Establishing Local Identity Through Planning and Landscape Design in Urban Waterfront Development

by

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ABSTRACT

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In an increasingly globalized world, emphasis on attracting investment, talent and tourists has resulted in similar iconic urban landscapes in cities. This has increased concerns on the reduction or complete loss of local identity along urban waterfronts. This study aimed to develop a set of design guidelines that contribute to the establishment of local identity on urban waterfronts. The research focused on the history and current status of urban waterfront development, globalization impacts on urban landscape, notions of place identity and place making. It defined local identity as one type of place identity and explored the key aspects that foster local identity in waterfront development. A case study was conducted by analyzing these key aspects in a successful waterfront development. From a synthesis of the findings, a set of design guidelines was developed and then tested on an unsuccessful project; recommendations for future improvement were based on the developed guidelines.

Keywords: urban landscape, waterfront development, place making, place identity, globalization
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1 CHAPTER ONE: INTRODUCTION

1.1 Background

The evolution of many cities is intimately related to water, whether it is a river, lake or ocean. Waterfront is always the starting point of the evolution of human society and urban territory. Under different economic structures, urban waterfronts present different landscapes, from protective harbour in ancient times, to ports and industrial zones during the 19th to mid-20 century, and then revitalized mixed-use urban space today. Over time, the waterfront has become one of the most recognizable urban forms, providing high aesthetic connectivity and functional values. Due to its proximity to water and the city core, the waterfront creates a link between land and water, between people and nature.

Modern urban waterfront development originated in North America in the early 1960’s (Breen & Rigby, 1994), following the deindustrialization in downtown ports and urban revitalization that aimed to attract people back to downtown for business, living and entertainment. After the success of the revival Baltimore’s Inner Harbour in the 1970s, waterfront development has gradually spread to Europe and elsewhere from the 1980s. It has become a well-established phenomenon internationally.

Globalization, broadly conceived as the borderless movement and transnational reach of capital, people, goods, services, and information (Chang & Huang, 2011), has greatly influenced urban landscapes, development processes, and the lives of its inhabitants. Yeoh (1999, p.628) termed the process as “globalizing cities” whereby urban areas “strategize and renegotiate their visions and identities vis-à-vis the new world order.” The quest for world-class status is often envisioned by state and city planners as an important way to attract investments, talent and tourists. In the prime urban site of the waterfront, the convergence of tourism, cultural, retail and residential functions testifies to a city’s vitality and attainment of world-class status (Chang & Huang, 2011). Successful prototypes serve as guidelines for cities looking to redevelop their waterfronts. Similarity appears along city waterfronts with key elements such as landmark buildings, a market
place, and upscale stadiums or convention centers for international events. The waterfront has become a primary site of experimentation in architecture, planning and urban governance (Dovey, 2005). This phenomenon is even more obvious in developing countries. Scholars such as Change and Huang (2008) caution that a ‘geography of everywhere’, encapsulating what other cities have to offer, may result in a ‘geography of nowhere’. Furthermore, privatization and gentrification have led to social disconnection in the waterfront. Scholars are increasingly urging that, rather than continuing to attract investment, talent and tourists, cities should also retain their unique and desirable local characteristics, advance sustainability in various levels, and create attachments with local people. More than an international image, the waterfront should create urban landscape with an authentic identity.

1.2 Justification of Research

In the era of globalization, urban waterfronts have been transformed for economic imperatives. When exposed to global culture and capital flows, many cities respond with an aspiration to achieve ‘world-class status’. Cities employing similar tactics look to successful world-class cities and the employment of internationally-renowned architects. During the past twenty years, the economic booming in China put the waterfront in the center of urban development in many Chinese cities. Waterfronts have been built as ‘an international showcase’. For example, Shanghai’s Lujiazui Central Area was observed by Olds (1995) as a site designed to be an international space for global capital and multinational people.

Transformation of the urban waterfront that projects a global aspiration is inevitable and necessary. However, an economically successful waterfront development might not be successful socially and culturally. Major concerns focused on the waterfront include: the needs and desires of local people tend to be overlooked by world-class amenities; local culture and history tend to be overridden by international and iconic design; local ecology environment tends to be spoiled by mega-projects. In summary, the local identity of the waterfront tends to be reduced or totally lost in the face of the impacts from globalization. There is some research on urban waterfront transformation in the context of globalization (Olds, 1995; Change et al., 2004, 2008, 2011;
Dovey, 2005) but most are from a perspective of geography or sociology. Local identity in design field has been generally related to the built history, local materials or cultural importance. This study adds to the discussion regarding local identity from a planning and design perspective.

1.3 Research Question, Goal and Objectives

The key question that drives the research is: How can local identity be fostered through planning and design in a city’s waterfront? The goal of the thesis is to develop a set of design guidelines that contributes to the establishment of local identity in waterfront developments. To reach the goal, the following objectives are addressed:

- To learn the history and current status of urban waterfront development.
- To understand the influences that globalization has on urban landscape in the waterfront.
- To understand the notion of place, place identity and place making from a planning and design perspective.
- To define local identity as one of the place identities for this study.
- To establish key design aspects that contribute to the establishment of local identity in urban waterfront development.
- To provide design attributes for each key aspect from related literature and a successful waterfront case study.
- To test the established design guidelines through a globalized waterfront project.

1.4 Thesis Organization

This thesis is organized into eight chapters. Chapter 1 depicts the general research background of this study, explains the justification of research, defines the research goal and objectives, and presents the organization of the thesis. Chapter 2 reviews related literature on urban waterfront development and the influences that globalization has on urban landscape in waterfrotns; and discusses the notions of place, place identity and place making. Chapter 3 describes the research methodology, and introduces the methods used to develop the design guidelines. Chapter 4 presents the results and analysis: the definition of local identity for the purpose of this study; the
key design aspects that contribute to the establishment of local identity in waterfront developments and the preliminary guidelines; the findings from a case study of waterfront development that successfully established a local identity. Chapter 5 presents the results of the refined design guidelines. Chapter 6 tests the developed design guidelines on an unsuccessful waterfront development project. Chapter 7 discusses the major findings, examines the research process, and addresses the limitations of the current study. Chapter 8 highlights key findings and implications of the research, and provides recommendations for design professionals and future research.
2  CHAPTER TWO: LITERATURE REVIEW

This chapter reviews literature focused on waterfront development, globalization, and place identity. The purpose of this review is to learn about the comprehensive knowledge about urban waterfront development in an era of globalization and find theoretical basis for the definition of local identity as one of the place identities. It starts with an investigation of the relationship between the waterfront and the city; reviews the history and current status of urban waterfront development; explores the influences that globalization has on urban development and waterfronts in cities; and examines the notion of place identity and the theory of place making.

2.1  Waterfront and the City

The studied waterfronts in this paper are all in a well-established urban context with a dense population. The definition from the CZMA (the US Federal Coastal Zone Management Act) is appropriate for the study, defining the urban waterfront or port as: “any developed area that is densely populated and is being used for, or has been used for, urban residential, recreational, commercial, shipping, or industrial purposes” (OOCR, 1972: Section 306A (a) (2)).

The unique location at the interface of water and city makes the waterfront an important urban form. In different periods, the urban waterfront has changed in response to the consequences of economic restructuring. In the 19th century, waterfronts were the focal area of social and economic life in many port cities, being closely associated with city cores. It was a time when water transportation was the most important factor influencing urban development. During the 19th to early 20th century, rapid maritime commerce and industrial growth forced ports to develop beyond the city boundary. City ports continued to thrive, with huge warehouses, railroads and wharves being built. This large infrastructure became specialized zones, causing a detachment between city cores and waterfronts. New transportation options, such as railroads, reduced the cities’ needs for water transportation. As a result, the central city was detached further and further from the water’s edge. Up to the mid-20 century, the excessive industrial usage of the waterfront caused severe pollution. Eventually, the waterfront began to lose its natural attraction and
became an inaccessible and unsafe area, further separating inhabitants from the water. In the 1960’s to 1980’s, ports retreated from urban waterfronts. The main factors causing waterfront decline was researched by Tsukio (1984), namely the expansion of city size, the reforms in transportation technologies and changes in industry.

During the second half of the 20th century, urban revitalization happened worldwide. “A vast expansion of worldwide trade predicated on new markets, new forms of transport, new locations of production, new forms of capital growth, and new forms of management and political control have led to the resurgence of interest in waterfront spaces” (Smith & Garcia Ferrari, p.9). Waterfronts have been planned and designed as a prime site to attract people and capital. Development in the waterfront aims to re-join the city and the waterfront physically and functionally. The waterfront has evolved to be the most recognizable urban form and as being regarded as the gateway of the city.

2.2 Urban Waterfront Development

In this paper, waterfront development encompasses waterfront regeneration (Smith et al., 2012), waterfront revitalization (Goodwin, 1999), and waterfront reclamation (Chang & Huang, 2011). This form of development is associated with the trends of city revitalization and globalization, and new commercial opportunities in downtown areas.

According to Breen and Rigby (1994), waterfront development originated in North America in the early 1960’s. Two major factors were identified by Gordon (1997) that triggered waterfront development: urban blight and economic development. With the deindustrialization of waterfronts, derelict waterfronts became a high-profile affront to civic leaders. Many waterfront developments were initiated to meet the need to re-use these abandoned areas. The displacement of traditional industries from the core, the concentration of financial and other business services in the downtown area, and the increasing demands for entertainment and recreation urged renewal in the waterfront to attract investment, talent and tourists. Waterfront revitalization was initiated in cities like Baltimore, Boston and Toronto in 1970’s, and then spread to Europe and elsewhere in
the world. Waterfronts once again play a significant role in the economic and social health of urban centres.

Shaw (2001) distinguished three generations of post-industrial waterfront development. The first is the early North American experiences that focused on creating retail and festival marketplaces, represented by the prominent Baltimore waterfront. The second generation happened mostly during the 1980s and spread around the world. This generation featured large-scale development and the involvement of public-private partnerships that incorporated a large portion of private investment; examples are London Docklands, Sydney, and Toronto. The third generation took the developed elements from the first two generations as the mainstream of development practice and used in a range of situations, from small to large cities. Vancouver and a large number of developments in Asia, including Shanghai are worldwide examples.

From Baltimore's Inner Harbour to London’s Dockland and Singapore’s riverfront, waterfronts have been acclaimed by Breen and Rigby (1994) as the worldwide urban success story. Scholars have tried to develop theoretical models, identifying the factors and aims of successful waterfront development. Success can be assessed from different perspectives. Hoyle (2001) stated that the popular sign of success of many waterfront developments is bringing citizens and visitors back to the water’s edge, and providing tangible evidence of the continuing vitality of cities. Other signs of success that are widely recognized are image improvement, infrastructure upgrades, environmental rehabilitation, tourism opportunities, and economic revenue generation (Goodwin, 1999). How to create a successful waterfront has increased attention from professionals. From the policy-making level, Smith and Garcia Ferrari (2012, p.155) observed that the success could be achieved by “respectively focusing on the physical characteristics of place (with particular relevance to urban design) and the processes of social interaction (with particular relevance to planning process)”. Design and planning play a key role in the success of waterfront development.

