UNIVERSITEIT VAN PRETORIA
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YUNIBESITHI YA PRETORIA

03 _ URBAN DESIGN

3.1 INTRODUCTION

This dissertation proposes a significant intervention to improve transport and revive public space in the old Baixa of Maputo. Before engaging with such an intervention it is important to understand the large scale legislation, in order to position a smaller scale precinct proposal therein.

3.2 AIM OF THE CHAPTER

The goal of this urban investigation is to better understand the current conditions within the precinct of study, so that the proposed solution adds value to the existing larger system.

3.3 PAST AND PRESENT PLANNING FRAMEWORKS

The steady development of the city and surrounds necessitated planning to facilitate orderly expansion. A number of planning frameworks have been developed over the years. Development of the city from the original island settlement is illustrated in fig. 2.8 in the previous chapter.

The first framework was established in 1887, and expanded development around the initial settlement.

The next framework issued in 1954 reflected the Portuguese state policy of the time. The plan, depicted in figure 3.1, aimed at locating and phasing industrial and residential areas, whilst restructuring major roads. Population densities were addressed with the intention of establishing the highest population densities in the centre with decreasing towards the periphery of the city. In this process the borders of the city were defined.

The most comprehensive urban plan to date was issued in 1969. This plan, shown in figure 3.2, detailed the guidelines of land use for the entire city, whilst providing guidelines for expanding suburban forms.

In 2008, the PEUMM (*Plano de Estrutura Urbana Municipio de Maputo*, the Urban Structure Plan of the Municipality of Maputo), shown in figure 3.3, set out detailed principles of urban development. The principles include guidelines of the basic rights of the citizens to the city. Among these rights were: The right to the city; the right to urbanised land; the right to decent housing; the right to sanitation; the right to safe transit and urban mobility; the right to infrastructure, services and equipment for urban education, health, information and culture, sport, leisure and safety; and the right to participation.

Following on the PEUMM, a proposed master plan was issued by the municipality in 2010. It focused on traffic solutions specifically in the Baixa area. The plan details major road networks and rail improvements. A new BRT route is proposed, and redevelopment of Avenida Samora Machel into a pedestrian boulevard is formalised. Development of under-utilised land along the marginal to the eastern side of the city are also addressed.

It is important to note the proposed future construction of a tolled bridge across the bay thereby directly linking Maputo to Catembe, as shown in figure 3.4. Such a project will greatly facilitate heavy long-haul traffic through Maputo province and stimulate commerce throughout the district. The regional nature of the project as opposed to a municipal focus means it will not lessen the requirement for localised public transport around the bay by ferry.

