Concept Plan for MUMBAI METROPOLITAN REGION India

Phase 5 - Implementation Strategy

IMPLEMENTATION STRATEGY REPORT

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Approvals	**Name**	**Designation**	**Date**
Author	Deloitte	Specialist Consultants	08-07-2011
Author	Shrena Joshi	Urban Planner	08-07-2011
Author	Hrydhal Damani	Sr. Urban Planner	08-07-2011
Reviewer	Djoko Prihanto	Dy. MD, Project Director	08-07-2011

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Project Background

Mumbai, the economic gateway to South Asia, is gaining increasing recognition as an emerging global city. Recent researches have showed that, in wake of the accelerating pace of urbanization across India, the population in Indian cities would expand by 10% in the next 20 years. By 2032, Mumbai and its metropolitan region are anticipated to become one of the largest urban agglomerations in the world, with an esitmated population of 37 million. Powered by India's economic reforms and driven by a young and skilled population, the Mumbai Metropolitan Region (MMR) will witness a 5-fold increase in GDP in the next 20 years. In light of this, the City's stakeholders have envisioned to *"transform Mumbai into a world class city with a vibrant economy and a globally comparable quality of life for its citizens"*.

However, the present situation does not seem to be aligned with this vision. The Region is currently witnessing an overall decline in the economy as well as living standards, with shorfalls in the business, employment, housing and infrastructure sectors. In a bid to tackle these issues, the Mumbai Metropolitan Regional Development Authority (MMRDA), the apex body for planning and co-ordination of development activities in the Region, has already undertaken several major planning and infrastructure development projects. Since the current Regional Plan (1996-2011) is due to expire and is to be updated soon, MMRDA has taken this opportunity to seek new planning ideas from international consultants on the future development strategy for MMR. They have authorized the Mumbai Transformation Support Unit (MTSU) in the All India Institute of Local Self Government (AIILSG) to facilitate and manage the preparation of a long-term strategic development plan for MMR.

Project Scope and Objectives

In November 2009, on behalf of MMRDA, MTSU engaged Surbana International Consultants Pte. Ltd., Singapore, to carry out the concept plan study for MMR. The project officially commenced in March 2010. This Regional Concept Plan, when completed, could serve as a long-term development framework of MMR, which could be incorporated into the new Regional Development Plan for MMR currently being prepared by the Metropolitan Planning Committee (MPC), with technical assistance from MMRDA. The project scope comprises three different levels of planning tasks, as shown below:

Planning Area	Size	Scope of Work
Mumbai Metropolitan Region	4, 355 sq. km	Regional Concept Plan & 7 Sectoral Studies
3 Urban Areas: - Inner City Redevelopment in South Mumbai - Transit Oriented Fringe Centre Redevelopment in Andheri - New Town and City Centre Development in Panvel	20 sq. km each	Development Guide Plan
2 Urban Centres : - CBD Revitalization in South Mumbai - Fringe Centre Development in Andheri	4 sq. km each	Urban Design Plan

The Regional Concept Plan accompanied by 7 specific sectoral studies would be developed based on two horizon years: namely, 2032 (medium term) and 2052 (long term). The next 2 levels of planning i.e. Development Guide Plan and Urban Design will attempt to demonstrate how different planning models for urban rejuvenation & redevelopment as well as for new township development are used to address the various key urban issues facing MMR.

Project Schedule, Process and Deliverables

The project duration is 66 weeks and consists of several phases, as listed below:

- **Phase 0:Start-up Investigation**
  - This involves the process of data collection, site visits, interviews and desktop research in order to establish a working base before actual project study begins.
- **Phase 1:Planning Strategy and Structure Development**
  - The first phase involves 2 tasks:
    –Socio-economic Analysis
  - This involves analysis of the projected economic and demographic outlooks for MMR for Year 2032 and Year 2052, as well as assessment of the scenarios of dimensions of future growth for MMR.
    –Planning Concept Options
  - This involves recalibration of the vision for MMR as well as setting of long term goals and strategies to realize the vision. Further, three planning concept options would be explored to illustrate different planning structures and focuses for future MMR. A preferred option will be selected for further detailed development in the next phase of the project.
- **Phase 2:Draft Regional Concept Plan**
  - The second phase involves two tasks:
    - Concept Plan for MMR
  - This involves expansion and illustration of the preferred planning concept option into a specific Concept Plan for MMR, defining the overall land use structure and distribution, urban node hierarchy, major transportation and infrastructure systems as well as environmental management strategies.

–Sectoral Studies

- To explore and evaluate various planning ideas for the regional concept plan, separate studies on 7 key sectors would be undertaken: namely,
  - Housing
  - Land Use Management
  - Heritage Conservation and Urban Design
  - Parks and Recreation
  - Environmental Management
  - Transportation
  - Utility Infrastructure

- **Phase 3:Final Regional Concept Plan**

This stage involves the finalization of the Draft Concept Plan and the supporting sectoral studies prepared in Phase 2.

- **Phase 4:Local Planning and Urban Design**

This phase involves micro level planning involving preparation of Development Guide Plans for 3 local areas of 20 sq. km. each and Urban Design Plans for 2 urban centres of 4 sq. km. each to crystallize specific planning proposals.

- **Phase 5:Implementation Strategy**

This stage examines priority investment projects, identification of feasible development models based on the planning proposals, and then recommends possible financing strategies to facilitate realization of the Concept Plan.

- **Phase 6:Final Submission**

The project concludes with a Concept Plan Summary Report which summarizes the proposals, key recommendations and outcomes of each planning phase.

The following report would be prepared during the various phases of the Project:

- **Phase 0:**
  - Inception Report
- **Phase 1:**
  - Dimensions of Growth of MMR
  - Vision Report for MMR
- **Phase 2 and 3:**
  - Regional Concept Plan Report for MMR
  - Sectoral Reports for 7 key sectors in MMR
- **Phase 4:**
  - DGP Reports for 3 Urban Areas
  - Urban Design Reports for 2 Urban Centres
- **Phase 5:**
  - Implementation Strategy Report
- **Phase 6:**
  - Concept Plan Summary Report

The planning process adopted for this project is described in Figure 1.

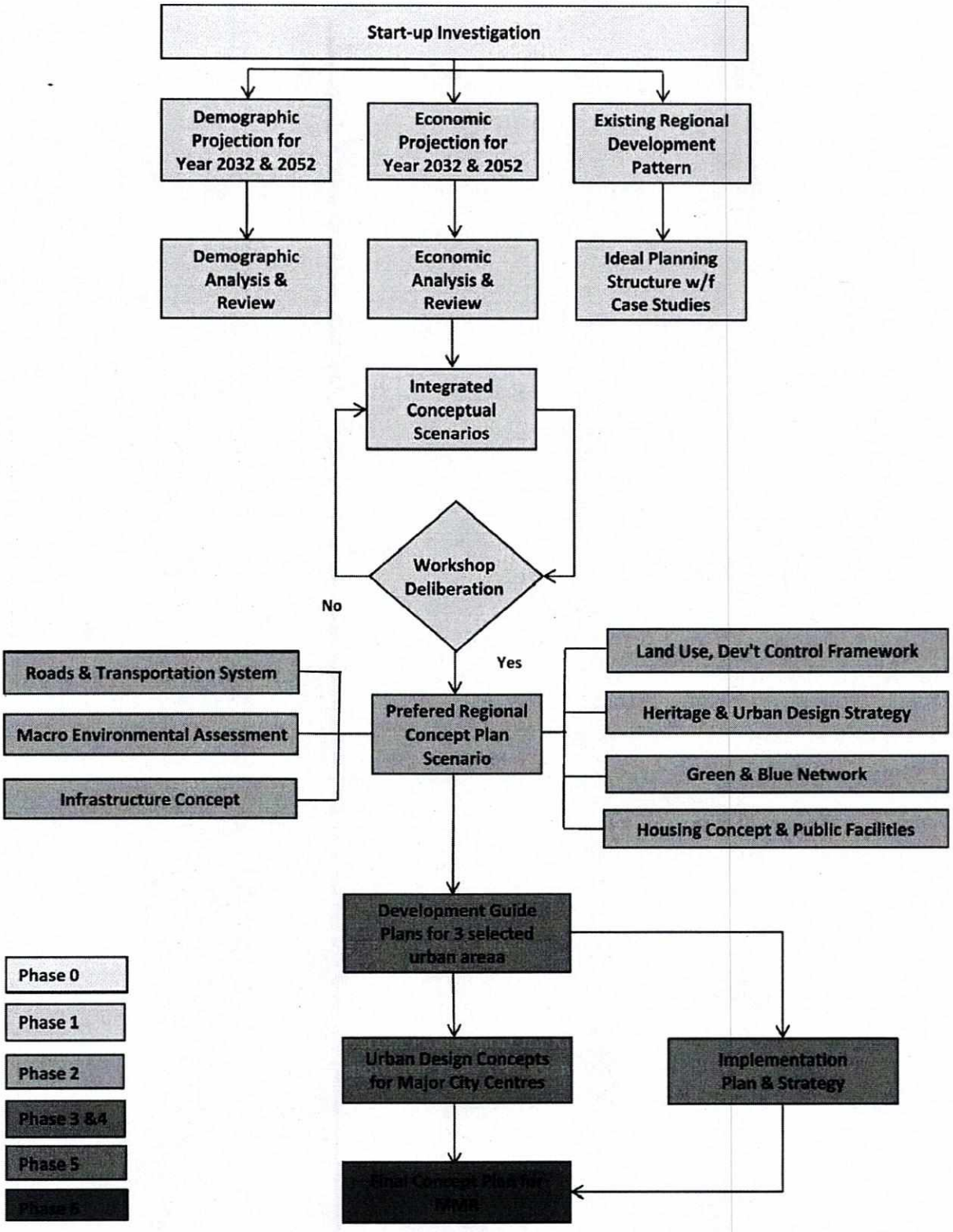

Figure 1: Proposed Planning Process for the Concept Plan for MMR project.
Source: Surbana

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- Mr. V. K. Phatak, former Chief Planner, MMRDA
- Mr. P.K. Das, Architect & Chairperson, Mumbai Waterfronts Centre
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- Mr. Shree Kant Singh, Deputy Chairman
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Background & Purpose

Realization of grand vision and great plans are only possible with practical implementation strategies. This report, therefore, presents the overall strategies for implementation of the Concept Plan for MMR in 5 key steps:

1) Overall Implementation Approach;
2) Phasing Strategy for the Concept Plan;
3) Adoption of Regional Concept Plan, DGP and UD in statutory framework;
4) Implementation of Catalyst & Critical Projects for a meaningful impact on the overall development of MMR;
5) Financial Assessment of 6 high-priority projects for gauging financial viability; and

Issues

While planning is currently happening at both regional and local levels through preparation of Regional Plan and Development Plans, there are some core implementation issues in MMR which needs to be noted in proposing the implementation strategy. These implementation issues include:

- Lengthy and complicated approval process;
- Multi-layers of implementing agencies;
- Rigid & blanketed urban/environmental policies;
- Outdated development control system;
- Limited State owned land; and
- Heavy infrastructure requirement but limited funding.

Overall Implementation Approach

The overall implementation approach is hence focused largely on providing recommendations to overcome the implementation issues in MMR. The strategies include:

- Review of the existing policy framework and the zoning system;
- Expanding of government land bank;
- Revenue generation through land sales programme;
- Develop a robust system of "Development Charges" ;
- Fostering public private partnership for key infrastructure developments;
- Joint development with private sectors on bankable projects ;
- Promotion of non bankable but critical infrastructure projects; and
- Implementation of catalyst projects.

Phasing Strategy for the Concept Plan Implementation

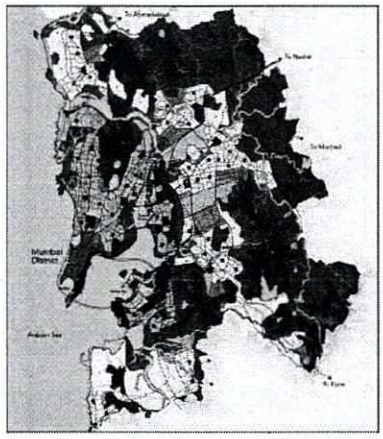
MMR's Development Staging is recommended in 3 phases:

Consolidation • Platforming • Launching

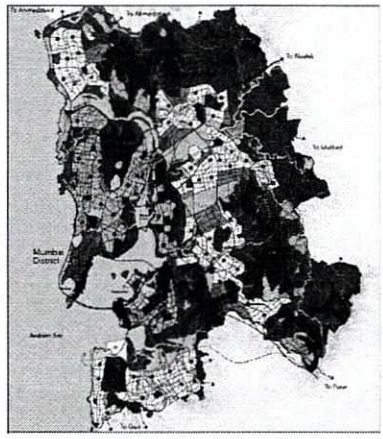
The short term phasing refers to 2020 termed as "Consolidation" phase focuses on consolidation of MMR's assets and efforts in addressing the various socio-economic and environmental issues faced by MMR.

The medium term phasing refers to 2032 termed as the "Platforming" phase focuses on achieving the basic needs in the area of housing, infrastructure, recreation & healthy living environment.

The long term phasing refers to 2052 termed as the "Launching" phase, focuses on achieving its ambition of becoming a Global City .



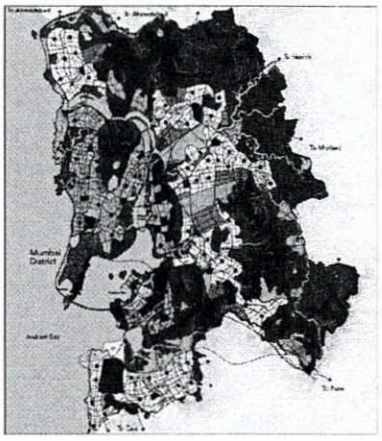
PROPOSED CONCEPT PLAN
2032

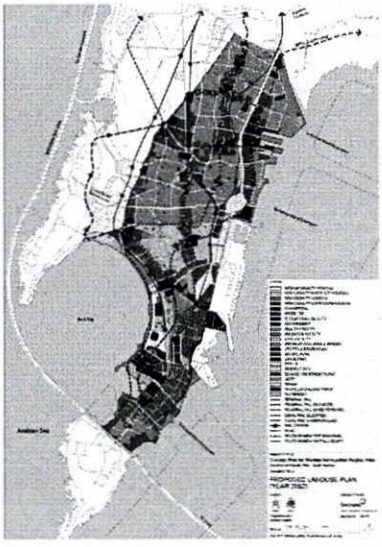


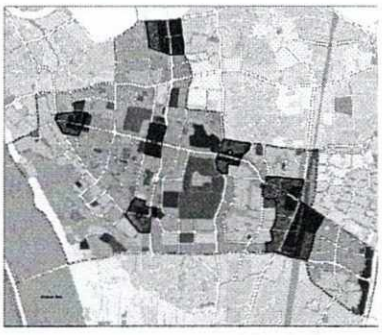
PROPOSED CONCEPT PLAN
2052

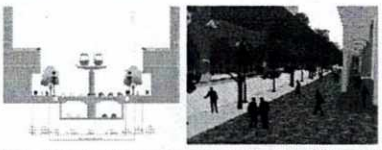
PHASING	FOCUS	KEY STRATEGIES
SHORT TERM (2020) CONSOLIDATION PHASE	**Meeting basic needs:** • Affordable Housing • Employment • Key Infrastructure	• Shift the focus to suburb • Consolidate the inner city • Protect & safeguard land & resources. • Develop Strategic Plans
MEDIUM TERM (2032) PLATFORMING PHASE	**Improving Quality of Life:** • Recreational facilities • Environment quality • Public Facilities provision • Public transportation	• Cleaning up • Beautification • Improvement • Expansion
LONG TERM (2052) LAUNCHING PHASE	**Towards Global City:** • World's best • Art & culture • MICE • Tourism	• World class infrastructure (high speed rail) • Unique features • State of the art technology

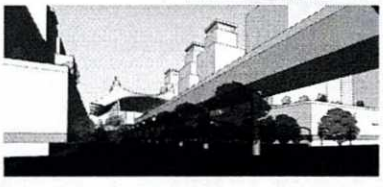
Adoption of the Concept Plan, DGP and UD Proposal











1 Adoption of Concept Plan into Regional Structure Plan

Concept plan is not legally binding and therefore it needs to be adopted into the Regional Structure Plan, which is being prepared by Mumbai Metropolitan Region Development Authority (MMRDA).

In adopting the concept plan, it is unavoidable that critical adjustments to be made upon close examination of the ground situation. As such, it is important to understand the key principles and the planning intention behind the concept plan proposal including but not limited to:

- The restructuring of MMR into 3 urban hierarchies and the proposed urban density.
- The organization of the region into cities and townships, which is defined by the proposed highway grid.
- The reasons behind the distribution of key employment centres and regional level facilities.
- The intention to establish a world class CBD in South Mumbai.
- The intention to protect all the forest and naturally sensitive areas.

2 Adoption of Development Guide Plan into Development Plan

Development Guide Plan (DGP) for South Mumbai and Andheri are just an example of how the concept plan should be translated into a detailed local area plan.

As the Development Plan (DP) for Greater Mumbai is being prepared, it is necessary that the 2 DGP's be adopted into the Development Plan. Again, it is unavoidable that critical adjustments have to be made in the adoption of the DGP's into DP.

To ensure that the planning intentions of the DGP's are captured in the DP, it is understood that constant dialoques are necessary to ensure that the planning intention at regional level are carried thru to local area plan. At the same the feedback from local area plan process should be examined and considered to refine the regional structure plan.

3 Adoption of Urban Design Proposal into Development Plan

Urban Design Plan is not a common feature in the Development Plan document. Considering the importance to optimize and improve the build form at key locations, urban design plan should be mandated as part of the Development Plan.

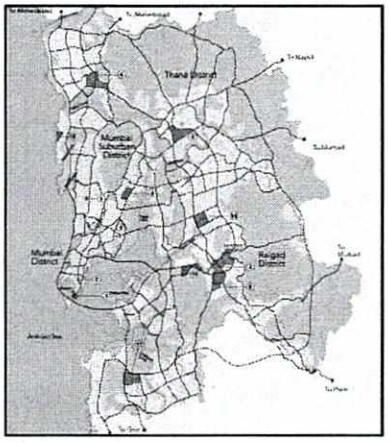
This adoption means that the format of the Development Plan would be reviewed. Besides, it would be necessary to strengthen the institutional set-up within the authority to be able to look into the quality & character of the urban space in MMR.

Proposed Catalyst & Critical Projects at Concept Plan Level

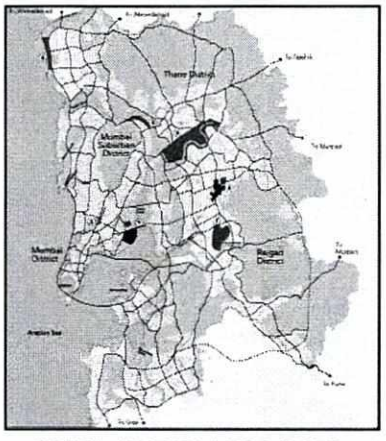
Catalyst Projects	Objective
1. South Mumbai CBD & Heritage Area Redevelopment	To create a new world class financial district in order to cater to future needs of spaces for international businesses.
2. Andheri City Centre Redevelopment	To create a new regional business centre serving the western region of Mumbai City
3.New Panvel Eco-Township	To showcase an eco-town concept and to set a new benchmark on residential township development in the Suburban Area.
4.Vasai-Virar Residential Township	To induce growth and development in the northern suburb.
5. Tagore Nagar Mix Use Redevelopment	To demonstrate the exemplary redevelopment of the existing MHADA colony with integrated employment centre.
6.Industrial consolidation at Bhiwandi	To establish Bhiwandi Industrial Estate as an exemplary project on SME's industries consolidation into compact estate.
7.Market Precinct Redevelopment Study	To showcase the redevelopment of the cessed area in inner city through cluster redevelopment.
8.BKC Extension and Rejuvenation Plan	To redevelop the existing slum and expand the existing BKC boundary northwardand to create iconic new waterfront park as a public destination.
9. New Panvel Education Town	To develop a dedicated international education town contributing to the growth of tertiary education that is one of the important attributes in transformation of MMR into a global city.
10.Taloja Industrial Estate & IWMZ	To establish integrated Industrial Estate and the new Integrated Waste management Zone.
11. CBD-Uran-Rewas Link & New Rewas Township	To establish new link between CBD and southern part of MMR, and to induce growth & development in this part of the region.
12.New Panvel International Logistic & Distribution Centre	To capitalize on the new international airport at Panvel and develop the PILDC as a world class EPZ and Logistics hub.
13. Gorai Resort Development	To develop a quality regional leisure destination that could meet recreational needs of visitors and general population.
Other Critical Project	**Objective**
1.Mumbai Landfill & IWMZ development	To cater to the anticipated high volume of waste generation. And, to address the land scarcity for processing plant & landfill.
2. Kalyan IWMZ & Landfill development	To cater to the anticipated high volume of waste generation. And, to address the land scarcity for processing plant & landfill.
3.Mahim Creek Restoration Project	To showcase a pilot environmental project in MMR for river clean-up & restoration.
4.New Vasai Virar Waterfront Park	To provide a regional recreation destination and improve living quality in the suburb.
5. Thane Eco-Park	To provide a regional recreation destination and improve living quality in the city fringe.
6. New Kalyan/ Bhiwandi City Park	To provide a regional recreation destination and improve living quality in the city fringe.
7. New Panvel City Park	To provide a regional recreation destination and improve living quality in the city fringe.

Selection Criteria for the Catalyst Projects

- The Projects should demonstrate an impactful solution to address current urban issues;
- The projects should be bankable as potential Public Private Partnership (PPP) projects;
- The projects represent diverse activity profile to cover a wide interest group;
- The project should Leverage on existing and committed infrastructures to minimize the initial development cost;
- The projects should have a multiplier effect to spin off other developments in the surrounding area.



CATALYST PROJECTS



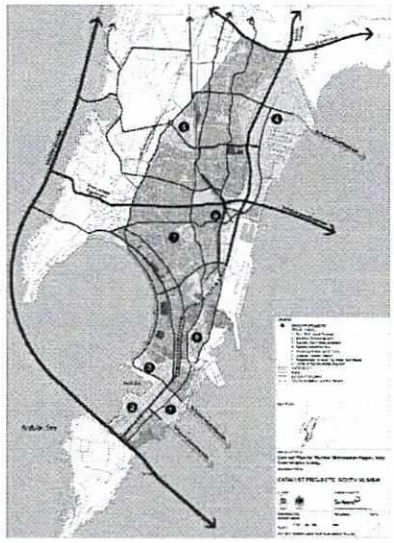
OTHER CRITICAL PROJECTS

Proposed Catalyst Projects at DGP & UD Levels

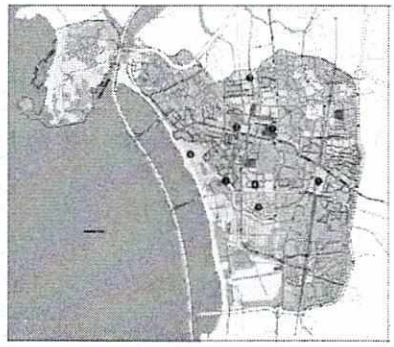
Catalyst Projects in South Mumbai DGP	Objective
1. CBD Redevelopment	To create a new world class financial district in order to cater to the needs of spaces for international businesses.
2.Backbay Redevelopment	To develop existing slum and old colony as well as to activate the shelved reclamation project such that it complements the creation of new downtown CBD.
3.Nariman Point Redevelopment	To rejuvenate the existing CBD with more mix of uses and to introduce vibrancy and better connection to the waterfront.
4.Eastern Waterfront Redevelopment	To develop a new waterfront business and lifestyle district.
5.Shopping Hub - Jacob Circle Redevelopment	To develop a new lifestyle shopping district around the Jacob Circle interchange.
6.Gateway Tourism District	To rejuvenate the area around the iconic Gateway of India as a distinct waterfront tourist district.
7.Regeneration of Inner city areas: Null Baazar	To develop high density commercial, residential and mixed use in the inner city.
8.Sandhurt Square Redevelopment	To create a new regional business centre and to complement activities in the port area.
Catalyst Projects in Andheri DGP	**Objective**
1. Andheri City Centre & Transit Hub Redevelopment	To create a new regional business centre serving the western region of Mumbai City around Andheri Station, and to transform the existing railway station into a landmark civic plaza, which will become the catalyst and integrator for surrounding area.
2. D. N. Nagar Metro Interchange and Mix-use Redevelopment	To develop an efficient metro interchange which is also an iconic lifestyle hub – a trend setter and regeneration catalyst along the 2 metro lines.
3.Shopping Boulevard Redevelopment at Link Road North	To transform the existing shopping street into a premium entertainment destination of western Mumbai.
4.Esic Nagar Township Development	To develop a planned residential community with a bulk of public housing, comprehensive facilities, regional recreation venues and public transit integration.
5.MHADA Colonies Redevelopment at Gulmohar Road	To promote comprehensive redevelopment of the 2 MHADA colony sites.
6.New Western Fringe Waterfront Park	To open up the long stretch of western waterfronts for recreation.
7.Irla Nallah and Mogra Nallah Clean-up	To open up the long canals / streams for recreation.

Several key micro projects have been identified in the DGP and UD proposals to kick-start the regeneration process within South Mumbai and Andheri areas, which would be one the most critical strategies for the master plan implementation at local area level.

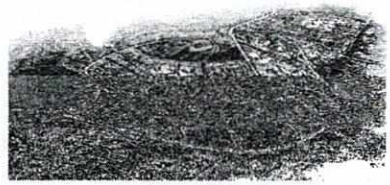
For Panvel East Eco-township development, no micro project is proposed as the whole township is considered as key catalyst project at regional level.



SOUTH MUMBAIPROJECTS

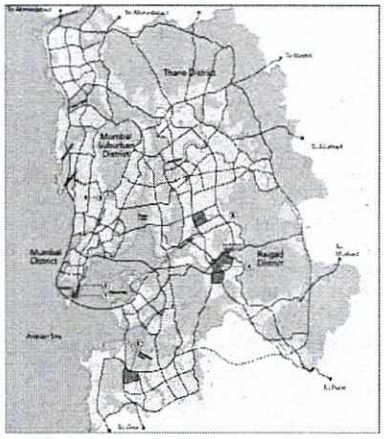


ANDHERI PROJECTS



PANVEL ECO-TOWN

Catalyst Projects selected for Financial Assessment



Six of the earlier mentioned high priority catalyst projects, are highly recommended to be initiated immediately. These projects have been selected for financial assessments for gauging their financial viability. This assessment shall guide the government on the required financial back-up and other requirements to implement the projects. The selected projects are implementable within the current regulatory framework.

The project data and artist impressions of the selected 6 projects are as shown in the following diagram:

1 CBD Redevelopment, South Mumbai

Objective: To create a world class financial district to cater to the growing business needs in the next 10 – 20 years.

Area : 100 Ha

Timeframe: 10 – 15 years

2 Gateway Tourism District, South Mumbai

Objective: To rejuvenate the area around the iconic Gateway of India and transform it into a distinct waterfront tourist district.

Area : 69 Ha

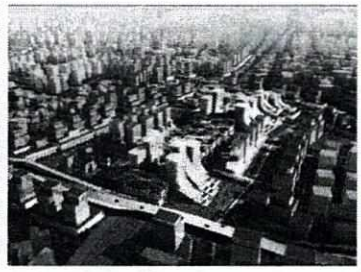
Timeframe: 5 years

3 Andheri City Centre & Transit Hub Redevelopment

Objective: To create a new regional business centre serving the western region of Mumbai City around Andheri Station.

Area : 27 Ha

Timeframe: 5 – 10 years



4 New Panvel Eco-Town

Objective: To set a new benchmark on residential eco- township development in the Suburban Area.

Area : 2214 Ha

Timeframe: 10 – 15 years

5 CBD-Uran-Rewas Link & New Rewas Township

Objective: To establish new link between CBD and southern part of the region and to induce growth & development in this area.

Area : 980 Ha

Timeframe: 10 – 15 years

6 Taloja Industrial Estate & IWMZ

Objective: To plan an industrial estate in integration with the new IWMZ (Integrated Waste Management Zone).

Area : 845 Ha

Timeframe: 10 - 15 years

Financial Assessment of 6 Selected Catalyst Projects

The financial assessment is based on the inherent assumption that the implementation of the catalyst projects should have a minimum burden to the exchequer, to the extent possible. To achieve this intention, three different models have been considered for implementation, which are the Land Acquisition Model, Pooled Development Model and Facilitator Model.

Land Acquisition Model	Pooled Development Model	Facilitator Model
• Government owns and/ or acquires private land • Subsequent development of the project by government on its own or through the private sector	• Government notifies a scheme for development of the project and brings the land owners together as members of the scheme, develops the public infrastructure and returns the lands/ property to the owners	• Government provides only the public Infrastructure while the existing land owners/ pvt. developer arrange for private land and/ or undertake redevelopment

To ensure that the implementation model is workable within existing legal framework, conservative approach using facilitator and pooled development model is proposed for most of the projects. Below is the information summary of the 6 projects assessed:

Project	Development model	Revenue in Rs. Mn.	Cost in Rs. Mn	Surplus in Rs. Mn.	Remarks
CBD Redevelopment, South Mumbai – Scenario 1	Facilitator Model	132,837*	2,414	130,423*	Key surplus generator
CBD Redevelopment, South Mumbai – Scenario 2	Facilitator Model	310,052*	7,484	303,568*	
Gateway Tourism District, South Mumbai	Self Development Model	4,400	1,825	2,575	Self Financing
Andheri City Centre & Transit Hub Redevelopment	Facilitator Model	8,884	861	8,023	
New Panvel Eco-Township	Acquisition Model and Land Pooling Model	160,636	159,211	1,425	
CBD-Uran-Rewas Link & New Rewas Township	Land Pooling Model	36,180	37,940	(1,760)	Self Financing
Taloja Industrial Estate & IWMZ	Acquisition Model	37,960	36,180	1,780	

Upon the financial assessment based on the suitable models, the South Mumbai CBD Redevelopment project is envisaged to generate significant surplus revenue. The Andheri City Centre Redevelopment is also likely to generate some surplus for the government. The other four projects, i.e., the South Mumbai Tourism Gateway, New Panvel Eco-Township, New Rewas Township and Taloja Industrial Estate and IWMZ are by and large envisaged to be self-sustaining

While the financial assessment is prepared using conservative approach and based on certain assumptions and a most realistic scenario, alternative implementation options are proposed for authority's considerations. This implementation options explore the possibility of using non conventional approach, such as land acquisition model and PPP model, which might be more challenging for the execution given the political situation in Mumbai, when executed however, it may be able to make a break-through in asserting structured redevelopment in urban Mumbai.

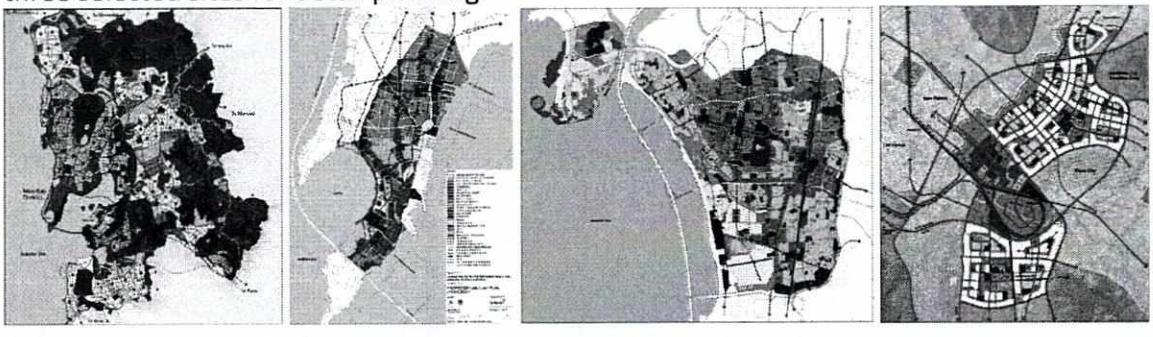
CHAPTER 1: INTRODUCTION

This implementation report is a part of the deliverable for the Phase 5 Implementation strategies which covers overall implementation approach; phasing strategy for the Concept Plan; adoption of Regional Concept Plan, Development Guide Plan and Urban Design Proposal in statutory framework; proposed catalyst and critical projects for a meaningful impact on the overall development of MMR and for investment priorities; financial assessment of 6 high-priority projects for gauging financial viability and implementation actions for executing these 6 selected projects.