However, waterfront development is a process full of challenges. The main challenges include the inaccessibility, a fragmented and complex structure with involvement of many jurisdictions and interests (Wrenn, 1983), and the long duration of development (Craig-Smith, 1995). The
inaccessibility resulted from the port and industrial history of waterfronts: crowded warehouses, railways or highways along the waterfront, polluted water, and deteriorated structures. These unfavourable conditions prevent people from accessing waterfronts. In addition to limitations on the physical environment, waterfronts generally have a fragmented and complex structure of many overlying jurisdictions and interest groups. The gap between different interests such as private investors, the city and local communities is wide. Meticulous planning and sufficient coordination are required. Furthermore, most waterfront developments take decades to perform (Craig-Smith, 1995). Immense financial investment is demanded. These factors encourage the emergence of uncoordinated independent projects. In many countries, waterfront developments are almost completely left to private investors and market forces.

Local communities, including waterfront inhabitants and citizens, and tourists are two not necessarily mutually exclusive kinds of users of the waterfront. A community group has been defined as an unofficial gathering of people with a particular perspective or opinion that is not necessarily represented by their government, either at municipal, provincial or federal levels (Hoyle, 2000). In a waterfront development context, where top-down approaches are prevalent, Hoyle (2000) conducted research into member-driven, bottom-up, community-development focus developments. The primary characteristic of this kind of waterfront development was found to have the common fundamental objective to enhance the quality of life. Urban policy is now associated with a shift in emphasis from property-led regeneration towards a broader-based partnership agenda with a focus on community interest. This, correspondingly, leads waterfront development towards a balanced development that incorporates needs and desires of local communities.

2.3 Globalization and Urban Waterfronts

While the definition of globalization varies with the context of analysis, it generally refers to an increasing interaction across national boundaries that affect many aspects of life: economic, social, cultural and political (United Nations Poverty and Development Division, 1999). It is broadly accepted that globalization is a process of increasing interconnectedness.
Robertson (2003) described three waves of globalization in which urban development changed due to economic restructuring. We are now immersed in the third one, which started after World War II and was caused by the new information technologies and the continued development of infrastructure and transport connections. It was not until the 1970s and 1980s that changes on urban development became severe, when cities tried to regenerate the urban economy and adapt to new economic roles in hosting service employment and centres for consumption (Couch et al., 2003). Local government, together with local civil society, faces the imperative to foster and sustain business competitiveness. Actions at the level of the city to influence competitive advantage focus on improving infrastructure, creating image and branding. According to Muxi (2004), image making in cities primarily involves regeneration of historical areas for new uses and iconic buildings designed by star architects. City branding is the creation of theme parks, universities, research parks and the like to generate urban concentration processes (Zukin, 1991). These actions sustain cities’ competitive advantages on one hand, and increased social and spatial fragmentation on the other hand.

Fundamentally, competition among cities shows the need for generating highly competitive environments that aim to attract global capital. Waterfronts are, in this context, considered to be opportunities for the city as a whole (Smith & Garcia Ferrari, 2012). From the market-driven project of Docklands regeneration in London, to the ‘quality development’ of luxury housing and high-tech commercial space constructed on Copenhagen’s waterfront, and the creation of globalized ‘landscapes of desire’ along the Yarra River in Melbourne, waterfronts act as the gateway to project a city’s aspiration of world-class status.

In an overview of British waterfront developments in the 1980s, Pinder et al. (1988) also noted a trend toward "urban cloning." They explained that it is "safer and far quicker for a city authority to embark on revitalization in the type of port area that has been transformed in other ports, than it is to pioneer new approaches to the problem" (Pinder et al., 1988, p252). Similarity appeared along urban waterfronts with elements like sports stadiums, international museums and convention centres. These elements are regarded as key to establish an international image for the city,
providing a ‘hook’ for the world economy (Olds, 1995). Chang and Huang (2008), in studying Singapore's waterfront, observed that the redevelopment process of the Singapore riverfront involves borrowing ideas from global cities and waterfronts; infusing landscapes with foreign aesthetics, alien designs and transnational businesses; and showcasing the best of the west by festivals, events and ‘themed’ entertainment. They cautioned that encapsulating what other cities have to offer may result in a “geography of nowhere; an urban environment that looks like anywhere else on earth” (Chang & Huang, 2008, p.227). In addition to these landscape transformation along waterfronts, negative impacts in social and cultural terms, have resulted from the relentless privatisation (Cybriwsky, 1999), riverfront gentrification (Davidson, 2007), and functional change in the waterfront to lure footloose investments and middle-class.

Along cities’ waterfronts, loss of a sense of place, ‘local identification’ (Cybriwsky, 1999), or ‘a sense of local community’ (Chang & Huang, 2008) has raised increased concerns. As a planner and researcher, Schmidt (2002) pointed out that “the challenge for the future is to determine how this force [globalization] can pull with it an entire region without compromising our identity. In other words we must remain locally anchored in a changing global world”. Urban waterfronts are crucial sites in both a city’s history and its current development. Attempts must be made to provide meaningful spaces for interaction and local identification. Chang and Huang (2008, p.244) suggested a direction for future development in Singapore riverfront, “the waterfront development should move on to the next stage to develop – rather than erase or adulterate – landscapes that encourage a sense of local community, attachment and place”. This suggestion can be useful for the waterfront development in many cities in this increasingly globalised world.

2.4 Place Identity and Place Making

‘Place’ as a notion related to place identity can be analyzed from various perspectives. It is regarded as an important element of identity, whether individual or collective (Jenkins, 2005). Dealing with the collective place identity, place can be defined as “the predominantly socio-cultural perception and definition of space” (Jenkins, 2005, p.20); as studied from individual experience within the field of environmental psychology, “place is defined by the bonds and
shared values created through perceptive experience of places”. (Ferrari et al., 2012, p.154). In the planning and design field, Motloch (1989, p.231) defines place as “temporal, an inter-related continuum of space, time and meaning, a collective consciousness where meaning has both perceptual and associational aspects”. Motloch’s understanding of place adds the dimension of time and highlights key elements of place as space, time and meaning. Place as a collective consciousness in this definition is most related to the place identity analyzed in this research.

When exploring the concept of place identity by drawing on a literature from cultural studies and geography, Hague (2005, p.7) summarized that:

Places are places (and not just spaces) because they have identity. Place identities are formed through milieux of feelings, meanings, experiences, memories and actions that, while ultimately personal, are substantially filtered through social structures and fostered through socialization. Thus place identities are relational – i.e. they are formed in relation to other people, other places and other identities for that place. Therefore, place identities are encapsulated within power relations and are likely to be contested.

He concluded that there will be multiple, contested identities for any one area. Place identity processes in different scales – national, regional and local (Amundsen, 2001). The genius loci (Norgerg-Schulz, 1980) was the most frequently used concept regarding place identity to underpin planning and design. It implies that there are essential characteristics that identify a place.

As the major tool for waterfront development, planning and urban design were seen as being about place making (Hague & Jenkins, 2005; Brown et al., 2009; Smith & Garcia Ferrari, 2012), aiming to construct the identities of places through manipulation of the activities, feelings, meanings and urban fabric that combine into place identity. The built environment, as the outcome of planning and design, is the “physical and three-dimensional manifestation of place identity” (Higgins, 2005, p.184).

The notion of place making originated in the 1960s with the appearance of a series of literature discussing the qualities of place. The most well-known author is Jane Jacobs (1961) who highlighted the importance of social space on the sidewalks and human activities on the street,
seeing cities as a setting for interaction. In the 1980s, William Whyte (1988) observed how public spaces were being used and offered ideas on designing people-oriented cities with an emphasis on essential elements for creating social life in public spaces. The study provided a basis for a move towards proactive place-making within the field of urban renewal. After more than twenty years of development, planning and design came to the age of place making for people (Brown et al., 2009). New concepts and ideas appeared in response to changes and problems in our societies, such as mixed use, sustainability, smart growth, and transit-oriented development just to name a few. Community engagement plays an essential role in all these new currents of urban planning and design.

Focusing on urban waterfronts, the Waterfront Center (www.Waterfrontcenter.org) in the United States sees waterfronts as opportunities to enrich community life. The Center issued an ‘urban waterfront manifesto’ in 1999, setting out basic principles of waterfront development. This manifesto incorporates many of the values that urban designers bring to planning and designing waterfronts:

1. The public sector should act as the ‘steward’ of waterfronts
2. Waterfront-dependent uses should receive preference in the redevelopment programs
3. Waterfront should accommodate a variety of uses
4. All urban waterfront projects should provide public access
5. One size does not fit all; waterfront developments should reflect the essential spirit of each site
6. Waterfront projects should preserve and interpret the tangible aspects of the history of a site

These values addressed the importance of public access to the waterfront and the mixed-use functionality to attract people of different ages, backgrounds, incomes, and races; emphasized the waterfront-dependent uses and heritage preservation; and paid special attention to the distinctiveness, the essential spirit, of the waterfront. According to the genius loci (Norerg-Schulz, 1980) theory, the distinctiveness of each site can be conveyed by natural, cultural and historical characteristics of the place. These principles imply the key design aspects about the place making in the waterfront that contributes to establishing place identity.

The participatory design process, involving different interests, has proved crucial in the construction of place identity, especially on a local level (Hague & Jenkins, 2005; Brown et al.,
2009; Smith & Garcia Ferrari, 2012). Planners and designers have to be able to engage with local residents and other members of civil society, for whom places may have very different meaning and identities from politicians and economic interests. Higgins (2005, p.186) pointed out, “Design is as much about process as it is about product, and the interaction between the two is a powerful determinant of outcomes”. Focusing on praxis, successful place making was approached mainly by focusing on the physical characteristics of place (with particular relevance to urban design) and the processes of social interaction (with particular relevance to planning process) (Garcia Ferrari et al., 2012).

However, a boundary has to be placed between the process and the outcome of planning and design. The studied object is the product of design, the “physical and three-dimensional manifestation of place identity” (Higgins, 2005, p184). As a profession, planners and designers learn from the empirical. Numbers of variables contribute to the success of planning and design projects; particular physical qualities have consistently proved crucial.

The literature review has examined the literature on urban waterfront development as it relates to globalization and economic imperatives, and to place making. The following chapter provides and overview of the research methods used in this study.
3  CHAPTER THREE: RESEARCH METHODS

This chapter presents the methods used for this study. To reach the research goal of developing a set of design guidelines that contributes to the establishment of local identity in urban waterfront development, the study starts with a literature review focused on waterfront development, globalization, and place identity. This review provides comprehensive knowledge about waterfront developments and a theoretical basis for defining local identity, for this study, as one of the place identities in an increasingly globalised world.

The methods used consist of three steps. The first step is to define local identity as one type of place identity by summarizing related literature. The second step is to distinguish key aspects in planning and design that help to forge a local identity in waterfront developments, and to develop a set of preliminary design guidelines from a focused literature review. A case study is then conducted as the third step. The studied project has been popularly acknowledged by local communities, citizens and design professionals as an achievement that successfully establishes a sense of local identity in waterfront development. Following a detailed description of the studied case, design attributes and design responses are summarized from the project. The final set of design guidelines is developed from a synthesis of the preliminary design guidelines and the findings from the case study. The guidelines consist of key design aspects, design attributes and possible design responses.