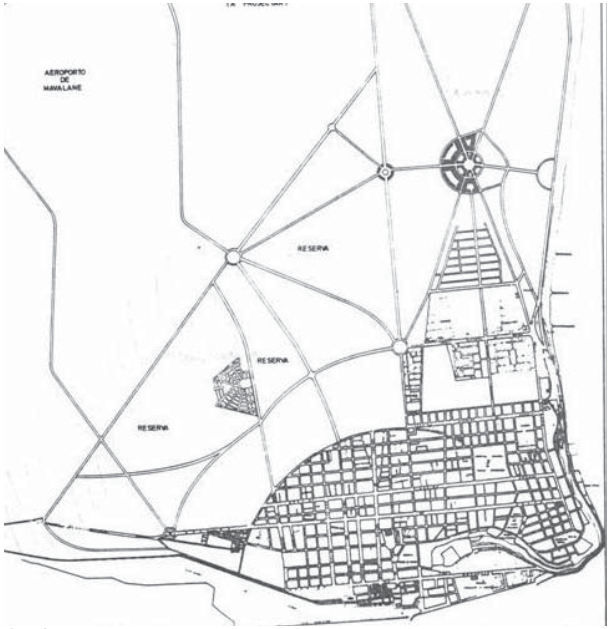


fig. 3.1_

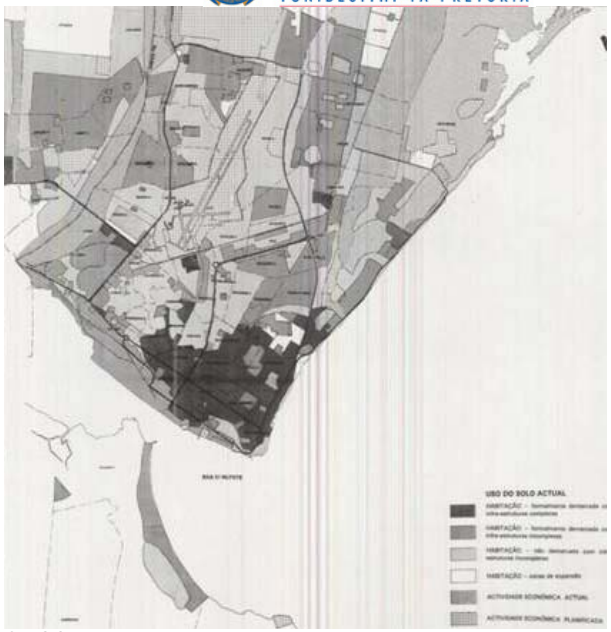


fig. 3.2_

fig. 3.3_

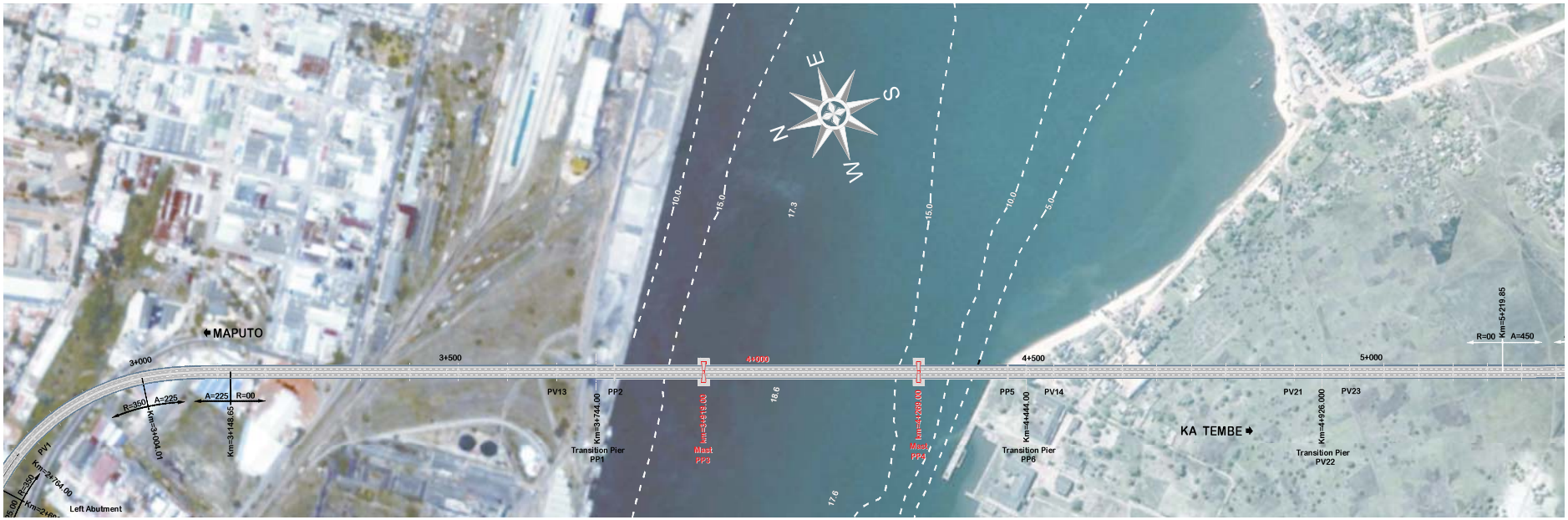


fig. 3.4_

fig. 3.1_ Image depicting 1954 framework

fig. 3.2_ Image depicting 1969 framework

fig. 3.3_ Image depicting the 2008 PEUMM framework for the city

fig. 3.4_ Image depicting the location of the proposed tolled bridge linking Maputo and Catembe. The bridge occurs west of the Baixa and current ferry crossing.

"Urbanism is about human life... Architecture is an experiential art in which all the circumstances of knowledge and technique are brought together to create the possibility of memorable and unexpected encounters occurring on street corners and sidewalks."

_ Robert Stern

3.4 PROPOSED BAIXA URBAN MASTER PLAN CONSIDERATIONS

The vision for the precinct framework is to revitalise the Baixa as the historic heart of Maputo. The Baixa reads as an identifiable area with a coherent character. The variety of functions and the synthesis of formal and informal make for a rich dynamic.

There are however spaces within the precinct that are under-utilised and in varying states of decay, causing disconnection through the area. The most notable disconnection is the barrier between the old Baixa and the sea in the form of the industrial harbour which forms a barrier to the waterfront. Due to developments in international shipping the need for specialist terminals led to the port operations expanding westwards into the bay. The original harbour land thus lies largely underutilised.

In addition the Baixa suffers from a lack of night-time activity, giving it a single faceted daytime nature, with current night-time activities being for the most part illegal. There is a need to address this by proposing ways of injecting a 24 hour cycle to the precinct.

Reconnecting the old Baixa with the waterfront is a clear driver for re-awakening this historic heart of Maputo. The port developments have provided an opportunity to not only revitalise the waterfront area but also to reconnect the Baixa to the sea.

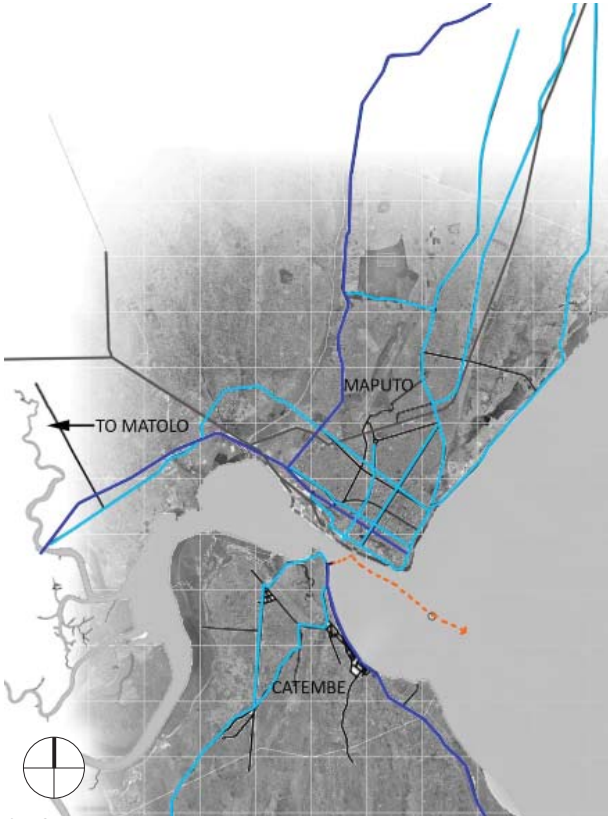


*fig. 3.5_*

fig. 3.5_ Map showing Macro transport routes around the bay of Maputo

fig. 3.6_ Map showing transport feeding into the Baixa

fig. 3.7_ Map indicating location of the three public transport termini in the Baixa, and their proximity to each other.

opp pg: fig. 3.8_ Mapping of Transport routes and Pedestrian movement through the Baixa. The mapping shows that pedestrian movement is in a predominantly westerly direction from the current ferry.

3.5 OBJECTIVES OF THE PROPOSED URBAN MASTER PLAN

The solution is not to demolish existing infrastructure, but rather to use a strategy of infill where possible, enhancing the existing potential of the area. The overarching theme of the precinct urban plan is therefore one of connection. By focusing on connection networks to and within the Baixa, the district will be reactivated

3.5.1 Connection of open space networks

The primary connective goal of the urban precinct plan is to establish an interface between the old Baixa core and the sea, a reaction to the industrialisation of the waterfront which compromised its public nature. The intention is to redevelop this section of the waterfront stretching from the station to the fishing port by:

- Introducing a public interface that will improve the city's link with the water's edge.
- An infill strategy that will be adopted to retain as many of the industrial character buildings as possible, retaining a memory of the heritage of the area.

The opening up of this land will create a waterfront precinct that connects to important civic spaces: Praca de Trabalahdores on the western boundary and Praca 25 de Junho in the east.

