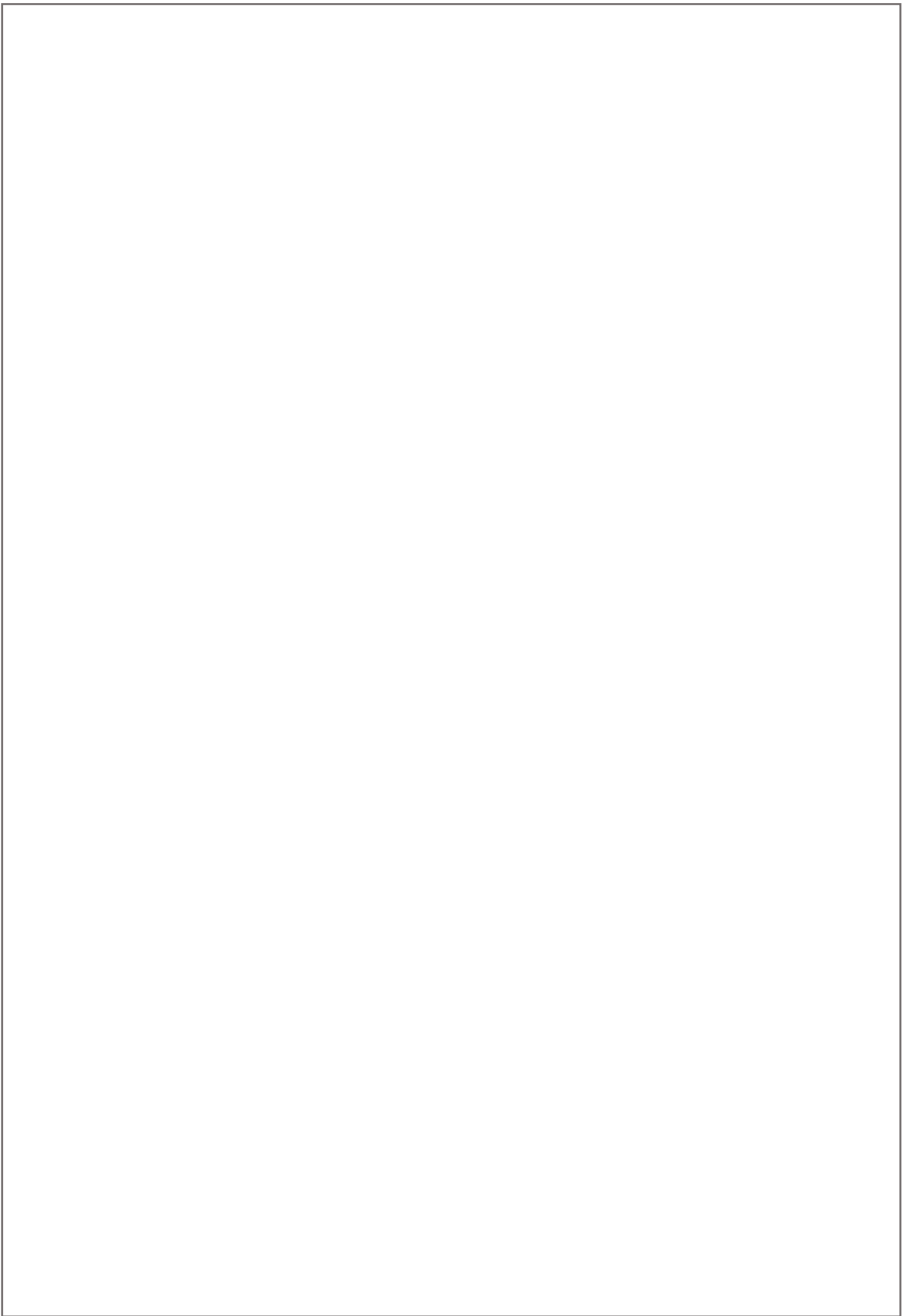




DRAFT REPORT ON PLANNING PROPOSALS

SPECIAL PLANNING AUTHORITY - MUMBAI PORT TRUST









DRAFT PLANNING PROPOSALS

SPECIAL PLANNING AUTHORITY MUMBAI PORT TRUST

(u/s 115 read with 40 (3) (D) of MR&TP Act 1966)

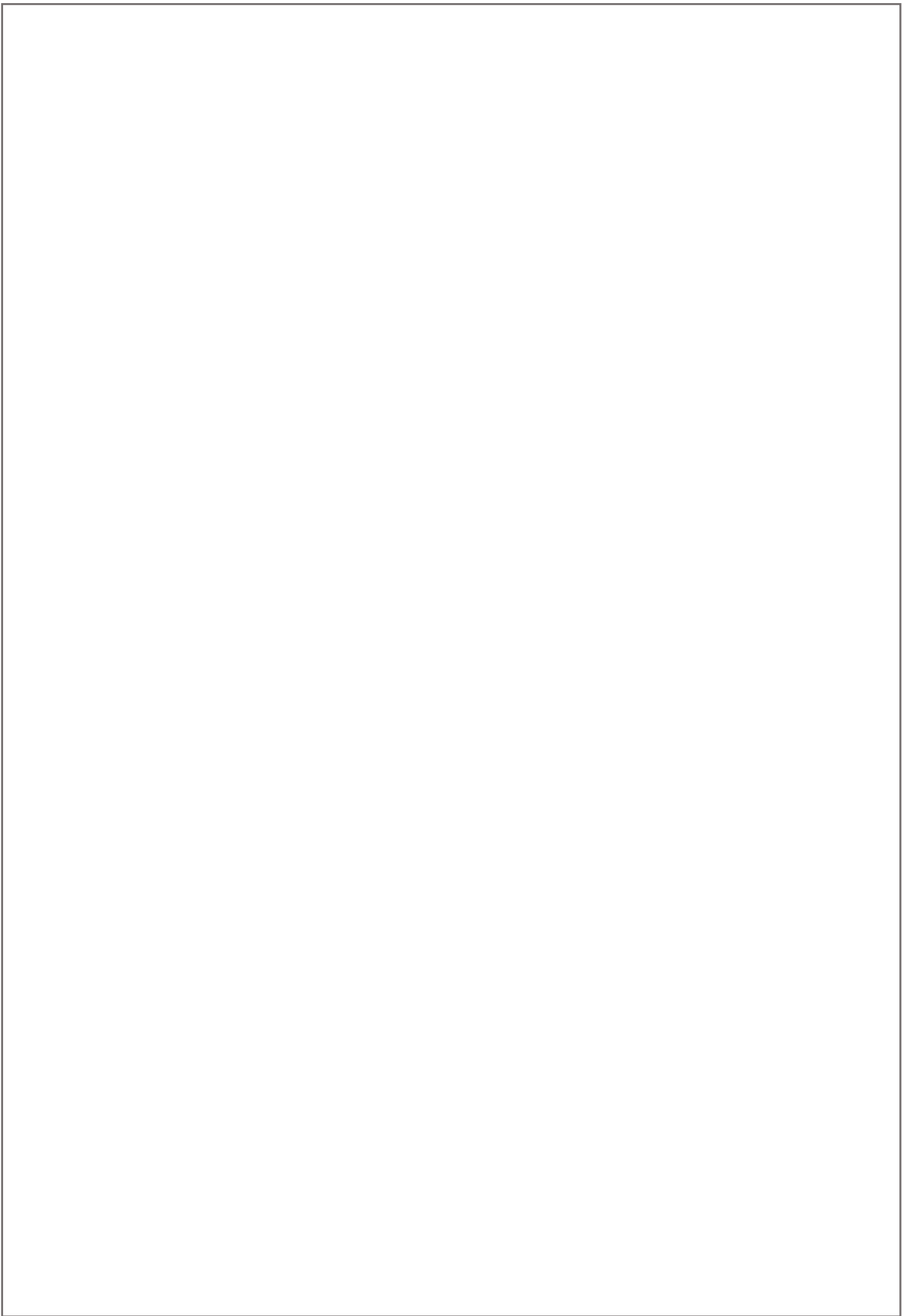
December 2018

CHAIRMAN	
DEPUTY CHAIRMAN	
CHIEF ENGINEER	
DY CE (DESIGN)	
ADVISOR PLANNING	
SENIOR PLANNER	

Port House, Shoorji Vallabhdas Marg,

Mumbai

400001





Sanjay Bhatia (IAS)
Chairman



Mumbai Port Trust

Date: 31.12.18

Mumbai Port is the second oldest Port of the country that has been handling the largest cargo for many years. Changing trends in shipping industry viz increase in ship size and evolution of containerization technology and subsequent development of a second port across the bay have brought Mumbai Port to a stage of metamorphosis where it now needs to reinvent itself. Major Ports of the world like Baltimore, Miami and Barcelona where huge metropolitan cities have come up, have had to create a new vision for themselves that has focused on waterfront development entailing water transport and sea tourism. The redevelopment has become the USP of these ports given their location within the large metropolises.

Ministry of Shipping recognised the need for this transformation of Mumbai Port and was facilitated by the State urban development department of Maharashtra which granted the status of Special Planning Authority to Mumbai Port Trust for planning and subsequent execution of the development. MbPT aims to create world class infrastructure for water transport services and sea tourism that will make Mumbai, along with being the financial capital, the country's hub for Sea Transport & Tourism.

While single ownership of almost the entire planning area has helped overcome the obstacle of land consolidation often encountered during urban planning, the exercise itself has been taken up in utmost earnest, acknowledging the scale of impact it is likely to generate. M/s HCP DPM Pvt. Ltd., was mandated with carrying out the base studies and preparation of a concept proposal which was then used by our in-house team to build upon and refine to its final state.

The Planning Proposal provides for development of state-of-the-art waterfront activities like cruise terminals, marina, water transport terminals, promenades, and tourist attractions while also provisioning for upgradation of the infrastructure and development on the landward side of the planning area. Special consideration has been given to provision of open spaces to provide the much needed lung space for residents of Mumbai.

Execution of this radical plan has experienced its own share of issues and I express my sincere gratitude to Hon. Minister of Shipping, Road Transport and Highways, and Water Resources, River Development and Ganga Rejuvenation, Shri Nitin Gadkari; Hon. CM Maharashtra, Shri Devendra Fadnavis; and Secretary, MoS, Shri Gopal Krishna for extending every required support. I thank the Additional Chief Secretary to CM Maharashtra, Shri Praveen Pardeshi and Principal Secretary, UDD GoM, Shri Nitin Kareer who have facilitated and provided their suggestions on the Planning Proposals.

The conclusion of this exercise warrants special mention of CIDCO for assisting us by deputing technical professionals, and other agencies like MMRDA and MCGM that have readily provided data, technical assistance and experts whenever required.

I take this opportunity to acknowledge the valuable inputs we have received from the expert committee constituted for this purpose as well as active civil and professional organisations like Apli Mumbai, IMC and UDRI (Ar. Pankaj Joshi) who have devoted time and efforts to share their understandings from the ground. Finally, I commend and applaud the tireless zeal with which our in-house team has worked on the making of this proposal in order to complete it not only in the given time-frame, but to conform to the standard that is demanded of a global city like Mumbai.



Sanjay Bhatia

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Appendix II – Unit wise plans of Proposed Land Use..... **Error! Bookmark not defined.**

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List of Abbreviations

1	BBRRB	Mumbai Building and Repair Board
2	BDD	Bombay Development Directorate
3	BFSI	Banking, Financial Services and Insurance
4	BPCL	Bharat Petroleum Corporation Ltd.
5	BPT	Bombay Port Trust
6	BRTS	Bus Rapid Transit System
7	CGO	Central Government Offices
8	CRZ	Coastal Regulation Zone
9	CSMT	Chhatrapati Shivaji Maharaj Terminal
10	CZMP	Coastal Zone Management Plan
11	DCPR	Development Control and Promotion Regulation
12	DCR	Development Control Regulations
13	DCT	Domestic Cruise Terminal
14	DP	Development Plan
15	DPR	Detailed Project Report
16	ELU	Existing Land Use
17	FSI	Floor Space Index
18	GIS	Geospatial Information System
19	Ha	Hectare
20	HPCL	Hindustan Petroleum Corporation Ltd.
21	HT Line	High Tension Line
22	HTL	High Tide Line
23	ICT	International Cruise Terminal
24	IPT	Intermediate Public Transport
25	JNPT	Jawaharlal Nehru Port Trust
26	MbPT	Mumbai Port Trust
27	MCGM	Municipal Corporation of Greater Mumbai
28	MCZMA	Maharashtra Coastal Zone Management Authority
29	MMRDA	Mumbai Metropolitan Region Development Authority
30	MoEF	Ministry of Environment and Forest
31	MRSAC	Maharashtra Remote Sensing Application Center
32	MRT	Mass Rapid Transit
33	MSEDCL	Maharashtra State Electricity Distribution Company Limited
34	MTHL	Mumbai Trans Harbour Link
35	OCT	Off-shore Container Terminal
36	OGPD	Orange Gate Prince's Dock
37	PLU	Proposed Land Use
38	POZ	Port's Operational Zone
39	PPH	Persons per Hectare
40	PPP	Public Private Partnership
41	PWFDZ	Port's Water Front Development Zone
42	RDDP	Revised Draft Development Plan
43	UTES	Rail India Technical and Economic Service
44	RO-PAX	Roll-on Roll-off Passenger ferry

45	ROS	Recreational Open Space
46	ROW	Right of Way
47	SPA	Special Planning Authority
48	STP	Sewage Treatment Plant
49	SQM	Square meter
50	TOD	Transit Oriented Development
51	TSE	Treated Sewage Effluent
52	UDD	Urban Development Department
53	URDPFI	Urban and Regional Development Plans Formulation and Implementation

1 INTRODUCTION

1.1 Background

One of the oldest ports in India, Mumbai Port has evolved in keeping with the changing demand and developments. Port's cargo profile has shifted from bulk and break bulk to liquid bulk which is transported through pipelines not adding to the traffic woes of Mumbai city. Following the evolutionary trajectory, the Port Trust has now decided to create Sea Transport and Sea Tourism activities in the Port area so as to develop new facilities and tourist attractions while opening up the waterfront. For this purpose, MbPT also appointed internationally acclaimed consultant M/s HCP DPM, Ahmedabad for planning the port area to the extent of 500 ha. land. The consultant after detailed study and analysis prepared the Conceptual Master Plan for the area. The Master Plan was approved by board of trustees of Mumbai Port vide resolution number 13 dated 27-04-2018. In order to expedite the planning and implementation, MbPT requested the state government to appoint MbPT as Special Planning Authority for an area of 966.30 ha. The Government of Maharashtra, in Urban Development Dept., appointed MbPT as 'Special Planning Authority' for an area of 966.30 Ha. MbPT has accordingly, prepared a 'Planning Proposal' under clause(d) of sub-section (3) of section 40 read with section 115 of the M.R. & T.P. Act 1966.

1.2 Historical context of the Port

1.2.1 From Harbor to Port

Till 1662 the harbor and the islands remained under Portuguese rule for over hundred years before they were transferred to British through the marriage treaty of King of England and daughter of King of Portugal in 1873. The present statutory autonomous Port Trust was set up for administering the affairs of the Mumbai Port.

The opening of the Suez Canal in 1869 revolutionized the maritime trade of Mumbai. It shifted the whole scenario of import and export trade from the East coast to the West and Mumbai port became the principal Gateway of India.

The first wet dock constructed in India was the Sassoon Dock at Mumbai in 1875 followed by the Prince's and Victoria Docks in 1880 and 1888 respectively. However, presently Prince's and Victoria basin were filled up to convert the area as temporary stacking yard for containers in connection with 'Offshore Container Terminal'.

The Port Trust Railway from Ballard Pier to Wadala was opened in 1915. Along this railway were built grain and fuel oil depots. The kerosene oil installations were developed at Sewri and for petrol at Wadala.

The Alexandra Dock, the most modern of Mumbai's docks, was constructed in 1904-1914 and renamed as Indira Dock in January 1972. To handle petroleum products and liquid chemicals, a jetty was constructed at Pir Pau in 1923 and a new modern jetty capable of handling tankers of 47,000 displacement tons was commissioned in December 1996. A modern oil terminal at Jawahar Dweep with three berths was constructed between 1952-1956, and the fourth oil berth capable of receiving tankers up to 1,25,000 displacement tons was constructed between 1980-1984.

1.2.2 Post-Independence

Post-independence, the Mumbai city expanded drastically and a number of suburban towns were incorporated within the city limits such as Borivali, Andheri, Malad, and Bandra. In 1960, Bombay became the capital of newly formed Maharashtra state. Today, Mumbai is the fourth most populous city in the world.

Map 1: Shift of activities from MbPT to JNPT



Being one of the oldest ports in India, the Mumbai port was proving to be structurally inadequate to meet the requirements of modern cargo handling. Shallowness of the channel, congestion of roads and railways through the Mumbai city linking the port to its hinterland, as well as labor problems, including over-manning, were among the major problems ailing the Mumbai Port in the pre-reform days. As a result, the Port was simply incapable of handling the expanding volume of modern cargo directed to the west coast and there was an urgent need for a new port in the Mumbai region, which eventually led to the birth of JNPT in 1989. MbPT has since then, diversified to activities such as oil bunkering, export of car, etc...

At present, MbPT without reducing the port activities, is concentrating more on tourism and water transport related activities such as International Cruise Terminal, Domestic Cruise Terminal, RO PAX Terminal and Marina. Mumbai Port envisages to become a major cruise destination of India.

1.3 Surrounding Development

The area of Mumbai Port is in close proximity to some of the most valued areas of the country in terms of real estate such as Nariman Point, Colaba etc. It is also one of the most premium waterfronts with waterfront edge of over 21 kms in length.

Also, in terms of connectivity the land has immense development potential due to the Harbour suburban railway line and the Eastern Freeway running along its full length from North to South.



1.4 International Experience

Similar situation occurred to major old ports across the world. They had similar physical condition such as old dilapidated buildings, lack of infrastructure due to reduction in the port activity. These ports are now transformed into thriving townships. Some of the examples are as follows:

1.4.1 London Dockyards

Similar to Mumbai Port, London Dockyards was also one of the largest and busiest port of the world. These docks played a key role in growth and development of the city of London since 16th to 20th century.

The World War – II crippled the docklands and many older buildings were lost and hence, it was closed between 1960 to 1980. The Canary Wharf Developers played an active role in improving the transport link to the port area. Today, the area is completely developed as Township with residential, commercial, business offices, etc. The success of the project is - better connectivity, creating jobs and better modern day infrastructure.

1.4.2 Battery Park City

Similar to Mumbai Port, Battery Park City, near the New York City, was once the home of the container shipping and sea port traffic, but due to the advancement in the technology, the port became unused. It was felt pertinent to transform the Battery Park City into residential, commercial and recreational city. The city followed the grid pattern for the roads similar to lower Manhattan city. It has 36 acres of world class parks and open spaces.

Some takeaways from the study of Battery Park City have been incorporated in the Planning Proposals such as recreational park, development of marina and proper connectivity to the other part of the city.

1.4.3 Baltimore – Inner Harbor

Baltimore is the largest city in the United States in the State of Maryland. The Baltimore inner harbour was located in the centre of the city. Having a harbour just like Mumbai, Baltimore was once a major port hub. Baltimore's port activity stopped due to limitation of Baltimore harbour. Containerisation of cargo required bigger size vessels and the shallow depth of the inner harbour restricted these vessels from entering the harbour. They were forced to lighten their load about 20 km south of Baltimore which was a similar case of Mumbai Port.