1.1 Background and Purpose

This Implementation Report for MMR is the eighth report prepared as part of the Concept Plan Study for the Mumbai Metropolitan Region (MMR).

The earlier work phases of the project involved a detailed socio-economic study and preparation of a long-term development vision for future MMR as a Global City. Clear and measurable goals were set for various physical developments attribute e.g. transportation, environment, housing, infrastructure, business centres, parks and recreation. To prepare MMR to achieve this ambitious vision, a broad framework of planning strategies were also established in the proposed Concept Plan for Mumbai Metropolitan Region (MMR) under phase 2 & 3. The planning strategies, among others, stress upon the essence of accelerating development of new growth areas in the outlying MMR through multiple townships as well as rejuvenating existing built-up suburbs through urban renewals. Subsequent to these phases, Phase 4, involved detailed planning and urban designing for prototypical areas of the Region. These detailed plans were prepared to showcase how the recommendations made at the regional level can be translated into local level plans for three typical areas of the Region, namely – Inner City Areas, existing built-up City Fringe Areas, and the largely greenfield outlying Suburban areas of the Region. South Mumbai within Inner City, Andheri within the City Fringe Areas and Panvel East within the outlying Suburban areas were the three selected sites for detail planning.



Several strategies and projects are identified within each of these phases to help transform the proposed concept plan and the local area plans into reality. While the former studies presented largely the physical planning aspects of the project, this implementation phase shall comprise of an overview of overall strategies proposed so far and the detailed financial

analysis for some of the highly recommended catalysts project that is expected to have a meaningful impact on the overall development of MMR. The detailed financial assessment shall help in gauging the financial viability of these projects and will also highlight the suitable model for implementing the catalyst projects. In addition to financial assessment, the selected projects shall also demonstrate the various implementation strategies recommended in the study.

1.2 Organization of the Report

In addition to this chapter, the report consists of other chapters as outlined below:

Chapter 2: Existing Context – This chapter explains the current developments within MMR highlighting the key urban projects. The chapter also presents the general issues in the current planning and implementation practises in MMR.

Chapter 3: Overall Strategy – This chapter explains the overall implementation approach; Concept Plan phasing strategy and mechanisms to adopt the proposed concept plan for MMR, the Development Guide Plans and the Urban Design Schemes as prepared in the previous phases.

Chapter 4: Catalyst Projects – This chapter explains the key catalyst and critical projects as proposed in the Regional Concept Plan, the Development Guide Plans, and the Urban Design Schemes and also highlights the details for the six high priority bankable catalyst project selected for financial assessment.

Chapter 5: Financial Assessment – This chapter presents the detailed financial analysis for six highly recommended catalysts projects that is expected to have a meaningful impact on the overall development of MMR. The detailed financial assessment also highlights the suitable fiscal model and different implementation options for implementing the 6 selected catalyst projects. The Chapter also presents the step-by-step guide to implement the 6 selected catalyst projects demonstrating various implementation strategies recommended in the study.

Chapter 6: Way Forward – This Chapter highlights the summary of key recommendations for implementation of the MMR Concept Plan and the subsequent follow up actions to be conducted post project.

CHAPTER 2: EXISTING CONTEXT

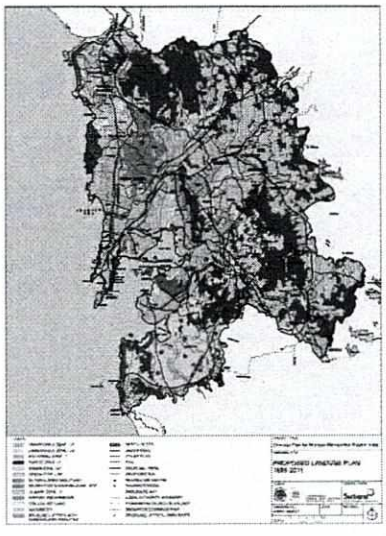
This chapter explains the current planning and implementation scenario in MMR and the ongoing developments within MMR highlighting the key urban and regional projects. The chapter also presents the general issues in implementation practises.

2.1 Planning & Implementation in MMR

In MMR, planning and implementation happens at regional level and local level.

- **Regional level:**

The Mumbai Metropolitan Regional Development Authority (MMRDA) prepares a Regional Plan which serves as a broad guide to overall development across the Region. The Regional Plan sets the broad social-economic and spatial growth direction in the Region. It suggests broad habitation zones for urbanization, industrial development, ports and airports, tourism and recreation; as well as broad conservation zones such as forests, wetlands, water bodies, heritage sites and green and open spaces.



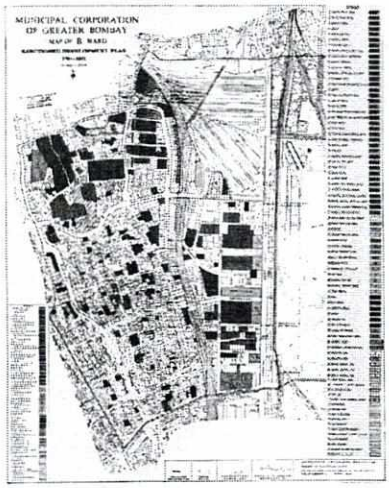
MMRDA is also a Special Planning Authority (SPA) for several notified areas within MMR, such as Bandra Kurla Complex (BKC), Backbay Reclamation Scheme, Oshiwara District Centre, and the recently notified villages around Kalyan and Bhiwandi, etc. It also coordinates as well as undertakes regional level infrastructure projects in the Region. It provides project financing in two ways; one is to offer development financing to all municipalities within MMR and another is to play a role of nodal agency to channel the Central Government funds such as JNNUMR to finance local projects within MMR.

As per a recent Government of Maharashtra directive, the planning of MMR is now under the purview of an elected statutory body, the Metropolitan Planning Committee for Mumbai (MPC). MMRDA is currently the technical and administrative secretariat to the newly established MPC for the preparation of a new Regional Development Plan for MMR.

- **Local level:**

The Urban Local Bodies (ULBs), such as the Municipal Corporations and Councils, Town Councils etc., prepare city / town level Development Plans (DP) which guides detailed development within respective their administrative areas. The preparation of Development Plan involves 2 main components – the making of a Development Plan stipulating zoning for land parcels for all necessary types of land uses including public facilities within the planning area; and the Development Control Regulations (DCR) which are statutory rules that all developments would have to comply with in order to meet the planning intention of the DP. The DP contains two categories of land use designations – usages within plots in the private

domain, and different types of social facilities designated as reservations. The following figure shows part of MCGM's current DP where various colour shown in the legend represent the various land reservations for such purposes.



At par with this are the DPs prepared by designated Special Planning Authorities (SPAs) which are responsible for planning and development within their notified areas. Some of the SPAs in MMR are MMRDA, MIDC, MPT and JNPT etc. Further there is also an exclusive agency appointed by the State Government which specifically undertakes development planning of new towns. In case of MMR, CIDCO is the New Town Development Authority (NTDA) which undertook the development of Navi Mumbai. Detailed development in areas of the Region outside the purview of the ULBs is directly under the control of MMRDA.

While there are visible existing foundations of regional / local planning efforts through implementation models such as SPA Model, City / Town level DP & DCR Model, NTDA Model, MHADA Model, etc with the supporting policies such as cluster redevelopment, mega city and special township schemes, there are several improvements that needs to be built upon these policies and institutional arrangements for successful implementation and to achieve the desired planning intent.

2.2 Ongoing Urban and Regional Projects

Most of the major ongoing urban and regional projects within MMR are focused mainly in the sectors of transport, infrastructure and housing. The key projects are tabulated below.

Table 2.1: Ongoing Urban and Regional Projects

Ongoing Urban & Regional Projects		Description
Transport	Western Freeway Sea Link	Phase 1 of the sea link (Bandra-Worli Sea Link) completed. Further phases include development of Worli –Haji Ali, Haji Ali – Nariman Point, and Bandra – Versova.
	Mumbai Trans-Harbor Link	Sewri – Nhava Link and Sewre – Worli elevated road
	Metro Rail	Phase 1 includes Versova – Andheri – Ghatkopar Corridor. The Charkop – Bandra – Mankurd and the Colobar – Bandra – Santacruz Corridors under subsequent phases.
	Monorail	Chembur to Jacob Circle
	Rail Expansion	MUTP I & II, includes current work at JVLR and SCLR.
	Airport at Navi-Mumbai	Proposed 1140 Ha Airport with 2 parallel runways and designed to handle 60 m passengers per annum by 2030.
	Eastern Freeway	To ease port traffic and to be completed in 2011.
	Vasai/ Virar – Alibaug multi- modal corridor	8 lane multi modal corridor of 140 kms length from Virar to Alibaug
	Sion – Panvel Expressway	Sion – BARC elevated road & the Thane Creek Bridge
	Redevelopment of Chhatrapati Shivaji Terminus	Redevelopment of the existing terminals
	Comprehensive Transport Study	This study accounts for the transportation requirements of MMR until 2031.

Ongoing Urban & Regional Projects			Description
Infrastructure	Water Supply	Desalination Plant	Feasibility study is being conducted to study the possibility of 100 MLD seawater desalination plant at Vasai – Virar, Mira – Bhayander and Mumbai city.
		Construction of New Dams	The dams will be providing a total of 5,110 MLD to MMR by 2021, excluding Damanganga project
	Storm Water Drainage	BRIMSTOWAD Phase I and II (2006 – 2010)	The second phase of the work will start from 2011 onwards. It will include augmentation of drain in the city area; cleaning and improvement of drains in the western suburbs; construction of pumping station at Lovegrove, Haji Ali, Cleaveland Bunder, Irla Nalla, Britania Outfall, Gazdarband and Mahul Outfall; widening of the various existing nalla in the eastern suburbs.
		Mithi River Development Phase II (2007 - 2010)	It is expected to solve the flooding problem within the catchment areas of the Mithi River. The work includes dredging, deepening and widening of the stretch of Mithi River, construction of retaining walls and service roads and beautification of the river.
	Sewerage	Mumbai Sewage Disposal Project II (2005 – 2010)	The project is proposed to cater for the projected increase in sewage generation by 2025 and meet higher sanitation standard in the future. The objectives of the project are reduced pollution level in nallas, creeks and Arabian Sea; total removal of sewage from the city's drain, water bodies and beaches; more sanitation facilities built for the slum communities; full compliance on the effluent discharge standard as required by MPCB.
	Solid Waste	Development of Regional Landfill Sites	For phase I, the following locations have been identified: Bhiwandi (352 Ha), Kalyan (259 Ha) and Taloja (443 Ha). Identified locations for phase II are Ambernath - Ulhasnagar (1225 Ha) & Old Pune - Panvel road (207 Ha).
Housing	Urban Renewal Scheme		The GOM has proposed an Urban renewal scheme for reconstruction or redevelopment of cessed buildings in Greater Mumbai through joint ventures between MHADA tenants, landlords and private developers.
	Redevelopment of MHADA colonies & JV scheme		MHADA has proposed to redevelop its existing 133 colonies in the MMR. Additional Incentive of 2.5 FSI has been granted for redevelopment of MHADA colonies.
	Slum Rehabilitation scheme- RAY		Rajiv Awas Yojana (RAY) has been launched in August 2009, by GOI as part of the JNNURM program to rehabilitate slum dwellers and urban poor to promote a "slum free India".
	MMRDA's Rental Housing Project		MMRDA has approved rental housing projects in 31 locations with 225,184 estimated dwelling units each having 160 sqft carpet areas.

Source: MMRDA

While the abovementioned projects indicate the key investments in infrastructure and the pressing needs of housing, much larger efforts will be required to meet the present as well as estimated extensive demand of future.

2.3 Implementation Issues

Some of the core implementation issues in MMR include:

- **Lengthy and Complicated Approval Process**

Traditionally, regional level plans are prepared at intervals of roughly 20 years. The MRTP Act, 1966 and its amendments stipulate a review period of 10 years for a DP. However, it is observed that such planning cycle is considered too long and not dynamic enough to meet the fast changing business and urban development needs witnessed in MMR.

Also, due to different planning cycles for the Regional Plan and the DPs, there tends to be a coordination gap between these two levels of plans. This can be seen in the case of a few Draft DPs (for examples, Greater Mumbai: 1990, Vasai-Virar: 1992, Thane: 1992, Bhiwandi-Nizampur: 1993) which were published in early 1990s, just a few years before the current Regional Plan, 1996 and 2011 being released.

Currently, the approval processes of master plans entail the submission of the Draft Regional and Development Plans directly to the State Government for approval, along with undertaking of public consultation through a publicised exhibition. Moreover, the approval of infrastructure and transportation projects in Region is also sought from the State government. However, there are minimal consultations involved at the draft plan stages between the Regional Planning agencies, the ULBs and the infrastructure development agencies, which is critical to ensure coordination development.

- **Multi-layers of Implementing Agencies**

Similar coordination issues also occur in the case of transport and infrastructure provisions. A large number of agencies from the National, State, Regional and Local levels are responsible for different levels of planning and infrastructure provisions, but they operate largely independently such that misalignments with the planning intentions of the Regional Plans and the DPs are not uncommon.

- **Rigid & Blanket Urban**

Uniform application of policies like blanket FSI has indirectly resulted in the stagnant urban form today. FSI controls the density and the built form of the area. In Mumbai given the high density of the city, the FSI is kept very low at an average of 1.33 in the Island city. It is also uniformly distributed without regard for type of land uses it falls on. The use of blanket FSI tends to set a flat density across the City, resulting in under utilization of strategic sites especially those near transit nodes where density should be high to capitalize on the convenient transport services. The uniformly applied FSI has also led to horizontal expansion of the suburbs and monotonous uniformity in the urban form.

- **Outdated Development Control System**

There is a lack of Urban Design and Detailed Planning within the existing planning framework. There is no provision for urban design in the planning framework stipulated by the MRTP Act, 1966. The few cases where urban design guidelines have been developed were the special projects done by SPAs, such as BKC, Nariman Point, etc. However, due to

lack of regulatory enforcement of these UD guidelines, implementation of urban design in these areas has not been very successful. The Special Projects Division under CIDCO has also attempted to use urban design guidelines for some of their areas, such as the Central Park project. With the rapid development in MMR, it is necessary to urgently look into this level of detailed planning and establish the framework in which such detailed planning could be executed and implemented. This level of planning will improve the micro environment within the city, and strengthen city character, especially at the nodal points and other key areas within the city.

- **Limited State Owned Land**

Government land ownership is one of the key factors which govern the effectiveness of urban planning in any city, as can be seen from numerous cases around the world. Land within MMR is largely under private ownership and the limited government land bank is one of the major factors which constrain the planned and integrated development in MMR. Moreover, the existing policies prohibiting direct government land holdings limits the government's opportunity to make timely and strategic land acquisitions that can allow it to benefit from planned urbanization and thus expand its land as well as capital resources. The government in MMR needs large amount of land for affordable housing, infrastructure and public facilities in order to realize the grand vision in targeted timeline.

- **Heavy Infrastructure Requirements but Limited Funding**

While, the concept plan puts forward a comprehensive long term vision for MMR's transformation and different planning proposals to make it happen, there is a huge gap between the MMR's vision and the reality. If MMR is determined to grow as a global economic hub, it will have to make heavy investments in upgrading the social and physical infrastructure to make MMR a destination conducive to robust business and lifestyle activities. However, with the limited government funding resources, MMR shall seek alternative funding possibilities for implementing the Concept Plan.

There are several strategies recommended throughout the different stages of Concept Plan preparation highlighting some of the key measures to be considered to tackle these issues and execute the Concept Plan in an ideal manner. The subsequent chapter shall elaborate the overall strategy recommended for the implementation of the MMR Concept Plan.

CHAPTER 3: OVERALL STRATEGY

This chapter presents the overall strategy recommended for the implementation of the Concept Plan for MMR. It explains the overall implementation approach, phasing strategies for implementation of the concept plan and the mechanisms to adopt the proposed concept plan for MMR, the Development Guide Plans and the Urban Design Schemes as prepared in the previous phases.

3.1 Overall Implementation Approach

The overall implementation approach is focused largely on providing recommendations on issue specific strategies such as reviewing the existing policy framework and the zoning system, expanding the government owned land, increasing the government funds through land sales programs and development charges, building partnerships with private sector for infrastructure developments, forming joint ventures with private sectors, promoting of critical infrastructure projects and implementing the catalyst projects identified in the Concept Plan, etc. These specific strategies are elaborated as below.

3.1.1 Proposed Improvement to the Regulatory Framework

- **Review of the existing Policy Framework and the Zoning System**

Considering the nature of the existing policies such as Cluster Redevelopment Policy, TDR & Heritage Conservation Policy, Special Township & Mega Township Schemes, etc, which are although favourable, requires several improvements above these policy regulations to ensure that the planning intentions are met. These variations are proposed in the form of diversified zoning classification with parameters such as minimum lot size, new FSI allocation, development control and urban design guidelines and proposed designated areas for new townships within the Concept Plan and DGP/ UD proposals (Refer to Appendix 1 for details on recommended FSI restructuring strategies).

Zoning Plans of developed cities such as New York, Tokyo etc. reveal that a large number of detailed zones within the broad residential, commercial and industrial categories are proposed based on the intended density and character for different areas of the City. Such detailed zones guide and control development in the city areas at a more micro level, thus creating variation in functions and character in different areas of the city. This is in contrast to the DPs prepared in MMR, where broad zoning classes such as residential, commercial and industrial, have very few sub-categories and are applied blanket.

It is recommended that at the DP stage a range of appropriate zones or zoning types be developed based on the city's existing structure and physical character. The parameters governing the different zoning types in the DP also need to be reviewed. This is considering the many new development control parameters that the city may want to add to the current parameters in order to encourage newer development typologies within the city areas.

- **Develop a robust system of "Development Charges"**

Development Charge is the tax on the enhancement in land value resulting from the government approving the higher value of land through rezoning exercises and is mostly in terms of change in use or floor space within the particular land parcel. Such practises help in lessening the financial burden to the public sector, as the enhanced land value is shared amongst the government- the provider of the services/infrastructure and the private owner of the land.

A systematic approach will have to be derived in order to formulate a practical development charge rates based on different geographical locations, existing land uses and the current land prices. The rates are recommended to be reviewed biannually based on the market surveys.

Three key components need to be considered for the calculation of Development Charges.

- **Proposed development value as per the Concept Plan:** This value is to be computed based on the total floor space as per the recommended FSI in the Concept Plan.
- **Current development value as per the obtained planning approval:** This value is to be computed based on existing built-up area or the maximum area that was ever built-up on that plot with planning permission. It is especially applicable for many existing urban areas where development is approved for higher FSI than the current allowable FSI.
- **Development value as per the historical Regional Plans:** This value is the potential value of the development on the plot as per the various historical regional plans. It also ensures that even if the plot owner has not built-up the maximum allowable quantum, that potential quantum is fairly considered for the sake of calculations.

Hence, the development charge to be incurred by the developer/ land owner will be the resultant value after deduction of the current development value or the development value as per the historic regional plans, whichever is higher, from the proposed development value as per the Concept Plan.

3.1.3 Fostering Public Private Partnership for implementation

- **Public Private Partnership for Key Infrastructure Developments**

Another key strategy to deal with the need of huge infrastructure investments and limited government funding is to partner with private sector for implementing the large scale infrastructure projects such as expressways, mass rapid transits, etc. These infrastructures are generally constructed and operated by private sector under a procurement system called build-operate-transfer (BOT). Under this system, the private sector is responsible for financing, construction, and operating a facility and in return is granted a right to generate revenue from the facility for a specific period. After the concession period, the facility is then transferred to the government. This is especially suitable in situations of limited government funds, as the government need not spend any public funding but still can provide the much needed public infrastructure to its city. However, for successful results, the system needs a structured set of BOT regulations and legal system and a clean government without intervention of politics.

- **Joint Development with Private Sectors on Bankable Projects**

This approach seeks for a stronger partnership between the implementing government agency and the private sector right from the beginning as a joint venture company. Under this approach, the government's role shifts from just being a facilitator to being a partner developer who could potentially secure its own public shares of profit, thus expanding its investment funds for future public projects. Such independent joint venture vehicle will play the role of a master developer for township developments especially in outlying cities and fringe areas. This JV entity can enjoy special policy concession from the State Government which is deemed as capital-in-lieu from government investment in the township; the private partner would contribute cash capital for contiguous land holdings, infrastructure and building developments. Cash proceeds from land sales or unit sales could be shared among JV partners.

3.1.4 Immediate Critical & Catalytic Projects

- **Promotion of non bankable but Critical Infrastructure Projects**

Environmental and utilities infrastructure projects such as Mahim creek restoration, river clean up initiatives or Integrated Waste Management Zones (IWMZ) proposed at various sites within Mumbai, City fringe and Suburb for waste processing etc are quite critical to the overall development of MMR. While these projects may not be an attractive investment deal for the private sector, these long term infrastructural and environmental city projects shall be promoted and will have to be implemented by the public sector through sourcing of loans from donor agencies like World Bank and ADB. Some of the projects such as development of IWMZ will have to be followed through with detailed studies, identification of exact locations and acquisition of the land.

- **Implementation of Catalyst Projects**

Several catalyst projects have been identified throughout the different phases of physical planning proposals. (Refer to Chapter 4 for details on the proposed Catalyst Projects for implementation of MMR Concept Plan). The key objective of all these projects is to induce development in the surrounding areas as per the planning intentions and demonstrate successful implementation setting a benchmark for similar developments in MMR. Timely implementation of these catalyst projects is critical to the overall development of MMR.

3.2 Phasing Strategy for the Concept Plan Implementation

The Regional Concept Plan is a long term development proposal. However, it is of utmost importance to identify the short and medium term actions that is vital in paving the way towards achievement of the long term goal. With multi dimensional issues of MMR, it is also essential to prioritize actions such that the limited resources can be utilized in an optimal way to resolve more urgent and pressing issues.

For the purpose of this study, short term development refers to actions for next 10 years and it is followed by another 10-year medium term plan till 2032. Long term development is targeted at year 2052. The short term phasing is broadly termed as the "Consolidation" phase whereby loose practices are consolidated and a holistic strategy is formulated to

tackle urgent issues such as affordable housing, employment, and infrastructure upgrading so that the basic needs of the population are met. The medium term phasing refers as the "Platforming" phase whereby several platforms are built to facilitate implementation of multiple beautification and upgrading projects so as to improve quality of life. Lastly but not least, the "Launching" phase in the long term will showcase MMR to the world its ambition of becoming a Global City by launching a number of world standard and high profile developments to reflect its economic and social capability.

3.2.1 Short-term Development Strategy (2020)

The short term developments should ride on the committed projects and planning initiatives. For example, the coming development of a new international airport at Panvel may spin off potential city development in the locality of Panvel. Others include the monorail and metro rail and the major trans-harbour link road project. These transport projects can give rise to opportunities for cluster redevelopments along these transport corridors; for example, TOD development at the interchange of metro rail and suburban rail in Andheri is a possible target.

Another focus should rest upon the inner city of Mumbai and city fringes. Rejuvenation of the existing CBD at Nariman Point and Fort shall be pursued through implementation of urban design proposals to restore and refresh the lost character as an international business centre. Besides new slum redevelopment schemes, existing public housing areas in the inner city and fringe areas should be improved in the area of estate management so that a better local living environment is enabled. To provide affordable housing, pilot projects in the suburbs to develop eco model townships can be considered so that a substantial quantity of affordable housing units can be delivered.

For utility infrastructure, besides carrying out the committed projects, there will be numerous maintenance works to rectify the current pipe leakage and system fault so as to restore their planned capacity. Further, a more important task is to initiate long term planning by carrying out feasibility studies on various ambitious infrastructure schemes in anticipation of the long-term problems. Feasibility studies such as Waterway and Water Resources Clean-up Study, Mahim Bay Barrage Project, Water Catchment Study of Mahim Bay and Thane Creek & Sea water desalination, solid waste incineration, etc., can be considered.

3.2.2 Medium-term Development Strategy (2032)

This phase will focus on setting up platforms to implement various environmental restorations, to enhance and beautify existing assets, and to construct new major infrastructures such as seawater desalination plant, centralized Sewerage Treatment Plant, and Solid Waste Incineration Plant so as to enable better quality of living.

All proposed transport projects in the CTS till 2031 should be implemented. In addition, new development areas especially the Suburban cities in the hinterland not covered in the CTS should be provided with extended road and rail systems to enable accessibility. As optimization of road space is one of the key objectives, it is timely to introduce some forms

of control on car ownership, such as Vehicle Quota System (VQS) to control the car population growth within MMR, so that the demand for road space can be better managed. Further, feasibility study on long-term high-speed rail or new Rewas airport should be initiated so as to facilitate necessary land or space corridor safeguarding in all DP reviews for such infrastructure.

Extensive scale of township development projects providing housing with integrated facilities should be planned, phased, and executed through various financing models such as PPP, BTO, etc., in the Suburban cities on the hinterland.

Another important milestone is to examine the feasibility of land reclamation at the eastern shore of Thane Creek in order to realize the new land mass for future expansion of the South Mumbai CBD. Although this may be a sensitive issue to study, it is an essential step which can ensure the Government with a concrete finding revealing the true costs and benefits.

3.2.3 Long-term Development Strategy (2052)

The previous phases of development, by then, will have created a firm foundation for MMR to start on ambitious projects so that its status as a Global City will be seen. The development focus may then turn from projects for basic needs to city enhancement projects so that a unique character and identity of MMR will emerge on the global stage. Key projects may include high-speed rail, state-of-the-art civic or cultural establishments, Expo site and theme parks, new world-class airport at Rewas, etc.

In addition, the housing provision will shift gradually from basic quality to high quality as the society is getting affluent in the long term. If reclamation is to be realized, there will be a lot of opportunities for quality waterfront housing at the southern part of MMR near the downtown CBD.

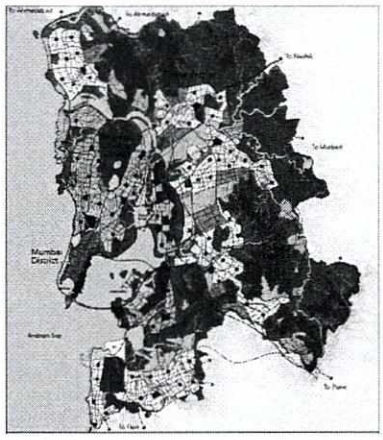
3.3 Adoption of the Concept Plan, DGP and UD Proposal

In order to materialize the grand vision, it is critical for MMR to adopt the Concept Plan, DGP and UD proposal and translate them into localized regulatory documents that can guide the growth and urban development towards the intended directions.

3.3.1 Adoption of the Concept Plan into Regional Structure Plan

The Concept Plan serves to complement the on-going statutory review of the Regional Plan for MMR by offering insightful ideas on new and bold development concepts to facilitate a progressive transformation of MMR over time. The comprehensive set of development concepts and strategies proposed in the Concept Plan therefore needs to be adopted into the gazetted Regional Plan which also becomes the structure plan for the region that guides all physical planning activities within the Region in relation to land uses, housing and social amenities, transportation, employment, utilities infrastructure, environment management, recreation, culture and urban design.

The following refinements are proposed to the current planning procedure and the Regional Plan.



MMR CONCEPT PLAN

- Planning Process in MMR needs to be reviewed. For example - The planning intervals for the Regional Plan and Development Plans need to be shortened and their release time needs to be synchronized in order to ensure effective coordination between these Plans. It is also recommended that on approval of the regional plan, the regional planning authority -MMRDA shall brief the regional plan to all the ULBs and then onwards all the DPs should begin to be reviewed not later than 2 years from the release of Regional Plan. The MMRDA should also be one of the authorized agencies to approve the DP. It is important to ensure that DP is in compliance with the RP and its planning intentions in terms of regional transportation corridors, infrastructure, housing and employment distribution etc are respected. Hence, it is recommended to expand MMRDA's role to be a central coordinating agency in the Region. A Review & Coordination Committee may be formed directly under MMRDA, which would serve as a platform for integration and coordination of all physical planning activities by individual ULBs across the Region. To achieve and ensure such higher level of efficiencies in the planning process, it is also recommended to implement the GIS based "Integrated Land Use Data Management Systems" (Refer to Appendix 1 for details on integrated land use management in GIS).

Table 3.1: Recommended Planning Interval

Planning Activity	Regional Plan	Local Areas DP	Urban Design
Plan Preparation (Review of previous plans)	10 yearly	5 yearly (within 2 years of approval of Regional Plan)	On need basis After the approval of DP
Interim Review	5 yearly	On need basis	-
Urban Design Review	-	-	5 yearly
Responsible Agencies	By MMRDA	By ULBs / SPAs	By ULBs / SPAs

Source: Surbana

- In order to ensure an effective implementation of the master plans, the institutional capacity within each ULB needs to be strengthened. Within each planning agency, a well established planning division shall be staffed with qualified planners, urban designers, ecologists, sociologists, economists and real estate specialists who will monitor fulfillment of the master plans.
- It is recommended to restructure the administrative boundaries of the individual cities, in relation to the urban area hierarchy proposed in the Concept Plan. Such larger, more comprehensive city boundaries would ensure more effective urban management efforts.
- In order to ensure an integrated and structured growth, it is important for every urban area within MMR to be administered with a long-term development plan such that unplanned ad-hoc developments are avoided.

- While the existing Regional plan only classifies land as urbanizable zones, industrial zones and the rest largely as open space classifications, the Concept Plan proposes a rational distribution of land resources to cater for different land needs for housing, offices, industries, regional level educational and medical institutions, recreation, transportation, etc.
- Obstructive existing policies that prohibit direct government land holdings will also have to be reviewed as it limits the government's opportunity to make timely and strategic land acquisitions that can allow it to gain larger stake and financial benefits from planned urbanization. Rigid and blanket urban policies such as uniform application of FSI also need to be reviewed.
- Development Control Strategy needs to be reviewed including review of FSI strategy, existing zoning classification, parameters and guidelines. The completely lacking urban design guidelines will also have to be introduced to ensure preservation, enhancement and creation of character in different areas of the City.

3.3.2 Adoption of the Development Guide Plan into Development Plan

Development Guide Plan (DGP) looks at how the local area could be best planned in relation to the regional concept plan. As such, it provides the necessary information for the establishment of Zoning Plan or "Development Plan" (DP), which is the legal regulatory plan in Indian context. Development Plan (DP) ensures land reservation for public facilities and infrastructure development. It also regulates how each land parcel could be developed, in terms of density (FSI), building height, setback, allowable uses subject to compliance to various planning requirements. The DCR framework is well established, however, there are several development control mechanisms which need to be reviewed when comparing with global benchmarks.

While the DGP is more of an ideal planning proposal, it needs to be translated into DP and gazetted as legal plan, considering site constraints, policies and other local considerations. DP for the whole MMR should be coordinated in terms of zoning classification and type of development control to be set, although the actual parameter of the development control may vary from place to place.

Current DP emphasizes on reservation of land for public use which needs to be refined further to allow it to regulate private land for development. Proposed review and refinement to current DP role and its format are:

- **Diversified Zoning Classification:** In the current DP process there are very limited types of zoning classes, which do not designate areas for special types of uses, and result in the creation of a monotonous urban character. For example, the current residential zones are only limited to two types, namely, "R1 - Pure Residential Zone" and "R2 - Residential Zone with shops". Similarly, there are only two types of commercial zones, namely, "C1 – Neighborhood Level Commercial" and "C2 – City Level Commercial". However, the DGP proposals envision a variety of development zones. For example, multiple housing typologies are proposed, such as low density residential, medium density residential, high rise residential, mix-use zones etc.

The logical rezoning efforts initiated by government will also drive the redevelopment of the dilapidated and stagnant urban form within the existing urban areas.