3.5.2 Define transport interchanges as connective nodes

Nodes occur where there is a concentration of activity, often brought about by some physical use. In the Baixa, transport nodes provide such concentration. As characteristic of an African city, they are vibrant areas with concentrated numbers of people, and subsequent informal trade. Analysis of transport routes reveals that the city is served by vehicular means of transport that deliver commuters into the Baixa via north-south links.

Three main transport nodes identifiable within the precinct are firstly the train and bus station, secondly the chapas stop, and finally the ferry terminal as shown in figure 3.7

The ferry terminal was moved from the central pedestrianised Baixa to the eastern side of the city. When pedestrian movement analysis is overlaid onto transport mapping (fig. 3.8), it is evident that the majority of people leaving the current ferry migrate

westwards towards the old Baixa and surrounds, with few commuters filtering eastwards. Rather than being a part of the bustling vibrancy of the Baixa the movement of people to and from the ferry is currently only a route to a destination for necessity's sake, .

The relationship between the three transport nodes is also significant in revitalising the downtown precinct. It describes how pedestrians move through the Baixa core between the three facilities. The proximity of the nodes to each other simplifies their interconnected use. Proximity further creates linkages between them, with walking distance between the different facilities reduced to a manageable distance for pedestrians. The framework proposes a relocation of the ferry terminal building to better serve the user's needs.

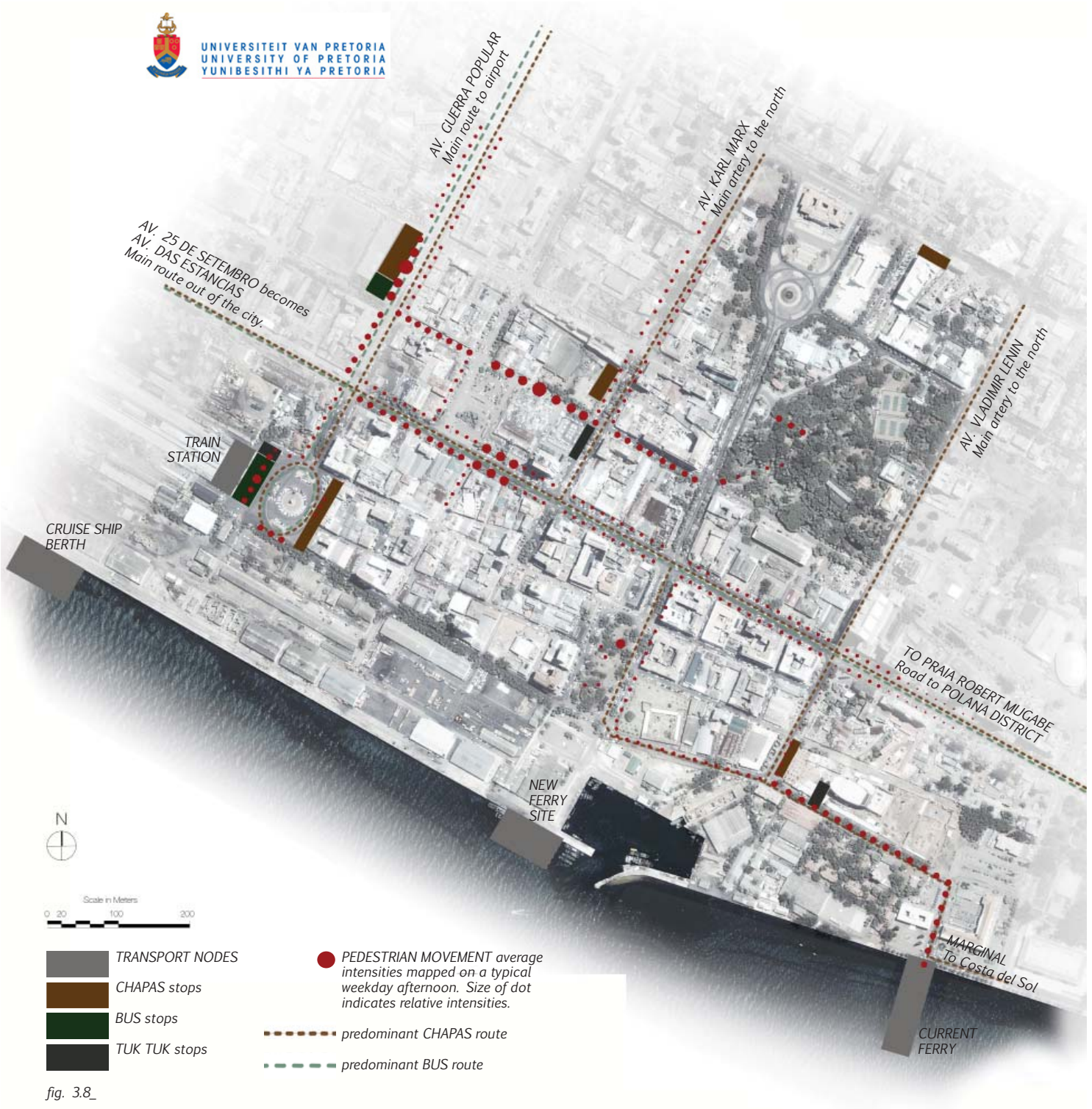


*fig. 3.8_*

opp pg: fig. 3.9_ Graphic indicating intentions within the Urban Masterplan for the proposed character of Avenida Samora Machel.

"The 'movement space' constituted by streets forms the essential connective tissue of urban public space from the micro scale of circulation within buildings to the macro scale of whole cities. So streetspace forms the basic core of all public space - forming a continuous network or continuum by which everything is linked to everything else... The challenge is to address the street as an urban place as well as a movement channel, and how to make this conception of the street work - not just as an isolated architectural set piece, but as a contribution to wider urban structure."

_ Marshall, 2005:19

3.5.3 Use Streets as Connectors

Baixa streets are characterized by their high degrees of pedestrian activity and informality on the one hand, and the enormous presence of the car on the other. Thus streets in the Baixa are movement routes, whilst additionally providing public urban place.

Identified within this master plan is firstly the importance of extending the north-south links to connect the greater city with the Baixa and into the waterfront redevelopment proposal. In particular, Avenida Samora Machel is recognized as being a place-making street. Avenida Samora Machel can be seen as the 'via Triomphalis' of Maputo City, the ceremonial gateway into the city of old. Within the urban master plan, the street is upgraded to a pedestrian boulevard, connecting the Municipal buildings on the north-eastern edge of the precinct with a significant civic square, Praca 25 de Juhno, in the heart of the Baixa. The intentions and proposed character of Avenida Samora Machel is referred to in Figure 3.9.

