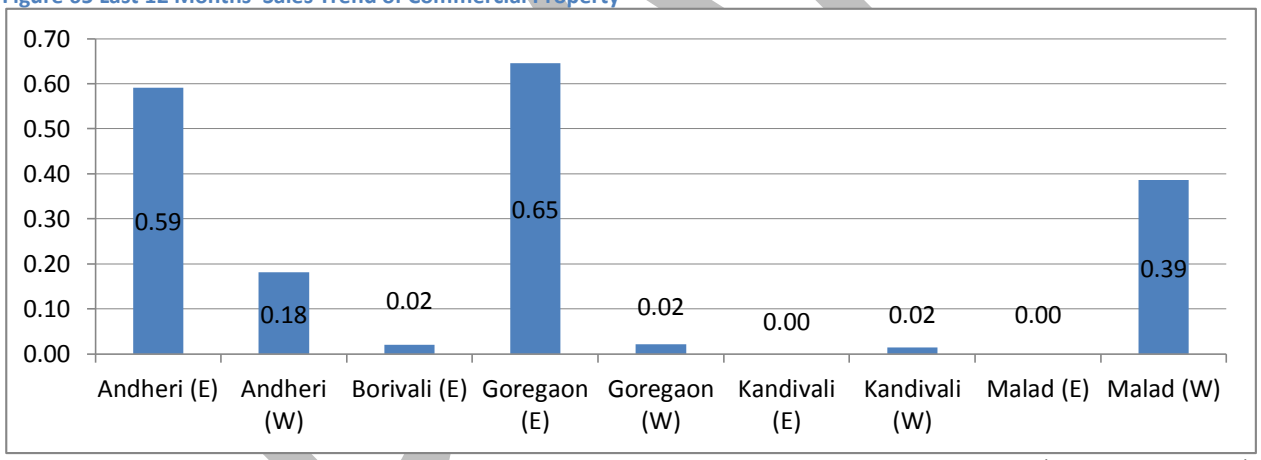
The share of commercial supply in Kandivali is just 1% of the total supply put together of locations in the vicinity (including Borivali, Kandivali, Malad, Goregaon and Andheri). Correspondingly the ratio of sold to unsold in Kandivali is good. It can be safely predicted that when the demand (or sales) is higher than the market can absorb more amount of supply and hence some commercial can be offered at the subject site.

Table 38 Commercial Development in the Nearby Locations

	Andheri (E)	Andheri (W)	Borivali (E)	Goregaon (E)	Goregaon (W)	Kandivali (W)	Malad (E)	Malad (W)	Total sq.ft
Proposed (mn. sq.ft)	0.43	0.30	0.00	0.35	0.00	0.00	0.00	0.00	1.07
Unsold Ready (mn. sq.ft)	3.07	0.49	0.03	0.23	0.04	0.00	0.05	0.57	4.47
Unsold UC (mn. sq.ft)	2.42	0.66	0.00	0.44	0.06	0.08	0.00	0.13	3.78
Sold (mn. sq.ft)	0.59	0.18	0.02	0.65	0.02	0.02	0.00	0.39	1.86
Lease Rate (Rs./sq.ft)	78	54	100	96	70	77	0	77	
Outright Rate (Rs./sq.ft)	10,180	10,557	12,000	9,700	11,000	9,250	12,500	10,000	
Avg. Floor plate (sq.ft)	25,448	9,972	40,000	13,780	4,000	20,000	25,000	11,003	

(Source: Liases Foras)

Figure 65 Last 12 Months' Sales Trend of Commercial Property



(Source: Liases Foras)

Presently Kandivali East does not have an inventory of commercial. But looking at the site's strategic location and future development potential of Mahindra Factory one can consider commercial as an option for development.

Kandivali cannot be defined as an IT cluster as per the existing master plan and existing businesses. Research has shown that for a commercial building to create an impact in the market, minimum BUA should be 3lacs sq.ft. Also commercial can be amalgamated with hotel or service residence like Westin.

It is suggested that a 3.5 - 4 lacs sq.ft of commercial and hotel building should be launched on the subject site and depending on the response of the market additional space can be introduced as a standalone building of 3 lacs sq.ft. at later stages.

Recommended Development Mix

The overall development mix including all real estate formats of residential, retail, commercial, educational and hospital as derived in the above sections are given below:

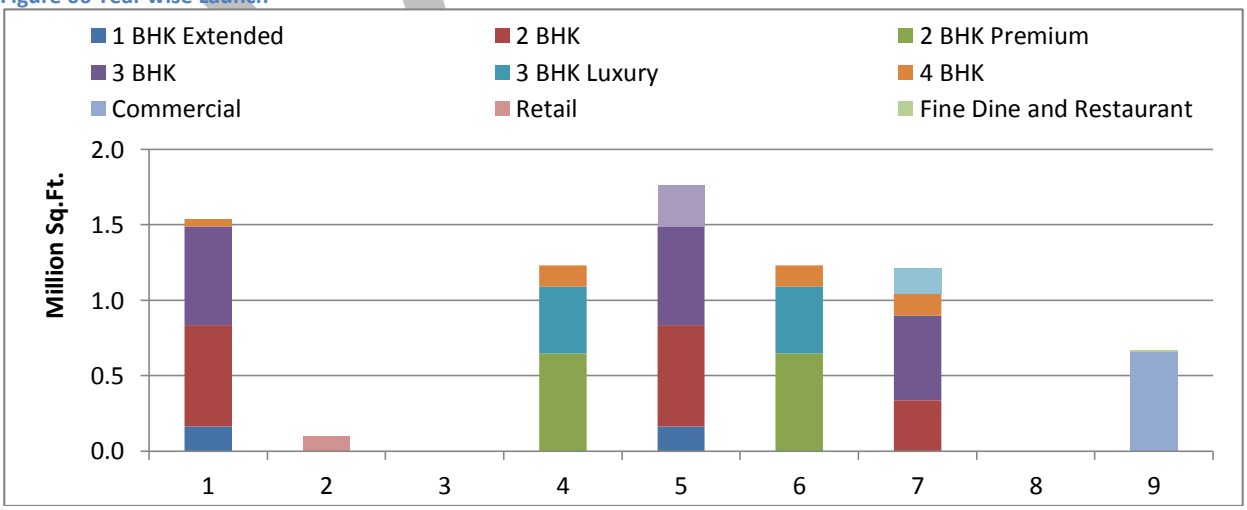
Table 39 Recommended Development Mix

Product	BUA (Sq.Ft.)	Loading	SUBA (Sq.Ft.)	% Contribution
Commercial	367,011	80%	660,619	7.64%
Club House	75,000	35%	101,250	1.56%
Retail Phase	50,000	100%	100,000	1.04%
Fine Dine and Restaurant	5,000	100%	10,000	0.10%
Hospital	134,549	100%	269,097	2.80%
Education	84,673	100%	169,346	1.76%
Residential	4,085,500	60%	6,536,800	85.08%
Total	4,801,734		7,847,114	

Year Wise Launch

The year wise launch plan for residential is already given in the sections above; but for a project to be successful other formats, which are the amenities and services for the residents, have to be introduced at proper time as well.