3.1.2 Increasing Government Land Holdings and Revenue Stream

- **Government Land Bank**

Immediate and strategic land banking will ensure timely supply of sufficient land & fund for future development of MMR. The government shall first identify suitable sites of strategic significance to its mission, and then acquire the land. Strategic areas around the commercial and transit nodes and areas which are ideal for mass affordable housing could be among the priorities. In order to ensure that the government has an adequate stake in steering the growth and development direction in the different areas of MMR, several strategies have been recommended which may enable the government land holdings to take place (Refer to Appendix 1 for details on recommended government land holdings on strategic areas).

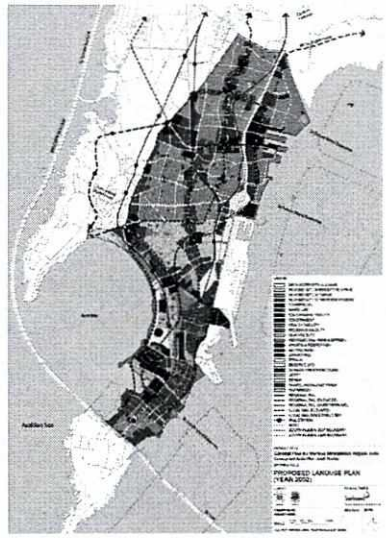
- New islands are proposed to be reclaimed for CBD expansion in South Mumbai, which will increase the government owned land bank. Future land banking through reclamation should only be done with strong institutional set-up.
- Key parcels around transit and commercial nodes throughout MMR are recommended to be acquired by the government.
- Land for key transport and infrastructure projects are also proposed to be acquired.
- Soft areas such as different governmental lands are recommended to be pooled together and acquired through intergovernmental exchange. E.g. present airport land which is proposed to be relocated in future.
- Land in suburban area where prices are still low at present are also recommended to be acquired before it gets more expensive, in order to build up a strategic land bank for future public housing and consolidated industrial estates that can offer employment opportunities in close proximity to its residents.
- Land for special urban projects such as future Rewas Airport or specific tourism / recreational destination are also recommended to be acquired.

- **Revenue Generation through Land Sales Programme**

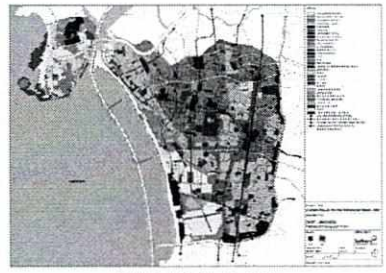
In one hand, the Government Land Sales Programme allows government to provide vision & specific guidelines for urban development and in the meantime, it also draws in private sector to provide capital and creative ideas for urban land development. The serviced land can be released progressively on land lease basis (short or long term) or sold to the private developer through such program generating many folds of return and thus, building up government's limited investment funds. Hence, the costs incurred by the government during land acquisition could be covered as well as profited through land sales program. The return from land sales can then go into the Township Development Fund to finance other major infrastructure works. Such model also ensures sufficient supply of serviced land as per the market demand, thus controlling the undesired real estate speculations.

Similarly, various types of commercial zones are proposed, namely, International CBD, City Centre, local level mix-use commercial etc. In addition to the land use and zoning districts, changes also need to be made for adding more parameters, such as allocating differential development densities and stipulating minimum lot sizes for ensuring the appropriate type of development. Other special zones may also need to be designated for special area such as waterfront zones, heritage zones etc.

- **Flexible permissible and conditional uses:** Additional parameters also include allowing flexibility to land owners for developing their parcels by prescribing permissible, conditional and prohibited uses for that specific zone.
- **Review of FSI Strategy:** It is necessary to adopt a comprehensive FSI Strategy for the development/ redevelopment of entire MMR in line with the growth direction recommended in the Concept Plan. This can be achieved by gradual revisions in FSI allocation across the Region to achieve two basic objective, one to phase out FSI related policies such as TDR and incentives which create unplanned-for scenarios in the city; and second to tie the allocation of the FSI with the intended city structure, namely, the development potential and level of accessibility of different areas. FSI strategies are recommended to allow development of a higher quantum of commercial and industrial uses for creating employment as well as residential uses to re-house the population living in informal settlements or new influx of migrant populations. FSI increase will have to be tied back to the development charge in order to secure public funds for public infrastructure provisions (Refer to Appendix 1 for FSI restructuring strategies).



SOUTH MUMBAI DGP



ANDHERI DGP

PANVEL EAST DGP

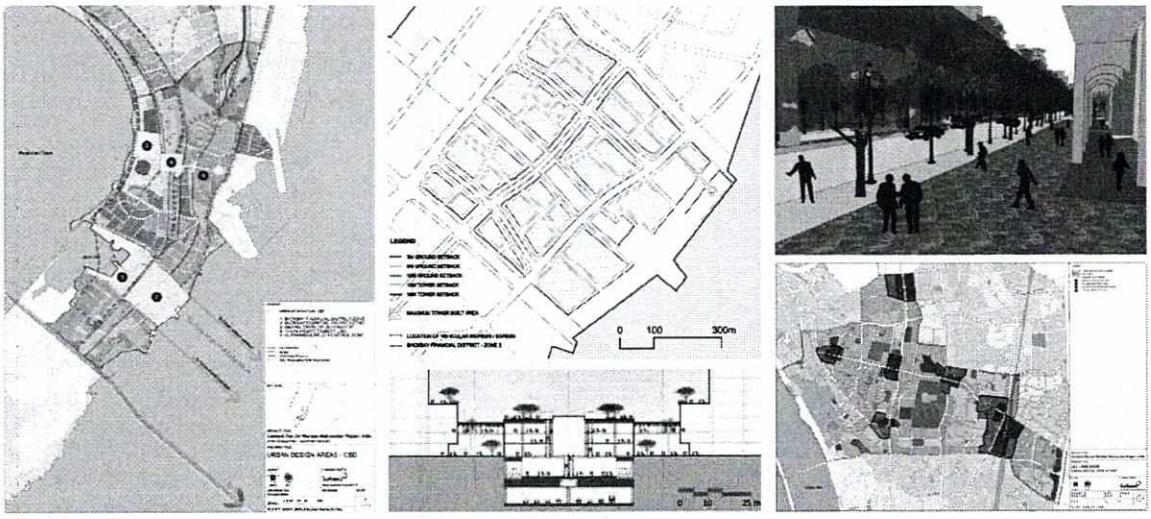
Table 3.2: Recommended FSI Provisions

Area	Allowable FSI 2020-2032	Allowable FSI 2032-2052
CBD	up to 20.0	up to 20.0
Fringe Centres and Suburban City Centres	4.0	6.0
Transit Nodes (within 500 m walking radius)	4.0	6.0
Residential in Inner City Areas	5.0	5.0
Residential redevelopment in existing areas	3.0	4.0
Residential new towns	2.0	3.0

Source: Surbana

- **Encourage amalgamation of parcels:** Specific Development Control regulations shall be used to encourage amalgamation of parcels by stipulating minimum lot sizes for different kinds of development within different zones such that it ensures different urban character as per its functional context.

3.3.3 Adoption of the Urban Design Proposal as part of Development Plan



While the generic Urban Design (UD) control could be regulated in the Development Plan, the specific UD control should be marked in DP as special UD Controlled Area with additional requirements. Development of Urban Design Plans and Guidelines is not necessitated by the planning framework currently in operation in MMR. However, detailed control and urban design guidelines are very important for key areas in a City. It is therefore recommended that the preparation of urban design plans be included in the DP preparation process, where certain areas are marked as Urban Design Controlled Areas and additional requirements need to be complied with by developers and land owners. Accordingly Urban Design Proposal needs to be prepared to complement the DP and made available to public.

The Urban Design Proposal for South Mumbai and Andheri, prepared earlier in Phase 4 is an example of such urban design concept developed for certain key areas. Such concepts need to be translated into UD Control Guidelines for architects to design the actual buildings and the urban atmosphere. Hence, the UD plans and guidelines will have to be integrated into the gazetted DP as additional overlay requirements.

Some of the proposed refinements to the current DP format on UD Controlled Areas are:

- Setting of clear objectives of the UD controlled area.
- Specifying clear UD control such as setbacks, building height, required linkages, arcade requirements, access etc. for the identified UD Areas.
- Encouraging redevelopment through incentives & marketing of UD controlled Area.
- Encouraging redevelopment through local area improvement plans.
- Giving architects room to contribute in the actual design (urban design) & to give feedback to the Authority.

CHAPTER 4: CATALYST PROJECTS

This chapter presents the catalyst projects as proposed in the Regional Concept Plan, the Development Guide Plans, and the Urban Design Proposals; and highlights the six key proposals selected for further financial assessment.

4.1 Role of Catalyst Projects

As highlighted in Chapter 3, the short-term development strategy shall find ways to accelerate the development process in the provisions of affordable housing, infrastructure and employment so as to plug up the existing gaps. To do that, identification of catalyst projects in the Regional Concept Plan would offer a good starting point not only to bring the concept to a path of realization, but also to act as a multiplier for other projects.

4.1.1 Selection Criteria for Catalyst Projects

In selecting catalyst projects, the following guiding principles are observed:

- Consistent with the "Base Case" scenario of the Regional Concept Plan so as not to be constrained by controversial planning issues;
- To be seen as an impactful solution for the Government to deal with the particular urban issue today;
- Larger scale of development project which is bankable as potential PPP projects and may sustain at least 5 years;
- Diverse activity profile to cover a wide interest group;
- Spread across MMR; inside and outside Greater Mumbai to enable rejuvenation of urbanized areas and decentralization to the new growth areas;
- Leverage on existing and committed infrastructures so as to contain development cost; and
- With a multiplier effect to spin off other projects in research or development.

4.2 Proposed Catalyst Projects at Concept Level

With considerations of the various social and physical issues faced by MMR, thirteen bankable regional development projects for the short term are proposed as part of the process of reshaping MMR towards a global city in the long run, in addition to any other projects MMRDA or the State Government intends to pursue over the next decade. These projects are illustrated in Figure 4.1 and the details are highlighted in Table 4.1.

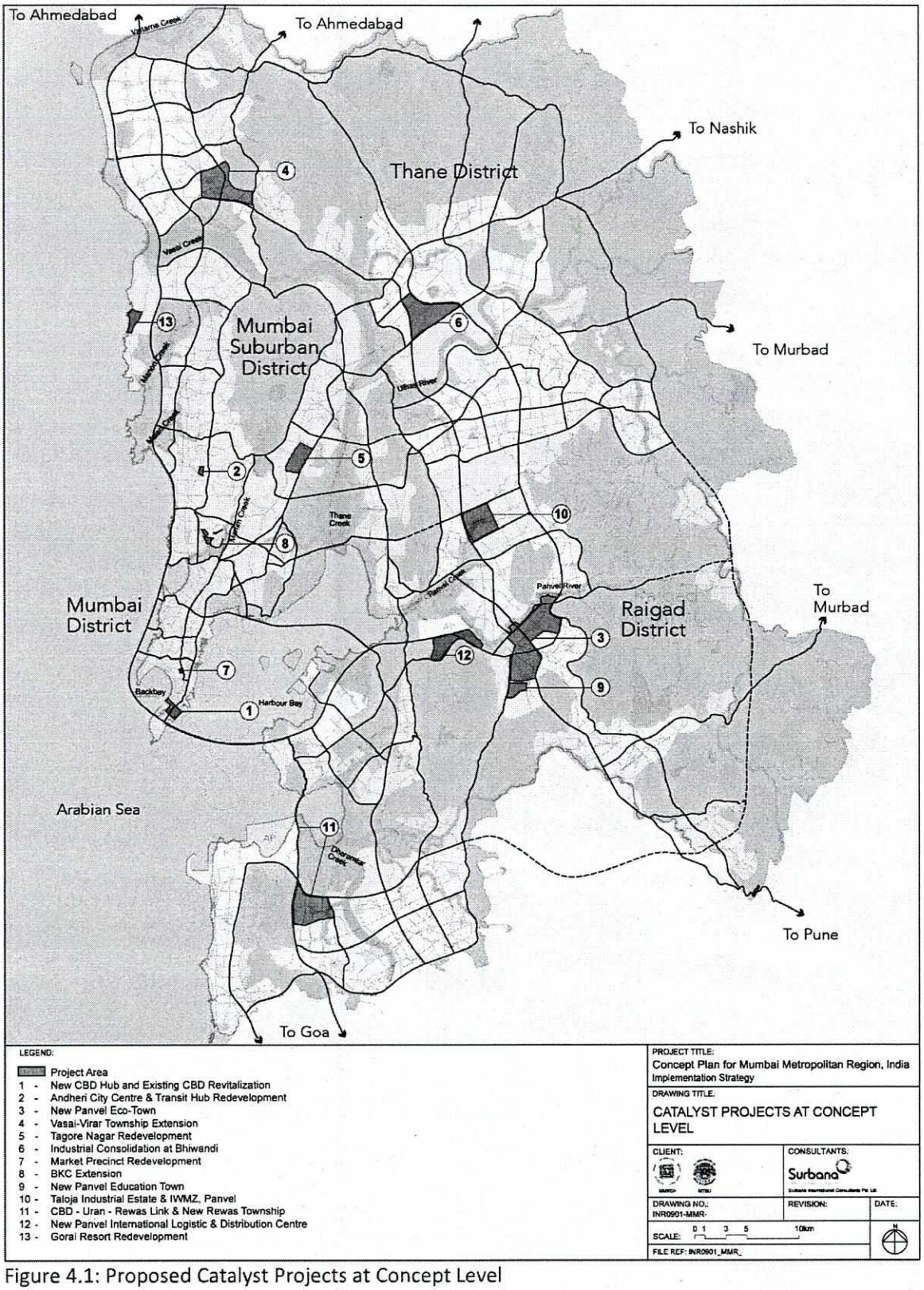


Figure 4.1: Proposed Catalyst Projects at Concept Level
Source: Surbana

Table 4.1: Proposed Catalyst Projects at Concept Level

Project	Area	Objective	Project Description
1. New CBD Hub & Existing CBD Revitalization By MCGM Duration : 10 – 15 yrs Focus : Employment	250 Ha	To create a new financial district of world-class business environment in order to cater to international businesses	• Prepare a comprehensive development control plan with an urban design overlay guiding the zoning of existing land uses as well as the character of the place. • Identify opportunities for intensification or redevelopment. • Improve the public spaces, streetscape and pedestrian network. • Address traffic/parking/pedestrian conflicts and development controls on heritage buildings.
2. Andheri City Centre & Transit Hub Redevelopment By MCGM Duration : 5 – 10 yrs Focus : Employment, Urban Renewal	27 Ha	To create a new regional business centre serving the western region of Mumbai City around Andheri Station.	• Tap on the potential opportunities for integrated mixed use developments based on TOD model. • Develop Andheri City Centre as a showcase of urban renewal initiative, with an urban design study providing development guide and control for the area.
3. New Panvel Eco- Town By MMRDA Duration : 10 – 15 yrs Focus : Housing, Employment	2000 Ha	To showcase an eco-town concept setting a new benchmark on residential township in the Suburban Area.	• Develop an exemplary township with sustainable lifestyle. • Provide adequate local employment opportunities, compact community living, quality public recreation and 70% affordable housing.
4. Vasai Virar Township Extension By MMRDA / MHADA Duration : 10 – 15 yrs Focus : Housing, Employment	1000 Ha	To induce growth and development in the northern suburb.	• Develop a suburban township, with significant share of affordable housing by MHADA.

Project	Area	Objective	Project Description
5. Tagore Nagar Mix Use - Redevelopment By MHADA Duration : 10 – 15 yrs Focus : Public Housing, Employment, Urban Renewal	500 Ha	To demonstrate the exemplary redevelopment of the existing MHADA colony with integrated employment centre.	• Initiate the pilot project of MHADA housing redevelopment. • Kick-start the affordable housing development program for MMR by offering 45,000 new units.
6.Industrial Consolidation at Bhiwandi By MIDC Duration : 10 – 15 yrs Focus : Employment	1000 Ha	To establish Bhiwandi Industrial Estate as an exemplary project on SME's industries consolidation into compact estate.	• Optimize the use of land by encouraging consolidated multi-storey industrial complex with shared facilities. • Such consolidation will help to improve the environment and offer substantial local employment opportunities.
7.Market Precinct Redevelopment Study By MCGM Duration : 5 – 10 yrs Focus : Urban Renewal	10 Ha	To showcase the redevelopment of the cessed area in inner city through cluster redevelopment.	• Encourage adaptive-reuse of the existing cessed buildings with social heritage significance. • Retain the cultural character of the existing market precinct and adapt it into the urban design and conservation proposal so that the area can be transformed into attractive tourist spot.
8.BKC Extension and Rejuvenation Plan By MMRDA Duration : 5 – 10 yrs Focus : Employment, Tourism	47 Ha	To redevelop the existing slum and expand the existing BKC boundary towards north securing additional land for mixed development around the current commercial node. And, to create iconic new waterfront park as a recreational public destination within BKC.	• Strengthen BKC in terms of its character so that it will become another key destination and a choice location for people to work. • Adopt diverse urban design approach to make it different from the downtown CBD, with special controls for commercial land sale within BKC.

Project	Area	Objective	Project Description
9. New Panvel Education Town By CIDCO Duration : 10 – 15 yrs Focus : Education, Employment	300 Ha	To develop a dedicated international education town contributing to the growth of tertiary education that is one of the important attributes in transformation of MMR into a global city.	• Leverage on the upcoming new international airport at Panvel, the adjacent new Panvel eco-city, and the Mumbai-Pune high-tech corridor and develop it as a gateway of MMR in the southeast.
10.Taloja Industrial Estate & Integrated Waste Management Zone By MIDC Duration : 10 – 15 yrs Focus : Employment	845Ha	To establish Taloja Industrial Estate as a Pilot project on SME's industries consolidation into compact estate.	• Consolidate industrial estates to improve the environment, optimize land uses and offer substantial local employment opportunities within the Greater Panvel Area.
11. CBD-Uran-Rewas Link & New Rewas Township By MMRDA Duration : 10 – 15 yrs Focus : Transport, Housing	980 Ha	To establish new link between CBD and southern part of MMR. And, to induce growth & development in this part of the region.	• Develop a new trans-harbour link from Mumbai South to Rewas via Uran, such that it supports the decentralization strategy and opens up the southern suburban area for possible growth and expansion.
12. New Panvel International Logistic and Distribution Centre (PILDC) By MIDC Duration : 10 – 15 yrs Focus : Employment	707 Ha	To capitalize on the approved project of the new international airport at Panvel and develop the PILDC as a world class EPZ and Logistics hub.	• Tap on to the potential opportunity for airport logistics development and an export-processing zone, as per the Concept Plan. • Expand local employment opportunities within the suburban area.

Project	Area	Objective	Project Description
13. Gorai Resort Development By MMRDA Duration : 5 – 10 yrs **Focus :** Tourism, Recreation	200 Ha	To develop a quality regional leisure destination that could meet recreational needs of visitors and general population.	• Develop integrated hotels and resort facilities with large outdoor landscaped and recreational spaces for public.

Source: Surbana

While the above mentioned key projects are largely the selected bankable projects that could be easily sustained through as well as provide opportunities of good investment for the government and private sectors, additional non bankable but critical environmental and recreational projects such as Integrated Waste Management Zones (IWMZ) at various sites, river clean-up/ restoration projects and regional parks/ recreation projects are also recommended to be promoted.

Other infrastructure and park projects to be considered in the short term, as shown in Figure 4.2 are highlighted in the following Table.

Table 4.2: Additional Critical Projects at Regional Level

Project	Area	Objective	Project Description
1. Mumbai IWMZ By MCGM Duration : 10 – 15 yrs Focus : Environment	115 Ha IWMZ + 786 Ha Landfill site	To cater to the anticipated high volume of waste generation. And, to address the land scarcity for processing plant & landfill.	• Conversion of the existing sewerage plant into an integrated waste plant, energy recovery & landfill
2. Kalyan IWMZ By MMRDA Duration : 10 – 15 yrs Focus : Environment	115 Ha IWMZ + 534 Ha Landfill site	To support Kalyan eco-city, navy Mumbai & the surrounding industrial areas. And, to promote recycling & industrial ecology in the suburb.	• Development of integrated waste management plant, energy recovery & landfill.
3. Mahim Creek Restoration Project By MMRDA Duration : 10 – 15 yrs Focus : Recreation	17.8 km and catchment area of 7295 Ha	To showcase a pilot environmental project in MMR for river clean-up & restoration.	• Cleaning up, including sewerage solutions. • Redevelopment of the riverside areas, thru rezoning & urban design.

Project	Area	Objective	Project Description
4. New Vasai Virar Waterfront Park By Vasai Virar Municipality Duration : 10 – 15 yrs Focus : Recreation	Phase 1 – 100 Ha (Total Area 708 Ha)	To provide a regional recreation destination and improve living quality in the suburb.	• Provision of basic park facilities. (Public toilet, Car parking, Seating areas & shelters, Picnic lawn, Children play area) • Provision Jogging & cycling track
5.New Thane Eco-Park By Thane Municipality Duration : 10 – 15 yrs Focus : Recreation	391 Ha	To provide a regional recreation destination and improve living quality in the city fringe.	• Provision of basic park facilities. • Provision Jogging & cycling track.
6. New Kalyan/ Bhiwandi City Park By Kalyan Municipality Duration : 10 – 15 yrs Focus : Recreation	Phase 1 – 100 Ha (Total Area 4182 Ha)	To improve living quality in the suburb	• Provision of basic park facilities. • Provision Jogging & cycling track.
7. New Panvel City Park By MMRDA Duration : 10 – 15 yrs Focus : Recreation	Phase 1 – 100 Ha (Total Area 1672 Ha)	To improve living quality in the suburb	• Provision of basic park facilities. • Provision Jogging & cycling track

Source: Surbana

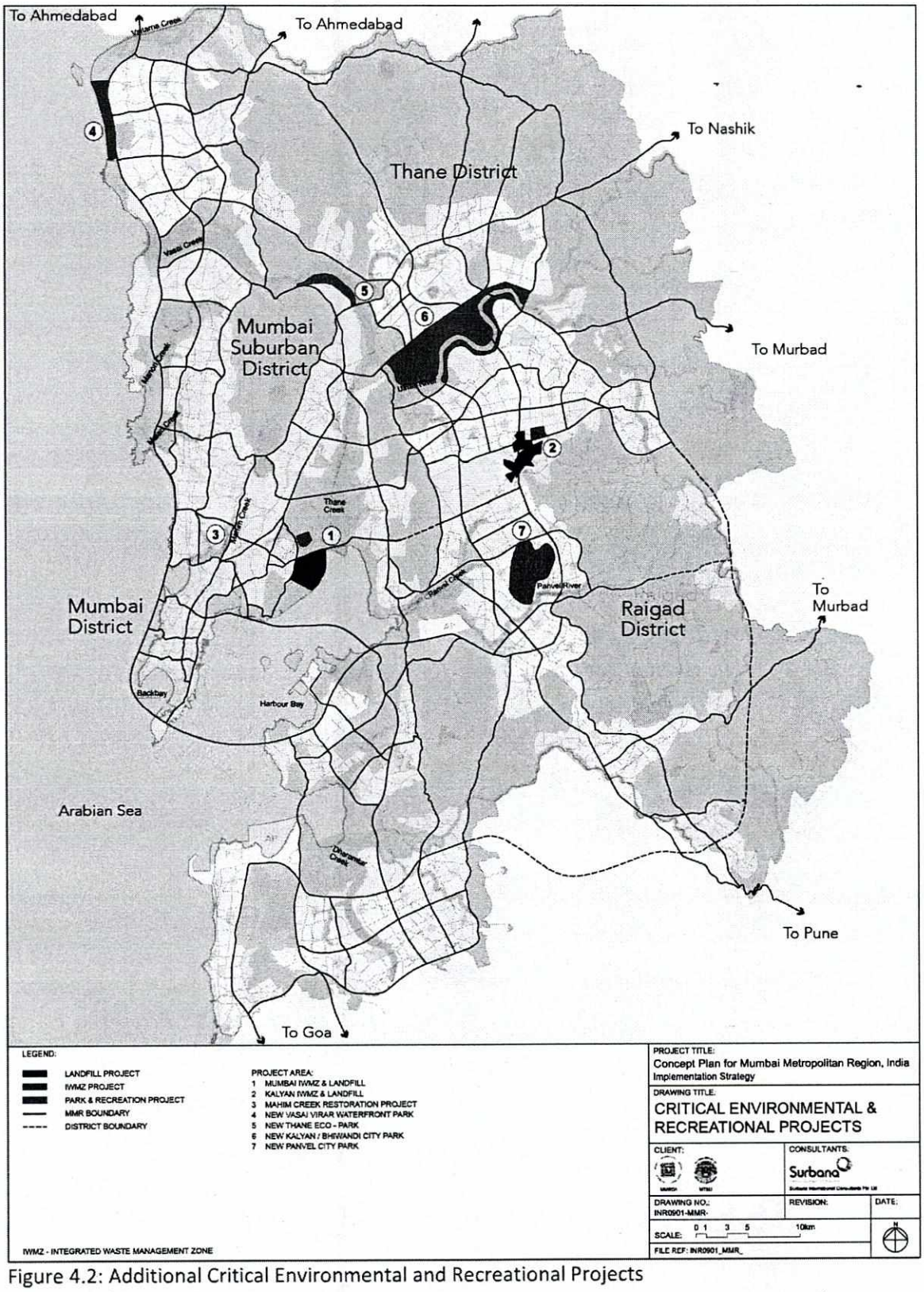


Figure 4.2: Additional Critical Environmental and Recreational Projects
Source: Surbana

4.3 Catalyst Projects at DGP & UD Levels

Several key micro projects have been identified in the DGP and UD proposals to kick-start the regeneration process within South Mumbai and Andheri areas which would be one the most critical strategies for transformation. However, Panvel East Planning Area, being a greenfield site with a tremendous opportunity to be developed as an exemplary suburban eco-township, the whole site is considered as a catalyst project and therefore is recommended to be developed accordingly offering a showcase of sustainable lifestyle with adequate opportunities of local employment, quality recreation and substantial affordable housing.

4.3.1 Proposed Catalyst Projects in South Mumbai DGP Area

The catalyst projects identified for South Mumbai Planning Area is illustrated in Figure 4.3 and the details are highlighted in Table 4.3.

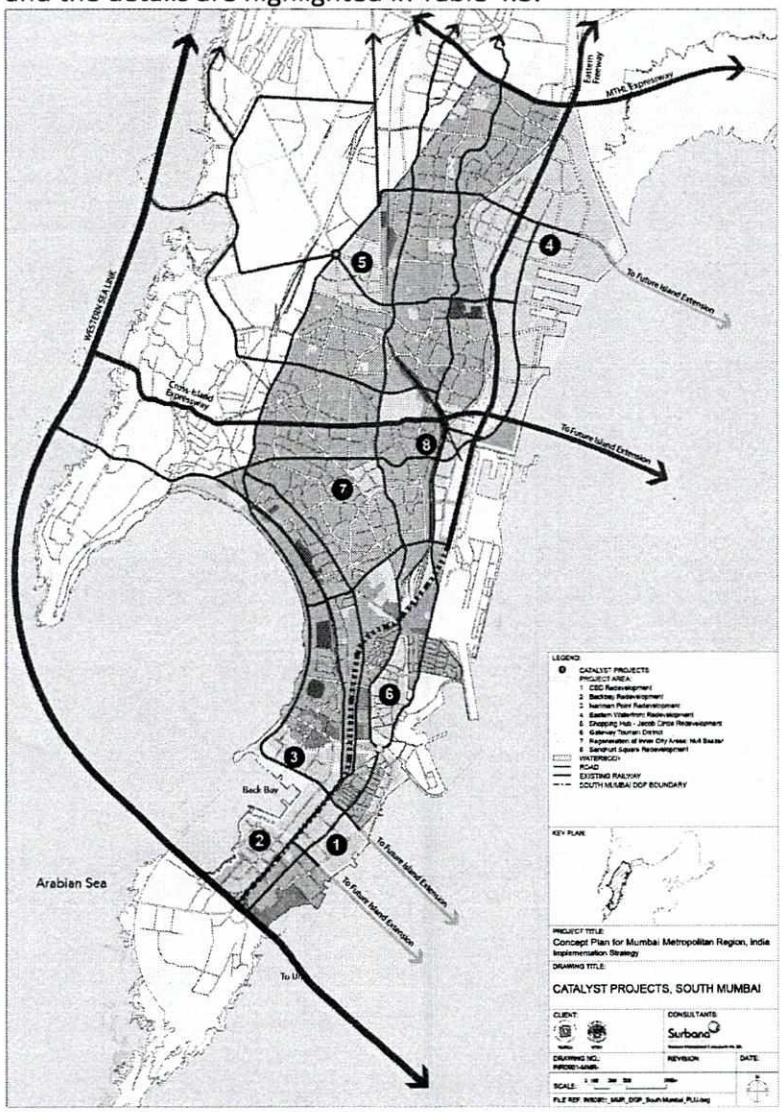


Figure 4.3: Proposed Catalyst Projects in South Mumbai DGP Area
Source: Surbana

Table 4.3: Proposed Catalyst Projects in South Mumbai DGP Area

Project	Area	Objective	Project Description
1. CBD Redevelopment Duration : 10 – 15 yrs	108 Ha	To create a new financial district of world-class business environment in order to cater to the international businesses.	• Develop Backbay waterfront with new commercial, recreational and residential spaces with a continuous public waterfront spaces. • Redevelop existing parcels, cessed buildings, government land west of Cuffe Parade with a central deck and a new convention centre. • Redevelop eastern waterfront with ferry terminal, hotels and of the Koli village revitalization.
2.Backbay Redevelopment Duration : 10 – 15 yrs	52 Ha	To develop existing slum and old colony as well as activate the shelved reclamation project such that it complements the new downtown CBD.	• Redevelop existing slums with new residential & mixed use developments. • Develop publicly accessible mangrove Nature Park along the Backbay waterfront.
3.Nariman Point Redevelopment Duration : 10 – 15 yrs	35 Ha	To rejuvenate the existing CBD with more mix of uses and to introduce vibrancy and better connection to the waterfront.	• Require amalgamation of existing private developments and encourage New Mixed Use Developments to have commercial as well as residential in the downtown with retail podium • Redevelop marine drive waterfront with new decks. • Develop a new island monument park with an iconic monument.
4.Eastern Waterfront Redevelopment Duration : 15 – 20 yrs	401 Ha	To develop a new waterfront business and lifestyle district.	• Redevelop the industrial and port land as a new commercial hub in the waterfront with well integrated regional transit hub. • Develop a new high density quality residential with 20% affordable housing • Develop a new world class waterfront Cricket Stadium and the waterfront park.
5.Shopping Hub - Jacob Circle Redevelopment Duration : 10 – 15 yrs	12 Ha	To develop a new lifestyle shopping district around the Jacob Circle interchange.	• Design and develop an integrated interchange for the proposed monorail, the underground metro and the suburban rail line. • Develop shopping theme based Jacob Circle metro station with a combination of big box retail, and street shopping.

Project	Area	Objective	Project Description
6.Gateway Tourism District Duration : 5 – 7 yrs	69 Ha	To rejuvenate the area around the iconic Gateway of India as a distinct waterfront tourist district.	• Redevelop the cessed buildings & develop the streetscapes and pedestrian linkages. • Develop a landscaped plaza and an attractive/friendly waterfront promenade along Gateway of India. • Pedestrianize selected existing roads • Develop underground public car parks below Horniman Circle and Museum Plaza
7.Regeneration of Inner city areas: Null Baazar Duration : 5– 10 yrs	10.8 Ha	To develop high density commercial, residential and mixed use in the inner city.	• Redevelop large cessed areas in inner city though cluster redevelopment. • Secure 20% public facilities of the allowable built-up area and develop these facilities.
8.Sandhurt Square Redevelopment Duration : 10 – 15 yrs	25.5 Ha	To create a new regional business centre and serving the port area.	• Construct the deck over railway station and lines. • Develop a mixed use business hub with a landmark civic plaza, which will become the catalyst and integrator for surrounding area revitalization. • Redevelop warehouses of Dana and Masjid Bandar as high density mixed use developments.

Source: Surbana

4.3.2 Proposed Catalyst Projects in Andheri DGP Area

The catalyst projects identified and recommended for Andheri Planning Area is illustrated in Figure 4.4 and the details are highlighted in Table 4.4.