The avenue borders on the national Botanical Gardens, and will thus inject new life and interest into the gardens. Additionally, the redesigned boulevard will culminate at the waters' edge in an urban public space created through the waterfront redevelopment initiative. The hard public space will complement the soft landscaping of Praca 25 de Juhno, reconnecting the city to the sea, and celebrating the gateway from the sea to the city for the people of Maputo.

Secondly, within the urban masterplan, Bagamoyo Street within the old Baixa precinct has been identified as the primary direct pedestrian connector between the two significant civic plazas, Praca de Trabalahdores on the western boundary of the Baixa core, and Praca 25 de Juhno. Establishing successful connector streetscapes as public space is closely related to the first aim of connecting open space networks.

Thirdly, Avenida 25 de Setembro is seen as an important vehicular east-west connector through and to the Baixa. This role is to be retained, thus pedestrian connection across that street at appropriate points will need to be addressed.

Within the Baixa, all streets are addressed as "the connective tissue of urban public space" within the city. (Marshall, 2005:19) Given the cultural and social nature of Maputo, it's streets are essential elements to the social and economic functioning of the city.

AVENIDA SAMORA MACHEL

fig. 3.9_

CURRENT CHARACTER OF STREET:

Avenida Samora Machel links the historic core of the Baixa with the newer parts of the 'cement city' further inland. It is not the busiest of the downtown vehicular streets, but was designed as the 'Via Triomphales' of Maputo.

PROPOSED CHARACTER OF THE STREET:

Avenida Samora Machel been identified by Maputo City Planners to be adapted as the main pedestrian promenade street in Maputo, the remodelling to be based upon la Ramblas in Barcelona. The intented quality is experiential in nature, linking to city landmarks such as the Botanical Gardens and the Cathedral. It is intended as the central destination spine for both tourists and residents, culminating in a public space at the waters edge. It will act as an orientation spine within the city, pedestrianorientated with slow moving traffic.

Precedent _ La Ramblas in Central Barcelona

Popular with both locals and tourists
1.2km long tree-lined pedestrian mallrunning from the city centre to the harbour
Most cosmopolitan street in Bacelona, with the greatest diversity of people, passers-by, shoppers, tourists, street musicians, vagrants, prostitutes.
Works as a city-wide event. People are willing to drive a long distance to it.

Charactersitics of a successful promenade:

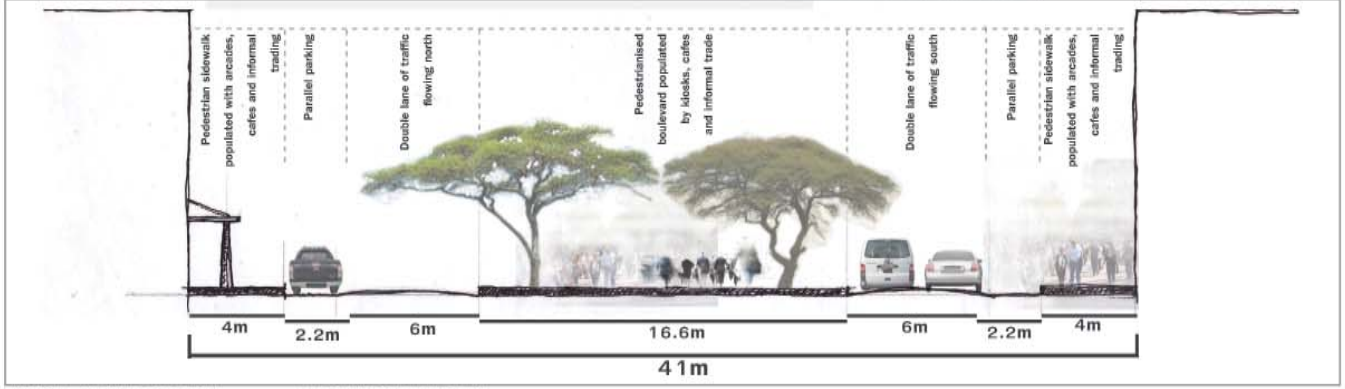
As proposed by Christopher Alexander, the vision for the boulevard is as follows:

_ High density pedestrians using it
_ Associative functions: eating places and small shops
_ Destination / strong goal
_ Variety of functions that act as destinations
_ Provisions for people to stay: widening of pedestrian paths, planting of trees, walls to lean against, stairs and benches and niches for sitting, opening of streetfronts to provide pedestrian cafes, displays encouraging lingering (1977:169)

'Encourage... a promenade at the heart of every community, linking the main activity nodes, and placed centrally. ...Put main points of attraction at the two ends, to keep a constant movement up and down. (Alexander et al, 1977:173)

Aerial view _ Avenida Samora Machel

Precedent _ La Ramblas in Central Barcelona



TYPICAL STREET SECTION _ AV. SAMORA MACHEL

3.6 PROPOSED BAIXA URBAN MASTER PLAN

The proposed Baixa Urban Master Plan, referenced in the preceding sections, is consolidated in figure 3.10. The graphic depicts intentions for the precinct and provides a foundation from which to work towards a detailed design.

1_ *Defined "old Baixa" precinct*

2_ *Redevelopment of industrialized waterfront strip into public waterfront precinct*

3_ *Upgrade of Avenida Samora Machel into a pedestrian promenade linking the city to the sea in a north-south direction*

4_ *Development of a new public plaza culminating Avenida Samora Machel at the ocean*
Relocate and consolidate Fishing Port facilities to the Harbour's northern edge

5_ *Activate previously dead urban edge along Avenida Martires de Inhaminga through public programming of buildings*

6_ *Locate new water-borne public transport node at new public event plaza to catalyse precinct through the injection of large flows of pedestrians.*

6a_ *Three public transport nodes within the Baixa are located within comfortable walking distance from one another, maximising pedestrian movement between them through the Baixa.*

7_ *Introduce a parkade to the periphery of the Baixa to ease traffic congestion and encourage pedestrian focused movement in the precinct.*

8_ *Establish north-south connections from the city to the sea, either physically or visually*

9_ *Retain Avenida 25 de Setembro as primary east-west connector through and into the Baixa. North-south connections across this street at required points will need to be considered.*