With the establishment of the design guidelines, a waterfront development project in China was then chosen to test the guidelines. This waterfront has been criticized by local professionals as being unsuccessful in engaging local people, ignoring public good, and resulted from purely economic imperative. Recommendations for future improvement for this waterfront are based on the design guidelines will be provided.

The following flowchart (Figure 3-1) illustrates the methods used for this research.
Figure 3-1: Research Methodology Flowchart

Source: Author, 2013
CHAPTER FOUR: RESULTS AND ANALYSIS

4.1 Local Identity

When studying place identity on a local and regional level, Amundsen (2001, p.10) identified four elements typically present, as follows:

1. Spatial qualities that distinguish the place from others --- e.g. location, but also infrastructure, communication and architecture;
2. Characteristics or qualities of the inhabitants that distinguish them from inhabitants of other places – e.g. values, customs, physical appearance;
3. Social conditions and social relations between the inhabitants;
4. Culture and/or history, seen as a unifying element that again connects the inhabitants to tradition and again distinguishes them from ‘the other’.

These four elements give some indication of the specific content of local identity. The first two elements, summarized as ‘the place’ and ‘local people’, are tangible and reflect social relations and culture and/or history. It is important to understand that local people are a typical element of local identity. An absence of local people will lead to a loss of a sense of local identity.

In ‘Place Identity, Participation and Planning’, Hague sees planning for place identity as “a process writing a narrative. It is a selective way of imagining, acting and communicating about a place” and “is intimately involved in the cultural process of creating and disseminating meaning and modes of perception that help form collective identities that underpin action” (Hague, 2005, p.10). Knowing that place carries multiple identities, to understand whose interests define the narrative of local identity is key to this study.

‘Local people’ in this study refers to general waterfront inhabitants and local citizens, not special interest groups. Their perspective of place identity might not necessarily be the opposite from those who have the power to publicize and act on their narratives of place identity, including public institutions like political parties and media, as well as other officials and city planners. Their interests might not be incorporated into the construction of place identity due to issues of power, but their interests do define the narrative of local identity of a place.
In this research, local identity can be understood as a collective narrative of the place defined by the interests of local people, presenting place qualities that fulfill their needs and desires, connecting them to culture traditions, and creating place attachment amongst them. In the context of globalization, waterfront development aims to manifest the competitive advantage of a city to attract investments and talents. Two contested powers, the global and the local, are always discussed from a city level. Thus, local identity will be studied from a city level in this paper. Local identity is also intimately associated with place identities from community level.

4.2 Key aspects in Planning and Design that Foster a Sense of Local Identity

The Waterfront Center (www. Waterfrontcenter.org) has established itself as an active advocate of the idea that waterfronts represent unique opportunities to enrich community life. The ‘urban waterfront manifesto’ was issued by the Center in 1999, setting out basic principles of waterfront development. This manifesto incorporates many of the values that urban designers bring to planning and designing waterfronts. An analysis of the principles highlights potential key aspects, namely functionality, accessibility, culture and history, and ecological environment (Figure 4-1). The four aspects can be seen associated with different elements that convey local identity. Among them, one aspect might contribute to different elements or multiple aspects can be linked to one specific element of local identity. For example, accessibility is a need of local people while it also expresses spatial quality; the four aspects can all be linked to people. However, the Figure 4-1 links the aspect and the element of local identity only with the most direct relationship.
Figure 4-1: Key Aspects that Contribute to Local Identity

Source: Author, 2013

These key aspects are then confirmed by reviewing literature on place identity in waterfront development and linked to the specific aspect if it was mentioned in the literature as being linked to the construction of place identity. Figure 4-2 depicts the result of this focused literature review.
Functionality, accessibility, culture and history, and ecological environment are four aspects that are supported by literature related to place identity in planning and design. This section provides aspect-related design attributes, as found in the literature.

### 4.3 Design Attributes in Each Key Aspect

**Functionality**

The functionality of the waterfront refers to land uses or activities provided by the site. International experience and literature pointed out that mixed-use is key in the success of urban waterfront development (Gospodina, 2001). The needs of local people are varied in this increasingly diverse society; a sole function or dual term such as ‘commerce and entertainment’ might result in low use in a specific time or season, or an absence of a specific event. A mix of retail, recreational and cultural activities will attract people of different backgrounds, incomes, and ages. This helps to create places of universal appeal (Brown et al., 2009).

Cities create various themes for their waterfronts, associated with their vision and strategy for urban developments. This is always shown as an emphasis on one or two priority land uses.
However, the local community usually desires recreation opportunities. Paumier (2004) suggests that urban waterfronts can be considered as a vital open-space opportunity because water edges are natural magnets for people and can become valuable recreational and visual resources. According to a 2001 Recreation Roundtable national survey in the United States, three-quarters of the nation’s outdoor recreation is within a half-mile of streams or other water bodies. 57 percent of adults used natural open space and recreation areas for fitness walking, 29 percent for wildlife viewing including bird watching, 28 percent of fishing, 22 percent for hiking, 21 percent for running and jogging, and 7 percent for canoeing and kayaking (McHugh 2003; Recreation Roundtable 2002). Urban waterfronts can provide various land-based and water-based activities for waterfront inhabitants and citizens throughout the year.

Employment opportunities are also needed for local communities. Otto (2004, p.110) regards riverfront revitalization as a “job-making enterprise” and recommends, “job creation in construction and commercial businesses…can be targeted to low-income communities and inner-city residents.” Waterfront development offers urban residents opportunities to get training and experience in a new field or to start a business.

On tourism-oriented waterfronts, tourism-related amenities and activates tend to dominate, often resulting in bad traffic conditions, inadequate parking, lack of privacy, and commercial intrusion into neighbourhoods (Krausse 1995). Some local communities benefit from increased property values, successful historic preservation, and participation in tourist-related events and amenities from waterfront development. A fine balance is needed to achieve a design solution so that the local community and tourists can bring out the best in each other. Thus, the waterfront will be a site with a good blend of authentic neighbourhoods and street-level activities.

The functions of urban waterfronts should also be considered at the bigger scale, creating functional connectivity to the rest of the city. A linkage to the city core is an emphasis in many waterfront reclamations. Attracting people to the urban core can be a huge boon to downtown service industries (Otto, 2004). Thus, waterfronts can obtain the character of being a lively connection between the city and the water.
4.3.2 Accessibility

Bass Warner (1993) suggests that the spatial and social disconnections in waterfronts contribute to fragmented interests and a lack of identity. Improving accessibility is an imperative to return waterfronts to local people. Accessibility in this study includes physical access to waterfront amenities, visual access to the water edge and access to the water itself. Physical and visual access helps create lively, diverse places that encourage a sense of community and an appreciation for nature (Otto et al., 2004).

Physically, easy access to the waterfront is essential. Expanded and well-designed public transit brings people to the waterfront from every stratum of the city, especially for waterfront development that adds regionally-valuable amenities (Brown et al., 2009). It is not rare to see waterfronts being separated from the rest of the city by transportation corridors like railroads, elevated highways or main traffic arteries. Some of these transportation corridors are from the industrial era, a remnant of city function. This situation can be mediated by improving public transportation system, waterborne transportation and a pedestrian system.

The unique location of waterfronts offers the possibility to connect them to other parts of the city by waterborne transportation. This takes away some pressure from streets and presents a pleasant kind of transportation experience. Therefore, the possibilities to establish waterborne transportation should be fully exploited.

Pedestrian promenades along the water edge can be seen in many successful waterfront developments. Ideally, the promenade should connect to local and regional trail systems with facilities such as washrooms, seating areas and parking lots. Nodes, such as welcoming areas or small plazas, should be provided at reasonable intervals along the promenade, where opportunities for various forms of public access are provided. It is also important to connect the waterfront to the downtown commercial and retail district with pedestrian and bicycle paths. This connectivity with the city core ensures smooth movement of pedestrians to all amenities, thus attracting local communities to use the waterfront more frequently.
Visual access is also an important concept in waterfront development. Preserving and providing additional view corridors allows for visual permeability from the waterfront into the inner areas. The visual links create opportunities for people in the inner city to enjoy waterfront views.

Water is an innately attractive medium, both aesthetically and as the location for a variety of recreational activities (Wood & Handley, 1999). People should be able to touch and interact with the water in appropriate locations, whether through wading, fishing, launching a boat, or sitting on the riverbank.

4.3.3 Culture and History

Culture and history provide unique definition to the place and its communities. According to Brown et al. (2009), in the United States, the best loved buildings, spaces, and neighbourhoods are those where U.S. history remains visible. Built history is part of human cultural history. Preservation of our built historical fabric is important for the construction of place identity (Marshall, 2001). On urban waterfronts, some common heritage buildings include military installations, industrial buildings, markets and trade centres, shipping terminals, warehouses, fishing facilities, and municipal buildings (Wrenn, 1983). Preserving the architectural art with the introduction of new uses is a widely-used strategy in urban development including waterfronts. These buildings can again serve the surrounding communities when incorporating uses such as live theatres, galleries, retails, cafes/restaurants and the like.

Cultural buildings and public arts can greatly enhance the ambience that celebrates a city’s special character. Large cultural buildings, whether it be theatres, museums or art galleries, not only enrich the citizens’ spiritual life, but also develop cultural identity for the city. Rather than masterpieces from international renowned artists, public arts such as sculptures, art installations, murals depicting local personalities that are created by local artists better convey a sense of the place (Cheng et al., 2004). Using local materials, incorporating treasured signs or other memorabilia help to capture the unique qualities of a place (Brown et al., 2009).
Waterfronts are also rich in natural history. Educating the public about the river and its natural history will generate a sense of stewardship and a connection to the river's history (Otta, 2004). Ecological education is especially meaningful along waterfronts in ultra-urban environments, in which people seem to have lost links with nature. The waterbody can be a powerful tool for science and nature education. Interpretive boards, way findings and other sign systems explain the river’s unique characteristics and the region’s natural assets. Furthermore, landscape features like constructed wetlands or rain gardens bring some of the erased original ecosystems back to the site. Local people can participate in riverfront interpretation and activities, learning about their river by seeing, smelling and touching the water.

Programming is seen as an important means to engage local communities (Brown et al., 2009; Otto et al., 2004). Cultural events like concerts, open-air movies, sport events and festivals are crucial to bring local people together to celebrate their traditions, ideas and values. A multi-functional gathering place provides an arena for such events. Whether simply a small area of lawn or a small plaza, gathering places provide opportunities for vitality along the waterfront. A certain number of activities should be connected to the original uses of the area, keeping alive the memory of the past and contributing to the identity of the place (Otto et al., 2004).

Building form is also an important cultural history element. However, it will not be part of this discussion, as this study will focus on planning and landscape design.
4.3.4 Ecological Environment

A city’s river is a place that grants the region its identity. Healthy, functioning rivers are appealing and attractive to residents and businesses. An engaged public that enjoys riverfront features and activities also cares about the river’s long-term health (Otto et al., 2004).