Figure 66 Year wise Launch

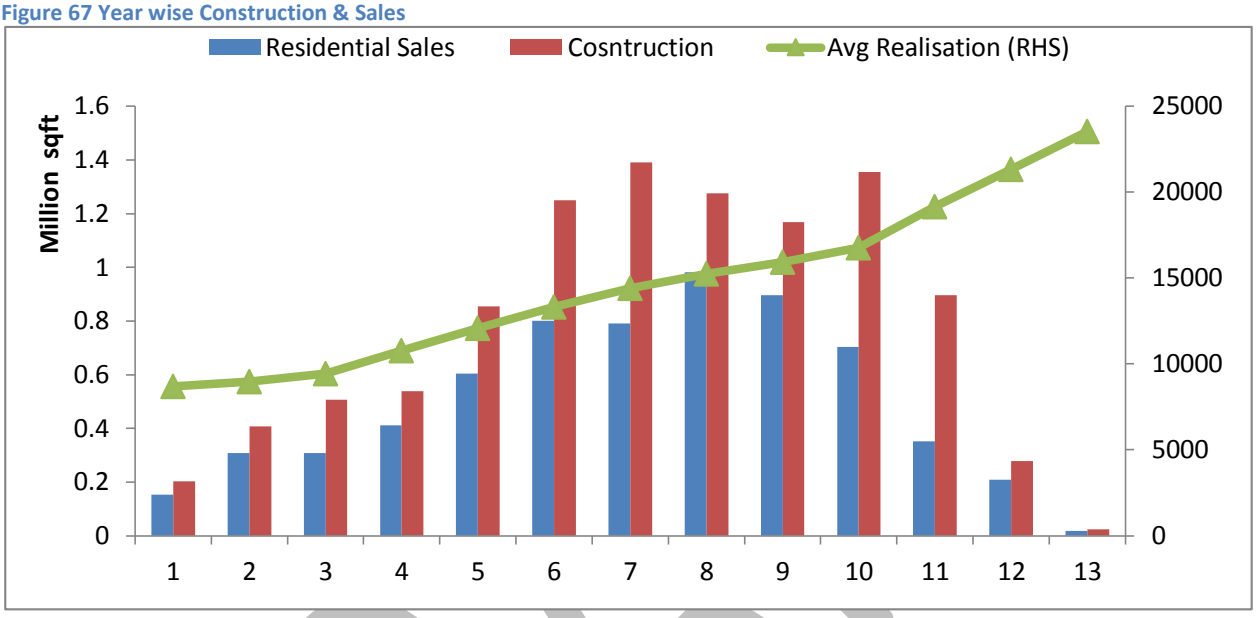


Year wise Construction & Sales

As sales is the source of liquid in a project which keeps the construction moving, it is important that both these go hand in hand.

The graph below shows the construction and sales projections of the Samta Nagar project along with the average realization.

Figure 67 Year wise Construction & Sales



Amenities assessment

For a location to be livable there should be sufficient amount of amenities in terms of open spaces, retail activity, recreational activities and other similar amenities. In addition, amenities are value addition for any project. Therefore, this section looks into various amenities that could be given on site and also analyses their priority as per the locational factors and the general market practice.

Table 40 Amenities Recommendation for Subject Site

Facility	Requirement Priority	Standard Size or Specification	Area (Sq.Mt.)
Gymkhana (Indoor)			
Swimming Pool	High	50M X 25M	2500 Sq.Mt. (including change rooms and circulation) (Facility Assumed: 1pool)
Badminton Courts	Medium	Court Size: 13.4M X 6.1M Obstruction free gross usable area for 1 Court- 17.4X9.1	As per number of courts
Squash Courts	Medium	9.75M X 6.40M X 6.0M	As per number of courts
Gymnasium / Steam / Sauna / Yoga / Jacuzzi / Aerobic/ Meditation	High	-	150 - 200 Sq.Mt.*
TT / Card / Carom Rooms	Medium	TT Table Size: 2.74 M X 1.525 M	200 Sq.Mt.* (Facility Assumed: 2TT Tables, cards table and carom)
Snooker / Billiards Tables	Medium	Table Dim: 3.5M X 1.75Ms	9 M X 14M (Facility Assumed: 2 Billiards Tables along with spectator area)
Digital Games Room (Hall) /Visual Games	Low	-	50-70 Sq.Mt.*
Spa (International tie-up)	Avoidable	-	150 - 200 Sq.Mt.*
Bowling Alley	Avoidable	31.85M X1.7M per alley	900 Sq.Mt.
Jogging & Cycling Track	High	>=1.0Mt Wide	
Skating Ring	Low	40M X 20M	800 Sq.Mt.
Basketball courts	Low	28M X 15M	Obstruction free gross usable area for 1 Court- 30M X 17M
Cricket Academy	Low	Obstruction free gross usable area for 1 Court- 35M X 6M	210 Sq.Mt.
Tennis Academy	Medium	1Court needs hall of- 18.30X36.60 2Courts need hall of- 36.60X36.60 3Courts need hall of- 54.90X36.60	-
Putting Green/ Crochet	Avoidable	-	-

Chapter 7- Financial Analysis

Introduction

The chapter gives the financial analysis of the development mix hence proposed so as to testify its feasibility. The financial assessment was originally done for the development mix as discussed in the recommendations in the previous chapter by taking different launch year and quantity for each typology.

Development Potential

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Table 41 FSI Calculation

Particulars	Area in Sq. Mts.	Area in Sq.ft.
Land Area (A)	1,67,223	18,00,156
FSI (B)	2.50	
Total BUA (C = A * B)	4,18,058	45,00,389
Less Additional FSI Consumed (D)	1,000	10,765
Net BUA (E = C - D)	4,17,058	44,89,624
Fungible FSI Available (F)	35%	
Including Fungible FSI (G = E + EF)	5,63,028	60,60,992
Adding HIG BUA (H)	41,974	4,51,850
Including HIG (I = G + H)	6,05,002	65,12,842
Less Rehab BUA		
EWS + LIG + MIG	2,20,437	23,73,009
HIG	30,800	3,31,562
Total Rehab BUA (J)	2,51,237	27,04,571
Net available for development (K = I – J)	3,53,764	38,08,271
Carpet area (L = K / 1.15)	3,07,621	33,11,540
Loading (M)	45%	45%
Saleable Area (N = L * M)	4,46,050	48,01,733

Although the total area of the land as per P.R.C. is 2,13,867.50 sq.mt, but after the deductions (for slum rehabilitation, DP or municipal roads, amenities, etc.) and additions for FSI calculation (for the amenities & road provision, etc.) it comes out to be 1,67,223,46 sq.mt. The FSI of 2.5 is permissible at the subject site hence a development potential of 4,18,058.65 sq.mt. is available at the site. But there are a few deduction in built up area as per the by-laws and after all the deductions and

additions the built up area available at the subject site is 6,05,002 sq.mt. (6.5 million sq.ft.) (including HIG and rehab built up area) whereas the saleable BUA is 4,46,050 sq.mt. (4.8 million sq.ft.).