10_ *Revitalization and upgrade of the Botanical gardens through the Avenida Samora Machel redevelopment, as part of a larger open space network initiative*

11_ *Rua da Bagamoyo to be the primary direct connector through the old Baixa linking two significant public plazas, Praca de Trabaldores in the west and Praca 25 de Juhno to the east. As part of a larger open space network connection initiative.*

12_ *Site for consolidated Fishing Facilities*

13_ *Establish a continuous public pedestrian route between the new waterfront precinct development and the Marginal on the eastern border of the city*

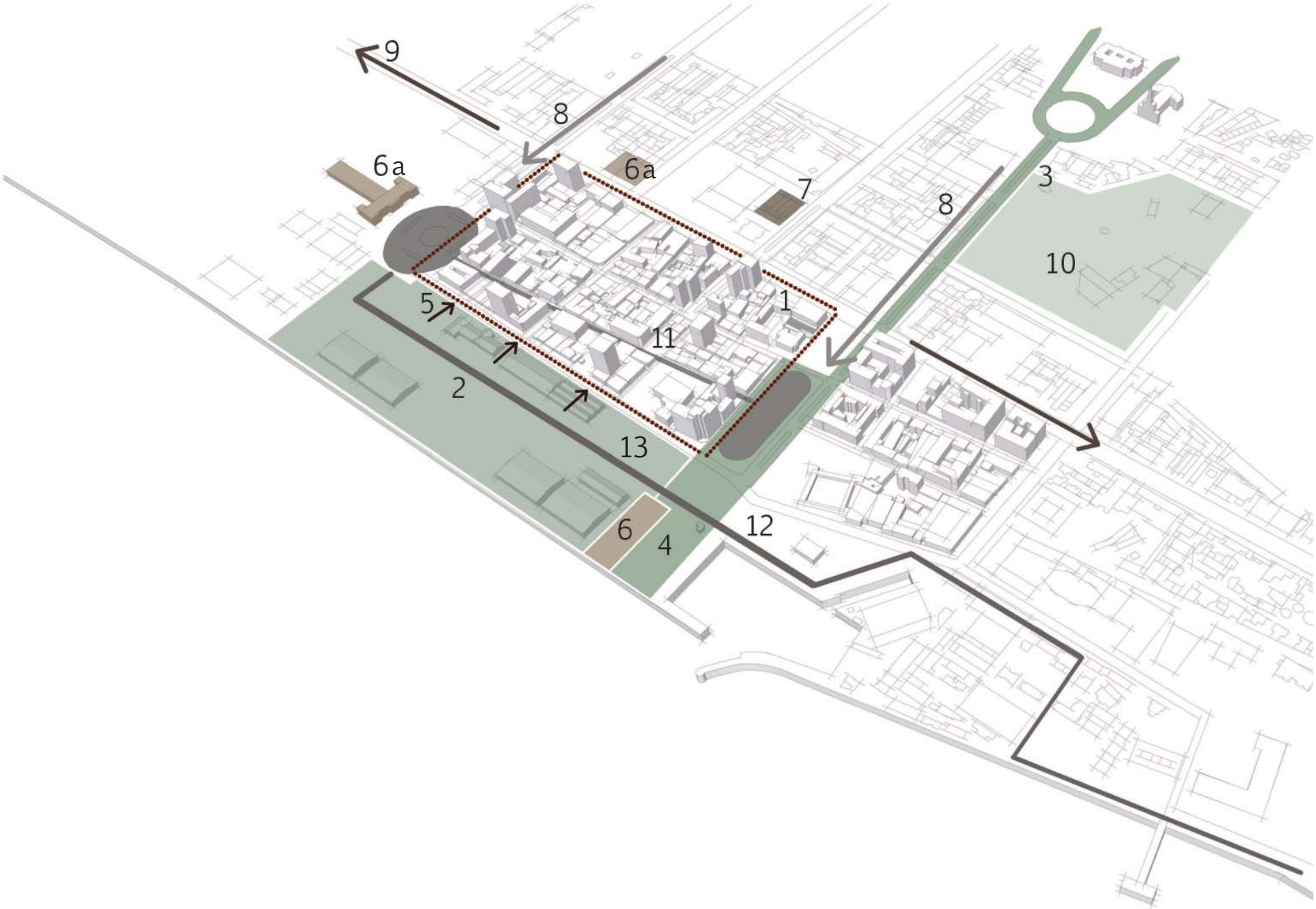


fig. 3.10_ A graphic depiction of the intentions of the proposed Baixa urban master plan.

"When natural bodies of water occur near human settlements treat them with great respect. Always preserve a belt of common land immediately beside the water."

_ Alexander (1977:137)

3.7 OBJECTIVES OF THE PROPOSED WATERFRONT PRECINCT SPATIAL DEVELOPMENT FRAMEWORK

The focus area for a more detailed urban design development for this dissertation is the waterfront precinct zoned for revitalisation.

The aim of the waterfront redevelopment framework is to react to the previous industrialisation of the waterfront by reactivating it in a public sense. The under-utilized space offers latent potential for stitching the waterfront back into the city.

By introducing a public quality to an area from which city dwellers can enjoy the waterfront, and through appropriate programming revitalization of the precinct as a 24 hour area is possible.

The industrial character of all buildings in the precinct will be retained as far as possible. Introduction of new buildings of a public nature will be in a scale sensitive to the context.

The concept of connection is again a strong theme in this endeavour as connectivity to the rest of the city is vital to the precinct's success, and its positive effect on the adjacent old Baixa.
The primary focus should address the needs of everyday city inhabitants. By introducing a public transport node into the area, an attempt is made to prevent gentrification from occurring. The development thus shifts from a typically tourist focus, to a primarily local focus.

In addition, the introduction of residential components to the site will further aid the 24 hour cycle of the district.

3.8 URBAN SCALE PRECEDENT STUDY

The aim of investigating waterfront precedents is to gain an understanding of what constitutes a successful waterfront redevelopment and how these principles can be applied to Maputo's context.

The visibility of urban waterfront sites means that the waterfront becomes the stage upon which the most important pieces are set; the waterfront becomes an expression of culture.