Otto et al. (2004) point out that preservation is the best way to ensure the health of an urban waterway. However, it is a reality that the ecological environments of urban waterfronts have been traded off for economic growth in cities. To reduce and to restore are probably the most practical ways to protect natural environments in waterfront development. Natural river features, such as meanders, backwaters, wetlands and gradually-sloped banks, serve essential ecological functions. In many cities, it may not be possible to restore these features, but even small efforts can have a positive impact.

The habitat function in the waterfront, being a small green buffer area on land or constructed small island on water, benefits the river ecosystem. This can mean giving up some traditional notions of what is ‘attractive’. Manicured lawns, formal landscape features, and pruned shrubs are replaced by passively managed native plants providing food and shelter to fowl and small animals. This kind of natural area has proved not to be a conflict for the commercial atmosphere of downtown. Rather, it provides an escape experience for people living and working in the area. Tommy Thompson Park on the Toronto waterfront can be seen as a good example.

Softened seawalls and other hardscape features through bioengineering approaches were introduced in Otto’s book (2004). Bioengineering uses plants to stabilize watershed slopes. But it needs to be applied carefully in ultra-urban settings where some structural components such as stone or rock may be necessary due to current velocities, channel alterations for navigation, and adjacent infrastructure, such as bridges. When the reconstruction of natural features in highly altered environment is impossible, a ‘timber grid’ to support aquatic plants beneath the waterline or ‘floating planters’ for native upper-shore plants can be incorporated. Successful practices can be seen on the Williamette Riverbank in Portland, Oregon.
Landscape features that infused ecological and educational functions will get local communities involved broadly. These features, including constructed wetlands, rain gardens, and bio-retention areas, as examples, which substantially contribute to runoff management and the improved quality of storm water. They allow people to see and interact with water, providing them knowledge, fun and experience, which leads to an intimate attachment between the site and the community.

Native plants interpret the local natural history and create a strong sense of the place. Native plants that thrived on site before the industrial development are an important part of the local landscape, differentiating a place from others. In many cultures, plants also carry particular cultural meanings. The biotic properties of these plants, including fragrance, shape/form and the ornamental characteristics, bring not only physical but spiritual joy to local people.

4.4 Preliminary Design Guidelines

The preliminary design guidelines (Table 4-1) consist of design attributes summarized from the above literature review for each aspect. Sources of these design attributes are also listed for.
Table 4-1: Summarized design attributes for each key aspect. Source: Author, 2013

<table>
<thead>
<tr>
<th>Key Aspects</th>
<th>Design Attributes</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functionality</td>
<td>Introducing mixed land uses and activities</td>
<td>Smith et al., 2012; Brown et al., 2009; Otto et al., 2004; Chang et al., 2001; Marshall et al., 2005</td>
</tr>
<tr>
<td></td>
<td>Emphasis on recreational function</td>
<td>Brown et al., 2009; Smith et al., 2012; Otto et al., 2004; Marshall et al., 2001</td>
</tr>
<tr>
<td></td>
<td>Employment opportunities targeted to low-income and inner-city residents</td>
<td>Otto et al., 2004; Hague et al., 2005</td>
</tr>
<tr>
<td></td>
<td>Functional connectivity to the city core</td>
<td>Brown et al., 2009; Otto et al., 2004; Chang et al., 2008; Marshall et al., 2001</td>
</tr>
<tr>
<td>Accessibility</td>
<td>Expanded and well-design public transit connecting to the city core</td>
<td>Brown et al., 2009; Smith et al., 2012; Otto et al., 2004; Marshall et al., 2001</td>
</tr>
<tr>
<td></td>
<td>Establishing waterborne transport</td>
<td>Otto et al., 2004</td>
</tr>
<tr>
<td></td>
<td>Pedestrian roads connecting to the city core and local trail system</td>
<td>Brown et al., 2009; Brown et al., 2009; Marshall et al., 2001</td>
</tr>
<tr>
<td></td>
<td>Way finding system</td>
<td>Brown et al., 2009; Otto et al., 2004; Marshall et al., 2001</td>
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<td></td>
<td>Reasonable intervals along pedestrian path providing various forms for public access</td>
<td>Otto et al., 2004</td>
</tr>
<tr>
<td></td>
<td>View corridors from inner city to waterfront</td>
<td>Otto et al., 2004</td>
</tr>
<tr>
<td></td>
<td>Opportunities for people interacting with the water</td>
<td>Wood &amp; Handley, 1999; Otto et al., 2004</td>
</tr>
<tr>
<td>Culture and History</td>
<td>Heritage architectures incorporating new uses for local communities</td>
<td>Otto et al., 2004; Brown et al., 2009; Chang et al., 2008; Marshall, 1993</td>
</tr>
<tr>
<td></td>
<td>Cultural facilities like theatre, museum or library</td>
<td>Otto et al., 2004; Marshall et al., 2001</td>
</tr>
<tr>
<td></td>
<td>Public arts by local artists that depict local history and personalities</td>
<td>Brown et al., 2009; Otto et al., 2004; Chang et al., 2008; Marshall et al., 2001</td>
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<tr>
<td></td>
<td>Using the waterbody as a tool for science and nature education</td>
<td>Brown et al., 2009; Otto et al., 2004</td>
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<tr>
<td></td>
<td>Providing gathering place for community events</td>
<td>Brown et al., 2009; Otto et al., 2004; Marshall et al., 2001</td>
</tr>
<tr>
<td></td>
<td>Programmes connecting to the original uses of the waterfront</td>
<td>Brown et al., 2009; Otto et al., 2004; Marshall et al., 2001</td>
</tr>
<tr>
<td>Ecological Environment</td>
<td>Protecting and restoring natural features in the waterfront</td>
<td>Brown et al., 2009; Otto et al., 2004; Marshall et al., 2001</td>
</tr>
<tr>
<td></td>
<td>Protecting and creating habitats for wildlife</td>
<td>Brown et al., 2009; Otto et al., 2004</td>
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<td></td>
<td>Soften banks and hardscapes with bioengineering approaches</td>
<td>Otto et al., 2004</td>
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<tr>
<td></td>
<td>Landscape features infused ecological and educational functions</td>
<td>Otto et al., 2004</td>
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<tr>
<td></td>
<td>Managing storm water on site</td>
<td>Brown et al., 2009; Otto et al., 2004</td>
</tr>
<tr>
<td></td>
<td>Native plants and plants with cultural meanings</td>
<td>Otto et al., 2004</td>
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4.5 Case Study – Southeast False Creek

Southeast False Creek (SEFC) waterfront in Vancouver, Canada, was selected as a project that successfully built a local identity in the waterfront development. This section begins with an introduction of the project, including physical conditions, context information and design process. A detailed analysis is then follows, using the key aspects: functionality, accessibility, culture and history, and ecological environment. Finally, this section concludes with a summary of the findings from the analysis, which will help refine the design guidelines for the establishment of local identity in waterfront development.

The City of Vancouver, Canada, is one of the important global cities in the Pacific Rim (Cohn & Smith, 1995). The waterfront development has been projecting the city’s global status with the appearance of the Vancouver Convention Centre, BC Place Stadium, Canada Place, and the Fairmont Pacific Rim Hotel. Examining Vancouver’s Pacific Place, Olds (1995) observes that the site is designed to be an internationalised space for global capital and multinational people. However, the City of Vancouver has the strictest green building codes in North America and promotes the concept of sustainable and liveable communities, which has been helpful in balancing the impacts from the economic-imperative urban development.

SEFC is the last untouched large-scale waterfront property adjacent to Vancouver’s downtown core, stretching across the southeast shore of False Creek (Figure 4-3 & Figure 4-4). The site is 80 acres in size, 50 acres of which are publicly owned, including 26 acres of open space. In 1991, the redevelopment of this abandoned site was determined by the City Council to be a model sustainable community. Since much of the land was owned by the City of Vancouver, it became important to determine whether form should follow finances (the creation of value) or follow context (the creation of place). Finally, City Council agreed and concluded that “authentic place making must drive design intent”, making a statement about the direction of future development in Vancouver (City of Vancouver, 2010).
Figure 4-3: Location map of SEFC waterfront, Vancouver. BC
Source: Author, 2013

Figure 4-4: Physical context of SEFC waterfront, Vancouver. BC
Source: Author, 2013
The vision of creating a model sustainable community in SEFC came from concerned citizens who wanted to see a vibrant, ecologically sound and socially cohesive community (Roger Bayley inc., 2010). This vision has held strong. Many groups have participated in the SEFC planning process, including the Southeast False Creek Working Group, Designers for Social Responsibility, and the Southeast False Creek Stewardship Group, a City advisory committee established in 1997. They were involved in a comprehensive public consultation program including numerous open houses, public workshops and public hearings. Adjacent business improvement associations and residential associations also provided inputs. Within the general goal of ‘building liveable neighbourhoods’, citizens considered a wide variety of issues, including adequate housing, health care, education, employment, mobility, urban agriculture and environmental restoration (Roger Bayley inc., 2010). Within the City’s global context, the development of SEFC was member-driven and community-development focused.

The City’s ambitious goal for SEFC was to create “a place where people live, work, play, and learn in a neighbourhood designed to maintain and balance the highest possible levels of social equity, liveability, ecological health and economic prosperity” (City of Vancouver, 2010). The development was to accommodate people of various incomes and ages, with family housing as a priority. Vancouver’s City Council approved the Official Development Plan for SEFC in 2005 with construction completed in 2009. SEFC was awarded LEED Neighbourhood Development Platinum certification with the highest point allocation achieved in North America. The first phase of this project was used as the Olympic Village during the 2010 Winter Olympics. It is now one of Canada’s leading sustainable communities. High credits have been given not only for its sustainable and liveable environment, and vibrant ambience, but also for the authentic identity built through place making.

4.5.1 Analysis of Southeast False Creek Using the Key Aspects

4.5.1.1 Functionality

Vancouver is one of the most diverse cities in the world. The 32.5ha SEFC site (Figure 4-5) can accommodate 10,000 to 12,000 people with a range of incomes in market and non-market housing, providing a mix of land use including residential uses, community amenities and commercial space.
Figure 4-5: SEFC Waterfront Official Development Plan, Vancouver. BC
Source: City of Vancouver, 2009

Figure 4-6: The Mix of Housing in SEFC Proposed in 2006 Re-zoning, Vancouver. BC
Source: City of Vancouver, 2010
In SEFC, market condominiums are complemented by the development of ‘affordable’ (subsidized) housing and ‘modest market’ housing. Affordable housing provides low-rental housing for low-income people and seniors. Modest market, in this project, refers to rental housing, which would welcome people who cannot afford purchasing these properties but is not eligible for subsidized housing. This goal supports the aspiration of maintaining a sense of balance and promoting social equity (Figure 4-6).