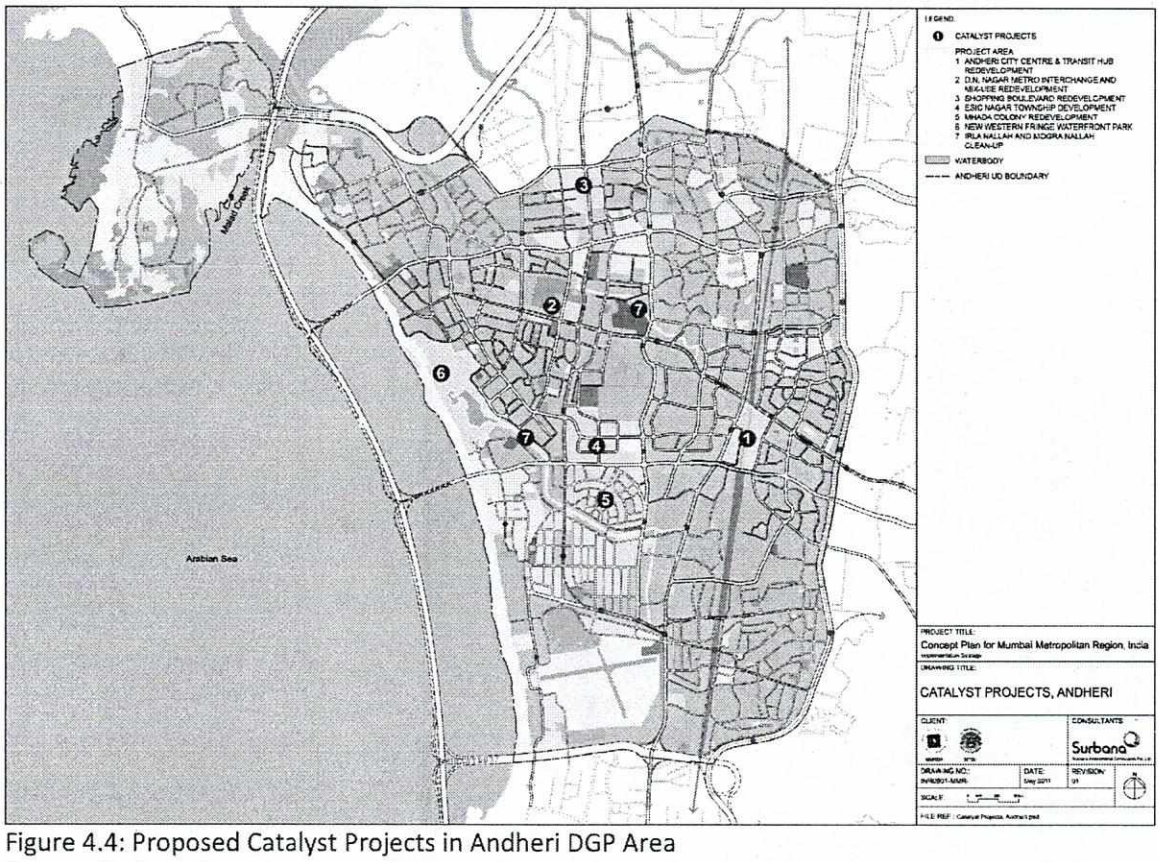


Figure 4.4: Proposed Catalyst Projects in Andheri DGP Area
Source: Surbana

Table 4.4: Proposed Catalyst Projects in Andheri DGP Area

Project	Area	Objective	Project Description
1. Andheri City Centre & Transit Hub Redevelopment Duration : 5 – 10 yrs	27 Ha	To create a new regional business centre serving the western region of Mumbai City around Andheri Station. And, to transform the existing railway station into a landmark civic plaza, which will become the catalyst and integrator for surrounding area revitalization.	• Develop public plaza, commercial spaces and rail transit facilities by decking over Andheri railway station and building over the undeveloped railway land to the east of the station. • Develop multimodal transit interchanges between the metro station, suburban rail station, bus interchange and public car park. • Redevelop existing parcels immediately adjacent to the railway station into high-density office, retail and mix-use spaces. • Pedestrianize and beautify Andheri village and allow Adaptive re-use of Andheri Village as part of the fringe

Project	Area	Objective	Project Description
			centre for recreational, entertainment and tourism purposes. • Develop sidewalks, footbridges and pedestrian underpasses, street furniture, lighting and landscaping.
2. D. N. Nagar Metro Interchange and Mix-use Redevelopment Duration : 5 – 10 yrs	2.1 Ha	To develop an efficient metro interchange which is also an iconic lifestyle hub – a trend setter and regeneration catalyst along the 2 metro lines.	• Develop a multi-modal transit interchange at the junction of the two metro lines • Develop a publically accessible landscaped plazas and outdoor recreation decks over the retail podiums • Develop ground landscaping and pedestrian linkages to the surrounding areas.
3.Shopping Boulevard Redevelopment at Link Road North Duration : 5 – 10 yrs	8 Ha	To transform the existing shopping street into a premium entertainment destination of western Mumbai.	• Redevelop buildings within 80 meters on both sides of the Link Road into a high-end shopping boulevard • Develop landscaped pedestrian boulevard to complement the retail podiums. • Design and develop Shastri-nagar metro station to complement the shopping street themed development. • Develop pedestrian-friendly amenities such as sidewalks, footbridges, stairs etc to connect to the metro station.
4.Esic Nagar Township Development Duration : 10 – 15 yrs	25 Ha	To develop a planned residential community with a bulk of public housing, comprehensive facilities, regional recreation venues and public transit integration.	• Develop new residential township in the vacant AIA site with 70% affordable housing. • Develop mixed-use complexes around Esic Nagar metro station. • Develop new public facilities - regional sports ground, integrated school and cultural hall/ theatre. • Develop Park Connector as indicated in the DGP.
5.MHADA Colonies Redevelopment at Gulmohar Road Duration : 10 – 15 yrs	34 Ha	To promote comprehensive redevelopment of the 2 MHADA colony sites.	• Develop a comprehensive master plan for the sites. • Redevelop existing residential and commercial areas as per the FSI allocation. • Develop all social amenities, transport, infrastructure, and landscaping, pedestrian amenities as stipulated in the DGP.

Project	Area	Objective	Project Description
6.New Western Fringe Waterfront Park Duration : 5 – 10 yrs	12 km coast line	To open up the long stretch of western waterfronts for recreation.	• Develop detailed Western Waterfronts Master Plan • Design and develop re-profiling / decking over of coast line to mitigate the coastal road / sea links, the long-term sea level rise and the limited recreational shore width • Develop amenities such as parking, walkways, toilets, drinking water systems, kiosks, small scale commercial, sports and active recreational features, landscaping etc.
7.Irla Nallah and Mogra Nallah Clean-up Duration : 5 – 10 yrs	9.4 km km	To open up the long canals / streams for recreation.	• Clean-up of the streams and control discharge • Rehabilitate existing slums, informal housing and commercial spaces • Develop commercial, residential and mix-use spaces along the waterfront parks • Develop landscaping and pedestrian amenities such as walkways, sidewalks, footbridges and decks.

Source: Surbana

4.4 Catalyst Projects Selected for Financial Assessment

For the purpose of demonstrating the various implementation strategies and gauging financial viability, 6 high-priority bankable projects have been selected for detailed analysis.

These projects are illustrated in Figure 4.5 and the details are shown in Table 4.5.

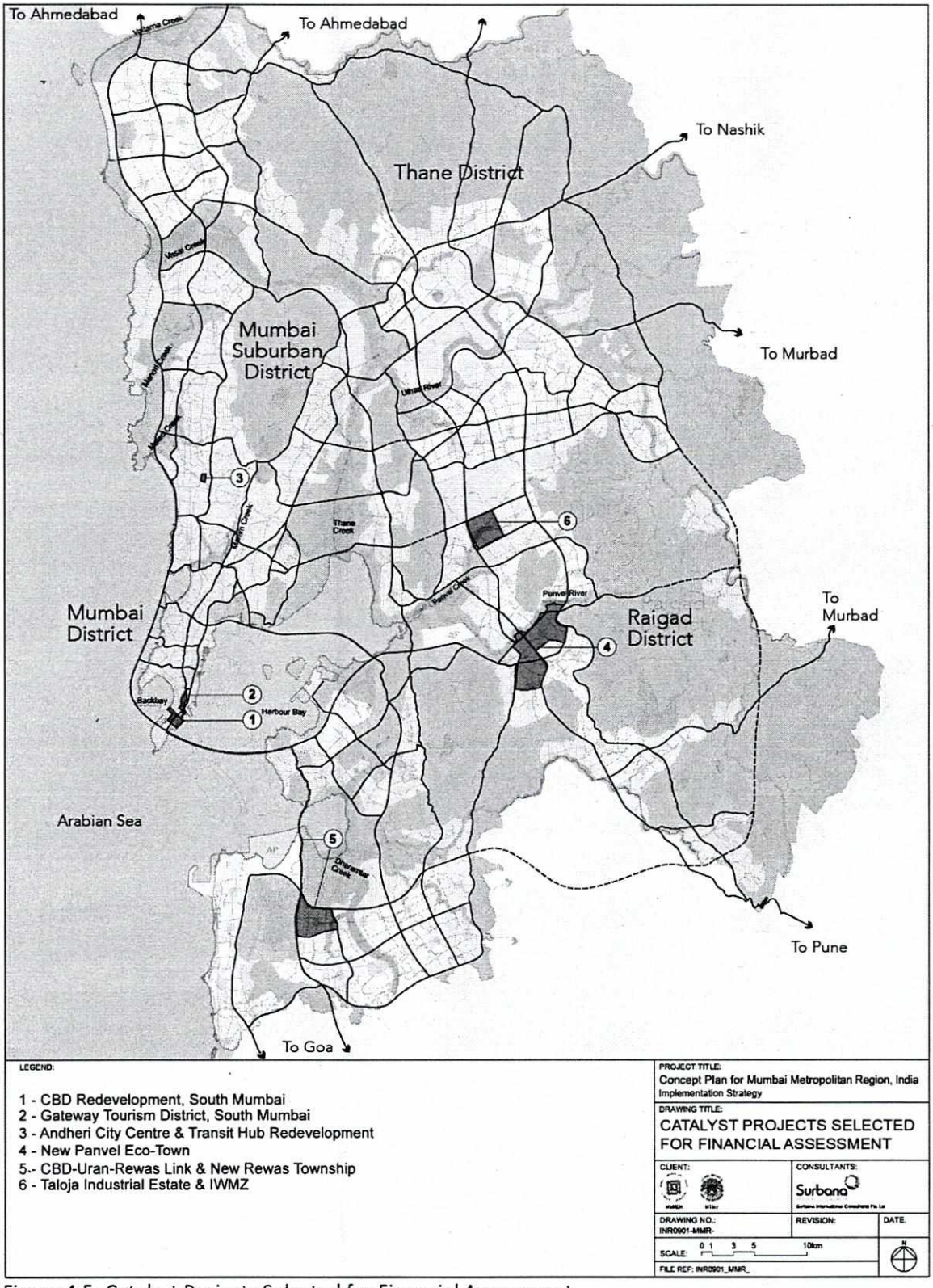
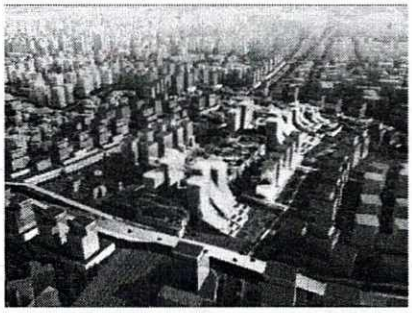


Figure 4.5: Catalyst Projects Selected for Financial Assessment
Source: Surbana

Table 4.5: Catalyst Projects Selected for Financial Assessment

Project	Area	Objective	Project Scope
1. CBD Redevelopment , South Mumbai **Time Frame** 10 -15 years **Implementation Model** MCGM DP & DCR Model / SPA Model **Applicable Policies** Cluster Redevelopment / TDR / FSI Relaxations / Heritage Conservation Policy (with suggested improvements)	100 Ha	To create a new financial district of world-class business environment in order to cater to the international businesses.	**Scenario 1** • 27 Ha Land Preparation (Redevelopment of Government owned land parcels) • Infrastructure layout for 60 Ha • 5.3 km of new roads and existing road enhancement • 5 Ha landscaping of road side green and 12 Ha of parks, waterfront & deck • 3 Ha reclamation for coastal road & 0.8 Ha of enhancement in Koli village • 187,000 sqm Commercial & 468,000 sqm Residential Floor space within Core Project Site. (Redevelopment of Government owned land parcels) • Additional 515,000 sqm Commercial & 1,203,000 sqm Residential Floor space in the Project Area. **Scenario 2** • 40 Ha Land Preparation (Redevelopment of Government owned land parcels) • Infrastructure layout for 100 Ha • 6.2 km of new roads & existing road enhancement • 6 Ha landscaping of road side green and 23 Ha of parks, waterfront & deck • 2 Ha slum redevelopment • 30 Ha Reclamation • 71,000 sqm of Floor Space for Cultural Facilities • 2,293,000 sqm Commercial & 468,000 sqm Residential Floor space within Core Project Site. (Redevelopment of Government owned land parcels) • Additional 515,000 sqm Commercial and 1,203,000 sqm Residential Floor space in the Project Area.
			
2. Gateway Tourism District, South Mumbai **Time Frame** 5 -10 years	69 Ha	To rejuvenate the area around the iconic Gateway of India as a distinct waterfront tourist district.	• 3.4 km of road enhancement • 9 Ha landscaping of public plaza and deck (Gateway of India) • 53,000 sqm floor space for car parking

Project	Area	Objective	Project Scope
Implementation Model MCGM DP & DCR Model **Applicable Policies** TDR / FSI Relaxations / Heritage Conservation (With Suggested Improvements)			• 1.3 Ha pedestrianization of Horniman Circle and surrounding • 22,000 sqm of Semi /underground commercial space at Horniman Circle and museum junction
3. Andheri City Centre & Transit Hub Redevelopment **Time Frame** 5 – 10 years **Implementation Model** MCGM DP & DCR Model / SPA Model **Applicable Policies** Cluster Redevelopment / TDR / FSI Relaxations / Heritage Conservation (With Suggested Improvements)	27 Ha	To create a new regional business centre serving the western region of Mumbai City around Andheri Station. And, to transform the existing railway station into a landmark civic plaza, which will become the catalyst and integrator for surrounding area revitalization.	• 1.4 Ha Land Acquisition (Mixed use private land adjacent to railway land) • 10 Ha Land Preparation (Redevelopment of Railway land & MU private land) • Utilities Infrastructure for 27Ha Project Area • 1.1 km of new roads • 1 Ha of landscaped roadside green and 6Ha of parks and decks • 158,000 sqm of Class A Commercial Floor Space • 70,000 sqm multi level basement car park • 1.7 Ha of beautification / pedestrianization in Andheri Village • Additional 156,000 sqm Commercial Floor Space and 112,000 sqm of Mixed Use space within Project Area.
			
4. New Panvel Eco-Town **Time Frame** 10 – 15 years **Implementation Model** SPA Model / NTDA Model / MHADA Model	2214 Ha	To showcase an eco-town concept setting a new benchmark on residential township in the Suburban Area.	• 681 Ha Land Acquisition (for joint development with private sector & 70% Affordable Housing) • 1142 Ha Land Pooling • 1823 Ha Land Preparation • Utilities Infrastructure development for 2214 Ha Project Area • 101 km of new roads and existing road widening /enhancement • 489 Ha of landscaped road side green, parks and park connectors

Project	Area	Objective	Project Scope
Applicable Policies Mega City & Special Township Schemes (With Suggested Improvements)			• 870,000 sqm floor space of public facilities • 156,8000 sqm Commercial Floor Space; 436,7000 sq m Residential Floor Space and 115,8000 Mixed Use Space within Core Project Site. • Additional 1,079,000 sqm Commercial Floor Space; 10,798,400 sq m Residential Floor space; 219,000 Mixed Use Space and 1,181,000 sq m Industrial Floor space in the Project Area.
5. CBD-Uran-Rewas Link & New Rewas Township **Time Frame** 10 – 15 years **Implementation Model** SPA Model / NTDA Model / MHADA Model **Applicable Policies** Mega City & Special Township Schemes (With suggested Improvements)	980 Ha	To establish new link between CBD and southern part of MMR. And, to induce growth & development in this part of the region.	• 980 Ha Land Acquisition • 980 Ha Land Preparation • Utilities Infrastructure development for 980Ha Project Area • 45km of new roads • 151 Ha of landscaped road side greens, parks and park connectors • 290,000 sqm floor space of public facilities • 33km highway – railway link (Including 11 km sea link) • 1,470,000 sqm Commercial Floor Space; 7,840,000 sq m Residential Floor space and 580,000 sq m Industrial Floor space in the Project Area.
			
6. Taloja Industrial Estate & IWMZ **Time Frame** 10 - 15 years **Implementation Model** SPA Model / NTDA Model	845Ha	To establish Taloja Industrial Estate as a Pilot project on SME's industries consolidation into compact estate.	• 845 Ha Land Acquisition • 730 Ha Land Preparation • Utilities Infrastructure development for 845Ha Project Area • 31 km of new roads • 23 Ha of landscaped road side green • Development of 115 Ha IWMZ • 5,475,000 Industrial Floor space
			

Source: Surbana

Further financial analysis of the abovementioned projects will be presented in the subsequent chapter highlighting the suitable implementation models, the financial viability of these six bankable projects and the different implementation options to execute these projects.

CHAPTER 5:FINANCIAL ASSESSMENT

This chapter provides a broad level financial assessment of the selected six high-priority bankable projects which have been discussed in the earlier chapters. The chapter discusses the overall approach, the different development options and the assumptions used for financial assessment of the catalyst projects. It also touches upon the implementation options which could be considered for developing the whole or any part of the catalyst projects.

5.1 General Approach to Financial Assessment

As discussed in the earlier chapters, the implementation of the catalyst projects is expected to have a meaningful impact on the overall infrastructure development for the MMR and facilitate the implementation of the Concept Plan. The financial assessment has been based on the inherent assumption that the implementation of the catalyst projects should have a minimum burden to the exchequer, to the extent possible.

And therefore, the financial assessment considers a conventional approach to make sure it works within the existing regulatory framework. Although, the assessment is limited to the individual models based on certain assumptions and a most realistic scenario; alternative implementation options are also suggested at the end of the financial assessment for each project. The alternatives may be non conventional but could be explored further to get the intended planning results and expedite the process of development/ redevelopment as well as generate larger revenues for the public sector for future public expenses. To realize such alternatives, the government needs to be more proactive and bold in their involvement in the implementation.

For the purpose of the financial assessment, three different models have been considered for implementation of catalyst projects, i.e., Land Acquisition Model, Pooled Development Model and Facilitator Model. Each of these models has been elaborated below.

5.1.1 Land Acquisition Model

Land acquisition model involves action on part of the government to acquire the land required for the project, followed by development of the project either on its own or through the private sector partnership. The government acquires land from the existing owners by exercising its statutory powers.

Under this model, the role of the government primarily includes:

- Acquiring the land required for implementing the project
- Developing vision, master plan and development control norms
- Developing the public infrastructure
- Selling the land to private sector for development of commercial infrastructure

Some of the public infrastructure could be developed under public private partnership models by granting suitable concessions to the private partner in lieu of the public infrastructure developed.

The existing land owners have to part with ownership of the land for this process to get started. In most cases, the commercial development is taken up by private developers who undertake the development as per the master plan and development control norms prescribed by the government.

The development of Navi Mumbai by City and Industrial Development Corporation Ltd. is an apt example of this Model.

The land acquisition model provides greater control to the government on the actual development of public as well as commercial infrastructure. By virtue of possible appreciation in the value of the land post development of public infrastructure, it provides the government of earning higher revenue in the long run.

However, as discussed earlier, this model requires high upfront outflow of money for acquisition of land and development of public infrastructure. Also, the government could face resistance from the existing owners in acquiring land and other legal and operational bottlenecks. Since the existing land owners are not made a part of the project and hence do not share the benefits of the development, there is a likelihood of subsequent protests from the original land owners. There have been many instances in the recent years across the country where the original land owners have been left feeling cheated due to forceful land acquisition by the government.

In the above context, the land acquisition model generally seems appropriate in case of projects envisaging fresh (new) development where government already owns large tract of land within the project area.

5.1.2 Pooled Development Model

Under the pooled development model, the existing land owners are made a part of the project. The government notifies a scheme for development of the project and brings the land owners together as members of the scheme to part with their land. The government then develops the public infrastructure and returns the balance land (after adjusting the land required for developing public infrastructure) proportionately among the original land owners.

Under this model, the role of the government primarily includes:

- Notification of the scheme for development of the project
- Holding negotiations with and convincing the existing land owners to participate in the development of the project
- Developing vision, master plan and development control norms
- Developing public infrastructure

- Handing back the land to the landowners (against betterment charges which are recovered for the cost incurred on developing the public infrastructure and the administration/ supervision

The existing land owners participate in the development of the project and part with their land temporarily to get the process started. They are also expected to pay betterment charges to the government to cover the cost incurred by the government. The existing land owners then undertake the development of the commercial infrastructure as per the master plan and development control norms, either by themselves or by selling their land to other private developers.

The Town Planning Schemes under the erstwhile Bombay Town Planning Act, 1915 were based on land pooling model. This later became the basis for the Town Planning Scheme enabling act in Gujarat. Town Planning Schemes were widely used in Maharashtra during the first half of the twentieth century. In Gujarat, the Town Planning Schemes have been extensively used for urban expansion, especially in Ahmedabad. The pooled development model has also been used in various other cities of India for urban expansion (Indore, Bhopal, etc.).

Internationally, different variants of the pooled development model have been used for urban expansion across the globe including Europe, Asia and Australia. One of the successful examples in Asia is the Japan Land Readjustment Model. In this method, each landowner is required to contribute a portion of their previous land holding, commonly about 30% of the total land, to provide space for roads, parks and other public space, and for reserve land. The reserve land is sold at the end of the project to pay the costs of planning, administration and construction. (Refer to Appendix 2 for detailed reference studies.)

The Housing Policy issued by the Government of Maharashtra in 2007 also makes a mention about development of areas in the periphery of Municipal Corporations on pooled development model.

The pooled development model enables development with very limited burden on the government finances. The better charges to be levied on the existing land owners, which are usually recovered upfront, are generally expected to cover all the costs incurred by the government. Since the existing land owners are made partners in the development of the project, they reap the benefits from the development and hence this model is likely to face less resistance. By virtue of the master plan and the development control norms, the government has better control over the commercial development envisaged as the part of the project.

However, developing consensus among the existing land owners and convincing them to participate in the scheme is often a time consuming process. Further, disputes on ownership of the land among the existing land owners could also act as a hindrance in development of the project, since the pooled development model ideally requires all the existing land owners falling within the project area to be a part of the scheme before the same can be taken up for implementation.

The land pooling model seems appropriate for new (fresh) development projects. It could also be considered for small redevelopment projects where the existing land/ property ownership does not have significant complex issues.

5.1.3 Facilitator Model

Under the facilitator model, the government's role is largely restricted to providing the necessary public infrastructure for development of the project while the existing land/ property owners and/ or private developer arrange for private land to undertake development.

Under this model, the role of the government primarily includes:

- Developing public infrastructure
- Enacting regulations/ policy framework for incentivizing existing land/ property owners/ or attracting private developer to develop the project
- Specifying controls and norms to influence actual development being in line with envisaged vision, to the extent possible
- Assisting the private developer in negotiating with the existing tenants in case of government owned properties

The existing land/ property owners are expected to undertake the development of the commercial development under the project either on their own or by partnering with other private developers. The commercial development needs to be undertaken as per the development control norms specified by the government.

This model is usually suitable for re-development projects, especially large redevelopment projects, involving land that is already developed.

The various redevelopment schemes announced by the government, e.g., cluster redevelopment, slum redevelopment, Dharavi redevelopment, redevelopment of BDD chawls, redevelopment of MHADA buildings, etc.; typically fall under the facilitator model.

The facilitator model is generally expected to have a lower financial burden on the government vis-à-vis the land acquisition model since the role of the government is restricted to developing the public infrastructure. This model also has potential for generate surplus revenue for the government by partly monetizing the incentives provided to the existing land/ property users.

However, under this model, the level of control which the government can exercise on the actual commercial development is very limited. As such, the actual development of the project may or may not happen and in case it happens, it may not be as per the envisaged vision and master plan. Hence, the government may need to prescribe additional development/ control norms and other related measures to try and see that the actual development is by and large in line with the envisaged vision for the project.

Some of the renowned international projects such as Greenwich Millennium Village and Paris Rive Gauch Project demonstrates a successful partnership between public and private sector for the redevelopment of the urban centers. (Refer to Appendix 2 for detailed reference studies.)

5.2 CBD Redevelopment, South Mumbai

5.2.1 Background

The South Mumbai CBD Redevelopment project envisages development of a new world class Central Business District (CBD) in South Mumbai, spread over an area of over 100 hectares. The project will involve re-developing the existing area into primarily a commercial center with adjunct facilities such as cultural centers. Close to 30 hectares of the project area is envisaged to be developed on land which needs to be reclaimed as a part of the project. The reclamation process is planned in two phases, viz., the first phase will involve reclamation of 3 hectares, primarily for development of the coastal road and the remaining 27 hectares is proposed to be reclaimed in the second phase. The planned time frame for development of the project is estimated between 10 and 15 years.

The existing land within the project area has varying forms of ownership. This includes land/ property owners as well as tenants staying in 'Pagdi' (tenancy) system. The tenants must be taken on board as well and suitably compensated. A sizable portion of land in the area is owned by State Government, Central Government and its agencies such as Railways, Navy, and Port Trust. Some portions of the Government land in the area could have been offered on long term lease (99 years) to the existing occupants. Most of the land in the earmarked zone is already developed with super structures of different forms used for different purposes. The land rates in the area are among the costliest in the country with the current market prices in the area being among the highest in India.

5.2.2 Assumptions

Given the fact that the project necessitates large scale redevelopment of the existing land area, the financial assessment of the South Mumbai CBD Redevelopment project has been carried out considering the Facilitator Model.

The key assumptions used for the purpose of the financial assessment are summarized below:

i. The major costs incurred by the government are assumed to be for:

- Reclamation of 30 hectares of land. 3 hectares to be reclaimed in Phase 1 and 27 to be reclaimed in Phase 2
- Utilities such as water, power and sewerage
- Roads including construction of new minor roads & new major roads
- Landscaping costs such as landscaping along roads, public space landscaping including public plaza and pedestrianized areas.

ii. The financial assessment has been carried out for two scenarios, i.e., Scenario 1 – with minimal land reclamation (for coastal road) and Scenario 2- with total land reclamation.

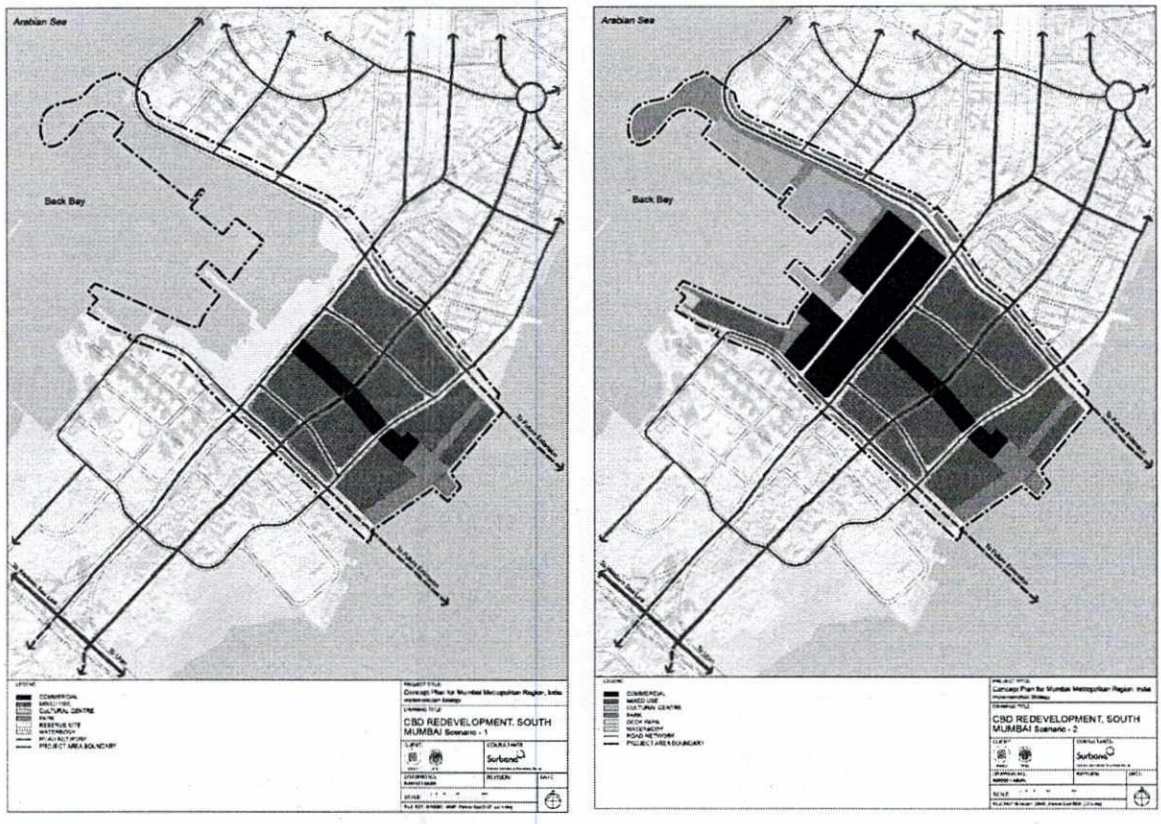


Figure 5.1: Catalyst Project: CBD Redevelopment, South Mumbai – Scenario 1(Left), Scenario 2(Right)
Source: Surbana

The key source of revenue is assumed to be the charges levied for granting additional development rights. The government would need to put in place the necessary statutory framework to support the same.

iii. Levy of development charges has also been considered as a revenue source for the government.

iv. For the sake of analysis, the revenue from sale of government land, wherever possible, has not been considered.

v. The cost of land which needs to be acquired for creating the public infrastructure, especially the new roads, has not been considered. It is assumed that the existing land owners could be granted the right to utilize the development rights in respect of the land acquired by the government on any other land within the project area. This should generally be possible when the redevelopment is being undertaken under the cluster redevelopment model. Alternatively, the government could also consider offering some of its existing land within the project area to the existing land owners in lieu of the land acquired for creating public infrastructure.

vi. The actual development of the commercial infrastructure within the project area is presumed to be undertaken by the existing owners/ private developers who would be in-charge of negotiating with the existing owners/ tenants to arrange for the land and to undertake all commercial development.

vii. Costs for maintaining the developed infrastructure is assumed to be borne by the municipality or any other relevant authority.

5.2.3 Costing & Revenue

As mentioned in the assumptions above, the financial assessment of the South Mumbai CBD Redevelopment project has been carried out under two scenarios, as under:

- Scenario 1: Project Area of only 60 hectares with minimal land reclamation (primarily for the coastal road)
- Scenario 2: Project Area of 100 hectares with land reclamation for development of other components of the project

5.2.3.1 Scenario 1: Project Development with Minimal Land Reclamation

- **Costing**

In this scenario, only 3 hectares of land reclamation is considered. The details of computation of the total cost under Scenario 1 have been provided in the table below.

Table 5.1: Estimate of Costs for South Mumbai CBD Redevelopment Project: Scenario 1

Cost Item		Value		Norm		Cost (Rs.mn.)
		Unit	Value	Unit	Value	
Utilities Costs (includes Power, Water, and Sewerage)		Sqm	600,000	Rs./sqm	2,750	1650
Minor Roads	Widening	Km	1	Rs.mn./ Km	30	30
	New Roads	Km	0.7	Rs.mn./ Km	40	28
Major Roads	Widening	Km	1.5	Rs.mn./ Km	40	60
	New Roads	Km	2.1	Rs.mn./ Km	80	168
Landscaping Along Roads	Roads with Median	Sqm	39,600	Rs./sqm	500	20
	Road Side green	Sqm	10,200	Rs./sqm	500	5
Koli village enhancement		Ha	0.8	Rs./sqm	2600	21
Reclamation		Ha	3	Rs. mn./ Ha	144	432
Total						**2,414**

Source: Delloite & Surbana

- **Approach to determine Revenue**

Charges for incremental development rights granted by the government and levy of development charges are the two revenue sources assumed for the project.