Marshall's view that "pieces of city that enrich life, offer decency and hope as well as functionality, and can give some notion of the urban ways of living..." (2004:4) is relevant to Maputo as a city in a developing country.

fig. 3.11_

fig. 3.12_

fig. 3.13_

fig. 3.11_ Darling Harbour satellite image

fig. 3.12_ Darling Harbour aerial view

fig. 3.13_ Darling Harbour esplanade

3.8.1 Darling Harbour, Sydney

The redevelopment of Darling Harbour was conceived in the 1980's, following the pioneering success of the waterfront redevelopment of Baltimore's Inner Harbour, in the United States.

Like Maputo's waterfront, sizes and operations of ships changed the needs of Sydney's port. The land was freed up to use for public purposes, and in 1984 the decision was made to redevelop the area. (Galloway, M) Public and private funding combined with state ownership of most of the land, facilitated the development of a cultural, educational and recreational hub that includes convention centres, museums, an aquarium, hotels, shopping centres, bars, and restaurants. The Darling Harbour Development has been called the "Festival Market" model (Marshall, 2004:29).

The Darling Harbour development is generally considered a success story in waterfront redevelopment. From a pedestrian traffic perspective it is very successful as visitor numbers have skyrocketed since the development took place. Establishing facilities close to the city centre and providing much needed urban space in proximity to the water, adds to the appeal of the project (Marshall, 2004:30).

Criticism of the project is its weak integration into the urban context, as it fails to connect with the fabric of the surrounding city. This failure, in part, due to its design intention as a self-contained "campus development". Existing roads do not extend into the new development, and the edge condition creates a barrier to the rest of the city (Marshall, 2004:31).

A further shortcoming is that the zoning excluded a residential component, which limits possible 24 hour activities. As a result, the retail components rely solely on outsiders, with no continuous day and night residential support.

_ Lessons learnt

- Waterfront developments are successful as "places for people". The magic of the waters' edge attracts a broad spectrum of visitors.
- Integration of the new development into the existing city fabric is important to ensure a harmonious extension of the original city.
- Provision of 24 hour facilities is essential, with adequate residential components to support the area. Facilities for both locals and tourists ensure a dynamic place.

3.8.2 Victoria and Alfred Waterfront, Cape Town.

The Victoria and Alfred Waterfront in Cape Town is on the site of the city's historic Table Bay. In 1859 construction of the first harbour on the site began. The Alfred Basin was completed in 1870, and a second basin, the Victoria Basin, was completed 35 years later.

In 1937 a new deep water harbour was approved for construction to the south of the original two basins. Additionally a massive land reclamation project was undertaken resulting in the new Cape Town Foreshore. Roads, traffic circles and elevated freeways introduced to this area resulted in the city being cut off from the sea, denying citizens direct access to its historic coastal heritage. The Victoria and Alfred Basins were the centre of the fishing industry in Cape Town at the time, but security legislation resulted in the area becoming derelict and underutilised by the 1970s.

In the 1980s investigations began to re-establish connections between the city and the sea, adding a public layer to the working harbour. This was the birth of the V&A Waterfront concept realised today.

The primary planning goal was to re-establish physical links between the city and the waterfront, creating a desirable destination for locals and visitors.

A second important aspect of this project was the decision from planning stage to retain the working elements of the harbour, providing an authentic backdrop to new developments. Thus the maximum amount of original built fabric was retained and reused, adding an authentic element to the project.

Diversity of uses was a third key development goal in the project. The mix of tenants was complementary but still ensured competition.

A fourth goal was to create a place that appealed to Capetonians first, with the belief that tourists seek out places favoured by locals. Statistics show that the visitors' profile of the waterfront is comprised of 65% local Capetonians, 21% foreign tourists and 14% domestic tourists, revealing the waterfront to be first and foremost for its citizens. The site of the development is centrally located, and easily accessible from all parts of Cape Town.

fig. 3.14_

fig. 3.15_

fig. 3.16_

fig. 3.14_ Victoria and Alfred Waterfront satellite image

fig. 3.15_ Victoria and Alfred Waterfront aerial view

fig. 3.16_ Victoria and Alfred Waterfront view over Quay Four

A number of design principles of successful waterfronts were identified through the V&A project:

- Build on a waterfront's unique qualities. A harbour site is different from an inland water body. The precinct design must be based on and acknowledge these differences.
- Respect the water as a body of space. Design the development so that it emphasises the shape and character of the water space
- Focus on water-dependant and water-related uses. Create a balance of retail, residential, hotel, office and recreational uses, to bring residents and visitors to the waterfront for extended periods (24 hours a day, seven days a week).
- Create a wide variety of waterfront spaces by integrating promenades, plazas and landscaped courts for a range of activities such as walking, jogging, shopping, dining etc.
- Design waterfront spaces for public events and celebrations attracting locals and visitors to the waterfront on a year-round basis. In the planning of these spaces, provision should also be made for a space(s) that can accommodate big gatherings of people for celebratory events.
- Clearly define public access. Emphasise the line of the waterfront's edge with promenades and plazas that provide continuous public access along the water.
- Restricted access edges should be identified and integrated into the overall design.

_ Lessons learnt

- Development of a waterfront site must respond to its unique location and local circumstances.
- Ensure sufficient anchor projects attract a critical mass of people benefitting from the site as a whole.
- Retain authenticity of original harbour as much as possible, to prevent a 'theme park' result.
- An environmentally and culturally sensitive project will ground the product retaining the ambiance of a real place
- A wide range of mixed-use activities and tenants will ensure a successful development day and year round.