At SEFC, goods and services are within walking distance and jobs and housing are linked by transit. People live, work, play and learn here. SEFC amenities include: approximately 26 acres of park land, including habitat; playgrounds and opportunities for urban agriculture; one community centre and recreational boating facility; one elementary school, three child care facilities, two out-of-school care centres and eight family day care centres; Mid-size grocery store and community serving retail/services; five heritage buildings and an opportunity for an inter-faith spiritual centre; and a central location in terms of pedestrian, cyclist and transit connections (City of Vancouver, 2006). The edge of the water – 650 metres in length – was made into one continuous park, providing amenities such as sport field, dog park, wetland garden, wildlife habitat island, boating center, shipyard plaza just to name a few. Various elements attract people to enjoy the water scene: granite blocks tumbling down to the water; seating area and different seating options; decks extending out over the water; 4.5 metres wide pedestrian and 4.5 metres wide cycling road, a fun bridge, and a softened seawall (Figure 4-7). These amenities help draw people to the waterfront, and encourage an active lifestyle for residents.

In addition to the residential development and community amenities, this mixed-use community was to accommodate 82,000 square feet of commercial space. Key commercial anchor tenants are a supermarket, a drugstore and a liquor store, comprising approximately half of the commercial floor area. Smaller tenants include two restaurants, a specialty food store, a video store, specialty retail and personal and professional services. The diversity of retail options supports the vision of a self-sufficient community (Figure 4-8).
Figure 4-7: Park System & Facilities along Water Edge in SEFC, Vancouver, BC

Source: Author, 2013
4.5.1.2 Accessibility

The SEFC transportation study identified a range of transportation options to support the vision of SEFC as a model sustainable community (Figure 4-9). The overarching aim is to balance the transportation system by improving transportation choices and reducing the environmental, social and economic costs of an automobile-dependent transport system (City of Vancouver, 2006).

The SEFC site is closely connected to the Vancouver city core and adjacent areas by a wide variety of conveniently accessible transportation options. The public transit system was well developed: major bus routes pass by and connect through the neighbourhood, as does Vancouver’s new Downtown Streetcar; the neighbourhood is within walking distance of Skytrain, a light rail system that connects Vancouver’s downtown with the surrounding regional district. The neighbourhood will be a stop on the Canada Line, a light rail transit line that connects the city’s downtown core with the Vancouver International Airport. The waterfront will also be served by a pedestrian ferry that links to the city’s beaches and waterfront locales, such as Granville Island and the Vancouver Aquatic Centre. The neighbourhood’s network of paths and streets are designed for pedestrians, cyclists and transit. Three dedicated bike routes pass through SEFC in addition to the seawall bike and pedestrian route that follows the city’s shoreline.
SEFC also provides various opportunities for people accessing water: people can sit quietly on the granite blocks that lead down to the water; kids can jump over the stepping stones to the habitat island and watch the water flows on the river stone beach; water sport lovers can step down to the water with their kayak, boat or floating board (Figure 4-10).

Figure 4-9: Transit Options in SEFC, Vancouver. BC
Source: City of Vancouver, 2006

Figure 4-10: Accessibility to Water in SEFC, Vancouver. BC
Source: PWL Partnership, accessed 2013
4.5.1.3 Culture and History

The SEFC site was the centre of heavy industry in the City of Vancouver. Three distinct historic areas that retain an industrial identity characterize SEFC: the city works yard, the shipyard and the rail yard. In 2004, Kalman, the principal of Commonwealth Historic Resource Management Ltd., was hired as a consultant to identify the character-defining elements that give the place its identity. The waterfront and public plaza bear particular evidence of this heritage, which provides a unique pattern to the contemporary community through forms, materials and structures that evoke memories of the past (Roger Bayley inc., 2010).

The shipyard was Vancouver’s largest employer during the First World War, with a 2,000-strong workforce. The site saw the construction of the largest tonnage of steel ships in the British Empire. In the Second World War, the shipbuilding industry on the site fabricated large sections of 10,000 freighters to replace the ships sunk by German U-boats in the North Atlantic. Following the two wars, the shipyard site produced steel for iconic structures such as the Alex Fraser Bridge, Canada Place and the largest freestanding building in the world, the Boeing plant in Everett, Washington. Operations ceased in 1990 with onsite building demolished in 1998 (Roger Bayley inc., 2010).

The shipyard site was designed to be a public plaza, a lively gathering space, in the center of SEFC (Figure 4-11). The design idea was to interpret the processes of shipbuilding. Lofting, the process of laying out a full-size working drawing of a ship to begin shaping its parts, was chosen. The design of the plaza recalls a huge lofting floor, with sweeping lines on the pavement outlining various sections of a ship’s hull. Some lines rise three-dimensionally as the site grade changes, providing a built-in seating area. Light standards on the plaza take the form of the varying ribs of a ship. Elsewhere throughout the village, inset lines in paving surfaces mark the locations of the False Creek shoreline as it shifted over time. The plaza is about telling a narrative story of the site’s history (PWL partnership, 2009). The shipyard area features large metal dock ties along the seawall. Even historic lumber mill markers are woven into the seawall. The robust character of the space features workaday materials such as iron, timber, and rough granite.

At the plaza’s south end stands the red salt building, one of the last industrial buildings at SEFC that
remains intact. The location of this building marks the original shoreline of False Creek. The building was built in 1930 on exposed timber piles along the water’s edge. The building was originally used as a salt refinery, storage facility and distribution centre. Once the salt industry moved out in the 1980s, the building was adapted for use as a paper recycling plant (Roger Bayley inc., 2010). The Salt Building was used as a social gathering place during the 2010 Games and it is now a public amenity, housing a restaurant and brewpub. Areas of wooden decking remind pedestrians of the piers that once punctuated the shoreline.

![Image](image.jpg)

**Figure 4-11: Shipyard Plaza in SEFC, Vancouver. BC**

Source: (Left image) City of Vancouver, 2006 (Right image) Author, 2012

In 2007, the city commissioned the SEFC Art Master Plan. A public process helped define how art should reflect the history, sustainability ethic and forward-looking nature of the new community. A Vancouver artist was chosen to develop a signature piece of public art for the shipyard plaza. She proposed two 15-feet high giant sparrows (Figure 4-12). Sparrow is a non-indigenous species that is now considered invasive; the artist picked up on the future environmental challenges by highlighting it. This artwork stimulates understanding that will lead to a greater sense of shared responsibility and caring of the nature.
The SEFC site is located on the shared traditional territory of the Musqueam, Tsleil-Waututh, and Squamish First Nations, three of the Four Host First Nations (Environment Canada, 2011). This west coast first nation culture was also represented by the sculpture with the totem motif (Figure 4-12).

The industrial character of the site is also reflected in the play elements in parks at SEFC. For example, in the pocket park, there are four gateways, where kids can go through a pipe and be in a playhouse. The little park will also become home to the largest industrial artifact in SEFC – the old gantry crane saved from the steel fabrication building.

4.5.1.4 Ecological Environment

Industrial development over the last century destroyed much of the natural habitat at this site, turning the area into an industrial brownfield. The construction of SEFC restored the shoreline including the creation of Habitat Island. Habitat Island (Figure 4-13) is a human-made island that was built by using left-over dirt, rocks, sand, and other material from excavations from the construction of SEFC. There are native shrubs, trees, a natural shoreline, vertical snags with aquatic riparian (shoreline) habitat, inter-tidal fish habitat, and an upland ecology where birds perch and nest. The creation of the island helps compensate for an area of the False Creek shoreline that was filled in to accommodate the construction of the Village.
False Creek is vital habitat for local and migratory birds. Reclamation and restoration efforts have ensured that the brownfield site is now safe for raptors including Bald Eagles and water birds as well as sea ducks and geese. Birds seen here year-round include the American Robin, American Goldfinch, Golden Crowned Kinglet, Steller’s Jay, Gray Jay, the American Crow, and Great Horned Owl. The rocky shores, sandy beaches and salt marshes produced by the inter-tidal marine habitat provide important food sources, foraging habitat and nesting areas for local birds and migratory bird species. In addition to an abundance of bird life, the site is also home to a variety of urban wildlife such as eastern grey squirrels, raccoons, chipmunks, and skunks (Environment Canada, 2011). The island is under passive management. Public access to the island is limited with a connecting pathway emerging only at low tide. Proof of success appeared in the fall of 2008 when herring returned to spawn, for the first time in many years, on a one-kilometre stretch of the once toxic shoreline of SEFC (Environment Canada, 2011). The Habitat Island and natural shoreline along SEFC waterfront demonstrate the ability to reintroduce natural habitat back into the urban environment.

To reach the goal of building a sustainable model community, a number of high-level sustainability principles to guide the SEFC neighbourhood’s development had been established in early 1999. The City commissioned consultant reports in four key areas: energy, water & waste management, urban agriculture, and transportation. Each of these four key areas contributes to the health of the ecological environment of SEFC. This section will focus on design attributes in planning and design that directly have ecological function, such as stormwater management and urban agriculture.
The SEFC water management plan focuses on potable water consumption reuse of stormwater and greywater, sanitary sewage treatment and stormwater management. Specific conservation strategies include: installing efficient fixtures and appliances; using green roofs, permeable pavement and constructed wetlands; using rain barrels to store rainwater; reusing greywater for landscaping and toilet flushing; and treating sewage on-site using by solar aquatics or ‘living machines’ (Roger Bayley inc., 2010).

Hinge Park, at the west end of SEFC, has a wetland treatment pond, handling stormwater runoff from the entire west side of the community (Figure 4-14). The wetland treatment pond was created to capture, naturally filter, and slow storm-water by using native aquatic plants. This also helps to reduce litter and other debris from washing directly into False Creek during heavy rainstorms. Several bridges were designed as viewing platforms from which visitors can observe the Mallards swimming in the pond, as well as the vegetation, birds, and wildlife in the surrounding green-spaces. One of the bridges took the shape of a big sewer pipe, together with the stepping-stones and U-channels that convey rainwater, providing creative play while satisfying visual and functional values. The sewer-pipe-bridge and homes for birds subtly educate visitors about infrastructure, interconnectedness and sustainability. The park is an enchanting place for children and families to get close to nature in an urban environment (Figure 4-15).

Figure 4-14: Wetland in Hinge Park at SEFC, Vancouver. BC
Source: Author, 2012
Urban agriculture has been highlighted as an important strategy for a sustainable community at SEFC. The SEFC urban agriculture strategy study defines urban agriculture broadly as a complete system, including on-site food production, processing and distribution. This study outlined a range of recommendations from community gardens and rooftop gardens to more complex systems such as on-site aquaculture and rooftop greenhouses (Roger Bayley inc., 2010). The community demonstration garden has been planned and will be constructed. The garden will be a space that is programmed with the school, community centre and neighbourhood for all to use and to learn about urban agriculture. Each building’s strata council will manage how gardening plots will be allocated to residents. In non-market urban agriculture areas, there are communal crops where plots are not delineated and where everyone can harvest. The Olympics’ goal of sustainability plays in with the development’s social sustainability goals by having ‘backyard’ courtyards that promote urban agriculture with personal garden plots and fruit-bearing plants.

With the requirement of fifty percent of the site area having to be green, grade (street-level) growing and rooftop gardens became key. Green roofs (Figure 4-16), referring to intensive roof gardens, are widely used in SEFC. Intensive green roofs feature deeper soil (over 20cm) and can support a wider variety of plant types such as trees, shrubs, and ground covers. Intensive green roofs are often more labour-intensive than extensive green roofs, which are thinner and lighter, characterized by a light layer of vegetation and growing medium (5-15cm on average). In SEFC, in addition to the aesthetic value, green
roofs are also used for energy efficiency, stormwater management, urban agriculture, and social amenities. It also provides a welcome habitat addition for birds and bees.