Assumptions Made

The table below gives the assumption and the parameters to which they are anchored. The land price is assumed to be Rs.800 per square feet of NA converted land.

Table 42 Assumptions Made for Financial Assessment

Cost Assumptions	Option 1	Anchor
Land Cost	**Rs. 1,545 psf**	**Land Area**
Stamp Duty & Brokerage	9.50%	Land Cost
Consultants	3.0%	Construction Cost
Architect	1.0%	Construction Cost
Project Management	1.0%	Construction Cost
Facility Management	1.0%	Construction Cost
Approval Cost	Rs. 300 psf	Saleable Area
Construction Costs		
Project A, B & C	Rs. 1,800 psf	Saleable Area
Project D & E	Rs. 2,200 psf	Saleable Area
Redevelopment (All three phases)	Rs. 1,800 psf	Saleable Area
Commercial	Rs. 2,200 psf	Saleable Area
Club House	Rs. 2,200 psf	Saleable Area
Retail	Rs. 1,800 psf	Saleable Area
Fine Dine and Restaurant	Rs. 2,200 psf	Saleable Area
Hospital	Rs. 5,000 psf	Saleable Area
Education	Rs. 2,500 psf	Saleable Area
Covered Parking	Rs. 1,000 psf	Parking Area
Open Parking	Rs. 300 psf	Parking Area
Infrastructure	Rs. 100 psf	Land Area
Interest	13%	Debt
Sales & Marketing	3.0%	Total Revenue
Planning & Admin	1.5%	Total Revenue
Supplier Credit Period	2	Construction Cost

Financial Calculation

The cost particulars as per the assumed cost values are given in the table below:

Table 43 Cost Particulars

Particulars	Total Cost in Rs.	Total Cost in Rs. Crores	Cost in Rs. per sq.ft. of Saleable Area
Total Cost	**45,51,99,76,932**	4,552.00	6,964
Preliminary Cost	50,00,00,000	50.00	76
Stamp Duty & Brokerage	4,75,00,000	4.8	7
Approval Cost	2,35,41,34,452	235.4	360
Consultants	1,05,96,61,849	106.0	162
Construction Cost	35,32,20,61,624	3,532.2	5,404
Project A	3,23,91,56,836	323.9	2,242
Project B	3,45,14,81,741	345.1	2,802
Project C	4,28,41,46,305	428.4	3,067
Project D	4,87,49,78,273	487.5	3,957
Project E	5,42,79,26,163	542.8	4,410
Commercial	2,98,90,14,903	298.9	4,525
Club House	31,32,64,733	31.3	3,094
Retail Phase	21,50,69,568	21.5	2,151
Fine Dine and Restaurant	4,52,45,615	4.5	4,525
Hospital	2,07,20,47,103	207.2	7,700
Education	67,55,50,005	67.6	3,989
Covered Parking	3,83,05,04,739	383.1	586
Interest	3,23,20,374	3.23	5
Sales & Marketing	3,92,23,85,951	392.24	600
Planning & Admin	2,28,19,12,681	228.19	349

Considering the same cost, the financial analysis of the project is as follows:

Table 44 Revenue Achieved as per the Cost Assumptions

Particulars	Total in Rs.	Total in Rs. Crores	Rs. per sq.ft. of Saleable Area
Total Cost	**45,51,99,76,932**	4,552.00	6,964
Total Revenue	**1,85,57,55,74,652**	18,557.6	**23,649**
Actual Earning	1,52,12,75,12,099	15,212.8	19,386
Project A	18,30,05,31,128	1,830.1	12,664
Project B	22,16,75,34,014	2,216.8	17,993
Project C	28,35,60,42,169	2,835.6	20,297
Project D	27,87,88,99,328	2,787.9	22,629
Project E	31,54,31,91,721	3,154.3	25,630
Commercial	4,39,41,66,162	439	133
Club House	1,90,00,00,000	190	18,765
Retail	2,50,00,00,000	250	25,000
Fine Dine and Restaurant	28,50,67,761	29	1,059
Hospital	6,39,53,39,156	640	243
Education	3,30,59,85,162	331	199

Table 45 Financial Calculations Based on Cost & Revenue

Particulars	Total in Rs.	Total in Rs. Crores	Rs. per sq.ft. of Saleable Area
Profit	**1,40,05,55,97,721**	**14,006**	**21,426**
Project Duration		182	
Tax	47,61,89,03,225	**4,761**	**7,285**
PAT	92,43,66,94,496	9,243	**14,141**
Peak Negative Cashflow	-2,92,88,06,995	-292.88	
Equity	2,05,01,64,896	**205**	
Debt	(87,86,42,098)	**(88)**	
NPV of Profit	20,50,31,42,964	205	
ROE			32.2%
IRR			110.0%

As seen from the above table that with an ROE (return on equity) of 32.2%, the project seems feasible and the recommendations pertinent.