As shipping activity at the harbour declined and the area became dead, the Government of Baltimore took the initiatives for the redevelopment. The waterfront was gradually transformed to award winning parks and plazas surrounded by office buildings, hotels and visual attraction and become a model for Urban renaissance. The success can be attributed to -

- Well planned and strategically located tourist activities,
- Plazas, parks and gardens,
- Well-built metro system that connects city and suburbs with the inner harbour.
- Thriving business districts well served by hotel and restaurant,
- Water taxis and evening cruises

Today the inner harbour draws about 14 million visitors annually and provides employment to 3000 workers. The Planning Proposals have been framed aiming at similar goals.

1.4.4 Barcelona Harbour

Like Mumbai Port, Port of Barcelona was once a bustling port of Europe. The development of sea transport and cargo handling technology requires larger depth which left the area underutilized. Barcelona was the home of the people associated with the fish trading and industries around it.

The Olympic of 1992 was used as an opportunity for the renewal along the main waterfront area. The main objectives of the renewal were

- Opening of the port to the city
- Introduction of recreational and leisure activity,
- Reutilizing the port area which could house more activities in accordance with its present needs

without losing the harbour character.

Today, the Barcelona sea front is converted as first class beach which is main tourist attraction. Port Vell, a part of the redevelopment, is now a central part of the city and is a tourist attraction with large aquarium, theatres, malls and open spaces.

The redevelopment was a huge success and Olympic game 1992 gave it worldwide exposure. It attracts more than 15 million people every year, creating job opportunities for locals and generating revenue for the city. MbPT proposals have also drawn upon the principles of Barcelona seafront redevelopment.

A comparative statement of the all the above examples to assess the contextual development pattern is given below:

Table 1: Comparative assessment of case studies for Port area Redevelopment

Project	Isle of Dogs London, UK	Battery Park, City, New York, USA	Baltimore Harbour, Baltimore, USA	Barcelona Harbour, Barcelona, USA
Time period	1980s	1980s	1958 - 1980s	1988 - 1992
Area (Approx.)	350 ha	37 ha	60 ha	-
Previous use	Port related activities	Port related activities	Port related activities	Port related activities
New Development Character	Business District	Mixed – Use District	Tourist and Business District	Tourist District
New Uses	<ul style="list-style-type: none"> • Residential • Commercial • (Offices & Rental) 	<ul style="list-style-type: none"> • Residential • Commercial • (Offices & Rental) • Recreational 	<ul style="list-style-type: none"> • Residential • Commercial • (Offices & Rental) • Recreational 	<ul style="list-style-type: none"> • Residential • Commercial • (Offices & Rental)
Reason for redevelopment			Economic downturn, high unemployment, Olympics 1992	
Redeveloped by	LDDC (corporation)	BPCA (Authority)	PPP (60% Public – 40% Private)	Autonomous Port of Barcelona/ Port 2000
Public Transport	Bus, Metro, Rail	Bus, Metro, Rail	Bus, Metro, Rail	Bus, Tram, Metro, Rail
Water Transport	Inter/ intra city Water Bus Ferry	Inter/ intra city Water Bus Ferry	Inter/ intra city Water Bus Ferry	Inter/ intra city Water Bus Ferry
Ropeway / Cable Car				Cable Car
Source: Report on Existing Situation Study by M/s HCP Consultants				

Upon comparing the four case studies that have similar context as MbPT-SPA area, it is found that the development of all four port lands is dominated by business and tourism activities. This, and other takeaways like development of water transport, ropeway, mixed use, open space, etc... were kept in mind while developing the planning proposals.

1.5 Ministry of Shipping Initiative

Mumbai Port Waterfront and Port Land Development Report

Ministry of Shipping appointed a committee named as 'The Mumbai Port Lands Development Committee', for the regeneration of the Eastern Waterfront under the Chairmanship of Shrimati Rani Jadhav, former Chairperson of Mumbai Port Trust, the others members were leading Architects, Urban Planners, etc. The priority actions proposed by the committee are

1. Projects such as water transport terminal, cruise terminal, marina and helipad should be incorporated in the vision plan.
2. The MbPT area can be linked to the existing mass traffic transit corridor by Metro and BRTS.
3. The sixth transit corridor should be waterfront transit corridor which comprises water transport for inter-city and intra-city connectivity. This MRT should also provide for Roll On Roll Off berth for passengers and others small vehicles.
4. The eastern waterfront should be opened up for public.
5. Atleast 30% of land should be converted to create parks, gardens and sports facility and maidan. A large entertainment and recreational zone of international standards shall be created with tourist attraction such as maritime museum, aquarium. The existing railway station at CSMT and Wadala shall be overhauled.

This report has been referred for preparation of the Planning Proposal.

1.6 Other studies

On the Redevelopment of Mumbai Port Land various organisation studied the situations and also came up with certain suggestion. Some of the studies are:

- i. Land Use Plan for Mumbai Port by Rites
- ii. A Citizens Vision Plan Opportunity Mumbai: Re-developing the Port-Lands for a livable Mumbai-A Port Lands Initiative by Citizens To Re-Imagine Mumbai
- iii. Transforming Mumbai into a world-class city, A Bombay First – McKinsey Report
- iv. Development of Business Plan for Mumbai Port by KPMG Advisory Services Pvt. Ltd.

The planning Proposal have been prepared after studying the proposals given in the above reports.

1.7 Takeaways from the existing studies and case studies

Some of the key takeaways that will be incorporated within the Planning Proposal, from the various international cases and other reports and studies that have been discussed in the previous sections are -

- Area is to be mainly developed for waterfront activities, port tourism and open spaces
- Develop a robust grid road network in line with the existing road pattern
- Exploit the commercial potential of the area
- Mixed land use development

1.8 Constitution of MbPT as SPA

The area of land identified for planning within Mumbai Port is 966.30 Ha of stretching from Sassoon Dock to Wadala. However, the area of Radio club is not included.

The Urban Development Department, Government of Maharashtra, vide their notification No.TPB-4317/492/CR-289/2017/UD-11 dated. 23.04.2018 appointed MbPT as 'Special Planning Authority' under section 40 (1B) of the MR & TP Act, 1966 for an area of 966.30 Ha. The Notification was published in the Government Gazette on 24~30 May, 2018. Notification is enclosed as Annexure – I.

1.9 Notified Planning Area

The main areas within the jurisdiction of MbPT included in the SPA jurisdiction are

- Sassoon Dock, Colaba
- Ballard Estate,
- Indira, Victoria and Prince's Docks
- Elphinstone Estate
- Mazagaon
- Darukhana
- Sewri - Cotton Green area
- Wadala

In addition to offshore land, an area of 120 Ha from waterbody along the Haji Bunder has been added in the SPA jurisdiction. Out of the total Planning Area of 966.30 Ha., around 935.90 Ha. land is owned by MbPT and remaining land belongs to other land owners.

A map showing jurisdiction of SPA is attached as Annexure – II.

2 EXISTING SCENARIO

2.1 The surrounding

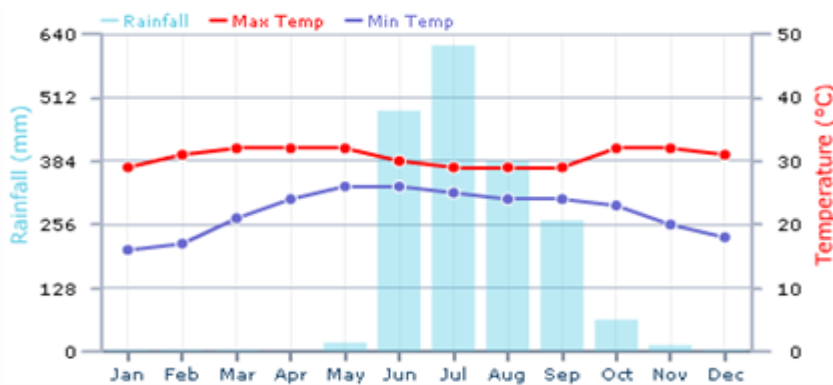
Adjacent to SPA area, lie core business areas of Mumbai such as Nariman Point, Fort, inner city markets; residential areas such as Bhuleshwar; erstwhile industrial lands of Parel - Lalbaug and early twentieth century suburbs of Dadar - Parsee Colony.

The eastern waterfront consists of an extensive road and rail network. This transport infrastructure provides link to the main regional corridors of the Eastern Freeway and Central Railway line. Additionally, there are a few locations on the waterfront that are used as passenger terminals for inter-city water-based traffic like the Gateway of India and the Bhaucha Dhakka. There is a clear inadequacy of linkages to the city from the port land. The east-west connections are few resulting in eastern waterfront being largely excluded from the imagination of the city.

2.2 Climate

Due to the moderating influence of the sea, the temperature in Mumbai undergoes little seasonal fluctuation. May is the warmest month of the year, when the temperature averages 32° C (90°F), although temperatures as high as 40°C (105°F) can be reached occasionally. January is the coldest month, and averages 24°C (75°F), although a temperature as low as 18°C (64°F) is not unknown. The humidity is often very high in the months when the temperature is at its peak.

Figure 1: Annual variation of weather pattern in Mumbai

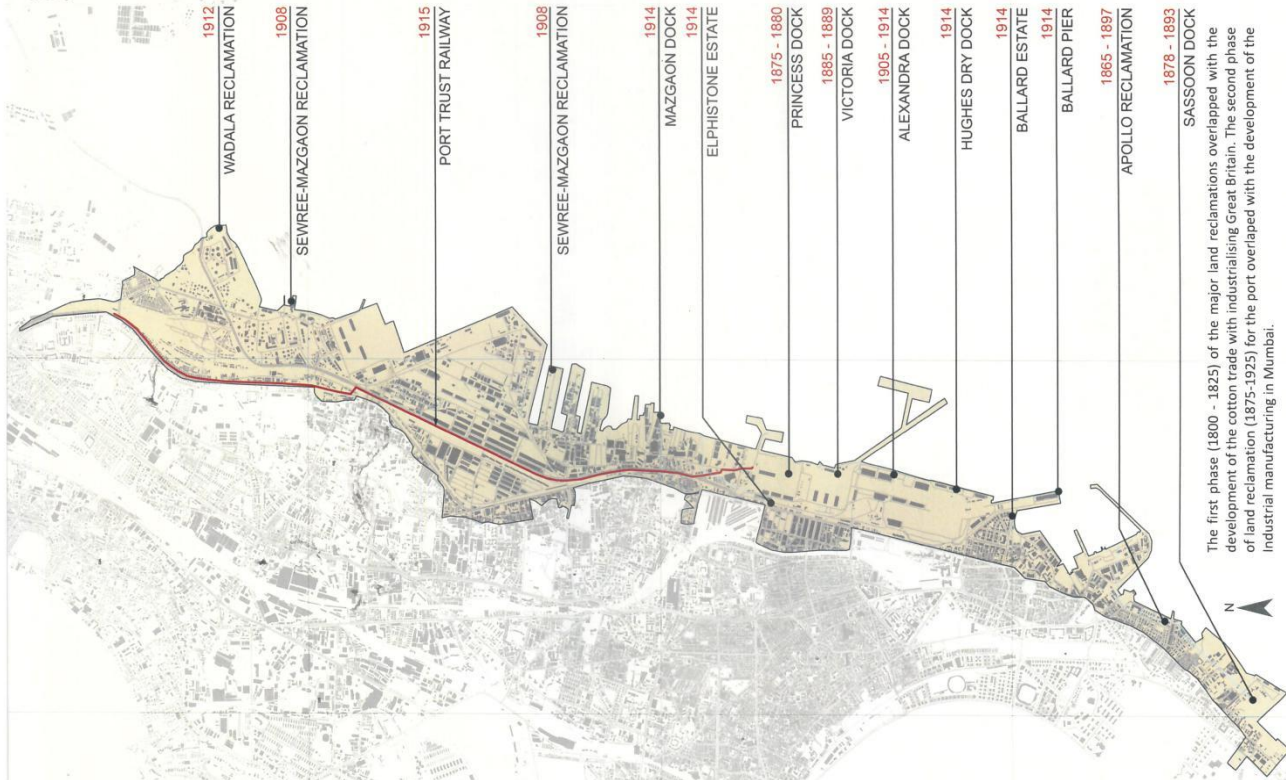


Source: 'Existing situation study for Master Plan for Mumbai Port Trust' by HCP DPM Pvt. Ltd.

2.3 Existing land use Survey

The Existing Land Use (ELU) map has been prepared on the basis of MbPT Estate data, existing land use plans prepared by MCGM as a part of Draft Development Plan 2034 and the total station survey carried out by MbPT for all the lands.

Map 2: Timeline of development in Port area



2.4 Existing Land Use Classification

For the Existing Land Use, map has been prepared on the basis of total station survey data, several categories and sub-categories of land uses were listed along with utilities and amenities that were then recorded and mapped during the survey. In addition, colour codes for representation during the mapping of these land use categories were finalized with reference to the DP 2034 prepared by MCGM. These are detailed below.

Table 2: Table showing the land use classification used for Existing Land Use Map

Main category	Sub-category	Color	Label
Residential	Individual Housing / Apartment	Yellow	R1
	Government / Municipal staff quarters/ housing	Orange	R2
	Slums / Clusters	Brown	R3
	Urban Villages	Light Yellow	RU
Commercial	Retail Markets	Blue	C1
	Hotels	Blue	C2
	Warehouses	Purple	C3
	Offices And Business Offices	Blue	C4
	Commercial And Residential	Blue	C5
	Other Commercial Activity	Blue	C6

Industrial	Industry		I1
	Industrial Storage		I2
Port	Port		PO
Transport and Communication	Transport		T1
	Post office/Telephone exchange/Radio station		T2
	Petrol Pump		T3
	Railway Transport		T4
Educational	Colleges / Institute		E1
	Schools		ES
Medical	Dispensary / Public health centre		M1
	Hospital / Municipal hospital / Super/ multi specialty hospital		M2
	Other Medical Facility		M3
	Cemetery / Burial Ground		M4
Natural areas and open spaces	Natural Areas		N1
	Waterbody		N2
	Open Spaces		N3
Public/ Semi-Public	Offices		O
Social amenities	Welfare Activity		S1
	Entertainment Centre		S2
	Religious Spaces		S3
	Law & Order		S4
Public utility and facility	Power		U1
	Water		U2
	Sewage		U3
	Solid Waste Disposal		U4
	Fire Brigade		U5
Vacant	Vacant		V
	Vacant And Building		V+B

Defence	Land Owned By Defence		DF
Heritage	Heritage		H

2.5 Creation of GIS Based Map

The Base map is formed through a series of overlays of spatial data layers created on the total station survey carried out by MbPT on a satellite imaginary. The following is a description of the components used in the base map preparation:

- a) Base layer - The Total station survey carried out in 2017 and high-resolution satellite images provide by MRSAC have formed the base layer of the Base Map.
- b) Data layers - Several layers have been created on the above base layer which includes
 - Jurisdiction boundaries: SPA jurisdiction boundary, Ward boundaries, Town Planning Schemes, MbPT unit boundaries and other boundaries of spatial disaggregation;
 - Physical features: Street blocks, buildings, property (cadastral parcels as far as data is available);
 - Transportation: Freeway, roads, road centre lines, railways, railway stations, water based transportation facilities, and all other transportation infrastructure parcels and networks;
 - Utility infrastructure: High tension lines, water pipelines (visible above ground), sewage and solid waste management facilities, etc.;
 - Environmentally sensitive areas: Nallas, mangroves, water bodies and Coastal area etc.
 - Heritage Conservation areas: Designated heritage structures and precincts.

2.6 Surrounding Land Use

While planning for various land uses and activities in Planning Area, it is important to understand the land use character of its context. The land of Mumbai Port Trust covers almost 10% of the Mumbai Island and is situated at the prime location along its eastern waterfront.

Land uses in the Planning Area range from commercial, office uses in south to warehousing, residential and institutional uses in north. However, outside MbPT jurisdiction, areas west of Sewri and Cotton Greens are now beginning to experience transformation and gentrification, where high-end high-rise residential and office complexes are coming up.

Majority of Mumbai Port Trust land towards east & south of Yellow Gate is currently under Port related uses which includes Indira dock, Mazgaon Dock, International Cruise Terminal and Offshore Container Terminal. A significant portion of the Bunders, i.e. Coal Bunder, Lakdi Bunder and Tank Bunder, are occupied by Industrial uses which include ship breaking and related activities. Also these areas have residential uses in form of informal settlements and slums. Majority of formal residential uses are concentrated in Wadala, Mazgaon and Colaba area under MbPT Colonies.

2.7 Transport and Communication

Roads: Apart from the Railways, the SPA area is well connected to rest of Greater Mumbai through several road connections. These include 16.9 km long Eastern Freeway, P. D'mello road, and Ba. Nath Pai road. These roads are today main spines of the area. There are few east-west connections to the rest of the Mumbai city at different locations from north to south.

Railway: The main accessibility to the area is through the suburban rail network. The Harbour line passes along the western boundary of the area which connects Central Railway, Western Railway and Trans-Harbour Railway. There are six railway stations which give access to the area namely, Wadala, Sewri, Cotton Green, Reay Road, Dockyard road, and Masjid. In addition, a mono rail connectivity also exists from Wadala to Chembur.

Waterways: The jetty at Gateway and Bhaucha Dhakka, provide passenger services to the main land for Uran, Mandwa and Elephanta Island. Recently developed International Cruise Terminal, connects Mumbai to the rest of the world through cruise movement. On an average 50 cruise ships sail per year from the International Cruise Terminal situated at Ballard Estate. As per the study conducted by Ministry of Shipping GOI, Mumbai has a potential of nearly 700 cruises per year.

A domestic Cruise service has recently started from the Victoria Wharf. Presently a cruise is plying on alternate days with a capacity of 300 passengers per trip from Mumbai to Goa and vice versa.

Airport: Mumbai Airport which is about 24 km away from the site (with international and Domestic terminals) is an important air traffic node of the country. Air traffic in 2031 is projected to rise to 54 million (Domestic) and 21 million (International) from about 30.2 million (Total) presently.

A new International airport is under construction across the sea on the main land of Navi Mumbai. Once connected by water transport the distance as crow flies will be 21 km. The airport is expected to start its operation by 2021. MbPT is also planning to start water transport to the airport.

Port traffic: On average 1700 trucks enter and leave the port from Orange Gate at Wadi Bunder and Yellow gate at Carnac Bunder. The area around the Orange gate is experiencing the Traffic circulation issue and long queues of Trucks are seen along the roads.

2.8 Existing Land Use

The ELU 2018 provides information regarding the various current uses of land and the extent of development. Based on the ELU 2018, an assessment of the various land uses and their distribution was done at the level of SPA Jurisdiction. The estate data of MbPT was already divided in 13 units within the SPA area. The same units with minor modifications are used for ELU analysis. A GIS database has been created which includes spatial and non-spatial data pertaining to Existing Land Use, social infrastructure and physical infrastructure.

2.9 Land Use Distribution (Entire ELU Plan with all layers)

MbPT SPA area measures 966.30 Ha. This includes the 120 Ha of area under water bodies along Haji Bunder area.