The revenue from charging of incremental development rights has been arrived at by determining the additional development rights which are likely to be granted for the area as per the proposed FSI zoning for the area and proportionately applying the norm as per the practice of charging 40% of value of the land as per the ready reckoner rate for every 0.33 times extra development rights granted (used for charging premium by the Municipal Corporation of Greater Mumbai). Considering this as the base, the additional development rights granted for the project area are likely to fetch a premium of ~170% of land ready reckoner rates. The financial assessment has been carried out for three different options with a premium of 175%, 150% and 125% respectively.

The development charges have been assumed at 2% of the land reckoner rates. The overall approach for computation of the revenue from charges to be levied in respect of additional development rights granted for the project under Scenario 1 is provided in the table below.

Table 5.2: Approach for Computation of Revenue from Additional Development Rights for South Mumbai CBD Redevelopment Project – Scenario 1

Particular	Unit	Total
Current Permissible Development	Sq. M.	977,000
Proposed Permissible Development	Sq. M.	2,373,000
Incremental Development	Sq. M.	1,396,000
Incremental Development as ratio of Current Permissible Development	Times	1.43
Current Rates for Incremental Development		
Premium charged for 0.33 times extra FSI	% of Land Rates as per ready reckoner	40%
Based on current charges, proportionate charge for extra FSI of 1.43 times	% of Land Rates as per ready reckoner	170%
Sensitivity Analysis for Incremental Development Rights		
Case 1	% of Land Rates as per ready reckoner	175%
Case 2	% of Land Rates as per ready reckoner	150%
Case 3	% of Land Rates as per ready reckoner	125%
Ready Reckoner Rates		
Rates for land in Village No./ Zone No. 1/6 as per Ready Reckoner 2011 (Santosh Kumar & Sunit Gupta)	Rs. Per Sq. M.	92,900
Rates for land in Village No./ Zone No. 1/6 as per Ready Reckoner 2011 (Santosh Kumar & Sunit Gupta)	Rs. Per Sq. M.	86,000
Average Rates taken for analysis (i)	Rs. Per Sq. M.	89,450

Source: Delloite

- **Overall Financial Assessment**

The overall financial assessment of the South Mumbai CBD Redevelopment project under Scenario 1 is provided in the table below.

Table 5.3: Overall Financial Assessment for South Mumbai CBD Redevelopment Project - Scenario 1

Particular	Unit	Case 1	Case 2	Case 3
Revenue through charges for Incremental Development Rights				
	% of Land Rate as per ready reckoner	175%	150%	125%
Land Area for charging Development Rights (iii)	Sq. M.	977,000		
Revenue from charges for granting incremental development rights (a) = (i) * (ii) * (iii)	**Rs. mn.**	**152,937**	**131,090**	**109,240**
Revenue through Development Charges				
Rate as % of Land Ready Reckoner Rate (iv)	%	**2%**		
Revenue Generation through Development Charges (b) = (i) * (iii) * (iv)	**Rs. mn.**	**1,748**		
Total Revenue				
Total Potential for Revenue Generation (c)= (a) + (b)	**Rs. mn.**	**154,685**	**132,837**	**110,989**
Cost Incurred and Revenue Surplus				
Total Cost Incurred by the Gov. (d)	Rs. mn.	**2,414**		
Revenue Surplus (e) = (c) – (d)	**Rs. mn.**	**152,271**	**130,423**	**108,575**

Source: Delloite

5.2.3.2 Scenario 2: Project Development with complete Land Reclamation

- **Costing**

In this scenario, the land reclamation required for the project has been considered as 30 hectares. The details of computation of the total cost under Scenario 2 have been provided in the table below.

Table 5.4: Estimate of Costs for South Mumbai CBD Redevelopment Project – Scenario 2

Cost Item		Value		Norm		Cost (Rs. mn.)
		Unit	Value	Unit	Value	
Utilities Costs (includes Power, Water and Sewerage)		Sqm	1,000,000	Rs./sqm	2,750	2750
Minor Roads	Widening	Km	1	Rs.mn./Km	30	30
	New Roads	Km	1.2	Rs.mn./Km	40	48
Major Roads	Widening	Km	1.5	Rs.mn./Km	40	60
	New Roads	Km	2.8	Rs.mn./Km	80	224
Landscaping Along Roads	Roads with Median	Sqm	47,300	Rs./sqm	500	24
	Road Side green	Sqm	13,200	Rs./sqm	500	7
Koli village enhancement		Ha	0.8	Rs./sqm	2600	21
Reclamation	Phase 1	Ha	3	Rs.mn./ Ha	144	432
	Phase 2	Ha	27	Rs. mn./Ha	144	3,888
Total						**7,484**

Source: Delloite & Surbana

- **Approach to determine Revenue**

The revenue sources and the approach to arrive at the charges to be levied for granting of incremental development rights is the same as considered for Scenario 1. Considering this, the additional development rights granted for the project area are likely to fetch a premium of ~430% of land ready reckoner rates. The financial assessment has been carried out for three different cases with a premium of 430%, 350% and 250% respectively.

The overall approach for computation of the revenue from charges to be levied in respect of additional development rights granted for the project under Scenario 2 is provided in the table below.

Table 5.5: Approach for Computation of Revenue from Additional Development Rights for South Mumbai CBD Redevelopment Project – Scenario 2

Particular	Unit	Total
Current Permissible Development	Sq. M.	984,714
Proposed Permissible Development	Sq. M.	4,479,000
Incremental Development	Sq. M.	3,494,286
Incremental Development as ratio of Current Permissible Development	times	3.55
Current Rates for Incremental Development		
Premium charged for 0.33 times extra FSI	% of Land Rates as per ready reckoner	40%
Based on current charges, proportionate charge for extra FSI of 3.55 times	% of Land Rates as per ready reckoner	430%
Sensitivity Analysis for Incremental Development Rights		
Case 1	% of Land Rates as per ready reckoner	430%
Case 2	% of Land Rates as per ready reckoner	350%
Case 3	% of Land Rates as per ready reckoner	250%
Ready Reckoner Rates		
Rates for land in Village No./ Zone No. 1/6 as per Ready Reckoner 2011 (Santosh Kumar & Sunit Gupta)	Rs. Per Sq. M.	92,900
Rates for land in Village No./ Zone No. 1/6 as per Ready Reckoner 2011 (Santosh Kumar & Sunit Gupta)	Rs. Per Sq. M.	86,000
Average Rates taken for analysis (i)	**Rs. Per Sq. M.**	**89,450**

Source: Delloite

- **Overall Financial Assessment**

The overall financial assessment of the South Mumbai CBD Redevelopment project under Scenario 2 is provided in the table below.

Table 5.6: Overall Financial Assessment for South Mumbai CBD Redevelopment Project – Scenario 2

Particular	Unit	Case 1	Case 2	Case 3
Revenue through charges for Incremental Development Rights				
Charge for Incremental Development Rights (ii)	% of Land Rate as per ready reckoner	430%	350%	250%
Land Area for charging Development Rights (iii)	**Sq. M.**	**984,714**		
Value of the incremental development rights (a) = Land Rates (i) * (ii) * (iii)	**Rs. mn.**	**378,865**	**308,290**	**220,210**
Revenue through Development Charges				
Rate as % of Land Ready Reckoner Rate (iv)	%	**2%**		
Revenue Generation through Development Charges (b) = (i) * (iii) * (iv)	**Rs. mn.**	**1,762**		
Total Revenue				
Total Potential for Revenue Generation (c)= (a) + (b)	**Rs. mn.**	**380,627**	**310,052**	**221,968**
Cost Incurred and Revenue Surplus				
Total Cost Incurred by the Gov. (d)	Rs. mn.	**7,484**		
Revenue Surplus (e) = (c) – (d)	**Rs. mn.**	**373,143**	**303,568**	**214,484**

Source: Delloite

5.2.4 Implementation Options

Some of the alternate options for development of selected components of the South Mumbai CBD Redevelopment Project are summarized below:

- Instead of creating the public infrastructure on its own, the government could consider offering the same to the private sector under a PPP model. In lieu of the private partner creating the public infrastructure, the government could offer it the right to develop/ redevelop suitable government land/ property as an incentive for taking up the project.
- While it is complicated, the government has the option to consolidate land parcels owned by government link institutions, acquire some of the smaller pockets of private land for creating a contiguous large parcel and conduct land sale to generate revenue to finance other public and cultural projects within South Mumbai CBD. The ability to consolidate the land parcel will speed up the new CBD development. This implementation option is also illustrated for both the scenarios in Figures 5.2 through 5.5 highlighting the cost incurring features and the revenue generating features.
- For the redevelopment of the older housing colony, the government should play a larger role and preplan the systematic framework for property valuation, assessment of benefits, acquisition, fair compensation, and relocation of the displaced to ensure a successful implementation of urban rehousing schemes. Singapore's Selective Enbloc Redevelopment Scheme (SERS) is one of the fine examples demonstrating such smooth relocations (Refer to Appendix 1 for detailed reference study).

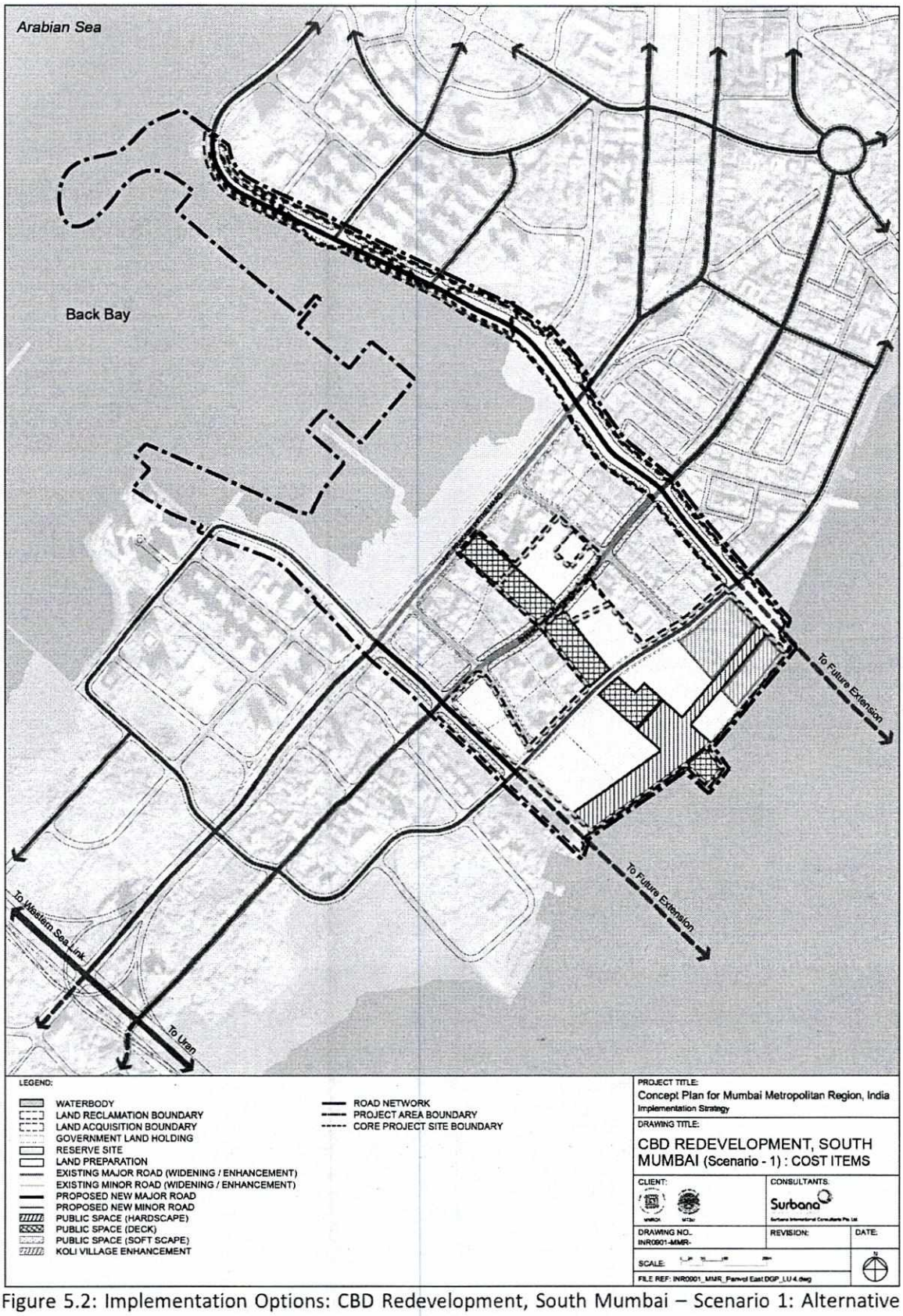


Figure 5.2: Implementation Options: CBD Redevelopment, South Mumbai – Scenario 1: Alternative Cost Items

Source: Surbana

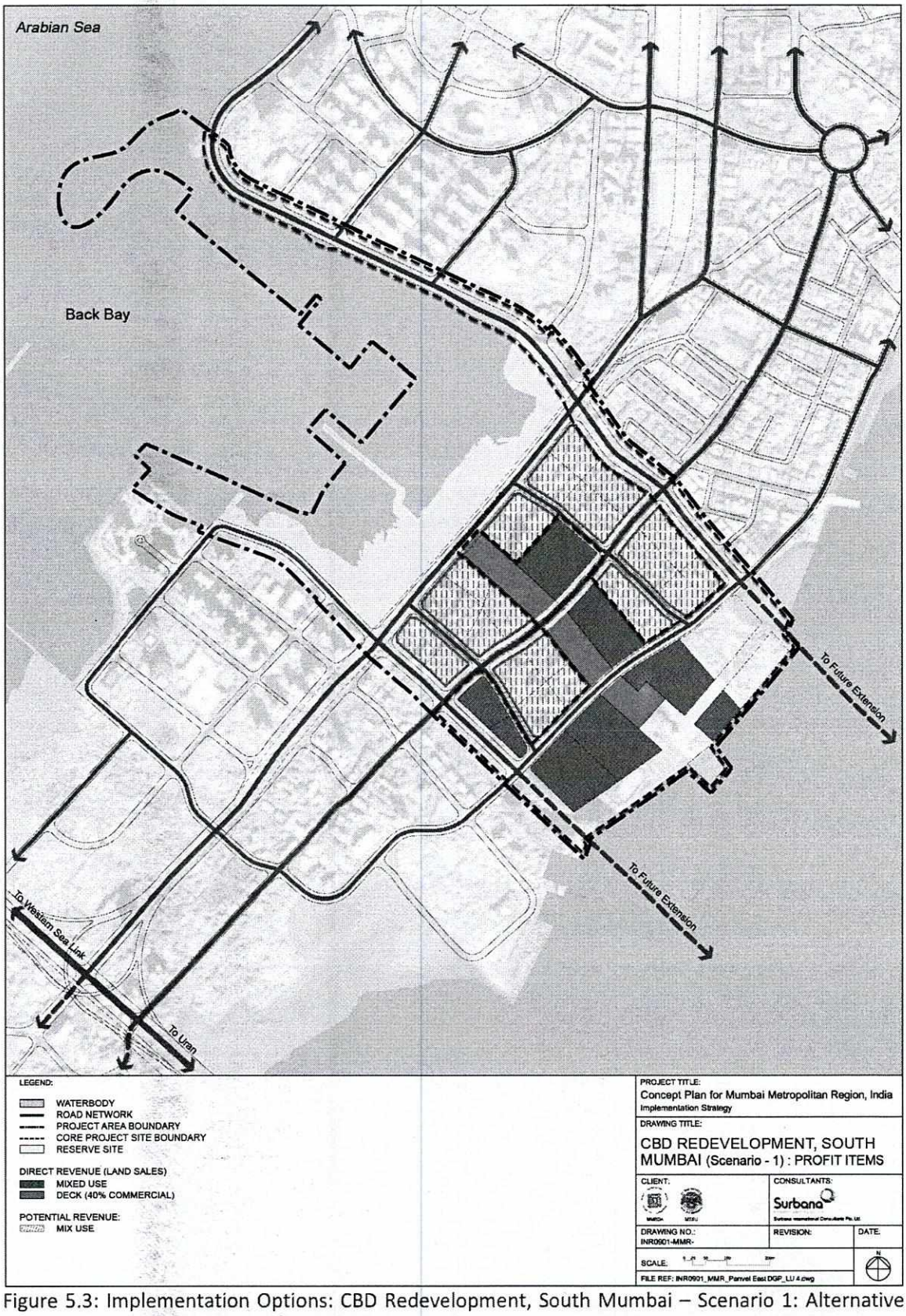


Figure 5.3: Implementation Options: CBD Redevelopment, South Mumbai – Scenario 1: Alternative Revenue Items
Source: Surbana

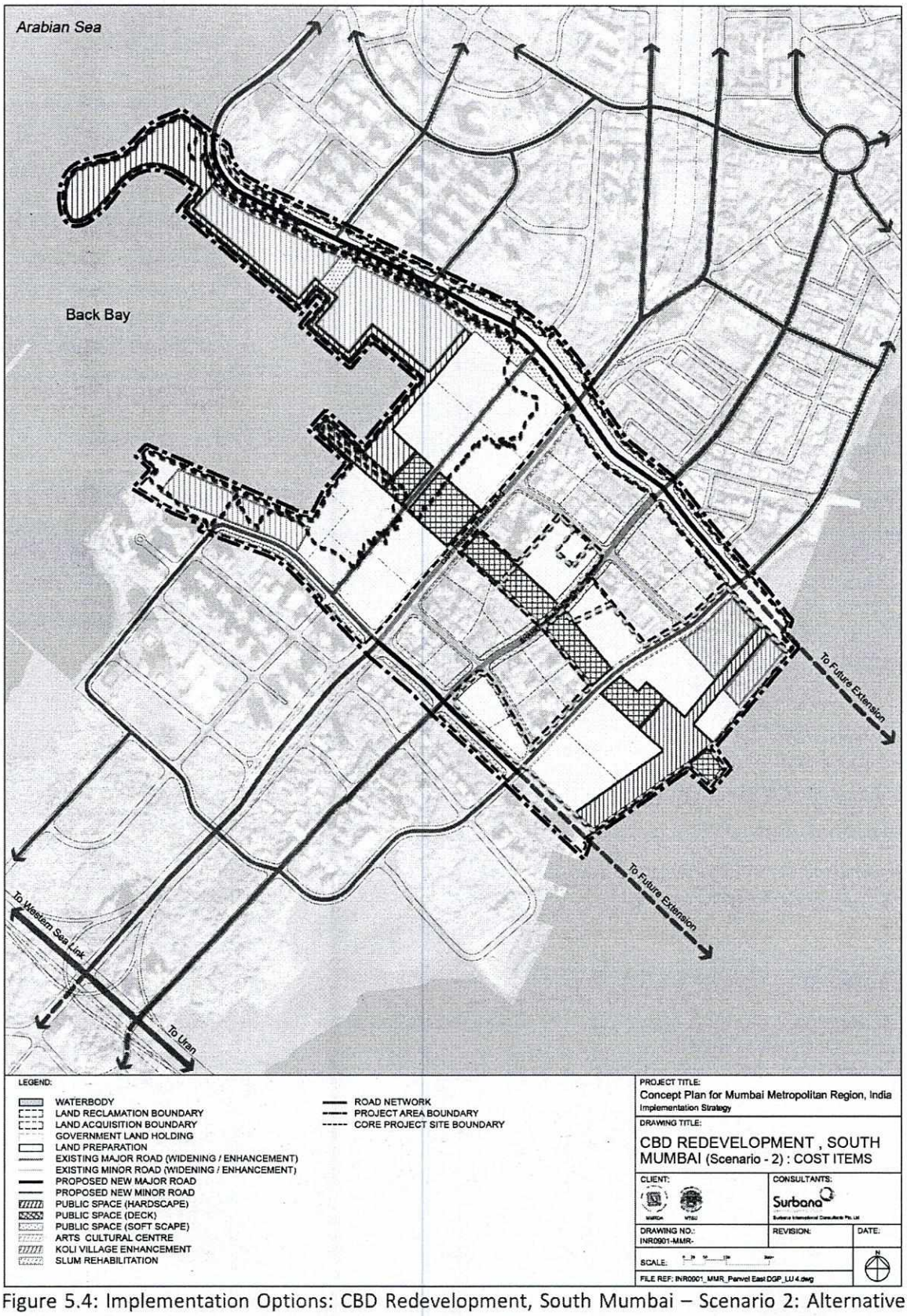


Figure 5.4: Implementation Options: CBD Redevelopment, South Mumbai – Scenario 2: Alternative Cost Items

Source: Surbana

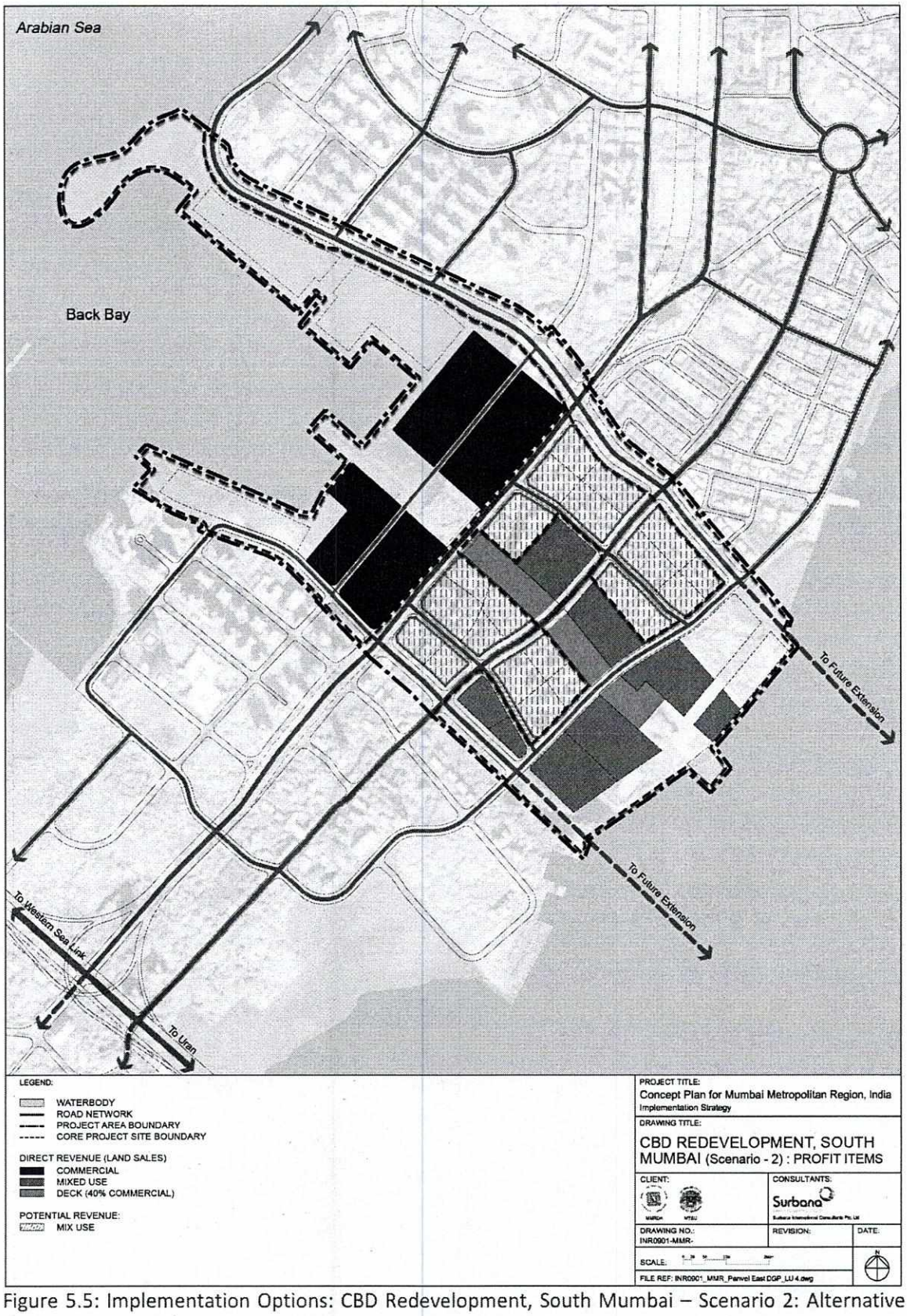


Figure 5.5: Implementation Options: CBD Redevelopment, South Mumbai – Scenario 2: Alternative Revenue Items

Source: Surbana

- In case the government is able to consolidate or to acquire the key land parcels in the CBD, international design-build-operate competition tender should be called to ensure the desired building & urban space quality of the key complex in the CBD.

5.2.5 Implementation Actions

Some of the critical actions for successful implementation of this project are listed as below.

Table 5.7: Critical Actions for Successful Implementation of South Mumbai CBD Redevelopment

Project Administration	Improvement on Existing Policy
Action 1 : Appointment of a Designated Implementing Agency • Declare the area under SPA or in case of JV, establish the SPV. **Action 2 : Preparation of Follow-up Studies** • Conduct follow up studies – finalization of CBD Masterplan, detailed financial feasibility study and environmental impact study. **Action 3 : Preparation of Tenders** • Prepare PPP Tender for urban infrastructure, slum redevelopment. • In case of acquisitions, prepare land sale tenders.	**Action 1 : Review Application of Cluster Redevelopment Policy** • Review Application of Cluster Redevelopment Policy to incorporate development of public facilities. • Review the incentive FSI (upto 4) allocation in current cluster redevelopment scheme as per the proposed FSI allocation ranges from 3.0 to 15.0 making redevelopment very attractive. • Integrate heritage conservation into the current cluster redevelopment scheme as recommended in the South Mumbai DGP/UD. **Action 2 : Review Application of TDRs & Heritage Conservation Policy** • Restrict TDR application to strategic planning sites near transport corridors/ interchange nodes. • Prevent any further TDR for both heritage and non-heritage plots. • Move from the restrictive approach towards a more inclusive approach allowing rejuvenation and adaptive reuse of heritage assets. **Action 3 : Adopt Urban Design Guidelines in the DP** • Add UDGs for South Mumbai –New CBD in the DP as Special Control Plan which the developer needs to follow.

Source : Surbana

5.2.6 Concluding Remarks

The South Mumbai CBD project is the key catalyst project. It is likely to enhance the image of MMR region as one of the leading CBDs in the world.

The project has potential to generate significant revenue for the government by way of monetizing the incremental development rights proposed to be granted within the project area for development of the project. The surplus generated from the project could be used for augmenting other public infrastructure projects which are felt necessary to facilitate implementation of the South Mumbai CBD project. It could also be used to finance other catalyst projects and other key infrastructure development projects proposed under the overall Concept Plan.

5.3 Gateway Tourism District, South Mumbai

5.3.1 Background

The project envisages development of a new tourism gateway in South Mumbai. Though the project area is spread over an area of 69 hectares, majority of the development is proposed on the existing public infrastructure in the area.

The project is broadly envisaged to involve the following:

- Development of the Leisure Center Promenade and Gateway of India
- Pedestrianization of Horniman Circle and its surroundings
- Pedestrianization and redesigning of museum junction
- Redevelopment and pedestrianization of Bazaar District
- Underground Commercial Developments at Horniman Circle and Museum Junction
- Road, car parking and traffic re-planning within the tourism gateway areas

As specified above, most of the area on which development is proposed as a part of the project is already under the possession of the government and used for different public facilities.

5.3.2 Assumptions

Since most of the land required for development is already owned and under the control of the government, the financial assessment of the Tourism Gateway project has been undertaken assuming that it will be developed by the government on its own, i.e., Self Development Model.

The key assumptions used for the purpose of the financial assessment are summarized below:

i. The major costs incurred by the government are assumed to be for:

- Widening of minor roads
- Public space landscaping and Decking
- Construction of pedestrian linkages
- Construction of commercial spaces
- Construction of car parks

ii. Revenue from the sale of commercial spaces is the main source of revenue for the government.

iii. Revenue from the car parks can contribute towards the operation and maintenance project and hence both the aspects have not been considered for the purpose of the analysis.

iv. Shortfall in the costs for maintaining the developed public infrastructure, if any, is assumed to be borne by the municipality or any other relevant authority.

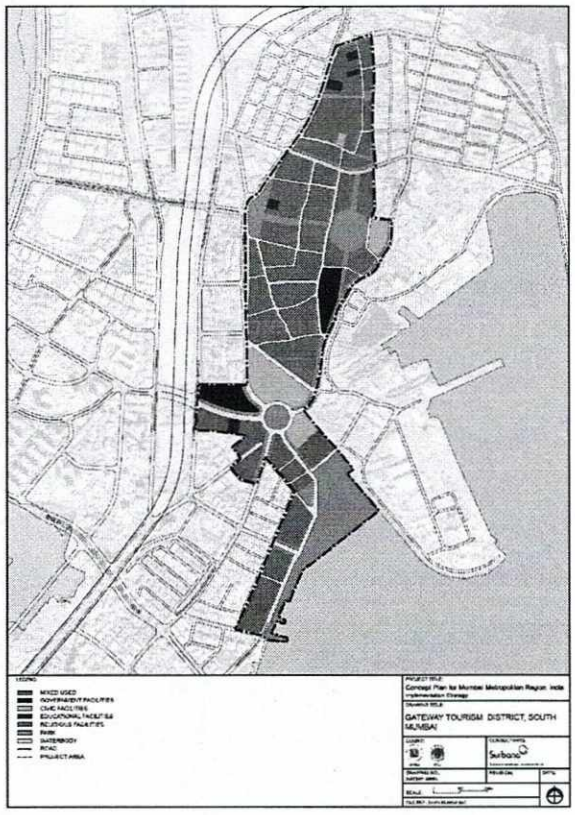


Figure 5.6: Catalyst Project: Gateway Tourism District, South Mumbai
Source: Surbana

5.3.3 Costing & Revenue

- **Costing**

The details of the costs to be incurred for development of the project are shown in Figure 5.7 and provided in the table 5.8 and 5.9.

Table 5.8: Estimate of Cost for Gateway Tourism Project – Public Infrastructure

Cost for Development of Public Infrastructure						
Cost Item		Value		Norm		Cost (Rs. mn.)
		Unit	Value	Unit	Value	
Minor Roads	Widening	Km	3.4	Rs.mn./Km	30	102
Public Space Landscaping	Parks (Hardscapes)	Sqm	50,000	Rs./sqm	2,600	138
	Decks	Sqm	40,000	Rs./sqm	2,600	101
Pedestrianization		Sqm	13000	Rs./sqm	2,600	34
Total (i)						**375**

Source: Delloite & Surbana

Table 5.9: Estimate of Cost for Gateway Tourism Project – Car Parks and Commercial Space

Cost for Development of Car Parks and Commercial Space					
Cost Item	Value		Norm		Cost (Rs. mn.)
	Unit	Value	Unit	Value	
Construction of Car park	Sqm	53,000	Rs./sqm	17,000	900
Construction of Commercial space	Sqm	22,000	Rs./sqm	25,000	550
Total (ii)					**1450**
Total Costs Incurred ((i)+ (ii))					**1825**

Source: Delloite & Surbana

- **Revenue**

The details of the potential revenue which can be earned from the project are provided in Figure 5.8 and table below.

Table 5.10: Assessment of Revenue from Gateway Tourism Project

Sale of Commercial Space		
Total floor area developed as a part of the project	Sqm	22,000
Selling price for commercial space (based on the current rates in the area)	Rs./sqm	200,000
Total Revenue from Sale (iii)	**Rs. Mn.**	**4,400**

Source: Delloite

- **Overall Financial Assessment**

The overall financial assessment of the Gateway Tourism project is summarized below.

Table 5.11: Financial Assessment for Gateway Tourism

Total Inflow		
Total inflow (a) = (iii)	**Rs. Mn.**	**4,400**
Total Outflow		
Total Cost Incurred (b) = (i) + (ii)	**Rs. Mn.**	**1,825**
Total Surplus		
Total Surplus (a) – (b)	**Rs. Mn.**	**2,575**

Source: Delloite

5.3.4 Implementation Options

While self development model has been assumed for the purpose of the financial assessment, some alternate implementation options which could be explored for development of selected components of the project are summarized below.

- Development of underground parking lots and commercial space may be undertaken in partnership with private sector under a PPP model.
- PPP model could also be explored for the heritage conservation and development of other public infrastructure on a case to case basis by offering suitable concessions. A successful example of Singapore Heritage Conservation Strategies is appended in Appendix 1 for reference.

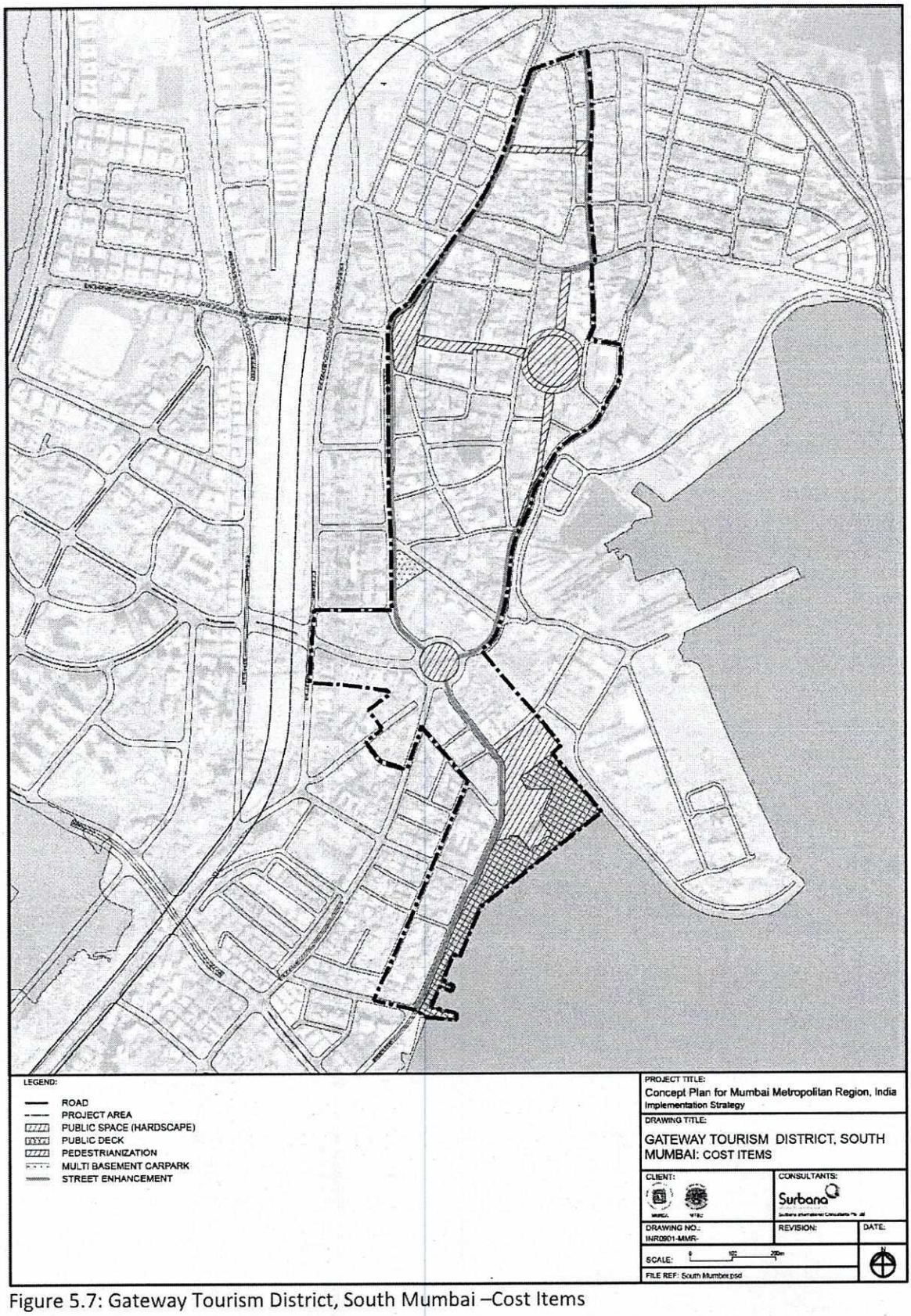


Figure 5.7: Gateway Tourism District, South Mumbai –Cost Items
Source: Surbana

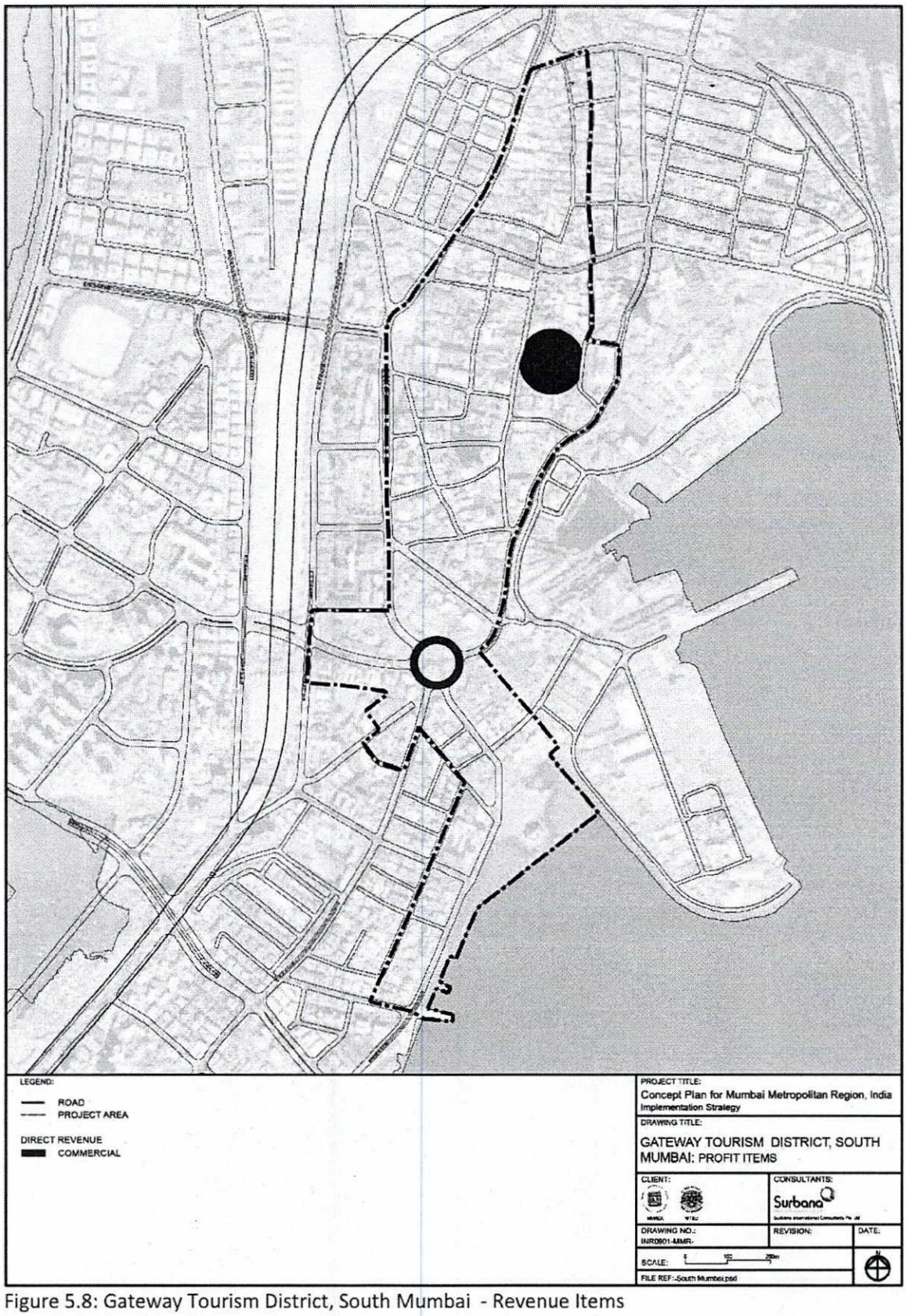


Figure 5.8: Gateway Tourism District, South Mumbai - Revenue Items
Source: Surbana

5.3.5 Implementation Actions

Some of the critical actions for successful implementation of this project are listed as below..

Table 5.12: Critical Actions for Successful Implementation of Gateway Tourism Project

Project Administration	Improvement on Existing Policy
Action 1 : Appointment of a Designated Implementing Agency • MCGM, to execute the project as part of the DP prepared for GM. • Undertake infrastructure improvement, if required through PPP. • Encourage involvement of Citizen's Action Group to advocate the implementation of heritage projects through awareness. **Action 2 : Preparation of Follow-up Studies** • Conduct follow up studies on finalization of Gateway Tourism District Masterplan, detailed feasibility study for proposed enhancement works, rejuvenation of cessed buildings & environmental impact study. **Action 3 : Preparation of Tenders** • Prepare PPP tender for the required enhancements within the heritage areas.	**Action 1 : Review Application of TDRs & Heritage Conservation Policy** • Similar to CBD Redevelopment in South Mumbai, restrict TDR application to strategic planning sites near transport corridors/ interchange nodes. • Prevent any further TDR for both heritage and non-heritage plots. • Move from the restrictive approach towards a more inclusive approach allowing rejuvenation and adaptive reuse of heritage assets. **Action 2 : Adopt Urban Design Guidelines in the DP** • Add UDGs for South Mumbai – Heritage and cessed zones in the DP as Special Control Plan which the developer needs to follow.

Source: Surbana

5.3.6 Concluding Remarks

This project has the potential of creating a significant impact by transforming the project area into a tourism destination with minimal government expenditure. The underground car parks are likely to easy the traffic congestion in the area. The revenue from the sale of the commercial space developed as a part of the car parks has the potential to exceed the total cost incurred under the project, thereby generating a surplus for the government, which could, if required, be used for developing infrastructure for supplementing the proposed development in the project area.

5.4 Andheri City Centre & Transit Hub Redevelopment

5.4.1 Background

The project envisages development of new city centre and transit hub over an area of 27 hectares on either side of the existing Andheri Railway Station.

The project is broadly envisaged to involve the following:

- Redevelopment of railway land, private mix use land and government housing colony
- Decking of the land above the railway track
- Road realignment and related infrastructure development around the station
- Pedestrianization and beautification of Andheri Village for conservation
- Commercial/ residential mix use redevelopment in selected area
- Pedestrian linkages and pedestrian connection to the surrounding areas
- Landscaping along public spaces

Andheri is one of the booming residential and commercial centres in Mumbai. As a result, the real estate rates here are among the highest in Suburban Mumbai. Most of the land in the project area is already developed. A major portion of the proposed development is envisaged on railway land and the government housing colony.

5.4.2 Assumptions

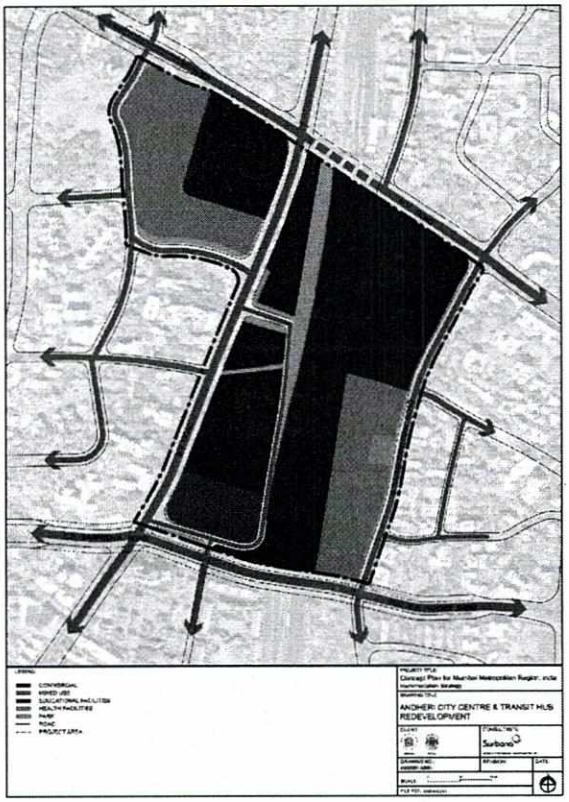


Figure 5.9: Catalyst Project: Andheri City Centre & Transit Hub Redevelopment
Source: Surbana

Since the project involves development on land that is already developed, the financial assessment of the project has been undertaken assuming that the project will be developed using the Facilitator Model, i.e., government will provide the public infrastructure required for the project and the existing land/ property owners shall undertake development/ redevelopment of the commercial/ residential components of the project.

The key assumptions used for the purpose of the financial assessment are summarized below:

i. The major costs incurred by the government are assumed to be for:

- Utilities infrastructure
- Construction of new minor roads
- Development of new major roads
- Landscaping along roads and Public space landscaping
- Pedestrianization and beautification of Andheri village for conservation

ii. Charges levied for granting additional development rights is assumed to be the key source of revenue for the project.

iii. Levy of development charges has also been considered as a revenue source for the government.

iv. The following have not been considered for the purpose of the financial assessment:

- The development of the railway land along with the car parks and decking of the land above the railway tracks is assumed to be separately undertaken by the railway authorities. This prima facie seems to be commercially viable venture which can be taken up by a private developer which may be appointed by the railway authorities. This project component is likely to generate surplus revenue for the railway authorities.
- Redevelopment of government housing colony also prima facie seems to be a commercially viable venture and is assumed to be taken up by a private developer. The potential surplus which could be generated from redevelopment of the government housing colony has not been considered for the purpose of the financial assessment.

v. Costs for maintaining the developed public infrastructure is assumed to be borne by the municipality or any other relevant authority.

5.4.3 Costing & Revenue

- **Costing**

The cost components for the project are primarily the expenditure incurred on developing the public infrastructure required for the project. The detailed workings of the costs to be incurred for the project are provided in the table below.

Table 5.13: Estimate of Cost for Andheri City Centre Redevelopment Project

Cost Item		Value		Norm		Cost (Rs. mn.)
		Unit	Value	Unit	Value	
Utilities Costs (includes Power, Water and Sewerage)		Sqm	270,000	Rs./sqm	2,750	743
Minor Roads	New Roads	Km	0.5	Rs.mn./Km	40	20
Major Roads	New Roads	Km	0.6	Rs.mn./Km	80	48
Landscaping Along Roads	Roads with Median	Sqm	7,100	Rs./sqm	500	4
	Road Side green	Sqm	3,200	Rs./sqm	500	2
Andheri village development		Ha	1.7	Rs./sqm	2600	44
Total						**861**

Source: Delloite & Surbana

- **Approach for computing Revenue for the project**

Charges for incremental development rights granted by the government and levy of development charges are the two revenue sources assumed for the project.

The revenue from charging of incremental development rights has been arrived at by determining the additional development rights which are likely to be granted for the area as per the proposed FSI zoning for the area and proportionately applying the norm as per the practice of charging 40% of value of the land as per the ready reckoner rate for every 0.33 times extra development rights granted (used for charging premium by the Municipal Corporation of Greater Mumbai). Considering this as the base, the additional development rights granted for the project area are likely to fetch a premium of ~142% of land ready reckoner rates.

The development charges have been assumed at 2% of the land reckoner rates. The overall approach for computation of the revenue from the project is provided in the table below.

Table 5.14: Approach for Computation of Revenue from Additional Development Rights for Andheri City Centre Redevelopment Project

Particular	Unit	Total
Existing builtup area (Taking FSI as 1.33)	Sq. M.	194,470
Proposed Permissible Development	Sq. M.	426,000
Incremental Development	Sq. M.	231,200
Incremental Development as a ratio of the Current Permissible Development	times	1.19
Current Rates for Incremental Development		
Premium charged for 0.33 times extra FSI	% of Land Rates as per ready reckoner	40%
Based on current charges, proportionate charge for extra FSI of 1.91	% of Land Rates as per ready reckoner	142%

Source: Delloite

- **Overall Financial Assessment**

The overall financial assessment of the Andheri City Centre Redevelopment project is summarized in the table below.

Table 5.15: Overall Financial Assessment of Andheri City Centre Redevelopment Project

Particular	Unit	Value
Revenue through levying Incremental Development Rights		
Charge for Incremental Development Rights (ii)	% of Land Rate as per ready reckoner	142%
Land Area for charging Development Rights (Taking current FSI as 1.33) (iii)	Sq. M.	146,466
Rates for land in Village No./ Zone No. 39/197 as per Ready Reckoner 2011 (Santosh Kumar & Sunit Gupta)	Rs. Per Sq. M.	42,000
Value of the incremental development rights (a) = Land Rates (i) * (ii) * (iii)	**Rs. mn.**	**8,761**

Revenue through Development Charges		
Rate as % of Land Ready Reckoner Rate	%	2%
Revenue Generation through Development Charges (b)	**Rs. mn.**	**123**
Total Revenue		
Total Potential for Revenue Generation (c)= (a) + (b)	Rs. mn.	8,884
Cost Incurred and Revenue Surplus		
Total Cost Incurred by the Gov. (d)	Rs. mn.	**861**
Revenue Surplus (e) = (c) – (d)	**Rs. mn.**	**8,023**

Source: Delloite

5.4.4 Implementation Options

Some implementation options which could be explored for development of selected components of the project are summarized below.

- Joint development of the Andheri railway station and surrounding areas could be explored in association with the railway authorities and private sector. The Paris Rive Gauche Project is one of the relevant and successful examples of creating a new fringe centre through formation of similar partnerships (Refer to Appendix 2 for detailed reference study).
- The redevelopment could be considered for implementation under the current framework of cluster redevelopment policy. However, partial land acquisitions shall also be explored for the private land east of railway land to regularize the development parcel. Such special integrated development through government initiative shall demonstrate as well as stimulate the revitalization of surrounding developments in the Andheri City Centre. The alternative option is highlighted in Figure 5.10 and 5.11.
- For the redevelopment of the older housing colony, the government should play a larger role and preplan the systematic framework for property valuation, assessment of benefits, acquisition, fair compensation, and relocation of the displaced to ensure a successful implementation of urban rehousing schemes. Singapore's Selective Enbloc Redevelopment Scheme (SERS) is one of the fine examples demonstrating such smooth relocations (Refer to Appendix 2 for detailed reference study).
- PPP model could also be used for development of selected public infrastructure, e.g., pedestrianization and beautification of Andheri Village, could be explored on a case to case basis by granting suitable concessions.

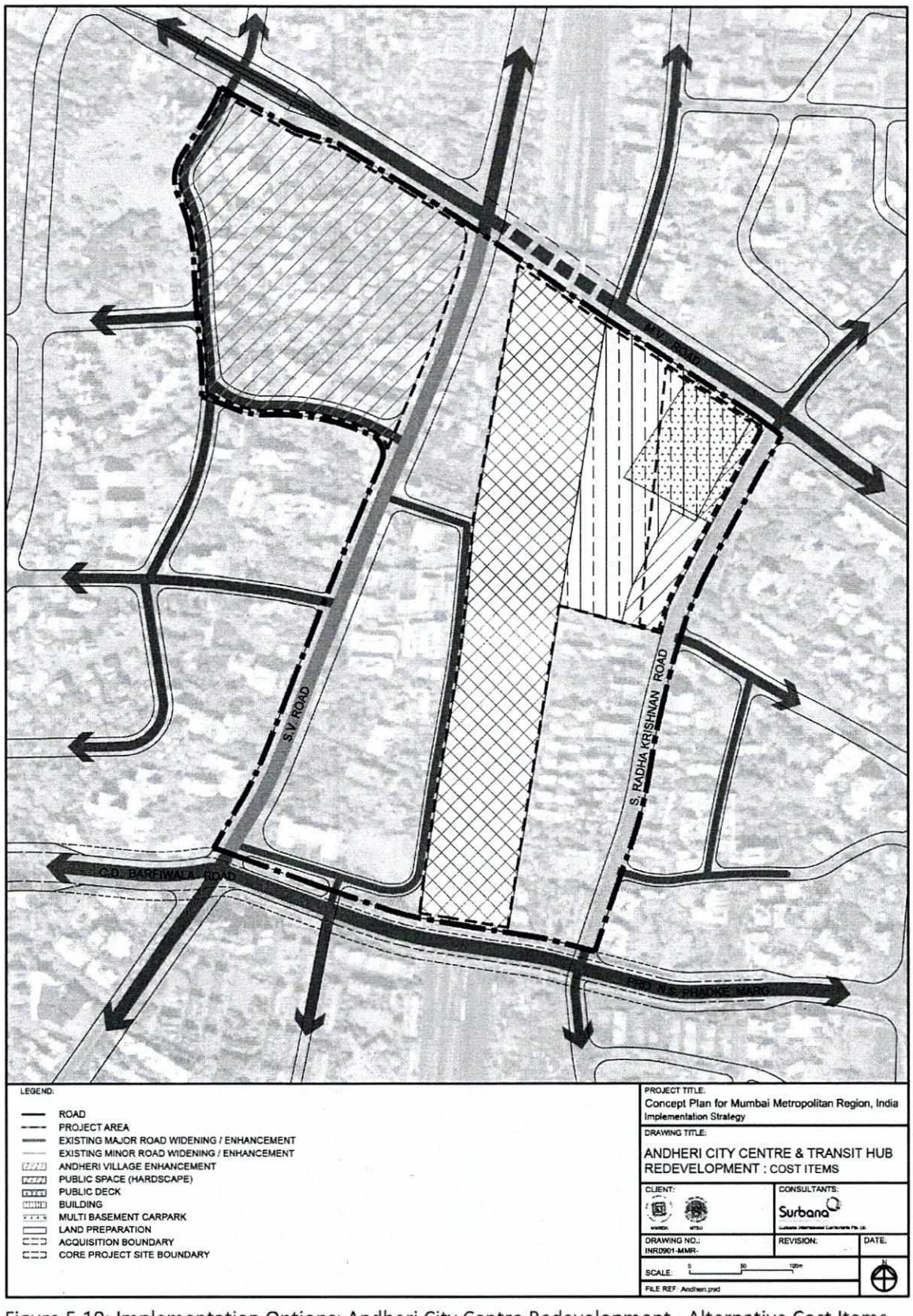


Figure 5.10: Implementation Options: Andheri City Centre Redevelopment - Alternative Cost Items
Source: Surbana

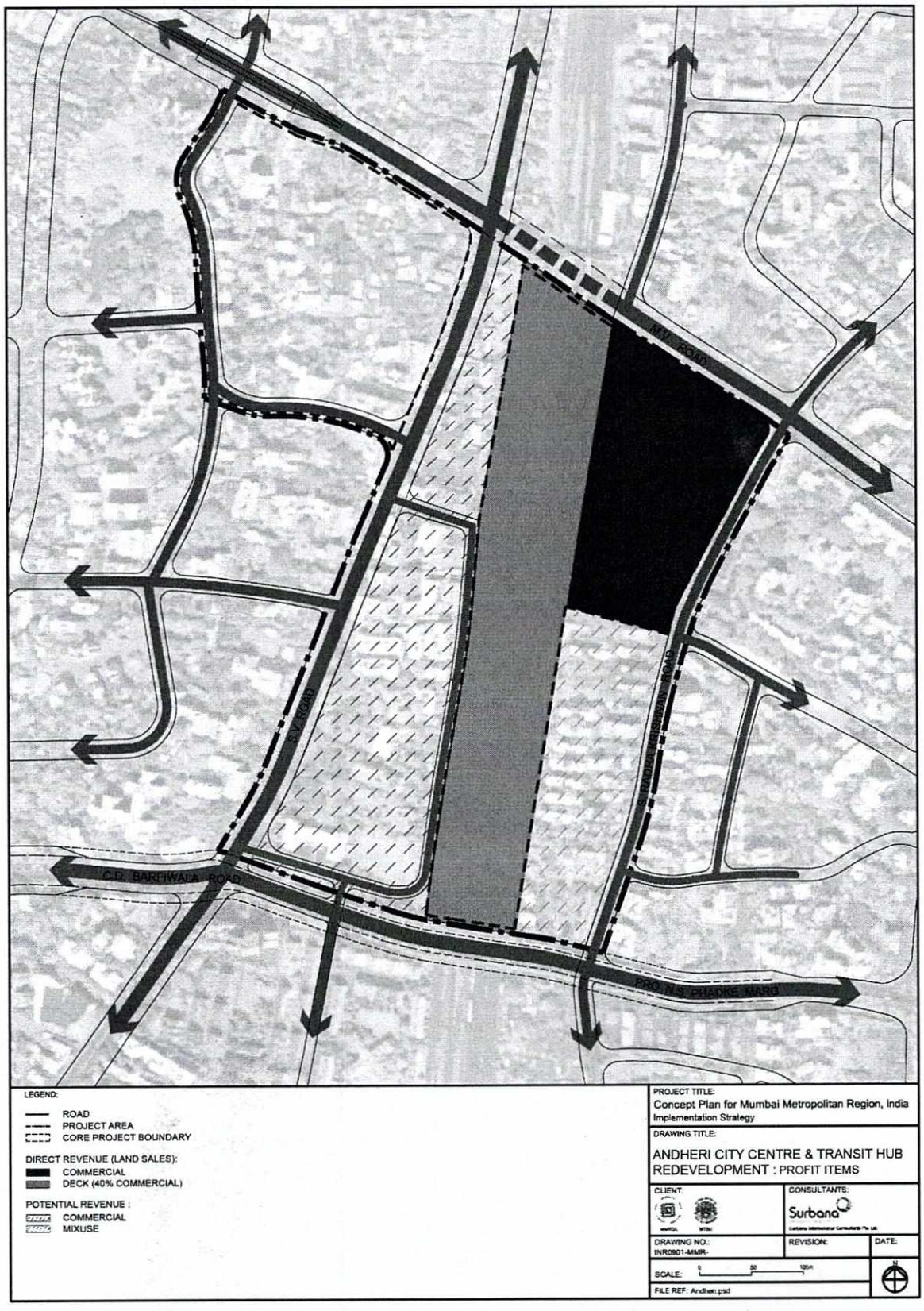


Figure 5.11: Implementation Options: Andheri City Centre Redevelopment - Alternative Revenue Items

Source: Surbana

5.4.5 Implementation Actions

Some of the critical actions for successful implementation of this project are listed as below.

Table 5.16: Critical Actions for Successful Implementation of Andheri City Centre & Transit Hub Redevelopment Project

Project Administration	Improvement on Existing Policy
Action 1 : Appointment of a Designated Implementing Agency • Declare the area under SPA or establish the SPV in case of JV between railway authorities, MMRDA / MCGM and private sector. **Action 2 : Preparation of Follow-up Studies** • Conduct follow up studies on finalization of ACC Masterplan and detailed technical/ financial feasibility study on integrated multi modal transit interchange with special decking features over railway track resolving the air rights issues. **Action 3 : Preparation of Tenders** • Prepare PPP tender for developing the urban infrastructure and Andheri Village enhancements. • Prepare land sale tenders in case of any land acquisitions.	**Action 1 : Review Application of TDRs & Heritage Conservation Policy** • Similar to CBD Redevelopment and Gateway Tourism District in South Mumbai, restrict TDR application to strategic planning sites near transport corridors/ interchange nodes. • Prevent any further TDR for both heritage and non-heritage plots within the Andheri Village Area. • Move from the restrictive approach towards a more inclusive approach allowing rejuvenation and adaptive reuse of heritage assets. **Action 2 : Adopt Urban Design Guidelines in the DP** • Add UDGs for Andheri City Centre in the DP as Special Control Plan which the developer needs to follow.

Source: Surbana

5.4.6 Concluding Remarks

Re-development of the railway land and the government housing colony land are vital elements of the Andheri City Centre project. Hence, it is suggested that the State Government should take-up the matter with the concerned railway officials for getting their support for development of the project components envisaged on the railway land and expediting the implementation of the project. The surplus estimated to be generated from the project could be utilized for augmenting the public infrastructure felt necessary for supporting the proposed development in the project area.

5.5 New Panvel Eco-Township

5.5.1 Background

The New Panvel Eco-township project is envisaged to be developed over an area of ~2200 hectares. The project is proposed to be developed over a period of next 10-15 years. Besides commercial, industrial and residential development, development of affordable housing is also one of the key elements of the project.

The key elements of the project are as follows:

- Development of Public infrastructure for the entire project area
- Development of affordable housing, commercial land development, private residential land development and industrial land development

Panvel lies in the centre of the MMR region and is one of the key emerging growth centres in the region. It is strategically located with its close proximity to the proposed international airport.

The project site area is presumed to be largely undeveloped land, with highly fragmented ownership.

5.5.2 Assumptions

The financial assessment has been carried out only for the commercial and residential components of the project. The financial assessment does not include development of land within and around the Dedicated Freight Corridor (DFC) alignment which has been earmarked for development of industrial land.

Since development of affordable housing is a key element of the overall project and the onus of providing affordable housing largely lies on the government, the affordable housing component of the project has been considered for development under the land acquisition model. Therefore, the total land considered for the acquisition includes the affordable housing (assuming 70% of total units) and the strategic areas for commercial nodes. The pooled development model has been considered for development of the balance part of the project.

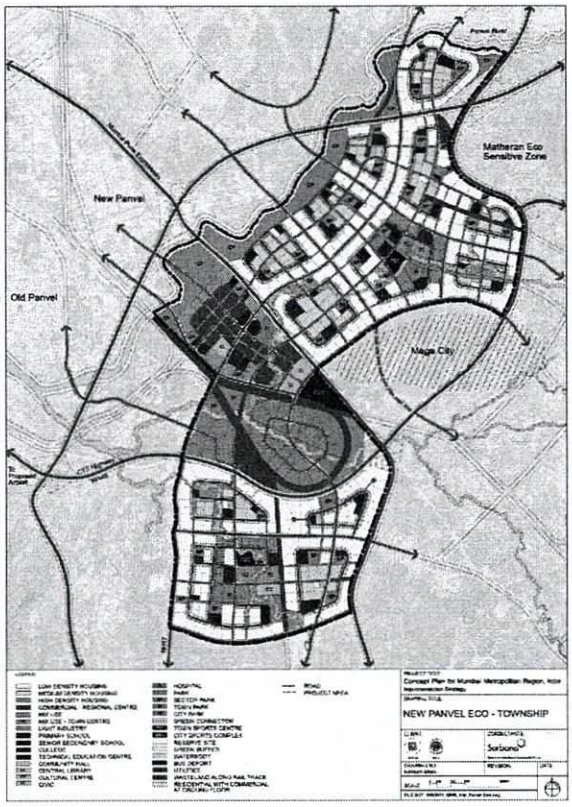


Figure 5.12: Catalyst Project: New Panvel Eco - Township
Source: Surbana

The key assumptions which have been used for carrying out the financial assessment are summarized below:

i. The overall project area has been considered at 1823 hectares. Of this, 681 hectares of land has been considered for development under the land acquisition model and the balance 1142 hectares has been considered to be developed under the pooled development model.

ii. The rate at which government acquires land is assumed to be Rs. 15 mn. per acre (Rs. 37 mn. per hectare). The land is assumed to be largely undeveloped land.

iii. The following have been considered as the major elements of costs to be incurred by the government:

- Land acquisition costs (681 hectares at 37 mn. per hectare) for affordable housing & strategic commercial nodes
- Land preparation costs for the entire 1823 hectares
- Construction costs for affordable housing at an FSI of 2.5
- Utilities infrastructure for the entire area
- Construction of new minor roads
- Construction of new major roads and enhancement of existing major roads
- Landscaping along roads
- Public space landscaping

iv. Revenue to the government is primarily from sale of affordable housing units and also from sale of developed plots.