Chapter 8- Master Planning Design Brief

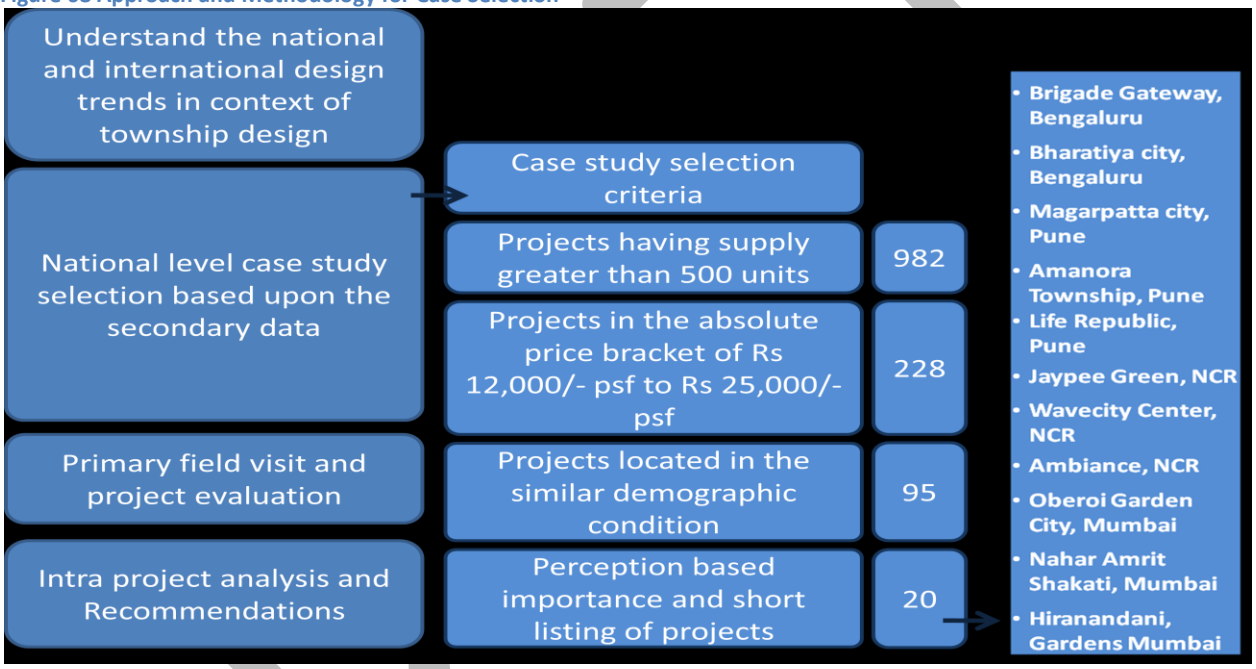
Introduction

A large scale project, like the one under consideration, needs a proper master planning exercise. To make a project successful the vision of the developer should be merged with the general trends followed in national and international markets.

Approach and Methodology for Case Selection

For the selection of case study, a total of 24 projects were visited in Mumbai, NCR, Pune and Bengaluru. These included standalone buildings and clusters like the Magnolias, Windmill of your mind, Pebble Bay, Yo Pune, One North, etc. the following diagram shows the approach for selection of case studies for understanding the master planning and its features in townships.

Figure 68 Approach and Methodology for Case Selection



The projects thus selected for the study of master planning feature are:

- Brigade Gateway, Bengaluru
- Bharatiya City, Bengaluru
- Magarpatta City, Pune
- Amanora Township, Pune
- Life Republic, Pune
- Jaypee Green, NCR
- Wave City Center, NCR
- Ambiance, NCR
- Oberoi Garden City, Mumbai
- Nahar Amrit Shakati, Mumbai
- Hiranandani Gardens, Mumbai

Design Evaluation Criteria

There are a various features by which one can define a township, so the features which need to be studied in the selected cases have to be identified to arrive at the master planning brief.

Elements of Township

General understanding of the Township can be defined under following heads.

- Basic elements: These elements primarily discuss the 'Technical' side of development, such as sizes of room, width of street, open space ratio, etc. However, these elements are more subjected to local regulation and National Building Code. Some of the basic elements include: gross area distribution, open v/s built ratio, distance between the buildings, road hierarchy, housing typology and their sizes (1BHK, 2BHK, 3BHK, etc.).
- Elements of Esteem: These elements are more related to the improvised quality of living and giving sense of satisfaction to its residents as well as to other citizen by creating space for various activities. Some of the elements of esteem include: public realm, symbolic value, integration and segregation of various building usage, street design, definition of nodes/squares, sustainability and future user group, etc.

For the purpose of study, the elements of esteem are focused upon which are explained in detail below.

Public Realm

Contextual Open space & Utilities- This can be evaluated based upon hierarchy of open space and utilitarian aspects.

1. a. Township level open space: It is the defined largest open space which is available to the general public. The defined space should be welcoming and not repulsive. Creating a public domain can help enhance the importance of a place and increase in the landmark value of the location.

1. b. Neighborhood level open space: this is the defined open space which is accessible only to the residents/users of the building.

2. Utility of the space: Success of any open spaces/public domain is in its correlation with the purpose and facilities provided in the open space.

One good international example of public realm is that of 1881 Heritage Mall in Hong Kong while in India so far the best township level open space is provided in Brigade Gateway in Bengaluru and Nahar Amrit Shakati in Mumbai.

Figure 69 Example of Public Realm- 1881 Heritage Mall, Hong Kong

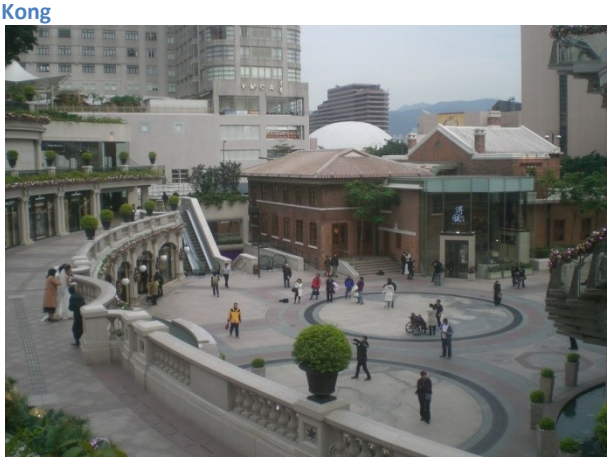
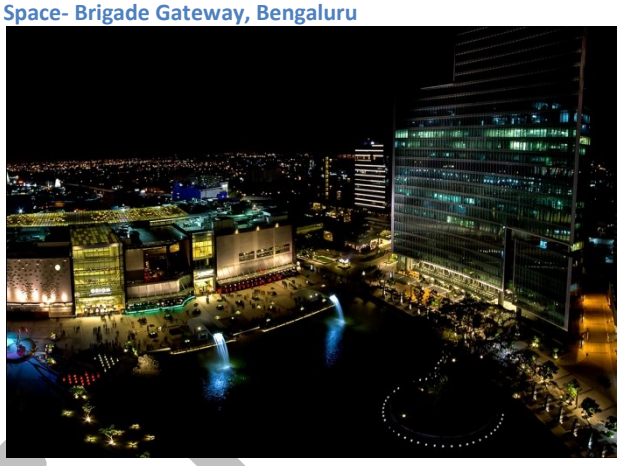