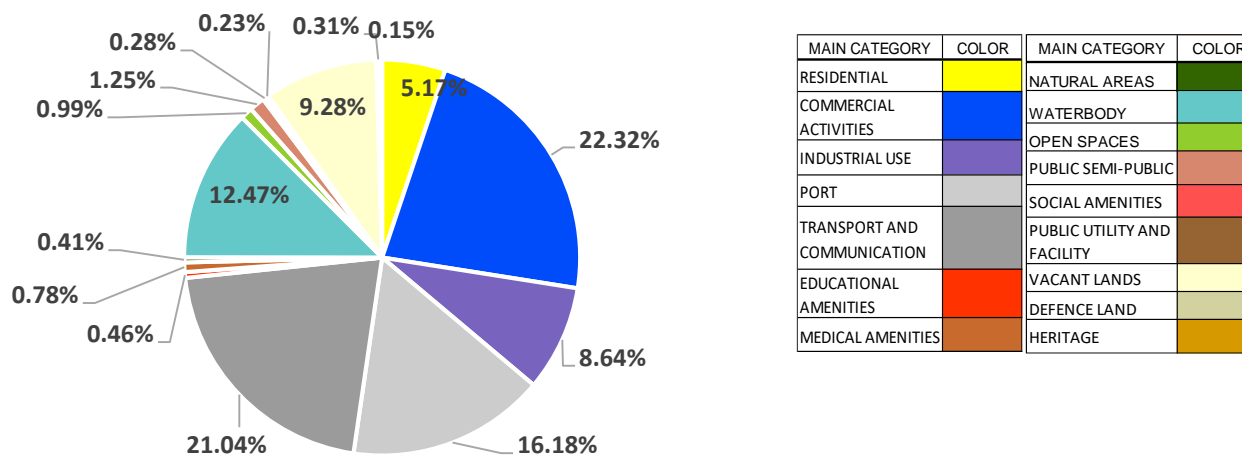
Table 3: Area Statement for Existing Land Use

Main category	Color	Sub-category	Area (in Ha)	Percentage
Residential		Individual Housing / Apartment	3.53	5.17%
		Government / Municipal staff quarter/ housing	32.19	
		Slums / Clusters	11.79	
		Urban Villages	2.42	
		Sub Total	49.93	

Commercial		Retail Markets	16.09	22.32%
		Hotels	0.85	
		Warehouses	164.72	
		Offices And Business Offices	22.54	
		Commercial And Residential	5.04	
		Other Commercial Activity	6.44	
		Sub Total	215.69	
Industrial		Industry	8.47	8.64%
		Industrial Storage	75.04	
		Sub Total	83.51	
Port		Port	156.36	16.18%
		Sub Total	156.36	
Transport and Communication		Transport	179.55	21.04%
		Post office/Telephone exchange/Radio station	0.01	
		Petrol Pump	1.63	
		Railway Transport	22.11	
		Sub Total	203.30	
Educational		Colleges / Institute	3.68	0.46%
		Schools	0.75	
		Sub Total	4.43	
Medical		Dispensary / Public health centre	0.08	0.78%
		Hospital / Municipal hospital / Super/ multi-specialty hospital	4.83	
		Other Medical Facility	0.48	
		Cemetery / Burial Ground	2.15	
		Sub Total	7.54	
Natural areas and open spaces		Natural Areas	3.96	0.41%
		Waterbody	120.52	12.47%
		Open Spaces	9.62	1.00%
		Sub Total	134.10	
Public/ Semi-Public		Offices	12.11	1.25%
		Sub Total	12.11	
Social amenities		Welfare Activity	0.92	0.30%
		Entertainment Centre	0.12	
		Religious Spaces	0.42	
		Law & Order	1.40	
		Sub Total	2.87	
Public utility and facility		Power	1.46	0.23%
		Water	0.03	
		Sewage	0.39	
		Solid Waste Disposal	0.04	
		Fire Brigade	0.34	
		Sub Total	2.25	
Vacant		Vacant	78.45	9.28%
		Vacant And Building	11.26	

		Sub Total	89.72	
Defence		Land Owned By Defence	3.01	0.31%
		Sub Total	3.01	
Heritage		Heritage	1.50	0.15%
		Sub Total	1.50	
Total			966.30	

Figure 2: Pie-chart showing percentage distribution of existing land use



As evident from the pie-chart, the Planning Area has only 16.18% of the total area under core port related activities. Of the 22% area under commercial use, 17% (of total area) area is being used for warehouses, most of which are functioning below capacity due to changing nature of port traffic. Apart from this, nearly 10% of the area is lying vacant or is occupied by dilapidated structures and is not being used for any productive activity.

2.9.1 Unit Wise Existing Land-use Character

a) Wadala Estate

Unit 1.1 (Wadala estate): Majority of residential quarters in Wadala are under MbPT colonies. Part of Wadala also consists of rail yard and institutions such as Mumbai Institute of Management & Research, knowledge centre etc. The area has excellent access from freeway, Suburban Railway, Mono Rail.

Unit 1.2 (Sewri Wadala Estate): This area is predominantly occupied by oil companies with their oil installations and oil tanks. The presence of these installations is due to the proximity of oil refineries and terminal at Mahul. The land towards the north east of Wadala Estate consists of Swamps and Saltpans. The area includes the sixteenth century Sewri fort and Sewri Koliwada village. This area also includes mud flats and flamingo watching point that gives nice view of mangroves and Flamingoes.

b) Area along the B. Nath Pai road - Unit 2 (Sewri Estate) and Unit 6 (Reay Road))

The area is divided in multiple plots as per the land ownership of MbPT. The area mainly includes Godowns, Industries and commercial shops. Large timber units are also operating in this area. It also includes the BDD chawl which has residential tenements. Govt of Maharashtra has evolved a

separate Redevelopment Policy for BDD Chawl. Since units 2 and 6 abut the main spine road, they have very high development potential.

c) Cotton Depot and Hay Bunder - Unit 3 (Cotton depot), Unit 4 (Coal & Grain depot), and Unit 5 (MSR estate)

The Cotton Depot area primarily consists of Ferro cement concrete structure with portal frames constructed around 1925 for the storage of cotton bales. The area consists of warehouses & godowns, land leased to air force defense area and vacant land. It also consists of the lands leased to large companies like Hindustan Lever, Modi Tyres etc. which are currently not being used for operations. College of Advanced Maritime Studies and Research is also located in this area.

These units combined have the longest waterfront in MbPT area. The area has access from Sewri, Cotton Green and Reay road suburban railway station. Considering the nature and extent of land it is the main center of development within the MbPT Planning Area.

d) Darukhana and bunders - Unit 7 (Darukhana) and Unit - 13 (Brick, Lakdi, Coal & Tank bunders)

The three finger profile Bunders were built in the nineteenth century for maritime trade in wood and coal from neighbouring states but have lost their relevance in the present economy. Parts of these areas have been replaced by wholesale iron and steel storage and large chunks of the bunders have been encroached upon. In spite of the steel markets having officially shifted to Kalamboli in Navi Mumbai, retail units continue to exist in the district. The area has haphazard development with narrow roads and unauthorized development. The area was earlier used for ship breaking and repairing. Presently the area has multiple economic activities such as steel market, sand transport, and other godowns. This area also consists light industries and residential area in the form of informal settlements.

e) Mazgaon Dock and Bhaucha Dhakka - Unit 8 (Mazgaon Darukhana) and Unit 9 (Elphinstone estate)

This area mainly consists of Mazgaon dock. However, the area under Mazgaon Dock Ltd which is not owned by MbPT is out of SPA jurisdiction. A large portion of the area is occupied by BPCL Oil depots, MbPT warehouses, Jetties etc. Passenger boat services and fishing is carried out at Bhaucha Dhakka and fish Jetty respectively.

f) Prince's Dock, Victoria and Indira Dock - Unit no 9

Core activities of Mumbai Port are carried out in this area. The Prince's Dock is experiencing a major change by development of projects such as Ro Pax, Domestic Cruise Terminal and proposed Marina. To execute these projects, the area falling under Ro-Pax, marina, DCT and Prince and Victoria Dock waterfront has been de-notified from the custom bound area. The major Truck movement converge and disperse from this area particularly from Orange Gate of the port. Regular traffic jams are seen in this area.

g) Masjid Bunder – Elphinstone Estate - Unit 10 (TP scheme)

The area is covered under sanctioned Town Planning scheme. It is the most congested area due to commercial activities, narrow and encroached roads. This area includes commercial uses and warehouses, which are leased out by MbPT on short tenure. Most of the footpaths within the estate have been encroached upon by slums.

h) Ballard Estate - Unit 11

This is the most planned area of MbPT with historic buildings constructed during British era with ornamental facades and arcades. This area is a Business district and consists of all major corporate offices including MbPT head office, new customs office and the offices of clearing and forwarding agents and shipping companies.

i) Sassoon Dock (Unit 12)

The Sassoon Dock is the first dock constructed in the year 1875. Presently it is the main fish jetty of Mumbai with iconic fish market. The dock is used to export the fish to various countries. The New Sassoon dock was constructed in year 1995. The area experiences heavy traffic congestion during peak period. Due to age, the existing godowns within old Sassoon dock have become dilapidated. The government of Maharashtra in association with MbPT has undertaken a revamping exercise of Sassoon Dock.

Unit wise existing land use maps, statement and analysis are given in Appendix I.

2.9.2 Architecture & Built Character

The built environment within the Planning Area varies drastically across the area. The Sassoon dock area has old and dilapidated godowns, narrow roads, and dense development while Ballard Estate area shows the rich Victorian architecture with monumental buildings, squares, water fountains etc.

The port area has terminals, godowns, port offices and cargo transport areas. The Elphinstone Estate, developed through Town Planning schemes has planned roads. However, the intense commercial activity and slums all along the roads have resulted in overcrowding and traffic jams in the area.

The Cotton Green and Sewri areas which were once thriving due to Cargo movement are now housing old and dilapidated godowns which have been lying vacant for decades.

The Wadala area has mainly Tank forms and old MbPT walk up staff quarters.

According to the ELU survey nearly 25.31 % of buildings are pucca structures, 64.75 % of buildings are semi kattcha structures and remaining buildings are kattcha structures.

The Planning Area does not have tall structures. Majority of the structures are single storey as they are used for warehousing followed by four storey walk up apartments for residential and commercial premises.

2.9.3 Coastal Zone Regulations (CRZ)

The Maharashtra Coastal Zone Management Authority (MCZMA) while preparing Coastal Zone Management Plan (CZMP) considered the Eastern Water as 'Sea' and accordingly delineated a belt of 500 m as Coastal Regulation Zone along the Eastern Waterfront. The area of the CRZ falling within the jurisdiction of SPA is around 719.04 ha. According to sanctioned CZMP, the CRZ is categorized as CRZ – II. The CZMP of Mumbai has been sanctioned by MOEF on 16th September 2018. Planning proposals within the CRZ area shall be implemented subject to the provisions of the prevailing CRZ notification by MoEF at the time of implementation.

2.9.4 Heritage Structures and Precinct

Planning Area consists of various structures of Heritage value. Major heritage structures are:

a) Ballard Estate

Ballard Estate is a Victorian style business district situated in South Mumbai next to Fort. Located between Chhatrapati Shivaji Maharaj Terminus (formerly Victoria Terminus) and Fort of South Mumbai, it hosts the offices of shipping companies and the headquarters of Mumbai Port Trust at the Port House.



b) Sewri Fort

The Sewri Fort is a fort built by the British at Sewri. Built in 1680, the fort served as a watch tower, on top of a quarried hill overlooking the Mumbai harbour. The fort is currently owned by Maharashtra State's Directorate of Archaeology and Museums. It is classified as a Grade I heritage structure in the listing of Model Heritage Regulations by Town and Country Planning Organisation, Delhi.



c) Cotton Exchange Building

The Cotton Exchange Building was built in 1924 and was used for trading in Cotton until 1945. It's an Art Déco building which has been restored. It is classified as a Grade IIA heritage structure.



d) Ghadyal Godi

The Clock Tower also known as 'Ghadyal Godi' is an old building in Port area which today stands in a dilapidated condition. The 'Ghadyal Godi' building is also known as Traffic Office. This was the first building at the Mumbai Port. The building is more than 100 years old. The building is situated near the Carnac Bunder within the Prince's Dock. Since, the building is within the Custom bound area, it is not accessible to general public.

This magnificent structure withstood the massive explosion that took place very close to it in the year 1944. The building is excellent piece of Victorian



architecture. The building has been declared as heritage building by Mumbai Heritage Conservation Committee.

e) Gate of Sassoon dock

The gate is the entrance to Sassoon dock from the Colaba road. It has an elaborate façade with 40' wide entryway. A large clock is affixed to the gate's upper part. The gate has rooms above the entryway.



2.10 Population

The residential area within the SPA jurisdiction is very less compared to other parts of the city. Majority of the residential land is occupied by MbPT and other public offices' staff quarters. The percentage of residential land use to the overall Planning Area is 5.17%.

Since SPA area has a majority share of non-residential land use which draws in a large floating population requiring different amenities and facilities, the population assessment in this exercise has been classified into two categories - residing and floating.

2.10.1 Residing Population

The Planning Area consists of parts of MCGM ward area. Hence census figures are not available for the part of the ward area. However, the analysis document for Development Plan 2034 has given the sector-wise population and accordingly, the residential population within the Planning Area has been worked out as follows:

Table 4: Sector-wise Population in Planning Area

Planning Sector	Population		Gross Density of Planning Sector (PPH)	Area falling under SPA Boundary (Ha.)	Population of Planning Area
	Non Slum Population	Slum Population			
A1.02 (Part)	34123	631	250.79	20.87	5234
A1.04	12	0	1.28	9.36	12
A1.05	800	0	8.43	94.90	800
B1.02	6513	10706	260.78	66.03	17219
B1.03	584	0	6.26	93.34	584
E1.04	5462	5628	85.31	129.99	11090
FS1.04	30064	10879	97.48	420.03	40943
FN1.05	9239	0	246.77	37.44	9239
	86,797	27,844	119.64	871.96	85,121

Alternatively, the residential population has been also worked out on the basis of existing residential area and the average density. The slum population has been worked out on the basis of the in-house survey carried out in the year 2014.

Table 5: Estimated No. of Slum Hutments on MbPT land in year 2000 and 2014

	Description	Area in sqm (in 2000)	Area in sqm (in 2014)	Increase in Area	Hutments (in 2000)	Hutments (in 2014)
1	Darukhana, Tank Bunder, Coal Bunder, Lakdi Bunder, Boat Hard Road	37242.35	52509.05	15266.70	4007	5650
2	Fosbery road, Signal Hill Avenue road, MSR road,	25107.81	40836.52	15728.71	2702	4394
3	Sewri Fort Road & Sewri Bunder Road	6054.07	6254.07	200	651	673
4	Chatai Chawl & Jackeria bunder Road	11290.91	11290.91	0.00	1215	1215
5	Wadala Roali	28649.50	28649.50	00	3083	3083
6	Ryan Grain Market	1052.56	2984.45	1931.89	113	321
7	P D'Mello road & mansion road	0.00	142.70	142.70	0.00	15
8	Khau Creek, Wadala	5362.00	5239.30	123.58	577	564
					12348	15915

Table 6: Estimation of existing residential area

1.	Total existing residential area	=	5,13,572.37 sqm
2.	Population with a density of 787 persons per Ha.	=	40,418
3.	Slum population at 4.4 persons per family	=	70,026
4.	Existing estimated population	=	1,10,444

Thus the existing estimated residing population can be considered as 1,10,450.

2.10.2 Floating Population

The port activity, commercial activity, and port related activity attracts large number of people. The port itself has a floating population of 45,000 per day. Considering density of 800 pph on an area of 215.69 ha of commercial area, the additional floating population attracted is 1,72,552.

The total population including both residential and floating is therefore nearly 3.28 lakhs.

2.10.3 Economic Activities

Economic activities within the Planning Area can be categorized as follows:

- Port activities
- Industrial activities
- Logistic Activities
- Commercial Activities
- Informal Commercial Activities
- Fishing related

Though core port activities are primarily concentrated in the southern part of the site at Indira Dock, port related activities are also present in other parts of the Planning Area such as Sewri, Cotton Green, etc.

Industrial activities in MbPT are of two types: Large scale industries in the form of petroleum godowns such as BPCL and HPCL complex as well as medium and small scale industries spread across the Planning Area in locations like Darukhana and Elphinstone Estate.

Commercial activities in the form of business offices are concentrated in Ballard Estate and present sporadically within Elphinstone Estate, and Darukhana area. Retail commercial that has developed as secondary and tertiary activity for the core uses exists throughout the area.

2.10.4 Social Infrastructure

The area under social infrastructure is also very less i.e. 0.27% of the total Planning Area. The list of existing social facilities is given below.

Table 7: Existing Social Infrastructure within Planning Area

Amenity	Classification	Label	Area (sqm)
Educational	College/ Institute	E1	38,143.61
	School	ES	7507.48
Medical	Dispensary	M1	759.24
	Hospital	M2	48,328.93
	Other Medical facilities	M3	4793.61
	Cemetery	M4	21,509.50
Social	Welfare activity	S1	7895.74
	Entertainment centers	S2	1176.99
	Religious spaces	S3	4224.27
	Law & Order	S4	13,982.35
Total			1,48,321.72

The area under social facility is less mainly due to large chunks of the land that are either not in use or in use for warehousing and commercial activities.

2.10.5 Open spaces

The open space existing as of today is very less. The percentage of open space to the total area is 1.02%. It is mainly due to the old development of the land or warehousing and commercial use. Most of the opens spaces are within residential areas at Wadala, Ballard Estate and Sassoon Dock.

2.10.6 Slum and Informal Settlement

The shift of major port activities to JNPT has led to disuse of many land parcels in MbPT area. Some of these have been encroached by slums and informal commercial establishments. These include unregulated small scale industries such as ship-breaking, marine repairs, copper and aluminum turnings, etc. Many informal scrap markets for iron and steel have also cropped up.

This increase in informal commercial and industrial activities in the port lands was accompanied by the growth of slums on vacant plots. The land parcels that remained unused became havens for slum encroachments. As per the 2014 assessment the number of huts within the Planning Area are 15915.

2.10.7 Environmental Features

Mumbai Port Trust land includes some important environmental features due to its coastal location. These features include mud flats in northern part of the area located between Kerosene Depot and Mahul Creek. This area attracts various bird species including flamingos due to shallow waters that expose mud lands during low tides.

Mumbai Port Trust monitors the environment quality periodically. Corroboration of MbPT's in-house lab results is carried out by comparing results of similar parameters tested by a MoEF approved lab. Based on the two assessments, the water and ambient air quality at various wharves and basins and other parts of MbPT area in the month of July, 2018 is as follows:

Table 8: Summary of findings from air and water quality monitoring

1. In House Laboratory Monitoring				
(A) Analysis of Harbour Water Samples in MbPT Harbour Region				
No. of Locations	No. Of Samples	Name of Parameter	Frequency	Remark
15	30	Colour, Odour, Temperature, PH, Fluorides,Sulphides	Monthly	Parameter found within limit
(B) Analysis of Ambient Air Quality Monitoring in MbPT Premises				
No. of Locations	No. Of Samples	Name of Parameter	Frequency	Remark
7	12	SO ₂ ,NO _X & NH ₃	Monthly	Parameter found within limit
2. MoEF Approved Laboratory (Ultra Tech Laboratory)				
(A) Analysis of Harbour Water Samples in MbPT Harbour Region				
No. of Locations	No. Of Samples	Name of Parameter	Frequency	Remark
11	22	PH, Colour & Odour, Oil & Grease, Turbidity, Total Suspended Solids, DO, BOD, Nitrates, Nitrites, Ammonia, Phosphates, Petroleum hydrocarbon, Polyaromatic Hydrocarbon, Fecal Coliform, Bioassay Test, Phenol	Monthly	Parameter found within limit
(B) Analysis of Harbour Water Samples in Navigation Channel Region				
No. of Locations	No. Of Samples	Name of Parameter	Frequency	Remark
4	8	PH, Colour & Odour,DO, Fecal Coliform, Sludge deposits, Solid Refused Floating Oil, Grease & Scum.	Monthly	Parameter found within limit
(C) Analysis of Ambient Air Quality Monitoring in MbPT Premises & Pir Pau				
No. of Locations	No. Of Samples	Name of Parameter	Frequency	Remark
2	2	(I) SO ₂ ,NO _X , RSPM- PM-10,PM- 2.5, CO, (II) Benzene, Toulene & Xylene at Pirpau	Monthly	Parameter found within limit
2	1	(I)Benzene - at Yellow gate Prince's dock & Orange gate Prince's dock	Monthly	Parameter found within limit
(D) Analysis of Ambient Noise Quality				

No. of Locations	No. Of Samples	Name of Parameter	Frequency	Remark
2	NA	dB(A) Level Leq	Biannual	Parameter found within limit

Readings for all parameters have been found to be within acceptable limits and the planning as well as implementation of this plan will sensitively address the many environmental features within Planning Area.