- Of the 130,000 Dwelling Units (DUs) proposed in the whole township, 70% (90,000 DUs) are assumed to affordable DUs, part of which (10,000 DUs) will be catered through mandatory requirement of 20% affordable units by private developers. The remaining 80,000 DUs is considered to be provided within the acquired land at a floor area of 50 sqm per DU.
- Within the proposed acquisition area, about 57% (387 Ha) of land is designated for large open spaces such as Panvel River Park, other City / Town level public facilities and roads. The remaining saleable land component for commercial and residential use is 134 Ha.

v. Development under pooled model for the balance area is assumed to be revenue neutral for the government, i.e., the cost incurred on public infrastructure is assumed to be recovered entirely as Betterment Charges from the existing land owners.

5.5.3 Costing & Revenue

- **Costing**

The computation of the total cost to be incurred by the government for development of the project is provided in the table below. The cost items are also illustrated in Figure 5.13.

Table 5.17: Estimate of Costs for New Panvel Eco- Township Project

Costs for creating Public Infrastructure						
Cost Item		Value		Norm		Cost (Rs. mn.)
		Unit	Value	Unit	Value	
Land Preparation		Sqm	18,230,000	Rs./sqm	540	9,845
Utilities Costs (includes Power, Water, and Sewerage)		Sqm	18,230,000	Rs./sqm	2,750	50,133
Minor Roads	New Roads	Km	73.5	Rs.mn./Km	40	2,940
Major Roads	Widening	Km	4.3	Rs.mn./Km	40	172
	New Roads	Km	23.5	Rs.mn./Km	80	1,880
Landscaping Along Roads	Roads with Median	Sqm	330,000	Rs./sqm	500	165
	Road Side green	Sqm	456,000	Rs./sqm	500	230
Public Space Landscaping	Parks (softscape)	Sqm	3,645,000	Rs./sqm	950	3,463
	Public Plaza /Pedestrian Connectors (hardscape)	Sqm	456,000	Rs./sqm	2,600	1,186
Total (i)						**70,014**
Land Acquisition Cost						
Land Acquisition for affordable housing component				Area (Ha)		681
Cost of Acquisition				Rs mn. per Ha		37
				Rs. mn. per Acre		15
Total Acquisition Cost (ii)				**Rs. mn.**		**25,230**
Costs of Constructing Affordable Housing units						
Land Acquisition				Area (Ha)		681
Land for Affordable Housing				Area (Ha)		160
Floor Space Index considered				times		2.5
Total floor area of affordable housing				Area (Ha)		400
Construction Cost for affordable housing				Rs./sqm		16,000
Total Construction Costs (iii)				**Rs. mn.**		**64,000**

Source: Delloite & Surbana

- **Revenue**

The details of computation of revenue for the government from the different sources of revenue of the project are provided in the table below. The revenue items are also illustrated in Figure 5.14.

Table 5.18: Revenue Assessment for New Panvel Eco-Township Project

Sale of Affordable housing		
Total floor area (Taking FSI = 2.5)	Area (sqm)	4,000,000
Selling Price	Rs./sqm	23,000
Total Revenue from Sale of Affordable Housing (iv)	**Rs. mn.**	**92,000**
Sale of land		
Total Land area	Area (Ha)	134
Unit land rates (As per the going rates in the area)	Rs. mn. per Acre	**75**
	Rs. mn per Ha	**185**
Total Inflow through sale of land (v)	**Rs. mn**	**24,790**

Recovery of Betterment Charges from Pooled Land		
Total Pooled Land	Area (Ha)	1142
Betterment Charges	Rs. mn. per acre	16
	Rs. mn. per Ha	40
Total Betterment Charges to be Recovered (vi)	**Rs. Mn**	**43,846**

Source: Delloite

- **Overall Financial Assessment**

The overall financial assessment of the New Panvel Eco-Township project is provided as below.

Table 5.19: Overall Financial Assessment for New Panvel Eco-Township Project

Total Inflow		
Total inflow (a) = (iv) + (v) + (vi)	**Rs. mn**	**160,636**
Total Outflow		
Total Cost Incurred (b) = (i)+ (ii) + (iii)	**Rs. mn.**	**159,211**
Total Surplus		
Total Surplus (a) – (b)	**Rs. mn.**	**1,425**

Source: Delloite

While in the financial assessment it has been assumed that the total cost incurred on public infrastructure shall be recovered as Betterment Charges, the government could also consider retaining some part of the total land with itself and proportionately returning lesser land back to the existing land owners. The land so retained could be subsequently sold off by the government and the extent of cost to the recovered by levy of Betterment Charges could be suitably adjusted on the lower side.

The financial assessment also does not take into consideration the compensation payable to the existing land owners in lieu of the land used for development of public infrastructure since the appreciation in the value of the land post development is expected to suitably take care of this cost. The government could also consider compensating the existing land owners by granting them the right to utilize the development rights in respect of the land forgone by them on the balance land handed back to them.

5.5.4 Implementation Options

Some of the alternate options which could be explored for development of certain components of the New Panvel Eco-Township project have been provided below:

- Development of Affordable housing on the acquired land may be taken up through private sector participation, the government may offer balance land/ other incentives in lieu of the private sector developing and providing affordable housing units to the government. Alternatively, the private developer may also be allowed to sell the affordable housing units with adequate control by the government that the same are actually being sold to economically weaker section of the society at an affordable price.

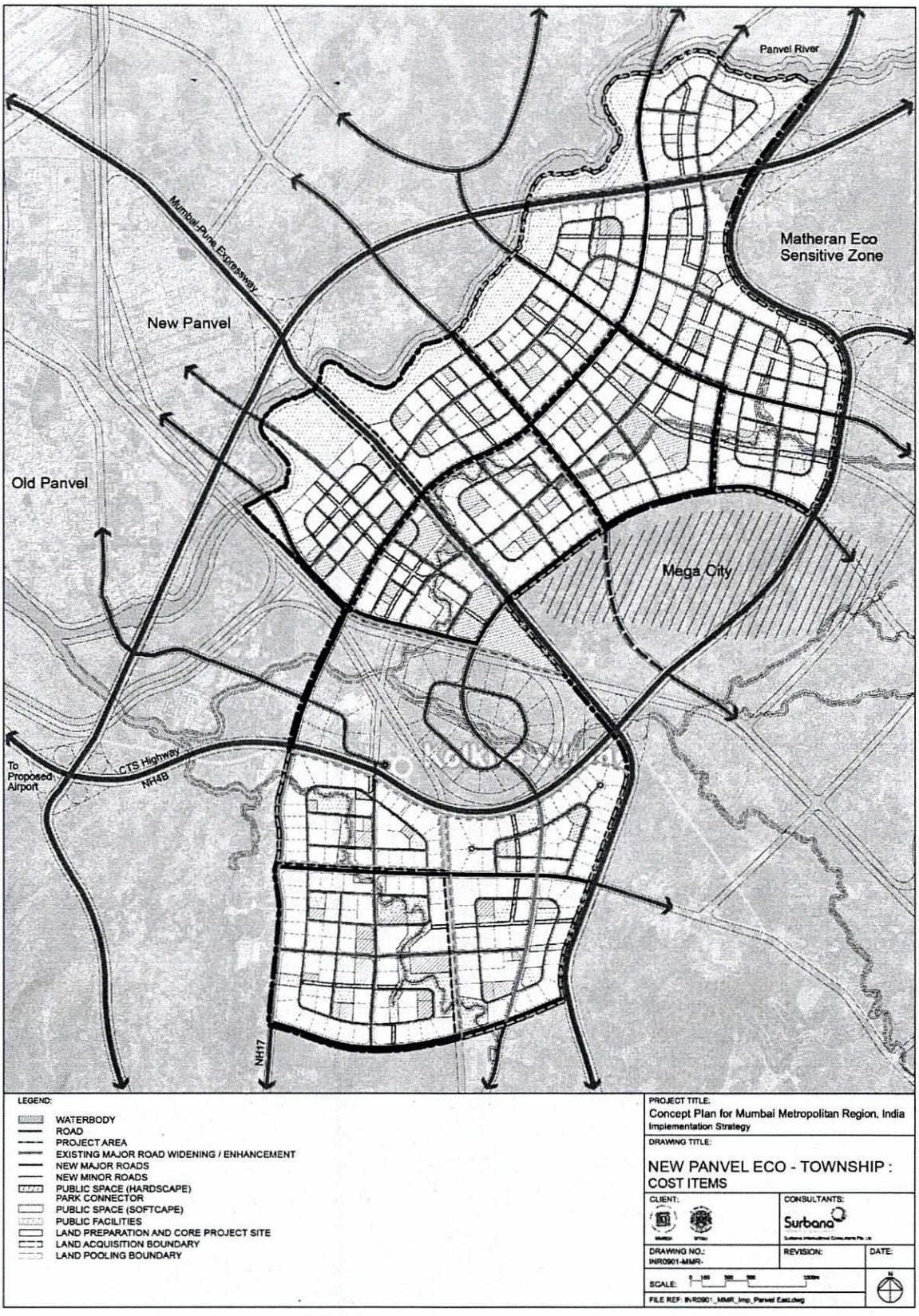


Figure 5.13: New Panvel Eco-Township - Cost Items
Source: Surbana

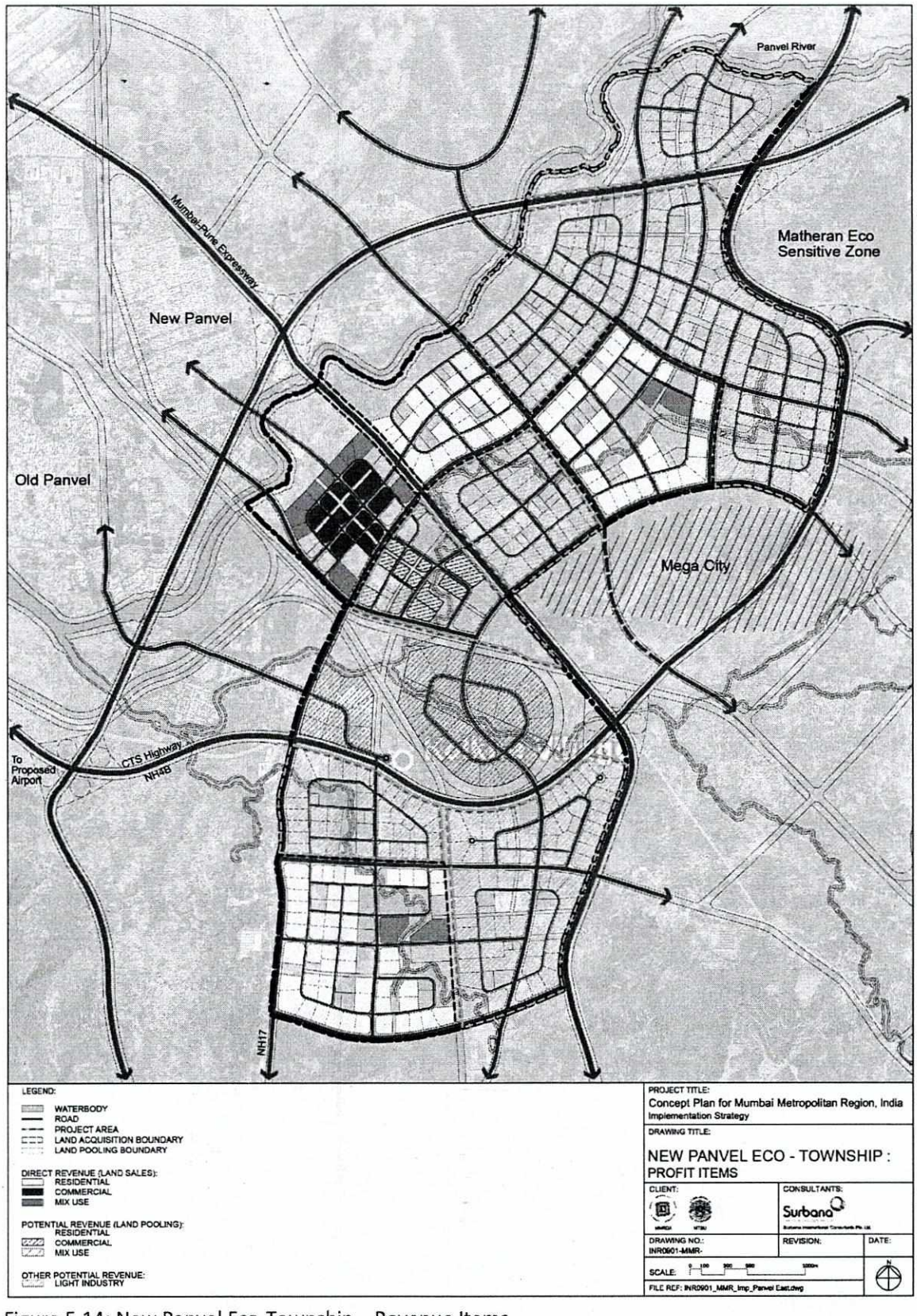


Figure 5.14: New Panvel Eco-Township – Revenue Items
Source: Surbana

- Government owned land within the project site area may be considered for development of the affordable housing component. This will help reduce the requirement and the corresponding outflow on account of land acquisition.

5.5.5 Implementation Actions

Some of the critical actions for successful implementation of this project are listed as below.

Table 5.20: Critical Actions for Successful Implementation of New Panvel Eco-Township Project

Project Administration	Improvement on Existing Policy
Action 1 : Appointment of a Designated Implementing Agency • Appoint SPA, create NTDA or/ and appoint MHADA to take up dominant role in development of quality affordable housing in new town. • Make land available through strategic acquisition by government agency or through JV, or through land pooling. **Action 2 : Preparation of Follow-up Studies** • Conduct follow up studies on finalization of Panvel East DGP, acquisition proposals, land survey studies, detailed technical/ financial feasibility study and environmental impact study as it is a large scale project. **Action 3 : Preparation of Tenders** • Prepare PPP tender for land pooling schemes, for developing the required urban / social infrastructure and for developing the affordable housing. • In case of acquisitions, prepare land sale tenders.	**Action 1 : Review Application of Mega City & Special Township Schemes** • Restrict the location of Mega City and Special Township schemes within the townships indentified in the areas designated as per the Concept Plan. **Action 2 : Translate Development Guide Plan into new DP** • Adopt diversified zoning classifications as recommended in the DGP proposal with review of FSI strategies and additional development parameters.

Source: Surbana

5.5.6 Concluding Remarks

The New Panvel Eco-Township project seems to be a self-sustaining project. This project would act a catalyst for the faster growth and development of the region. Given the lack of space and limited opportunities for developing affordable housing projects within the Mumbai City, the affordable housing component of the New Panvel-Eco Township could help the government serve its obligations of making affordable housing available to the economically weaker sections of the society.

5.6 CBD-Uran-Rewas Link & New Rewas Township

5.6.1 Background

The New Rewas Township project envisages development of a greenfield township over an area of ~1000 hectares. The project is proposed to be developed within an overall time span of 10-15 years. The project also envisages development of linkages between the township and Uran and further with the South Mumbai CBD. The broad elements of the project are:

- Infrastructure development for the 1000 hectare township
- Development of public facilities and parks for the township
- Commercial and residential spaces

The project site area is presumed to be comprising of largely undeveloped land. The land ownership in the area is presumed to be highly fragmented with both private and public ownership.

5.6.2 Assumptions

Since the project envisages fresh (new) development which is proposed to be developed on land with highly fragmented ownership, the financial assessment of the project has been carried out considering the pooled development model.

The key cost and revenue assumptions made for the purpose of the financial assessment have been summarized below:

i. The major elements of costs to be incurred by the government include:

- Land preparation costs for the entire 980 hectares
- Utilities infrastructure for the entire area
- Construction of new minor roads
- Construction of new major roads
- Landscaping along roads
- Public space landscaping
- Highway Link between Uran and the Township

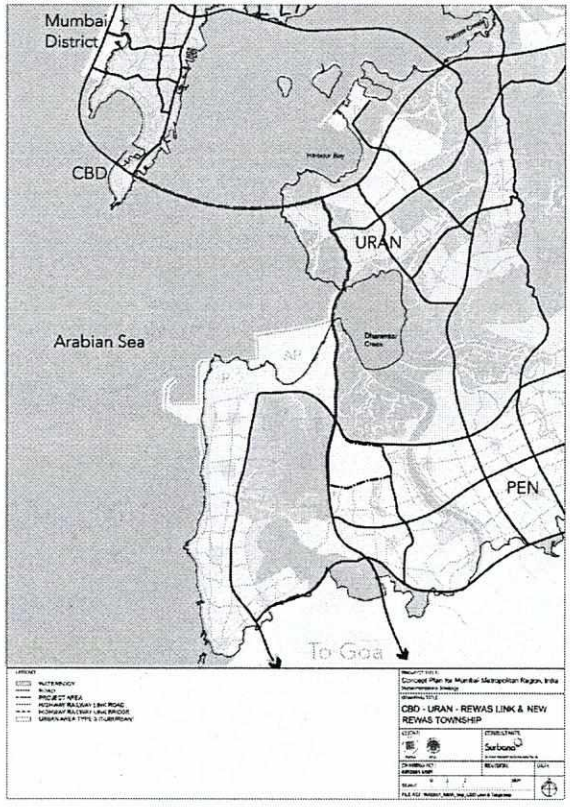


Figure5.15: Catalyst Project: CBD-Uran-Rewas Link & New Rewas Township
Source: Surbana

ii. The cost of constructing the sea link connecting South Mumbai CBD and Uran has not been considered for the purpose of the financial assessment since the same is already independently being taken up for development by the government.

iii. Since the project has been considered to be developed using the land pooling model, it is assumed that the entire cost incurred by the government on creating the public infrastructure within the township is assumed to be recovered from the existing land owners in the form of Betterment Charges.

5.6.3 Costing & Revenue

- **Costing**

The computation of the total cost to be incurred for development of the project is provided in the table below.

Table 5.21: Estimate of Costs for CBD-Uran-Rewas Link & New Rewas Township

Cost for creating public infrastructure						
Cost Item		Value		Norm		Cost (Rs. mn.)
		Unit	Value	Unit	Value	
Land Preparation		Sqm	9,800,000	Rs./sqm	540	5,290
Utilities Costs (includes Power, Water and Sewerage)		Sqm	9,800,000	Rs./sqm	2,750	26,950
Minor Roads	New Roads	Km	32	Rs.mn./Km	40	1,280
Major Roads	New Roads	Km	13	Rs.mn./Km	80	1,040
Landscaping Along Roads	Roads with Median	Sqm	143,000	Rs./sqm	500	72
	Road Side green	Sqm	192,000	Rs./sqm	500	97
Public Space Landscaping	Parks (softscape)	Sqm	980,000	Rs./sqm	950	931
	Parks (hardscape)	Sqm	200,000	Rs./sqm	2,600	520
Highway Link		Km	22	Rs./ Km	80	1760
Total (i)						**37,940**

Source: Delloite & Surbana

- **Revenue and Overall Financial Assessment**

The entire cost incurred by the government for development of the public infrastructure for the project has been assumed to be recovered from the existing land owners as Betterment Charges. The expenditure to be incurred on the Highway Link has not been considered for the purpose of computation of Betterment Charges since the same is likely to serve a much larger area beyond the proposed township.

Considering the above, the Betterment Charges to be levied per hectare of original plot area is estimated to be ~Rs. 38.7 mn. (~Rs. 15.5 mn. per acre).

The overall financial assessment of the CBD-Uran-Rewas Link & New Rewas Township project is provided in the table below.

Table 5.22: Overall Financial Assessment for CBD-Uran-Rewas Link & New Rewas Township Project

Recovery of Betterment Charges from Pooled Land		
Total Cost to be Recovered (ii)	**Rs. mn**	**36,180**
Total Inflow		
Total inflow (a) = (ii)	**Rs. mn**	**36,180**
Total Outflow		
Total Cost Incurred (b) = (i)	**Rs. mn.**	**37,940**
Surplus/(Deficit)		
Total Surplus (a) – (b)	**Rs. mn.**	**(1,760)**

Source: Delloite

The deficit is essentially towards the cost incurred on constructing the highway link between Uran and the proposed township.

As discussed above with respect to the pooled development component of the New Panvel Eco-Township project, the government could consider reserving and retaining some plots from the overall project area, which can be subsequently sold. The estimated sale value could be adjusted from the overall cost by calculating the Betterment Charges payable by the existing land owners.

Also, as in the case of New Panvel Eco-Township project, the above financial assessment does not take into consideration the compensation payable to the existing land owners in lieu of the land used for development of public infrastructure.

5.6.4 Implementation Options

While the township component of the project has been assumed to be developed using the pooled development model, the government could consider developing the highway link through PPP partnership. The private partner could be given the right to levy and collect toll from the highway link so developed and granted other appropriate concessions to make the project viable and attractive for the private sector.

5.6.5 Implementation Actions

Some of the critical actions for successful implementation of this project are tabulated as below.

Table 5.23: Critical Actions for Successful Implementation of CBD-Uran-Rewas Link & New Rewas Township Project

Project Administration	Improvement on Existing Policy
Action 1 : Appointment of a Designated Implementing Agency • Appoint SPA, create NTDA or/ and appoint MHADA to take up dominant role in development of quality affordable housing in new town • Co-ordinate the regional CBD-Uran-Rewas Link with the relevant authority. **Action 2 : Preparation of Follow-up Studies** • Conduct follow up studies on preparation of DP for the New Rewas Township in line with the suburban township model proposed for MMR, detailed Urban Design Proposal for key areas, detailed technical/ financial feasibility study and environmental impact study as it is a large scale project. **Action 3 : Preparation of Tenders** • Prepare PPP tender for land pooling schemes, for developing the required urban / social infrastructure and for developing the affordable housing.	**Action 1 : Review Application of Mega City & Special Township Schemes** • Similar to Panvel Eco-Town, restrict the location of Mega City and Special Township schemes within the townships indentified in the areas designated as per the Concept Plan.

Source: Surbana

5.6.6 Concluding Remarks

Being developed under the pooled development model, the New Rewas Township project is by and large expected to be a self financing project with very limited burden on public finances.

5.7 Taloja Industrial Estate and IWMZ

5.7.1 Background

The Taloja Industrial Estate and Integrated Waste Management Zone Project envisage the development of a new industrial part and waste management zone (IWMZ) in Taloja spread over an area of 845 hectares. The project is expected to be developed within a time frame of next five years.

The key elements of the project include the following:

- Development of a new Industrial Park spread across 730 hectares
- Development of IWMZ that can handle 4000 tons of industrial waste per day, spread across 115 hectares
- Development of public infrastructure for the earmarked zone

The site on which the project is to be developed is assumed to be largely undeveloped land. The existing land ownership in the area is presumed to be highly fragmented with both private and public ownership.

5.7.2 Assumptions

Since the project envisages development of industrial infrastructure, the financial assessment has been carried out under the Land Acquisition Model.

The key assumptions in respect of the costs and revenue used for the purpose of financial assessment are summarized below.

i. The following items have been considered as the major cost elements of the project :

- Land acquisition costs
- Utilities infrastructure for the entire area
- Construction of new major and minor roads
- Landscaping along roads

ii. It is assumed that the IWMZ will be setup by the private player under a PPP Model. The Government will be offer undeveloped land to the private player for setting-up the IWMZ.

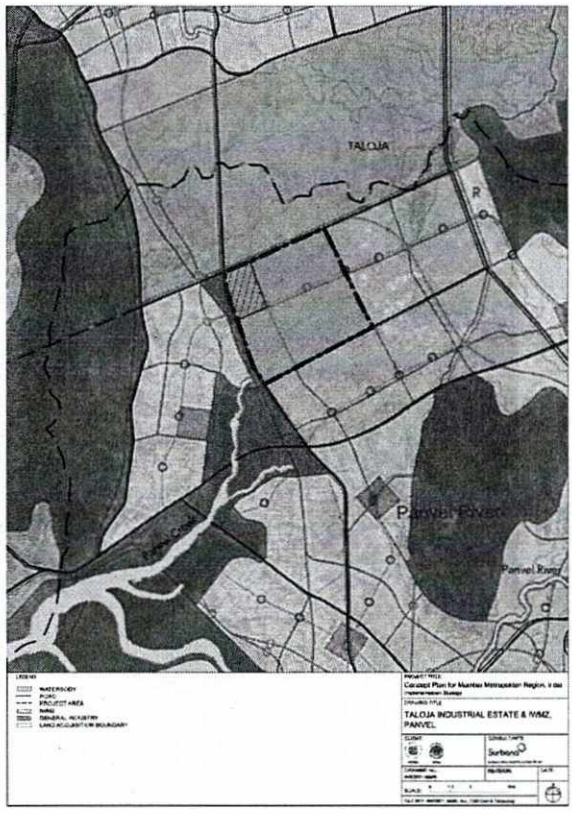


Figure 5.16: Catalyst Project: Taloja Industrial Estate & IWMZ
Source: Surbana

iii. About 20% of the land earmarked for the industrial estate is assumed to be used for development of the public infrastructure.

iv. The revenue for the government is assumed to be mainly coming from the sale of developed industrial plots in the industrial estate (~585 Ha).

v. Costs for maintaining the developed public infrastructure is assumed to be borne by the unit holders as maintenance charges.

5.7.3 Costing & Revenue

- **Costing**

As discussed above, the major cost elements for the government for development of the project are in respect of land acquisition and development of public infrastructure. The detailed cost computations are provided in the table below.

Table 5.24: Estimate of Cost for Taloja Industrial Estate and IWMZ Project

Cost Item		Value		Norm		Cost (Rs. mn.)
		Unit	Value	Unit	Value	
Land Preparation		Ha	730	Rs./sqm	540	3,940
Utilities Costs (includes Power, Water and Sewerage)		Sqm	7,300,000	Rs./sqm	2,750	20,080
Minor Roads	New Roads	Km	21	Rs.mn./Km	40	840
Major Roads	New Roads	Km	10	Rs.mn./Km	80	800
Landscaping Along Roads	Roads with Median	Sqm	110,000	Rs./sqm	500	56
	Road Side green	Sqm	126,000	Rs./sqm	500	64
Total (i)						**25,780**
Land acquisition costs						
Land Acquisition				Area (Ha)		845
Cost of Acquisition				Rs mn. per Ha		12.3
				Rs. mn. per Acre		5
Total Acquisition Cost (ii)				**Rs. mn.**		**10,400**

Source: Delloite & Surbana

- **Revenue**

Revenue from sale of the industrial plots is the main revenue source for the project. The revenue workings are given in the table below.

Table 5.25: Revenue Assessment for Taloja Industrial Estate and IWMZ Project

Particular	Unit	Value
Total Land Area	Ha	845
Less: Land Area for IWMZ	Ha	115
Land Area for Industrial Estate	Ha	730
Less: Land utilized for development of public infrastructure (20%)	Ha	146
Land Sale Area	Ha	584
Land Sale Rates	Rs. mn per Ha	65
	Rs. mn per Acre	26
Revenue through Land Sale (a)	**Rs. Mn**	**37,960**

Source: Delloite

- **Overall Financial Assessment**

The overall financial assessment of the project is provided in the table below.

Table 5.26: Overall Financial Assessment for Taloja Industrial Estate and IWMZ Project

Overall Financial Assessment		
Total Revenue/Inflow to the Gov.		
Total Revenue/Inflow to the Gov. (c) = (a)		**37,960**
Total Cost Incurred by Gov.		
Total Cost Incurred by Gov. (d) = (i) + (ii)		**36,180**
Surplus/(Deficit)		
Total Surplus/ (Deficit) (e) = (c) – (d)	**Rs. Million.**	**1,780**

Source: Delloite

5.7.4 Implementation Options

Though the financial assessment of the industrial estate component of the project has been carried out considering the Land Acquisition Model, the entire project, along with the IWMZ could be considered for development under the PPP mode. Some of the options in this regard could be:

- Government acquires land and offers the project to private partner for developing it on PPP basis
- Government facilitates the private player in land acquisition and provides incentives for the private player to develop the project on PPP mode.

The industrial estate component of the project could also be considered for development under the pooled development model, though there are no major precedents in this regard. The pooled development model has generally been used for development of residential and/or commercial project. Given that the individual plot sizes would be relatively smaller and the industrial estate would need to offer larger plots, the existing land owners may have to come together to form a special purpose vehicle for developing the project. The special purpose vehicle could then offer the plots for sale and the returns could be shared among the existing land owners.

5.7.5 Implementation Actions

Some of the critical actions for successful implementation of this project are listed below.

Table 5.27: Critical Actions for Successful Implementation of Taloja Industrial Estate & IWMZ Project

Project Administration
Action 1 : Appointment of a Designated Implementing Agency
• Appoint a lead agency to facilitate implementation and establish a Project Committee including relevant agencies (NMMC & MIDC)
Action 2 : Preparation of Follow-up Studies
• Conduct follow up studies on preparation of detailed acquisition proposal, detailed technical/ financial feasibility study, specific study for IWMZ facility and environmental impact study as it involves industrial development.
Action 3 : Preparation of Tenders
• Prepare PPP tender for developing the required urban / social infrastructure/ IWMZ.
• Prepare land sale tenders for releasing industrial parcels to private developers.

Source: Surbana

5.7.6 Concluding Remarks

The Taloja Industrial Estate and IWMZ seems to be a self sustaining project. The IWMZ will be equipped to handle waste generated in the industrial estate and hence is expected to operate on a self sustainable basis.

5.8 Summary of Overall Financial Assessment of the Six Catalyst Projects

The overall summary of the financial assessment of the six catalyst projects is provided in the table below.

Table 5.28: Overall Financial Assessment of the Six Catalyst Projects

Project	Development model	Revenue in Rs. Mn.	Cost in Rs. Mn	Surplus in Rs. Mn.	Remarks
CBD Redevelopment, South Mumbai – Scenario 1	Facilitator Model	132,837*	2,414	130,423*	Key surplus generator
CBD Redevelopment, South Mumbai – Scenario 2	Facilitator Model	310,052*	7,484	303,568*	
Gateway Tourism District, South Mumbai	Self Development Model	4,400	1,825	2,575	Self Financing
Andheri City Centre & Transit Hub Redevelopment	Facilitator Model	8,884	861	8,023	
New Panvel Eco-Township	Acquisition Model and Land Pooling Model	160,636	159,211	1,425	
CBD-Uran-Rewas Link & New Rewas Township	Land Pooling Model	36,180	37,940	(1,760)	Self Financing
Taloja Industrial Estate & IWMZ	Acquisition Model	37,960	36,180	1,780	
Total (Considering New CBD – Scenario 1)		**380,897**	**238,431**	**142,466**	
Total (Considering New CBD – Scenario 2)		**558,112**	**243,501**	**315,611**	

** Considering Case 2 of the respective Scenarios*
Source: Delloite & Surbana

The South Mumbai CBD Redevelopment project is envisaged to generate significant surplus revenue. The Andheri City Centre Redevelopment is also likely to generate some surplus for the government. The other four projects, i.e., the South Mumbai Tourism Gateway, New Panvel Eco-Township, New Rewas Township and Taloja Industrial Estate and IWMZ are by and large envisaged to be self-sustaining.

It is important to understand that the financial assessment of the catalyst projects does not take into consideration the potential of revenue being generated and/ or cost being saved in respect of the existing government land/ properties within the project areas. Development of the government properties in the project areas could be taken up on a priority basis as the initial initiatives for development of the projects. The same could also be considered for monetising on a case to case basis to fund the need for augmenting infrastructure within the project area and within the whole of MMR.

The surplus generated from the catalyst projects should be set aside and utilised primarily for funding capital expenditure on infrastructure projects within the respective project areas, other catalyst projects and for the other infrastructure projects undertaken as a part of the overall Concept Plan for the MMR.

CHAPTER 6: WAY FORWARD

Realizing the key implementation challenges faced by MMR today, of limited government land bank, limited funding, a large shortfall in infrastructure/ housing, the uncoordinated planning/ implementation practises with rigid and blanket regulatory policies and a complicated and multi-layered planning as well as administrative system; the implementation strategies for MMR presented in this study focused more on preparing for progressive and long-term growth, attracting the private sector to undertake critical and catalytic projects, incentivizing city renewal and expansion, resolving administrative complexities, improving the planning and regulatory framework and increasing the government stake in development. To summarize, some of the key strategies were focused on:

- Development phasing and priority;
- Review of the existing policy framework and the zoning system;
- Increasing government land holdings and revenue stream ;
- Fostering public private partnership for key infrastructure developments;
- Joint development with private sectors on bankable projects ;
- Adoption of Concept Plan into statutory Regional Structure Plan;
- Adoption of Development Guide Plan & Urban Design into statutory Development Plan;
- Promotion of non-bankable but critical infrastructure projects; and
- Implementation of proposed catalyst projects.