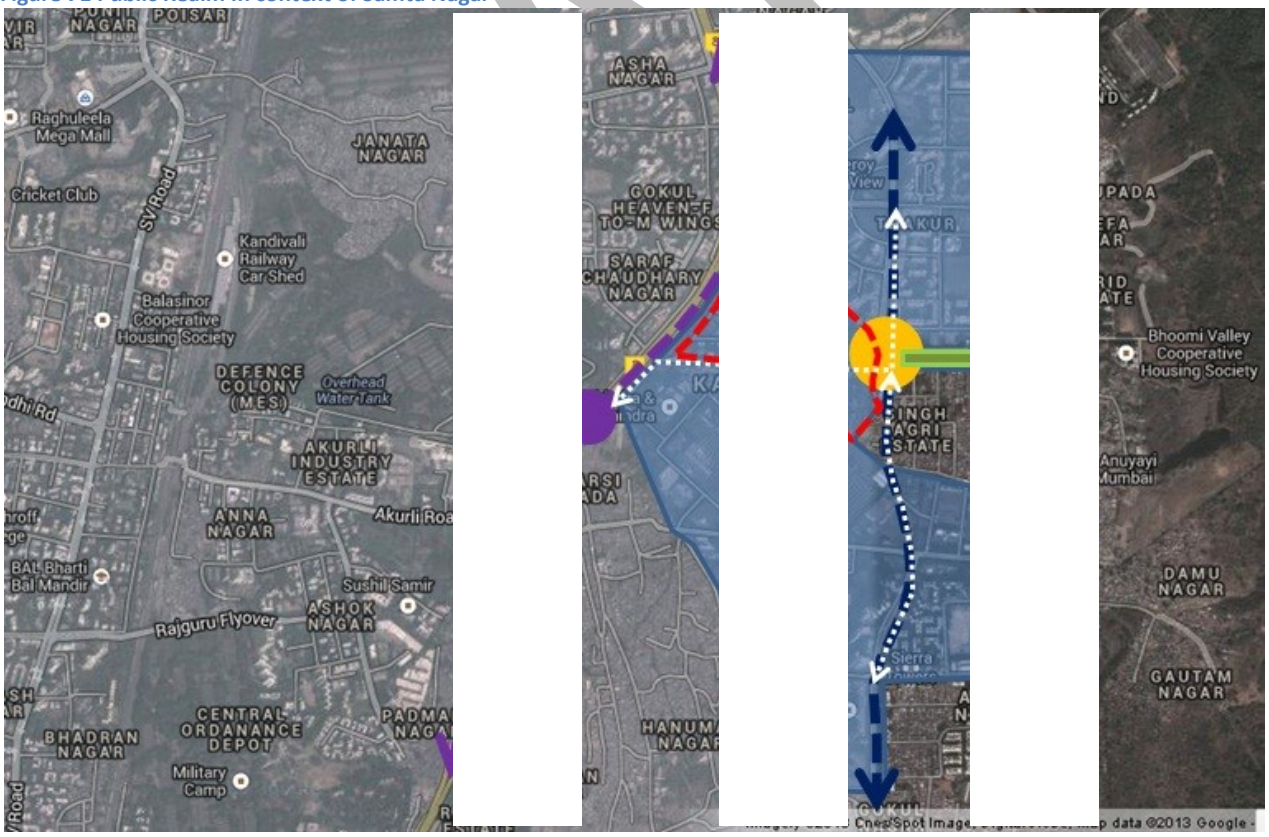
Figure 70 Example of Public Realm- Township Level Open Space- Brigade Gateway, Bengaluru



Public Realm In context of Samta Nagar

Integrating the existing retail fabric with the student base of education institutions existing in the area as well as considering the present traffic outlook, a retail plaza will be providential over here.

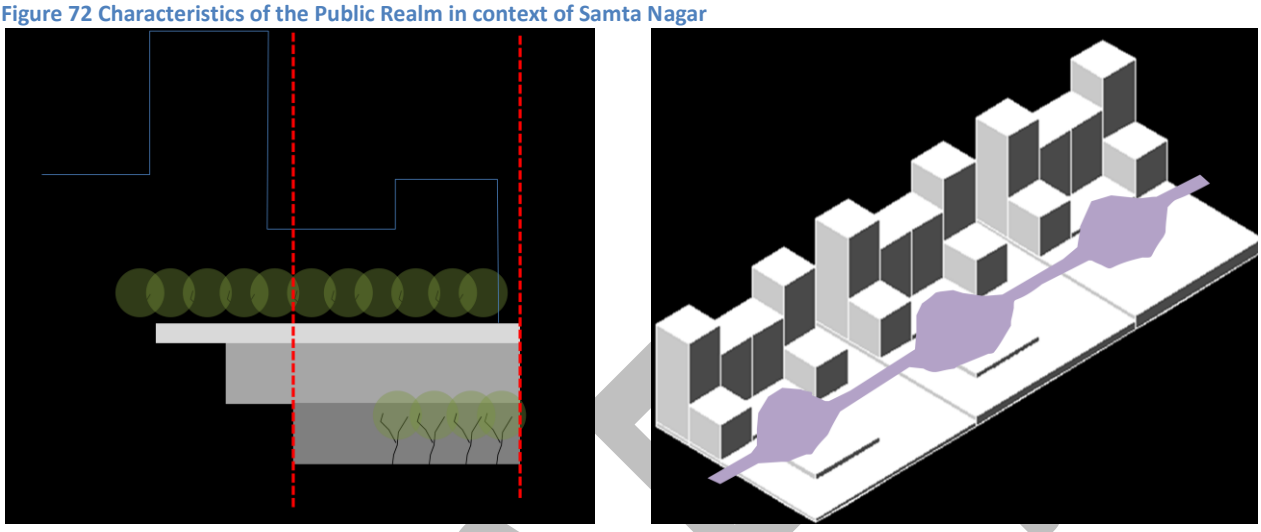
Figure 71 Public Realm In context of Samta Nagar



(Base Image: Google Earth, Source: Liases Foras)

In case of Samta Nagar, the neighbourhood level open spaces should be connected to each other either by line of sight or by any other means creating a sense of connectedness in the space.

Figure 72 Characteristics of the Public Realm in context of Samta Nagar



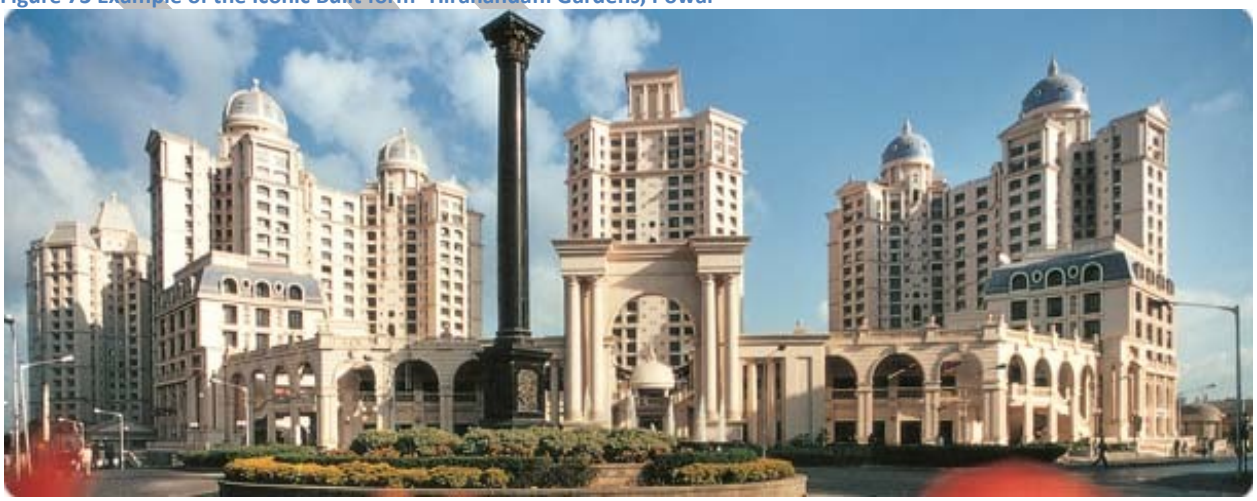
Iconic value (top of mind recall)

Iconic value of a project can be any design element which gives a unique identity or any differentiating elements in the layout/ building/ unit and still it is functional and also remains at the top of mind recall.