![Green Roof in SEFC, Vancouver. BC](image)

**Figure 4-16: Green Roof in SEFC, Vancouver. BC**

Source: Author, 2012

### 4.6 Summary

The City of Vancouver prides itself on being green and has the strictest green building codes in North America. The planning and design of the SEFC site is in keeping with the spirit of sustainability. The entire area uses historic tie-ins and reclaimed materials from on-site (boardwalk walls are old city sidewalk concrete), and the successful connection of the last undeveloped waterfront in the downtown core to the adjacent neighbourhoods make the seawall the highlight of the design. Opportunities to interact with water off the granite steps and to celebrate natural elements on Habitat Island are an exciting new way to develop the shoreline in Vancouver. So far, the site has been a success. Even without residents in the neighbouring buildings, the place was packed with visitors in the summer.

Though closely related to an international event, the 2010 Winter Olympics, the planning and design of SEFC waterfront was all about the end user – local people and local communities. In keeping with the spirit of sustainability, Olympics venues were about restraint and post-games use. Vancouver’s last untouched industrial waterfront received a makeover fit for the world’s Olympic athletes, but it was all done with the locals in mind (PWL, 2009).

The following figure summarizes the design attributes applied to SEFC waterfront (Table 4-2).
<table>
<thead>
<tr>
<th>Key Aspects</th>
<th>Design Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functionality</td>
<td>Mixed land uses and various amenities to attract a variety of people</td>
</tr>
<tr>
<td></td>
<td>Affordable housing for the low-income and seniors to promote social equity</td>
</tr>
<tr>
<td></td>
<td>Diverse retail and services within walking distance to support a self-sufficient community</td>
</tr>
<tr>
<td></td>
<td>Emphasis on recreational functions on the water edge with sufficient supporting facilities</td>
</tr>
<tr>
<td>Accessibility</td>
<td>A well-designed public transit system connecting to city core and other regional area</td>
</tr>
<tr>
<td></td>
<td>Establishing waterborne transport</td>
</tr>
<tr>
<td></td>
<td>Opportunities for people accessing the water</td>
</tr>
<tr>
<td></td>
<td>Pedestrian &amp; biking road connect to local trails</td>
</tr>
<tr>
<td>Culture and History</td>
<td>Public plaza design reflects the industrial history of the site</td>
</tr>
<tr>
<td></td>
<td>Heritage building used as a public amenity</td>
</tr>
<tr>
<td></td>
<td>Public art by local artists that depict local history and personalities</td>
</tr>
<tr>
<td></td>
<td>Providing gathering place for community cultural programming and events</td>
</tr>
<tr>
<td></td>
<td>Play elements that reflect the industrial character and the sustainable concept of the site</td>
</tr>
<tr>
<td>Ecological Environment</td>
<td>Passive managed Habitat Island provides habitat for wildlife</td>
</tr>
<tr>
<td></td>
<td>Natural shoreline contribute to environmental mediation</td>
</tr>
<tr>
<td></td>
<td>Managing stormwater on site with features such as permeable pavement, bio-swale, constructed wetlands and etc.</td>
</tr>
<tr>
<td></td>
<td>Landscape features that are infused ecological, educational and creative play functions</td>
</tr>
<tr>
<td></td>
<td>Using the waterbody as a tool for science and nature education</td>
</tr>
<tr>
<td></td>
<td>Urban agriculture as an important strategy for a sustainable community</td>
</tr>
<tr>
<td></td>
<td>Using green roof for various of advantages such as aesthetic value, energy efficiency, stormwater management and etc.</td>
</tr>
</tbody>
</table>
CHAPTER FIVE: SYNTHESIS OF DESIGN GUIDELINES

The design guidelines presented in this chapter are mainly based on data obtained from three sources: (1) related literature about waterfront development and place identity, (2) selected published works on design attributes of key aspects that help to forge a sense of local identity, and (3) case study analysis of the SEFC waterfront development that celebrated the local community.

The guidelines are intended to assist planners and landscape designers to inform the planning and design of waterfronts in order to establish a local identity by providing them with design attributes that help to foster a local identity and to help decision makers or other professionals to identify key aspects to consider when analyzing and evaluating a waterfront development project on how to create a people place for local communities through design and planning. The key aspects, namely functionality, accessibility, culture and history, and ecological environment, provide a brief and clear analytic tool for studying the place identity for any waterfront development. Moreover, the guidelines can be good reference for any urban design that aims to set up a local identity for the place.

The aim of this chapter is to present design attributes that are essential for waterfront development in order to establish a local identity. These attributes were primarily drawn from a focused literature review and the analysis of a case study project in the earlier chapter. It is important to realize that the presence of these design attributes will not guarantee the success of the project, but absence of these elements could possibly contribute to its failure.

The design guidelines are presented in Table 5-1 below.
### Table 5-1: Final Design Guidelines, Source: Author, 2013

<table>
<thead>
<tr>
<th>Key Aspects</th>
<th>Design Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Functionality</strong></td>
<td>Mixed land uses and various amenities to attract a variety of people</td>
</tr>
<tr>
<td></td>
<td>Affordable housing for low-income people to promote social equality</td>
</tr>
<tr>
<td></td>
<td>Diverse retail and services within walking distance to support a self-sufficient community</td>
</tr>
<tr>
<td></td>
<td>Emphasis on recreational functions on the water edge with sufficient supporting facilities</td>
</tr>
<tr>
<td></td>
<td>Design solution that balance the privacy of the waterfront inhabitants and the street-level activities for tourists</td>
</tr>
<tr>
<td></td>
<td>Employment opportunities targeted to low-income and inner-city residents</td>
</tr>
<tr>
<td><strong>Accessibility</strong></td>
<td>A well-designed public transit system connecting to city core and other regional area</td>
</tr>
<tr>
<td></td>
<td>Good connectivity to the surrounding area with minimum physical barrier</td>
</tr>
<tr>
<td></td>
<td>Establishing waterborne transport</td>
</tr>
<tr>
<td></td>
<td>Pedestrian and biking roads connect to local trails</td>
</tr>
<tr>
<td></td>
<td>Reasonable intervals along pedestrian path, providing various forms for public access</td>
</tr>
<tr>
<td></td>
<td>Sufficient way-finding system</td>
</tr>
<tr>
<td></td>
<td>Opportunities for people accessing the water</td>
</tr>
<tr>
<td></td>
<td>View corridors from inner city to waterfront</td>
</tr>
<tr>
<td><strong>Culture and History</strong></td>
<td>Public spaces that highlight the culture and history of the site such as plaza, parks and etc.</td>
</tr>
<tr>
<td></td>
<td>Heritage architectures incorporating new uses for local communities</td>
</tr>
<tr>
<td></td>
<td>Cultural amenities, such as theatre, museum or library to enrich the spiritual life of local communities</td>
</tr>
<tr>
<td></td>
<td>Public art by local artists that depict local history and personalities of the site</td>
</tr>
<tr>
<td></td>
<td>Providing gathering place for community cultural programming and events</td>
</tr>
<tr>
<td></td>
<td>Play elements that reflect the character and the main theme of the site</td>
</tr>
<tr>
<td><strong>Ecological Environment</strong></td>
<td>Protecting and restoring natural features in the waterfront</td>
</tr>
<tr>
<td></td>
<td>Protecting or creating habitat for wildlife</td>
</tr>
<tr>
<td></td>
<td>Softened banks and hardscapes with bioengineering approaches</td>
</tr>
<tr>
<td></td>
<td>Managing stormwater on site with features such as permeable pavement, bio-swale, constructed wetlands and etc.</td>
</tr>
<tr>
<td></td>
<td>Urban agriculture as an important strategy for a sustainable community</td>
</tr>
<tr>
<td></td>
<td>Landscape features that are infused ecological, educational and creative play functions</td>
</tr>
<tr>
<td></td>
<td>Using the waterbody as a tool for science and nature education</td>
</tr>
<tr>
<td></td>
<td>Using green roof for various of advantages such as aesthetic value, energy efficiency, stormwater management and etc.</td>
</tr>
<tr>
<td></td>
<td>Native plants and plants with cultural meaning</td>
</tr>
</tbody>
</table>
6 CHAPTER SIX: TESTING OF DESIGN GUIDELINES

The Zhujiang New Town (ZJNT) waterfront in the City of Guangzhou, China, was chosen to test the developed design guidelines. This waterfront development was considered by local professionals to be purely an economic-imperative, under-used and a failure in engaging local people. This chapter begins with an introduction to the project on physical conditions and context information. A detailed analysis on the functionality, accessibility, culture and history and ecological environment is then provided. After a review of the design attributes based on this project, recommendations for future improvements on the waterfront are provided.

In this study, the ZJNT waterfront refers to the area approximately 400-meter from the water’s edge (a 5-minute walking distance). The 5-minute walk contains a central building block for a walkable, liveable, and sustainable community design; many recognized walking environments are designed on this metric. All data of the project were collected from secondary documents and direct observations on-site. The site visits were conducted in October of 2012, a season best suited for outdoor activities in the City of Guangzhou. There were three visits in total, two on weekdays and one on the weekend with no special events happening at those times. The observation focused on the number of people visiting the site, the activities they had, and the physical context and design elements of the built environment.

6.1 Introduction of the testing project

Guangzhou is the third largest Chinese city with a recorded history dating back two thousand years ago. As the political, economic and cultural centre in the Pearl River delta, the city has a population of almost 13 million. It is also one of the five national central cities located in South China. In 2008, Guangzhou was identified as a beta world city by the global city produced by the Globalization and World Cities Research Network. The City’s development target for 2011-2020 is to maintain a low-carbon economy, create a smart city and provide for a happy life for citizens (City of Guangzhou, 2012). Ecological environment and cultural soft power are emphasized together with core competitiveness and global influence in this vision.

The Zhujiang New Town (ZJNT) was established on former agricultural and industrial lands. The Pearl River is running along the south edge of the ZJNT (Figure 6-1 & Figure 6-2). It was regarded as the
mother river of the city due to its intimate relationship to local people’s lives as a key transport corridor, trading site, and river activities resource. ZJNT is divided into east and west sections (Figure 6-3), with the east section mainly designated for residential development and the west section as a commercial zone. The core area of the west section is the proposed new city axis, which clusters high-end office buildings, hotels, shopping malls as well as major public service and cultural facilities. The top luxury hotels include the Ritz, W Hotel, St. Regis, Grand Hyatt and Jumeirah Hotel. The Four Seasons Hotel has rented the 67th to 100th floors of the West Tower, the new city landmark, and will become one of the highest hotels in the world.

![Location of ZJNT Waterfront - Plan](image1)

**Figure 6-1: Location of ZJNT Waterfront - Plan**

*Source: Author, 2013*

![Location of ZJNT Waterfront - Bird view](image2)

**Figure 6-2: Location of ZJNT Waterfront - Bird view**

*Source: Author, 2013*
The three-kilometer-long waterfront of ZJNT has been developed as the city’s ‘business card’, with high-end condominium buildings, large-scale cultural facilities, and luxury hotels. It was in the spotlight during the opening and closing ceremonies of the 2010 Asian Games held in Haixingsha Island.