For the purpose of demonstrating the various implementation strategies and gauging financial viability, 6 high-priority bankable projects were selected for detailed analysis. Development of these six selected projects is expected to stimulate development /redevelopment of the surrounding areas by opening up avenues through demonstration of exemplary projects.

In addition to the financial assessment, these projects are also supported with essential steps to be followed under the implementation guide. Although, necessary actions are recommended to appoint the single designated implementing agency to handle the planning and administrative aspects as well as to review and improve the existing policy framework, these projects still needs to be followed through with recommended studies such as acquisition proposal, land ownership surveys, finalization of master plans, detailed feasibility studies and environmental impact studies, etc. A more detailed financial modelling is also recommended as a follow up action to realize each of these projects.

This implementation strategy report is intended to be a guide to realize the Concept Plan for MMR. The summary of key proposals on the physical Concept Plan in conjunction with the soft polices and implementation strategies will be presented together in the Concept Plan Summary Report in the subsequent phase. This will complete the overall picture on how the concept plan could be realized.

APPENDIX 1: SUPPORTING DATA

A1.1 Recommended FSI Restructuring Strategy

Area	FSI allocation strategy 2010-2032	FSI allocation strategy 2032-2052
Inner City Areas	Promoting redevelopment of prime areas by allocating higher FSI in key areas such as: – CBD (Nariman Point) – Heritage Areas Revitalization schemes (Ballard Estate, Esplanade Precinct, Bora Bazaar, Horniman Circle, etc.) – 500 m around key transit nodes (Jacob Circle, Mumbai Central, Mantralaya, Churchgate, CST and Dadar) – 100 m on both sides of major arterial roads – Northern areas of the Mumbai Port land (Phase 1) which is intended to be redeveloped for City extension.	Promoting development in new prime areas by allocating high FSI for new areas such as: – New CBD in the reclaimed islands / re-profiled Backbay area – Northern areas of the Mumbai Port land (Phase 2)
	Restricting the transfer of TDR to dedicated areas, such as: – Within the same block, cluster or precinct – 100 m on both sides of major arterial roads – 500 m radius from transit stations Phasing our use of TDR by 2020	Promoting redevelopment of key commercial and residential areas by allocating higher FSI such as: – Commercial nodes such as Worli and Prabhadevi – Predominantly residential areas such as Grant Road, Tardeo, Breach Candy, etc. – Important transit stations such as Mahalaxmi, Grant road and Churni road; Mahim, Matunga and King's Circle; Wadala, etc.
	Refining and focusing on redevelopment schemes by allocating higher FSI such as: – Cluster redevelopment of cessed, rent controlled and CRZ controlled areas – Redevelopment of slums covered under the provisions of SRA Scheme and incentivizing redevelopment or relocation of all informal settlements	Promoting a second phase redevelopment in line with the increasing affluence of the city's population and demand for high quality working and living spaces in the inner city. This can be done by allocating higher FSI of areas such as: – Previous cluster redevelopment schemes – Previous SRA schemes

City Fringe Areas	Promoting redevelopment of prime areas by allocating higher FSI in key areas such as: – CBD areas (BKC) – Fringe Centers (Andheri, Borivali, Vikroli-Kanjurmarg, Thane, Vashi, Uran-Dronagiri 500 m around important transit stations 100 m on both sides of major arterial roads	Promoting redevelopment of key commercial are residential areas by allocating higher FSI such as: – Smaller commercial nodes (town centers) – Low density residential areas with higher level of access and connectivity – 500m around important lower-order transit stations
	Allocation of TDR in dedicated transfer sites and corridors such as: – CBD areas (BKC) – Fringe Centers (Andheri, Borivali, Vikroli-Kanjurmarg, Thane, Vashi, Uran-Dronagiri – 500 m around important transit stations – 100 m on both sides of major arterial roads Phasing our use of TDR by 2020	
	Refining and focusing on redevelopment schemes by allocating higher FSI such as: – Redevelopment of slums covered under the provisions of SRA Scheme and incentivizing redevelopment or relocation of all informal settlements	Promoting a second phase redevelopment in line with the increasing affluence of the city's population and demand for high quality working and living spaces. This can be done by allocating higher FSI of areas such as: – Previous SRA schemes
Suburban Areas	Promoting intensive development in under-developed areas such as in and around Vasai-Virar, Bhiwandi, Kalyan-Dombivali, Ulhasnagar-Ambernath and Panvel. This can be done by allocating higher FSI in areas such as: – Suburban City Centres – 500 m around important transit stations – In the dedicated industrial zones	Promoting intensive development in future development areas such as Pen-Alibaug, Khopoli-Karjat. This can be done by allocating higher FSI in areas such as: – Suburban City Centres – 500 m around important transit stations – In the dedicated industrial zones

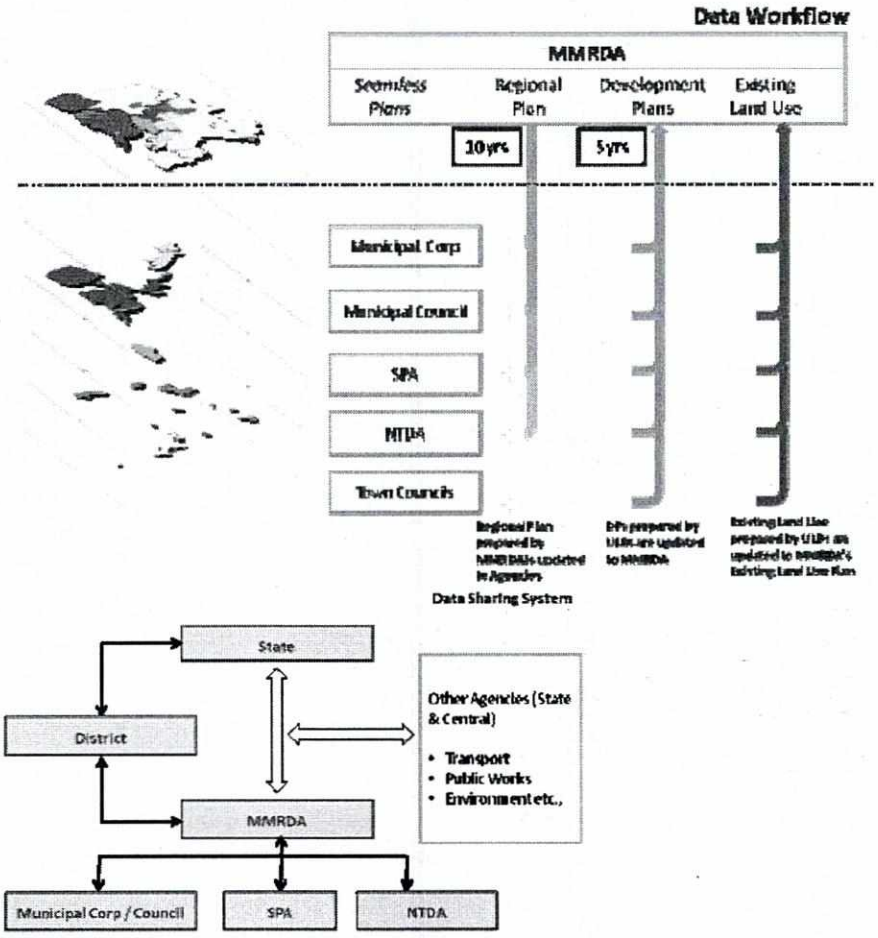
A1.2 Strategic Government Land Holding

Area	Purpose	Recommended Location
Inner City	CBD development	– Land through re-profiling of Backbay for CBD extension – New islands through reclamation in Harbor Bay for CBD and City expansion – Key parcels around important transit nodes such as Churchgate, CST and Sandhurst Road
	Residential development	– Pilot project sites for exemplary cluster redevelopment projects in C ward – Key parcels around important transit nodes such as Jacob Circle, Grant Road, Charni Road, Dadar and Wadala for high-density TOD
	Transport and Infra projects	– Reserves for high-speed rail and key expressways – Reserves for new and widened local roads and rail
	Commercial centre development	– BKC expansion along Vakola Nallah – Key parcels around Fringe Centers in Andheri, Borivali, Vikroli-Kanjurmarg, Thane, Vashi and Uran-Dronagiri
City Fringe Areas	Residential development	– Land freed-up by the relocation of the present Airport in the long-term – Land freed-up by the relocation of petro-chemical and fertilizer industries in Trombay – Key parcels of the newly developing areas west of Mira-Bhayander and along Godhbunder Road
	Transport and Infra projects	– Reserves for high-speed rail and key expressways – Reserves for new and widened local roads and rail
	Commercial centre development	– Key parcels around Suburban City Centers around Vasai-Virar, Bhiwandi, Kalyan-Dombivali, Ulahsnagar-Ambernath, Panvel, Pen-Alibaug
Suburban Areas	Industrial projects	– Key parcels for high-value added industries in Panvel and Uran – Key parcels for consolidated industries around Vasai-Virar, Bhiwandi, Kalyan, Taloja and Alibaug
	Residential Development	– Key parcels of the newly developing areas around Vasai-Virar, Panvel and Pen-Alibaug
	Transport and Infra projects	– Reserves for high-speed rail and key expressways – Reserves for new and widened local roads and rail
	Future airport and port	– Reserves for future airport and port in Rewas-Mandwa
Special Projects	Institutional Uses	– Reserves for international scale institutions in Panvel and around Goregaon Film City
	Recreational Uses	– Recreational and tourism sites in the new reclaimed islands, along Gorai-Manori, along the coast of Vasai-Virar and Alibaug and at city limits of Bhiwandi, Kalyan and Panvel

A1.3 Integrated Land Use Management

The rapid urban development in MMR demands effective tools and technology to allow for planning activities to be captured accurately, evaluated, communicated and shared among users. For the purpose of monitoring and guiding development as per planning intentions, as well as to ensure effective coordination between planning initiatives of different agencies, it is absolutely critical to ensure that there is a well-structured and comprehensive land use data management system in place at all levels. A centralised regional scale GIS enabled Spatial Data Centre is proposed for MMR with the following objectives:

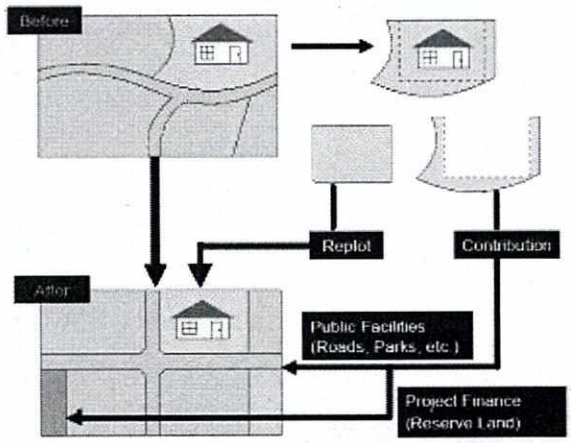
- Ensuring a single base plan to ensure that plans (at different levels) are generated based on the most accurate data (ortho map, topo map and field survey) which is controlled and updated from time to time. Such a single spatial data platform would facilitate sharing of land use and related information between MMRDA and ULB's/SPA's as well as across agencies.
- Integrating cadastral information within the base land use plan for effective planning and development control.
- Automated updating process and maintaining of existing land use data base for the purposes of monitoring, reviewing and decision making process.



APPENDIX 2:REFERENCE STUDIES

A1.4 CASE STUDY 1: Land Readjustment in Japan

- **History**



Land Readjustment is a method whereby the ownership of scattered and irregular plots of land is pooled, roads and main infrastructure are built, and the land is then subdivided into urban plots. Initially in Japan, the land readjustment model was used primarily for agricultural land consolidation and irrigation improvement projects. Later, it was also used for suburban expansion projects, even to rebuild large areas of downtown Tokyo and Yokohama, new town building, public housing projects, railway and mass transit development. Overall, in this method, the landowners benefit from the substantial increases in the value of land even though the remaining area is smaller and the public planning authorities benefit from the land that is secured and provided for public facilities along with the readily built urban infrastructure.

- **Land Readjustment as a tool for Implementation**

Unlike most of the other countries, there is a significant involvement of private individuals in the land readjustment execution. While 58% of land readjustment was done through public initiation by Local Governments and Public Corporations such as the Japan Housing and Urban Development Corporation, the remaining 42% (based on 1995 data) was done by private individuals and associations with government's technical support. Associations are generally the joint co-operation between the land owners and the lease holders.

In this method, each landowner is required to contribute a portion of their previous land holding, commonly about 30% of the total land, to provide space for roads, parks and other public space, and for reserve land. The reserve land is sold at the end of the project to pay the costs of planning, administration and construction.

- **Key Learning Points**

The Land Readjustment in Japan offers some key learning points for the implementation of catalyst projects in MMR.

- Land Readjustment is a practical method tested for urban renewal as well as new town developments and can be explored in MMR as well.
- In addition to the concerted public efforts on executing the land readjustment exercise, the private entrepreneurs shall also be encouraged to make such land readjustments with the support of government's technical expertise.

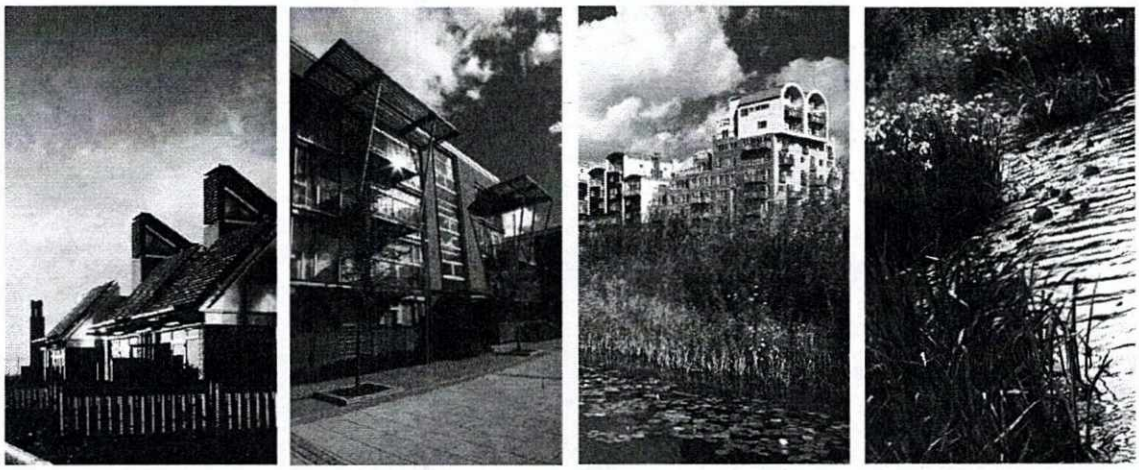
- The concept to reserve the portion of land which can be sold for commercial uses can be lobbied so that it could easily cover the project cost. The self financing nature of this model is a practical solution for MMR, where there is a shortage of capital cost for urban infrastructure.

A1.5 CASE STUDY 2: Greenwich Millennium Village

- **Project Background**

Greenwich Millennium Village is situated on Greenwich Peninsula, adjacent to the Isle of Dogs in south-east London. The peninsula was originally an area of marshland that was reclaimed for a wide range of industries and was later left derelict and contaminated.

The key objective of the project was to provide a range of high quality and innovative homes that would facilitate a more sustainable lifestyle.



- **Key Implementation Strategies**

The Homes and Communities Agency (national housing and regeneration delivery agency) purchased the site in 1997 and appointed a private development partner through an international competition to develop the site. This private development partner - Greenwich Millennium Village Ltd, is a joint venture company created by Countryside Properties plc and Taylor Wimpey Developments Ltd and are working in partnership with the Homes and Communities Agency to implement the project.

- **Key Learning Points**

The Greenwich Millennium Village Project offers some key learning points for the implementation of catalyst projects.

- This project demonstrates partnership between public and private sector partners, which can also be adopted in the case of MMR project implementation.
- It is important for the Public Body to proactively seek partnerships with the Private Company for the implementation of redevelopment projects or large scale new town development projects. Public body like MHADA could play an important role as a lead implementing agency to ensure significant components of affordable housing within such projects.

A1.6 CASE STUDY 3: Canary Wharf

- **Project Background**

Canary Wharf is a major business district located in the West India Docks on the Isle of Dogs, East London. The West India Docks once formed part of the busiest port in the world. After the port industry began to decline, the docks were closed in 1980 and the British Government adopted various policies to stimulate the redevelopment of the area, including the creation of the London Docklands Development Corporation and granting the Isle of Dogs Enterprise Zone status. Later, the idea was floated to convert Canary Wharf into back office which then led to proposals for a new business district. The project was sold to Olympia & York and construction began in 1988, and the first buildings were completed in 1991 which became a powerful symbol of the regeneration of Docklands. Upon opening, the London commercial property market had collapsed and Olympia and York Canary Wharf Limited filed for bankruptcy. However, in December 1995 an international consortium, backed by the former owners of Olympia & York and other investors, bought the scheme. The new company was called Canary Wharf Limited, and later became Canary Wharf Group. Recovery in the property market generally, coupled with continuing demand for high floor-plate grade A office accommodation, slowly improved the level of interest in the estate. In March 2004 Canary Wharf Group plc was forced to be taken over by a consortium of investors backed by its largest shareholder Glick Family Investments and led by Morgan Stanley using a vehicle named Songbird Estates plc. At the peak of property prices in 2007, the HSBC building sold for a record £1.1 billion.

- **Key Learning Points**

Some key learning points from the implementation of Canary Wharf Business District are:

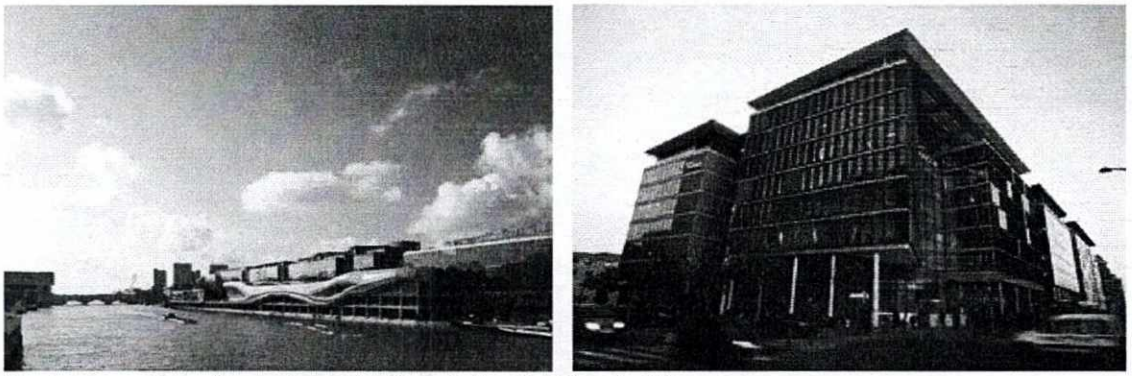
- The development of the South Mumbai CBD could be pursued through formation of a development company.
- The redevelopment of the CBD should be well marketed to big investors for the success of the project.

A1.7 CASE STUDY 4: Paris Rive Gauche – Creation of a New Fringe Centre

- **Project Background**

Situated in a prime location in the city fringes of Paris, along the southern banks of River Seine, this project was initiated as an urban renewal effort. The objective was to bring about transformation of a former run-down industrial area, into a mix-use zone, which would become the new economic and cultural hub in the east of the City. Initiated in 1991, the original completion date was 2003. But, due to large scale success, the scope was enlarged and timeline extended to 2015/2020.

This new district has been able to attract large offices of major companies, SMEs, SMIs, production and research activities as well as universities, and is emerging as an exceptional employment hub in the east of the Capital City. Several cultural and entertainment venues have also come up and most importantly, Paris Rive Gauche has become one of the most important public space and tourist attraction of City.



Deck over railway lines along the River Seine & Office buildings

- **Key Implementation Strategies**

In order to undertake this redevelopment project, the Paris Municipality – the leading agency, initiated the formation of the *Société d'Économie Mixte et d'Aménagement de la Ville de Paris* (SEMAPA), an urban development company, in February 1991. SEMAPA is a non-profit partnership (with public shareholders) commissioned for coordinating and developing the project framework. It was made responsible for acquiring land for development and also for overseeing the construction of some of the facilities, particularly in public areas.

SEMAPA's board of directors included representatives from:

- the Municipality / City of Paris – majority shareholder (57% stake)
- the SNCF – national railways authority (20% stake)
- the RIVP – the Paris building authority (10% stake)
- the State (5% stake)
- the Ile-de-France region (5% stake), and
- various other shareholders (3% stake)

To execute the project, SEMAPA had recourse to more than sixty development professionals such as financial experts, engineers, technicians, architects, urban planners, legal experts, etc., who were responsible for the technical and legal aspects of the project as well as for interfacing with the local associations and residents.

SEMAPA commissioned various design competitions for selecting the master planner (the overall co-ordinating architect) as well as the designers for the key public buildings. In case of the private buildings, the individual developer needed to buy the building rights from SEMAPA at a price indexed to average selling prices. The developer then selected his own architect to design the building, which needed to conform to the overall and detailed specifications set by SEMAPA and the co-ordinating architect.

- **Key Learning Points**

The River Gauche Project offers many learning points specifically for the implementation of the Fringe Centre development around Andheri Station, such as:

- Formation of a partnership company with stakeholders from the public and private sectors.
- Involving the railway authorities as a key stakeholder, and exploring the use of railway land and air-rights.
- Consensus-building and dialogue between the municipality, residents and civic associations to ensure stakeholder buy-in and ownership.
- Attracting large businesses and research institutes.
- Iconic architectural design through international design competition, to create a unique identity and character for the area.

A1.8 CASE STUDY 5: Singapore Selective Enbloc Redevelopment Scheme (SERS)

- **Project Background**

The Selective En bloc Redevelopment Scheme (SERS) is an urban redevelopment strategy employed by the Housing and Development Board (HDB) in Singapore in maintaining and upgrading of its public housing flats in the older estates. It was initiated in 1995 as part of the Singapore Government's Estate Renewal Strategy. Upon completion of such exercises, HDB conducted the satisfaction survey based on which 96 per cent of the residents found their new living arrangements to be ideal.

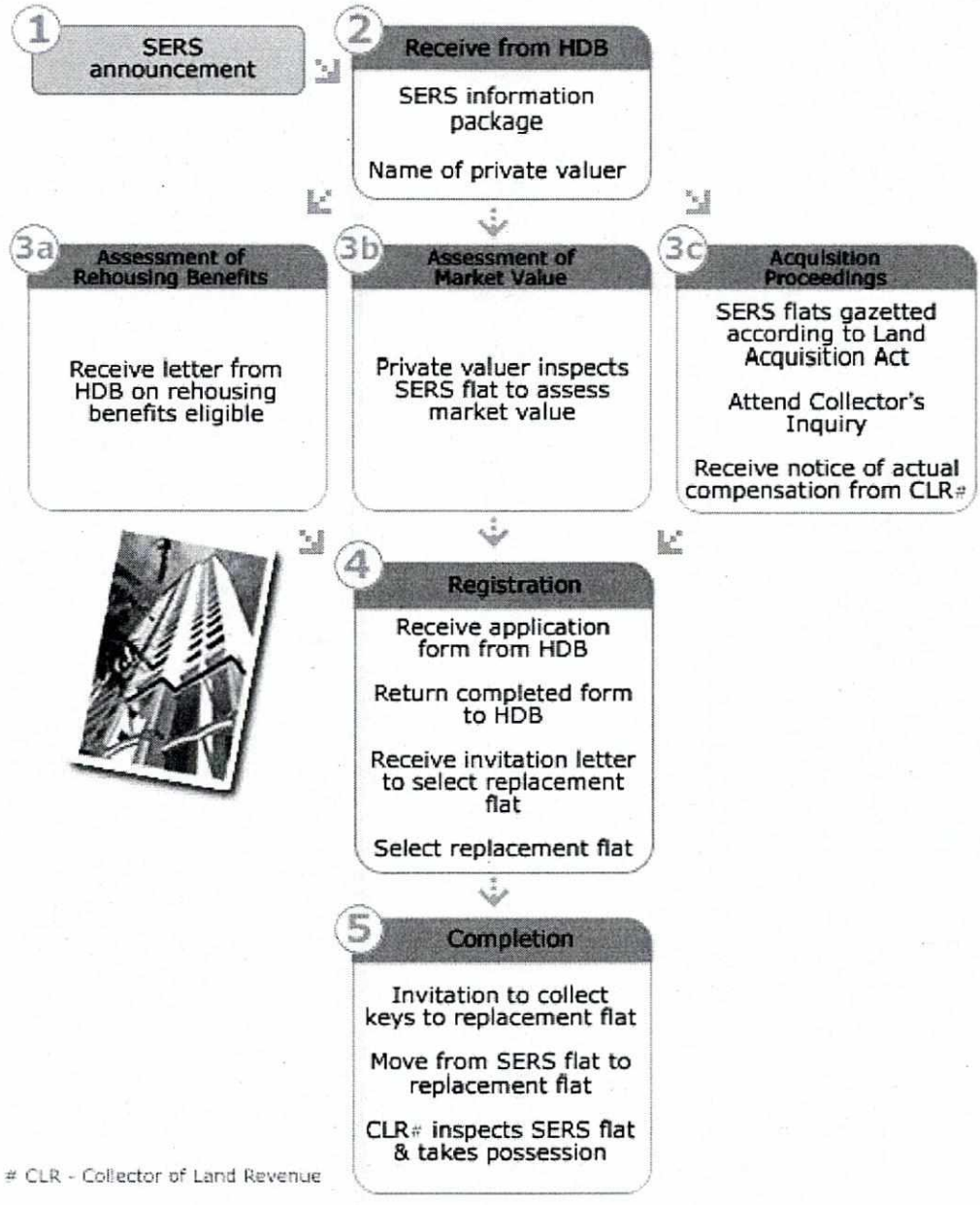
- **Key Implementation Strategies**

The Singapore government is empowered, under the Land Acquisitions Act of 1966, to carry out the Selective En Bloc scheme. Under the scheme, specific precincts in older estates are selected to undergo demolition and redevelopment.

The government notifies the rehousing benefits to the home owners and appoints the private valuer to make the assessment of the market value for the existing property. This is then followed by the acquisition proceedings with agreed compensations to the home owners.

The displaced residents are offered a new 99-year lease in fresh flats constructed nearby preserving the resident's strong community ties built over the years with its familiar surroundings. While these residents are compensated financially, they are also given the privilege to select their units prior to public release and are offered subsidized prices for their new flats. Additional benefits also include the opportunity to purchase flats in other locations under the same benefits.

How Selective En bloc Redevelopment Scheme (SERS) Works



CLR - Collector of Land Revenue

- **Key Learning Points**

The Singapore Selective En bloc Redevelopment Scheme (SERS) offers some key learning points specifically for the implementation of the housing component within the renewal areas of South Mumbai and Andheri.

- As noted in this scheme, there is an active involvement of the Housing Development Board in materializing the entire scheme. And therefore, it is important for the government implementing agency to proactively involve in such renewal exercises. The government should preplan the systematic framework for property valuation, assessment of benefits, acquisition, fair compensation, and relocation of the displaced

to ensure a successful implementation of such schemes. Such schemes can be implemented together with Mumbai's Cluster Redevelopment Scheme to efficiently manage the urban renewal.

A1.9 CASE STUDY 6: Singapore's Heritage Conservation Strategies

- **Project Background**

Although 1970's Singapore was a period of awakening for conservation, with some pilot studies for rehabilitation of old areas of Chinatown and State-owned Buildings like Murray Terrace, the nation had other pressing needs such as the limited land, overcrowded slums, rapid population growth and the pressure to make economic progress, to re-house people to the new satellite towns in suburbs and to redevelop large tracts of the city centre into a modern and efficient business hub. However, the Urban Redevelopment Authority (URA) recognised the intrinsic value of these heritage buildings and the historic districts in the city centre were deliberately excluded from the first phase of redevelopment. Today, the conservation programme is a demonstration of a successful public-private partnership with a market-oriented approach raising public awareness and appreciation of built heritage amongst the locals and has won several recognitions in the international arena.

- **Key Implementation Strategies**

By 1980 the reformed Land Acquisition Act had enabled State to increase its land ownership to 70% as compared to 31% in 1949. 1980s was the formative years for conservation when the URA was appointed as a Conservation Authority and given the opportunity to prepare the conservation plan for the City Centre. The officers from URA documented all the old buildings in sketches and photographs and prepared detailed facade restoration guidelines for each building to guide the restoration. URA also proactively carried out pilot restoration and conservation projects like Tanjong Pagar. Indirect incentives were offered to existing building owners to encourage restoration.

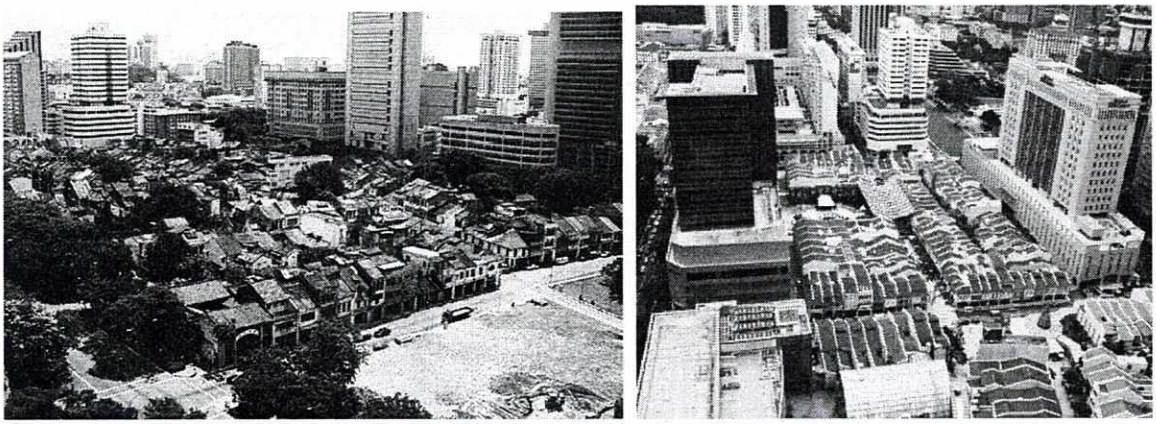
Tanjong Pagar

As part of the government land sales programme, URA also released the unrestored buildings/ parcels on 99 year lease by public auction for the conservation and use. The successful purchasers are required to restore and reconstruct these conservation shop houses in accordance with the Sales Conditions and Conservation Guidelines for Historic Districts.

In order to strike a balance between retaining historic streetscapes for the public and owner's needs to intensify their land, URA also came up with new innovative ideas allowing new and taller infill developments in between old, conserved shop houses. One of such example is China Square, a harmonious blend of old and new developments next to the CBD. Through such public-private partnerships majority of the formerly dilapidated conservation

buildings and pre- World War II buildings have been fully restored to their former glory both by private owners and the government for new uses.

Such success and public support was gained by URA through active consultations with owners, stakeholders, professional bodies like Singapore Institute of Architects and Real Estate and Developers' Association of Singapore, and the community residents. In 1992/1993 consultation with external experts were also conducted to refine the conservation guidelines. In 2002, URA also set up the Conservation Advisory Panel, made up of professionals and laymen, to give recommendations on its conservation proposals.



China Square : Before & After

- **Key Learning Points**

Some of the key learning points from the Singapore heritage conservation strategies are as below.

- It is important to appoint a single designated government implementing agency as a Conservation Authority which should be responsible to provide technical assistance in drafting out the detailed conservation guidelines for the heritage area.
- All the old buildings shall be properly documented.
- Most importantly, it is important for the appointed authority to proactively acquire some key buildings if possible and carry out pilot restoration and conservation projects to demonstrate the desired conservation results, to create awareness about heritage conservation and to encourage private participation.
- Proper incentive programmes need to be outlined for the existing building owners to encourage restoration and increase private participation.

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