Iconic value or top of the mind recall is defined based upon the two parameters:

- Solid (Built form)
- Void (Open space)

Figure 73 Example of the Iconic Built form- Hiranandani Gardens, Powai



An example of iconic value in the selected cases is the Hiranandani Gardens in which the built form creates an iconic value by using the post-modernist style of design in its elevations. The same can be seen from the image given above.

Iconic Value of built-form in case of Samta Nagar

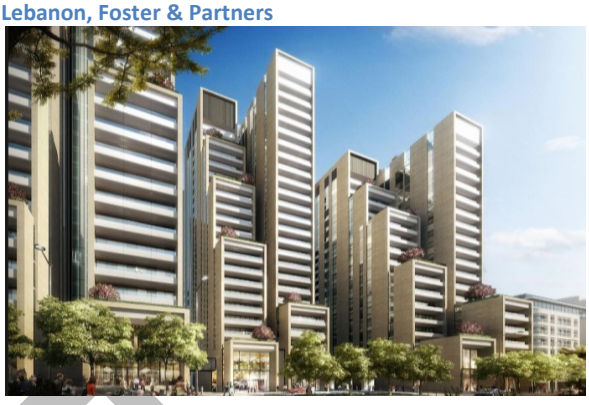
The current location of the subject site and its prospected visibility from the Western Express highway show that the Samta Nagar built form can gain the maximum potential in terms of visibility aspects. The key issue here is what built form characteristics or style should be employed for the project.

Figure 74 View from Western Express Highway towards Samta Nagar (Visual texture in context)

Already witnessed is the extreme level of brand association of Hiranandani with the post-modernist style design. In the given context what nature of built form should be adopted to put the strong brand position in term of built form- Can we have the Modernist form with strong expression like, Kanchenjunga on the Peddar road designed by Charles Correa or the similar strong built form like 3Beirut, Lebanon by Foster and Partners.

Figure 75 Characteristics of the Built-forms - Kanchenjunga by Charles Correa

Figure 76 Characteristics of the Built form - 3Beirut, Lebanon, Foster & Partners



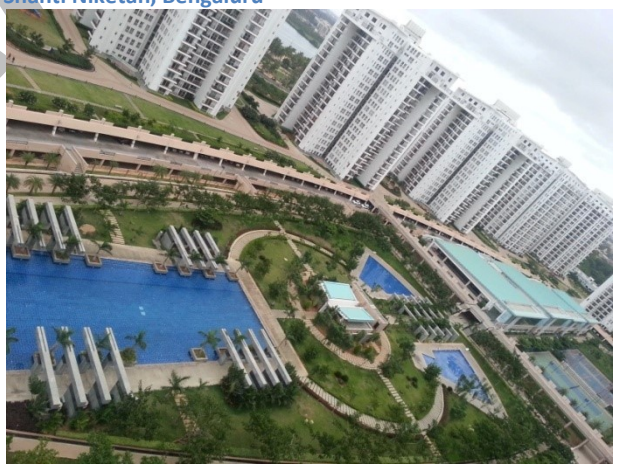
Iconic Value of the Open Space

Similar to the built-form another important aspect is to enhance the experience of being at the place by carving out the open space.

An example of iconic value of open spaces among the cases selected is that of Brigade Gateway where the central open space is surrounded by designed trellises and pergolas along with small sit outs in the form of gazebos, etc. Also landscaping features like water body are used in the space so as to create a memorable experience for the visitors. The following images are showing the key example and envisaged characteristics of the open space in case of the Samta Nagar.

Figure 77 Example of the Neighbourhood level open space- Brigade Gateway, Bengaluru

Figure 78 Envisaged Characteristics of the Neighbourhood level open space in case of Samta Nagar- Example of Prestige Shanti Niketan, Bengaluru



Integration and Segregation of Various Building Usage

Each built-form shows a unique relation with the adjoining spaces. The relationship is defined based upon the following two aspects:

Relation with outer realm
- Transparent
- Translucent
- Opaque

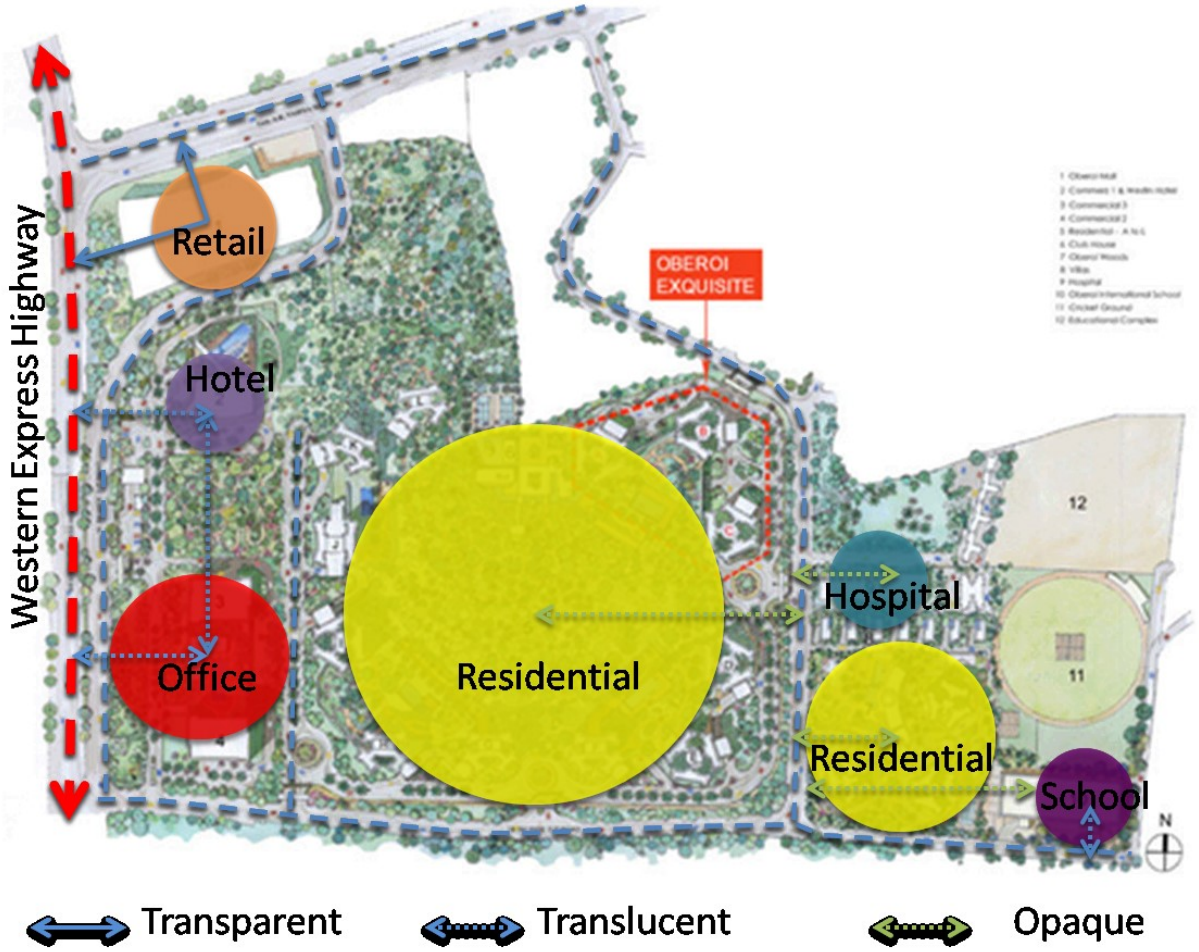
Relation with inner realm
- Transparent
- Translucent
- Opaque