However, through the planning and construction of the waterfront, and the supported facilities, this new town has generated controversy. Local professionals criticized the area as a most crowded ‘concrete habitat’, accommodating around two hundred thousands people within 6.5 square kilometers, with no general hospital, public daycare and very limited public amenities provided. Concerns have also increased about the massive introduction of prime office-space supply as well. Whether this supply is diverging from the local economic fundamentals and will result in serious supply surplus remains the biggest issue for the market. Although the enabling conditions for CBD have been met, ZJNT still faces many other challenges and has to withstand the test of time and market before it can really take on the role of the Guangzhou CBD (CBRE, 2009). Focusing on the waterfront, the development was based on an economic imperative, fragmented by private developments and failed to engaging local communities, creating a ‘dead zone’ in central Guangzhou. Local professionals urged for the creation of an environment that attracts local talent and people (INFZM, 2012).
6.2 Analysis Using the Key Aspects

6.2.1 Functionality

There are different land uses along the three-kilometer long waterfront: offices, cultural facilities and retails are mostly on the west side; residential condominiums buildings are on the east side (Figure 6-5). The four remarkable cultural buildings, namely Guangzhou Opera House, Guangzhou New Library, the new Guangdong Museum, the second Children's Palace, and the Twin Towers surround the Huacheng Park located on the new city axis, connecting the Haixingsha Island by a large bridge. This is the only locus that attracts people. There is a tourist-oriented retail area built in the center of the waterfront, called Hunter Lane. High-priced foreign bars and cafes have occupied this area; no service that fulfills the daily life needs of local communities are being provided.

A greenbelt with a width ranging from 60 to 90 meters and a promenade are laid along the river, connecting to local riverfront trails. However, only pathways, limited seating, and an intermittent bikeway are provided. The lack of supporting facilities has always been challenging in the development of ZJNT. Due to privatization of the lands, only one public washroom has been built in this new town that accommodates two-hundred million people. Ironically, the waterfront-located washroom is underused because few people visit the area. The design of the promenade is monotonous with the same granite railings and tiles throughout the retire water edge. No spots are designated for people to access the water (Figure 6-4).

Figure 6-4: Promenade in ZJNT Waterfront, Guangzhou, China

Source: Author, 2013
After the 2010 Asian Game, the Haixingsha Island has been the center of a series of discussions and criticism regarding its post-event usage. The island was planned to provide a new Civic Garden that includes community recreation space, a large civic-scaled festival space, art and cultural amenities, and public access to water transportation and the Pearl River environment (Figure 6-6). However, to hold the opening and closing ceremonies for the Asian Games, a 30,000-seat stadium was built, covering a total area of 176,000 square meters. The stadium was initially constructed as a temporary arena. But the municipal government decided to keep it as the biggest open-air theatre in Guangzhou later on because of its expensive construction fee. Top restaurants and bars will also be added to this island due to its high property value. A public green space was finally turned to commercial uses. Without the island for green space, the per capita greenery area of ZJNT is only around five square meters, 30% below than the national standard. Instead of greenery, the island was covered with a large area of hardscape (Figure 6.6 & 6.7) (INFZM, 2012).
6.2.2 Accessibility

The public transit system has been well developed along the new city axis, including two metro lines and one underground transit system that connects ZJNT to Tianhe business center in the north (Figure 6-8). However, there are only four bus routes that pass through the waterfront from the west section to the east. No water-borne transportation is in use.

Linjiang Boulevard is regarded as the biggest barrier for people to access the waterfront. This sixty-meter
wide road separates the waterfront from the other part of ZJNT (Figure 6-9). There is an exception with an underpass tunnel going to the new city axis. People have to cross this eight-lane road, with major intersections, to reach the greenbelt and promenade on the water’s edge. On some parts of the road, bicyclers have to ride on the side of the road due to the discontinued bikeway.

The sewage treatment plant on the east end of the waterfront produces a very unpleasant smell. There are basically no visitors in this area, causing a safety concern for this part of the waterfront.

Figure 6-7: Promenade in ZJNT waterfront, Guangzhou, China
Source: Author, 2013

Figure 6-8: Lingjiang Boulevard in ZJNT waterfront, Guangzhou, China
Source: Author, 20
6.2.3 Culture and History

The City of Guangzhou dates back to the Han, Zhou, and Sui Dynasties, with nearly 1500 years of international trade. Despite the various layers of history and different political systems the city has experienced, Lingnan culture is broadly accepted as the city’s collective value and tradition. However, like many other parts of the city, ZJNT is fulfilled with ultra-modern urban design, creating a strong sense of economic growth and a weak sense of tangible heritage.

Building new architecture with a pure traditional appearance is a widely used method to fill the demand of visualizing history in China. Hunter Lane (Figure 6.9) in the ZJNT waterfront is one of these kinds of development. In the central part of the waterfront, a new strip of Lingnan style building stands surrounded by contemporary condo towers. The buildings are ornamented with colorful plaster and clay roofs, presenting the traditional Lingnan architectural art and a sense of history. However, there is no local culture other than the appearance. It is a strip of high-priced foreign bars and cafes like Restaurant Francias, with an expensive French menu with Latin dancing on Friday nights.

Liede Village resides in the waterfront with a history of nearly 900 years. The village is famous for Dragon Boat Racing for over 800 years. In the development of ZJNT, most of the village buildings were demolished and replaced by high-rise condominium towers. The residents received compensations from the government and all moved into new condominiums. Several heritage buildings have remained and are renovated as museums to show the unique water village history. However, these heritages buildings are scattered among the high-rises and are not highlighted or connected to any public amenities. They are known by the on-site inhabitants, but they cannot really benefit local citizens as cultural resources at a larger scale. The Dragon Boat racing is still holding in the Liede creek, a branch of the Pearl river running through the Hunter Lane.
The four cultural facilities (Figure 6.10): the Opera House of Guangzhou, the Museum of Guangdong, the city library, and the children’s place, are the focal point of the waterfront. These amenities have become the most important cultural resource to local people. Even though their building forms are very international, these buildings bring vitality to ZJNT waterfront. This area is becoming itself the new cultural hub of the city, attracting waterfront inhabitants, local visitors and tourist.
6.2.4 Ecological Environment

In an ultra-urban setting, the Pearl River in Guangzhou, including all river branches, has been channelized with hardscape covering the entire riverbank. The original planning of ZJNT did not really take the ecological environment into account. The Haixingsha Island had the most potential to create a wildlife habitat in this ultra-urban environment. However, two-thirds of the island has been covered with hard surface during the development.

The greenbelt along the river is more for aesthetic purpose than for ecological concerns. Trees and plants in the greenbelt attract a small number of birds. There is also a 28-hectare park located one kilometer away from the water’s edge. The Liede Creek connects the park to the waterfront, but two major roads are a challenge for this connection.

6.3 Summary

Figure 6.11 provides a comparison on design attributes applied in ZJNT waterfront and the ones summarized in the developed design guidelines. The results show that limited design attributes that contribute to establishing a local identity in waterfront development were achieved. Insufficient provision of supporting facilities, poor accessibility, little respect for the history and culture, and overriding the ecological environment lead to an inaccessible and under-utilized waterfront in the ultra-high-density city core.

As the CBRE observed (2009), consistent with local economic dynamics, the demand for prime office space from domestic companies is surging dramatically over recent years, becoming a new force in a market traditionally dominated by international companies. In addition to an international status, a place that creates an attachment to local communities and citizens will benefit the economic in the long-term. Failure to engage local people and loss of local identity might lead to the reduction of the city’s competitiveness.

Armed with lessons learned, the municipal government of Guangzhou summarized development experiences for the next decade in a broader CBD area, including paying special attention to plot ratio control, traffic planning, and leaving room for future expansion. Focusing on the waterfront, Lingnan
riverine culture and protection of natural environment will be emphasized (City of Guangzhou, 2012).

Table 6-1: Design Attribute in ZJNT, Guangzhou, China. Source: Author, 2013

<table>
<thead>
<tr>
<th>Key Aspects</th>
<th>Design Attributes</th>
<th>ZJNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functionality</td>
<td>Mixed land uses and various amenities to attract a variety of people</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Affordable housing for the low-income and seniors to promote social equity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diverse retail and services within walking distance to support a self-sufficient community</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Various amenities for people</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Functional connectivity to the city core</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Emphasis on recreational function on the water edge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Employment opportunities targeted to low-income and inner-city residents</td>
<td></td>
</tr>
<tr>
<td>Accessibility</td>
<td>Expanded and well-design public transit connecting to the city core</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A wide variety conveniently accessible transportation options</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Establishing waterborne transport</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pedestrian and biking roads connect to local trails</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Opportunities for people accessing the water</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reasonable intervals along pedestrian path providing various forms for public access</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Way finding system</td>
<td></td>
</tr>
<tr>
<td></td>
<td>View corridors from inner city to waterfront</td>
<td></td>
</tr>
<tr>
<td>Culture and History</td>
<td>Public plaza and park design reflect the history of the site</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Heritage architectures incorporating new uses for local communities</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Cultural amenities like theatre, museum or library</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Public arts by local artists that depict local history and personalities of the site</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Using the waterbody as a tool for science and nature education</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Providing gathering place for community events</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Play elements reflect the character and the main concept of the site</td>
<td></td>
</tr>
<tr>
<td>Ecological Environment</td>
<td>Protecting and restoring natural features in the waterfront</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Protecting or creating habitats for wildlife</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Landscape features infused ecological, educational and creative play functions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Managing storm water on site</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Urban agriculture as an important strategy for a sustainable community</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Soften banks and hardscapes with bioengineering approaches</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Native plants and plants with cultural meanings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Green roof</td>
<td></td>
</tr>
</tbody>
</table>

Design attributes provided  Design attributes partially provided
6.4 Recommendations for Future Improvement of ZJNT Waterfront

The recommendations for future improvement of ZJNT (Table 6-2) are based on the developed design guidelines, the current status of the built environment in ZJNT waterfront, and the limitations on riverbank design from the Bureau of Water Resource (BWR) in the city of Guangzhou. Design proposals of riverbanks are usually rejected by BWR, as the main water corridors of the Pearl River are channelized to drain off floodwaters. Therefore, naturalized riverbanks are only recommended for Liede Creek and Haixingsha Island.