2.10.8 Cessed Buildings

The housing stock in the Island City is an ageing stock with several buildings over a hundred years old. The Bombay Buildings Repair & Reconstruction Board (BBRRB) was created under the BBRB Act 1969 to deal with dilapidated buildings in the Island City of Bombay and make them safe for habitation. A repair cess was levied on rent controlled residential buildings as per the BBRB Act. Consequently, these buildings are called ‘cessed buildings’. According to MHADA there were 16,104 cessed buildings in Mumbai out of which 413 cessed building are within the jurisdiction of MbPT-SPA. Various FSI concessions have been extended to promote redevelopment of cessed Buildings.

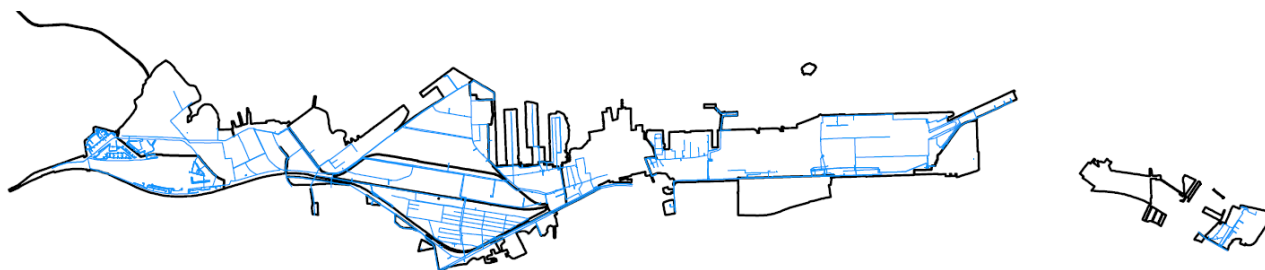
2.10.9 Existing Infrastructural facilities

The present physical infrastructures available in the SPA jurisdiction are part of the overall network of the Greater Mumbai which has been developed and maintained by MCGM.

a) Water Supply

The main sources of the water supply to Mumbai city are the 7 lakes which are situated within Mumbai and Mumbai Metropolitan region. The MCGM is supplying pure drinking water within the limits of SPA @ rate 135 lpcd. The supply system is being maintained by MCGM on the public roads and within the MbPT campus the system is being maintained by MbPT.

Map 3: Existing Water Supply Network

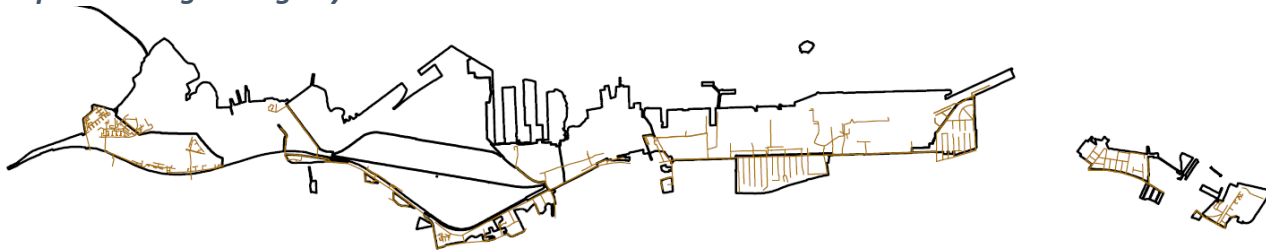


Storage capacity in MbPT: There are 55 ground reservoirs and 4 elevated Reservoirs within the jurisdiction of SPA in MbPT colonies and operational area.

b) Sewage System

Collection conveyance & treatment for MbPT

The MCGM is responsible for the sewage collection, conveyance network within MbPT area. The network was developed by MCGM & MbPT, and same is maintained by MCGM along the roads and MbPT within the premises. The sewage collected is then further connected to MCGM pipe lines at particular locations. The MCGM is responsible for the further network and treatment / discharge.

Map 4: Existing Sewage System**Sewage pumping stations**

Due to flat topography getting the sewage connectivity by gravity is difficult, hence there is one sewage pumping station at Tank Bunder Reay road, near MbPT quarters. The sewage collected from the gravity system on the upstream side leading to the pumping station further pumps the sewage to Love grove pumping station at Worli, Mumbai. There are some septic tanks installed in residential areas specifically in MbPT colonies. The overflow from these primary treatment facilities is then connected to the municipal sewer network. The capacity of the pumping station which was commissioned in the year 1996 is 9600 MT.

Sewage Outfalls within MbPT

There are some outfalls from the premises leading towards the Arabian Sea or creek. These areas get flooded during high tide in monsoon and backflow from the sewage on the surface / streets is a frequent issue. The sewage disposal into natural water bodies is detrimental to the environment. The contamination of natural water bodies also affects the migration patterns of birds often leading to long term ecological damage.

c) Storm Water Drainage

Except the eastern portion of the Cotton Green area majority of the area has storm water drainage systems. The out fall of the storm water is in the sea. Some of the areas at Cotton Green, Mazgaon and Wadala near the suburban railway experience flooding during heavy rains in monsoon.

Map 5: Existing Drainage System**d) Solid Waste Management**

The MCGM is handling the solid waste generated in MbPT Estate. The solid waste is segregated at local collection centers and then transferred to the city level treatment plants. The dry waste is recycled through private operators. The solid waste generated can be classified in two categories -

- a. Solid waste generated within the Docks is around 12 MT per day.
- b. Solid waste generated outside the Dock area in MbPT Estate is around 50 MT per day.

MbPT in association with MCGM is in the process of establishing a solid waste treatment plant with the latest technology which will segregate the total solid waste being generated with the Planning Area and recycle the bio-degradable component to produce energy.

a) Power Supply

The power supply network has been established across the Planning Area. There are three companies who provide power in Mumbai Island city -

- BEST undertaking
- Tata power Ltd.
- Maharashtra State Electricity Distribution Company Ltd.

In the Planning Area power is supplied by BEST and Tata power Ltd.

Map 6: Existing Power Distribution System



3 AIM, OBJECTIVES AND APPROACH

3.1 Aim

Visionary transformation of Mumbai Port area into a Sea Transport & Tourism Hub as per the evolving urban fabric that can serve as a benchmark for port areas in metropolitan cities across India and elsewhere.

3.2 Objectives

1. To develop the eastern waterfront as port and sea tourism destination,
2. To promote water transport to ease the growing traffic issues of the city,
3. To make available, eastern water front facilities to residents of Mumbai,
4. To unlock commercial value of the land and assets,
5. To facilitate sustainable development,
6. To encourage development that promotes walkability through mixed land use, pedestrian and bicycle friendly streets, etc...
7. To create a flexible plan to address the changing demand of the market.

3.3 Review of existing Development Plans

Until now, MbPT area has been planned for by Development Plan prepared by MCGM. However, a large part of the jurisdiction falls within the coastal regulation zone which has different super-ceding norms for development as per CZMP. Therefore, all the different documents that have a bearing on the Planning Area have been studied and the key takeaways are as follows.

3.3.1 Sanctioned Development Plan and Development Control Regulations of 1967

The provisions of the 1967 are reviewed as they will be applicable in the CRZ portion of Planning Area.

Zoning Provisions in Planning Area

In the Planning Area there is only one zone – I2 - Special Industrial Zone and there are no reservations/ designations in the 500 m buffer from the HTL. There is no provision for zone conversion in the development control regulations in the DCR 1967.

Uses permitted

Port and Port related activities, warehousing and non-polluting industry, allied residential such as workers' quarters, banks, telephone exchanges, municipal and government offices, convenient shopping, tea stalls, and small hotels, police stations, post and telegraph offices, fire stations etc. are the permitted uses within Planning Area as per DP 1967. The permissible FSI is 1.00 with 10% mandatory recreational open space for plot sizes equal to or greater than 1000 sq. yards.

3.3.2 Sanctioned Development Plan and Development Control Regulations of 1991

The Sanctioned Development Plan of 1991 is more structured and covers the planning aspects in more details.

Zoning Provisions in Planning Area: In the Planning Area falling in the non CRZ, there are following zones.

Purely Residential Zone (R1 Zone) - Apart from residential use, the following uses and specified ancillary uses to the extent of 50% of the floor space of the principal use shall be permitted in buildings, premises or plots in the purely residential zone – customary home occupations, dispensaries or clinics, nursing homes, students hostel, religious buildings, community halls, welfare centres etc.

Residential Zone with Shop Line (R2 Zone) - The residential zone with shop line in which shopping will be permissible as indicated herein will comprise -

- Plots in a residential zone along roads on which the shop line is marked on the development plan
- Plots in a residential zone along roads having existing or prescribed width between 24m and 31m in the island city.

Uses permitted in this zone are all uses under R1 zone, stores or shops for retail business, shoe repair and sports shops, salons, cafeterias, vegetables, fruit, flower, frozen food shops etc.

Local Commercial Area /Zone (C1 Zone) – Auto parts stores, show rooms, sale of goods and second hand goods, club houses or other recreational activities conducted as business, masala grinding/pounding, paper box manufacturing, mattress making and cotton cleaning etc.

General Industries Zone (I2 Zone) – The general industries zone includes any building or part of a building or structure in which products or materials of all kinds and properties are fabricated, assembled or processed, eg. Assembly plants, laboratories, dry cleaning plants, power plants, pumping stations, smoke houses, laundries, gas plants, refineries, dairies and saw mills.

Special Industrial Zone (I3) – this zone includes any building or part of a building which is used for the storage, handling, manufacturing processing or highly combustible or explosive materials, manufacturing or processing involving highly corrosive, toxic alkalis, acids or other liquids, or chemicals producing flames, fumes and explosive, poisonous, irritant or corrosive gasses, manufacture of synthetic leather, fire-works etc.

Reservations and Designations - As per the modified Draft Development Plan 2034, there were 64 reservations covering an area of 20.41 ha and 19 designations having an area of 12.76 ha.

DCR Provisions

FSI:

- Residential - 1.33
- Commercial – 1.33
- Industrial - 1.00

At present the Sanctioned Development Plan of 1991 is in force for the Jurisdiction of the Planning Area of MbPT.

3.3.3 Sanctioned Development Plan and Development Control & Promotion Regulations of 2034

Revised Modified Draft Development plan 2034 which was submitted to State Govt. covered the Planning Area of MbPT. However, the Sanctioned Development Plan 2034 and Development Control & Promotion Regulations 2034 are not applicable to CRZ area within the Planning Area but applicable to non CRZ areas.

In the revised development plan majority Planning Area was designated in two zones -

- Port's Operational Zone (POZ)
- Port's Water Front Development Zone (PWFDZ)

The POZ is designated for Port, Port related activities and activities permissible in Industrial zone. PWFDZ is designated for waterfront development operational offices, restaurants, hotels and other tourism activities.

Reservations are not shown on the PWFDZ but the DCPR 2034 provides a list of reservations/ designations which are mandatory to be provided while preparing the layout of the PWFDZ.

1. FSI: In the Island city the permissible FSI under Residential and Commercial zone is 1.33 and under Industrial zone is 1.00. Provision for Fungible FSI and Premium FSI has also been made in addition to permissible FSI. The FSI is permissible on net plot area.
2. Recreational Open space provision: In any layout or sub division/ amalgamation for the development of individual plots with single building in a residential and commercial zone, ROS shall be provided in the percentage of 15 to 25% according to the land area of the project.

3.4 Estate management in Planning Proposal

From Estate Management point of view, the entire area of SPA is divided in two parts

1. Areas under active use: Area pockets like Sassoon Dock, Ballard Estate have been earmarked for renewal as not much planning intervention is necessary in terms of new roads and facilities. These areas are fully developed in terms of utilities. The structures are in good conditions. It is therefore, proposed to retain the proposals of the Draft Development Plan 2034 in such areas except the provision of social facilities wherever required.
2. Sub-optimally utilised areas: The areas which are in dilapidated conditions, have vacant plots and the majority of leases have expired are proposed for redevelopment. Mazgaon, Darukhana, Sewri, Cotton Green, and Wadala except area under the petroleum godowns are some such land parcels which would be taken up for complete renewal as per the plan objectives.

Approach for the redevelopment

The highlights of the Planning for the redevelopment area are as follows:

- Focus on development of this area into Sea Transport & Tourism Hub
- Mixed Land uses
- Establishes a robust street network
- Plans for efficient mobility
- Makes accessible and active waterfront development
- Introduces landscape elements
- Reflects on cultural amenities and conserves heritage sites to retain their historic significance
- Develops infrastructure and social amenities
- Builds diverse districts
- Introduces standards for planned, cohesive and harmonious development
- Creates a memorable skyline and image of the city
- Supports sustainable development

Planning proposals have been detailed in the following chapters.

3.5 Planning norms

Planning norms ensure the maintenance of a desirable quality of life for the residents/ users of space. It is important to note that the norms and prescriptions used in different parts of the country are not same; there are variations in nomenclature, unit population stipulations, per capita space prescriptions and minimum area requirements. In this exercise, some of these norms are noted, compared and recommendations are made and the requirements are calculated.

The following planning norms were reviewed and referred to for developing the minimums for provision of various amenities in the Planning Area:

1. URDPFI
2. Navi Mumbai
3. Revised Development Plan for Mumbai
4. NAINA

4 LAND USE ZONES

4.1 Introduction

In order to grow and prosper, any city needs sufficient supply of land and built spaces to provide basic needs such as places for living, working, social amenities such as education and health care facilities, infrastructure facilities and many such others facilities. The Planning Proposal is envisioned to provide livable and vibrant environment to the future population and to become a Sea Transport & Tourism, recreational and economic hub which will add to the unique identity of Mumbai City.

Zoning is one of the important planning tools to manage growth, organize land uses and regulate urban form within the urban area. By regulating land uses it helps to segregate incompatible uses, increase livability and create desirable character for different areas of the city.

Zoning combined with development regulations determines the supply of develop-able land and built space in various zones. Therefore, it is important to understand the demand for development and other factors to organize land use and densities.

Planning Proposal shall be governed by a broader zoning system which will be deciding the permissible uses within the various zones. Zoning shall help in deriving the character of different areas as described in this section.

4.2 Market research and assessment

For land use zoning exercise, a market assessment of the real estate sector of Mumbai Metropolitan Region was carried out by HCP DPM Pvt. Ltd. to understand the regional push and pull factors that would determine successful development of land use in the Planning Area.

4.2.1 Tourism Potential

According to a report on 'Top 100 City Destinations Ranking' by Euro Monitor international, the city of Mumbai attracts 6 million tourists per year making it the 30th most visited location worldwide. While Mumbai has a wide variety of tourist attractions like waterfronts, Victorian architecture, mythological caves, film city, museums and art galleries, etc... its eastern waterfront has largely been locked out of the public realm due to industrial, commercial and port activities.

The MbPT area lies at the heart of the old city of Mumbai. Multiple locational and contextual factors indicate towards the suitability of developing this area as a prime tourism destination such as:

- 14 kms of active waterfront that can be developed for active (ferries and cruises) as well as passive (promenade and eateries) tourism
- Excellent connectivity with the surrounding region via roads, railway as well as waterway.
- Proximity to famous tourism destinations like Gateway of India, Jehangir Museum, Elephanta caves, Marine Drive, etc...
- Presence of numerous heritage sites and activities within the Planning Area that have not yet been popularized as tourist attractions due to lack of supporting infrastructure. For eg. – Sewri Fort, Fish market in Sassoon dock, etc...
- Presence of mangroves that also attract large flocks of flamingoes during migratory season
- Increasing tourist traffic attracted to the area due to the international cruise terminal
- Availability of land for development of large parks

The Planning Proposal will provide for development of the necessary infrastructure around the above mentioned tourist activities.

4.2.2 Commercial Market

Mumbai commercial market has witnessed an accelerated growth in the last 2 decades from South Mumbai to peripheral districts. Growth in the recent years has mainly been driven by IT/ ITeS sector while dominance especially in South Mumbai is still enjoyed by BFSI and media sector.

MbPT-SPA Planning Area is also strategically placed for office space development owing to its close proximity to eastern Freeway. It also provides the ideal location for central and state government offices that require space due to the already present large number of government offices in its vicinity. Supply from MbPT can bridge the demand-supply gap for offices in South Mumbai that exists due to low vacancy and availability of office spaces. BFSI sector along with the quickly emerging start-up sector is expected to be the primary target in private players.

The Planning Proposal has tried to tap the Commercial potential particularly the Business offices, Financial services and the need of office space of government and Public undertakings.

4.2.3 Retail Market

According to Retailer's Association of India (RAI), Mumbai has the highest potential for modern retail at INR 1,05,000 Cr by 2036. Highest density of modern retail in Mumbai is found towards Bandra and Vile Parle despite absence of prominent malls. Central suburbs have higher concentration of Mall space which constitutes nearly 93% of total modern retail. South Mumbai currently has limited quantum of mall development in comparison to suburbs.

Various tourist and local recreational attractions like DCT, the Park, tourism garden, ropeway, etc. that are proposed to be developed in Planning Area, would provide easily tapped clientele to malls. Shopping themed streets similar to Colaba and Bandra linking road can be developed as the generated revenue for such streets are higher than malls. Luxury malls can also witness premium rentals. Residential catchment of surrounding areas like Parel, Sewri and Colaba can also add up to the attraction of the retail space.

4.2.4 Residential Market

Residential market has gradually spilled over from the island city to the suburbs. South Mumbai residential market is primarily high end along with the sea facing Bandra, Juhu, and Worli. While western and central suburbs begin from Malad and Goregaon, and Mulund and Bhandup; Navi Mumbai has emerged as the most affordable belt in MMR.

MbPT area is slated to have multiple high speed high capacity connections to Navi Mumbai with projects like MTHL, Ferry services, CSMT-Panvel high speed rail, etc... that will not only improve the real estate value in Navi Mumbai, but also provide good connectivity to the city centre.

MbPT mainly intends to Develop the Residential area for staff quarters of Government and Public undertaking and also for rehabilitating the Slums.

4.3 Proposed land use zones

4.3.1 Port Operational Zone

Area encompassed by the custom boundary for Port is designated as Port Operational zone wherein the uses would be port related such as terminals, godowns, import-export offices, operational offices, storage, security offices, banks, fuels stations and repair shops along with supporting activities such as restaurants, retail shops, etc. as may be decided by MbPT.

4.3.2 Port Allied Activities Zone

The Port Allied Activities Land Use is sub categories as -

- a. Port Industry: The primary land use in this category shall be the petroleum godowns, petroleum processing units, tank farms, fueling stations, repair workshops, fabrication workshops, public garages and all service industries. The zone will also allow offices of the Industries. The zone will also accommodate service and incubator activities.
- b. Fish Industry and tourism: This sub-zone is designated for the Sassoon Dock area where the primary activity is fishing. At the same time, it is intended to develop this area as fish tourism destination. Complementary service industries, cultural and recreational activities shall be permitted in this sub-zone.
- c. Port Storage: This sub-zone is designated for all the port activities outside the custom bound area which primarily includes storage and warehousing for port related goods. All the supplementary activities of the port operation zone shall be permitted in this zone also.

4.3.3 Port Eco-Tourism Zone

The zone will be primarily used for development of recreational open spaces, and other tourism related activities including cultural, sports, edutainment, etc... along with all supporting activities such as administrative offices, food courts, guest houses, etc. This zone can be sub divided into following categories.

- a. Theme piers and Theme streets: The area designated for theme piers can be developed for various themes such as Bollywood Streets, Yoga and Meditation, Art and Culture, etc. Simultaneously, the streets within the Port Tourism Zone can be developed as Maritime Streets, Multi Cuisine Streets, Maharashtra Streets etc. These activities will attract different age groups and contribute to vibrancy of the area.
- b. Tourism Garden: A large recreational tourism park of international standards, this space is envisaged as a special area that is planned and proposed to contain various uses along with adequate provision of open spaces, parks and gardens. It is located along the waterfront of Haji and Hay Bunder and faces the sea. This area will also include promenade, bicycle streets, jogging parks, central parks, theme parks along with all the supporting facilities such as administrative offices, restaurant, food courts, hotels, clubs, resorts, etc.
- c. Recreational and Tourism Park: One of the reserved open spaces is a large reclaimed Park in continuation with the tourism garden, along Haji Bunder. While care will be taken to minimise the negative externalities of reclamation, the garden would in fact function as a carbon sink and provide a much needed lung space to the citizens of Mumbai city. The area will have minimum built up area comprising only of built space required for operational and maintenance purposes.

- d. Waterfront access belt: The Waterfront access belt mainly comprises of the promenade in Planning Area and is intended for activities responding to the waterfront. The zone shall be a continuous connected promenade which shall be one of the key features of development.

4.3.4 Health Care Zone

The zone can be classified as special area i.e. planned and proposed to be developed with city-level medical facilities supported by ancillary facilities such as diagnostic centres, pathology labs, medical stores, shops, restaurants, hotels, consulting rooms, etc.

4.3.5 Transport Zone

The transport zone includes major roads, railways, railway yards, parking, transport terminals, etc. The transport zone will also have facilities such as multi-modal transfer stations with supporting facilities such restaurants, retail shops, fuel stations, etc.

4.3.6 Natural Area

This zone includes all the mangroves falling within the boundary. No buildable development on these lands would be permissible except few wooden structures.

4.3.7 Commercial Zone

The commercial zone will have predominant commercial uses with offices, retail, wholesale, godowns and service spaces. Thus, this zone will have mixed use character by allowing residential use and service industry. However, warehousing activities of hazardous materials, manufacturing and processing of chemicals, textile product shall not be permissible. The details of the uses permissible in this zone are given in the DCPR. The commercial zone will be utilized for other sub categories such as -

- a. Grand Boulevard sub-zone: The Grand Boulevard shall be developed along the spinal arterial road along the Planning Area and is intended to be a mixed use zone with commercial uses at ground level and residential uses at upper levels with suitable urban design control to enhance and compliment the pedestrian scale.
- b. Business Mix 1: This sub-zone includes the central financial district, central business district, hotels and other business offices
- c. Business Mix - 2: It shall be a general commercial zone.
- d. Business Mix - 3: This sub-zone is envisaged as a commercial warehousing district to support the various activities requiring storage capacities. Amenities and activities supplementing the primary use i.e. warehousing will also be permitted, e.g. - parking, weigh bridge, small retail, etc...
- e. CGO Complex: This area is reserved for Government and PSU Offices. Under this sub-zone, uses such as civic center, conventions centre, banks, convenience shopping, etc. are permitted. However, uses such residential, educational shall not be permitted except Guest Houses.

4.3.8 Residential Zone

The residential zone will have predominant residential use. However, number of compatible other uses would be allowed in this zone to have a mixed land use character including commercial, institutional, etc... The commercial activities allowed in this zone are designed to serve local needs. The residential zone will also allow all social and physical amenities. The details are given in the

DCPR. The residential land use will have various options of development depending upon the site and its requirement such as:

- a) Residential Mix - 1: High Rise high density housing for redevelopment of cessed buildings, dilapidated building, BDD Chawl and Slums.
- b) Residential Mix - 2: Development/ redevelopment for construction of staff quarters for govt. and statutory bodies.
- c) Residential Mix - 3: Development of residential building
- d) Residential Mix - 4: Affordable housing as per state and central govt. policy.

Informal Sector

The Informal Sector plays a vital role in the economy of the city. All development indicates that the informal sector is larger than the formal and is likely to expand further. MbPT proposals shall help in providing space and spatial instruments to facilitate informal sector in a planned and desirable manner not affecting other users of space in any negative way.

The interventions in this regard shall be detailed in the sector/ unit plans and will be provided in the following forms

1. Identification of demand based vending zones
2. Development of daily bazaars
3. Provision of facilities like water supply

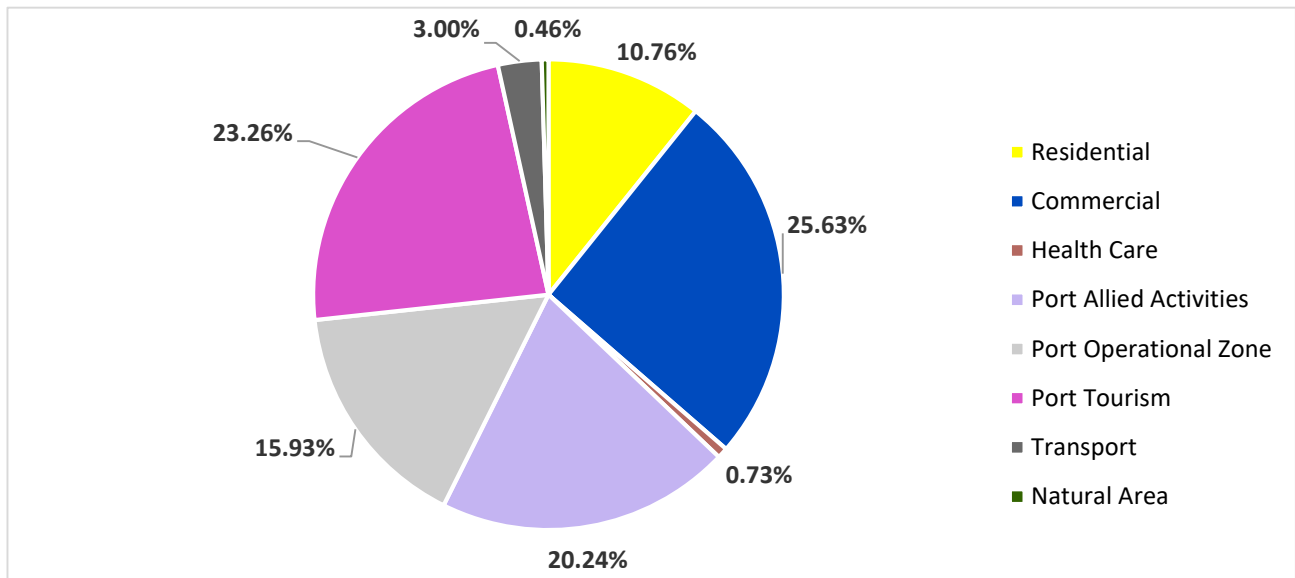
4.4 Land Use Distribution

The proposed Land Use plan designates land use zones as discussed in the previous section. The unit/ sector - wise proposed plans are attached as Appendix II. The proposed land use distribution is given in the table below.

Table 9: Percentage distribution of Proposed Land Use Zones

Sr. No.	Zones	Area(Sq.mt.)	Percentage	Code
1	Port Operational Zone	15,38,962.12	15.93%	POZ
2	Port Allied Activities	19,55,868.05	20.24%	PA
3	Port Eco-Tourism	22,47,639.10	23.26%	PT
4	Health Care	70,272.52	0.73%	HC
5	Transport	2,89,684.04	3.00%	T
6	Natural Area	44,644.77	0.46%	NA
7	Commercial	24,76,554.67	25.63%	C
8	Residential	10,39,404.91	10.76%	R
Total		96,63,030.18	100.00%	

Figure 3: Pie-chart showing the percentage distribution of proposed land use zones



This land use distribution reflects the primary objective of developing the waterfront as tourist destination by providing a large proportion of land to Port Eco-Tourism Zone to be developed mainly in the form of waterfront parks and gardens. Similarly, residential and commercial zones have been provided in order to optimally utilise the land not required for port activities.

To promote fish industry related tourism, the existing land pocket under fishing industry has been designated as ‘Fishing industry and Tourism’ allowing for activities supporting the development of tourism around it.

While detailing the Planning Proposal, all land use zones will consist of a minimum of 60% as the primary designated land use and the remaining area can be used for other permissible uses and activities as listed in the draft DCPR-MbPT.

4.5 Population Projection

The development as proposed will accommodate nearly 2.7 lakh resident population in the Planning Area. The projection has been carried out on the basis of the total built up area under residential use and dwelling unit size (60/30 sqm) and household size assumptions (4.2) as per standard practice.

Unlike most urban areas, the Planning Area has an unusually high percentage of floating population attracted by commercial, industrial, port operation, tourism and healthcare zones. An estimate of the expected population was carried out zone-wise and totals to 4.9 lakhs.

Social and physical infrastructure has been proposed in the Planning Proposal on the basis of the population estimate as discussed in this section.

4.6 Reservation of Amenities

All existing amenities in the Planning Area have been retained as is and are listed in the table below.

Table 10: Existing amenities that have been retained in Planning Proposal

Category	Sub Category	Area (sqm)	Percentage (%) & Code used
Education	School	7,576.28	S
	Higher Education	35,955.56	HE
	Sub Total	43,531.84	0.45%
Health	Dispensary	772.77	D
	Hospital	43,775.99	HO
	Other Medical Facilities	4,793.62	MF
	Sub Total	49,342.38	0.51%
Municipal Service	Water Tank	252.07	WT
	Sanitary Convenience	2,748.47	SC
	Solid Waste Management Facilities	401.04	SWM
	Sewage Pumping Station	337.78	SPS
	Sub Total	3,739.36	0.04%
Open Space	Playground	88,869.04	PG
	Sub Total	88,869.04	0.92%
Public Utility	Fire Brigade	3,319.67	FB
	Fuel Station	15,484.01	FS
	Police Station	15,562.79	PST
	Police Chowki	576.68	PC
	Post & Telegraph	108.37	PO
	Sub Station	13,902.83	SS
	Sub Total	48,954.35	0.51%
Social Amenities	Welfare Centre	8,730.57	WC
	Cinema Theatre	1,176.99	CT
	Cemetery	21,349.15	CEMETERY
	Sub Total	31,256.71	0.32%
Transportation	International Cruise Terminal	26,465.98	ICT
	Sub Total	26,465.98	0.27%
	Heritage Structure	14,162.19	H

Heritage	Sub Total	14,162.19	0.15%
	Harbour/Bay/Basin	3,90,301.44	W
Water Body	Sub Total	3,90,301.44	4.04%
Total		6,96,923.30	7.21%

City level amenities and some already identified projects have been earmarked as reservations as their physical location has been finalised. However, while implementing the projects minor changes in location is permitted. Total requirement of city level amenities for Planning Area has been identified in Table No 9.

As the Planning Proposal will be implemented using Form based development model, some of the required amenities have not been earmarked in the Planning Proposal and will be identified during detailing of sector/ unit plans. Area under different reservations that have been earmarked in the Planning Proposal is shown in table below.

Table 11: Proposed Reservations

Category	Sub Category	Area (sqm)	Percentage (%) & Code used
Education	School & Playground	2,031.63	S
	Sub Total	2,031.63	0.02%
Health	Dispensary	617.64	D
	Sub Total	617.64	0.01%
Municipal Services	Sanitary Convenience	119.51	SC
	Solid Waste Management Facilities	2,390.02	SWM
	Sub Total	2,509.53	0.03%
Open Space	Garden	1,33,022.83	G
	Park	9,43,328.67	P
	Tourism Garden	5,01,690.47	TG
	Play Ground	0	PG
	Sub Total	15,78,041.97	16.33%
Public Utility	Police Chowki	50.03	PC
	Sub Total	50.03	0.00%
Social Amenities	Market	2,253.50	MT
	Port Museum	9,150.26	PORT MUSEUM
	Sub Total	11,403.76	0.12%
Public Office	Municipal Office	896.77	MO
	CGO Complex	58,039.60	CGO

	Sub Total	58,936.37	0.61%
Transportation	DCT	6,138.49	DCT
	ICT	38,577.39	ICT
	Marina	90,906.57	MARINA
	RO Pax	5,371.86	RO PAX
	Ropeway Terminus	10,535.59	ROPEWAY
	Parking Lots	54,640.28	PL
	Sub Total	2,06,170.18	2.13%
	Proposed Roads	18,39,790.77	19.04%
Total		36,98,655.10	38.28%

A list of reservations is enclosed as Appendix III.

5 URBAN DESIGN

Urban design is the process of designing the physical setting for life in urban areas. It involves the design of buildings, groups of buildings, spaces and landscapes to improve both the aesthetics and functionality of these areas. It incorporates the more nuanced elements to public spaces that improve its usability and acceptance. Some of the urban design principles that have been proposed to be used for development of the Planning Area are given below.

Image 1: A well designed space integrating multiple user groups and uses



5.1 Built Form

SPA-MbPT has decided to adopt a form based development at selected locations particularly within the commercial land use zones.

Form based approach defines zones based on the desired urban form and character and defines permissible building envelopes and urban design regulations to create coherent street environment and rich urban experience.

The SPA adopts this form based approach to ensure the desirable urban form and rich, vibrant, and walkable environment. This approach requires identification of permissible building envelope (i.e. the volume within which development is permissible) based on the desired / envisioned urban form.

The form for the development will be defined while preparing detailed unit/ sector/ neighborhood levels plans. It will dictate the envelope of the built form by prescribing the setbacks, ground coverage, height used and other urban design consideration. It will decide the desired skyline of the development.

Form based development will be achieved through formulation of architectural control regulations which will prevail over the other respective development control norms. The approach has been envisioned for Central Financial District, CGO Complex and Grand Boulevard. The final identification

of areas to be developed using form based development and the architectural control regulations shall be approved by SPA-MbPT and implemented accordingly. While deriving the architectural controls, necessary care will be taken from fire safety and other statutory requirements such as civil aviation.

The following sketch shows the probable built form of CGO Complex.

Image 2: Typical block forms as envisioned in Planning Proposal



The illustration here shows how a typical urban block that will be developed via thorough process of precinct planning and development control regulations. Resulting urban form shall vary for each unit and allow the city to develop in time as per the city needs. This kind of approach to development ensures a synthesized built form wherein the benefits shall be distributed to large part of the society.

Architectural elements that will be borrowed from the existing built fabric to complement the volumetric form envisioned above and ensure cohesive development are -

- Arcades
- Built to Line buildings
- Memorable Skyline

5.1.1 Arcades

The historical part of Mumbai such as Ballard Estate and Fort area are characterized by built-to-line developments with covered arcades that allow efficient pedestrian movement, as seen in figure below.

Image 3: Covered Arcade in Ballard Estate

These are envisioned in commercial buildings along the retail shops at the lower two floors. These shall provide shaded covered pedestrian spaces and increase the commercial viability of the retail outlets on the ground floor thus ensuring seamless integration of public and private realm.

5.1.2 Built to line

Means a line on the boundary of a plot up to which the building shall be built for the specified percentage of the length of the boundary. Built-to-line regulates the development of building on a given plot in alignment with the side which abuts important streets while leaving the other sides flexible. Ballard estate and Fort area are best example of the built to line developments in Mumbai. To derive the desired urban form and street character, the sector/ unit plans shall identify the main streets along which developments will be built to line.

5.1.3 Memorable Skyline

Of the several redevelopment features of Eastern Waterfront, considering Mumbai's commercial cum financial position in India as well as the World around, city's image-making through a distinctive skyline is highly significant. As skylines change with time, Mumbai's water edge can be regulated such that it not only enables activities that incite public engagement but also evolves to become a memorable skyline of the City. This will be achieved through planning and design in the form of architectural control drawings.

5.2 Sustainable Development

Mumbai ranked 47 out of 50 in 2016 Global Sustainability Index. Mumbai needs to improve its track record of sustainable development and Mumbai Port Trust must contribute its fair share towards it. While planning for redevelopment of more than 900 Ha of land in heart of Mumbai, the Draft Planning Proposal incorporates sustainable strategies for its different components.

5.2.1 Infrastructure

Proposed development will be served by multiple Sewage Treatment Plants at specific locations according to topography and other important factors, which will use the latest technology and recycle the water that can be reused for purposes like horticulture, cooling, etc...

Also, in terms of solid waste management the development will aim to implement zero waste system, where all solid-waste will be collected and segregated for recycling or treatment.

5.2.2 Transit Oriented Development

TOD shall be incorporated while detailing the sector/ unit plans after the approval of Planning Proposals. Transit Oriented Development (TOD) helps reduce vehicular travel, congestion, pollution and greenhouse gas emissions. The Planning Proposal has been so planned as to run Metro Line 11 through the central areas of MbPT Planning Area and proposes TODs around the stations. TOD will place highest amount of development within walkable distance from metro stations encouraging higher density, mixed use development with walkable streets and block sizes. This will encourage use of public transport, walking and bicycles while reducing dependence on private automobiles.

Image 4: Street-view depicting TOD



The Planning Proposal also integrates Harbor Line and CSMT-Panvel Fast Train corridors, and proposes multi-modal stations for seamless transfer between Metro, Harbor Line and CSMT-Panvel fast corridor. This will provide multiple choices of transport modes, further increasing usability of public transport network.

5.2.3 Built-fabric

MbPT-SPA intend to develop policies to incentivise and implement sustainable built-forms, which will include incentives for use of solar energy, green roofs, incentives for not using glazed surfaces, regulations for ground water recharge etc.

In conclusion, the overall urban form of the Planning Area will be architecturally controlled to limit the total built up area to 25% leaving 75% of the Planning Area for open to sky activities like green open spaces, roads, setbacks, etc...

6 Sea Transport and Tourism

6.1 Sea Transport

Water transport is slowly emerging as a high potential alternative for the space starved city of Mumbai which can lessen the travel time for the people of Mumbai as well as open new avenues of tourism.

In the proposed Draft Planning Proposals, as the long coastline of Mumbai Port is proposed to be open to public use, along with many other proposals such as Promenade, Marina etc., the Water Taxis and Ro-Ro shall act as a major transport alternative within the Island city as well as across the bay. Though the streets in Draft Planning Proposal are planned to cater to motorized traffic as well as public transportation networks as mentioned earlier, the water transport at the proposed Eastern Waterfront of Mumbai shall further relieve the stress on the city transport network.

6.1.1 International Cruise Terminal (ICT)

As per the study conducted by the Ministry of Shipping, there is demand for 700 cruise ships visiting Mumbai Port while presently only 50 to 60 cruise ships come per year. This is primarily due to lack of supporting infrastructure. MbPT has already taken initiatives to construct a state of the art 'International Cruise Terminal' at Ballard Pier Extension (BPX) at Indira Dock. The ICT is expected to boost the economy and employment of the region.

6.1.2 Domestic Cruise Terminal (DCT)

Simultaneously there is huge potential for development of domestic cruise services joining various coastal cities. MbPT has taken a first step to construct a domestic cruise terminal and the cruise service from Mumbai to Goa has already commenced. The DCT will also contribute to coastal tourism.

6.1.3 RO PAX Terminal

A RO PAX (Roll-on Roll-off) terminal has already been developed by MbPT at Prince's Dock which will enable trips using ferry for long haul and motorised vehicles for first and last mile connectivity. Presently, it is proposed to connect to Mandwa and Nerul at Navi Mumbai. The infrastructure at Mumbai and Mandwa is ready for operation. The RO PAX will reduce the distance of Mumbai to Alibaug by about 4 hours.

6.1.4 Water Taxi

The domestic cruise terminal will also allow water taxis to ply to other destinations across the main land. A proposal is being put to connect the Navi Mumbai International Airport site to Mumbai Port through water taxis.

6.1.5 Sea-Plane

A test run of sea-plane landing off the coast of Mumbai has been successfully carried out. The planning authority along with State Government will examine the feasibility of operations of this service on a commercial level.

6.1.6 Rope Way

A Rope way is being planned from Haji Bunder to Elephanta Caves. The total length is approximately 8 km. This will be world's longest Ropeway crossing the sea. The total time to reach the destination shall be approximately 25 minutes. The project is being implemented through PPP model by MbPT.

6.2 Sea Tourism

Contextual study of the Planning Area has established its very high potential for sea tourism, that will attract both domestic and international tourists. The following ways of harnessing this potential have been identified –

- Development of a huge and iconic park on the seafront
- World class recreational garden with the view of the horizon
- Public Promenade along 7 kms of Eastern waterfront
- Complimentary tourist centric development along the promenade
- Integration of art and cultural themes in the development
- Creation of a unique tourist attraction in the form of a ropeway on sea connecting eastern waterfront and the existing tourist attraction – Elephanta caves. This proposed ropeway will be the longest as well as the highest ropeway on water in the world.
- Development of infrastructure to promote fish industry oriented tourism
- Development of Eco-Park on the mangroves to create an eco-trail that will oversee the biodiversity hotspot within mangroves as well as the mud flats attracting migratory birds like flamingoes.
- Conserve and promote existing heritage sites within Planning Area to create additional tourist attractions.

The detailed proposals will reflect in the sector/ unit plans that rejuvenate the existing centers and create new Art and culture centers such as museums, exhibition spaces along seafront, theme streets, theme piers, etc...

6.2.1 Development of Green Projects

Eco-Park

The mangroves near the Sewri Fort along with the adjoining mud flats provides a platform for eco-tourism. The area also attracts large flocks of flamingoes during winter. A project is under formulation to open up the area to the public for nature learning. The project includes a nature trail and an interpretation centre.

Recreational and Tourism Park

Mumbai city needs an International Level Garden and Park such as ‘Garden Bay Singapore, Hyde Park London, etc...’ A park with an area about 93 ha. is proposed to be developed by partially reclaiming the land near Haji Bunder. It is also abutting a proposed central garden on the landward side, thus making a total area of nearly 145 Ha. CWPRS has conducted the study and submitted its report that the proposed park will not affect the navigation activities. The park will not only provide major lung space for the city but it will also act as ‘Recreational and Tourism hub’. Necessary care shall be taken that the development shall be eco-friendly with minimum effect on the nature.

The Park would be the largest publicly accessible green space that shall cater to almost all age groups and shall provide wide range of activities for the visitors.

Tourism Garden

Mumbai City’s need for public parks has been unanimously accepted for long. MbPT Planning Proposal reinstates the same by proposing a large tourism garden in the heart of the new development. This garden shall be integrated with the above Recreational Park. The garden shall

relieve the stresses of urban life and create a common public space where rich and poor would mix on equal terms.

Image 5: Conceptual design of Recreational Park and Tourism Garden



The garden will be used mainly for tourism activities such as ropeway, promenade along the sea front, running and fitness trails, sports field, picnic facilities, forest like thickly vegetated areas, other relaxing activities. The park shall be supplemented with facilities such as restaurants, Hotels, shops and other hospitality activities.

6.2.2 Waterfront Development

Although Mumbai City is enriched with 67 kilometers of sea front only 14 km of it is active and publicly accessible. MbPT Planning Proposal takes the opportunity and advantage of its eastern waterfront so as to propose a publicly accessible water edge.

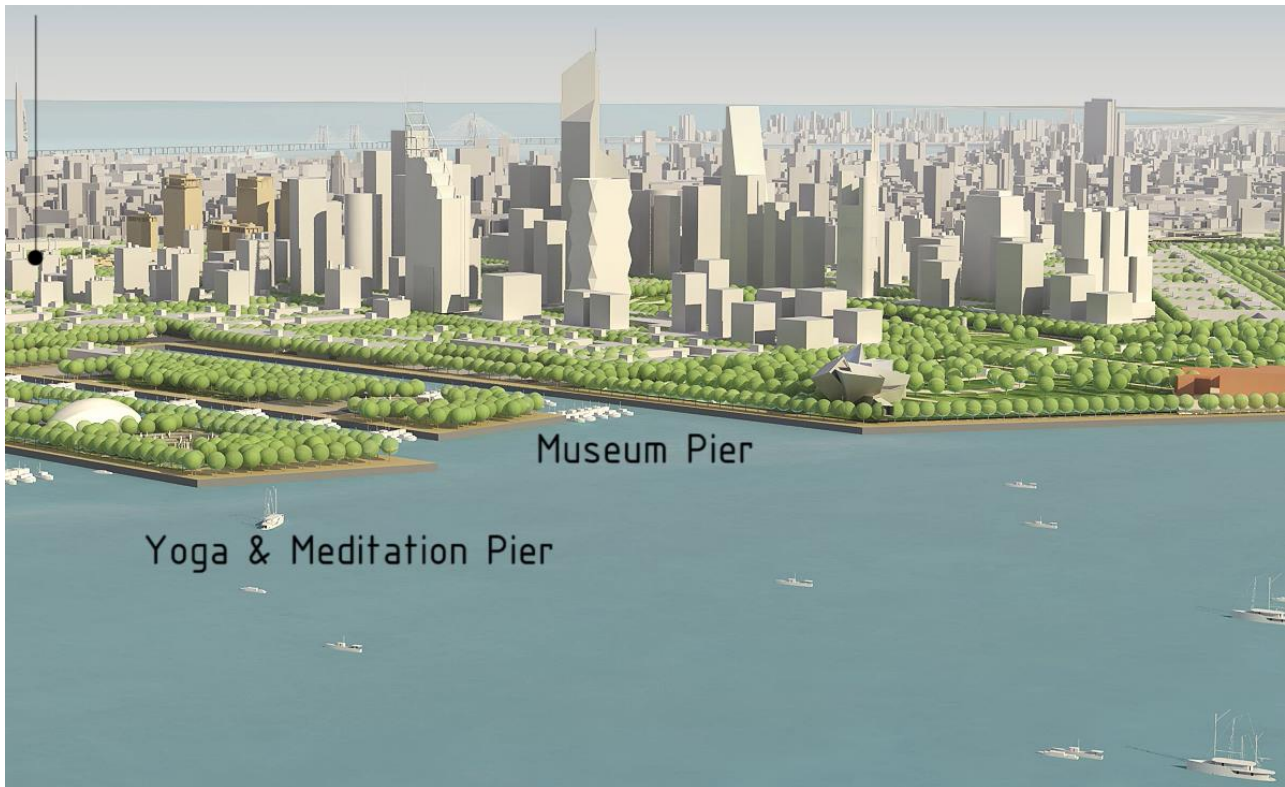
Green spaces along waterfront edge are strategically located along water's edge. It will add to the attractiveness of Eastern Waterfront and make it active. These greens would be the main public spaces offering spectacular views and rejuvenating environment for the tourists and the residents. It will incorporate various activities like fountains, laser shows and walkways along the water body to enjoy the space.

The waterfront green areas will contain a number of public parks, plazas, promenades, walking trails, theme streets, alleys, marinas and piers. There will be continuous pedestrian access along the waterfront by means of a waterfront promenade which will be developed along the entire length based on the availability of land. It will be developed with park-lands and public spaces. Designated cycle routes and thorough connectivity to the waterfront greens from the near and distant neighborhoods would be conceptualized.

Theme Piers

In the Planning Area stands a unique configuration of three piers namely Coal Bunder, Lakadi Bunder and Tank Bunder. The plan envisages to make this area publicly accessible and take the chance to transform it into a recreational place where related commercial activities like restaurants, cafes can also flourish. These piers shall be developed as theme streets such as Bollywood streets, Yoga & Meditation, Arts & Culture Street, Multi-cuisine Street, Maritime Street and Maharashtra Street. The planning of the Theme piers shall be detailed out while preparing the sector/ unit plans.

Image 6: Conceptualisation of theme piers



Theme Streets

Apart from theme piers, theme streets can also be developed along the water front of Hay and Haji Bunders. Some of the envisioned themes are -

Maritime Street

The Maritime Streets will be planned abutting the tourism garden and along with a Maritime Museum as a main feature.

Image 7: Conceptualisation of theme streets**Multi-cuisine Street**

The Multi-Cuisine Street is envisioned to have restaurant/eateries which not only act as a convenient alternative for visitors but also present itself as a unique tourist destination where various forms of food come together with all its varieties and unique characters.

Reading Street

This street shall have unique character which not only promotes libraries, book retailers etc. along the street but also host book-fairs and related activities along the street regularly. Also, the street furniture and design shall be highly supportive of activities such as reading, critical discussions amongst readers etc.

Bollywood Street

Mumbai being the center of Hindi Film Industry fondly called as Bollywood, there is a street envisioned as Bollywood Street which shall have film studios and allied functions. Also, the street can host events related to films and music.

Maharashtra Street

The Maharashtra Street shall primarily try to represent the rich tradition and culture of Maharashtra. The state of Maharashtra and its people possess a tremendously rich tradition and culture of festivals

and events which happen every year. Festivals such as Janmashtami, Ganesha Chaturthi, etc. are celebrated with great fervour. The street shall be the centre of such events and celebrations.

The themes will be finalised while detailing the proposals in sector plans based on feasibility.

6.2.3 Fish Tourism

Sassoon Dock within Planning Area is the primary fish market in the Mumbai region serving domestic as well as international demand. The dock area at present houses the various fishing related activities in an unorganized manner resulting in a filthy and foul smelling environment. Despite the unappealing environment, the dock features as one of the must see tourist attractions in Mumbai on most travel blogs.

In order to better tap the tourist potential, MbPT is in the process of redeveloping the entire area and converting it into a modern fishing harbor. The revamp will include air-conditioned fish market, amphitheater, exhibition space and multi-cuisine restaurants among other activities.

6.2.4 Development of Heritage Precincts

The Mumbai Port has a history of more than 100 years, there are various precincts, buildings and events which still reflect the history such as Ballard Estate, Sassoon Dock, etc. The Planning Proposals have tried to reinforce the heritage and also tried to replicate the theme in the new development. The heritage structure and precincts enhanced the base of cultural environment of the Planning Area.

The Planning Proposal not only aims to propose new development which is at par with the present times and needs but also aspires to revive the historical value locked in various sites/buildings across the MbPT lands.

Ghadiyal Godi

MbPT intends to maintain and develop the Ghadiyal Godi in the Prince's Dock. Separate proposals will be prepared for the optimum utilization of the premises. The building shall have public access.

Sewri Fort

Sewri Fort has the potential to be a major tourist destination due to its rich architecture as well as its location along the sea. The redevelopment of Sewri Fort is conceptualized to improve access to the Fort as well as capture the unique character of it by developing the site through landscape interventions.

Cotton Exchange Building

The Cotton Exchange Building is a privately owned and functioning heritage asset is located in Planning Area. The Planning Proposals intends to preserve the existing building by careful lay-outing of the surrounding development.

Clock Tower

The Clock Tower at P D' Mello road has a rich architecture and it is a witness of the glorious past of Mumbai Docks. However, the Plan envisions to develop and rejuvenate the structure by careful intervention of the site and building.

Gate of Sassoon dock

The gate is the Sassoon dock from the Colaba road. It has an elaborate façade with 40' wide gate. A large clock is affixed to the gate's upper part. The gate has rooms above the gate. MbPT has already prepared phased wise redevelopment of Sassoon Dock with an aim to develop the area as Fish Tourism.

7 OPEN SPACES

7.1 Recreation and Open Spaces

Public Open Spaces play a critical role in a city. They serve the purpose of lungs for the city and impose a much-needed balance between the built and the open environment. Open space improves the quality of life of the citizens by the means of providing places for many recreation, physical & social activities for different age group of the people living in the city.

However, as per the Mumbai DP 2034 report, one of the most critical deficits in Mumbai city is in regard to Public open spaces. As per Mumbai DP 2034 report, the total provision of Public Open Space is 4 sqm per person in the city area.

7.1.1 Proposals for Public open space

Looking at the scarcity of open spaces in Mumbai city, MbPT Planning Proposal provides nearly 25% of land as a public open space (including the promenade). This shall not only serve the foreseen development within MbPT but shall also provide with the much needed greens and parks for the people of Mumbai city. Broadly these are categorized into Regional/city level parks and Community or neighbourhood level gardens/park. With the proposal of multiple small gardens and two large city level gardens/ parks, the Planning Proposal has achieved 6 sqm of average open space per person.

7.1.2 Other open spaces

Community Greens

Along with other community infrastructure and services, community parks are significant public assets that contribute to the development of livable and sustainable communities. At community level, these can be immediately accessed by local residents, providing a sense of place for a community as well as catering to their everyday needs of recreation, physical activity, social interaction and gathering.



Green Streets

The design approach encourages large area be brought under streets and publicly owned land which offers an opportunity to incorporate green streets. To enhance the dense street network, the plan proposes a network of green streets which connects green and open spaces, waterfronts, public transit stations, amenity areas, and heritage sites.

These streets are envisioned as boulevards with major emphasis on trees in the street section. Although, each streets design and appearance shall vary, however their functional goal will remain same. They will provide

shade for pedestrian areas and buildings. They will screen undesirable views of road traffic. Greening will filter air, help minimize carbon footprint of road and contribute to a safe driving situation by screening headlight glare, slowing errant vehicles and help create an intuitive driving experience. Green streets will improve the neighbourhood appearance, livability and create included habitats.

Layout RG/Garden/Playgrounds

Apart from all the proposed green space in Planning Area, another 15% of the open space in residential and commercial zones, and 10% of open space in port allied activities and port eco-tourism zones, will be carved out from the layouts with a view to increase the basket of public open spaces for entire city. However, these will be open spaces for the exclusive enjoyment of the community within the layout.

Table 12: Provision of Open Space in Planning Proposal

Category	Area (ha)	Percentage of open space excluding POZ	Percentage of Open Space
Existing Playgrounds/ Gardens/ RG	8.89	1.09%	0.92%
Proposed Gardens	13.30	1.64%	1.38%
Proposed Park	94.33	11.60%	9.76%
Proposed Tourism Garden	50.17	6.18%	5.19%
15% Layout open space (R + C zones)	52.74	6.49%	5.46%
10% Layout open space (PA + PT zones)	42.03	5.17%	4.35%
Total open space	261.47	32.18%	27.06%
SPA area excluding Port Operational Zone	812.41	100.00%	84.07%
Total SPA area	966.30		100.00%

8 SOCIAL INFRASTRUCTURE

8.1 Introduction

The proposed development is envisioned to be the new tourism and business/ financial hub of Mumbai and the nature of development proposed is unique – it will be a concentration of city level recreational activities, cultural facilities and social amenities along with space for business and financial services. These activities will be supported by some residential population so as to ensure a lively environment.

Social infrastructure and their accessibility is integral to ensuring quality of life in urban areas. Activities included in this category relate to education, health, sports, socio-cultural, security, communications, religion, and social segregation and cremation. These facilities can be classified as city level, community level, and neighborhood level.

These are generally planned in terms of population norms and permissibility conditions of DCPR. In MbPT-SPA Planning Area, all social facilities shall be allowed in any development zone as per the requirement of the zone except Natural Area Zone.

8.2 Proposal

The city level social facilities proposed in the Planning Area thus include both facilities to be used by the larger city of Mumbai and those that have been identified as population based requirement for the resident population of Planning Area. The final norms that have been adopted based on the area characteristics are listed in the table below.

Table 13: Infrastructure norms adopted for Planning Area

Category	Amenities	Area required per person	Total area required
		sqm	Ha.
Education	Integrated School without hostel facility (Class I-XII)	0.39	9.9
	College	0.08	2.16
	Professional College	0.08	2.16
Health	Dispensary	0.014	0.4
	Specialty Hospital (NBC)	0.08	2.16
	General Hospital (NBC)	0.24	6.5
Sports	Sport center- district	0.1	2.7
Public Utility	fire brigade	0.05	1.35
	police station	0.03	0.9
Social Amenities	Community welfare center	0.02	0.7
	Night Shelter	0.005	0.1
	Old age home	0.001	0.03
	working Men- women hostel	0.001	0.07
	burial ground	0.03	2.3

Note:1) Area requirement identified in the table will be met by including existing as well as proposed reservations

2) In case of educational amenities total permissible Built up area shall be consumed on 60% continuous part of the plot and remaining plot area shall be kept open for open door activities.

9 TRANSPORTATION

9.1 Introduction

For any city, the transportation network plays a vital role. The public transportation network of suburban railway (Mumbai local trains) has been the back-bone of the city of Mumbai since decades. To meet the increasing demand and to keep pace with the upcoming development, there are a number of transportation projects which are either in process of construction or are proposed.

New Road links, Metro, Suburban Fast Trains, Trans-Harbour Sea Link and also the Water Transport projects are some of the major proposals which aims to address the present and future needs of the city.

9.2 Street Network

For the Planning Proposals, one of the prime objectives is to create a robust street network. This is based on the premise that a well-designed street network would allow, accommodate and support a broad spectrum of development typologies over a long period of time. To achieve this, the network designed for the Planning Area has been based on the following parameters:

- Equitable use of road space
 - Walkable block sizes
 - Street section design
 - Pedestrian only streets
- Grid based street network
- Street network customized to the site conditions
- Improving connections with the city
- Street hierarchy

9.2.1 Equitable use of road space

Walkable Block Sizes

Walkability is an aspect which is often neglected while planning of cities as most of the focus is on vehicular movement. Smaller block sizes have a major impact on the walkability in any urban area. Based on various studies, blocks with average perimeter of 400m are considered walkable blocks. The study of various areas of Mumbai such as Lower Parel and BKC reveals block areas as large as 1140 meters. However, in many cities across the world, such as San Francisco and Barcelona the average perimeter of blocks is in the range of 400-450 meters.

Thus, to improve the walkability, the proposed street network in Planning Area not only increases the area under streets for its various functions, but also ensures a low average perimeter so as to make the blocks walkable in size. As seen in the figure below, the average block perimeter in Planning Area is around 400 meters.

Street section design

Street sections in India have been designed using the now highly dated IRC codes. In the Planning Proposal, arterial and sub-arterial roads have been provided with adequate ROW to incorporate dedicated cycle lanes and pedestrian footpaths that are over and above the minimum as per IRC codes. These provisions are based on the abutting land use and potential walk trails from public transport nodes to traffic attraction zones.

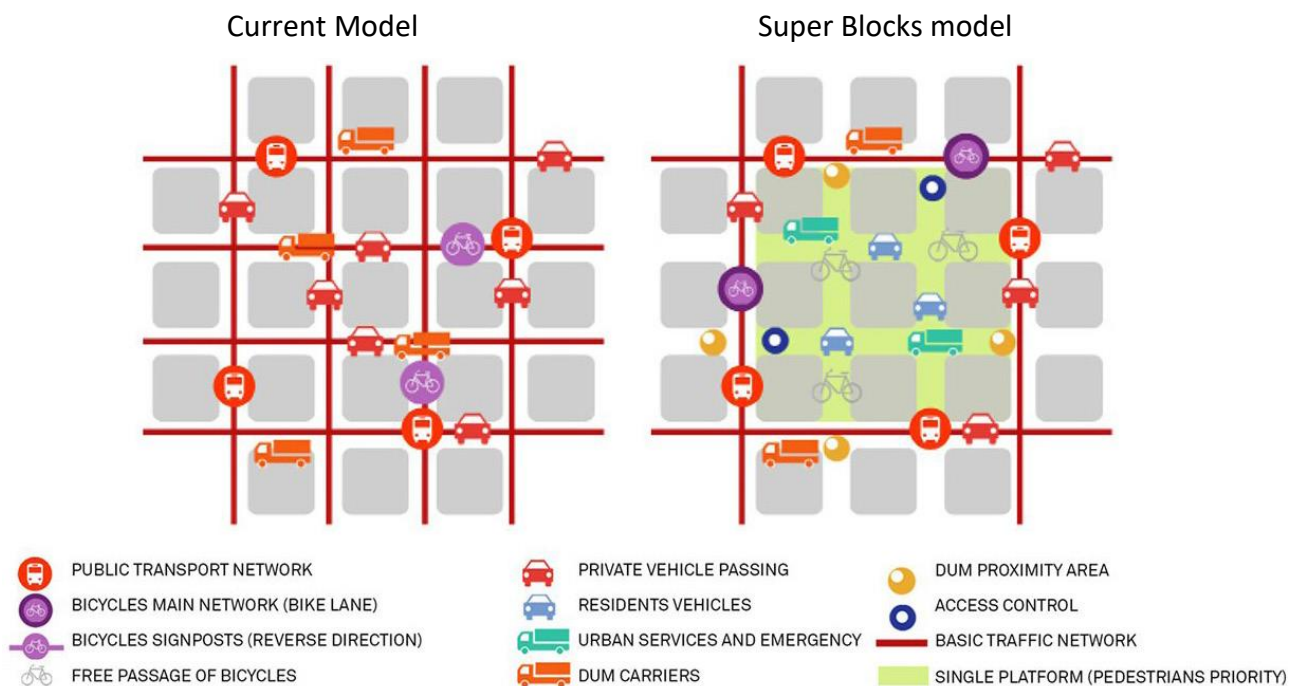
Furthermore, during implementation, all measures to ensure accessibility-to-all are to be incorporated as per the international standards.

Pedestrian only streets

In present times, there is an increasing awareness towards creating more and more pedestrian friendly initiatives. For example, Barcelona which already has average block perimeter 450m is forming a strategy that will restrict traffic to a number of big roads, drastically reducing pollution and turning secondary streets into spaces for pedestrians.

Based on the above mentioned principles, the superblocks model is to be used while detailing the Planning Proposal in sector/ unit plans.

Image 8: Graphic illustration of the Superblocks model



9.2.2 Grid Based Street Network

Across various well-planned areas of the world such as Manhattan, San Francisco, Toronto, Barcelona etc., the grid-based network has proven to be an efficient tool in city planning. Grid based networks have been time-tested to deliver various advantages such as:

- More junctions - facilitate change of direction and alternate route selection and allow permeability.
- Better structuring of street hierarchy - increases efficiency of mobility.
- Alternative routes - allow for pedestrian only streets catering to the inter-block movement of pedestrians over walkable distances.
- Enables a low average perimeter so as to make the blocks walkable in size.

The Grid based network is proposed for the area falling under Sewri, Cotton Green and the land between Hay Bunder Haji Bunder as these areas are mainly proposed to be developed for commercial and business offices.

Apart from achieving the densification as well as structured mix of streets, the grid-based network is proposed due to the prevailing site conditions and the proposed model of incremental development.

9.2.3 Site Conditions

The site conditions in Planning Area also play a vital role in the street network. Several features of the street network in Planning Area which addresses the local site conditions as well as project requirements are as follows:

Existing Streets Retained

In Planning Proposal, almost 60 percent of proposed street network is laid on the existing streets with only necessary modifications in ROW and alignment. This shall contribute towards the effective implementation of the Planning Proposals without hindering the continued uses. The existing streets are mapped and their current use and character is analyzed; post this, a required widening of the existing streets is suggested at certain locations wherever necessary.

Furthermore, in order to aid the existing streets inter-link and transition to become a part of the overall master-plan – thus function like one street grid network; a few new streets are added / existing streets are extended at deliberate locations. This helps the overall street grid network to function as an integrated system

Improving Connections with the City

The connections of Planning Area with the Island City are the most challenging connections. In spite of the redevelopment of Planning Area with proposed internal street network, there shall only be a few connections which connect the eastern waterfront to the western waterfront. There are 12 existing connections at present between the MbPT and rest of the island city. But, with the proposed development in Planning Area, these connections shall fall short to meet the needs of additional traffic.

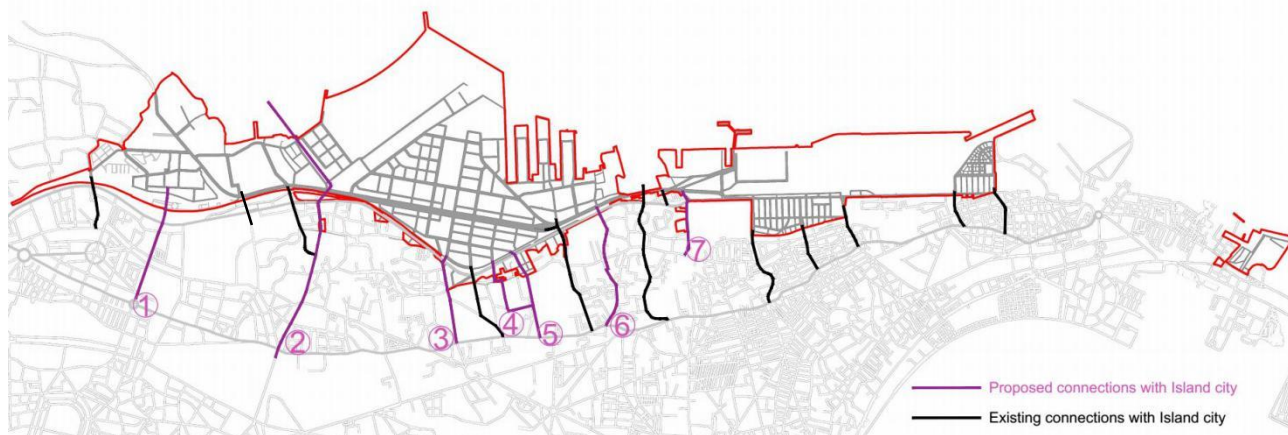
Hence, the Plan proposes to open up blocked connections as well as add a number of new connections, some of which have the potential to connect the Eastern and Western waterfronts.

On the whole, adding of these 7 crucial connections shall play a vital role in improving the East West connectivity between the Planning Area and rest of the Island city -

1. Tilak Road
2. MTHL
3. Third Avenue
4. First Avenue
5. E S Patanwala Road
6. Sam Dattar Road
7. J Rathod Road

The map below illustrates the existing as well as proposed connections of Planning Area with rest of the Island city.

Map 7: Proposed east-west connections from Planning Area to the rest of Mumbai city



9.3 Street Hierarchy

Too often our streets are congested because they are unorganized. Street hierarchy plays a vital role in effective and efficient mobility. The hierarchy is not based on the ROW width, but is prepared based on the function, connectivity and character of the streets.

In Planning Area, the street hierarchy is categorized as follows:

- Major Arterial
- Minor Arterial
- Major Street
- Local Street

An integrated network with these hierarchies shall aid in seamless movement of traffic as well as planning of bus networks, bicycle routes etc.

9.3.1 Major Arterial

These are some of the most important roads within a city's network. Typically, they run for longer distances, connecting different parts of the city, and connecting the city's network with intercity network of highways or expressways. Typically, roads with ROW widths ranging from 30m to 70m are identified as major arterials. They accommodate faster moving traffic, and public transport routes. They are typically flanked by large and mid-scale commercial or mixed use buildings. The activities on these streets also generate significant pedestrian movement, on-street parking demand and informal activities such as vending, gathering, displays etc. Streets such as Grand Boulevard and the arterial connecting LM Nadkarni Marg – Sewri Road and a few others are identified as major arterials within the Planning Area.

Grand Boulevard

The existing road namely Bombay Port Trust Road along the Eastern Freeway passing through MbPT site is identified in Planning Area as Grand Avenue. Several public transit facilities such as the Buses, Port rail, BRTS are expected to run along the Grand avenue at several locations. Also due to the varying width of Grand avenue through the length of it in Planning Area, it is envisioned to have separate street sections at separate locations. The Grand Avenue is thus designed to accommodate vital street components such as necessary traffic lanes, bicycle track, street parking, pedestrian walkway etc. as well as public transit facilities such as metro, bus transport at several locations.

9.3.2 Minor Arterial

These streets generally run for shorter length than major arterials and connect different locales within the same area. They typically connect with major arterial at one or both ends. Minor Arterials are generally flanked by medium scale commercial complexes or higher density mixed use buildings with commercial uses at street level. Bus routes are also present on these sections to provide greater accessibility. Typical ROW of Minor Arterial range from 18m to 30m. However, ROW width is not the only binding criteria. For example, in some cases a Minor Arterial may be wider than some Major Arterials, but, it may still be of less importance due to its placement in the network, urban character etc.

9.3.3 Major Streets

These streets are generally shorter and smaller than minor arterials. However, these streets may be some of the most important streets with local retail shops, commercial frontages and vendor activities. Typically, they connect local areas, gamtals etc. with arterial streets at one or both ends. ROW width for major streets generally range from 12m to 30m.

9.3.4 Local Streets

These are streets carrying local, slow moving traffic, serving local neighbourhoods. Typically, they have many entrances, or small shop fronts opening directly on it. These streets are much more than conduits for vehicles. They have many daily human activities people walking, meeting, roadside sitting talking, children playing, local parking etc. They may range from 9m to 18m in ROW width, generally incorporating maximum two vehicular lanes.

For any development as large as the SPA-MbPT Planning Area, an efficient mobility network is a non-negotiable aspect for the proposed development to sustain and perform. An integrated mobility network shall act as the backbone of the proposed development. Alternatives of mobility such as metro, water taxis, bus, bicycle and a network of pedestrian friendly streets are hence proposed to effectively cater to the proposed development.

Also, seamless integration with existing and proposed transportation projects in surrounding areas such as the existing Monorail, existing Harbour line network, proposed CSMT-Panvel Fast Train network shall also be the key aspect of the mobility network of Planning Proposals.

9.4 Public Transportation

The Island city of Mumbai has been since long dependent on limited modes of travel. Upcoming projects such as Metro Line 3, Metro Line 11, MTHL, CSMT-Panvel Fast train are all independent proposals in and around Planning Area, connecting it to various parts of the city.

The public transportation in Planning Area comprises of four major modes:

- Rail: Metro, Harbour, CSMT-Panvel Fast Train
- Road: Bus network
- Water: Ferry & Ro-Ro
- Air: Ropeway

However, it is important that these individual transportation networks converge at critical junctions to foster inter-modal connectivity.

9.4.1 Mumbai Trans Harbour Link Road (MTHL)

MMRDA is implementing a Mumbai Trans Harbour Link Project (MTHL) which will join Sewri from Mumbai side to Nhava Sheva, Navi Mumbai covering 21.8 kms. The MTHL will also connect the Freeway within the MbPT area and Worli by a four lane wide and 4.2 km long flyover. The MTHL will reduce travelling distance and time to Navi Mumbai and onwards substantially due to reduced trip length from Sewri to Nhava Sheva.

9.4.2 Metro

Mumbai metro network is considered to be the urban mass rapid transit system, planned to serve the increasing urban population in Mumbai which mainly depends on public transport. Currently MMRDA has implemented Metro Line 1 to connects Versova and Ghatkopar while Metro Line 2, 3 and 4 are under construction.

The Metro line 4 is from Kasarwadavali, Thane to Bhakti Park, Wadala. The Planning Proposal proposes to extend the line 4 to the MbPT Planning Area which has been numbered 11. The line will enter near the Hospital at Wadala, pass through Petroleum godowns area, proposed commercial development along the Darukhana area and will enter the Port area from OGPD gate. It will come out at the Fort area near GPO and end at CSMT Station at Azad Maidan. The segment of the Metro from Wadala to Petroleum godowns near Sewri Fort is proposed above the ground and the remaining segment is proposed as underground. There will be eight stations within the Port area. The Metro station and its surrounding area shall be suitably planned as transit oriented development.

9.4.3 Mono rail

At present, a Mono Rail joining Chembur and Wadala with a distance of 8.93 km has been constructed. The Mono rail passes at the northern end of the SPA area from Wadala station.

9.4.4 CSMT-Panvel High Speed Railway

The Central Railway through Maharashtra Rail Vikas Pradhikaran has prepared a DPR to construct a high speed railway from CSMT to Panvel. The rail corridor passes through the MbPT land from Mansion road to Wadala along the existing suburban railway. The railway will be constructed in two levels up to dockyard stations.

9.4.5 Water Transport

Infrastructure provision and space allocation for the various modes of old and new modes of water transport proposed in the Planning Area have been discussed in detail in chapter 6.

9.4.6 Bus System

Bus network in Planning Area shall be an integral part of the overall transportation network. Route and fleet planning for bus system will integrate all key destinations, transport nodes (stations of other modes of transport) and the estimated density of development and population. The bus network is envisioned to not only provide city wide transportation alternative to Mumbaikars but also to connect people alighting at metro or local train junctions to nearby areas and vice-versa thus plugging in as IPT wherever the volume of traffic requires it. The bus route is also to be connected to island city at several key locations. Bus depot and terminal will be provisioned for in sector/ unit plans as per requirement.

9.4.7 Intermediate Public Transport (IPT)

Commuter experience is impacted by all parts of the commute and can often be marred by even the smaller, seemingly less important parts like the first or last mile connectivity when not planned for. Especially in the case of Mumbai, where the long haul travel is quite sorted (suburban rail), it's the access to and from station that often becomes the pain point for commuters.

The Planning Proposal has therefore been prepared keeping in mind the additional space that would be required to provide queuing up of IPT and IPT substitute modes in the local context like street hail taxis, shared taxis, e-hail taxis, and other feeder modes like shared bicycle if and when introduced.

9.4.8 Bicycle Network

Cycling is the one of the most efficient, healthy and sustainable mode of travel for short to moderate distances up to 5km. Currently, this mode is being used by a very limited user group within Mumbai City. The only user group using this mode on daily basis are primarily school going children and industrial workers. Multiple factors are responsible for such low usage of this mode which includes absence of cycle lanes and safety issues.

It is essential to connect public transit node, retail commercial areas, educational institutions and parks and open spaces etc. with continuous and efficient bicycle network using the shortest distance route. The proposal identifies potential streets for bicycle network which shall comprise of different provisions based on street types

- Dedicated Bicycle lanes
- Demarcated Bicycle lanes
- Shared Bicycle lanes

Locations for bicycle parking at transit stations, parks and gardens, major shopping centers, major public institutions, education institutions, etc. Will be identified in sector/ unit plans.

9.4.9 Pedestrian Network

Everyone is a pedestrian for part of their trip even if they are driving or using public transport. Walking is the most energy efficient, healthy and sustainable mode of transport. Therefore, allowing and encouraging walking must be the first priority while planning for transport infrastructure.

Some of the major elements that have been proposed for the network within Planning Area to develop / create pedestrian friendly environment are -

- Continuous, obstruction free, well paved walkway on both side of the driveway
- Tree covered streetscape with well-designed street furniture and other elements
- Clearly defined, safe pedestrian crossing at intersections as well as mid-blocks as per requirement.
- Active street frontages by relating building and arcades, to create safe environment

9.5 Inter-modal Connections

The inter-modal connections between these public transport lines shall be a very critical aspect of these projects to achieve overall efficiency in connectivity across the city and region. The major Inter-Modal connection will be available at Sewri and Wadala. Here Near the Sewri station the following modes of transport shall be available -

- Existing Suburban railway

- Proposed CSMT-Panvel fast rail Corridor
- Proposed Metro
- Proposed Mumbai trans Harbour Link and
- Eastern freeway
- The area under all these modes are proposed as Transport zone so that a well-planned transport hub can be developed.

Another Inter modal connections will be available at Wadala suburban station where suburban railway and Mono rail is already existing. The CSMT Panvel fast Rail corridor shall also be connected. Similarly, at CSMT near P. D'Mello road proposed line 11 Metro station shall provide additional connectivity.

9.6 Public Parking

Severe real estate shortage and roads bursting at the seams with a burgeoning vehicular population have together ensured that parking is a major concern for any new development in Mumbai. For the Planning Area, the problem is two-fold -

1. To ensure adequate parking space for the users of high end development like Marina, HIG housing, and a fraction of the large amount of proposed commercial development. Creating public transport alternatives for this user group is not an effective measure. This is because they prioritise comfort and privacy over other parameters while choosing their mode of travel. Lack of adequate planned space would therefore result in vehicles spilling over on to the roads and adding to congestion. The parking provision should however be appropriately priced to reflect the land value so as to not provide latent subsidy to car users.
2. Deter use of private cars by all other user groups not included in point 1, by developing a robust pedestrian and NMT infrastructure as well as measures like restriction of available parking space. Apart from the limited space provision, measures that can be used to achieve the desired outcome are - price mechanism, prohibition of on-street parking except along designated areas as per authority discretion.

In order to resolve the above mentioned issues, the parking policy to be adopted in Planning Area will be formulated in consonance with draft NUTP 2014 covering the following points -

1. Levy of parking fee that truly represents the value of the land occupied
2. Use of parking provision as a demand management tool
3. Multi-level parking complexes in high rise commercial buildings
4. Build parking for the neighborhoods instead of each building (multi-level)
5. Parking lots along the PT corridors (near the transit stops or stations) should be built to encourage park & ride system.

The off street parking development shall be based on development regulations which shall specify norms for basement as well as other related norms for parking management in Draft Planning Proposal. Consolidated underground parking may also be provided below the tourism garden and other green spaces.

9.7 Traffic Management measures

As the Planning Area has some of the oldest developments in the city, part of it experiences congestion and cannot be treated like greenfield development. The primary bottleneck was found

to be around OGPD Gate. Here goods vehicles often park on the road for substantial periods of time outside the premises waiting for the check point to clear or to arrange for all the required papers to gain entry to the custom area. Also, substantial traffic is generated by ferry and fish wharf, export car parking, etc...

Furthermore, this section and junction is also the entry to the proposed waterfront development including marina, RO PAX and DCT, which will add considerably more traffic to the already slow junction. A three pronged approach has been proposed to resolve this bottleneck as detailed below.

9.7.1 Off-road parking for port bound goods vehicles

A separate parking lot has been developed at Cotton Green exclusively for the trucks of Port where the document checking can be carried out and only the trucks having proper document will be allowed to travel towards the dock area. This will eliminate the parking around the OGPD gate.

9.7.2 Redesign of entry to OGPD Gate

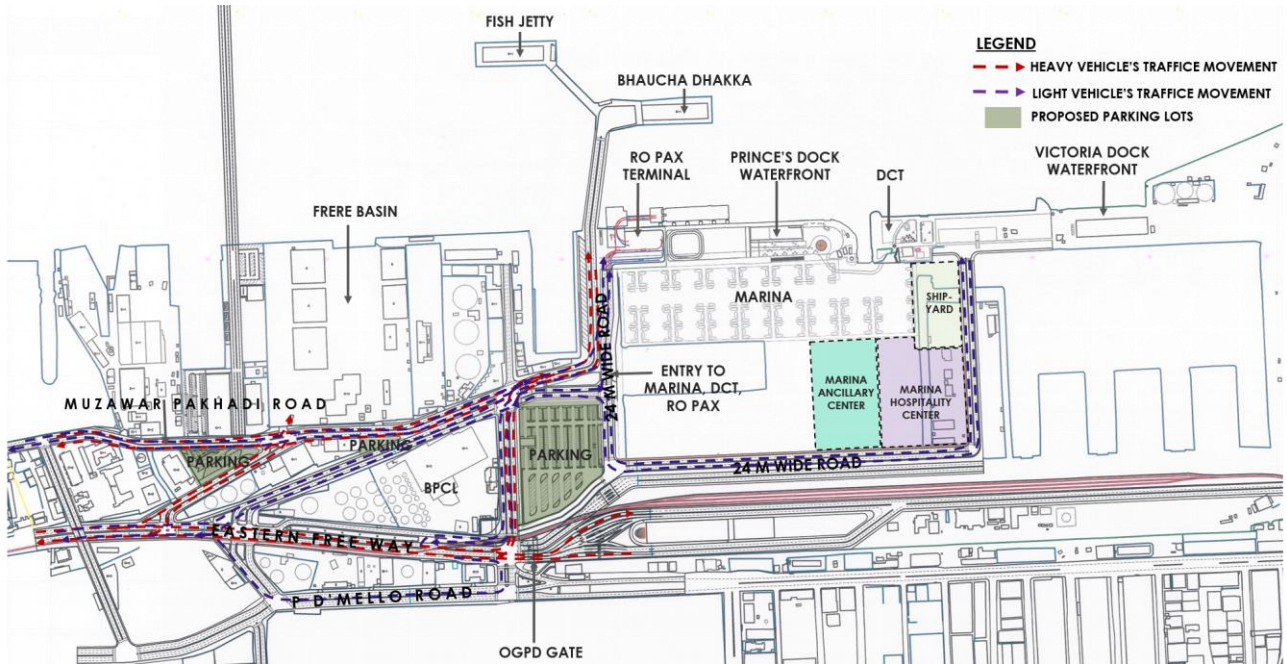
Currently, the entry of OGPD Gate has two lanes on both sides with as many check posts to clear the entering and exiting vehicles. This usually leads to queuing up of vehicles which in turn spill onto to the junction or block a lane on the BPT road. This entry to the port has been proposed to be redesigned to shift the check point approximately 100 mt inside the current Port boundary. This will not only provide the space for queuing, but will also enable increasing the number of check booths for quicker processing. The number of inbound lanes at check point are proposed to be increased to six from two. MbPT has already implemented the access control system by which checking time of the truck has been reduced.

9.7.3 Traffic Evacuation Plan

An Evacuation Plan has been prepared to effectively manage the diverse range of traffic including the traffic to be generated by plan proposals. The silent features of the Evacuation Plan are -

1. Construction of two new roads. One from P D'Mello road to link road near the Ganesh Temple and other connecting the link road to Muzawar Pakhadi road behind the Nirman Bhavan.
2. A separate road network for Marina, DCT and RO PAX is proposed connecting the diagonal road so as to have seamless connectivity from Freeway and P D'Mello road.
3. The traffic circulation pattern is also designed for free movement of cargo and passenger cars by segregating the two types of movement. This will improve the efficiency of the entire network in discussion.

Image 9: Evacuation Plan



Apart from these design interventions, all critical junctions will be optimised using smart signaling systems and other traffic management measures in consultation with traffic police.

10 PHYSICAL INFRASTRUCTURE

Physical Infrastructure is the backbone of any development. Especially in urban areas, the network and planning of services such as power supply, sewerage, storm water, solid waste management etc... play an important role in achieving the overall quality of life for the inhabitants.

Often, in Indian cities, the physical infrastructure planning is neglected and poorly conceived. Also, with the changing times, there is a need to carefully review alternative methods of infrastructure planning which are sustainable. The infrastructure will be developed in phases depending upon availability of land, resources, and market demand. For the first phase to be developed on a priority basis projects identified include – waterfront development, gardens, CGO complex and staff housing.

10.1 Power Supply

Power demand in the Planning Area is estimated to be around 1569 MW. However, for priority phase the power demand is estimated to be only 55.5 MW.

The proposed strategy in plan is to tap power from existing supply individually in each 'part' of the Plan. The power supply is to be provided by Tata / Reliance / MSEDCL.

As a part of the sustainable approach, the plan also proposes to reduce per-capita power consumption through incentives to adopt measures such as District Cooling Plant.

10.2 Water Supply Strategy

In Planning Area, there are around 7 numbers of existing water supply system by MCGM. Existing Water Supply is estimated to be around 18 MLD while the proposed development shall require approximately 100 MLD of water supply. To meet this demand, the present pipe inlets shall be insufficient and hence, it is proposed to be increased up to 1000 mm in total. Apart from this, in the proposed development, a main trunk line is planned to run along the Grand Avenue which shall further distribute water supply in all four parts. inadequate for proposed development. Also, it is planned to use Hydro-pneumatic system with pressurized distribution.

As a part of sustainable development, it is proposed to establish appropriate treatment plant for segregated domestic black and grey water. The treated water coming out of STP shall be used for flushing and horticulture use.

It is also mandatory to have rain water harvesting to collect the water from roof top terraces and balconies. The collected water can be used for non-potable purposes.

The Draft Planning Proposal also proposes to promote sustainable measures through the use of indigenous plant species to minimize irrigation.

10.3 Sewerage Strategy

Planning Proposal not only provides for a strong sewerage network but also establishment of sewage treatment plant and pumping stations at critical locations to achieve maximum efficiency.

There are two STPs proposed; one near Wadala and another near Mazgaon Dock or Cotton Green area. The following points summarize the sewerage treatment strategy:

1. Foul water discharges to be reduced through efficient building design and water recycling measures.

2. Foul water to discharge to on site STP(s).
3. Latest technology to be assessed for local suitability (potential benefits are: reduced land requirement, reduced odour, modular etc.)
4. Total Treated sewage effluent (TSE) to be used for irrigation of the landscape, WC flushing in some buildings and cooling water. TSE can also be supplied to nearby Industries and Port activities for washing and cooling

10.4 Storm Water Management Strategy

A detailed Master Plan for Storm Water drainage system shall be prepared considering the rain fall, contour of the land and the proposed development. The system will include storm water collection system, its disposal system. The system shall be integrated with the overall storm water disposal system of Mumbai City. The aspects of the storm water drainage system should be

1. Discharging storm water to sea, checking outfall levels versus tidal range & model proposed network.
2. Development levels to be set to manage overland flows and prevent localised storm water flooding and ponding. (Note: It shall not impact on existing connectivity to the site)
3. Minimizing number of outfalls to maximize pollution controls.
4. Using attenuation, most likely on plot by plot basis to reduce main drainage depths/cost and assist phasing. Each plot Developer to provide attenuation.
5. Incorporating sustainable urban drainage solutions into the streetscape and park-lands

10.5 Solid Waste Management Strategy

The total Solid Waste expected to be generated is about 180 MT per day from various land uses. A detailed Solid Waste disposal system shall be designed for segregation, collection, transportation and disposal.

The main emphasis of the Solid Waste Management Strategy shall be disposal of main organic waste at the source and only non-disposable waste shall be carried out for further treatment. Emphasis will be given on segregation of waste at source through education to the people, regulations and proper infrastructure.

The main features shall be

1. Recycling the waste,
2. Creation of biogas fuel,
3. Creation of compost and
4. Stock pile construction waste for reuse,

MbPT has already planning a Solid Waste Treatment Plant for the waste generated in operational areas & residential colonies.

1. Separating waste collection using wheeled bins
2. Short term: Work with municipal authority to minimize waste to landfill
3. Long term: Consider private waste collection and disposal, potentially linked to energy from waste system (Note: New Indian regulations required organic waste to be treated on site for developments >5000m².)
4. Consider anaerobic digestion to create biogas fuel
5. Stockpile construction waste for re-use

10.6 Reservation of Land for Utility purpose

While designing the detailed infrastructure plans necessary provision shall be made for land of required areas such as STP, Pumping station, SWD plant, ESR/GSR etc.

11 APPROACH TO DEVELOPMENT CONTROL & PROMOTION REGULATIONS

11.1 Introduction

The Development Control & Promotion Regulations play an important role in a masterplan, as the FSI generation, its use and distribution on saleable plots, the resultant Built-up area, the envisaged skyline for the township along with establishing the character through form based codes (specific Urban Design guidelines) which define the building lines and the built form, all of these result through proper framing of Development Control & Promotion Regulations.

Development Control & Promotion Regulations is a tool for guided development of Planning Area:

- To ensure optimal use of land, which is a limited resource
- To ensure equitable distribution on land
- To ensure the desired Skyline
- To be able to provide the requisite open spaces on land
- To enhance quality of life through more movement spaces on land
- To be able to provide a robust Road Network

With the above in mind, the DCPR for MbPT-SPA has been prepared.

11.2 MCGM DCPR 2034

The DCPR 2034 of MCGM has been sanctioned by the state government. While preparing the DCPR for Planning Proposal of MbPT the same has been taken as base document. Wherever necessary changes are required considering the proposed development, the respective regulations of the DCPR 2034 have been modified. Some new concepts have been proposed for which additional regulations have been formulated. The broad features of the DCPR of the Planning Proposal are explained below.

11.3 FSI allocation

- Present FSI norms in Mumbai: The current base FSI for Mumbai city is 1.0 for Industrial zone and 1.33 for Residential and Commercial zones. With the addition of fungible FSI and payment of premium, the FSI of plots abutting wider roads reaches up to 2 to 3. Also additional FSI is provided under section 33 (DCPR 2034) for uses such as government staff quarters, financial centres, BDD chawl, slum rehabilitation, hospitals, educational institutes, etc. resulting in net FSI of more than 4 in some cases.
- MbPT owns a part of this city, abutting the Eastern waters. The land is located at prime location and needs to be put to optimal use, without compromising the living standard of Mumbaikars. This can be achieved by using FSI as a tool to use airspace for provision of BUA and governing the ground coverage. This releases land for providing a robust road network. As the majority of land belongs to MbPT the provisions of Fungible FSI and premium FSI has been deleted and the base FSI is proportionately increased.
- As the Planning Area is to be a greenfield development to a large extent and is spread over a relatively small area, instead of using mechanisms like fungible and premium FSI, gross FSI instead of net FSI has been used for different landuse zones. Measures like provision of adequate road width, and physical and social infrastructure have been taken to accommodate the additional FSI that will be generated.
- With the above aim the Planning Proposal allocates FSI to different Land-use Zones and sub-zones in the table below.

Table 14: Land use zone/ sub-zone based activity and FSI distribution

Sr. No.	Land-Use Zone	Sub- Zone	Main Activities	Maximum permissible Gross FSI
A	RESIDENTIAL (R)		The Residential Zone is a mixed use zone with residential use as the predominant one and where other uses as specified are permitted.	2
1		R Mix-1	High Rise high density housing for redevelopment of cessed buildings, dilapidated buildings, BDD Chawls and Slums	2
2		R Mix-2	Development/ redevelopment for construction of staff quarters for govt. and statutory bodies	2
3		R Mix-3	Development of Residential Buildings	2
4		R- Other	Affordable housing as per State and Central govt. policy.	4
B	Commercial (C)		The Commercial Zone is a mixed use zone with commercial use as the predominant one and where other uses as specified in the DCPR are permitted.	2.5
1		B Mix-1	Central Financial District, Central Business District, Hotels and other Business offices	4
2		B Mix-2	Development of Commercial buildings	2.5
3		B Mix-3	Warehouses, Storage, Godowns.	1.5
4		CGO	State & Central Government and other Public Undertaking and Municipal Offices	2.5
C	Health Care Zone (HC)	HC Zone	Hospital, Clinics, Nursing Home, Medical Shops, Pathology Labs, Blood Bank, Lodges, Hotels, Serviced Apartments & other complimentary activities.	1.5
D	Port's Operational Zone (POZ)	Core Port	Custom Bound area with port activities with all Port and Port related activities including cruise terminal buildings, jetties, offices, canteens, godowns, garages, fueling stations.	1
F	Port Allied Activities Zone (PA)		Port Allied Activities Zone within MbPT SPA area is mainly used for Petroleum and Oil godowns and warehouses. The other industrial activity is Fish Industries and tourism exclusively designated for Sassoon Dock area. New industrial activity shall be non-polluting, non-hazardous and subject to clearance from MPCB. Conversion of land use can be permitted as specified in these Regulations.	1.33
		Port Storage	Godowns and warehouses used for storage of port containers/ materials outside the Custom bound area with all supporting services and facilities including offices, restaurants.	1.33
1		Industry	Tanks farms for Petroleum Storage, petroleum processing, Fueling Stations, Auto Repair Workshops, Wood Workshops, Fabrication Workshops, Public-Garage, Assembly Units, Printing Press.	1.33
2		Fish Industries and Tourism	Fishing activities, storage, markets, Ice Plants, fish processing and other related activities along with tourism, recreational and cultural activities of the fishing communities.	1.33

F	Port Eco-Tourism (PT)		Port Eco-Tourism Zone is proposed for waterfront development for recreational tourism which includes development of large gardens, Green Spaces, promenades, tourism facilities such as restaurants, hotels, aquarium, zoo along with the necessary social facilities and utilities.	2
1		Tourism Garden	Waterfront activities, promenades, recreational facilities, commercial facilities such as restaurants, hotels, clubs, shops, gardens, parks, museums, aquariums, theme streets, theme piers.	0.25
2		Waterbodies	Water sports and Basins of various docks except Indira Dock	
		Water Transport Terminals	Ropeway, Ro Pax/ Cruise/ Passenger/ other Terminal Buildings.	2
H	Transportation (T)		Transportation zone is a zone comprising of railway area, roads and public transport such as roads, metros, mono rail, freeways, public parking.	0.1
		Station	Station Buildings, retail, offices, parking	3
		Corridors	Uses as determined by respective Departments	0.1
I	Natural Area		Mangroves/ eco-park	0

11.4 Concept of Transit Oriented Development (TOD)

The Planning Proposal incorporates various Mass Rapid Transit systems such as Metro, CSMT-Panvel railway, Existing suburban railways, Mono rail, Bus and water transport terminals. These MRTS shall create number of Transit Stations for the efficient mobility of Passengers.

Transit Oriented Development is the present trend of Urban Planning to create vibrant, livable, sustainable communities. Also known as TOD, it's the creation of compact, walkable, pedestrian-oriented, mixed-use communities centered around high quality transit stations. This makes it possible to live a lower-stress life without complete dependence on a car or motorised vehicle for mobility.

The TOD Zone covers an area of 400 m to 800 m around the transit stations. The zone will have mixed land uses such as residential, commercial, retail / office and public uses within a walkable environment convenient for both resident and work forces to travel by transit, bicycle or even by foot. The TOD zones will specify the regulations regarding creating safe and convenient pedestrian environment.

While preparing the detailed unit / sector plans, TOD zones will be earmarked around the suitable transit stations. Similarly, the TOD shall be planned along the Grand Boulevard.

11.5 Form based code

The built form following a Form based code to development will have stipulated urban design regulations to be followed (*this section being further detailed out in the sectoral level development regulations for SPA – MbPT*) comprising of different parameters and design components such as but not limited to the below,

- Setback and margins
- Permissible land area for built up (Ground coverage)
- Building envelope and utility
- Arcades
- Built-to-line
- Maximum permissible volume
- Basement

An urban character thus built following this approach to development aims to achieve a rich, vibrant, walkable and safe environment having a visually coherent urban and street character, ensuring a synthesized built form wherein the benefits shall be distributed to public at large.

Salient Features:

- Identifies permissible building envelopes by clear regulations for build-to-line, arcades, setbacks, & height
- Creates coherent-street environment and rich urban experience
- Results in harmonious urban scale & form
- Provides better control over the nature of street character and urban experience
- Allows incremental development without compromising on urban form & character
- Allows flexibility to deal with market fluctuations without compromising the desired urban character and the Master plan

The form based development shall be mainly applicable for commercial and port eco-tourism zones. The detailed guidelines for form based development shall be evolved while preparing the detailed sector / unit plan. The development on individual plot shall be governed as per the said guidelines.

11.6 Document (Development Control & Promotion Regulations)

As stated above, the sanctioned DCPR 2034 of Mumbai is the base document for the DCPR of MbPT Planning Area. The DCPR only specifies the regulations of DCPR 2034 where suitable amendments and omissions are required. The rest of the DCPR 2034 shall be applicable as it is.

12 COST ESTIMATE AND IMPLEMENTATION

The Block Estimate prepared for the various physical components of the project has been arrived at based upon Planning Proposals, site information, appropriate assumption, and present schedule of rates.

12.1 Cost Estimate

While preparing the Block Cost Estimate, various components have been grouped under six major categories i.e.:

- Planning Proposal preparation cost
- Facilitation cost (compensation cost, legal cost/fees, workshop & stakeholder consultation, advertisement & media Cost)
- Finance cost (cost of loan, interest, taxes, statutory payments/fees)
- Administrative cost (salaries & office expenditure)
- Consultant fees
- Contingency cost

The cost estimate for a Block has been summarized in Table below:

Table 15: Cost estimate for a block

Sr. No.	Category	Block Cost in INR.	Block Cost in Crores INR	% of Total Cost
1	Green Area	3,26,86,42,500	327	5%
2	Promenade Area	1,10,86,43,050	111	2%
3	Street Area	4,76,48,14,680	477	7%
4	Infrastructure	13,43,09,62,500	1,343	21%
6	Recreational & Tourism Park	5,52,00,00,000	552	8%
7	Relocation Housing	28,45,25,00,000	2,846	44%
8	Sub Total	56,54,55,62,730	5,655	
9	Add 15%	8,48,18,34,410	848	13%
10	Total Cost	65,02,73,97,140	6,503	100 %

12.2 Revenue generation

Revenue sources for implementation of Planning Proposal are discussed in the following sections.

12.2.1 Monetisation of land

MbPT has taken actions to recover dues from the lessees and reclaim the land where the lease has expired in order to consolidate the holding for a planned development. At present, few pockets of land are available with MbPT spread sporadically throughout the Planning Area. It will be necessary to develop the projects in a phased manner wherein the first phase will include projects on available land parcels. The implementation of infrastructure projects will substantially increase the real estate value of the land. Monetisation of part of the land will be sufficient to finance the project.

12.2.2 Development charges

Rate of development charges is same as that charged by MCGM. The development charges will be recovered by MbPT while granting the development permission. However, this recovery will begin at a much later stage.

Wherever technically and financially feasible the projects identified in Planning Proposal will be implemented through PPP mode. The land owned by MbPT will be used as resource for financing the infrastructure projects. The water transport projects can be developed using partial financial aid from GOI under Sagarmala Project.

12.3 Implementation

The Planning Proposal after being sanctioned by the State Government, will be further detailed out in the form of sector/ unit plans which will provide plot level details identifying the local road network as well as earmark the neighborhood and community level infrastructure.

As the area is to be developed based on form, the final stage of planning entails preparation of detailed architectural control drawings that would then be used to market the plots based on their individual characteristics.

Simultaneous to the above activity, development of city level physical infrastructure will be carried out by MbPT to make the plots available for further development.

Thereafter, SPA MbPT will play the additional role of a regulatory body by granting development permission to applicants ensuring that the subsequent development takes place in accordance with the Planning Proposal. Periodic assessment of the proposals to assess the shortfalls if any will be carried out.