For Example: the relation of retail should be transparent with public domain, while commercial relation should be translucent and that of residential should be opaque.

Integration and Segregation in case of Samta Nagar

- Hospital should be segregated from the entire development and should be accessible from a wider road. Hospital traffic should not hamper the residential movement.
- Retail should be away from the residence but it should be accessible by means of walk.
- Commercial should be isolated and there shouldn't be any overlap of floating population moment and residents' moments
- Hotel and commercial can be placed on the junction of western express highway and Samta Nagar road.

Figure 79 Relationship Diagram of various Real estate Formats with each other and the connectivity



Street Design

Street Design in any project of this level should be such that there should be a unique experience of reaching any point.

Streets can be evaluated based upon the following aspects:

- Clear segregation of vehicular movement and pedestrian movement
- Separate definition for on street and off street parking
- Quality of experience
- Pedestrian safety
- Flexibility for small gatherings and informal activities

The following images are the examples of good street design especially in terms of segregation.

Figure 80 Example of the street segregation- Hiranandani Gardens, Powai

Figure 81 Envisaged Characteristics of Street Design in case of Samta Nagar

Node

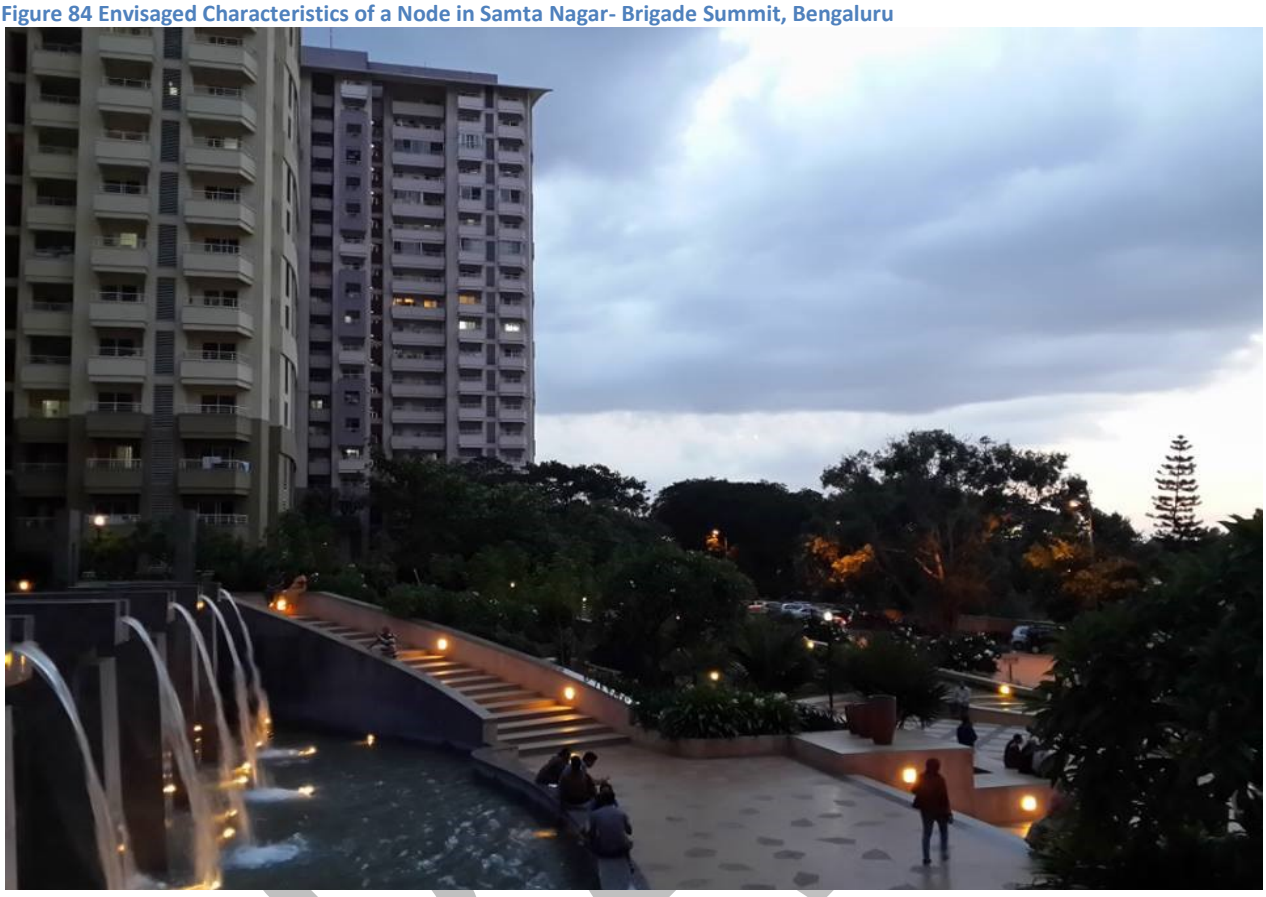
Node is part of the street design and it acts largely as the centric location for gathering and land mark for person to reach any point. Nodes can be evaluated based upon following aspects:

- Landmark value
- Potential for small gathering
- Potential for informal activities

Figure 82 Example of the Node definition- Hiranandani Gardens, Powai

Figure 83 Example of the Node definition

Figure 84 Envisaged Characteristics of a Node in Samta Nagar- Brigade Summit, Bengaluru



Sustainability

Sustainability in any project is defined by utilization of natural resource efficiently and recycling and recharging the possible resources with consideration of future requirements. In a project sustainability can be achieved by:

- Micro climate management
- Minimizing the use of energy
- Re-utilizing the all possible natural resource

Sustainability Parameters to be Considered in case of Samta Nagar

Some of the major things to be considered in the development of Samta Nagar should be:

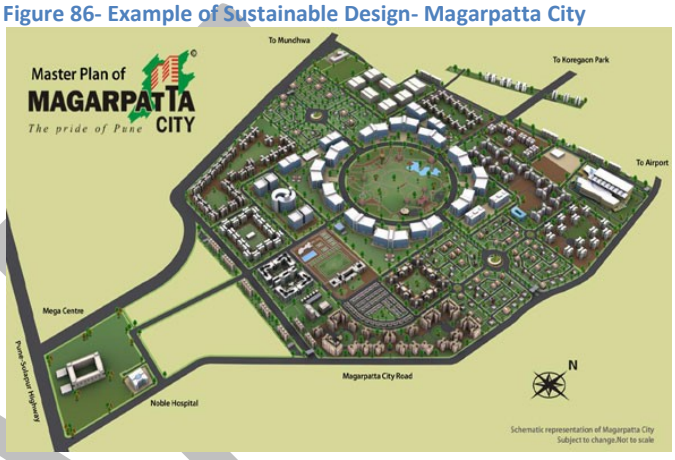
- Uses of passive and active design strategies to reduce the energy load i.e. proper building orientation, building planned as clusters for mutual shading, better day lighting and maximized natural ventilation.

- Climatologically Designed: by considering the wind movement and sun movement so as to maximize the natural ventilations.

- Derivation of the opening size based upon the wind directions.
- Integration of gray water with recycling and reuse system. (Provision of separate drainage line for gray water).
- Solid waste management through segregation at the source.

Figure 85 International Example of Sustainable Design

Figure 86- Example of Sustainable Design- Magarpatta City

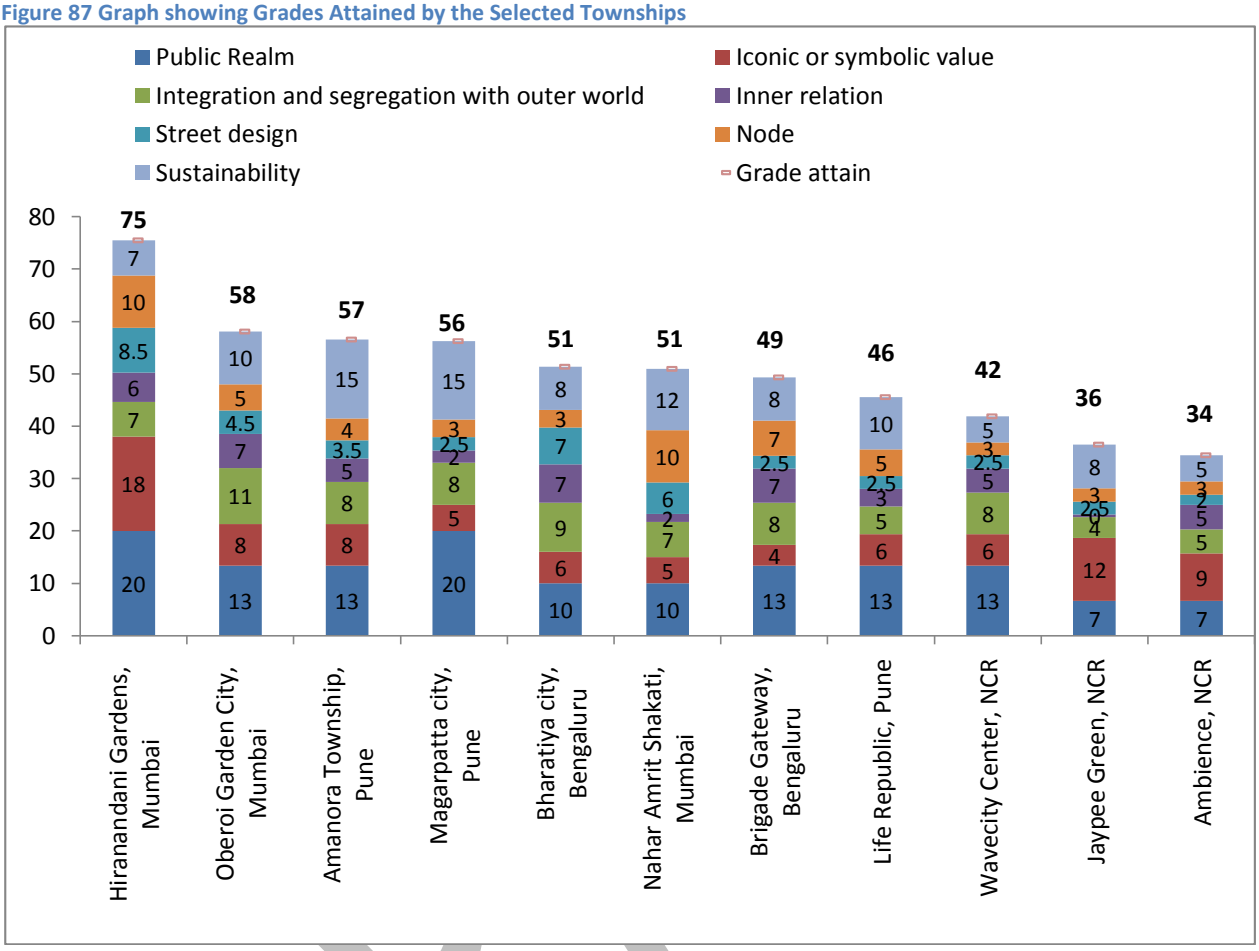


Grading Attained By the Selected Townships

As per the above explained elements of design in a township level project, the selected projects from all over the country were compared and graded so as to find the best features of each.

The graph below shows the grades attained by each product in all the elements.

Figure 87 Graph showing Grades Attained by the Selected Townships



As can be seen, Hiranandani Gardens of Mumbai has scored highest grades. It has highest scores for iconic value among all the projects with post-modern style of design used in all its elevation. Also it has got highest grades for street design followed by Bharatiya City of Bengaluru.

Glossary

Suburb-	For the convenience of data collection and for better understanding of the development pattern and market dynamics of a city it is sub divided into smaller parts called suburbs.
Inventory (Supply)-	Inventory is the total stock between two dates of survey. It covers all new launches (new additions) as well as carried-forward inventory from the previous quarter/quarters and the sales in the period. It can be simply represented as Unsold as on the end of the period + sales during the period.
Sales / Demand -	Demand is the realty stock sold in a market between the dates of two surveys.
Business Turnover-	It represents the value of the trade or the business done in a certain period. It is calculated by multiplying the total sq. ft. sold during the period with the prevailing prices.
Marketable Supply-	It represents the total marketable stock during the survey period.
Price -	Weighted Average Prices of the unsold stock.
Months Inventory-	Represents the number of months required for the inventory in the market to be absorbed according to the existing demand. It is calculated by dividing the unsold stock by monthly sales.
Sales Velocity per month (or off-take ratio)-	Sales Velocity (SV) signifies demand – supply scenario in a market. It is the ratio between monthly sales and total supply and gives an idea of gestation period of a project as per the existing dynamics.
Typology-	Product type or flat type.