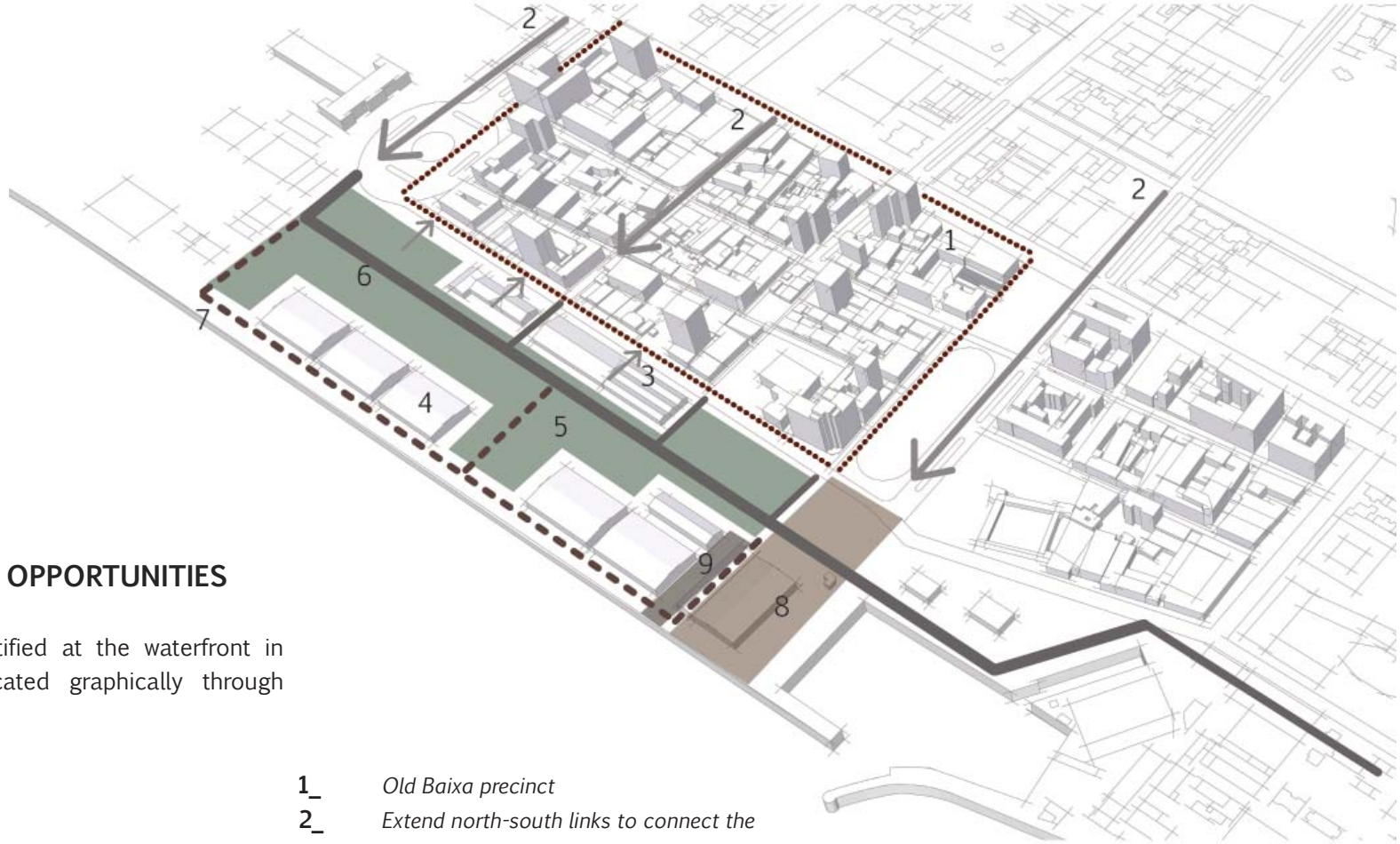


fig. 3.17_ A graphic depiction of the opportunities identified at the Maputo waterfront.

3.9 WATERFRONT OPPORTUNITIES

The opportunities identified at the waterfront in Maputo are communicated graphically through figure 3.17.

1_ *Old Baixa precinct*

2_ *Extend north-south links to connect the city to the waterfront, either visually or physically*

3_ *Activate street edge between waterfront precinct and old Baixa on Avenida Martires de Inhaminga*

4_ *Adaptive reuse of existing buildings where appropriate*

5_ *Densification of the area by infill of an appropriate urban scale and public/mixed use program*

6_ *Introduction of pedestrian route through new development precinct, linking up to the marginal esplanade to the east of the city*

7_ *Introduction of an esplanade next to the water, linking up to proposed main pedestrian route*

8_ *Introduction of new urban public event square complementing the sift landscaping of Praca 25 de Juhno. The public square will open up the culmination of Avenida Samora Machel to the sea.*

9_ *Introduction of water-borne public transport facility to the precinct as per larger Baixa vision.*

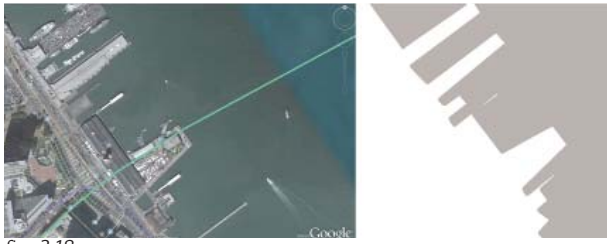


fig. 3.18_

fig. 3.19_

fig. 3.20_

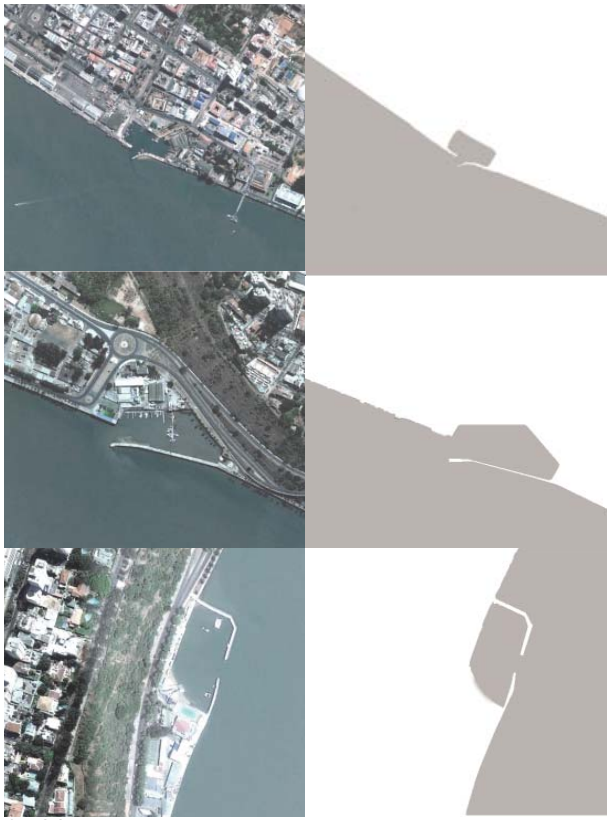


fig. 3.21_

fig. 3.18_ Harbour figure ground study of San Francisco, an example of piers built out into the water.

fig. 3.19_ Harbour figure ground study of the Inner Harbour in Baltimore, an example of piers built out into the harbour.

fig. 3.20_ Harbour figure ground study of Lisbon, an example of the built in harbour approach.

fig. 3.21_ Figure ground study of existing harbours in Maputo, showing the tendency towards a built-in harbour approach.

3.10 HARBOUR STUDY

With the introduction of a water-borne transport facility to this precinct, there arises an increased need for waterside access for boats.

The design of harbour basins is a specialised field, and so was only dealt with at an urban framework level. Studying the figure ground diagram of various harbour conditions around the world revealed the tendency in Maputo to adopt the built in harbour approach rather than building piers out into the sea. This land-to-water relationship is advantageous in that it offers an uninterrupted shoreline, a large land/water interface optimising valuable waterfront property, and offers considerable enclosure (Adler, 1999:23-7).

As the reclaimed harbour front precinct is a piled jetty over the water for an estimated 30 metres inland, this method was more cost effective than building out offshore.

“As well as offering protection from waves, breakwaters also prevent harbours from filling up with silt” (Neufert, 2000:514). An external breakwater working together with the existing breakwater of the fishing harbour will limit the amount of dredging required, and further protect the harbour from wave and current interference.

3.11 PROPOSED WATERFRONT PRECINCT SPATIAL DEVELOPMENT FRAMEWORK

The objectives of the proposed Waterfront precinct Spatial Development Framework are consolidated in figure 3.22. The graphic depicts intentions for the precinct and indicates the way the new Waterborne Public Transport node will integrate into the waterfront development.

1_ *Old Baixa precinct*

2_ *Physical connection of Avenida Samora Machel with the water*

3_ *Visual connection of Avenida Guerra Popular with the water*

4_ *Proposed new public and mixed use residential buildings*

5_ *Multipurpose public event space*
Functions of the original Fish Processing building to be relocated from this site to the northern edge of the Fishing Harbour.

6_ *Site for proposed new Waterborne Public Transport facility*

7_ *Proposed active edge. Activate through public infill buildings and adaptive reuse of existing previously introverted buildings to respond to public edge*

8_ *Public pedestrian route through site*

9_ *Proposed esplanade linking to pedestrian route*

10_ *New harbour increasing waterfront edge and providing docking space for transport vessels. Harbour complements existing fishing harbour and frames urban event space*

11_ *Proposed new fishing facility*

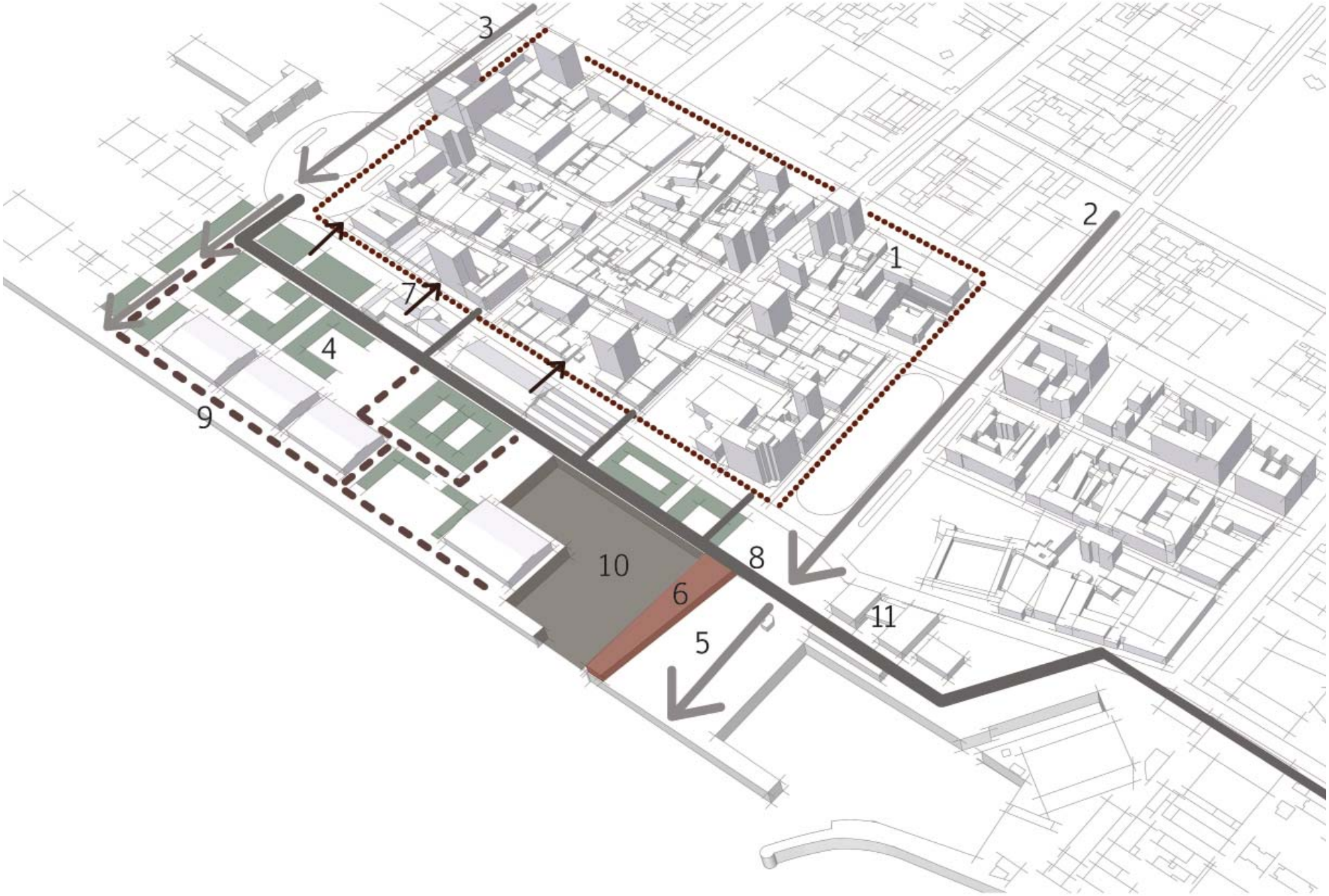


fig. 3.22_ A graphic depiction of the intentions of the proposed Waterfront spatial development framework