Most of the listed recommendations are visualized in the following Design Recommendation Plan (Figure 6-12). The items that are straightforward, such as Recommendation 3, are skipped in the plan. The number of each recommendation corresponds with the number in the plan.
Table 6-2: Design Attribute in ZJNT, Guangzhou, China. Source: Author, 2013

<table>
<thead>
<tr>
<th>Key Aspects</th>
<th>No.</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Functionality</strong></td>
<td>1.</td>
<td>Incorporate diverse retails and services into the greenbelt along the water edge, including cafe or teahouse, sufficient washrooms, and small shops</td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td>Emphasize recreational functions on the water edge by: incorporating bikeways into the promenade along the water edge, adding different seating options, providing spots to enjoy the riverine scene, adding playground, outdoor sport equipment, and community gardens on the east side of the greenbelt</td>
</tr>
<tr>
<td><strong>Accessibility</strong></td>
<td>3.</td>
<td>Provide more public transit options along the waterfront</td>
</tr>
<tr>
<td></td>
<td>4.</td>
<td>Minimize the barrier that separate the waterfront and the other part of ZJNT by creating an underground tunnel for vehicles in Linjiang Boulevard and turn the 8-lane road into a pedestrian area</td>
</tr>
<tr>
<td></td>
<td>5.</td>
<td>Provide reasonable intervals along the pedestrian way for various forms of public access</td>
</tr>
<tr>
<td></td>
<td>6.</td>
<td>Establish waterborne transport connecting the waterfront to the south shore of the Pearl River, and provide stops for boat rides on the Haixingsha Island</td>
</tr>
<tr>
<td></td>
<td>7.</td>
<td>Create opportunities for people to access the water on the east end of the Haixingsha Island and both sides of Liede Creek</td>
</tr>
<tr>
<td></td>
<td>8.</td>
<td>Provide an effective way-finding system</td>
</tr>
<tr>
<td><strong>Culture and History</strong></td>
<td>9.</td>
<td>Introduce small plazas or parks in the greenbelt that incorporate architectural elements that reflect the Lingnan culture</td>
</tr>
<tr>
<td></td>
<td>10.</td>
<td>Introduce sculptures, murals, or art installations that reflect local custom and tradition</td>
</tr>
<tr>
<td></td>
<td>11.</td>
<td>Introduce interpretation boards to present the history of the Pearl River, Liede village and the dragon-boat activity</td>
</tr>
<tr>
<td></td>
<td>12.</td>
<td>Provide gathering places for community activities like dancing, playing Taiji or others</td>
</tr>
<tr>
<td></td>
<td>13.</td>
<td>Provide play elements using new technology or low-carbon facilities to project the City's low-carbon vision (City authorities recently issued a guideline for speeding up the development of a low-carbon economy between 2011 and 2015)</td>
</tr>
<tr>
<td><strong>Ecological Environment</strong></td>
<td>14.</td>
<td>Create habitats for native waterfowl and wildlife on the eastside of the Haixingsha Island</td>
</tr>
<tr>
<td></td>
<td>15.</td>
<td>Introduce constructed wetlands in the intersection of the Peal River and Liede Creek, incorporating educational interpretations and play elements</td>
</tr>
<tr>
<td></td>
<td>16.</td>
<td>Naturalize the riverbanks along Liede Creek with native plants and create green corridors that connect to the Zhujiang Park. Elements like constructed wetlands, boardwalks, and water biopurification facilities can be incorporated</td>
</tr>
<tr>
<td></td>
<td>17.</td>
<td>Create landscape features with local aquatic plants for on-site storm water management</td>
</tr>
<tr>
<td></td>
<td>18.</td>
<td>Using Native plants and plants with cultural meanings</td>
</tr>
</tbody>
</table>
Figure 6-11: Design Recommendation Plan of ZJNT Waterfront, Guangzhou, China,

Source: Author, 2013
7 CHAPTER SEVEN: DISCUSSION

7.1 Major Findings

The construction of local identity of a place relies not only on physical qualities. Local people are one of the key elements in local identity. Their appearance and activities reflect their values and customs, presenting the particularity of the place. Local identity is defined in this study as a collective narrative of place defined by the interests of local people. To really present the interest of local people, the narrative should be created based on a process of participation with a variety of local communities and citizens. The built environment that is underpinned by the collective narrative will provide physical qualities that attract local people to live, work and recreate in it. Research on these physical qualities is crucial to the success of establishing the local identity of a place.

The key aspects that contribute to the establishment of local identity, namely functionality, accessibility, culture and history, and ecological environment are supported by various literature on place identity in waterfront development. The key aspects are also seen associated with different elements that convey a sense of local identity. These key aspects can not only serve as a brief and clear analytic tool when analyzing place identity in urban waterfront, but also can be applied to other urban spaces.

Worldwide, a mixed-use functionality has been proven to be key to the success of revitalizing urban waterfronts. A mix of retail, recreational and cultural activities creates waterfronts of universal appeal, fulfilling many needs in this increasingly diverse society. To forge a local identity in the waterfront, the recreational function needs to be emphasized along the water’s edge by providing all kinds of amenities and activities that draw inhabitants and citizens. Furthermore, land uses that prevent privatization and gentrification should be promoted. In waterfronts, social disconnection leads to fragmented interests and a lack of identity, which has increasingly raised increased concerns in the social sciences. The appropriate planning and design of waterfronts should help to create a harmonized social environment in this public realm.

The spatial disconnection reduces the vitality of the waterfront and leads to safety concerns. Improving accessibility is an imperative to return waterfronts to local people. Physical and visual access help to
create lively and diverse places that encourage an appreciation for nature and a sense of place. In addition, connectivity to the city core has been proved to be beneficial to both the vitality of waterfronts and the service economy of downtown area.

Waterfronts are sites that are rich in culture and history, which provide unique definition to the place and its communities. Place making is only achieved if there are individual and collective connections to, and identification with, the place through the creation of significant meaning and memory. Tangible history and culture, through forms, materials and structures, evoke memories of the past, and connects the public to the place. The preservation of the built historical fabric, design elements that reflect the history, and public art that depicts local personalities lead to memorable places. Moreover, programming related to culture and history is seen as an important means to engage local communities. Multi-functional gathering places need to be incorporated into waterfronts.

A sustainable environment is increasingly emphasized for any urban development. A healthy and functioning ecological system in the waterfront is appealing and attractive to residents and businesses. Local people also care about the waterbody’s long-term health. To protect and restore ecological function in the waterfront will lead to a greater sense of shared responsibility and caring for local nature among local communities. Landscape features, such as constructed wetlands, green roofs, soften seawalls and contribute to the sustainability of natural environment and the communities.

Based on the key aspects, design attributes were collected to form the design guidelines. The guidelines are intended to assist planners and landscape designers to inform their design of waterfronts to try to establish a local identity. The design attributes provide useful references and can work as a checklist for designers to exam their proposals. In addition to design professionals, the guidelines can also help decision makers or other professionals to identify key aspects to consider when analyzing and evaluating a waterfront development project, providing them with information on how to create a people’s place for local communities through design and planning. More than this, the guidelines are good references for other urban places that aim to create a local identity.
When facing globalization impacts, local needs, vernacular concerns and local identification are discussed hotly in different fields. However, related studies for the perspective of planning and design are insufficient. The study contributes to the discussion by focusing on establishing local identity at a city waterfront level through planning and design. The developed guidelines might not be able to guarantee a socially and culturally successful waterfront development. However, empirical studies prove that not addressing design issues listed in the guidelines will lead to a loss of a sense of local community, attachment and place identity.

7.2 Critique of the Research

This study has been undertaken with an aim to set up a set of design guidelines that contribute to the establishment of local identity in urban waterfront development. The collected data for establishing and testing the design guidelines was largely qualitative, drawn from the literature review and the case study. Even though the research process might be seen as biased, this study was logically structured with an attempt to achieve accurate results.

There are several limitations of this study. One limitation is the focus on design outcomes, the physical qualities of the built environment. The design process is a powerful determinant of outcomes and cannot be separated from design outcomes. The successful establishment of local identity was approached mainly by focusing on the processes of social interaction and the physical characteristics of place. The focus on design outcomes cannot provide a complete picture of how to successfully establish a local identity through planning and design in waterfront developments. However, particular physical qualities have consistently proved crucial in the construction of local identity.

Secondly, this study is particularly concerned with the establishment of local identity in urban waterfronts. However, any place generally carries multiple place identities. The priority on the construction of a place identity varied from case by case. For example, a waterfront development might be in the stage of emphasizing its regional economic importance; the construction of its place identity will have a different focus, other than local identity. Therefore, this study will be specifically useful to waterfront developments that emphasize a local identity or try to balance economic imperative development with concerns for local
desires. However, the engagement of local people will benefit waterfront development on a long-term basis, and is key to a successful waterfront. The study can generally provide good references for waterfront developments.

Another limitation is that, due to time limits and lack of documented information, the understanding of the development in ZJNT waterfront in China is general. And, given China’s political system, the provided recommendations might not be very practical or easily implemented. However, they are good references for future improvement in ZJNT waterfront.
8 CHAPTER EIGHT: CONCLUSION

8.1 Summary of the Research

During the past decades, economy-driven developments have been prevalent along urban waterfronts to target international investment, talent and tourists. The construction of place identities largely represents the vision of the elite class. The needs and desires of local people, local culture and history, and the local ecological environment tend to be overlooked in waterfront development. However, on a long-term basis, a local identity of the place contributes to attracting local talents and investments, thus advancing a city’s competitive advantages (Chang & Huang, 2008).

In the new century, more and more scholars including sociologists, geographers and environmental psychologists, call for member-driven, bottom-up, community-building focused waterfront developments. In the era of increased globalization, a balance needs to be sought between the global and the local. Waterfront developments that keep local in mind need to: provide functionality that attracts local people from different backgrounds, promote social equality and improve quality of life; be conveniently accessible; create ambience that connects people to local customs and traditions, celebrating local culture and history; and respect the ecological environment. Achievements on these qualities forge a sense of local identity, creating an attachment between local people and their waterfronts. Chang and Huang (2008, p.244) suggested a direction for future development for the Singapore riverfront: “the waterfront development should move on to the next stage to develop – rather than erase or adulterate – landscapes that encourage a sense of local community, attachment and place”. This suggestion can be widely applicable to waterfront developments in many cities.

8.2 Recommendations for Future Research

The established design guidelines will serve as a foundational tool for cities and communities to follow and test in waterfront developments that emphasize a local identity. Additional research on a collection of comprehensive design elements will further enhance the study in establishing a local identity in the waterfront.
Waterfront developments generally involve a complex structure of many overlying jurisdictions and interest groups. The gap between these interests, such as private investors, the city and local communities, is wide. Meticulous planning and design are required. Further research could be applied to the participatory design process focused on waterfronts. Good understanding of this design process will provide planners and designers to better coordinate and achieve practical design solutions. Moreover, it will contribute to the research in establishing local identity through planning and design in the waterfront.

The development boom in China in the past decades has led to a lack of documentation on a lot of important urban development, including waterfronts, with the ZJNT site as an example. Only limited reflections, analysis and literature are published. In the next decade, an area about 20 square kilometers along the Pearl River has been targeted for development. It would be interesting to document these projects from a design perspective, recording the processes and the outcomes.

8.3 Recommendations for Planners and Designers

Landscape architects, planners, and other environmental professionals involved in waterfront development need to engage with local people and other members of civil society, for whom places may have very different meaning and identities from politicians and economic interests. Waterfront development is a process full of complications and challenges. However, place-making for people in this public realm should be pursued by professionals. Addressing issues such as transportation infrastructure, poorly-sited buildings, and flood control measures is not enough to engage local people and create a sense of a place. Design solutions need to address problems beyond the physical setting, promote social equality, provide sustainability at different levels, and celebrate the collective local values and traditions. By following the developed design guidelines, designers and planners should be able to create a place with an authentic identity that is treasured by local people.
References:


