

[re]:Connecting the Edge
*Remaking the Small Town Post-Industrial
Waterfront on Vancouver Island*

by

Stefan M. Schulson, BSc, BAS

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Carleton University
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Abstract

The small towns of Vancouver Island share many common traits, largely arising from their origins as waterfront based, single-industry towns. The only means of access to the island was - and to a large extent still is - via the water. As such the town centers were established away from the water's edge, while the shoreline was the domain of industrial activity and transport. However, the reliance on a resource-based economy has gradually diminished over the last fifty years, and with it the need for a waterfront dominated by industrial activity.

The Town of Ladysmith on the southeast coast of Vancouver Island is one such place, and this thesis will explore the means by which the redevelopment of the town's waterfront lands could take place to create a unique and sustainable addition to the existing town.

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To Tessa, my little four-legged buddy, for quite literally standing (and often sleeping) by my side while I worked.

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E.J. Hughes

Part 1. Introduction

Along the avenue which skirts the river, the docks and ships form the teeth of a comb as far as you can see. The arrangement is clear, logical, perfect: nevertheless, it is hideous, badly done, and incongruous; the eye and the spirit are saddened. Ah! If the docks could be done over again!

- Le Corbusier

Writing about New York after visiting the city in the early 1940s

The docks are being done over again! Le Corbusier's visit was thirty years too soon to see the dramatic changes that have been undertaken on the shores of Manhattan. The barrier of industrial buildings that blocked the city's access to its waterfront have been removed, along with the rail lines and elevated highways that accompanied them. In their place are seawalls and parks and architecture that engage rather than obstruct the water. The city has reclaimed its waterfront, connecting the urban fabric to the shoreline to make it an amenity to be enjoyed by citizens and visitors alike.

The urban waterfront has been the basis for settlement in North America since European settlers arrived over five hundred years ago. The need for safe and protected harbours in which to anchor the ships that were the only connection to the world they left behind on the other side of the Atlantic Ocean was paramount. Settlements quickly grew on shore, expanding outwards from the first piers that were built at the water's edge. As the towns grew, so did the need for bigger port facilities to handle the increased flow of goods and people. The waterfront was gradually built up and altered to accommodate the needs of industry, pushing further and further out into the harbour. In the process, the urban core was separated from the waterfront that had been the reason for settlement in the first place. This separation was especially exacerbated by the rise of the Industrial Revolution and the resultant transportation technologies that accompanied it; rail lines with direct access to the ports added another barrier between the city and the water.

However, just as transportation technologies fuelled the industrial growth of the urban waterfront, they also led to the decentralization of industrial activity. After World War II, automobiles became readily available, and combined with the explosion of suburban developments and the ever-expanding highway system, it became significantly easier for workers to live outside the central city in suburbia and commute into the city to work. However, with a readily available suburban workforce, as well as parcels of land large enough to handle the increased spatial needs of capital-intensive industries and container shipping, it was not long before industry joined in the migration out of the central city.

Left behind in the wake of this decentralization was an “interface zone of decline and decay”¹ characterized by outdated waterfront infrastructure and environmentally contaminated sites that held little value to the collective life of the city. Having been working areas since the cities were founded, waterfronts were avoided by the general populace. It wasn’t until the 1960s that North American cities began to rethink the role that waterfronts should play; no longer a resource exclusively dedicated to industrial production but rather one to be exploited for the betterment of urban life for all of its citizens. The highly visible swaths of post-industrial land at the urban perimeter represented a tremendous opportunity for more than just new urban infill; it was an opportunity to “create environments that reflect contemporary ideas of the city, society, and culture.”²

Boston, New York, Baltimore, San Francisco, Seattle, Toronto, Vancouver. These are but a few of the North American cities that have remade – and continue to remake – their urban waterfronts. But it is not only in large cities that the opportunity to reclaim these redundant urban spaces exists. Small towns whose existence depended on the activities that occurred at their waterfronts are now being presented with the opportunity to finally engage their coasts and waterways as civic amenities, not just as loci of economic activity.

¹ Marshall, R. (ed.). (2001). *Waterfronts in Post-Industrial Cities*. New York: Spon Press. (p. 7).

² See Marshall (2001). [Footnote 1]

The identities of small towns have traditionally been tied to the local industries and resources around which they were originally established. On Vancouver Island, for example, they are commonly referred to as being ‘fishing/logging/mining’ towns in relation to the industrial activity that took place at the waterfront. Towns were established in proximity to the water’s edge, but it was sawmills or fish processing plants that took center stage on the shoreline. Consequently, these small towns evolved with an internal focus onto Main Street, turning their backs to the water and the industrial infrastructure that dominated the foreshore.

As the North American economy continues its gradual shift away from industrial production, however, many small towns are confronting the fact that the natural resources that were once their lifeblood are no longer viable and the waterfronts that have always been dedicated to those resources have fallen into disuse. While some small towns – especially those in isolated locations – will inevitably wither away, those in closer proximity to larger urban centres have the opportunity to engage their waterfront fabric in much the same manner – albeit at a smaller scale – as larger cities have. One such place is Ladysmith, B.C., a small town on the southeast coast of Vancouver Island.

Since 1985, when the last of the train cars carried logs away, the Ladysmith waterfront has sat in a state of disuse; an obsolete, environmentally contaminated reminder of the town’s industrial past. However, the town itself has remained vital, growing in population as a haven for young families and retirees. This is largely due to its geographic location between the larger cities of Victoria and Nanaimo, as well as its proximity to the regional airport and the ferry terminals that serve Vancouver Island from the mainland. As such, the redevelopment of the waterfront lands has been identified as a key component of the town’s future growth.

The challenges in the redevelopment of this unused urban space are similar to those faced by larger cities: how to forge a meaningful link between the existing town and its waterfront in such a way as to meet both local and global sustainability initiatives while

at the same time retaining the inherent small-town identity that the citizens of the town value so deeply.

A recurring theme in waterfront redevelopment projects is that simply attempting to replicate what has worked in another city rarely meets with success. Rather, the most successful projects draw on the existing urban identity and local culture to arrive at unique solutions. They may take cues and principles from what worked elsewhere, but the end result is uniquely particular to its location.

Industrial townscapes reflect the working-class ethic of the citizens, growing incrementally and evolving gradually over long periods of time. This growth gives them their intrinsic character and is reflective of the values and identity of the community. The faces of the buildings reflect their evolution, and the coherence of the townscape has “more to do with the legibility of the relationship between heterogeneous parts than the similarity of homogeneous elements.”³ It is the intangible qualities of that heterogeneity that gives towns their richness and vibrancy.

The redevelopment of the Ladysmith waterfront will add a new piece to that composite history, and it will ultimately answer the question of whether or not Ladysmith is a waterfront town, or a town with a waterfront?

³ Deslauriers, H. Stovel, H. (1989). *Appropriate Design on Main Street: A Main Street Canada Technical Manual*. Ottawa, ON: Heritage Canada Foundation. (p. 9).

Part 2. Theory

2.1 Origins of the Industrial Waterfront in North America

The waterfront isn't just something unto itself; it's connected to everything else.

- Jane Jacobs

Since the arrival of the first European settlers in North America, the interface of land and water has been of utmost importance. The need for safe, protective and accessible harbours in which to anchor ships provided a starting point for the settlement and exploration of the New World. For hundreds of years, the only means of transporting people and goods between Europe and North America was by sea, necessitating a marine infrastructure that could accommodate large oceangoing vessels. The waterfront naturally became the focal point of activity in the new settlements, centers of not only economic activity, but also of information and ideas.

The growth of these early settlements into towns and cities was dependent on the capabilities of their ports to handle increased volumes of trade and activity, and followed a fairly typical pattern of development.⁴ Once harbours had been established, small jetties were built at a point where the inland trails converged at the shoreline. The jetties themselves were not large enough, nor was the water deep enough to accommodate the oceangoing ships. Instead, the large ships anchored in deeper waters and smaller boats were used to transport goods and cargo from ship to shore. Over time, a pattern of streets and buildings emerged, stemming out from the shoreline jetty and moving inland.

As the rate of maritime commerce increased, the physical requirements of ports also changed. Shorelines were stabilized with seawalls and bulkheads and larger piers were built so that ships could dock rather than having to anchor in the harbour. The shoreline was built up with warehouses and other industrial buildings while the streets near the

⁴ ULI – the Urban Land Institute. (2004). *Remaking the Urban Waterfront*. Washington, D.C.: ULI – the Urban Land Institute.

waterfront housed the services, office space and amenities associated with the shipping trade. This pattern of growth – expansion of port facilities, construction of warehouses – produced an industrial zone at the water’s edge, effectively pushing the city center further from the shoreline and physically disconnecting it from the waterfront.

This mode of urban development characterized the growth of towns and cities in North America from its first settlement by Europeans, and until the 1800s, this growth proceeded at a slow but steady rate. With the rise of the Industrial Revolution, however, and the subsequent advances in transportation technologies, North American cities experienced a rapid increase in urban growth which exacerbated the separation of the city from the water’s edge.

2.2 Transportation Technologies and Urban Development

In 1800, the population of the United States was five million people, 300,000 of which lived in urbanized areas, or around six percent. By 1900, the urban population had grown to over thirty million out of a total population of seventy-six million, or approximately forty percent. While the overall population grew by a factor of 15, the urban population had increased by a factor of 100⁵. A similar trend was evident in Canada: of a total population of 391,899 people in 1806,⁶ approximately 5 percent resided in an urbanized area, but by 1920, the urbanized population had surpassed that of the rural areas.

The main force driving urbanization was rapid population growth due to a high birth rate augmented by European immigration. Population growth alone, however, does not adequately explain the reason for the much higher rate of urban growth compared to that of the overall population.

⁵ Levy, J. (2011). *Contemporary Urban Planning 9th Edition*. Upper Saddle River, NJ: Pearson-Prentice Hall.

⁶ Statistics Canada. (2011). *Estimated Population of Canada, 1605 to Present*. Retrieved 2011-10-29 from <http://www.statcan.gc.ca/pub/98-187-x/4151287-eng.htm>

With the onset of the Industrial Revolution, advances in agricultural machinery improved the efficiency of farming activity and reduced the need for manual labour. While in the early 1800s up to 85 percent of the population was engaged in farming, that number had dropped to about 50 percent by the 1880s.

While the need for agricultural labour was decreasing, there was a subsequent increase in the area of factory production. Workers migrated from rural farms into centralized urban areas to work in the factories. The rise in factory work concentrated populations at centralized points, thereby stimulating the growth of towns and their associated amenities.

The growth of cities was further fuelled by new modes of transportation. The advent of railroads and steamships extended the reach of cities to obtain raw materials and agricultural products. This, in turn, increased their capabilities to support a larger population base. In the late nineteenth and early twentieth centuries, population densities reached unprecedented levels, much higher than are seen today. For example, the island of Manhattan was home to approximately 2.2 million residents in 1900, with an average density of 100,000 people per square mile⁷, or 156.25 people per acre. By the year 2000, Manhattan's population had dropped to around 1.5 million people for an average density of just over 68,000 people per square mile (106.5 people per acre).

Transportation technologies were also largely responsible for the form in which urban areas developed. Water transportation in the early 1800s was by far the most economical mode of transportation. The cost of transporting freight by canal boat was about one-tenth that of transporting it overland by horse and wagon,⁸ and the costs of transporting freight by sailing vessel was even less than by canal boat. Because of this cost

⁷ See Levy [Footnote 5]

⁸ See Levy [Footnote 5]

differential, towns and cities with direct access to ports grew at a much higher rate than those without.⁹

Because economic activity was already concentrated in the areas directly adjacent to the water, the need for more usable land to handle growth led to the infilling of the foreshore area. Shorelines were extended into harbours by filling the space between existing piers and docks with soil. While much of the fill came from the dredging of the waterways to increase their depth, it also came from excavation of sites on land and the disposal of industrial waste.

As large new piers were built to handle the increased activity city centers were further separated from the water. The industrial waterfront was built out in layers, the old marine infrastructure was pushed inland by the outward expansion into the harbour.

This concentrating effect was furthered by the advent of the railroads. The cost of transporting goods and materials overland by rail was significantly less than by horse and wagon; as such, a rail-served site offered significant cost savings to manufacturers. Since the majority of industrial activity was located along the waterfront, rail lines were often brought into the port area. Along with the natural affinity between the rail lines and the activities of the port, geography contributed to establishing rail lines along the water's edge. The land along the waterways was typically very flat and flood prone; not only was the land cheap to acquire due to the threat of flooding, it also required little in the way of blasting or excavation to achieve the appropriate grades.

This domination of the waterfront by industry and transportation effectively created an interface zone between the water and the rest of the urban area, prohibiting any direct connection with the waterfront.

⁹ For discussion of the relationship between transportation costs and the growth of cities in the late eighteenth and early nineteenth centuries, see Alan Pred, *City Systems in Advanced Economics*, John Wiley, New York, 1977.

2.3 Decentralization and the Industrial Waterfront

Just as advances in transportation facilitated the densification of urban areas, further advances also led to its decentralization. By the 1880s, advances in electric motor technology and power transmission had made the electric streetcar a viable mode of urban transportation. This had the immediate effect of expanding the geographic boundaries of the city, whose radius effectively doubled.¹⁰ New tendrils of urban growth pushed into the outlying areas, marking the beginning of suburbanization.

At the time, this decentralization of city centers was a major goal for both citizens and planners. Due to the lack of personal and public transportation, the primary means of locomotion for urban residents was walking, and residences were concentrated within the urban core in close proximity to the industrial areas where people worked. The problem with this was that water treatment and sanitation infrastructure were minimal at best, making these congested areas a breeding ground for disease and illness. As a result, most large North American cities in the nineteenth century had higher death rates than birth rates. The population only continued to grow due to the in-migration of people from rural areas and from overseas.¹¹ In light of this, the suburban sprawl that is now viewed so contemptuously was welcomed as a massive improvement over congested urban neighbourhoods.

The most significant contributor to the decentralization of the urban population was the introduction of the automobile. As cars became more readily available, the need to live within close proximity to workplaces declined, accelerating the pace of suburban expansion. Further facilitating the spread of the city was the building of highways. While originally conceived as a means for the urban middle class to access the countryside in their newly acquired automobiles, the more profound effect of road building was to make it easier to commute between the suburbs and the city.¹²

¹⁰ See Levy [Footnote 5]

¹¹ See Levy [Footnote 5]

¹² See Levy [Footnote 5]

The rate of suburbanization in North America proceeded at a steady, yet moderate rate through the 1920s until the Great Depression put a halt to new construction. The subsequent outbreak of World War II and the concentration of resources for the war effort meant that the very few houses were constructed in the '30s and '40s. Coming out of the war, the United States and Canada faced a housing shortage exacerbated by the baby boom and the arrival of European immigrants. In order to meet the demands of a growing population, the federal governments of both countries began underwriting mortgages for suburban homes, effectively encouraging the migration of the middle-class population out of the city and into the suburbs. The combination of the growing population, readily available financing, and an ever-expanding highway system fuelled urban sprawl and the decentralization of the core.

With the migration of the population out of the central city, it was only logical that industry would follow suit. As early as 1900, manufacturers began to abandon their downtown locations to move to the periphery. The consolidation of industrial processes necessitated larger facilities than were available at the waterfront; so new factories were built in areas serviced by major train junctions. Raw goods and materials still arrived at the downtown ports, but were shipped out to suburban locations to be processed.

After World War II, the rapid expansion of the highway system led to the rise of the trucking industry, making suburban locations for industry an even more viable option. With the development of containerized shipping, traditional urban waterfronts no longer had the physical space required.

The aggregate result of this mass migration was large swaths of waterfront land degraded by years of environmental contamination with little to no connection to the cities they had spawned. These abandoned lands were appropriated for other uses such as parking lots, storage areas, or in many cases as the sites for massive highway projects. It was not until the 1960s that cities in North America began to look at ways to renew their waterfronts and reengage them as an integral part of the urban experience.

2.4 Redevelopment of Post-Industrial Waterfronts

Dull, inert cities, it's true, do contain the seeds of their own destruction and little else. But vital cities have marvelous innate abilities for understanding, communicating, contriving, and inventing what is required to combat their difficulties... Lively, diverse, intense cities contain the seeds of their own regeneration, with energy enough to carry over for problems and needs outside themselves.

- Jane Jacobs

The Death and Life of Great American Cities

The contemporary city is the result of a complex mix of social and economic forces, and has resulted in a “diffused urban structure; a city pieced together from heterogeneous elements that when combined create a homogeneous aesthetic.”¹³ At the interfaces of this agglomeration of parts, there is often a loss of meaningful relationships between adjacent urban functions; nowhere is this disconnection more prevalent than between the central city and the post-industrial waterfront.

As the economy in North America continues to shift from its traditional industrial base to a knowledge and service based one,¹⁴ cities around the continent, and around the world for that matter, have recognized the potential of their post-industrial waterfronts to become the “catalysts for dramatic urban change and renewal.”¹⁵ Cities have the opportunity to create great urban spaces that truly reconnect the central city with the natural amenity that was the impetus for their initial founding and in doing so, enhance the quality of life for its populace.

Cities face numerous challenges in the redevelopment of these obsolete industrial spaces at the water's edge. Physical impediments such as highways and rail lines that once

¹³ See Marshall (2001). [Footnote 2]

¹⁴ Florida, R. (2008). *Who's your city?: how the creative economy is making where to live the most important decision of your life*. Toronto: Random House Canada.

¹⁵ See ULI [Footnote 1] pp 22-45. (Note: Some of the principles outlined were based on presentations made at a conference entitled *Waterfronts in Post-Industrial Cities*, which was held at the Harvard Graduate School of Design, October 7-9, 1999.)

served industry present some of the biggest obstacles. Similarly, old warehouses and factories often dominate the land adjacent to the shoreline and unless they are appropriate for adaptive reuse, must be removed. Wharves and piers that serviced these buildings can also hamper redevelopment, as they are typically large structures that may have limited potential for future use without significant structural upgrades. Compounding the infrastructural obstacles to redevelopment is that waterfront sites, being at the margins of the urban area, are often quite irregular in their shape. While cities grew within the regulating boundaries of the street grids, the grid ended at the inland edge of the industrial zone. Buildings along the waterfront following the shoreline created irregularly shaped parcels of land.

Decades of industrial activity have also taken a toll on the land and marine ecosystem. It was not until 1972 that the United States Congress passed the Clean Water Act, mandating that states clean up their waterways; prior to that, the shorelines of industrial sites were regularly filled in to expand the usable land area, and all too often a large component of the fill that was used was industrial waste. Combining this with the pollutants generated by factories and other industrial activities, waterfront lands are invariably characterized by extensive environmental degradation requiring significant remediation prior to redevelopment.

There are also significant psychological barriers to addressing the redevelopment of waterfront lands. Throughout the lifespan of the city, these lands have been devoted to industrial activity that the majority of citizens would have had minimal opportunity to engage. Waterfront areas did not support a diverse range of activities and this lack of variety, especially the shortage of residential activity, contributed significantly to the perception of the waterfront as dirty and dangerous.

Industrial zones along the waterfront created a barrier between the city and the water, forming what Jane Jacobs referred to as “border vacuums.”¹⁶ The single-use nature of

¹⁶ Jacobs, J. (1961). *The Death and Life of Great American Cities*. New York: Random House.

the waterfront formed a 'dead-end' to city streets; here they met a "terminus of use"¹⁷ in that the fabric of the city did not extend across that interface, and consequently very few users crossed it. Because of this, areas adjoining this border became ones of reduced use, furthering the disconnection between the city and waterfront. This effect is amplified by the presence of transportation infrastructure, such as highways and rail lines because the land alongside them is even more undesirable to occupy. These areas lack in urban vitality and tend to become increasingly run-down as time goes on.

Despite these obstacles, however, post-industrial waterfronts have an unrivalled potential not only for redevelopment, but for remaking the image of a city. They are highly visible sites at the "magnified intersection[s] of a number of urban forces"¹⁸ and represent a vital opportunity to bring together the economic, ecological and social imperatives that are the foundations of sustainable development.

As no two cities are exactly alike, neither are urban waterfronts. Each has a unique identity, shaped by the natural geography and the cities and cultures that grew around them. As such, there is no global solution to redevelopment. Attempting to apply what has worked in one city to the next is seldom a successful strategy. The most successful waterfront redevelopment projects transcend globalization and standardization to capture the unique identity of the city, its history, and its culture. They capitalize on the "eccentricities of the physical setting, the juxtaposition of elements, the relationship between contrast and harmony, and the complexity that comes from multiple experiences."¹⁹

Urban waterfront redevelopments are areas of high urban complexity, and the cities which have had the most success with these projects have not only followed good urban design practice, but have also incorporated a number of the principles that Alex Krieger

¹⁷ See Jacobs [Footnote 16]

¹⁸ See Marshall [Footnote 1]

¹⁹ Fisher, B. (2004). *Waterfront Design*. (p. 47). In ULI – the Urban Land Institute. (2004). *Remaking the Urban Waterfront*. Washington, D.C.: ULI – the Urban Land Institute.

outlined in his essay *The Transformation of the Urban Waterfront*.²⁰ These principles provide a framework for analysis of the modern, post-industrial waterfront. A few of the key criteria are worth highlighting.

- Krieger senses the need for a “plurality of functions”²¹ in the relationship of the waterfront to the city and to its own regeneration. Essentially, the waterfront maintains its character as an interface zone between the water and the city while “reinforcing the attributes”²² of the central city. Then, as consolidation of the shoreline redevelopment occurs, the waterfront becomes a “vanguard of change”²³ for the development of the adjacent inland neighbourhoods and out to more peripheral areas.
- Krieger promotes a multiplicity of activities in the redeveloped waterfront. A diverse mix of residential, economic-productive, cultural, entertainment, leisure and transportation activities, and is crucial to the success of waterfront redevelopments. Naturally, finding the right mix is not an easy task, but it should not be dominated by a single function. These new areas, finally re-appropriated for public use, should not rely on large commercial structures in the ‘commerce and entertainment’ genre to attract interest, but rather encourage the natural urban complexity that arises from a diverse range of activities to draw visitors in.
- Krieger advocates a “co-presence of public and private”²⁴ elements as part of the internal development mix. This refers to:
 - Activities typically attributed to the public domain (government offices, museums, community centres, etc.) existing alongside those operated by the private sector (hotels, restaurants, residences, etc.).
 - The joining of public spaces (parks, plazas, roads, pathways) with private spaces (gardens, clubs).

²⁰ Krieger, A. (2004). *The Transformation of the Urban Waterfront*. (pp 22-23). In ULI – the Urban Land Institute. (2004). *Remaking the Urban Waterfront*. Washington, D.C.: ULI – the Urban Land Institute.

²¹ Bruttomesso, R. (2001). Complexity on the Urban Waterfront. (p. 43-44). In Marshall, R. (ed.). (2001). *Waterfronts in Post-Industrial Cities*. New York: Spon Press.

²² See Bruttomesso [Footnote 21]

²³ See Bruttomesso [Footnote 21]

²⁴ See Bruttomesso [Footnote 21]

- The management of the services on the waterfront, so that the different systems and practices of managing amenities at play in the area re-creates the “typically urban mix of public and private activities.”²⁵

These principles of urban waterfront redevelopment are closely tied to those of neighbourhood revitalization in general: increased density, a mix of uses, and spaces for social interaction. New Urbanists, for example, promote “the regional planning of open space, context-appropriate architecture and planning, and the balanced development of jobs and housing”²⁶ and believe that the strategies of New Urbanism are an antidote to the traffic congestion and urban sprawl generated by conventional post-war planning. They embrace the principles of traditional neighbourhood design (TND) and transit-oriented design (TOD) as well as the theories of regionalism, environmentalism and the broader concept of Smart Growth. As an urban planning and transportation theory, Smart Growth promotes compact, walkable, mixed-use urban centers. It essentially advocates a return to the fundamental development practices of traditional pre-WWI neighbourhood development, albeit in a more formalized context.

The redevelopment of the urban waterfront can be seen as a partial vision for the city as a whole – an opportunity to integrate the void left over by years of industrial activity with the larger urban network and to rediscover the natural amenity the city was built on. While not a completely blank canvas, post-industrial waterfronts are among the largest urban sites on which to experiment with sustainable planning practices – such as New Urbanism, TND, and Smart Growth – for the benefit of the city as a whole.

²⁵ See Bruttomesso [Footnote 21]

²⁶ Wikipedia. (2011). *New Urbanism*. Retrieved 2011-09-23 from http://en.wikipedia.org/wiki/New_Urbanism

2.5 Case Studies

2.5.1 Boston, Massachusetts

Sucky bottom with green ooze.

- Note on an old navigator's map of Boston Harbour

Since its founding in 1630 by Puritan colonists from England, the city of Boston has undergone a nearly continual redevelopment of its waterfront; there are very few cities in the world (with the possible exception of Hong Kong) that have undergone as substantial a change to their natural geography as Boston has. The modern footprint of the city bears little resemblance to the original settlement on the Shawmut Peninsula, a “tiny tadpole of land ... [clinging] by its tail to a vast unknown continent.”²⁷ Today, four out of every five acres (1.6 out of two hectares) in central Boston is the result of human intervention.



Fig. 2-1
The Landmass of Boston circa 1640

²⁷ Campbell, R., Vanderwarker, P. (1992). *Cityscapes of Boston: an American city through time.* (p. 1) New York: Houghton Mifflin Company.

The original city was built on the steep slopes of Beacon Hill within a few blocks of the bustling harbour. By the mid-1700s, a growing population and expanding seafaring economy led the city to push into the harbour. Land was created in two ways: “wharfing out” by filling in the spaces between wharves, and by filling the harbour with soil from the excavation of hillsides, which were being leveled to make them easier to build on. However, this was only the beginning of Boston’s land-making efforts.



Fig. 2-2
Landmass of Boston circa 1795

The first recorded filling for the sole purpose of land creation was in 1803 with the widening of the peninsula neck.²⁸ More infill projects followed, the largest and most famous of which was the filling of the Back Bay of the Charles River Basin. Between 1850 and 1900, nearly 600 acres of land were created in what was at the time a tidal salt marsh. (At the same time, across the Charles River in Cambridge, another 415 acres of land was created which is now the home of the Massachusetts Institute of Technology).

²⁸ Krieger, A. (2001). Reflections on the Boston Waterfront. In Marshall, R. (ed.). (2001). *Waterfronts in Post-Industrial Cities*. New York: Spon Press.

The creation of the Seaport District began even before the filling of the Back Bay, but was done in a more incremental manner and resulted in over 700 acres of new land. In the 1920s, infilling began for Logan Airport, eventually yielding another 750 acres. All told over 3500 acres of land have been created in the city of Boston in the past 200 years²⁹.

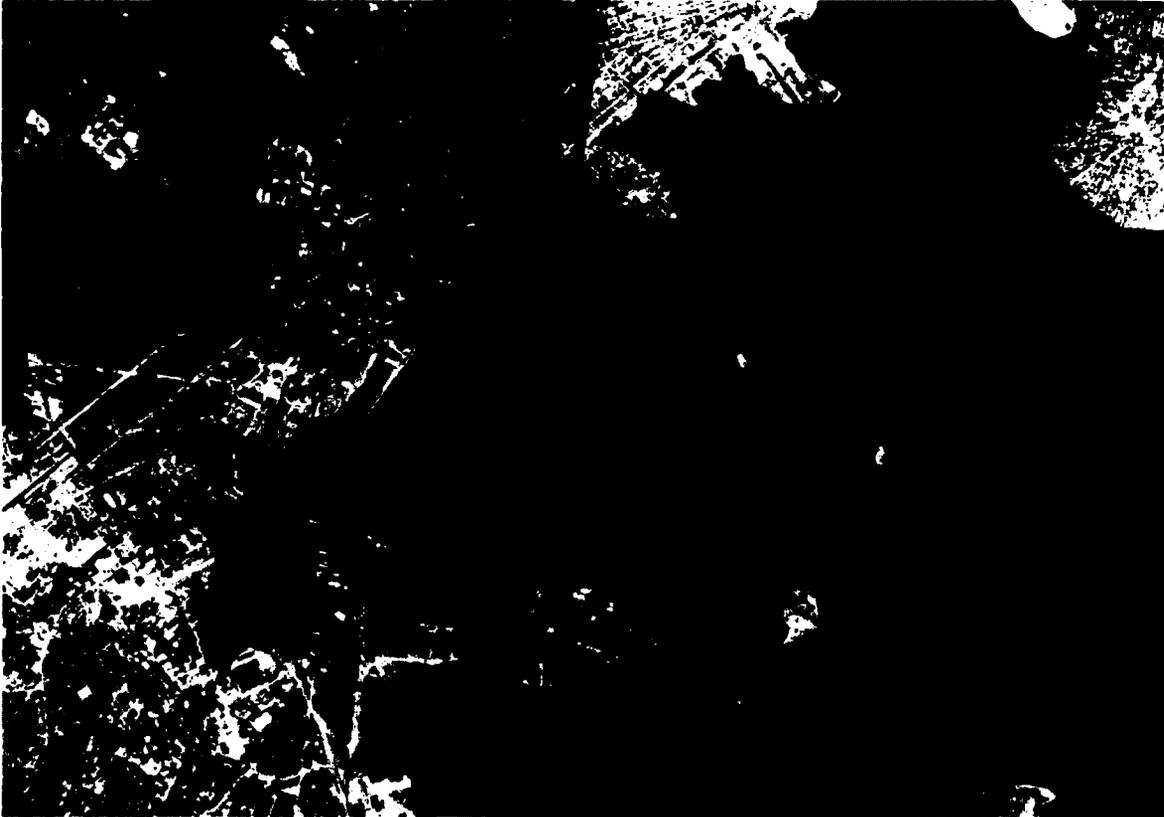


Fig. 2-3
Landmass of Boston circa 1850

While the constant metamorphosis of the city has yielded some remarkable waterfront environments, the ongoing extension of the city's edge means that some of these 'waterfront' buildings are now quite far back from the water's edge. Among the most notable is Quincy Market. In the 1820s, one of the town docks was filled in to create the land on which the market buildings were built. Prior to their construction, the wholesale produce market had been housed in the basement of the nearby Faneuil Hall. Effectively,

²⁹ See Krieger [Footnote 28]

the new buildings generated an urban renewal in the area as citizens flocked to the new marketplace.³⁰



Fig. 2-4
Boston's Quincy Market, with Faneuil Hall in the background, circa 1880

Other significant landfill neighbourhoods include the historic Back Bay district, a very distinctive residential area along the Charles River. This area was further enhanced in the 1930s with the construction of a portion of the Charles River Esplanade.³¹ Day Boulevard, Pleasure Bay, and Marine Park – a recreational park along the southern and eastern shores of the Boston Peninsula – resulted from Frederick Law Olmsted's work on the city's park system in the late 19th century.

³⁰ Interestingly, in 1976, developer James Rouse undertook the renovation of Boston's Quincy Market and Faneuil Hall as the first Festival Market in the United States. It featured shops, restaurants, and a large food emporium in the old market building. This project became known as the "quintessential inner-city rehabilitation project" and was a direct precursor to the Main Street revitalization programs that followed.

³¹ This esplanade was eventually extended into a continuous 29-kilometre-long public open space along both the Boston and Cambridge sides of the river.



Fig. 2-5
Boston's Charles River Basin, imagined as a continuous public open green space lined by residential districts, as depicted by Robert Gourlay in 1844, nearly a century before its full implementation.

As noted, buildings such as the Quincy Market found themselves set back from the waterfront as the city expanded further with the result that characteristically waterfront-type buildings were incorporated into the urban fabric. The expansion of the national freeway system after World War II imposed large roadways such as the “roaring corridor of the John F. Fitzgerald Expressway”³² that created another barrier between the city and its waterfront, effectively severing the connection between the two.

In the 1960s, the city began to address the separation of the city from its waterfront. Boston's central port had reached its peak as a shipping center during World War II, and with the advent of containerized shipping there was no longer the physical space necessary to accommodate the required infrastructure. As such, new port facilities were

³² Gastil, R.W. (2002). *Beyond the Edge: New York's new waterfront*. (p. 97). New York: Princeton Architectural Press.

built in the Seaport District in South Boston, and the central port infrastructure was left behind. This was symptomatic of the general trend towards suburbanization at the time and the deterioration of the central city in general. In an effort to reverse this trend, the city initiated the adaptive reuse and/or reconstruction of the central port area, transforming some of the oldest wharves in the city – Long Wharf, Central Wharf, Lewis Wharf as well as a number of others – from dilapidated sheds into modern waterfront neighbourhoods. This was one of the earliest waterfront revitalization projects in North America, beginning a trend towards restoring the waterfront as a civic amenity.

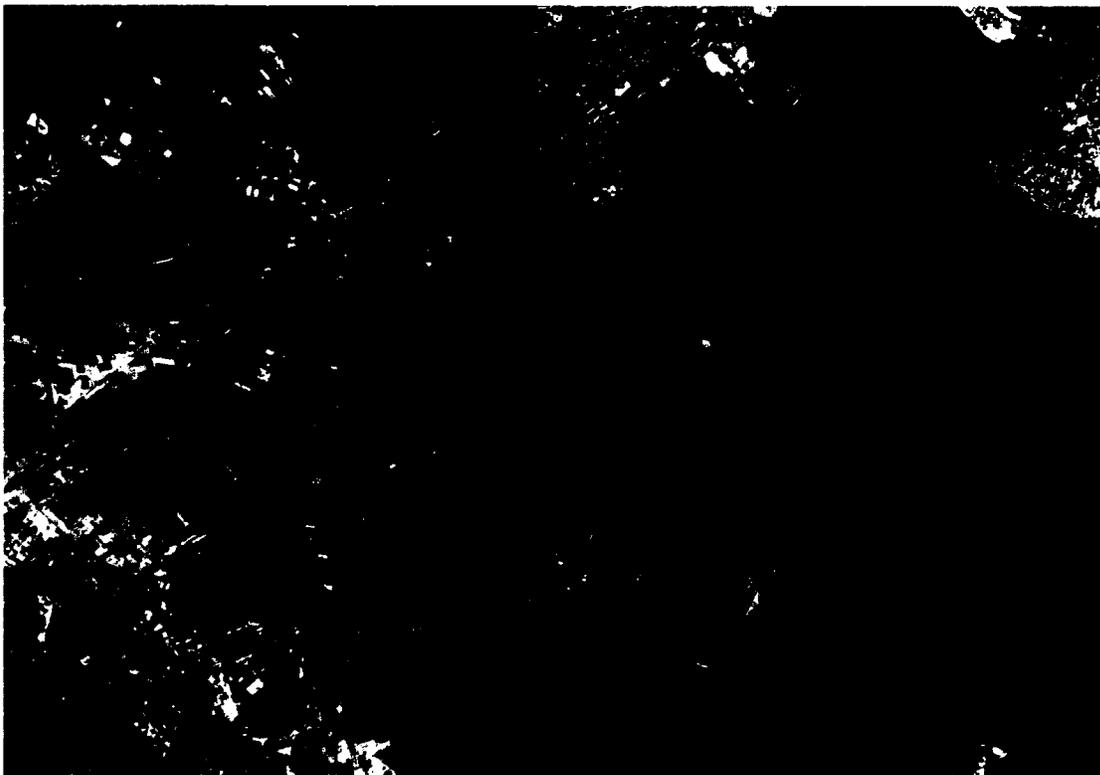


Fig. 2-6
Landmass of Boston circa 1890

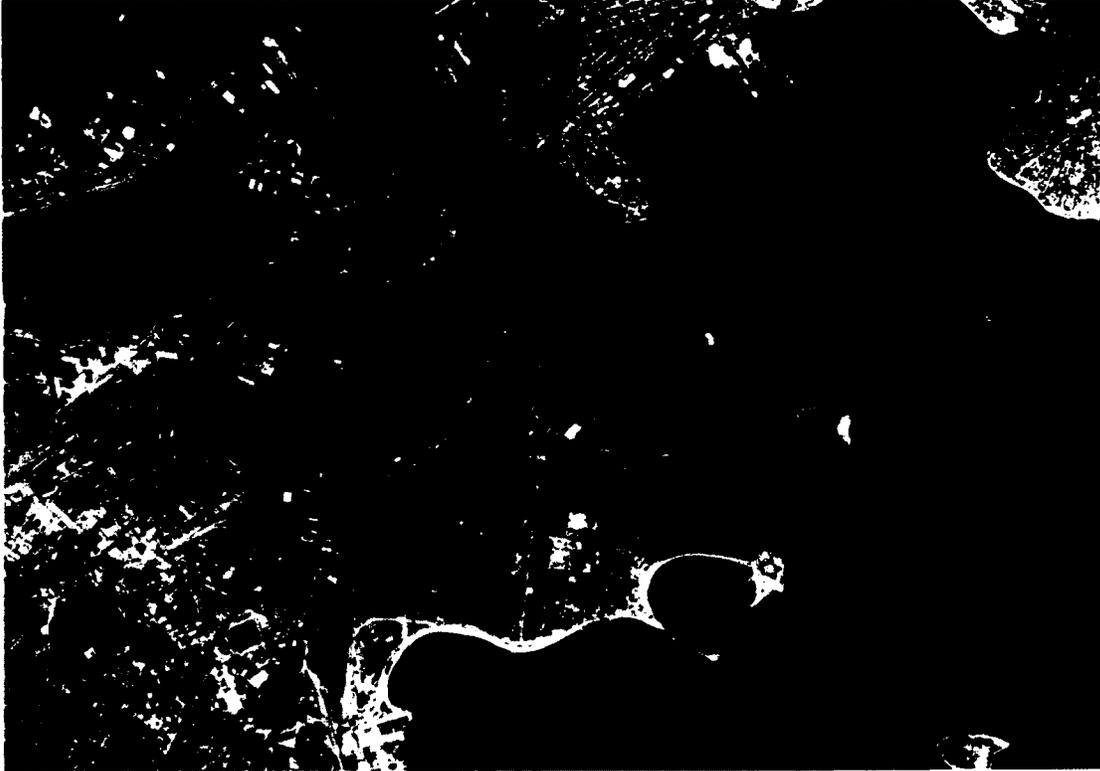


Fig. 2-7
Landmass of Boston circa 1910

Overseeing the harbour development is the Boston Redevelopment Authority (BRA), an agency “created and empowered by state legislation to serve as the city’s urban renewal authority, industrial development corporation, and planning board.”³³ The BRA is a prominent landowner on the downtown, Charlestown and South Boston waterfronts, and is responsible for waterfront zoning and project reviews. The BRA works closely with the state and the Massachusetts Port Authority (Massport) on the planning, regulation and redevelopment of the Boston shoreline.

Guiding the decisions of the public authorities is the statute known as Chapter 91 that originates with the Colonial Ordinances of 1641-1647.³⁴ Chapter 91 is the “statutory expression of the ancient legal doctrine that the tidelines ... are held in trust by the public,” and requires that

³³ Cook, A., Marshall, R., Raine, A. (2001). *Port and City Relations: San Francisco and Boston*. (p. 124). In Marshall, R. (ed.). (2001). *Waterfronts in Post-Industrial Cities*. New York: Spon Press.

³⁴ See Cook et al. (p. 125) [Footnote 33]

“the tidelands be used only for water-related activity or otherwise serve a proper public purpose, and that in any event the right to “fish, fowl, and navigate” are reserved to the public.”³⁵

For over three hundred years, Chapter 91 had been “applied almost exclusively to the placing of piers or fill in “flowed tidelines.”³⁶ However, a 1979 ruling by the state’s Supreme Judicial Court found that

“even tidelands filled long ago remain subject to a requirement that they serve a proper public purpose and accommodate a continuing public right of use and enjoyment.”³⁷

In light of this, Chapter 91 was re-codified in the 1980s in order to help shape the infrastructure, land use and development issues along the entire Massachusetts coastline.”³⁸ The regulations outlined by Chapter 91 created a set of guidelines, the key points of which include³⁹:

- *Viable maritime industrial sites, particularly those with deep-water berths, are preserved for maritime industrial use.*
- *Everywhere else, the watershed and the immediate shoreline are reserved for water-dependent uses, including water transportation and public access.*
- *Developers must provide uninterrupted pedestrian access to the shoreline, supported by ample view corridors, convenient connections to adjoining streets, and a welcoming program of signage and site management.*
- *Buildings on piers over the water, and the ground floors of buildings on filled tidelands within 100 feet of the water, are reserved for ‘facilities of public*

³⁵ See Cook et al. (p. 125) [Footnote 33]

³⁶ See Cook et al. (p. 125) [Footnote 33]

³⁷ See Cook et al. (p. 125) [Footnote 33]

³⁸ See Cook et al. (p. 125) [Footnote 33]

³⁹ See Cook et al. (p. 126) [Footnote 33]

accommodation' – retail, restaurant, hotel, civic, and other uses which welcome the public.

- *The massing and layout of mixed-use, non-water-dependent projects must allow maximum public use and enjoyment of the tidelands.*

Since then, the city has continued with its waterfront metamorphosis, constantly adding new pieces to its perimeter. The Rowes Wharf mixed-use complex, designed by Skidmore, Owings & Merrill, opened in 1987 and is notable for the large portal cut through the middle of the building framing a view of the water from the city (Fig. 2-8). In the 1990s, Fan Pier was redeveloped. The pier had been used for loading coal and sat at the edge of the declining South Boston waterfront. The most significant building on the site is the John Joseph Moakley United States Courthouse and Harborpark, completed in 1998 by Pei Cobb Freed & Partners (Fig. 2-9).



Fig. 2-8
View of the portal through the Rowes Wharf mixed-use complex, designed by Skidmore, Owings & Merrill



Fig. 2-9
John Joseph Moakley United States Courthouse and Harborpark at Fan Pier, completed in 1998
by Pei Cobb Freed & Partners

One of the most significant measures the city undertook to reconnect the city with the waterfront was the removal of the elevated John F. Fitzgerald Expressway (a.k.a. the Central Artery) and reroute it under the city through a tunnel. This is familiarly known as the Big Dig. When constructed, the expressway “displaced thousands of residents and businesses, and physically divided the historical connection between the downtown and market areas and the waterfront.”⁴⁰ While the Big Dig was extremely controversial, plagued by “escalating costs, scheduling overruns, leaks, design flaws, charges of poor execution and use of substandard materials, criminal arrests, and even four deaths”⁴¹ it did serve to remove the physical barrier that had separated the city from its waterfront.

The current focus of waterfront redevelopment in Boston is the South Boston Seaport District, a challenging, complex, and controversial project. The area has long been home to the city’s seaport economy, dominated by the container port, cruise ship terminals, marine industrial parks and the seafood industry. However, with the construction of the

⁴⁰ Wikipedia. (2011). Big Dig. Retrieved 2012-03-10 from http://en.wikipedia.org/wiki/Big_Dig

⁴¹ Wikipedia. (2011). [Footnote 40]

Boston Convention and Exhibition Center (BCEC) and the subsequent influx of new hotels, luxury housing, parks and other amenities (over 20 million square feet of new development are planned), there is a concern as to how this will affect the seaport economy, and whether or not the two can coexist. Further complicating things is the proximity of the site to the South Boston community, a working-class, predominantly Irish-American neighbourhood that will be directly affected by the redevelopment of the area.

However, Boston has faced similar situations in its past, and has an impressive record in earlier waterfront renewal initiatives. The city has long “eschew[ed] conventional wisdom while producing striking and distinct environments” and these past successes should put the city in a position to reconcile public concerns and competing visions for the Seaport District.

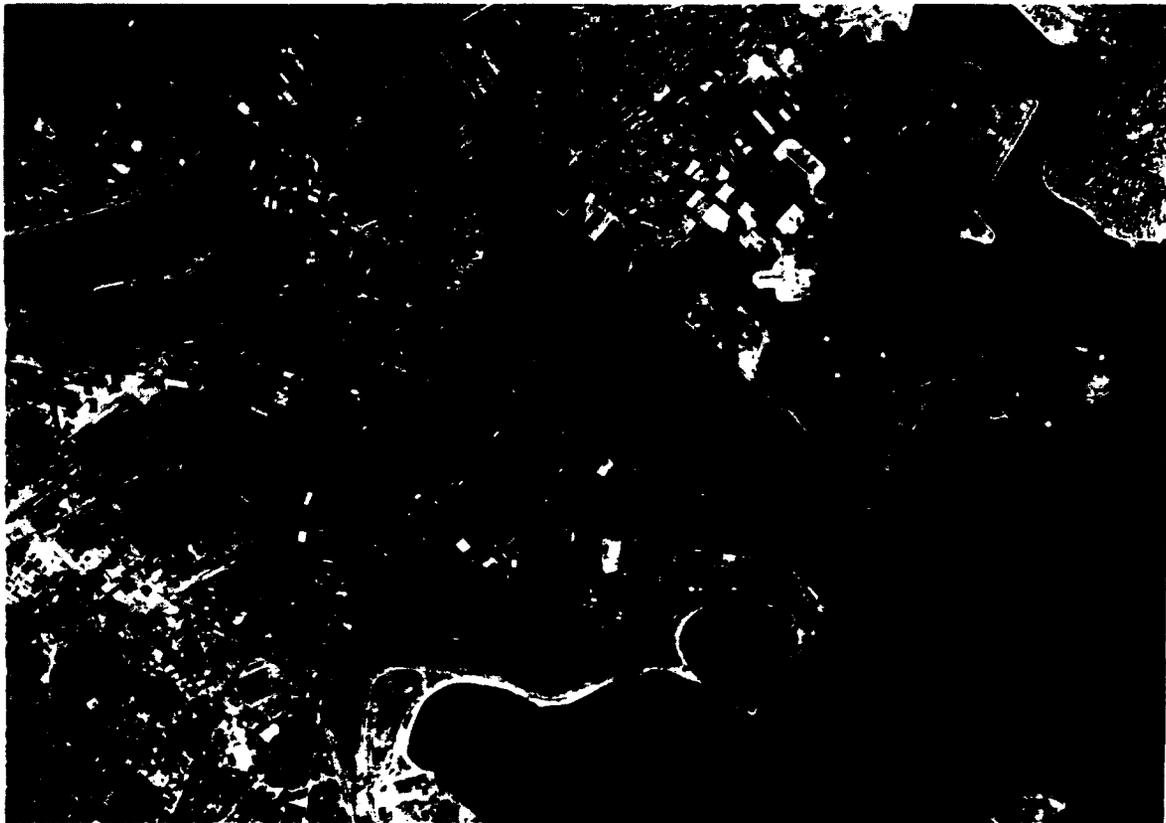


Fig. 2-10
Landmass of Boston circa 1985

2.5.2 New York City

If they but knew it, almost all men in their degree, some time or other, cherish very nearly the same feelings towards the ocean with me. There now is your insular city of the Manhattoes, belted round by wharves as Indian isles by coral reefs--commerce surrounds it with her surf.

- Herman Melville

Moby Dick

Much like the city of Boston – but to nowhere near the same extent – the waterfront of New York City has undergone significant alterations since the Dutch settled in lower Manhattan. Although the colonists chose the site for its natural geographical attributes, they altered the shoreline, building docks and bulkheads out into the harbour. As was the case in Boston, the fill used to create those first bulkheads came from the leveling of land and the excavation of housing foundations. Dredge spoil became the main landfill material with the development of the suction dredge in the late nineteenth century.⁴² By 1800, the southern tip of Manhattan had been almost completely ringed with bulkheads and landfill, creating almost 729 acres of land.⁴³ (Refer to Fig. 2-11 and 2-12)

⁴² Squires, D., Bone, K. (1997). *The Beautiful Lake: The Promise of the Natural System*. In Bone, K. (1997). *The New York Waterfront: Evolution and Building Culture of the Port and Harbor*. New York: The Monacelli Press.

⁴³ See Squires et al. [Footnote 42]



Fig. 2-11
Map showing the high and low water marks and original city grants

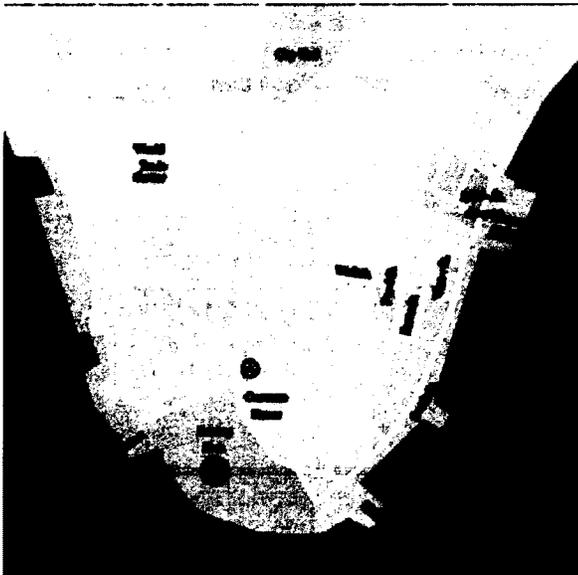
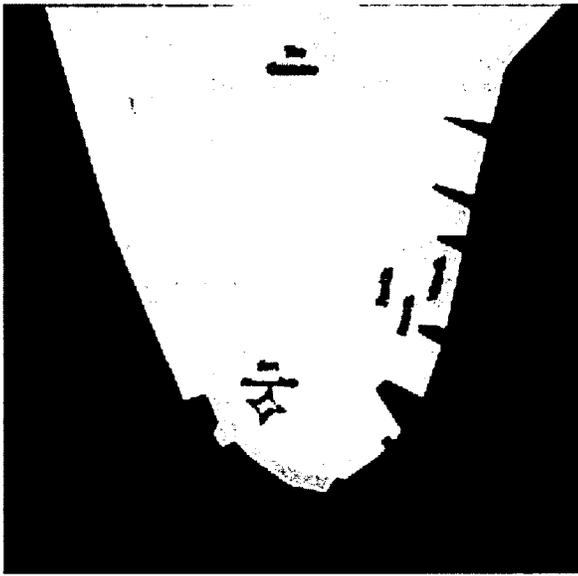
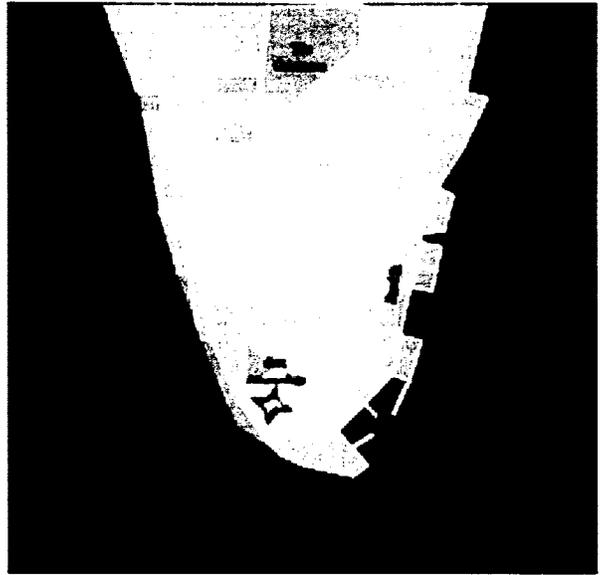
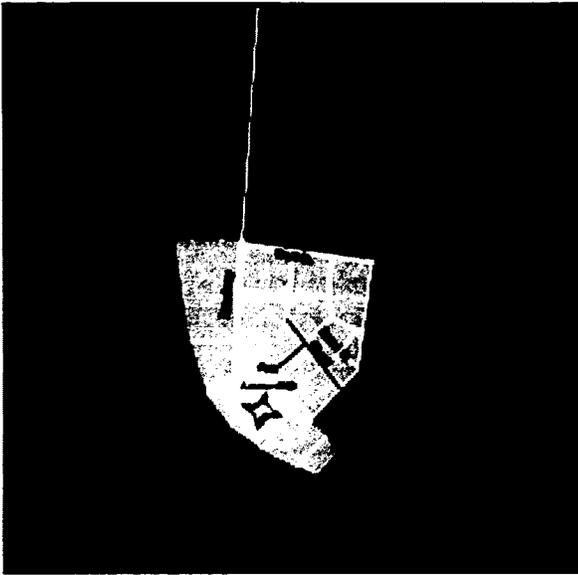


Fig 2-12
Maps showing the expansion
of the lower Manhattan shoreline
from 1660 to 2004

As the city expanded to the north, the tidal marshes were gradually filled to create the space for more marine infrastructure. It was not until the enactment of the Federal Rivers and Harbors Act in 1888 that the extension of land into the East River was even regulated. (After that, the United States Army Corps of Engineers became the regulating body responsible for setting the limits of pier construction and landfill).⁴⁴

In 1870, New York's waterfront – consisting of the banks of the East River, the Harlem River, and the North (or lower Hudson) River – came under the jurisdiction of a single regulatory body, the New York City Department of Docks. This department was established to “formulate a master plan for the waterfront and to oversee its systematic development.”⁴⁵ The city and its newly formed department opened the planning process to the public, announcing a series of hearings to which it

“invited all persons interested in inaugurating, in the harbor of New York, a proper system of wharves and piers, or who have special plans for the improvement of the waterfront... [including] a new system of wharves, piers, docks, basins, and slips, which should accommodate the present commerce of the city and harbor, and should provide for the future expansion thereof, and for the facilitation of the transportation of freight along the waterfront, so as to render the whole waterfront of the city available to the commerce of the port.”⁴⁶

This call for public input yielded over seventy submissions from individuals and organizations. After much consideration, the city and the department chose the plan devised by the department's engineer-in-chief, General George Brinton McClellan.⁴⁷ The plan called for the “creation of landfill along the edge of Manhattan upon which to lay out sufficiently wide river-streets, and proposed a masonry riverwall to encircle the

⁴⁴ See Squires et al. [Footnote 42]

⁴⁵ Betts, M.B. (1997). Masterplanning: Municipal Support of Maritime Transport and Commerce 1870-1930s. (p. 39). In Bone, K. (1997). *The New York Waterfront: Evolution and Building Culture of the Port and Harbor*. New York: The Monacelli Press.

⁴⁶ Department of Docks, 30 April 1871, pp. 10-11.

⁴⁷ Officially adopted in 1871, the plan was completed by 1916, vastly changing the nature of the New York Harbour. (61,962 lineal feet of riverwall was built by the Department of Docks, 31,940 feet built by other city departments, and 11,925 feet built by private parties.

island with wood piers at given intervals.”⁴⁸ (Refer to Fig. 2-13) The legacy of the Department of Docks, while no longer visibly evident, is reflected in the modern contour of Manhattan: the extensive land-filling and miles of riverwall that retain it increased the size of the island by thirty percent from when the first European settlers arrived.⁴⁹



Fig. 2-13
Concrete Bulkhead Construction, circa 1900

While the Department of Docks’ plans were ambitious, only a small portion of the scheme was ever realized. By the 1930s, large portions of the New York waterfront had been turned over to private real estate ventures and recreational uses, and maritime activity had begun to decrease. The city continued to plan for commercial activity through the 1960s, but the bold innovations proposed by the Department of Docks were relegated to the city archives.

⁴⁸ Betts, M.B. (1997). *Masterplanning: Municipal Support of Maritime Transport and Commerce 1870-1930s*. (p. 56). In Bone, K. (1997). *The New York Waterfront: Evolution and Building Culture of the Port and Harbor*. New York: The Monacelli Press.

⁴⁹ See Betts [Footnote 48]

From the mid 1800s through to the 1960s, nearly the entire shoreline of southern Manhattan, as well as the near shores of Brooklyn and New Jersey, was the domain of the commercial shipping industry. The waterfront was lined with wharves, pier sheds, ferries and freighters. While the South Street Seaport on Manhattan's East Side was slightly less industrialized and maintained some visual and physical access to the water, the more active West Side was "walled off behind warehouses and piers"⁵⁰ dedicated exclusively to commercial activity. The rail lines that serviced the shipping industry further divided the general public from the water; this separation was only increased when the rail lines were removed in the early 1900s and replaced by highways and parkways.

The construction of the highways around the perimeter of the city, however, did represent an acknowledgement of the diminishing role of industry along the Manhattan waterfront. New York's 'master builder,' Robert Moses, created thousands of acres of landfill at the water's edge to accommodate highways, parks and housing. Projects such as the Franklin Delano Roosevelt (FDR) Drive, which rose and fell to accommodate the ongoing industrial activity, remade the Lower East Side of the island into the fifty-one acre East River Park (renamed John V. Lindsay Park in 2001).

By the 1960s the 'break bulk' docks along the shorelines of Manhattan, Brooklyn, Hoboken and Jersey City – where freight was handled directly by longshoremen – had become redundant as containerized shipping became the norm. New docks at the Port Newark/Elizabeth Marine Terminal on Newark Bay had the physical space to accommodate the containerized freight, as well as easier access to the national rail lines, freeways, and air transport. (Smaller container ports were also built in Brooklyn and Staten Island). In 1963, the city passed a zoning resolution setting aside a third of its 578 miles of shoreline for manufacturing and shipping and opening up the rest of the waterfront for redevelopment. That same year, the Port Authority of New York and New Jersey made the decision to go ahead with construction of the twin towers of the World Trade Center. Minoru Yamasaki's design for the two four-million square foot towers would become symbolic of the new New York waterfront, a "white-collar vision for the

⁵⁰ See Gastil, R.W. (2002). [Footnote 32]

harbour, in which all the companies involved in shipping, freight, and international commerce would house themselves in glass towers, not on the waterfront but overlooking it.”⁵¹



Fig. 2-14
World Trade Centre, New York City

In 1972, the year that the World Trade Center’s south tower opened, the United States Congress passed the Clean Water Act. This Act mandated that states undertake the cleaning of their waterways in an attempt at remedying the legacy of over a hundred years of intense industrial use. The ultimate goal of this initiative was to improve the “ecological, rather than industrial, performance”⁵² of the harbour, thereby making it not only more viable for flora and fauna, but attractive to citizens at large. The Clean Water Act made it virtually impossible to get approval for new landfill projects. The last of New York’s large landfill initiatives had been completed just prior to the creation of the

⁵¹ See Gastil, (p. 38) [Footnote 32]

⁵² See Gastil, (p. 35) [Footnote 32]

act: the 92-acre site upon which Battery Park City would later be built, created with fill from the excavation of the World Trade Center site.

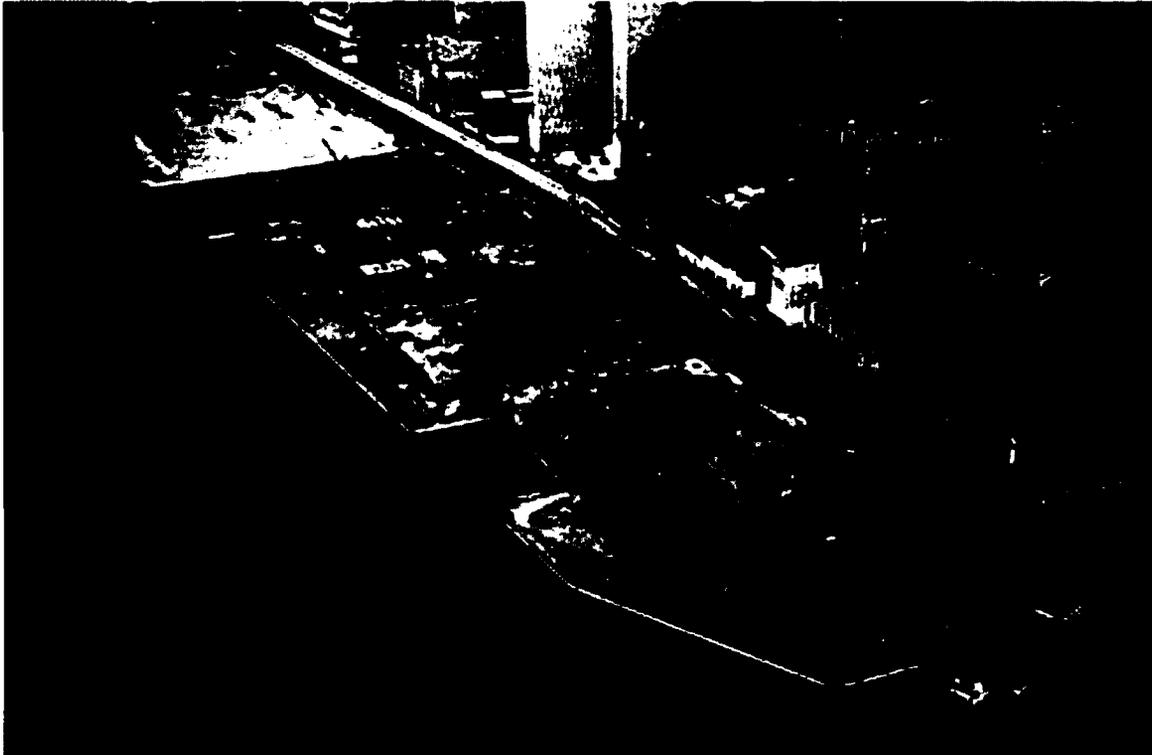


Fig. 2-15
The infill site for Battery Park City

The plans for Battery Park City and the World Trade Center (both conceived in the 1960s) marked the end of an era in which the waterfront was “perceived as a temporary condition... that could be filled in”⁵³ regardless of the long term environmental impacts. It also ushered in a new way of thinking about the relationship between the city and the waterfront, encouraging access, view and physical corridors that created a finer-grained perimeter edge of landscaped esplanades than the thick “ribbons of asphalt”⁵⁴ that Robert Moses had earlier imposed on the city.

⁵³ See Gastil, (p. 37) [Footnote 32]

⁵⁴ See Gastil, (p. 36) [Footnote 32]

Architects Alex Cooper and Stanton Eckstut developed a plan for Battery Park City that “interpreted the traditional street and block patterns of the city with flexible urban design guidelines,”⁵⁵ making the site a recognizable mix of ‘park and street.’ The plan shaped public space in response to site and program, and created an urban waterfront esplanade that offered the “possibility of pleasure without menace or desuetude for the city’s waterfront.”⁵⁶

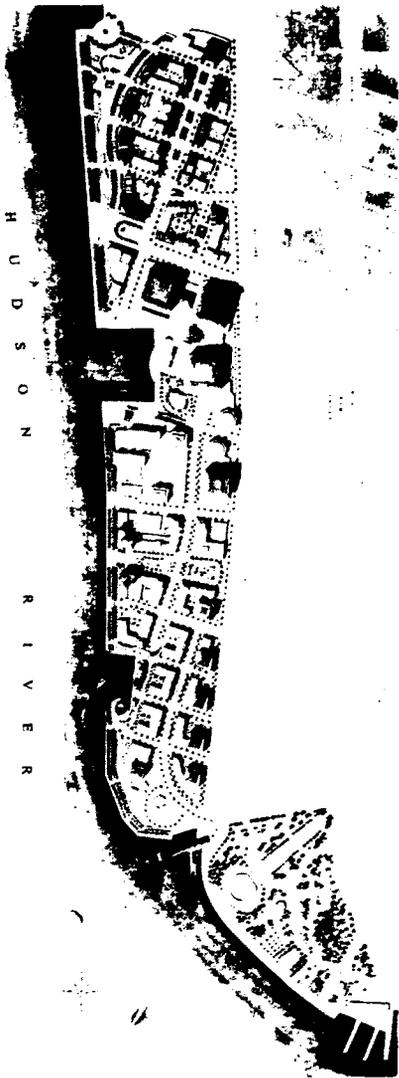


Fig. 2-16
Esplanade Plan, Battery Park City,
Manhattan, 1979, Cooper, Eckstut Associates

⁵⁵ See Gastil (p. 36) [Footnote 32]

⁵⁶ See Gastil, (p. 46) [Footnote 32]

While Battery Park City has endured its share of criticism from the design community – “it’s not urban, it’s not part of New York, it is just an exclusive gated community for the wealthy financiers that live nearby,” etc. – the thousands of walkers, bikers, children, and visitors that enjoy the esplanade speak volumes as to the success of the project in engaging the waterfront as an urban amenity.

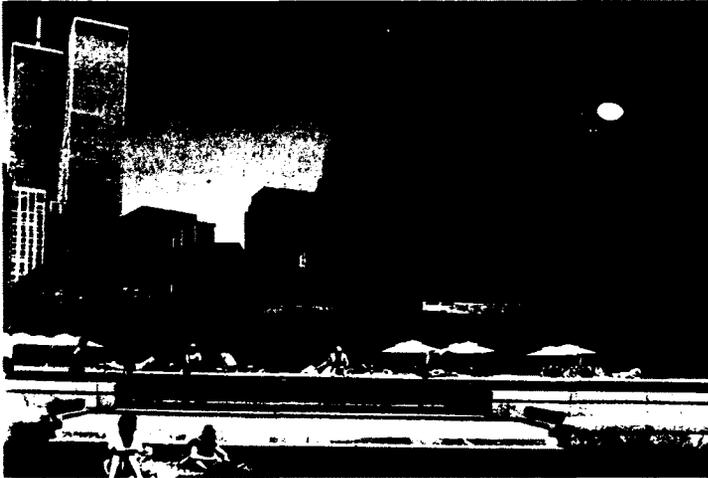


Fig. 2-17
Café and viewing platform, Robert F. Wagner Jr. Park, Battery Park City, Manhattan

The Battery Park City Esplanade has since had an enormous influence on the design and future development of New York City’s waterfront. It was the prototype for the city’s waterfront plans of 1992 and 1995. It established the organizing principles for the Hudson River Park, East River Esplanade, and all of New York’s waterfronts, not just those of Manhattan.

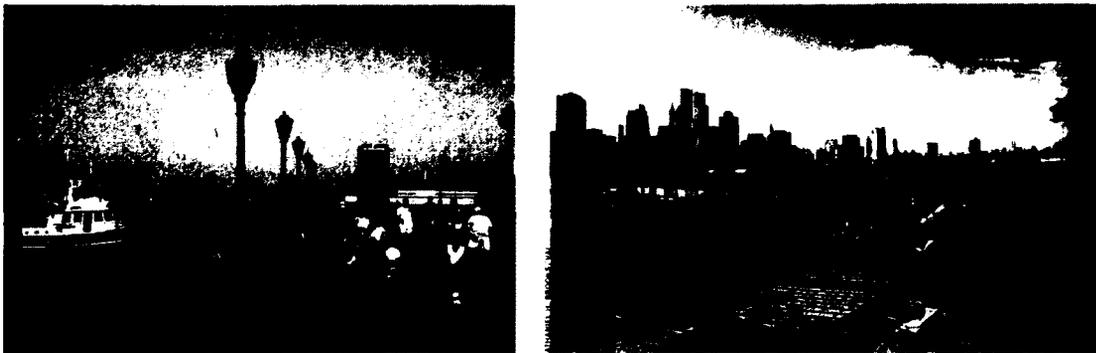


Fig. 2-18
(L) Esplanade at Battery Park City, Manhattan, (R) Promenade, Brooklyn Heights, Brooklyn

2.5.3 Seattle, Washington

We reject the standard paradigms: neither the ideal of the untouched site, awaiting the architect's freestanding monolith, nor its opposite, the privileged 'natural' or 'historical' site, to which any architectural intervention must defer, are legitimate for contemporary work. Instead, it is necessary to work from a definition of landscape that incorporates infrastructure (rail lines, highway off-ramps, utility lines), history (geologic, political, cultural), and natural systems (water, vegetation, toxicity).

- Weiss/Manfredi Architects

Partnership statement

The city of Seattle has long been known for its “intense civic culture of environmentalism”⁵⁷ and community process. In 1903, the city adopted the Green Ring Plan developed by the Olmsted brothers. This long-range plan proposed a series of interconnected parks and boulevards outside the central city. Now, over a hundred years later and with the Green Ring Plan complete, the city is embarking on another open-space initiative to further the connections between waterfront neighbourhoods and important civic spaces, the Blue Ring Plan.⁵⁸

⁵⁷ See Gastil, (p. 175) [Footnote 32]

⁵⁸ The Blue Ring is an organizing principle intended to be implemented over the next one hundred years, much as the Green Ring was. Its ultimate goal is to create

- 1. A legible and cohesive Blue ring System*
- 2. An umbrella for open-space plans and policies*
- 3. A living document that will be updated periodically*
- 4. A comprehensive urban design framework*

The Blue Ring is viewed as “providing a vital foundation, linking individual projects to the experience of the whole.” The public spaces making up the Blue Ring are “diverse in form and purpose,” some of which already exist while others will be created over the life of the project. They will be connected by public rights-of-way, amenable to use by pedestrians and cyclists, as well as vehicles. The Blue Ring is intended to help bridge some of the physical gaps between neighbourhoods that exist due to the presence of the I-5 and the Alaskan Way Viaduct.

In 2000, the city began to look at ways to better connect city neighbourhoods to each other through urban design. City officials conducted a review of ten neighbourhood plans for areas within the central city and identified two critical findings:⁵⁹

1. *The waterfront is a major community resource – specifically an urban design resource – that is “critical to defining the character and identity of Seattle’s downtown” but which has not received sufficient planning attention.*
2. *The plans for the downtown and for the waterfront need to be connected in a coherent overall framework.*

Building on these findings, the city developed a design strategy for the central city area and waterfront entitled *The Blue Ring: Connecting Places*.⁶⁰

The Blue Ring Plan sets out an open-space strategy for “connecting neighbourhoods and places of importance”⁶¹ with water as a central organizing device. In this plan, Seattle’s two major bodies of water – Elliot Bay to the west of the city and Lake Union to the north – are considered defining features of the city to be celebrated as community assets. The plan aims to improve the accessibility to the water, link the various neighbourhoods of the city, and “reinforce the role of water in creating the city’s image and sense of place.”⁶²

⁵⁹ See ULI – the Urban Land Institute. (2004). [Footnote 4]

⁶⁰ City of Seattle. (2002). *The Blue Ring: Connecting Places*. Retrieved 2012-02-08 from http://www.seattle.gov/dpd/cms/groups/pan/@pan/@plan/@citydesign/documents/web_informational/dpds_006516.pdf

⁶¹ See ULI (p. 30). [Footnote 4]

⁶² See ULI [Footnote 4]

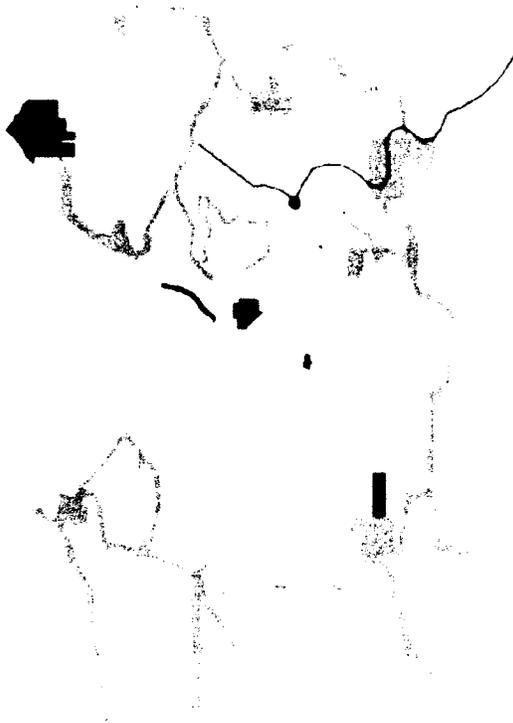


Fig. 2-19
Seattle Green Ring Plan showing the parks and parkways (light green) proposed by the Olmsted Brothers in 1903. (The darker green shows parks and greenways built since 1960).

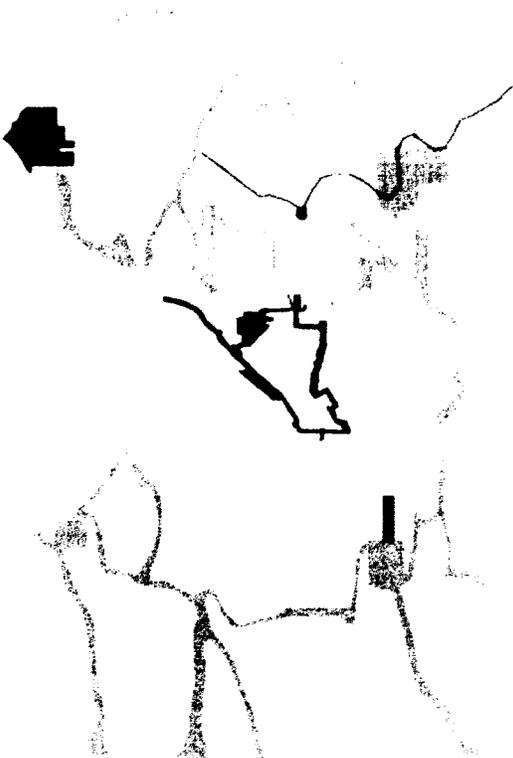


Fig. 2-20
Seattle Blue Ring Plan as part of the greater system of Seattle's open spaces

One of the first projects to be completed, as part of the Blue Ring Plan, was the Seattle Art Museum's Olympic Sculpture Park (OSP), designed by Weiss/Manfredi Architects in conjunction with Charles Anderson Landscape Architects.⁶³

The site chosen for the OSP was the last undeveloped site on the Seattle waterfront, a nine-acre, post-industrial brownfield used as an oil transfer facility until the 1970s.⁶⁴ The site's industrial past had left it in an environmentally degraded condition, and extensive remediation was required prior to construction: over 120,000 tons of petroleum-contaminated soil was removed from the site. Complicating the redevelopment of the site were a forty-foot drop in grade and the fact that the site is sliced into three sections by a four-lane arterial road and a set of rail lines.

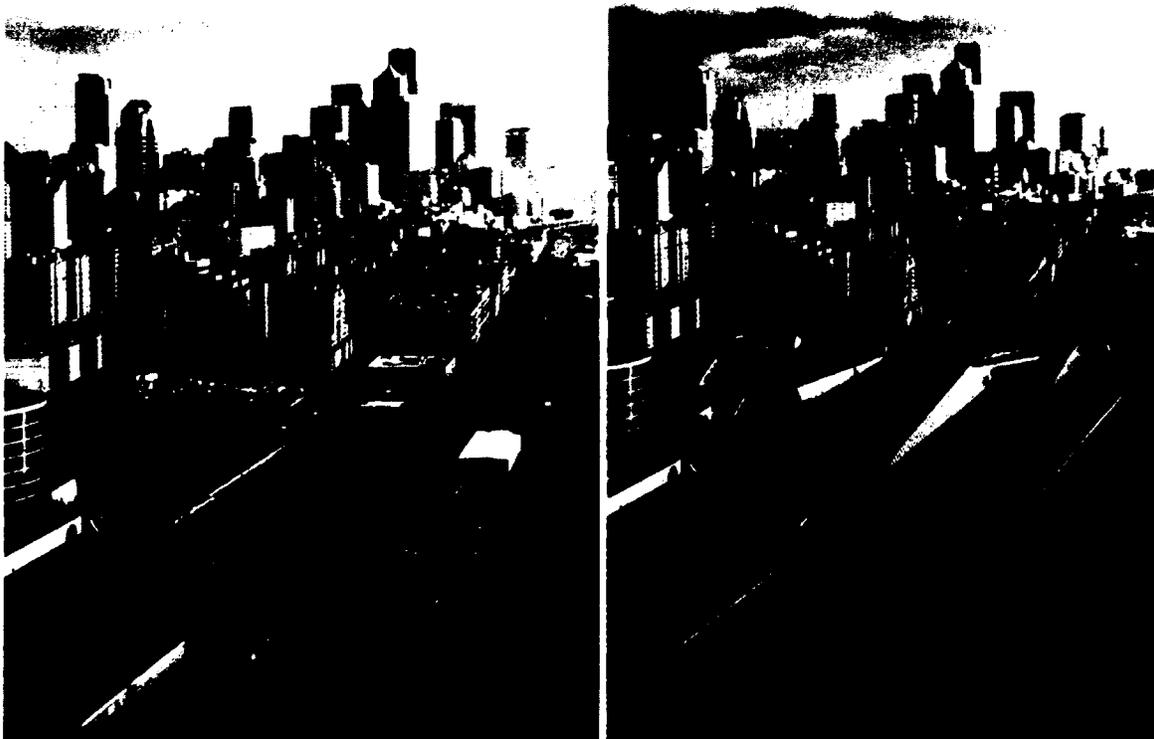


Fig. 2-21
The Olympic Sculpture Park site before and after redevelopment

⁶³ The idea for an outdoor space for large, contemporary sculpture arose from a 1996 discussion between Seattle Art Museum (SAM) director Mimi Gardner Gates and Martha Wyckoff, a trustee of the Trust for Public Land. Armed with a \$30 million contribution from Mary and Jon Shelley (COO of Microsoft and Chairman of the SAM Board of Directors), the search for a suitable site began.

⁶⁴ ArchDaily. (2011). Olympic Sculpture Park/Weiss Manfredi. Retrieved 2011-11-02 from <http://www.archdaily.com/101836/olympic-sculpture-park-weissmanfredi/>

In order to overcome the physical challenges of the site, Weiss/Manfredi developed a “z-shaped hybrid landform”⁶⁵ that capitalizes on the change in grade from the top of the site to the waterfront. The landform was built up with over 200,000 cubic yards of fill⁶⁶ (much of it from the excavation of the SAM downtown expansion project) and reestablishes the original site topography. A pedestrian path is the primary organizing element, starting at an 18,000 square-foot exhibition plaza and pavilion (built over underground parking) at the upper edge of the site. The switchback path first crosses the highway (opening up views towards the Olympic Mountains), then reverses direction to cross over the train tracks as it looks back towards the downtown and the port. The last section descends to the seawall, connecting into Myrtle Edwards waterfront park.

Where the sculpture park meets the water, extensive salmon habitat restoration was undertaken in an attempt to reverse some of the damage to fish runs that occurred over decades of industrial activity.

The Olympic Sculpture Park defines a new urban experience for the reconnection of the city to its industrial waterfront. It not only successfully tackles the intense urban topography, but capitalizes on it as a means of bridging the road and rail lines that would otherwise divide the site. The topographical diversity of the park offers unique settings in which to engage large-scale sculpture outside the traditional confines of the gallery while “reconnecting the fractured relationships of art, landscape, and urban life.”⁶⁷

⁶⁵ See ArchDaily [Footnote 64]

⁶⁶ See ArchDaily [Footnote 64]

⁶⁷ See ArchDaily [Footnote 64]

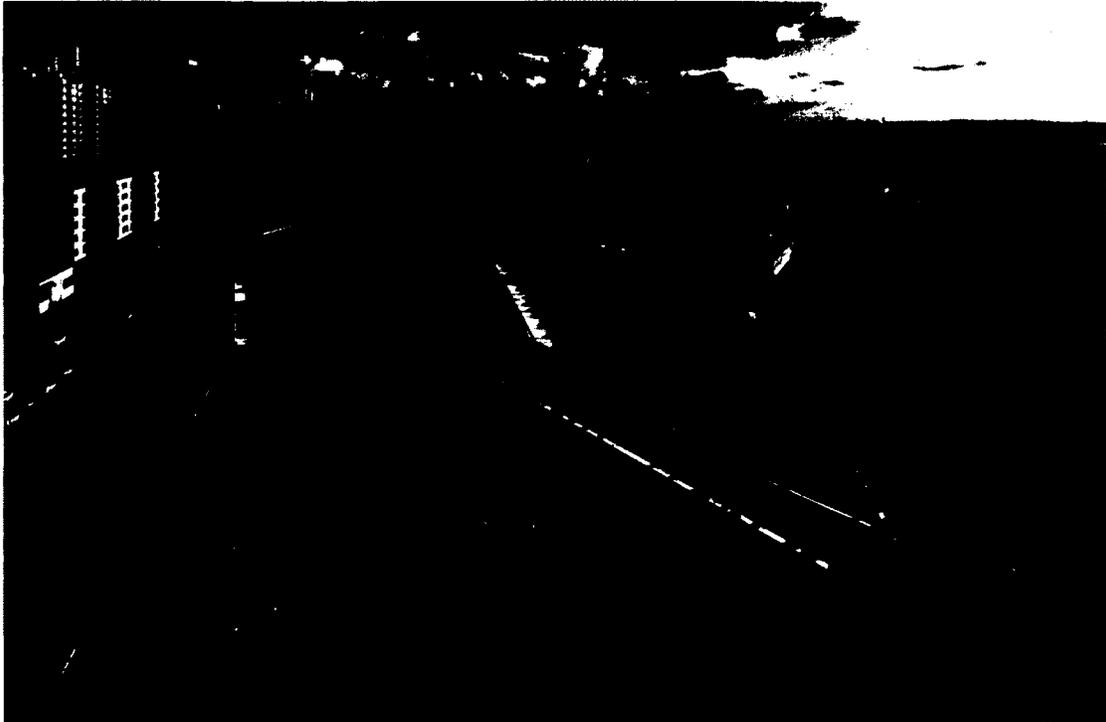


Fig. 2-22
Olympic Sculpture Park



Fig. 2-23
Olympic Sculpture Park waterfront promenade

2.5.4 Vancouver, British Columbia

It's a spirit about public space. I think Vancouverites are very, very proud that we built a city that really has a tremendous amount of space on the waterfront for people to recreate and to enjoy. At the same time, False Creek and Coal Harbour were previously industrial lands that were very polluted and desecrated. We've refreshed all of this with new development, and people have access to the water and the views. So, to me, it's this idea of having a lot people living very close together, mixing the uses. This mixing of uses reflects Vancouver in terms of our culture and how we live together.

- Bing Thom, architect

Speaking about Vancouverism

For the past forty years, the city of Vancouver has been engaged in an ongoing process of reinvention, growing from a small Canadian port city to an internationally renowned metropolis rated as one of the most livable (and most expensive) cities on the globe. One of the defining elements of Vancouver's remarkable urban evolution has been the treatment of the waterfront lands that surround its downtown core.

Downtown Vancouver is situated on the Burrard Peninsula, a relatively small spit of land jutting out from the mainland. The inner harbour and port is located on the northern shoreline of the city along Burrard Inlet; the beaches of the West End of the city are along English Bay; and False Creek extends inland along the southern edge of downtown, past Granville Island. At the western tip of the peninsula is Stanley Park, the 1000-acre crown jewel of the city's park system.

As with most coastal North American cities, the basis of Vancouver's existence is the protected waters of its port making it viable as a commercial shipping center. Even with the advent of containerized shipping, Burrard Inlet was large enough to accommodate the deep-sea freighters and there was sufficient space on shore to meet the needs of the shipping industry. The Port of Metro Vancouver remains the largest and busiest port in

Canada. It is a testament to the livability of the city that the port operates directly adjacent to a vibrant and dynamic urban core.

With the exception of Stanley Park and the mainly residential West End neighbourhood that borders it, the downtown waterfront was long dominated by industrial activity. The shores were lined with maritime shipping facilities, railway and shipbuilding yards, and lumber-based activities. As industry began to leave the downtown area, the city promoted “innovative, high-quality, high-density developments along its waterfront”⁶⁸ that served to densify the central city at a time when the general trend in North American cities was towards suburbanization. This densification of the core has even spawned the term ‘Vancouverism’ which is characterized by mixed-use developments with a ground level commercial base and tall, narrow residential towers that preserve the city’s view corridors.

Two significant decisions made in the 1960s have shaped recent development in Vancouver. One was the creation of the Agricultural Land Reserve (ALR) that preserved the fertile farmlands of the Fraser River Valley and, in doing so, helped to modulate suburban growth. The second was the decision to not develop a freeway system within the city but instead to rely on a network of arterial roads. By keeping freeways out of the downtown core – a decision that ran counter to nearly every other major North American city – Vancouver avoided having to deal with the physical infrastructure of highways slicing through the city, and especially along the water’s edge. This allowed the city to extend its “existing road system, open space network, building typologies, materials and general urban morphology from the city seamlessly into the new urban realm along the waterfront.”⁶⁹

⁶⁸ See Marshall (2001). (p. 18). [Footnote 1]

⁶⁹ See Marshall (2001). (p. 35). [Footnote 1]



Fig. 2-24
The False Creek Waterfront, Vancouver

At present, very little of Vancouver's urban waterfront retains any industrial character; the shoreline of the city has been transformed into a fabric of mixed-use development and community amenities connected by a continuous seawall. The seawall encircles the peninsula, beginning at the Convention Centre on Burrard Inlet, going past Coal Harbour and around the perimeter of Stanley Park, past the beaches of the West End and around False Creek and Granville Island before rounding Vanier Park and ending at Kitsilano Beach. This 22-kilometer path has become the most used outdoor recreational amenity in the city.⁷⁰

Redevelopment projects along the Vancouver waterfront include the new Convention Center, the stadium district, Yaletown, the Expo '86 lands, False Creek, and a series of interwoven park spaces. Residential development along the urban shoreline has not only brought the city to the waterfront but has helped the city meet its regional growth objectives by increasing the job-to-housing ratio, encouraging the use of alternative

⁷⁰ Vancouver Board of Parks and Recreation. (2012). *Seawall*. Retrieved 2012-03-15 from <http://vancouver.ca/parks/parks/stanley/seawall.htm>

transit options, enhancing cultural and social diversity, and helping Vancouver become a leader in environmentally sustainable urban development.

While any of Vancouver's waterfront projects could be discussed at length in their own right for the changes to the urban fabric that they have brought about and their impact on 'Vancouverism,' there is one that bears special consideration for its contributions to urban life in Vancouver. This is Granville Island.

2.5.4.1 Granville Island

The redevelopment of Vancouver's industrial waterfront began in the 1970s with Granville Island, the small island underneath the Granville Street Bridge in False Creek.



Fig. 2-25
Entrance to Granville Island

Prior to 1900, Granville Island was a corral-shaped sandbar formation on the tidal flats used by the local First Nations for fishing. As the city grew, False Creek was industrialized and dredged to increase the depth of the navigable waterway. In 1915, the Vancouver Harbour Commission approved the creation of Granville Island and built the

35-acre island using over a million cubic yards of fill dredged up from False Creek. This land was then built out with wood-framed, corrugated-tin factories and warehouses that served the forestry, mining, construction, and shipping industries. At its peak in 1930, over 1200 people worked on the island.⁷¹

Industrial activity on the island peaked during World War II. With decreasing interest for heavy industrial production in the post-war years, Granville Island went into a steady decline. Factories and mills around False Creek began to close, and a shantytown of squatters covered the floats and pilings. The factories that remained became run-down and increasingly dangerous with numerous buildings destroyed by fire. The island was no longer a desirable location for industry, being too cramped in its inner-city location for expansion and not readily accessible to major transportation routes. After lengthy discussion and numerous evictions, city officials opted to transform the site into a public market and community amenity, complete with housing, parkland, marketplaces and public exhibition space.

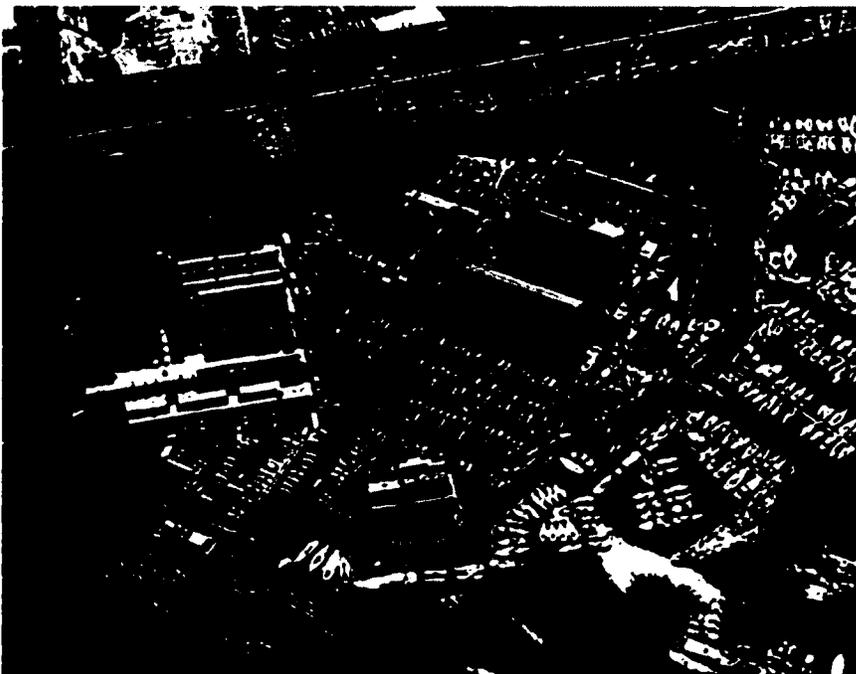


Fig. 2-26
Aerial view of Granville Island

⁷¹ Granville Island. (2012). *Island Heritage*. Retrieved 2012-03-15 from <http://www.granvilleisland.com/discover-island/island-heritage>

Granville Island's industrial origins can still be seen in the cobblestone streets through which rail lines cut and the old corrugated-tin warehouse and factory buildings that now house galleries and shops. One of the old industrial tenants, the Ocean Concrete factory, is still in full operation some 90-years later.

Today, Granville Island is one of the busiest areas of Vancouver, its streets filled with residents and visitors, performers and artists. Among its amenities are a large public market, an extensive marina, a float-home community, a boutique hotel, the Emily Carr University of Art and Design, a community centre, various performing arts theatres, fine arts galleries, and variety of shopping areas. It is a unique urban environment and an excellent example of the possibilities for the redevelopment of post-industrial waterfront lands.



Fig. 2-27
Granville Island waterfront

2.5.5 Victoria, British Columbia

We are deeply rooted in our mission of creating ideas + buildings that honor the broader goals of society.

- Perkins + Will

Firm statement of social purpose

Victoria's inner harbour, as with the majority of coastal cities, had been used for industrial purposes since the Hudson's Bay Company founded the city as a trading post in 1843. Changing economic conditions, however, have led to the industrial lands falling into disuse. No longer lined with shipyards and other maritime industry, the harbour is gradually being reclaimed as part of the city's urban fabric. One of the most notable recent projects is the Dockside Green mixed-use development.



Fig. 2-28
Aerial rendering of Dockside Green

Dockside Green is a multi-phased, mixed-use development on Victoria's inner harbour. Designed by the Vancouver architectural firm Busby, Perkins + Will, the Dockside project is a largely self-sufficient, sustainable community in which "form, structure, materials, mechanical and electrical systems interrelate and are interdependent."⁷²

The lands on which Dockside Green has been built were heavily contaminated from petrochemical spills and heavy metal waste, as well as a large portion of the land actually being landfill made up of garbage and hazardous materials from the old factories. The high cost of environmental remediation had deterred any redevelopment from occurring until the Dockside development group agreed to take on the cleanup costs. The redevelopment of this land has thereby initiated the reclamation of an obsolete landscape and its re-knitting back into the urban fabric of the city.⁷³

⁷² Dockside Green. (2011). *Triple Bottom Line*. Retrieved 2011-10-19 from <http://www.docksidegreen.com/Su0stainability/TripleBottomLine.aspx>

⁷³ Dockside Green has publicly committed to certifying all 26 buildings of the development as LEED® Platinum, and under the LEED® ND rating system has achieved platinum status through stage two of the certification process. The project has been comprehensive in its approach to sustainability, employing a triple bottom line approach to "integrate economic, environmental and social objectives."⁷ Sustainable initiatives have been integrated throughout all aspects of the project (building, site, infrastructure), generating a synergistic effect whereby systems overlap and enhance one another. Sustainable innovations employed in Dockside Green include:

- Biomass Heat Generation
- On-site stormwater and sewage treatment
- Water conservation
- Energy conservation
- Healthy interior spaces
- Environmentally friendly materials and resources
- Alternative transportation
- Fly ash concrete
- Organic waste collection
- Habitat creation, enhancement and protection
- Construction waste management
- Sustainable lighting technologies
- Shoreline restoration
- Site remediation

The Dockside Green project, through its proactive commitment to green building practice has set a benchmark for future sustainable development around the globe.



Fig. 2-29
Docksider Green

Part 3. Context

3.1 Vancouver Island, British Columbia

When the trees are gone the sky will fall and we and the salmon will be no more.

- Lummi prophecy

Vancouver Island, located in the southwestern corner of British Columbia, is the largest island on the west coast of North America. 450 km in length and 80 km wide at its widest point, it comprises 32,134 km². Vancouver Island is part of the larger Vancouver Island and Central/Sunshine Coast development region; the region is incredibly diverse, ranging from the highly urbanized Victoria metropolitan area to the remote mountains and deep inlets of the mainland central coast.⁷⁴

Separating Vancouver Island from the mainland are the Johnstone and Queen Charlotte Straits on the northeast portion of the island, and the Georgia Strait on the southeast. The Georgia Strait transitions into the Strait of Juan de Fuca, separating the island from the state of Washington. To the west of Vancouver Island is the open Pacific Ocean.

⁷⁴ The total population of the Vancouver Island and Central/Sunshine Coast region was 755,181 in the 2006 Census, making it the second most populous region in the province after the Mainland/Southwest region. The region had an overall population growth rate of 6% from 2001 to 2006, second in terms of regional growth (there was a 7% growth rate in the Mainland/Southwest region) and accounted for twenty percent of overall provincial growth in that time⁷⁴. The population density of each of the districts is quite varied, with the CRD being the most dense at 147.4 people per km². This number progressively decreases the further north up the island one goes, with the RDMW having a population density of only 1.34 people per km².

3.1.1 Geography of Vancouver Island

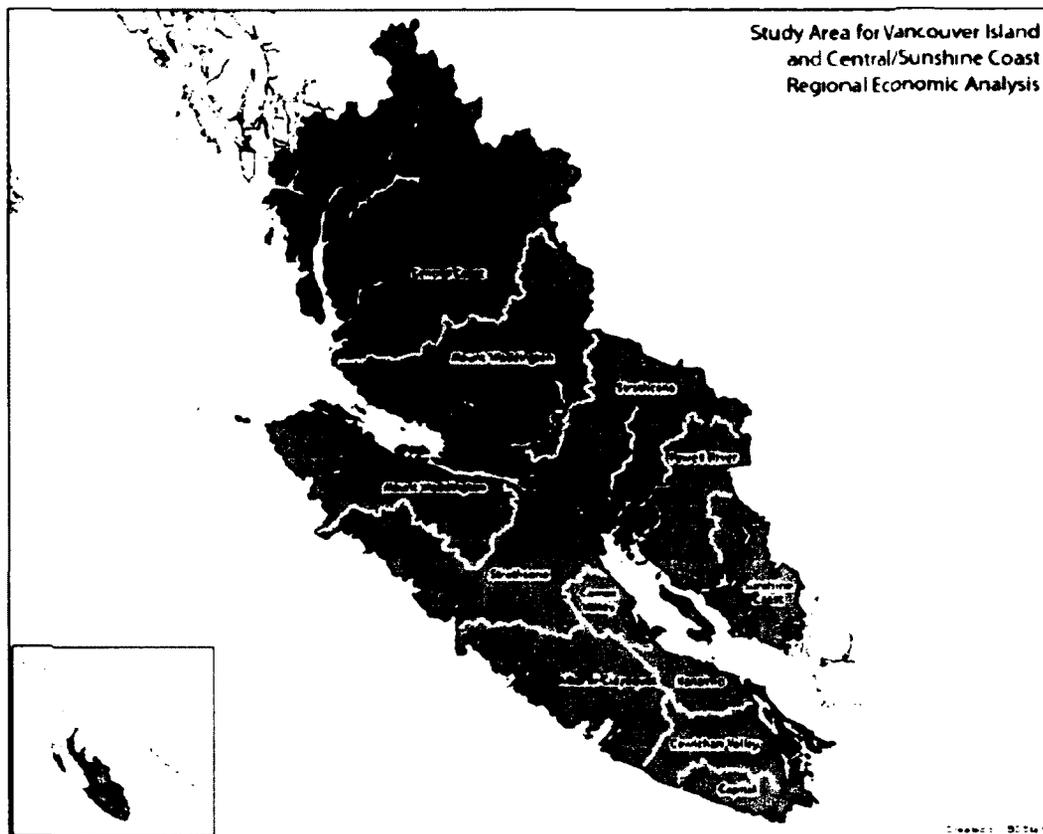


Fig. 3-1
Vancouver Island and Central/Sunshine Coast development region

The Vancouver Island Mountain Range – part of the larger Pacific Coast Mountain Range – extends over almost the entire length of the island, dividing the rugged and wet west coast from the gentler, slightly drier landscape of the east side. The rain shadow effect created by the mountain range is responsible for wide variations in precipitation; the west coast is considerably wetter than the east side of the island. Henderson Lake – on the west coast of the island – has an average annual rainfall of 6,650 millimeters, making it the wettest place in North America, while the driest area of Victoria has an average of only 640 millimeters.⁷⁵ The island has the mildest climate in Canada; winter temperatures typically remain above 0° Celsius, while summer temperatures rarely exceed 30° Celsius.

⁷⁵ Wikipedia. (2012). *Vancouver Island*. Retrieved 2012-30-15 from http://en.wikipedia.org/wiki/Vancouver_Island

The western and central regions of the island are characterized by mountainous, rugged terrain with limited road access. The settlements in these areas tend to be relatively small (less than 2000 people) and have traditionally been reliant on resource extraction, primarily forestry, as well as some mining and fishing. The southern and southeastern coast of the island is a narrow coastal plain on which the majority of the population and economic activity can be found.

Vancouver Island is one of the most diverse ecosystems in the world, with rainforests, marshes, meadows, beaches, mountains, rivers, lakes, and oceans that create habitats for numerous wildlife species.

3.1.2 Exploration and Settlement of Vancouver Island

For thousands of years before the arrival of European settlers in the 18th century, Vancouver Island was home to three main First Nations groups: the Kwakwaka'wakw, the Nootka, and the Coastal Salish.⁷⁶ The way of life of these groups was indelibly tied to the “generous bounty of the earth, and their spiritual culture on the natural world.”⁷⁷

The first European exploration of Vancouver Island was by Spanish explorers in 1774 as they sought to assert Spanish claim to the Pacific Northwest in response to rumours of Russian fur traders in the area. In 1778, British ships led by James Cook spent a month at Nootka Sound on the island's west coast, at which time Cook claimed the land for Great Britain. The island's abundant fur-trading potential led to the establishment of a small trading post near the native village Yuquot at the entrance to Nootka Sound by fur-trader John Meares; this was the first European settlement on the island but only lasted until 1788.

⁷⁶ BritishColumbia.com. (2012). *History and Heritage of Vancouver Island*, British Columbia. Retrieved 2012-03-15 from <http://www.britishcolumbia.com/general/details.asp?id=24>

⁷⁷ See British Columbia.com [Footnote 76]

Spanish explorers returned in 1789 and established a competing settlement at Yuquot, complete with an artillery battery. The Spanish asserted their “claim of exclusive sovereignty and navigation rights”⁷⁸ to the area and seized the British ships that entered the sound, almost igniting a battle between the two nations. An agreement enabled both countries to maintain settlements on the island, which would be referred to on naval charts as ‘Quadra’s and Vancouver’s Island.’

Quadra’s and Vancouver’s Island remained the prominent name on British, French and Spanish maps of the Pacific Northwest until the early 19th century when Spanish interests in the area began to dwindle. As the British influence on the area grew, the ‘Quadra’ moniker was dropped and the island became known simply as Vancouver Island. The British established their first permanent colony on the island in 1843, a Hudson’s Bay trading post originally called Fort Camosack and later changed to Fort Victoria. In 1846, the British and U.S. governments signed the Oregon Treaty which settled the dispute over the borders of the Oregon territory and officially awarded Vancouver Island to the British.

Fort Victoria grew quickly as an important trading port in the region. The combination of its close proximity to the United States and the temperate climate made it an ideal location for settlement. In 1862 the burgeoning town was incorporated as Victoria, the capital of the colony of Vancouver Island. It retained its status as the capital city of the province of British Columbia when Vancouver Island amalgamated with the mainland in 1868. The city of Victoria was the first port-of-call for newcomers, and was the base point for settlement of the rest of the island.

⁷⁸ See Wikipedia. (2012). [Footnote 75]

3.1.3 Single Industry Towns and the Waterfront

Natural resources were the driving force behind settlement of Vancouver Island. The early British settlement in Nootka Sound was established to capitalize on the large sea otter population for the world fur-trade market, and it was not long before the lure of the island's other natural resources spurred further settlement. The pattern of urban development on the island reflects the diversity and distribution of natural resources.

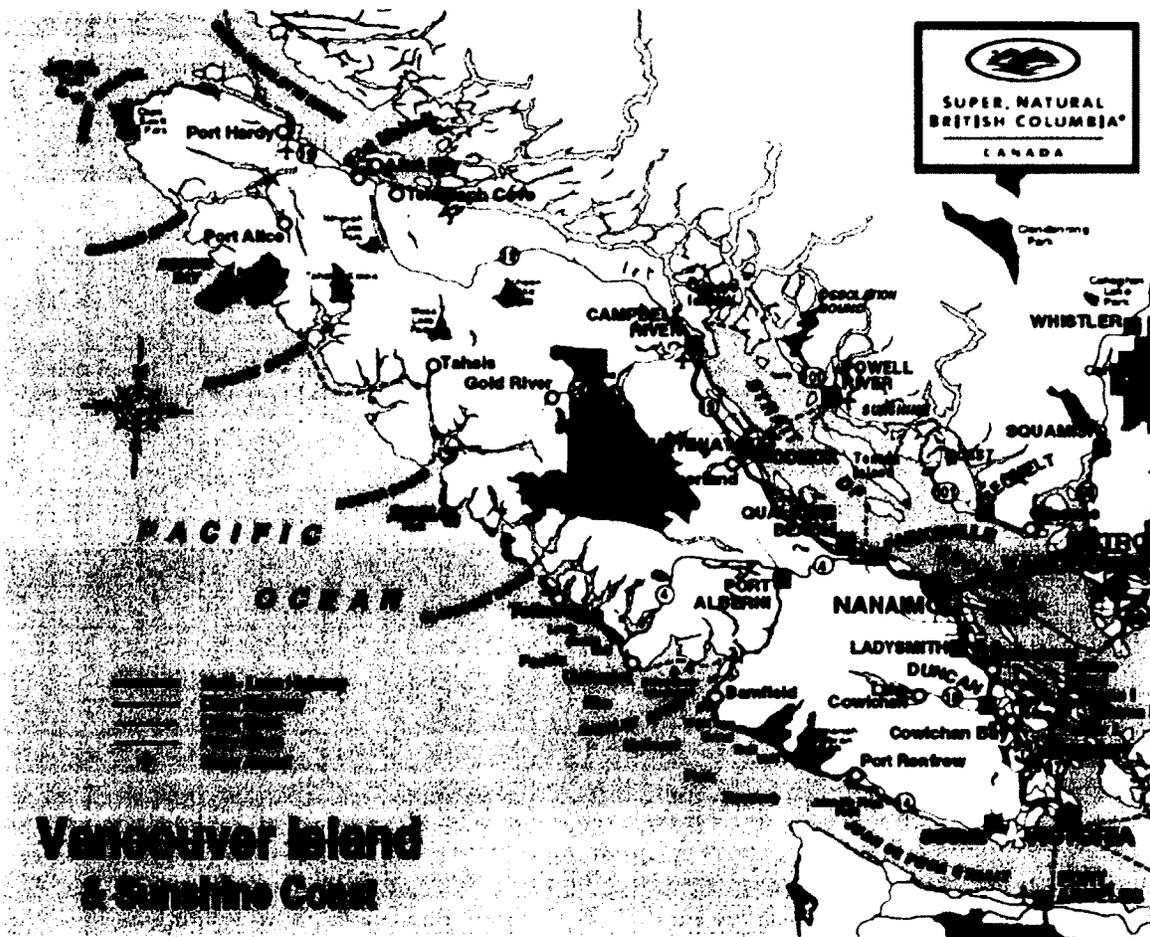


Fig. 3-2
Map of Vancouver Island and the Sunshine Coast

The vast tracks of old growth forests made forestry the island's primary industry, followed by mining and fishing. Towns were established in close proximity to safe and secure harbours. Because access to Vancouver Island has always been primarily by water, harbours were of primary importance when selecting a site for settlement.⁷⁹

Similar patterns of development can be seen in all of the Island's urban centres, even to some extent in the city of Victoria, the densest urban area on the island. The primary commercial street – Main Street – is located on high ground at some distance from the water, and towns face inwards towards this street. Most towns do little in the way of directly addressing the ocean; waterfronts are the domain of industry – such as sawmills, shipyards, concrete plants – and marine activity, such as piers and wharves, fish plants, and commercial fisheries. Towns and waterfronts operate almost independently in terms of urban connection, often divided by transportation routes.

Due to the salubrious climate and the geographical nature of its coastal plains, the southeastern coast of the island was the first region to be settled, and it is still today the area of highest urban density⁸⁰. However, the inland edge of the coastal plain is set against the southern portion of the Vancouver Island Mountain Range, leaving only a narrow corridor for settlement. With industrial activities occupying the waterfront, rail lines and access roads were required for the transportation of goods and materials. The land nearest to the water's edge was generally the flattest and thus was the easiest upon which to build roadways.

When towns were first established, access was only by water, with a small network of local roads and a few connecting roads between adjacent towns. There was no

⁷⁹ In fact, the only major settlement on the island not located on the water is the city of Duncan. Duncan is located in the Cowichan Valley, a unique microclimate with very fertile farmland, and therefore the reason for settlement.

⁸⁰ As of the 2006 Census, the Vancouver Island and Central/Sunshine Coast region had a total population of 755,181 in a total land area of over 88,000 square kilometers. The population density of the region is 8.6 people per km², almost double the provincial average of 4.4 people per km². Of the total population, 345,164 people live in the Capital Region (the southern tip of Vancouver Island including Victoria and the surrounding municipalities), a total land area of 2,314 km² (or 149.1 people per km²).

continuous overland connection between Victoria and the towns to the north until the Southern Railway of Vancouver Island (SRVI) was built in 1886.⁸¹

The majority of the railway was laid near the shoreline, separating towns along the coast from their industrial waterfronts. Where the lines had to cross over rivers and ravines, wood trestles were built and many of these still exist.



Fig. 3-3
The Kinsol Trestle on Vancouver Island

⁸¹ When British Columbia joined the Canadian Confederation in 1871 the federal government agreed to extend the Canadian Pacific Railway to the west coast and to locate the Pacific terminus in Victoria. While plans were made to route the railway across to Vancouver Island by bridging across a number of the islands in the Georgia Strait, questions about the low traffic potential of an island rail line put a halt to the project. Instead, after much negotiation, as well as a petition sent to the Queen asking for her to intervene, it was resolved that a railway would be built from Esquimalt (near Victoria) to Nanaimo (the E&N). The province then signed a contract in 1883 with Robert Dunsmuir – a Nanaimo coal baron, as well as a member of the provincial legislature – to build the railway in exchange for a land grant of over 800,000 acres (or almost ten percent of the entire island) and included mineral rights as well as all known coal deposits. (Needless to say, Dunsmuir’s involvement as a member of the legislature drew numerous accusations of corruption!)

When the first highway linking the island from north to south was built around 1912, it was little more than a dirt and gravel roadway. As with the railway, the highway was built near the water's edge, the two running side-by-side for much of the route. The highway was not paved until 1953 as part of the Trans-Canada Highway Act, at which time it extended only as far as Campbell River. It was not until 1979 that the final stretch of highway north to Port Hardy was finally paved.

The location of the highway and rail line near the shoreline, combined with the industrial presence on the water, created a significant physical separation between towns and their waterfronts. This historical disconnection between the two can still be readily seen when looking at aerial photographs of the area and the relation of the pattern of urban development to the waterfront. (Refer to Figs 3-4 to 3-8). The pattern of urban development in each of these towns and cities is very similar, regardless of size; the main street of the town (marked in red) was established at a distance from the waterfront where the local industry was based. (These are only six of the urban areas on Vancouver Island, but this pattern is typical of almost all the towns).

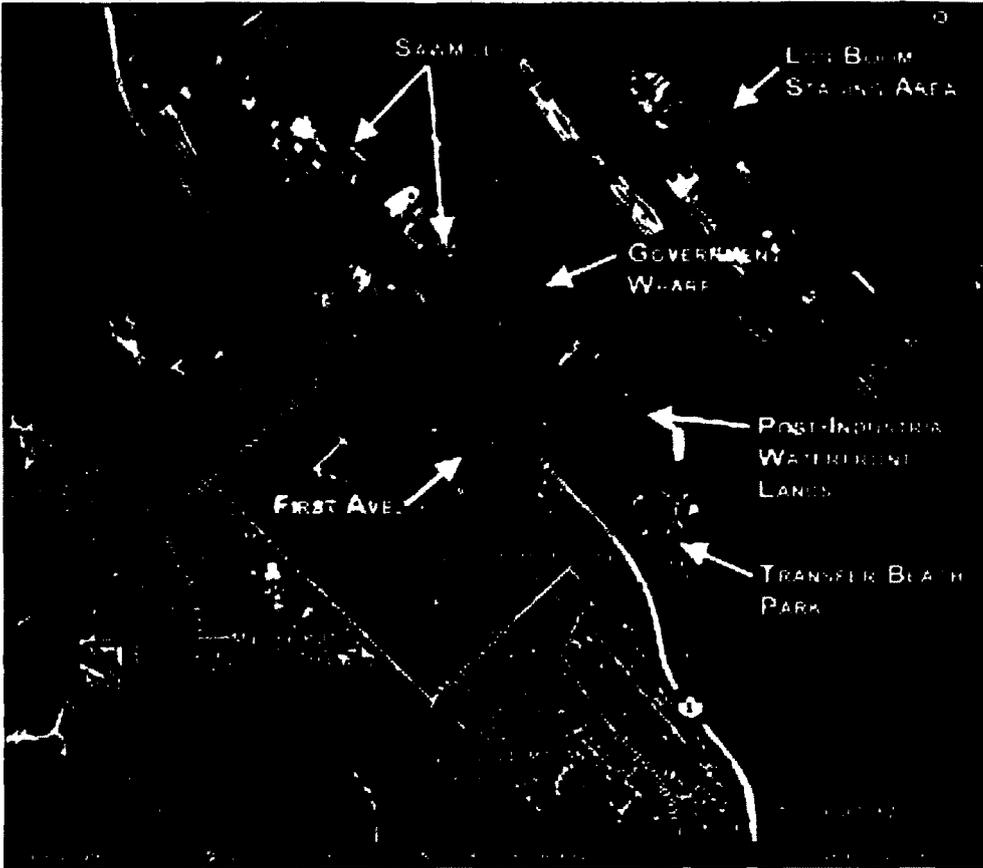


Fig 3-4
Ladysmith, B.C.

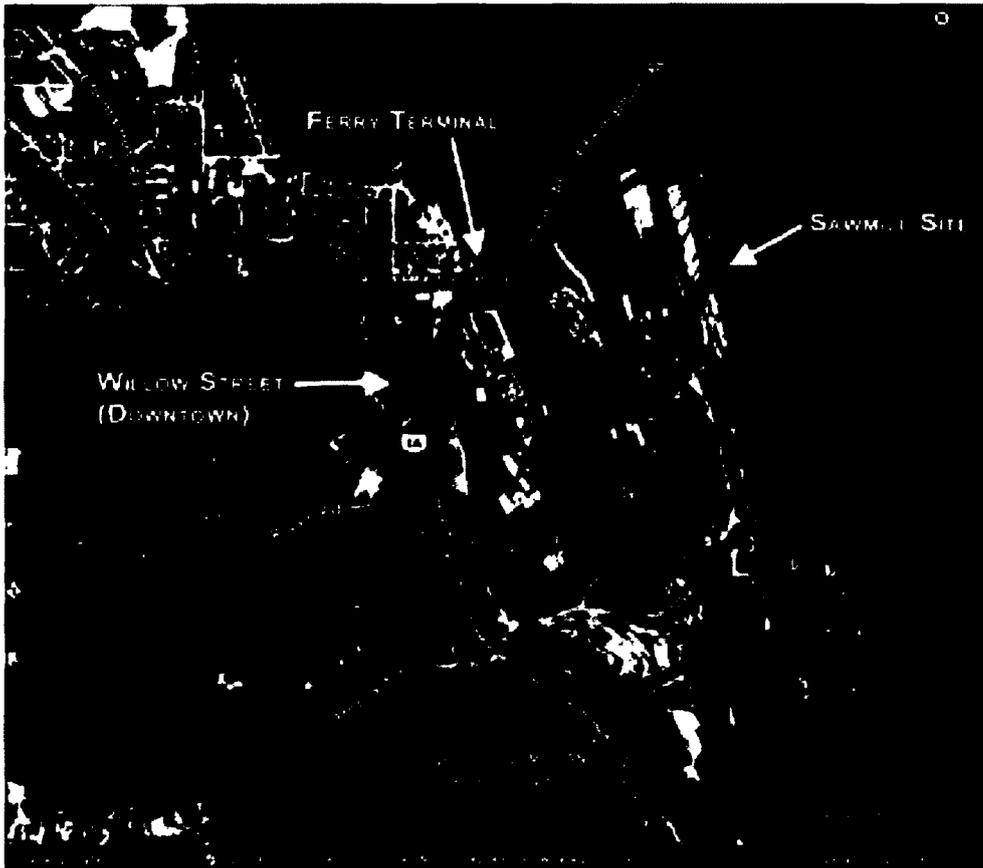


Fig 3-5
Chemainus, B.C.

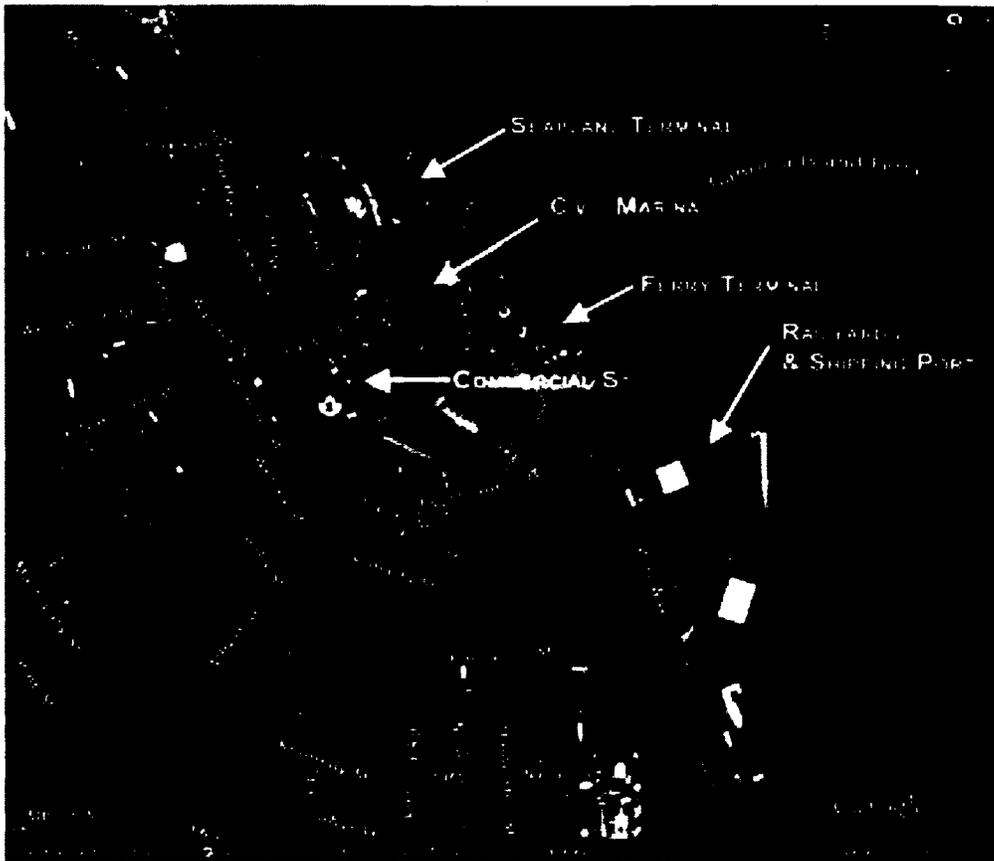


Fig 3-6
Nanaimo, B.C.

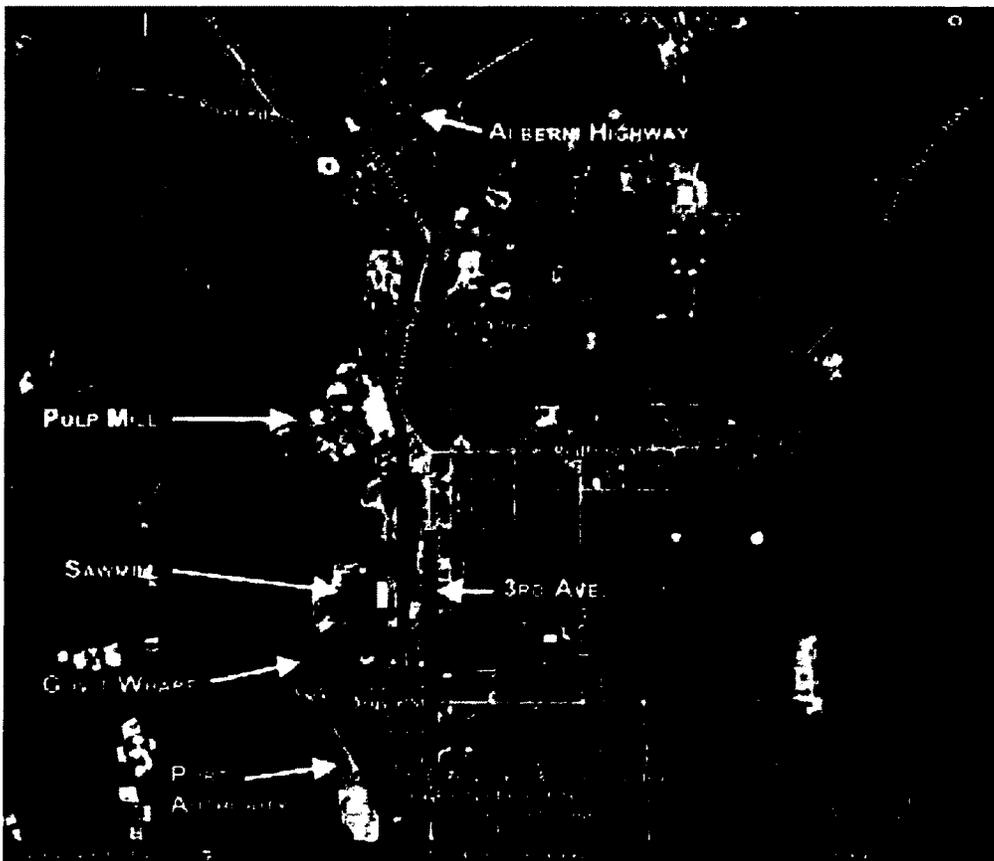


Fig. 3-7
Port Alberni, B.C.

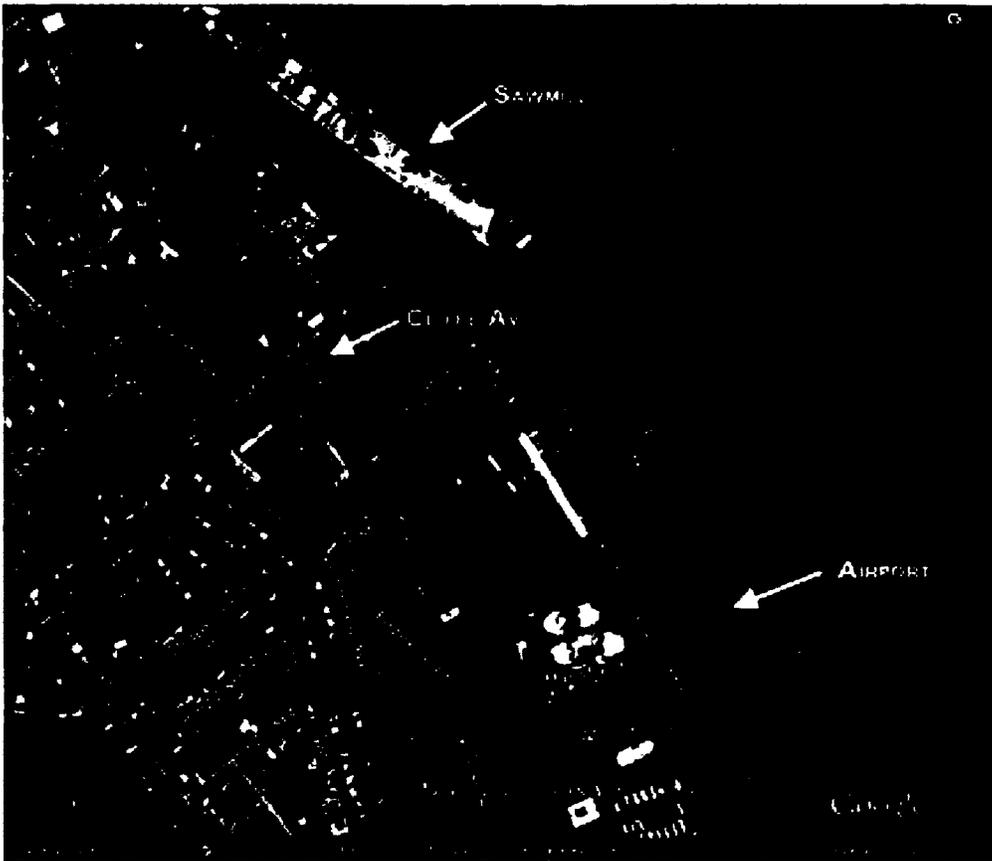


Fig. 3-8
Courtenay, B.C.

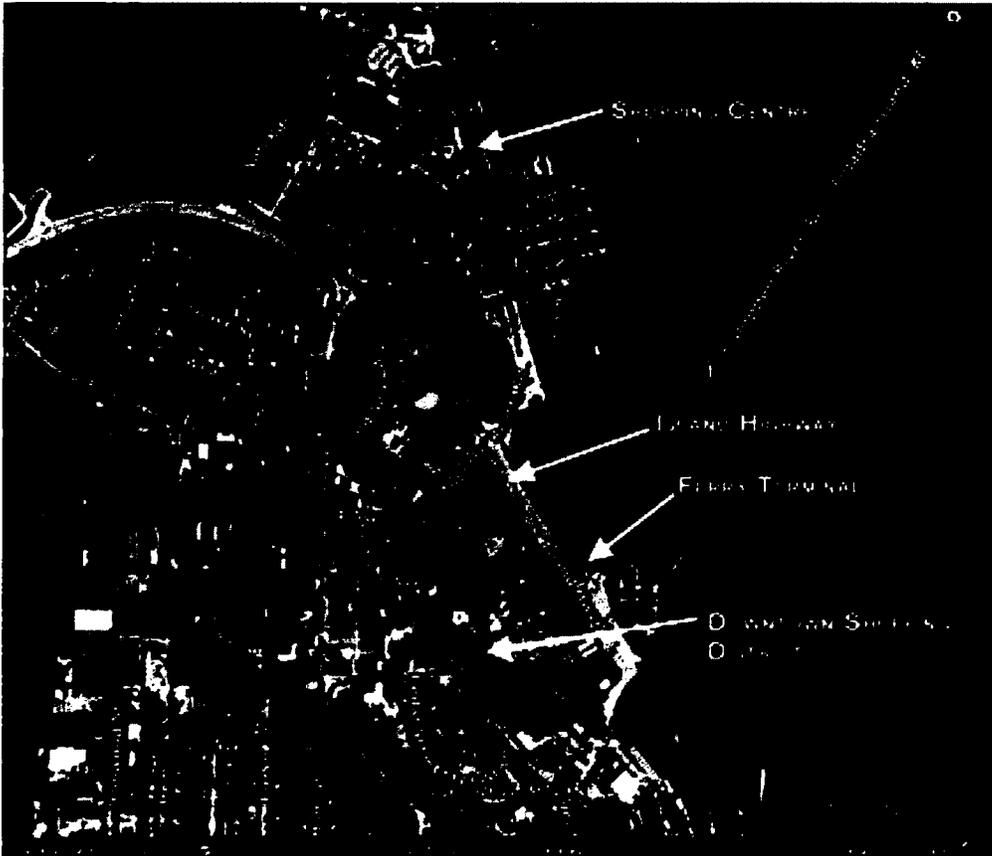


Fig. 3-9
Campbell River, B.C.

3.1.4 Economic Change

As noted, the profits to be extracted from forestry, mining and fishing were the impetus for the establishment of towns and cities and sustained them for decades. Natural resources as an economic base, however, have declined steadily in the last thirty years, especially in the forestry industry. While the resource industry is still important to the economic vitality of Vancouver Island, especially in the more isolated northern regions, there has been an ongoing transition towards a service and tourism-based economy. This has had a direct impact on urban waterfront development.

Sector (in order of 2006 jobs)	2001		2006		Change 2001-2006		Job Growth, 2001-2006
	Jobs	LQ*	Jobs	LQ*	Jobs	LQ*	
Retail and Wholesale Trade	46,425	0.95	51,935	0.97	5,510	0.01	12%
Health Care and Social Assistance	36,920	1.17	39,155	1.16	2,235	-0.02	6%
Public Administration	32,475	1.87	32,540	1.86	65	-0.01	0%
Finance, Insurance, Real Estate, Management, Administration	24,160	0.86	29,570	0.90	5,410	0.04	22%
Education	22,840	1.06	24,600	1.03	1,760	-0.03	8%
Professional, Scientific, Technical Services	17,765	0.86	21,825	0.87	4,060	0.01	23%
Tourism (estimate)	19,776	1.01	21,576	1.06	1,800	0.05	9%
Forest Sector	15,605	1.17	13,760	1.08	-1,845	-0.09	-12%
Arts and Culture (estimate)	11,528	0.94	13,742	0.97	2,214	0.03	19%
Construction	8,045	0.96	12,490	1.03	4,445	0.07	55%
High Technology (estimate)	10,092	0.69	11,557	0.73	1,465	0.03	15%
Transportation & Warehousing	10,035	0.72	10,140	0.73	105	0.01	1%
Non-resource Manufacturing	6,945	0.55	7,315	0.55	370	0.00	5%
Agriculture & Food	6,215	0.69	6,530	0.68	315	-0.02	5%
Mining Sector (including Oil & Gas)	1,850	0.47	2,085	0.46	235	-0.01	13%
Fishing Sector	1,830	1.95	1,915	1.96	85	0.01	5%
Utilities	1,215	0.68	1,120	0.68	-95	0.00	-8%
Total Employment	286,765	1.00	316,010	1.00	29,245	0.00	10%

* LQ is Location Quotient, which is a measure of sector employment relative to the province of British Columbia. Values greater than 1 indicate the sector has relatively more employment in the study region. See page 98 for a more detailed explanation.

Note: Columns do not sum to the total due to overlap of some sectors.

Source: Statistics Canada Census

Fig. 3-10

Summary of Sector Employment, Vancouver Island and Central/Sunshine Coast, 2001-2006

As reliance on an industrial base has declined, urban waterfronts have increasingly become available for redevelopment. Victoria's inner harbour, for example – once home to factories and shipyards – is now dominated by mixed-use commercial and residential developments, such as Dockside Green. Similarly, the downtown waterfront of Nanaimo

has been undergoing redevelopment for the past twenty years as the old industrial infrastructure is gradually replaced with new residential and commercial buildings. Nanaimo and Victoria are the two largest urban areas on the island. With a larger population and more diversified economic base – and hence more resources to implement change – they have led other cities in transforming waterfront areas into community amenities. It is in the smaller communities that the challenges presented by waterfront development are most pronounced.

Sector	2006 Job Concentration*	2001-2006 Job Growth from Local Conditions**	Actual 2001-2006 Job Growth
Fishing Sector	1.96	38	85
Public Administration	1.86	307	65
Health Care and Social Assistance	1.16	18	2,235
Forest Sector	1.08	-958	-1,845
Tourism	1.06	1,332	1,800
Construction	1.03	1,055	4,445
Education	1.03	-248	1,760
Retail and Wholesale Trade	0.97	1,464	5,510
Arts and Culture	0.97	606	2,214
Finance, Insurance, Real Estate, Management, Administration	0.90	1,667	5,410
Professional, Scientific, Technical Services	0.87	570	4,060
High Technology	0.73	689	1,465
Transportation & Warehousing	0.73	220	105
Agriculture & Food	0.68	-49	315
Utilities	0.68	10	-95
Non-resource Manufacturing	0.55	151	370
Mining Sector (including Oil & Gas)	0.46	-3	235
Total Employment	1.00	4,683	29,245

Note: Columns do not sum to the total due to overlap of some sectors.

*These are location quotients, calculated with respect to the province of BC (see page 98 for an explanation). Values higher than 1 indicate a comparative advantage and values lower than 1 indicate a comparative disadvantage.

**These are differential shift effects (see page 98 for an explanation). Positive values indicate job growth due specifically to local factors, which implies that comparative advantage is increasing. Negative values indicate job loss due specifically to local factors, which implies that comparative advantage is decreasing.

Sources: Statistics Canada Census, Vann Struth Consulting Group

Fig 3-11
Statistical Analysis of Sector Opportunities, Vancouver Island and Central/Sunshine Coast, 2001-2006

As noted, the waterfronts of small towns of Vancouver Island have always been the domain of industrial activity, especially sawmills and pulp mills. These are large

operations requiring not only land for the buildings and physical infrastructure for the mill itself, but also large swaths of land for the storage of raw materials like logs. As such, a significant amount of land has been set aside for industrial use. It is only in the last thirty years that these lands have become available for redevelopment and integration into the community.

Complicating the issue of waterfront redevelopment is the cost. Given the long-term importance of these industries to the local economy, it takes a long time for these towns to sufficiently diversify themselves to the point where it is feasible to undertake a redevelopment project of any scale. In the northern communities it may never be feasible, at least not beyond small-scale intervention. The towns of the mid-island region, north of Victoria from the Cowichan Valley up to Campbell River, have grown sufficiently and diversified to the point where waterfront redevelopment has become a very real possibility.

Perceptions about the value of the waterfront to the continued vitality of these smaller urban centres have changed significantly. No longer the exclusive domain of heavy industry and commercial maritime activity, they are now viewed as amenities to be exploited for an entirely different purpose: the enhancement of the overall urban experience for citizens and tourists alike

3.1.5 Demographic Change

The general demographic trend in the province of British Columbia is towards a growing and aging population. It is projected that between 2010 and 2036 the population will increase by approximately 36% while the median age will increase from 40.8 to 45.4 years.⁸² As the population increases and its characteristics change, there are shifting demands with regard to public services such as schools, health care facilities and

⁸² BC Stats. (2011). *Overview of the BC and Regional Population Projections: 2011 to 2036*. Retrieved 2012-03-18 from <http://www.bcstats.gov.bc.ca/StatisticsBySubject/Demography/PopulationProjections.aspx>

transportation systems. Of immediate concern is the shift of baby-boomers out of the workforce into retirement; it is projected that in the next ten years, the number of ‘young seniors’ aged 65 to 74 will increase by 58% (just over 200,000 people).⁸³

The trend towards an aging population is particularly noticeable on Vancouver Island, for two distinct reasons. Firstly, with the decrease in resource industry jobs, younger adults – especially in more isolated communities – are forced to relocate in order to find work. While some will move to larger centres on the island such as Victoria or Nanaimo, most relocate to Vancouver, elsewhere in the province, or to a different province altogether (particularly Alberta).

The second factor contributing to the rise in the median age of residents on Vancouver Island, particularly in the southeastern region, is the island’s long-standing reputation as one of Canada’s most popular retirement destinations. Retirees from across Canada are attracted to the temperate climate, the outstanding natural beauty, and an abundance of recreational activities. Reports from the B.C. Real Estate Association in 2007 indicated that over 35% of transactions conducted throughout the Vancouver Island Real Estate Board (VIREB) were for retirement purposes.⁸⁴ The majority of this retiree activity occurs in the southeastern region of Vancouver Island, from Victoria north to the Comox Valley.

⁸³ See BC Stats [Footnote 82]

⁸⁴ Vannstruth Consulting Group. (2009). *Regional Economic Analysis: Vancouver Island and Central/Sunshine Coast*. Retrieved 2010-09-28 from <http://www.viea.ca/assets/uploads/1669.pdf>

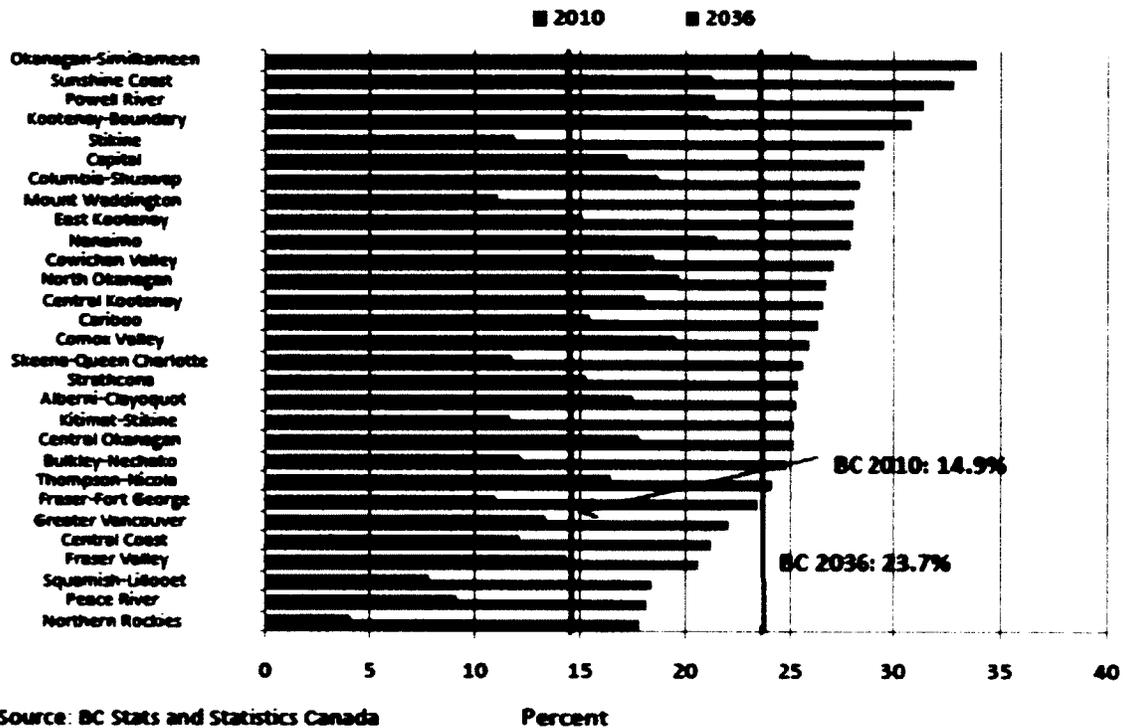


Fig 3-12
Regional District population 65 and over as a percentage of the total population

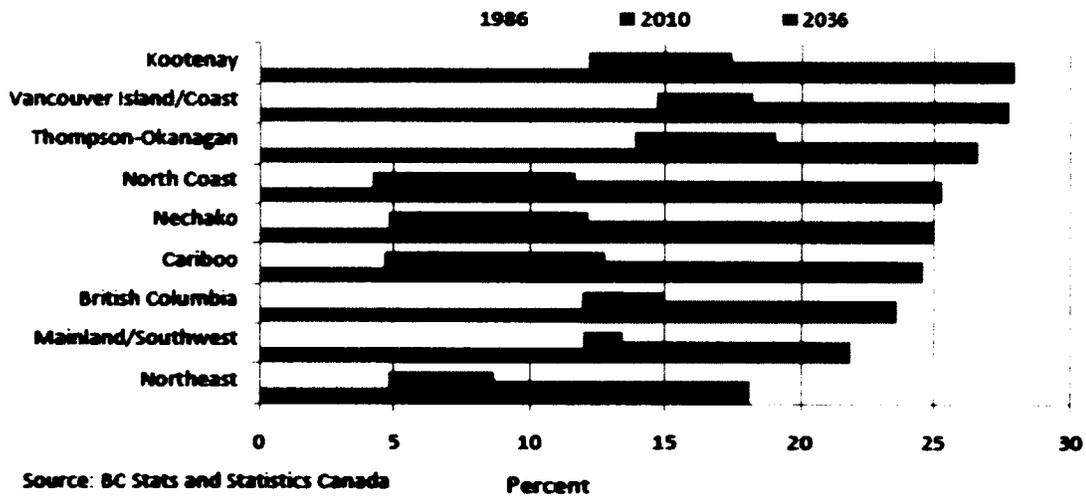


Fig 3-13
Development Region population 65 years and over as a percent of the total population

As of 2007, it was estimated that 17% of the Vancouver Island and Central/Sunshine Coast region was of retirement age (65+). However, over the next twenty years it is projected that the number of retirees in the region will nearly double, growing by 85%.

This will mean that over a quarter of the total population of Vancouver Island will be of retirement age. The implications of this aging population are further compounded by the fact that increasing numbers of people are leaving the full-time workforce in their mid-50s. The combination of the retiree and pre-retiree groups potentially means that almost 40% of the total population of the island could be out of the full-time workforce.

The implications of the aging population on future development include an increased demand for recreational and retirement housing. Over the next twenty years, demand for assisted living and long-term care facilities will also increase. Additionally, municipalities will need to be able to meet the increasing demands of an aging population with adequate health-care facilities and services, shopping and personal services geared towards an older population, and increased local transportation options. Creating viable transportation options not only benefits seniors that no longer drive, but also helps to reduce the potential that the number of vehicles on the road will increase with the population.

3.2 Ladysmith, B.C.

3.2.1 History of the Town and its Waterfront

What surprised me was that although I'd never been to the place I was supposed to be going, had never walked down that particular street, I knew unfailingly where I had to go, roughly what I would see along the way, how long it would take me to get there. I had stumbled upon the logic of place in a town built when people still walked to get to where they had to go. Streets followed the contour of the land, I could where see the farms had been and imagine why they were where they were - water, sunlight, wood.

- Blog entry on puregin.org 2004-06-03

Discovering the logic of place in Ladysmith, B.C.



Fig 3-14
Welcome sign at the entrance to the Town of Ladysmith

Ladysmith is located on the southeast coast of Vancouver Island. The original inhabitants of the area were the people of the Stz'uminus First Nation. For thousands of years they harvested fish and shellfish from the bountiful Oyster Harbour (as Ladysmith was originally known), their lifestyle undisturbed by European settlers. But in 1884, after receiving a land grant from E&N Railway, coal baron James Dunsmuir (the son of Robert Dunsmuir) privatized much of the Stz'uminus land for use as a shipping port for his coal mining operations. This pushed the Native populations away from their traditional lands and transformed the harbour into an industrial waterway.

In 1898, Dunsmuir founded a town in Oyster Harbour as a bedroom community for the coal miners who worked at the Extension colliery, 19 km to the north. The town literally grew overnight as hotels, houses, and churches were moved by rail to the new town site and reassembled. It was during this time that the Boer War in South Africa was being waged, and the town of Ladysmith, South Africa withstood a 118-day siege. In honour of this, Dunsmuir decided to rename the town of Oyster Harbour after Ladysmith.

By 1912 the population of Ladysmith had reached 3,300 people. However, it was in that year that the fortunes of the town began to change. It started with the Great Strike of 1912-1914 when coal miners, concerned about dangerous working conditions, unionized and went on strike. It was a tense time in the area, as the militia was called in to quell riots. It was only the outbreak of World War I that finally ended the strike.

After the war, the coal industry on Vancouver Island began to falter. Dwindling demand, combined with the worldwide economic depression led to the closure of the Extension mines in 1931, leaving most of the population out of work and the future of the town bleak.

In 1935, the Comox Logging & Railway Company purchased a large tract of Douglas Fir forest to the west of Ladysmith from the Rockefeller family of New York City. By the next year, logging operations greatly improved the economic profile of the community.

By the 1940s, Ladysmith had become the hub of logging activity in the region and the harbour was used extensively for the transport of log booms to the surrounding mills.

Logging provided a solid economic base for Ladysmith for the next 50 years, but like the coal industry in the 1930s, forestry began to decline in the 1980s. By 1985, trains no longer left the Ladysmith waterfront loaded with logs, and the effects of the poor economy were beginning to show on the town's Main Street, namely First Avenue.

The street had become shabby and rundown having lost a significant amount of its retail activity to the malls and shopping centres of Nanaimo, 25km to the north. In 1986, then-mayor Alex Stuart and a group of local citizens spearheaded a revitalization project to restore First Avenue. The town was part of the second group of towns involved in the Heritage Canada Main Street Program, and is considered one of its most successful participants.

The town established the Heritage and Revitalization Advisory Commission (HRAC) to direct the revitalization. Tapping into both private and public funding, the town focused on developing its local heritage resources, the collaborative management of the downtown area, and on aggressively marketing the town as a shopping and tourist destination. Buildings along First Avenue were refurbished and upgraded, a Heritage Walk featuring artifacts from Ladysmith's history of mining and logging was created, and a new civic square was created. Business vacancies along First Avenue were reduced to zero as twenty-one new stores opened, and business activity increased by almost twenty percent over pre-revitalization levels.

The HRAC has remained active throughout the past twenty-five years, and the town has received recognition for its efforts. *Harrowsmith Magazine* named Ladysmith one of the ten prettiest communities in Canada in the year 2000, and in 2003 the town received the national award from *Communities in Bloom* with special note for the heritage preservation work that had been done.⁸⁵



Fig 3-15
First Avenue, Ladysmith, B.C.

3.2.2 Current Conditions

In many ways, Ladysmith's location is ideal: it lies between Vancouver Island's two major urban centres (25 km south of Nanaimo, 90 km north of Victoria); the regional airport is only 7km away and offers service to the mainland and other parts of the province; there are two ferry terminals within 25 km that offer service to the mainland, as well as numerous other ferries that travel to the various Gulf Islands; the E&N railway passes through town offering daily passenger service between Victoria and Courtenay;

⁸⁵ Sacht, M. (ed.). (2004). *Ladysmith: 100 Years 1904-2004*. Ladysmith: Take 5.

and it has a beautiful small-town waterfront setting nestled against thickly forested mountains.

Ladysmith's appeal as a unique and desirable community is responsible for its ongoing population growth. From 2001 to 2006, the town's population increased by 10.7 percent (from 6,811 people to 7,538); from 2006 to 2011, the population continued to grow, albeit at a slightly slower rate, up to 7,921 (+5.1%).⁸⁶ While the town has always been a family community, like much of the rest of Vancouver Island, its population is aging. The median age in the town in 1996 was 37.5 years, increasing to 41.1 by 2001, and up to 45.9 by 2006.⁸⁷

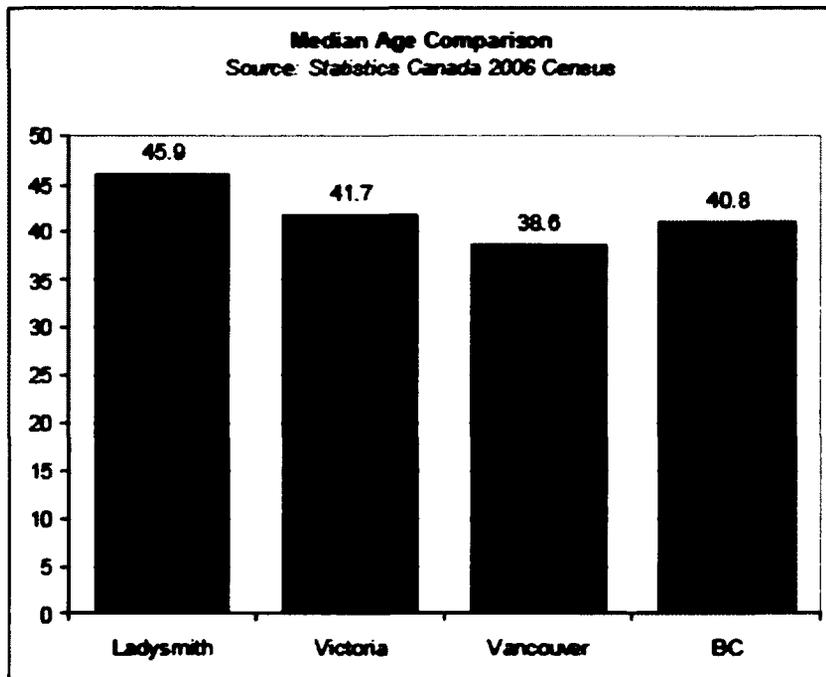


Fig 3-16
Median age comparison

⁸⁶ Statistics Canada. (2011). 2011 Census. Retrieved 2012-03-20 from <http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/hltfst/pd-pl/Table-Tableau.cfm?LANG=Eng&T=302&SR=326&S=51&O=A&RPP=25&PR=59&CMA=0>

⁸⁷ Town of Ladysmith. (2010). *Town of Ladysmith 2010 Community Profile*. Retrieved 2011-04-20 from <http://www.ladysmith.ca/docs/business-development---informational-documents/2011-community-profile.pdf>

Community	Type	2006 Population		Growth 2001-2006		Density (people/km ²)
		Number	Share	Growth	Rate	
North Cowichan	DM	27,557	36%	1,419	5%	142
Ladysmith	T	7,538	10%	727	11%	619
Duncan	C	4,986	6%	287	6%	2,430
Lake Cowichan	T	2,948	4%	121	4%	357
Electoral Areas		30,309	39%	1,517	5%	9
Indian Reserves		3,591	5%	860	31%	60
Total		76,929	100%	4,931	7%	22
<i>Projected growth to 2011 (BC Stats)</i>			6%			

C=City, DM=District Municipality, T=Town, VL=Village

Note: In the event of municipal boundary changes, 2001 Census figures have been adjusted to 2006 boundaries.

Source: Statistics Canada

Fig 3-17
Cowichan Valley Regional District communities

As the town grows and its population ages, demands for new development will undoubtedly reflect the demographic shift. While residential development in the area has historically focused on single-family detached housing, the increasing number of retirees and ‘empty-nesters’ moving to the town and looking to downsize should necessitate an increased demand for smaller residences, such as townhouses and condominiums.

Given the town’s geographic location between the ocean and the mountains, there are topographical restrictions to its future growth. There are limited opportunities for expansion inland, due to both the difficult topography and the fact that the land to the west of the town is controlled by the forestry company Timberwest for future logging operations. Within the town itself there are a limited number of undeveloped sites, and the majority of new residential development has been to the south of the downtown on previously undeveloped land.

The most interesting opportunity for new urban development in close proximity to the downtown core is along its post-industrial waterfront. The redevelopment of this land represents the chance to finally link the current town to the water’s edge that has been the domain of industry since James Dunsmuir established his coal operations there in the late 1800s.

3.2.3 The Ladysmith Waterfront Lands

The Ladysmith Waterfront Lands comprise approximately 94.2 acres including upland, filled foreshore, and water lots. The site is directly adjacent to the historic downtown area and extends over an approximately 1.2 km length of shoreline between the Government Wharf at the northern boundary and Transfer Beach Park to the south. The Trans Canada Highway forms the western boundary of the site, separating it from the downtown area.

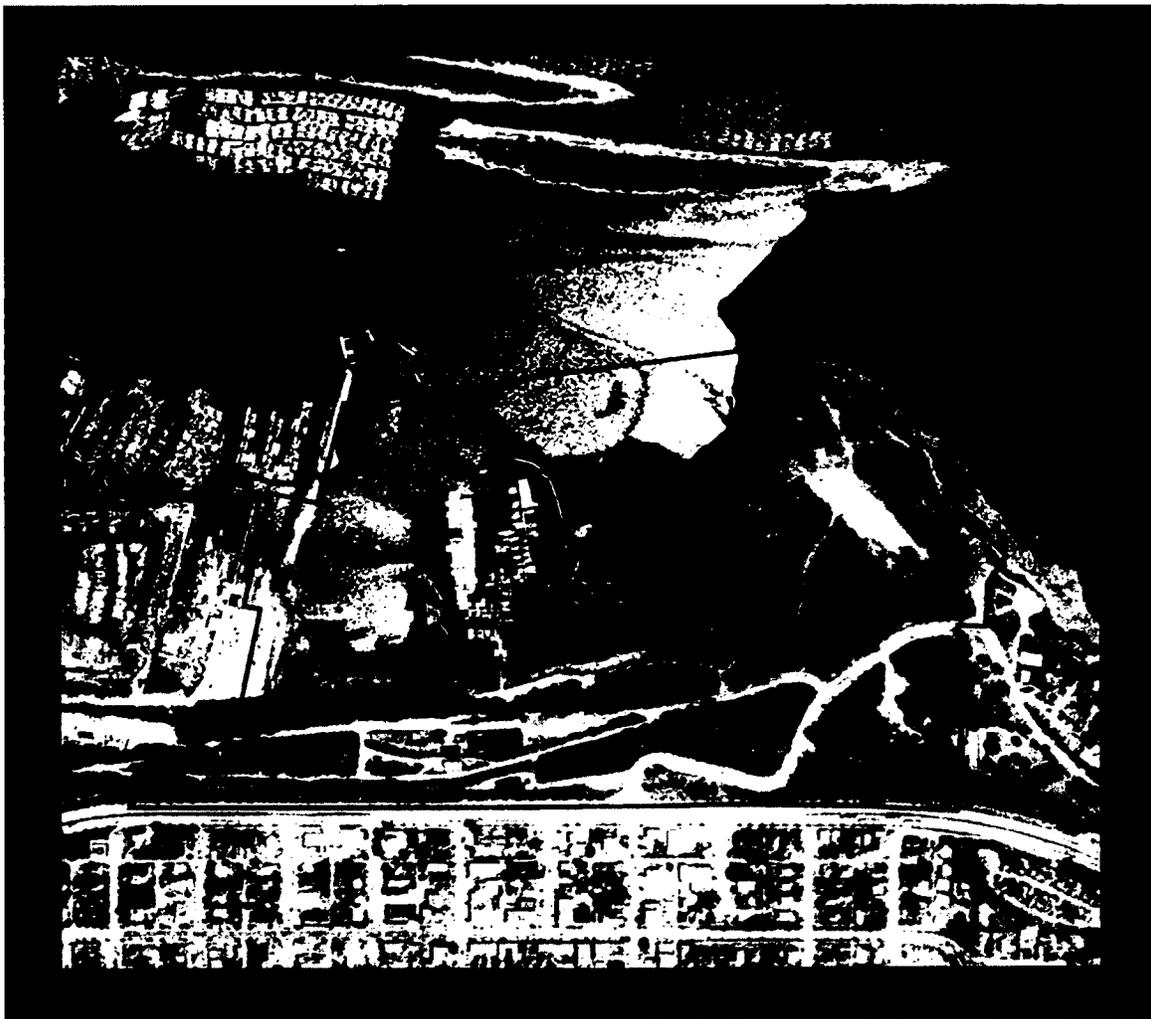


Fig 3-18
Ladysmith Waterfront Lands site boundary

Since 1985, when the last train cars of logs left the site, the Waterfront Lands have for the most part been undisturbed. A marina facility operated by the Ladysmith Maritime Society is accessed through the site, and the only buildings on the site are the old Machine Shop on the Expo Legacy Site⁸⁸ and the train station. The 20,000 square foot shop was built on the upper portion of the Waterfront Lands in the 1940s by Comox Logging and Railway and was restored in the mid-1990s. It currently houses the Waterfront Art Gallery and several other community and business uses. The train station is located at the top edge of the site between the rail line and the highway, but has not been in active use since the 1970s and is currently boarded up.⁸⁹

The most visible area of the foreshore is a peninsula of coal dust, called Slack Point. It was here that the coal was washed before being loaded onto train cars, and the runoff of slack – coal dust, coal fragments, and dirt – accumulated for years, building up the peninsula. Due to the action of the tides, the slack is continually pulled into the harbour; while the water was once over fifty feet deep, it is now has a depth of only twenty-five feet.

Slack Point, however, is only the most visible area in need of remediation. From 1902 until 1911, the Tye Copper Smelter operated on Ladysmith's waterfront. Copper ore was transported by rail to the smelter, where it was piled into heaps as large as 250 tons and burned for four weeks at a time to remove sulphur and other impurities. After the copper was processed, the resulting slag was dumped in the harbour. The environmental impact of the smelter can still be seen today as the former site is still devoid of vegetation.

⁸⁸ The Expo Legacy Site was funded by the provincial government as a means to preserve the legacy of Expo '86 in communities around the province. In Ladysmith, this involved the renovation of the Machine Shop building on the waterfront lands by the Ladysmith Maritime Society into a shipbuilding workshop. There was also a small amphitheatre and harbour lookout built on the site.

⁸⁹ Although the train station itself is not actively used, the daily passenger train still makes a stop in Ladysmith at the station; the building is just not staffed. Needless to say, it is strongly recommended that you call ahead of time to make sure that the train stops!

The logging industry has also left its mark on Ladysmith's waterfront. The foreshore area, used extensively for log sorting, contains thousands of cubic metres of wood-waste, bark, and sunken logs.

Despite the years of industrial degradation, however, the waterfront area is still a viable site for redevelopment, and has been the subject of discussion for decades. While the environmental cleanup required is costly and extensive, it is limited to a few contained areas and would not preclude the rest of the site from being redeveloped.

3.2.4 Past Development Proposals

Two development proposals for the Ladysmith Waterfront Lands have been put forth in the last twenty years, neither of which was successful. The first proposal came about in the late 1980s / early 1990s by a private development group called SeaVisions. While details of the proposed project were not available, the proposal called for over 1100 residential units built over the entire site, as well as a large hotel to be built on pilings out over the water. The project, which was able to secure financial commitments from interested investors, ran into opposition from the Town Council and the citizens of Ladysmith over concerns about public access to the waterfront.

In 1994, the Town of Ladysmith initiated a review of its existing Official Community Plan (OCP) in consideration of the future development of the town, with a special focus on the Waterfront Lands. This process ultimately yielded the Waterfront Area Plan (WAP), a document that was conceived to ensure that that a plan was in place that would "improve public access and use of the waterfront [and] determine the location and scale of future development."⁹⁰ The town Council realized that the key component to future development in Ladysmith would involve the waterfront, and that it should be seen as "a

⁹⁰ Town of Ladysmith. (2003). *Waterfront Area Plan*. Retrieved 2011-09-21 from <http://www.ladysmith.ca/docs/bylaws/waterfront-area-plan.pdf> (p. 1-2).

natural extension of a hillside and seaside community.”⁹¹ The WAP outlined several key points to guide future proposals for the waterfront, including:⁹²

- *A plan for the waterfront area should acknowledge the waterfront as a part of the existing community and extend the activities of the town to the water’s edge.*
- *The waterfront should be organized within a framework of a parks and natural open space system and a transportation network.*
- *Public access to the waterfront and shoreline is to be enhanced through direct linkages to downtown, a continuous waterfront linkage, protection of view corridors, and a circulation network throughout the area.*
- *A range of land use types should be permitted on the waterfront to provide for year-round use by both residents and visitors to Ladysmith.*
- *Community uses and amenities should be provided in the waterfront area for both residents and visitors.*
- *The scale of development should reflect the character and scale of the Town.*
- *An emphasis on pedestrian orientation and accommodation of a variety of modes of transportation (pedestrians, cyclists, vehicles) will ensure a safe, active and vibrant area for Ladysmith.*

In 2006, the Town of Ladysmith released a Request for Expressions of Interest (RFEI) with the intention of seeking “experienced waterfront developers who were prepared to undertake a high-quality development”⁹³ of the Ladysmith Waterfront Lands. Of the original six respondents to the RFEI, only the First Principles Development Group Ltd responded with a design proposal.

The First Principles group proposed a mixed-use development for the site in keeping with the structure of the Town’s WAP. The proposal included: approximately 700 residential

⁹¹ Town of Ladysmith. (p. 2-1). [Footnote 90]

⁹² Town of Ladysmith. (p. 2-1). [Footnote 90]

⁹³ Brook Development Planning. (2006). *The Ladysmith Waterfront Lands Request for Proposals*. Vancouver. (p.3).

units of a variety of scales in a series of “neighbourhood enclaves”⁹⁴ on the site; a village centre with a mix of live/work, housing, commercial, and recreational activities; a 130-room boutique hotel; a seniors’ centre; an extensive network of pedestrian and cycling paths; a new marina to replace the existing one; and a large public park space at the water’s edge. The proposal maintained the view corridors of the town, provided ample public access to the waterfront, respected the scale and fabric of the existing community, and would have created numerous job opportunities with the hotel, seniors’ centre and commercial spaces. In addition, the proposal made a commitment to using sustainable building practices.

The Town Council received the proposal very favourably, and initiated public consultation. However, the public viewed the proposal in a less than enthusiastic manner, specifically with respect to how it related to the existing Transfer Beach Park. The first point of concern was that the proposed site for the new hotel was next to the outdoor amphitheatre on the promontory overlooking the harbour. Citizens feared that this privately owned building would infringe on the public enjoyment of the amphitheatre and the park, and that by dedicating what is arguably the most prominent site on the waterfront for hotel use, private interests were being put ahead of those of the citizens. The second contentious issue was that the First Principles Group had proposed a ‘land swap’ whereby they would build residences on a section of the upland portion of Transfer Beach Park in exchange for new park space on Slack Point. It was this part of the proposal, more than the location of the hotel, that ultimately derailed it.⁹⁵

⁹⁴ First Principles Development Group Ltd. (2006). *Ladysmith by the Sea*. Vancouver. (p. 23).

⁹⁵ Transfer Beach Park, it should be noted, is considered something of a ‘sacred cow’ – as the current mayor Rob Hutchins described it – in the eyes of the townspeople. The park land was cleared by town citizens in the 1950s for use as a public beach, and over the years, active community involvement by groups such as the Rotary Club and the Ladysmith Kinsmen have resulted in new playgrounds being built, a new children’s waterpark, and a number of pavilions for public use. In light of this, proposing the construction of condominiums on the site was bound to draw the ire of the citizens who saw this as an affront to the years of work that had gone into making the park what it is today, no matter how much new park space was to be offered in return. This is also a clear demonstration of the politics involved in making changes to the urban fabric of small towns: without the support of the citizens and an understanding of what they hold as most important to their lives in a small town, new development will meet with stiff opposition.

In acknowledgment of the public’s concerns over the development of the waterfront, the Town of Ladysmith undertook an “extensive community engagement process aimed at shaping a vision for the future of the community.”⁹⁶ Council realized that the success of any future development plans would be contingent on getting community buy-in and support, and thus launched the Ladysmith Sustainable Community Visioning Project, a series of six community meetings designed to afford citizens the opportunity to be directly involved in the town’s future development. The key goals of the project were to⁹⁷

- *Develop a sustainability strategy for the town.*
- *To articulate a clear vision for the future of Ladysmith, as created by the community. This includes the overall vision for the town, as well as developing a typology for three sub-areas: downtown, the waterfront, and the hillside.*
- *To ensure the vision was ‘actionable immediately in terms of priorities and direction for development.*
- *To build a greater sense of shared vision and collective buy-in for future directions and decisions in Ladysmith.*

As a result of these community workshops, the town was able to better understand the issues that were most important to the community in order to shape future “legislative framework[s] with respect to community planning, sustainability and development.”⁹⁸ Identifying community expectations with respect to future development will permit the town to avoid uncertainty and potential conflicts that may arise as they proceed with planning for ongoing growth.

The Town of Ladysmith, through their Sustainable Community Visioning Project, has adopted a sustainability strategy entitled *The Eight Pillars for a Sustainable Community*. The eight pillars are:

⁹⁶ Town of Ladysmith. (2009). *Sustainable Community Visioning Project*. Ladysmith, BC. (p. 5).

⁹⁷ Town of Ladysmith. (2009). (p. 8). [Footnote 96]

⁹⁸ Town of Ladysmith. (2009). (p. 8). [Footnote 96]

- (i) Land use for a complete community
- (ii) Community facilities, amenities and programs
- (iii) Economic opportunities
- (iv) A diversity of progressive transportation options
- (v) Green buildings
- (vi) A rich tapestry of uses in the landscape
- (vii) Innovative infrastructure systems
- (viii) Healthy food systems

The redevelopment of the Ladysmith Waterfront Lands into a sustainable mixed-use neighbourhood should incorporate aspects of each of the Eight Pillars while taking into consideration the unique character and local history of the town, its location as a waterfront destination and hillside community, as well as reflecting the traditions and aesthetics of life on Vancouver Island.

Part 4. Project and Process

4.1 Site Analysis

The redevelopment of post-industrial waterfront sites are typically large-scale endeavours requiring both significant financial resources and a strong population base that can support the demand for new residential and commercial space. As a result, the majority of waterfront redevelopment projects take place in larger, more affluent cities. Just because larger cities receive the most attention, however, it does not mean that smaller urban centers can't also support waterfront redevelopment.

While many of the development projects that take place in large cities are not suited to smaller venues, the underlying principles of redevelopment can serve as cues as to what direction redevelopment could take. The Ladysmith Waterfront Lands are a prime example of the potential that a post-industrial waterfront holds for redevelopment as a community amenity.

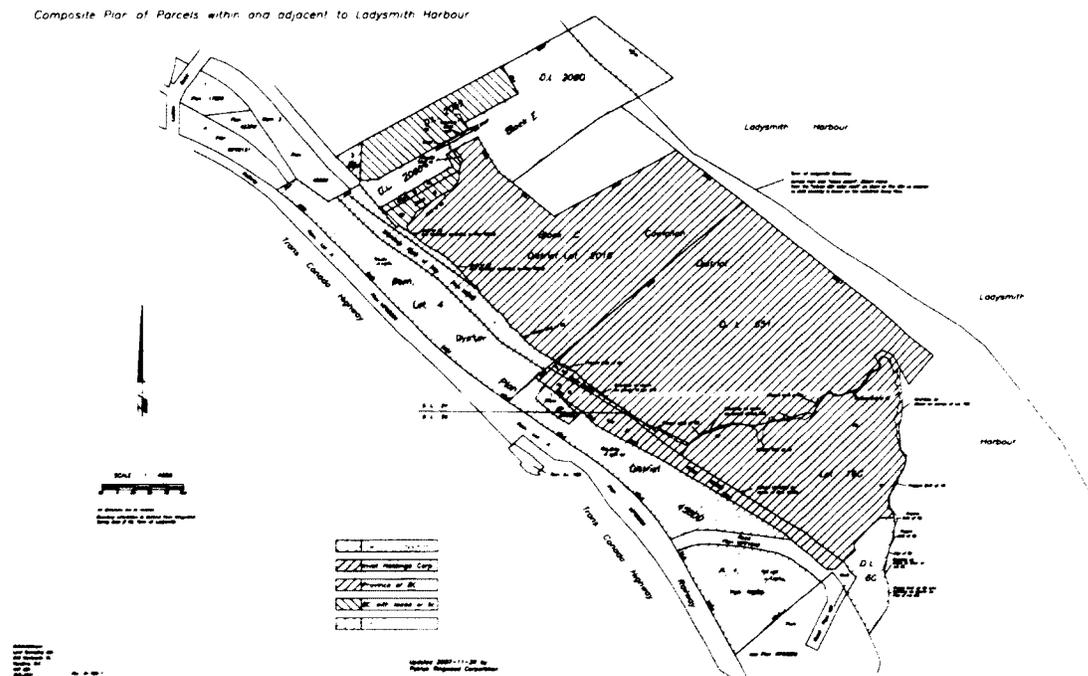


Fig 4-1
Ladysmith Waterfront Lands ownership map

As discussed in section 3.2.3, the Ladysmith Waterfront Lands are comprised of an upland area, a filled foreshore, and water lots totaling approximately 94.2 acres. Within that site, the Town of Ladysmith owns approximately 23 acres while the Province of B.C. owns 68 acres of which 13 acres is the filled area comprising Slack Point. The Town also leases 28 acres of the total 68-acre waterlot area on a 30-year, renewable term. An adjacent privately owned, 3.2-acre parcel is also considered part of the overall site. From the uplands portion of the site to the shoreline, there is approximately a thirty-metre change in elevation, with a pronounced ridge close to the water's edge.

The challenge presented by the site – and by the terms of reference developed by the Town of Ladysmith – is how to effectively redevelop the lands from a vacant industrial site into a compact and diverse sustainable neighbourhood that enhances the town's economic, social, and environmental future.⁹⁹ As the local community has a deeply

⁹⁹ In 1962, the book *Silent Spring* by Rachel Carson was published. It brought together research on toxicology, ecology, and epidemiology to suggest that agricultural pesticides were building to catastrophic levels, and could be linked to damage in animal species and to human health.⁹⁹ This book is considered to be the turning point in our understanding of the interconnections between the environment, the economy, and our social well-being, the underlying foundations of sustainable development.

The term 'sustainable development' became popularized with the 1987 release of the Brundtland Report titled *Our Common Future*. The report was the result of a five-year study undertaken by the Brundtland Commission (formally known as the World Commission on Environment and Development (WCED)) and its purpose was to address growing concern "about the accelerating deterioration of the human environment and natural resources and the consequences of that deterioration for economic and social development." The Commission was convened in 1983 by the United Nations (UN) and was an acknowledgment by the UN General Assembly that environmental problems were indeed global in nature and that it was in the best interests of all nations to establish policies for 'sustainable development.'

The Brundtland Report defined 'sustainable development' as:

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

- *The concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and*
- *The idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.*

Expanding on the definition, sustainable development can be looked at as a process of reconciliation between three imperatives: ecological, social, and economic. It is only through equitable access to these three resources – at all levels, be it citizens, industry, or government - that sustainable development can truly be achieved.

invested interest in the development of the waterfront lands, any proposed redevelopment needs to maximize the potential public benefit. The project must demonstrate a commitment to providing public access to the waterfront, ample on-site parks and public amenities, and a ‘fit and appropriateness’ within the context of a small town on Vancouver Island.

Taking the site parameters into consideration, a number of development options were explored and assessed on whether or not they meet the basic criteria set out by the town. If it cannot meet those, then it can’t be considered as a suitable long-term solution for the future growth of the town.

In this thesis, the Ladysmith Waterfront Lands have been used as a laboratory to test various approaches to urban planning and to see what results are yielded in terms of meeting the town’s criteria for future development. While it was known from the outset that some of these approaches would not arrive at a desirable outcome, it is still instructive to look at them to see what the shortcomings are, and perhaps to discover some unexpectedly positive results. This process generates a baseline against which to compare viable planning options and to justify the decisions made. The exploration of different planning models on one site is also illustrative of the fact that attempting to directly replicate a project from one location to another – especially one as unique as an urban waterfront – is a technique that rarely meets with success.

4.1.1 The Park Option

[Refer to Figure 4-2]

This is probably the simplest of all possible options in which the site is redeveloped entirely as a park with no programmatic components beyond walking paths and a boardwalk around the perimeter. In this option, the only buildings retained would be the old Machine Shop and the train station. The amount of remediation required would be

significantly less than if buildings were to be constructed. Shoreline rehabilitation would be the primary issue to be dealt with, as well as stabilization of the Slack Point area. To develop the site strictly as a park space – essentially extending the existing Transfer Beach Park across the waterfront to the government wharf – would be the least controversial option. As the land would be retained exclusively for public use, there would be little chance of private ownership interests getting in the way. As far as a sustainable development initiative, however, turning the entire waterfront into a park falls short of meeting the long-term objectives for the sustainable growth of the town.

This option fails to address the spatial needs of a growing town to the degree that it would encourage sprawling linear growth on greenfield sites to the north and south of town.

From an economic perspective, the park option also falls short. With no commercial or residential development to offset the environmental clean-up, the costs would have to be absorbed by the town and Province. In an already tight provincial economy, finding those funds may prove difficult. Second, a park would not create a significant number of private sector jobs within the town. Third, however beautiful it was, a park would be unlikely to bring a significant number of new visitors to the town to bolster the tourist economy. In the absence of other programmatic elements, a park on the Ladysmith waterfront would be largely limited to use by the citizens of the town, and would likely remain underused for a large portion of the time.

From a social perspective too, developing the site exclusively as a park falls short of meeting the objectives of sustainability. As waterfront parkland is already available at Transfer Beach, there would be little to encourage social activity or interaction within the space. In this regard, the site would not be much different than it is currently (although it would be a more pleasant landscape) since it would remain a zone of single use with no connecting program at its borders to encourage interaction with the existing town. It would remain a “border vacuum” as Jane Jacobs described it.

In *The Life and Death of Great American Cities*, Jacobs specifically discusses the reuse of waterfronts as parks, saying “the usual form of rescue for a decayed waterfront vacuum is to replace it with a park, which in turn becomes a border element – usually appallingly underused.”¹⁰⁰ The problem is that there are no ‘seams’ of activity – to use her terminology – connecting the waterfront to the rest of the urban fabric and bringing visitors into the site. It is this lack of connectedness that ultimately leads to the park being a less-than-optimal development option.

¹⁰⁰ See Jacobs (1961). (p. 267-268). [Footnote 16]

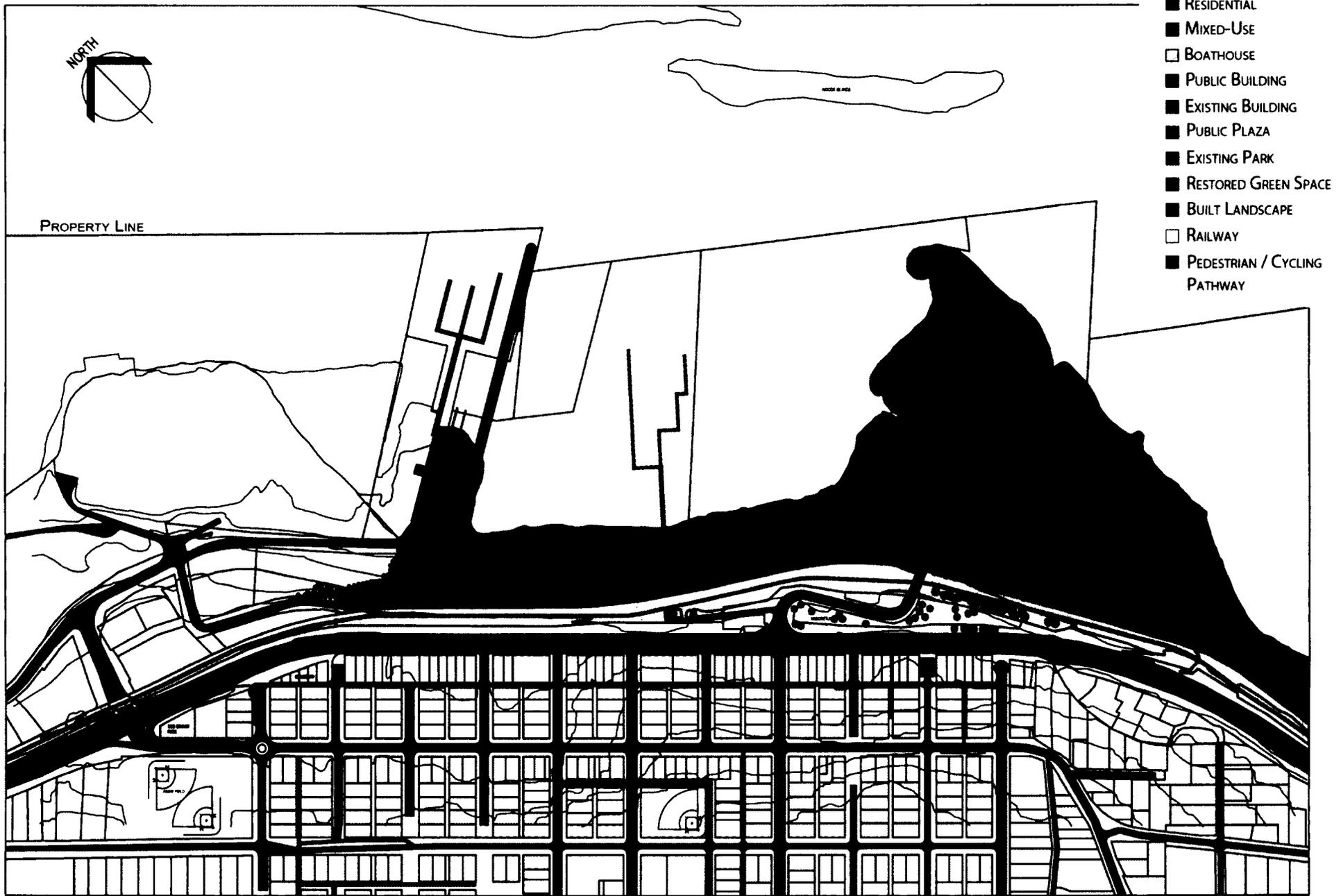


FIG. 4-2
PARK OPTION - PLAN

SCALE 1:8000

4.1.2 The Town Option

[Refer to Figures 4-3 & 4-4]

In the Town Option (TO), downtown Ladysmith (First Avenue) is mirrored across the highway onto the waterfront site, replicating the existing urban grid and townscape. This gives an idea of what development may have occurred had the waterfront not been appropriated for industrial use when the town was established. If the waterfront had been chosen as the original site for the town, in all likelihood many of the town's civic buildings, such as City Hall, would have featured prominently on the waterfront as well. As it is, the current City Hall is located across the highway from the waterfront at the main intersection leading down to the water.

Translating the town layout onto the waterfront lands yields a total of 143 lots, 111 of which accommodate single-family residences, consistent with housing in downtown Ladysmith. This is a result of the town's coal mining roots where housing was built to accommodate the miners and their families. The remaining 32 lots mirror the buildings on First Avenue and accommodate approximately 60-65 businesses. (Included in this option are 96 water sites for a mix of float homes and boathouses). The residential density of the site is therefore the same as the existing town, which, if based on the total town area and population yields a density of only 2.67 PPA.¹⁰¹

It is then interesting to consider how this translation of the town footprint onto the new site measures up in terms of its overall sustainability.

Economically, this option presents a difficult challenge for a small town in that it would essentially double the number of businesses within a second downtown precinct in direct competition with the original First Avenue. The town's population base may not be large enough to support that volume of commercial activity, even with increased activity at the

¹⁰¹ The urban density of the downtown area is obviously much higher than that of the town as a whole, but without accurate data as to the number of employees per business, the number of residents, etc, it is difficult to accurately estimate, but it would be typical of a town of about 8000 people.

waterfront. Additional economic activity would likely come at the expense of the town's existing businesses.

Ecologically, this option raises a number of issues. Translating the existing townscape directly onto the site ignores the topographical restraints, and extensive re-grading and excavation would need to be undertaken. Similarly, few of the existing trees or foliage would be able to be retained. Because this option is in keeping with a traditional neighbourhood development model, however, it provides new pathways throughout the site to accommodate pedestrians and cyclists. Open green space is also very limited in this option, and what does exist is inaccessible to the general public.

Socially, while the TO replicates the main street condition – which in a small town is considered the social hub of daily life – this is confined to the main thoroughfare that transverses the site. It would also be a challenge to connect the existing street grid across the Trans-Canada highway, as it is not feasible to provide cross streets at every block. At best there could be one more controlled intersection across the highway. The rest of the area is a residential neighbourhood of detached homes, as is the case in the rest of the town. This still falls short with respect to creating an amenity for the whole community; the proposed residential fabric represents a barrier between the general public and the waterfront. The marina is isolated behind private lots, giving the impression of it being a facility for the use of the neighbourhood.

From the perspective of the town's development objectives, this option does succeed on a number of points. Where the idea of a complete community is concerned, the TO includes a main street that is accessible to the whole community, but the balance of the site falls into private ownership. Similarly, while the new main street would provide some community facilities and amenities, as well as new economic opportunities, these may come at the expense of the existing ones.

This option does have the potential for alternative transportation options such as walking and cycling, as well as the expansion of the town's existing trolley service; and with the

new neighbourhood, there could be increased demand for the daily passenger train service. However, as far as celebrating the waterfront within the community, for the whole community, this development option falls short to the degree that the water's edge remains isolated behind a border of privately owned land.

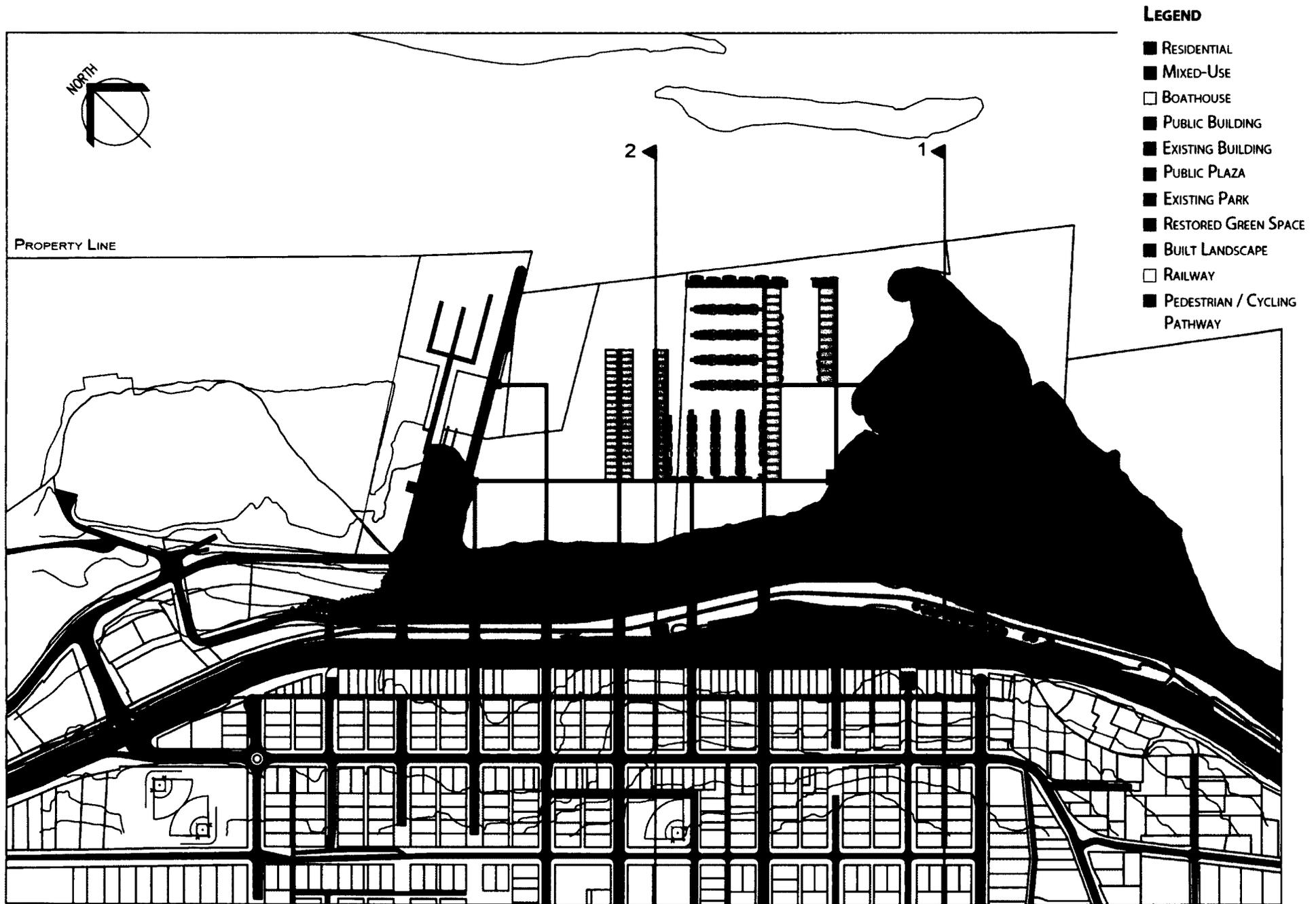
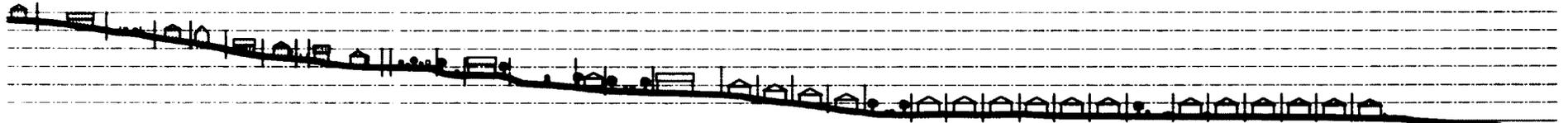
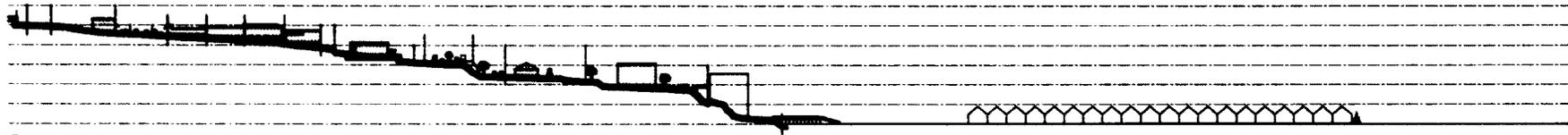


FIG. 4-3
TOWN OPTION - PLAN

SCALE 1:8000



SECTION 1



SECTION 2

FIG. 4-4
TOWN OPTION - SECTIONS

SCALE 1:3500

4.1.3 The Radial Option

[Refer to Figures 4-5 & 4-6]

The 'Radial Option' (RO) involves a concentric ring of residential development, centered around the existing Machine Shop building, with radial streets roughly aligned with the town's view corridors. The sites around the neighbourhood centre are mixed-use buildings with commercial space at street level and residential units on the upper levels, much like the buildings on Ladysmith's First Avenue. The rest of the lots on the site are intended for single family, detached residences. The RO is a variation of the TO, and suffers from many of the same limitations.

In this option, the mixed-use component at the neighbourhood centre is only nine lots, approximately equivalent to one block of First Avenue. If each building has three levels of residential units over a commercial base, this yields approximately 270 units. There are 190 individual lots intended for detached residential development (as well as an additional 45 water sites intended for float homes). With an overall buildable site area of approximately 36 acres (including the 13 acres of Slack Point, but excluding the water lot portion of the site), this yields a residential density of 12.8 dwelling units per acre. Assuming an average of four residents per detached dwelling unit and two residents per mixed-use unit, a population density of 36.1 people per acre (PPA). Compared to the TO, the residential density is significantly higher.¹⁰²

When considering the RO in terms of the parameters of sustainability (economic, ecological, social), it raises the same issues as the TO, with two main exceptions.

¹⁰² The residential density is higher than that of the TO because this option assumes that the mixed-use buildings at the neighbourhood centre would be designed with a residential component in mind. While many of the old buildings on First Avenue do have apartments on the upper levels, most of them are single apartments or else they are older and run-down, and therefore not desirable as places to live. If newer, nicer apartments were available, the residential density on First Avenue would be much higher than it currently is.

From an economic perspective, this option contributes additional new commercial space to complement, rather than compete with, the town's existing First Avenue businesses. Since they are located at the centre of the neighbourhood, there is a captive market within walking distance to support them. Socially, this option partially addresses the changing demographics of the town and Vancouver Island with the inclusion of higher density residences at the neighbourhood centre, but these are concentrated in one area. While this development option would likely meet the town's 25-year growth projections, it focuses too heavily on detached residences that are less appealing to retirees and empty-nesters.

This option does not do enough to diversify land use, nor does it represent a complete solution for the town's future needs. Therefore it too should also be considered a less-than-optimal solution for the redevelopment of the site.

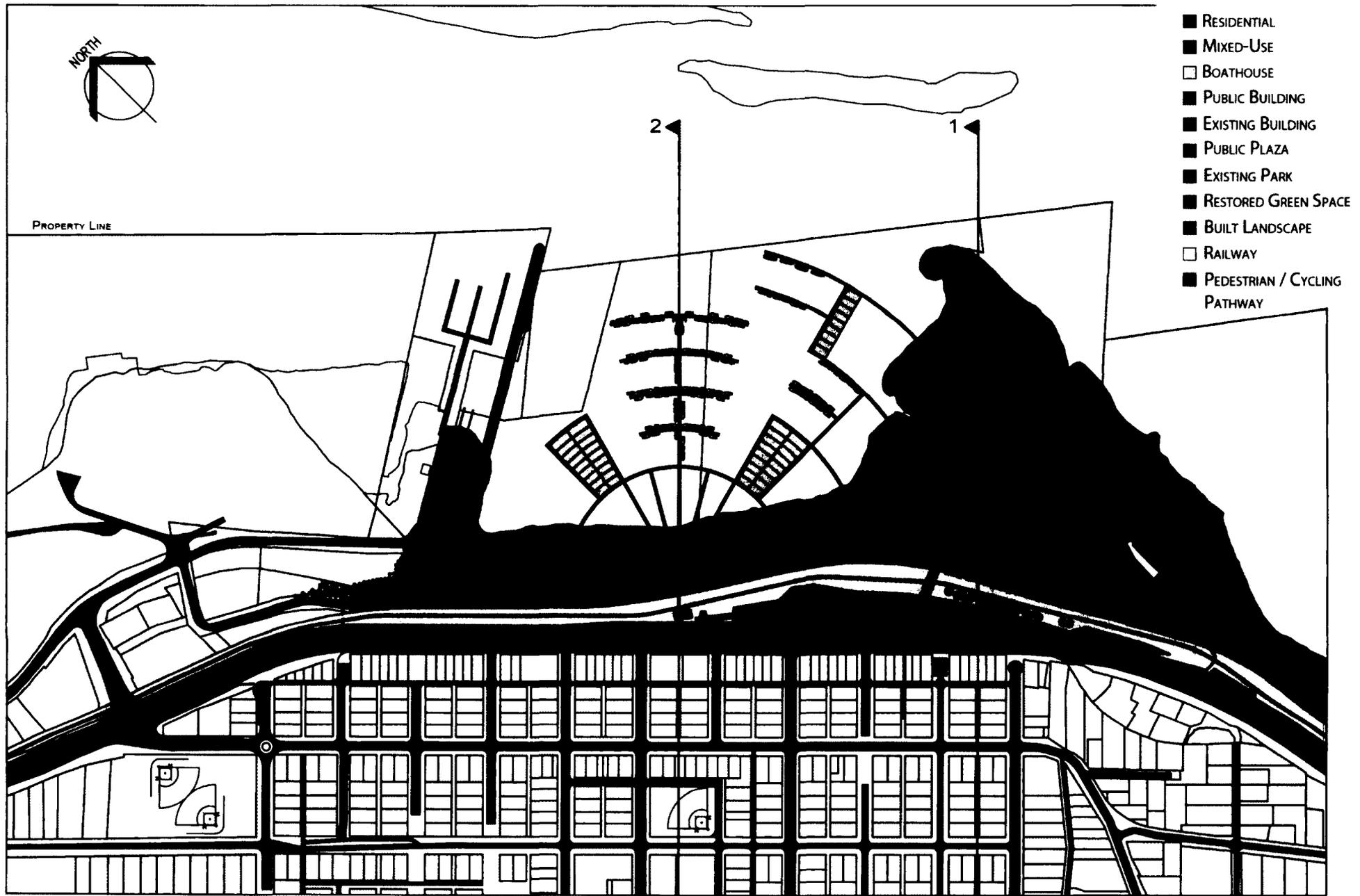
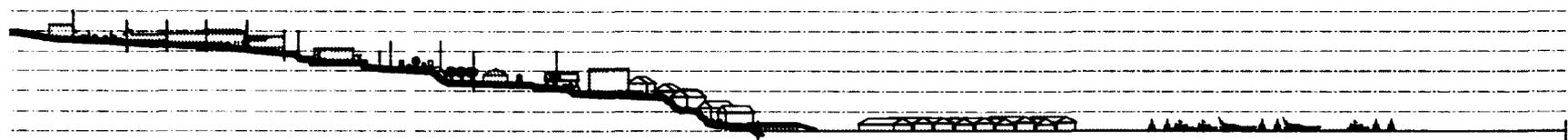


FIG. 4-5
RADIAL OPTION - PLAN

SCALE 1:8000



SECTION 1



SECTION 2

FIG. 4-6
RADIAL OPTION - SECTIONS

SCALE 1:3500

4.1.4 The Suburban Option

[Refer to Figures 4-7 & 4-8]

The 'Suburban Option' (SO) replicates some of the more recent residential development at the south end of Ladysmith, and is typical of much of what has occurred in the central Vancouver Island region. The SO could be characterized as a car-oriented neighbourhood, comprised of single-family, detached housing on curvilinear streets and cul-de-sacs.

This option yields 237 individual lots (plus another 48 float home sites in the marina) on a buildable area of 36 acres for a building density of 6.6 UPA, or assuming four residents per dwelling, a residential density of 26.3 PPA. While the density is greater than that of the TO, it still fails to address the housing needs of an aging population in that it is geared towards detached single-family housing, of which there is already an ample supply elsewhere in the town.

Evaluating this option from the perspective of sustainable development, it raises many of the same issues that arise with the TO and RO.

As a strictly residential community, the SO does not diversify the town's existing economic base; there are no activities associated with the site to increase tourism or visitation; the marina is again separated from the town by a band of residential development, giving the impression that it is a facility primarily for residents.

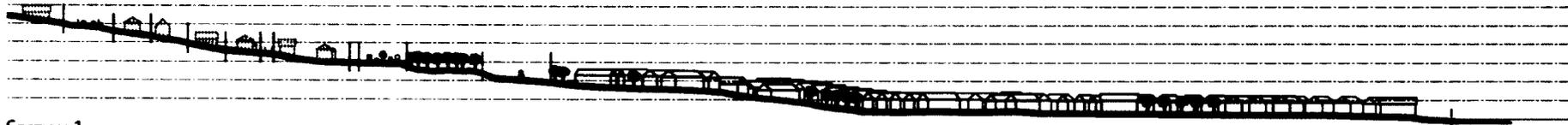
From an environmental perspective, the presence of private development will help to offset the costs of remediation. But while the plan includes green space the natural topography of the site is ignored necessitating extensive re-grading and excavation. Again, the majority of the existing trees and vegetation would need to be removed.

As with the previous options, the SO separates the waterfront from the existing town: the waterfront is for the residents of the new neighbourhood, not the community as a whole. This option falls short as a comprehensive solution for the town's future development ambitions and can thus be disregarded.

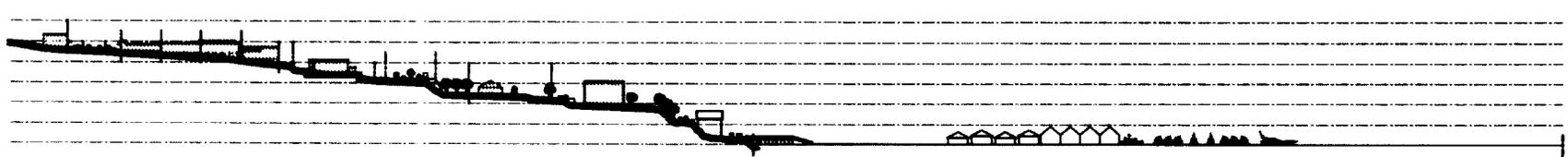


FIG. 4-7
SUBURBAN OPTION - PLAN

SCALE 1:8000



SECTION 1



SECTION 2

FIG. 4-8
SUBURBAN OPTION - SECTIONS

SCALE 1:3500

4.1.5 The High-Density Tower Option

[Refer to Figures 4-9 & 4-10]

In the High-Density Tower Option (HDTO) the built footprint is minimized in favour of tall, narrow residential towers sited to preserve view corridors and leave ample green space distributed throughout the site.

This option incorporates twenty-four towers, each twelve storeys high¹⁰³ with approximately 90 residential units per tower, for a total of 2160 units. (There are also 90 water sites for float homes and boathouses). On a buildable site area of 36 acres, this yields a residential density of 60 UPA; assuming two residents per unit, the population density for the site would be 120 PPA. There is also a four-storey hotel included on the site with approximately 130 rooms¹⁰⁴. The overall density of this option far exceeds that of the three previous options.

From a sustainability perspective, this option comes closer to meeting several of the long-term objectives identified by the Town of Ladysmith.

Economically, the significantly higher number of residential units created will yield more sales revenues at a lower per unit cost than houses on individual lots. The hotel on the site is the major economic factor in this option: it provides accommodation for visitors to the area (there is currently only one small motel in the town, a number of bed-and-breakfasts, and a couple of other resorts outside of town); the convention center component brings in business activity; and there is a restaurant and lounge. According to the projections from the First Principles Development Group, a hotel of that size would

¹⁰³ The height of twelve storeys for the towers was arrived at by comparing the height of the tower relative to the elevation at First Avenue: a 12-storey high tower is approximately level with the height of the buildings downtown.

¹⁰⁴ The statistics for the hotel are based on the numbers generated by the First Principles Development Group in their 2006 proposal for the Ladysmith Waterfront Lands. The hotel as proposed included: 130 guest rooms; a 120-seat restaurant; a 75-seat licensed lounge; a 200-seat convention facility; and it would require 100 full-time employees.

require one hundred full-time employees that would presumably come from within the community.

The HDTO, however, is still primarily a residential neighbourhood. Unlike the waterfront redevelopment in Vancouver's False Creek, which include a commercial element in the tower base, the physical arrangement of these towers does not lend itself to that programmatic component. The towers are set back from the connecting roadway to provide green space around the entire base. In False Creek the towers are built right to the sidewalks with storefronts at the ground level, so there is a consistent urban streetscape for pedestrians, whereas the HDTO lacks that continuity.

Ecologically, minimizing the building footprints leaves a significant amount of green space on the site. Excavation and re-grading would be confined to the building sites; and it would be easier to accommodate the existing topography, although it still imposes buildings on the site rather than working with the natural landscape. Other ecological benefits would include: environmental remediation of the site; the retention of existing trees and foliage; ample open space for pedestrian and cycling paths throughout the site; and the retention of the view corridors from the existing town.

As a social condition, however, high-density towers on the waterfront lands have some shortcomings. Firstly, there are no other buildings within the town higher than four storeys, so it would introduce a completely foreign building typology to the town. Secondly, having the tallest buildings near the water's edge is frowned upon. Even in cities such as New York, the standard practice is to gradually increase in size the further back from the water that you get, not the reverse. Thirdly, this arrangement does not enhance the social interaction possibilities within the site because each building is set apart, connected by individual driveways, so that the primary means of travel throughout the site is mainly by automobile. Finally, although there is a significant amount of open space on the site, there are no other programmatic components aside from the hotel to encourage use by the wider community. This option, much like the RO and SO is primarily a residential enclave that does little to encourage public access.

With regard to the town's development objectives, this option does succeed on a few points. It generates economic opportunities; it creates ample green space as a community amenity; the waterfront is open and accessible; and the buildings should theoretically be constructed to green building standards (such as LEED®). As this option falls short of being a complete solution, however, it can be disregarded as a viable model for redevelopment.

4.1.6 Summary

The five options explored are fundamentally generic solutions requiring major adaptation in both form and diversity of program in order to work within the context of the site and to meet the Town of Ladysmith's development objectives. That being said, there are elements of each that work within those constraints, and subsequently informed the final planning decisions.

Through the analysis of these five options, it can be seen that the attempt to impose a pre-conceived design typology on a unique site such as the Ladysmith Waterfront Lands fails to achieve a complete solution. This scenario has been played out in larger cities where there has been an attempt to replicate a successful waterfront redevelopment from one city to another without consideration of the underlying principles that made it work in the first place. It is not a formulaic process with a universal result, but rather it is one that requires the successful integration of context, site, program, and design ideology working in concert to arrive at a holistic solution that then rationalizes the economic, ecological and social imperatives that underlie sustainable development.

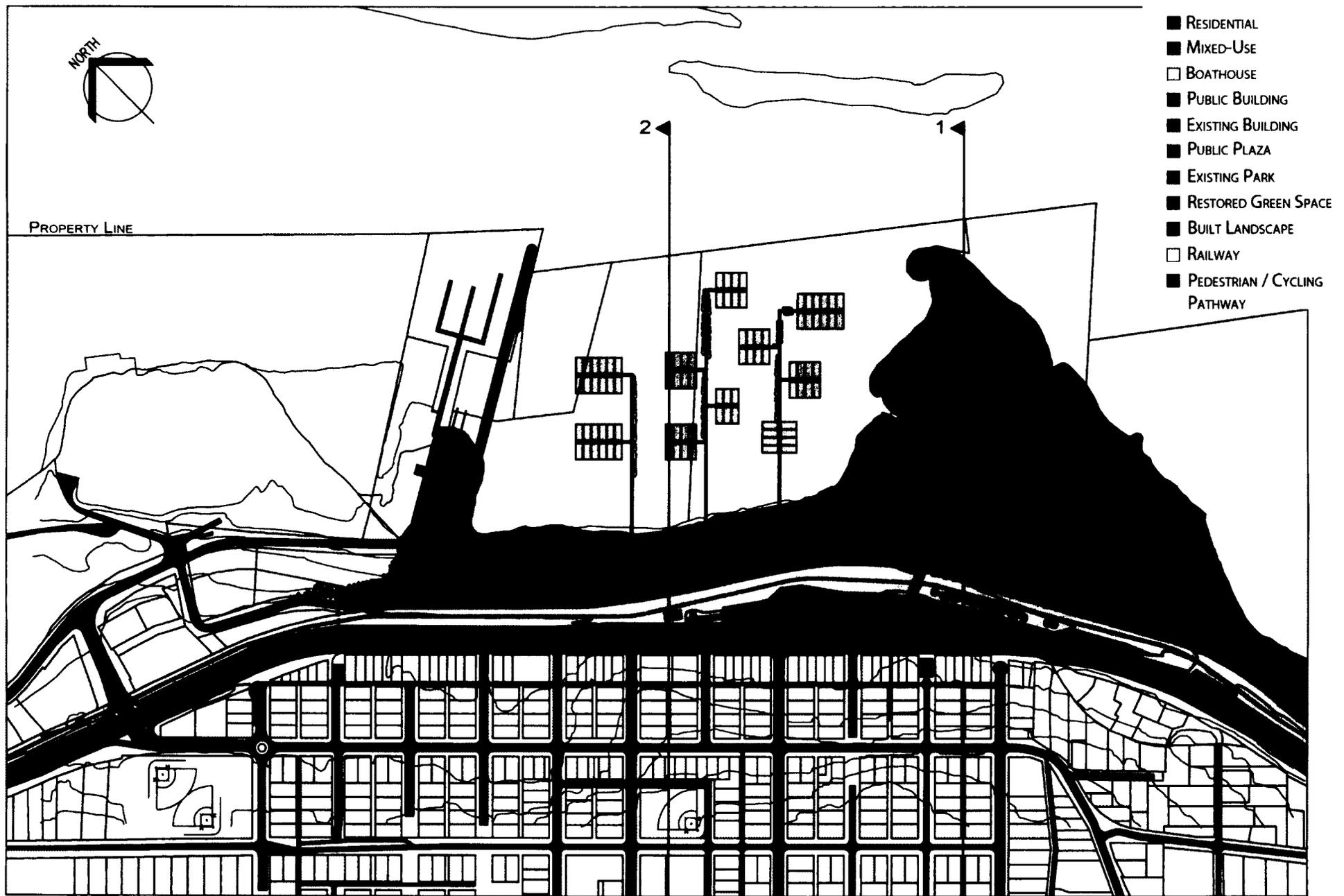
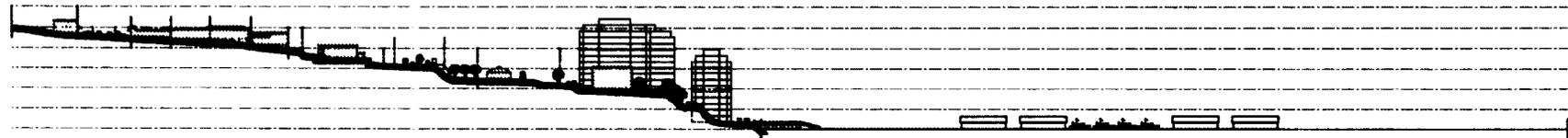


FIG. 4-9
HIGH-DENSITY TOWER OPTION - PLAN

SCALE 1:8000



SECTION 1



SECTION 2

FIG. 4-10
HIGH-DENSITY TOWER OPTION - SECTION

SCALE 1:3500

4.2 [rel]:Claimed Waterfront

Nothing higher than a whale by the water.

- Jane Holtz Kay,

Architecture critic, commenting on height limits near the water.

The Town of Ladysmith wishes to transform its waterfront into a sustainable mixed-use neighbourhood that forges a meaningful connection to the existing townscape in accordance with globally and locally sustainable initiatives. The project should serve as a vision for the sustainable future of not only the waterfront, but for the town as a whole. The question then, is how to realize this?

Since the Brundtland Report brought the concept of ‘sustainable development’ to the world’s attention, different sustainable design ideologies have evolved, each with slightly different principles and areas of focus. The three most prominent sustainable design movements are Smart Growth, New Urbanism, and the green building programs as represented by the United States and Canadian Green Building Councils (USGBC and the CaGBC) and their LEED® programs. While each of these initiatives makes important individual contributions to sustainable design, taken in isolation they don’t offer a complete solution. It is only through a “fusing of their various initiatives into a cooperative whole”¹⁰⁵ that a framework for a truly sustainable urban outcome can be realized, or as Douglas Farr terms it, sustainable urbanism.

Sustainable urbanism, as defined by Farr, is “walkable and transit-served urbanism integrated with high-performance buildings and high-performance infrastructure”¹⁰⁶ with an emphasis on density and access to nature. Looking at the framework of urbanism as described by the Charter of the Congress for the New Urbanism (CNU), the urban environment is composed of three essential elements: neighbourhoods, which are

¹⁰⁵ Farr, D. (2008). *Sustainable Urbanism: Urban Design With Nature*. Hoboken, NJ. John Wiley & Sons, Inc. (p. 41).

¹⁰⁶ Farr. (2008). (p. 42). [See Footnote 105]

“compact, pedestrian-friendly, and diverse;”¹⁰⁷ districts, which typically have a single-use but are still compact and walkable; and corridors that are the connecting device between neighbourhoods and districts. It is at the neighbourhood level that the principles of sustainable urbanism are particularly applicable to the Ladysmith Waterfront Lands since they place an emphasis on the “personal appeal and societal benefits of neighbourhood living.”¹⁰⁸

However, even working within a unifying framework such as ‘sustainable urbanism,’ the redevelopment of a complex urban site involves more than simply imposing those principles onto the site and arriving at a complete solution. Rather, the project must be viewed in the reverse direction: instead of looking at the site through the ‘lens’ of sustainable urbanism (or any other urban design ideology), sustainable urbanism needs to be viewed through the ‘lens’ of the site. It is only then that the inherent subtleties of the site and the urban context can be harnessed to arrive at an appropriate solution.

4.2.1 The Ladysmith Waterfront Lands Neighbourhood

The neighbourhood is the most basic unit of collective human settlement: a single, stand-alone neighbourhood in the countryside is a village; two or more neighbourhoods grouped together become a town; cities are composed of numerous neighbourhoods assembled within an overall urban fabric. These are not single-use districts such as modern residential subdivisions or business parks, but rather encompass all aspects of daily life within a compact, complete, and connected unit.

The classic modern definition of a neighbourhood unit comes from Clarence Perry’s 1924 neighborhood diagram that depicts a defined area with a diverse mix of uses (residential, commercial, civic, etc) bounded by major streets. This diagram has been extremely influential, especially with new urbanists, who define a neighbourhood as a

¹⁰⁷ Charter of the Congress for the New Urbanism. (2001). Retrieved 2011-10-15 from <http://www.cnu.org/charter>

¹⁰⁸ Farr. (2008). (p. 42). [See Footnote 105]

“settlement that has a defined centre and edges, is walkable, and is diverse in terms of building types, people, and uses.”¹⁰⁹ Andres Duany and Elizabeth Plater-Zyberk (DPZ) – two of the founding members of the Congress for the New Urbanism – expanded on Perry’s neighbourhood diagram with an updated version of the neighbourhood unit. In it, they resolved some of the shortcomings of Perry’s diagram in that it “substitutes boulevards for highways, aligns local streets, proposes a bus stop in the neighbourhood centre, adds parking, and sites the school to allow it to serve multiple neighbourhoods.”

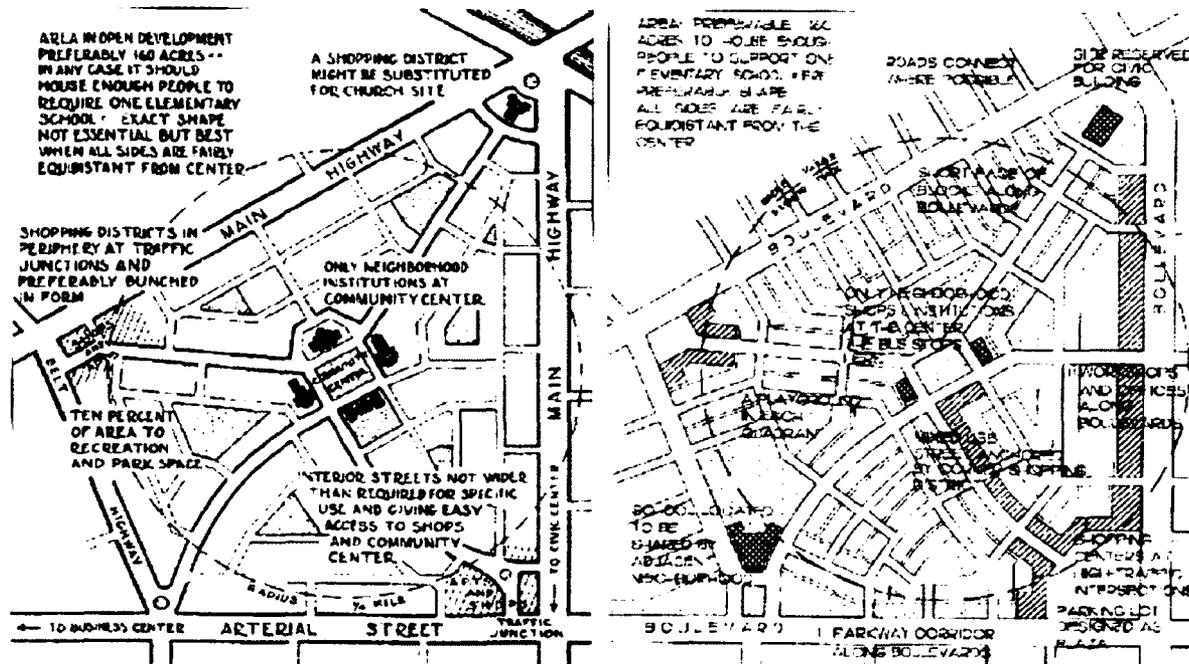
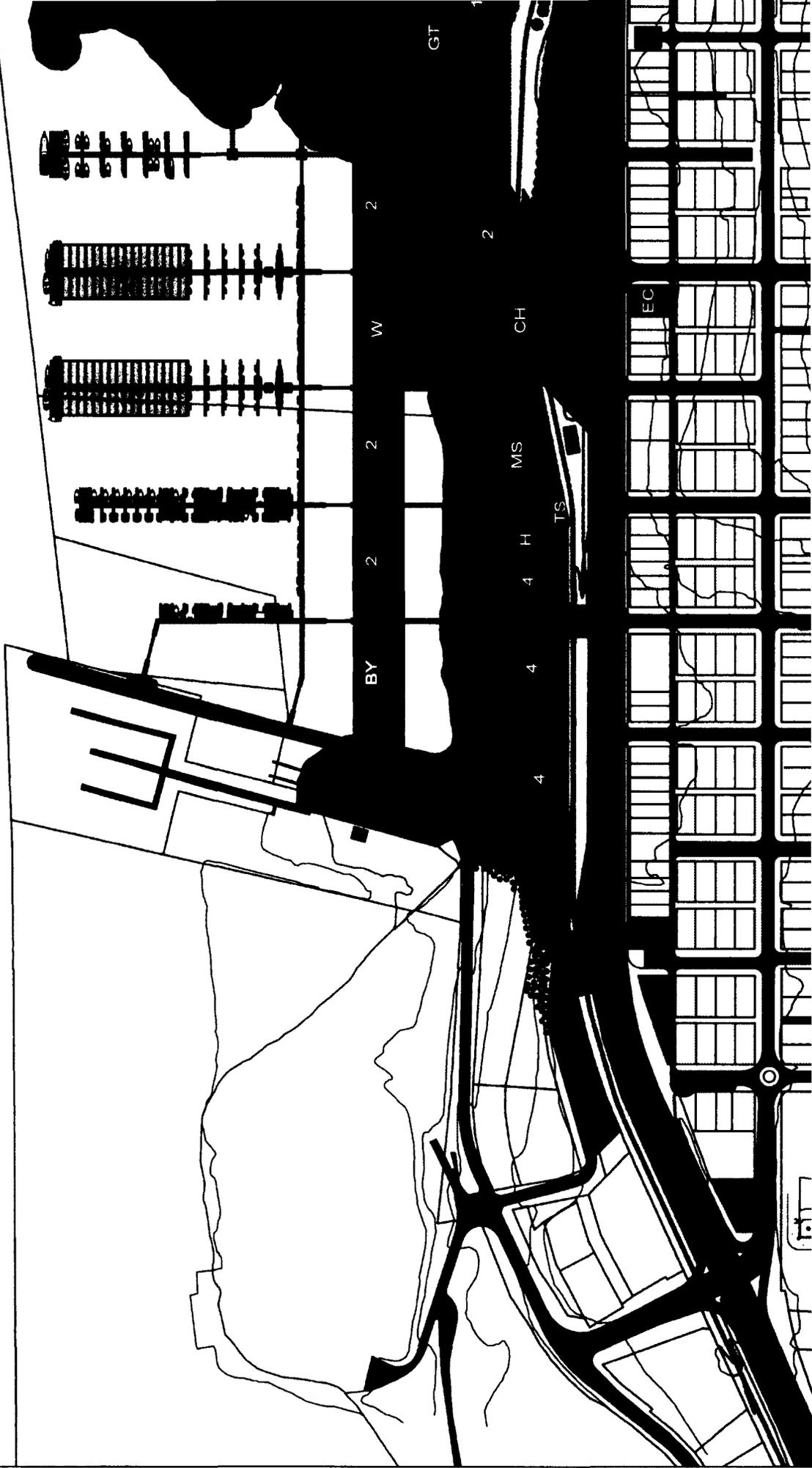
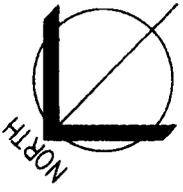


Fig 4-11
 (L) Neighbourhood unit for the Regional Plan of New York, by Clarence Perry, 1929
 (R) Updated Neighbourhood unit by Duany Plater-Zyberk

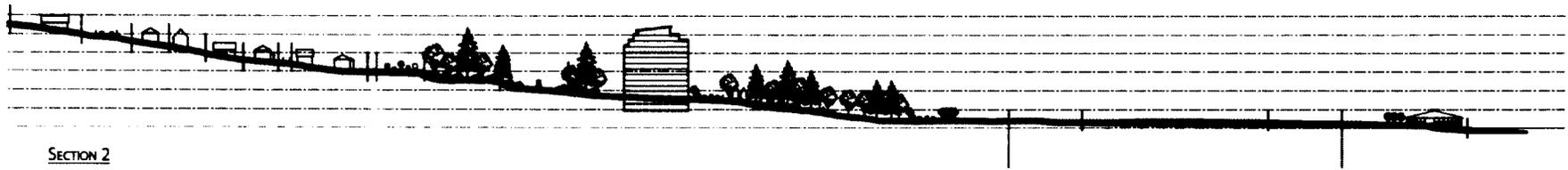
Douglas Farr expands on both Perry’s and DPZ’s neighbourhood ideas with a diagram of his own. In it, he notes five distinctions: (1) the neighbourhood is the building block of a transit corridor; (2) the central bus stop is replaced with a higher intensity transit mode; (3) it is fitted with high-performance infrastructure; (4) the mix and density support car-free housing and a third place; (5) habitat and infrastructure greenways give the neighbourhood distinct edges.

¹⁰⁹ Farr. (2008). (p. 42). [See Footnote 105]

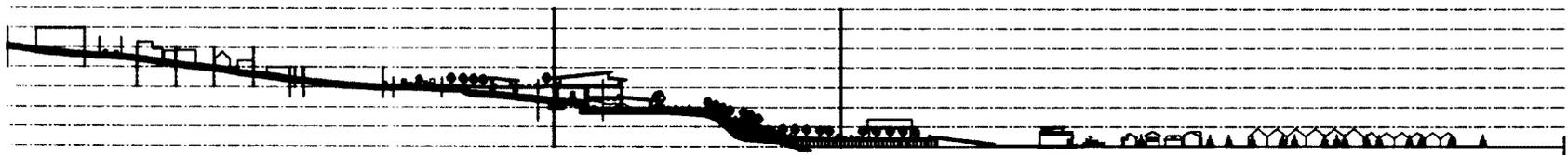




SECTION 1



SECTION 2



SECTION 3



SECTION 4



SECTION 5

FIG. 4-14
LADYSMITH WATERFRONT LANDS - SECTIONS

SCALE 1:3500

4.2.2 Introduction to the Process

An important step in any planning process – be it urban planning or planning what to make for dinner – is establishing what the desired outcome is, and then determining how to get there. In order to do that effectively, it is necessary to eliminate the options that might yield an undesirable result. This was the underlying rationale for testing various urban planning models on the Ladysmith Waterfront Lands: what are the limitations of those models to realizing the goal of reconnecting the town to the water.

While some of the options were designed to fail, namely the Suburban and Radial Options, it was still instructive to see what the respective shortcomings were. Neither of these options engaged the topography or the boundaries of the site, especially with respect to interfacing with the town and the waterfront; there was a barrier of single-family residential housing that blocked access; and there was no diversity of activity, even with the mixed-use centre in the Radial option. Additionally, neither of these options met the evolving housing needs of the town.

The Tower option comes closer to being a viable option in that it maintains an ample amount of green space and doesn't put up physical barriers to the waterfront. It is also in keeping with the future housing needs of an aging population. However, there is still a lack of program diversity on the site and no direct connections established with the existing town.

Mirroring the existing town fabric across the highway was the most significant option explored. A logical assumption would be that by translating the existing urban grid across to the waterfront, a meaningful connection between the two could be achieved. However, while the urban structure was maintained, this option did not successfully engage the topography or the waterfront. Much like the Suburban and Radial options, translating the existing townscape onto the site created a barrier at the waterfront. And it still did not adequately address the town's changing demographics.

However, the analysis of these options did help to clarify the important issues that are involved with the redevelopment of the site and informed the planning process.

Considering the analysis of the results in conjunction with the principles of sustainable urbanism and the Town of Ladysmith's development objectives, key points for the plan were identified. They are:

- Definition of the edge
- Slack Point Park
- Main Street and its manifestation at the waterfront
- Extending the grid and protecting the view corridors
- Adaptive reuse and a new town centre
- A landbridge to address access to the site over the rail lines
- The Town on the water
- Connected pathways
- Community infrastructure
- Compactness and density
- Completeness
- Biophilia

These points guided the process of developing the sustainable neighbourhood plan for the Ladysmith Waterfront Lands.

[Refer to Figures 4-13 & 4-14]

4.2.3 Definition of the Edge

The boundaries of the Ladysmith Waterfront Lands are clearly defined by a pre-existing set of natural and man-made conditions. The eastern edge of the site is bounded by Ladysmith Harbour; to the south is Transfer Beach Park; running parallel to the western boundary is the E&N Railway line and the Trans-Canada highway (which separates the

waterfront from the existing town); and to the north of the site is a light-industrial park and the government wharf. Beyond the wharf to the north is the last remaining heavy industry on the town waterfront, a sawmill and dry-land log-sorting yard.

While the existing conditions define the boundaries of the site, the interior of the site is defined by the establishment of a second main street loop that addresses the relationship of the town to the waterfront. When James Dunsmuir established Ladysmith in 1898, the choice of location for the town was secondary to the requirement that Dunsmuir's coal operations have access to the water. Consequently, the town developed with an inward focus on First Avenue, turning its back on the waterfront and the industrial activities that were based there. Now that the industrial 'backyard' function is gone, the opportunity exists to remake the waterfront into a new front yard for the town.

4.2.4 Restrictions: Defining the Buildable Land

The Waterfront Lands have a number of restrictive conditions that negate the possibility of simply extending the existing town grid across the highway and establishing a new main street at the shoreline. As discussed in the earlier sections, the upland portion of the site is relatively flat, but there is a steep ridge that transverses the site and separates the upland portion from the water (there is 30 meter change in elevation from the top of the site to the shoreline). This ridge accounts for approximately 12 acres of the overall site area. Compounding this is the fact that the rail line that runs parallel to the highway narrows the uplands even more, leaving only about 60 meters of relatively level ground at the widest point. An important aspect of the redevelopment of the site should be to protect that steep slope from the impacts of development such as re-grading or the building of retaining walls. At the base of the ridge, there is a very narrow strip of level land adjacent to the water (about 18 meters at its widest point), barely wide enough for an access road let alone a street with buildings along it.

The other major site restriction involves the 13-acre parcel known as Slack Point. As mentioned in Section 3.2.3, Slack Point would require extensive remediation to bring it to an acceptable standard for construction. Additionally, the coal slack is “loose and likely susceptible to liquefaction”¹¹¹ in the event of an earthquake and would need to be densified in order to be brought up to a condition where building on the site is feasible. With the environmental and geological uncertainties associated with Slack Point, and the unknown costs of remediation,¹¹² this area is not considered as ‘buildable’ land. With those restrictions taken into consideration, the buildable site area on land is reduced to only 26 acres (which includes the ridge portion of the site), and if the ridge is not considered as ‘buildable’ land, the available land area for development is approximately 14 acres.

4.2.5 Slack Point Park

Because Slack Point is not a suitable site for building, it will be utilized as a new park space with a large playing field. (There is a shortage of playing fields in the town and a high demand for the ones that do exist). The environmental remediation of this part of the site would be limited to stabilization of the shoreline area with marine retaining walls and topping the site with a sealing layer. The site could then be replanted and used as a recreational space. Additionally, the high ground water level makes this an ideal site for a geothermal well system that would then provide a sustainable heating/cooling source to the entire neighbourhood with the potential for actually returning extra energy back into the town’s power grid.

¹¹¹ Golder Associates. (2005). *Remedial Costs for Ladysmith Harbour, Ladysmith B.C.*

¹¹² Estimates of the cost of cleaning up the Slack Point land are highly variable, depending on the extent of work done. A study done in 2000 estimated the cost at somewhere between \$15 to \$45 million. New studies have been undertaken to establish a more accurate cost but the results of that study are currently unavailable.

4.2.6 Main Street

Given the restrictive nature of the site, it is not feasible to establish a typical main street with buildings on both sides unless the buildings on the water side were built over the ridge. With the significant change in elevation, this would either require that (a) the buildings be constructed on pilings to bring them up to street level or (b) the buildings be embedded into the hillside, resulting in a five-storey building facing the water (with a one-storey face at street level). In either scenario, the natural ridge would be significantly altered (contrary to the protection and preservation of the steep slope), and in the case of option (b), the size of the resulting buildings at the water's edge would be too high; building heights typically should increase as they move away from the water, not start out with tall buildings at the water's edge.

Therefore, the new main street is split into two distinct parts: an upland section running across the top of the site, and a waterfront section built on pilings out over the water. On the upper portion, the streetscape is opened with a direct view out over the harbour, as well as preserving the ridge as a natural landscape. By building the lower street over the water on top of pilings, the street can be pulled out of the shadow of the ridge to create a town presence directly at the waterfront, as well as adding approximately 7 acres to the buildable site area (bringing the total to 21 acres). There is a long west coast tradition of building over the water on pilings as a means of land creation, rather than infilling the foreshore (as was the case in cities such as Boston and New York). This technique also creates new marine habitat underneath the street. The pilings act as a substrate to which shellfish such as mussels and barnacles can attach, along with anemones and other marine plants. This attracts small fish that feed on the plants and other organisms, crabs that feed on everything that descends to the bottom, and soon there is a new ecosystem that has developed. The added benefit to building on pilings rather than infilling the foreshore, is that the natural shoreline can then be maintained as an amenity for the community.

4.2.7 Extending the Grid and Protecting View Corridors

The streets are for the most part oriented to the existing town grid: the angling of the main street on the upper portion of the site is in response to the natural shift in the ridge, as is the case at the southwest portion of the site along Slack Point; the cross streets are established by extending the view corridors from the town out over the water. From the upper portion of the new main street, cross streets are extended out over the ridge as lookout piers, while at the lower main street the cross streets transition into the wharves of the marina.

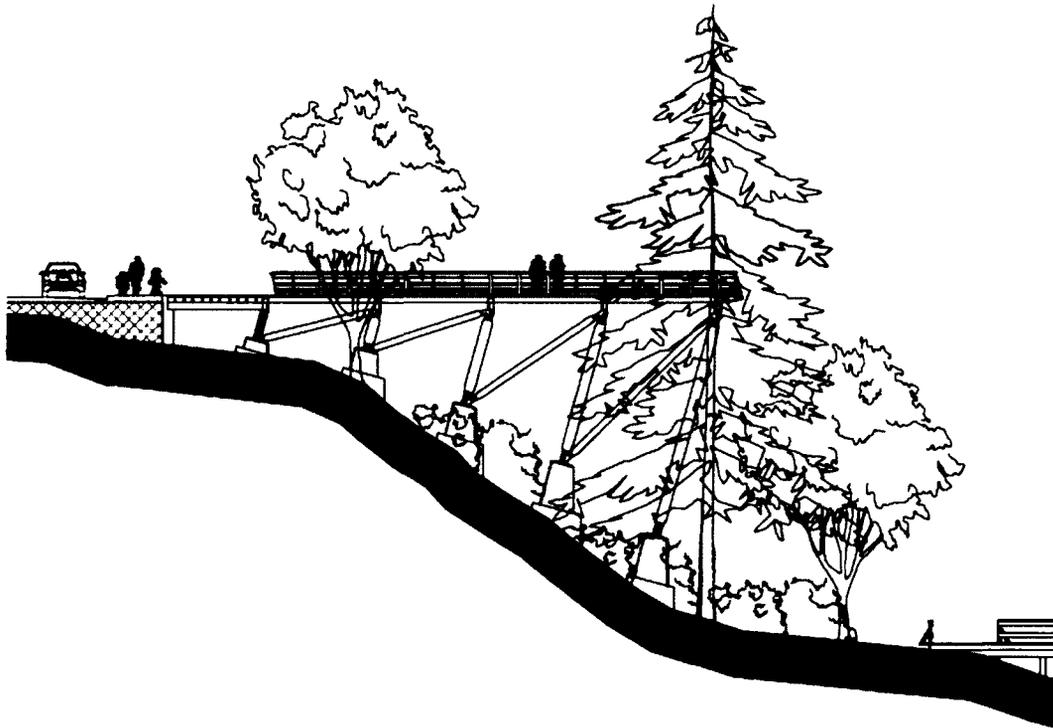


Fig 4-15
Site Section through lookout pier

The visual connection from the existing town to the water is maintained through the alignment of the new buildings and streets with the view corridors of the town. Similarly, the grade change from the upper to lower main streets ensures that there will always be a view out over the harbour.

4.2.8 Adaptive Reuse and a New Town Centre

One of the most important aspects of each of Perry's, DPZ's and Farr's neighbourhood diagrams is that the centre of the neighbourhood should be reserved for public use. As discussed in Section 3.2.3, the only existing buildings on the site are the Machine Shop and the train station; it is these two buildings that form a base point for a definable centre of the site.

The Machine Shop building currently houses an art gallery and workshop; this program will be maintained and augmented by a public plaza surrounding it. The plaza can be used for community events and gatherings (such as a farmer's market or outdoor art exhibitions); it is a central social hub for the new neighbourhood. The train station in its existing location is separated from the central plaza by the rail line; as such, it is proposed that the train station be relocated to the other side of the train tracks where it becomes much more accessible to the area's residents, and can serve as a transportation hub for both the town trolley service and the daily passenger train.¹¹³

Directly adjacent to the north end of the central plaza is a small boutique hotel. By locating the hotel next to the central social space of the new neighbourhood, it brings visitors right into the heart of the new community and engages them with the experience and activities of the town. This defines the edge of the plaza with a public interface zone that encourages a diverse mix of social interaction.

The most important aspect of the new neighbourhood centre is the new City Hall, located to the south of the central plaza. The existing Ladysmith City Hall is a small single storey building built in the 1950s that has long since been outgrown. It is located at the

¹¹³ The daily passenger train service between Victoria and Courtenay is operated by Via Rail, and typically makes two trips per day (one trip north and a return trip south). However, service is currently suspended on this route due to the need for infrastructure upgrades on the rail lines themselves. Although there is only one trip per day (in the wrong direction) when service is in operation, the potential exists for the route to become a commuter line for people living north of Victoria but working in the city. As such, by establishing a transit hub around the train station at the center of the new Ladysmith Waterfront Neighbourhood, the community will already be prepared with the necessary infrastructure for when that occurs.

intersection of the Trans-Canada highway and Roberts Street (which also happens to be the main entry point from downtown to the waterfront). This site sits at the fringe of the downtown area, with little in the way of direct connection to the town's daily activities and has restrictive access. By building a new City Hall on the waterfront lands, a strong civic presence will be established at the heart of the new neighbourhood. The redevelopment plan calls for the existing City Hall site to be a conceptual linking point from the existing town to the new site.

The City Hall is part of a larger central landscape element that begins at the main entry to the site at the Roberts Street intersection. At the corner of the highway, a tourist information pavilion marks the entrance to the site. Coming back to Jane Jacobs and the problem of border vacuums between areas of the urban environment, a big part of the issue is that there are no seams of activity at the site edges to encourage interaction. With the information pavilion set right at the perimeter, there is an activating seam on the site. There is then a large plaza as part of that corner of the site that is fronted by the new City Hall.

City Hall is embedded into the built landscape, bridging the top of the site to the upper main street; the building has an active frontage on the street as well. It is important to note, that due to the two-sidedness of the main street (that it essentially faces both the existing town and the water) the buildings along the street also need to be two-sided; there is no 'back-of-house' facing onto an alley. This is also the case for the lower main street (it is viewed from both the upper portion of the site as well as from the water) and therefore all of the buildings will need to be designed to face in both directions.

Going back to the neighbourhood unit diagrams of Perry, DPZ and Farr, each of them specify that the center of the site should be reserved for "neighbourhood institutions" and City Hall certainly qualifies. This is also tied to traditional town planning in that the main street of town typically included a strong civic presence, often in the form of City Hall, a courthouse, a post office, etc.

Not only does the new City Hall anchor the physical redevelopment of the site, it is also an expression of the civic engagement of the waterfront as a community amenity and forges a direct connection from the existing town all the way down to the water's edge.

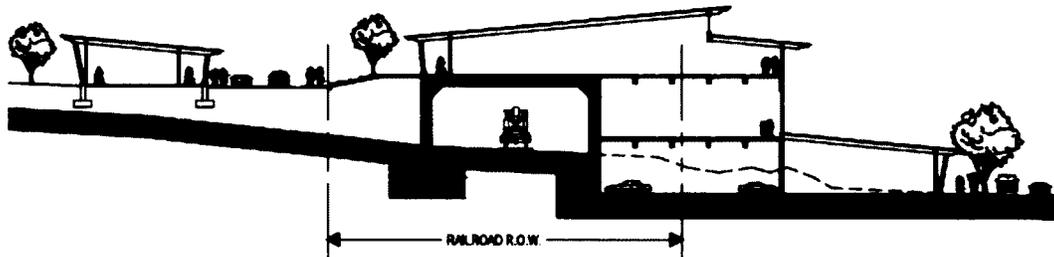


Fig 4-16
Section through City Hall

4.2.9 Land Bridge

The new City Hall complex is the centerpiece for the connection of the existing town to the waterfront. The intersection at Roberts Street is currently the main entry point to the site and remains so in the new development. However, rather than following the existing topography to cross the train tracks at grade (as it currently does), the new entryway goes over top of the tracks as part of the land-bridge, similar to the way that the Olympic Sculpture Park in Seattle crosses the roadway that cuts through its site. The new roadway then slopes down to meet the upper main street, at which point visitors can proceed towards the neighbourhood centre or else follow the road further into the site to the lower main street and the waterfront or to Transfer Beach Park.

The marina development and the lower main street serve as the connecting interface between the water and the new neighbourhood. The marina extends out into the harbour to directly engage the water, not only with moorage space for boats, but also with a mix of boathouses and float homes. By integrating a residential component to the wharves

themselves, there is additional layer of social activity on the water beyond just the moorage of boats.

4.2.10 Town on the Water

Where lower main street meets the government wharf area the existing parking lot has been extended into a new boatyard area. This adds an additional layer of marine activity to the otherwise commercial and residential character of the street. This is reminiscent of the boatyard at Granville Island where the seawall leads through the active boat maintenance yard; pedestrians are able to walk through the area and observe the work taking place and talk with the boat owners. It is another example of the complexity of the waterfront environment where work and leisure activities co-exist.

4.2.11 Connected Pathways

Within the site itself, spaces are interconnected through an extensive series of pedestrian and cycling pathways. Around the entire perimeter of the site is a boardwalk/seawall; there are no buildings or roadways between the water and the pathway so that the water's edge is maintained for the enjoyment of the community as a whole.

The pedestrian paths throughout the site are also part of the town's larger 'Heritage Walk' that goes through the existing town and incorporates artifacts from the town's mining and logging history. There are ample spaces along the pedestrian paths of the Waterfront Lands to display the old equipment and machinery that was so integral to the beginnings of the town, thereby furthering the connection between new and old.



Fig 4-17
Pedestrian and cycling pathways

The pedestrian path is also extended over the highway at the north end of the site via footbridge. There is a second built landscape element over the rail lines, extending the pathway from the upper main street. This path essentially completes a pedestrian loop from the waterfront site back to the existing townscape.



Fig 4-18
Section through pedestrian bridge

4.2.12 Community Infrastructure

Another important connection point – both visually and programmatically – is the new community center. It is located at the intersection of the existing Transfer Beach Park and the new Slack Point Park, on a promontory looking directly out to the harbour entrance; this is probably the best ocean view on the site. Given the importance that Transfer Beach Park has to the citizens of the town (as discussed previously), rather than build private residences or commercial space on what is arguably the most desirable portion of the site, it should be preserved as a public amenity. A community centre does just that. It serves both the existing and the new parks, as well as the outdoor amphitheatre which is a popular civic space for concerts, performances, weddings and other community events.

Dedicating a prime site to a community facility rather than private enterprise may not provide the same financial return, but it builds a connection with the community as a whole. That is a very important aspect of bringing new development into a small town; as was seen with the First Principles proposal, there can be significant public resistance to new development, especially if it is perceived that the interests of the community are not being protected.

4.2.13 Compactness and Density

Given the restrictive nature of the site, new development needs to be compact in order to maximize the viability of sustainable redevelopment. As demonstrated in the Radial and Suburban options, single-family, detached residential development fails to achieve a sustainable density for the site, and doesn't address the evolving housing needs of the town as the population ages. As such, the residential component of the proposed redevelopment is restricted to high-density development.

The proposed development, in the configuration shown, accommodates approximately 575 residential units, which if based on a buildable land area of 21 acres (as discussed earlier) yields a residential density of 27.4 dwelling units per acre (DUA)¹¹⁴ (significantly higher than the suburban and town options explored earlier). If it is assumed that there is an average of two people per residence, the neighbourhood will potentially house around 1150 people. If the population of the town were to grow by 10% (from the current 7,921 people up to around 8,700) over the next ten years, the new waterfront neighbourhood would easily be able to accommodate all that growth plus more. (There is also the provision of sites within the marina for float homes, potentially adding up to 40 more residences).

The residential units are distributed throughout the site. At the north end of the upper main street, there is a four-storey residential building; the next block south calls for four-storey mixed-use buildings (commercial base with three floors of residential above). At the south end of upper main street, there are three residential towers, each twelve storeys high. (As mentioned previously, twelve stories puts the top of the buildings at approximately the same height as the buildings on First Avenue). While this building typology is foreign to the town, it adds significant density to the site on a minimal site footprint; and with the town's current demographic trends towards an older population looking for smaller housing units, this type of residence should be a viable option. (Alternatively, a similar density could be achieved in a wider six-storey building that covered its entire building site).

Along the lower main street, the buildings are designated as two-storey mixed-use, again with a commercial component at ground level and residential units on the upper floor.

In addition to the residential density on the site, there is also the 5000m² community centre; the new City Hall which has an approximate floor area of 3000m²; a 1500m² water treatment and geothermal heating facility; and about 10,000m² of commercial

¹¹⁴ If we compare this to the LEED® ND requirements for development density, the minimum required is 10 UPA in order to get a single point. A density of 16.8 qualifies for 2 points. (To get the full six points, a residential density of 63 is required).

space. The commercial space alone would potentially create 307 new jobs (based on one job per 32.5m² [or 35ft²]).

4.2.14 Completeness

Within the waterfront neighbourhood, there are a wide variety of land uses and building types. These include:

- Residential
- Commercial
- Hotel
- City Hall
- Community Centre
- Playfields
- Recreation
- Marina
- Light industry
- High-performance infrastructure (geothermal heating and water treatment facilities)

The wide range of activities and programs on the site provides for year-round use by both residents and visitors to the town.

4.2.15 Biophilia

The proposed redevelopment of the Ladysmith waterfront places a premium on the preservation of the natural landscape for the enjoyment of the entire community. The transformation of Slack Point from a contaminated peninsula into a community park and playfield extends the green footprint of Transfer Beach Park into an area almost double

the existing size. The entire shoreline, from the park all the way out to the end of the breakwater at the government wharf, is directly accessible to the public, and the ridge that transverses the site is maintained in its natural state. Additionally, the built landscape that connects the existing townscape to the water's edge not only increases the amount of green space on site, but also helps in the control of storm water run-off.

As mentioned at the beginning of this section, one of the major issues with the redevelopment of waterfront sites is the high cost of implementation, and this is especially an issue for smaller towns that don't necessarily have the same financial resources that cities do. As such, the project would need to be built in phases over an extended period of time (probably a minimum of ten years). The actual phasing of the project would have to be based on a thorough analysis of the available finances, resources, demand, etc.

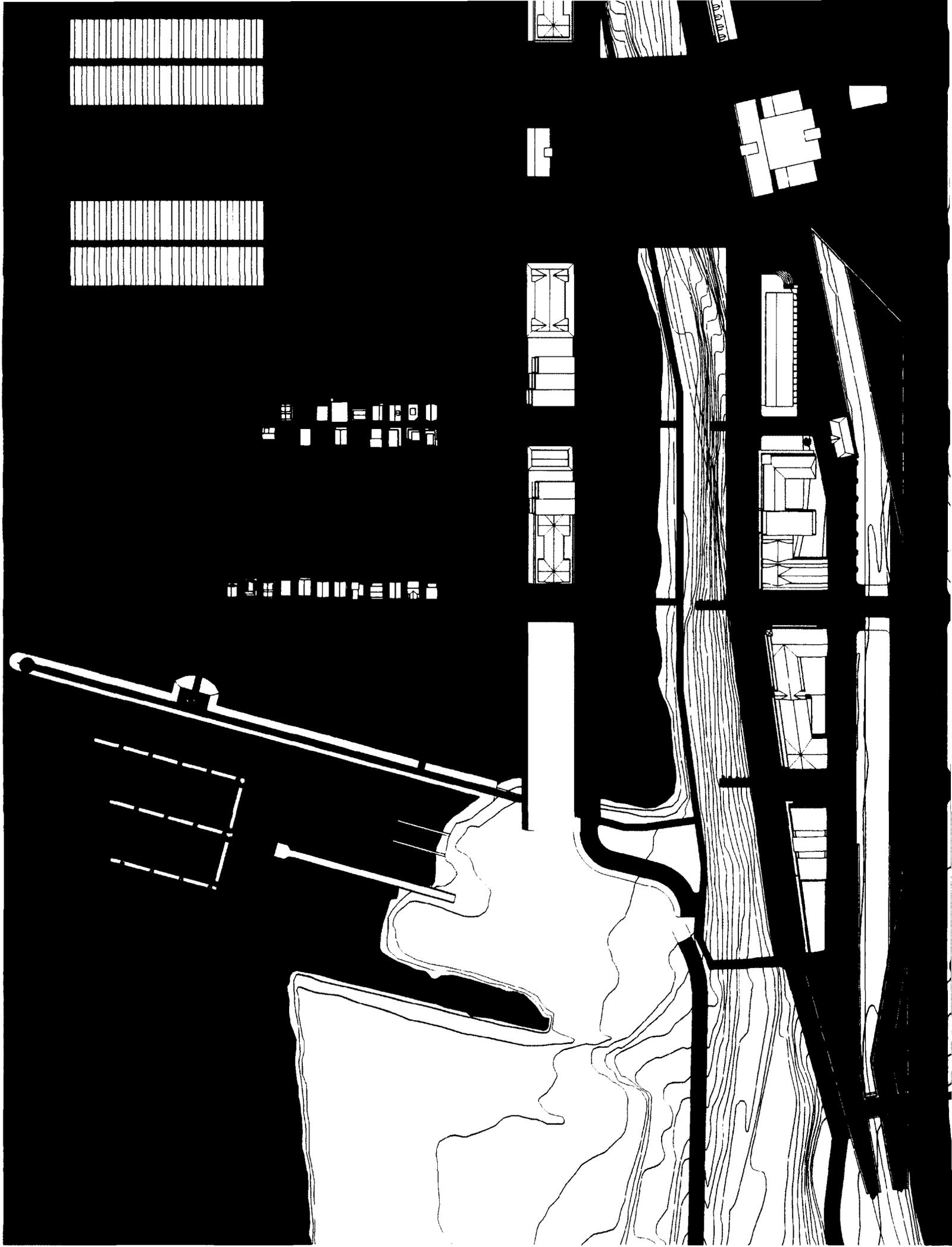
4.2.16 LEED®

One final aspect of the waterfront redevelopment proposal that is worth mentioning is LEED®, and specifically the requirements for the LEED® for Neighbourhood Development (LEED® ND) program. In regards to the LEED® ND ratings system, it is difficult to accurately assign points to the project in the absence of actual construction taking place, since it is a performance based assessment. Additionally, there are a number of points on the project checklist that require input from industry professionals, such as environmental assessments. However, based on preliminary analysis of the project proposal as presented, the redevelopment of the Ladysmith Waterfront Lands should be able to achieve a LEED® ND score of at least 80 points, the threshold for a platinum rating (the Dockside Green project has achieved a platinum rating through its first two phases of construction). Part of this would be contingent on the individual buildings on the site being built to LEED® construction standards. However, within the last five years, the provincial government of B.C. has mandated that all new public projects be built to a minimum LEED® silver standard. Since the redevelopment of the

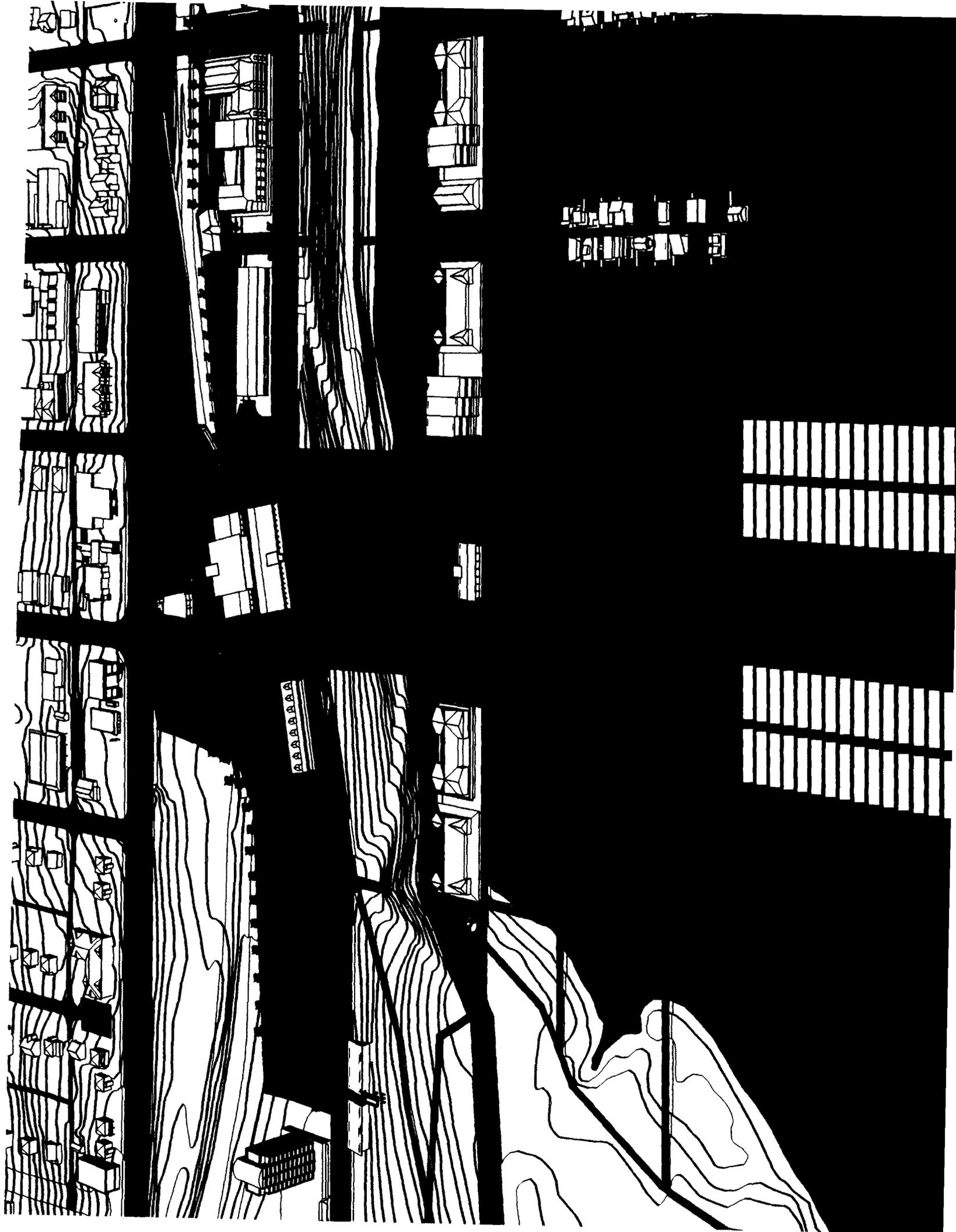
Ladysmith waterfront is essentially a public project (the waterlots are owned by the provincial government, and there would be provincial funds contributed for the environmental clean-up of the site) it is a reasonable expectation that all new construction would be done to a LEED® standard.

4.2.17 Summary

Overall, the proposal for the redevelopment of the Ladysmith Waterfront Lands succeeds in realizing the objectives of sustainable urbanism, as well as the economic, ecological, and social imperatives of sustainable development. Just as importantly, the proposal also meets each of the objectives of the Town of Ladysmith's *Eight Pillars for a Sustainable Community* that is directly reflective of the vision that the community as a whole has for the town's waterfront.



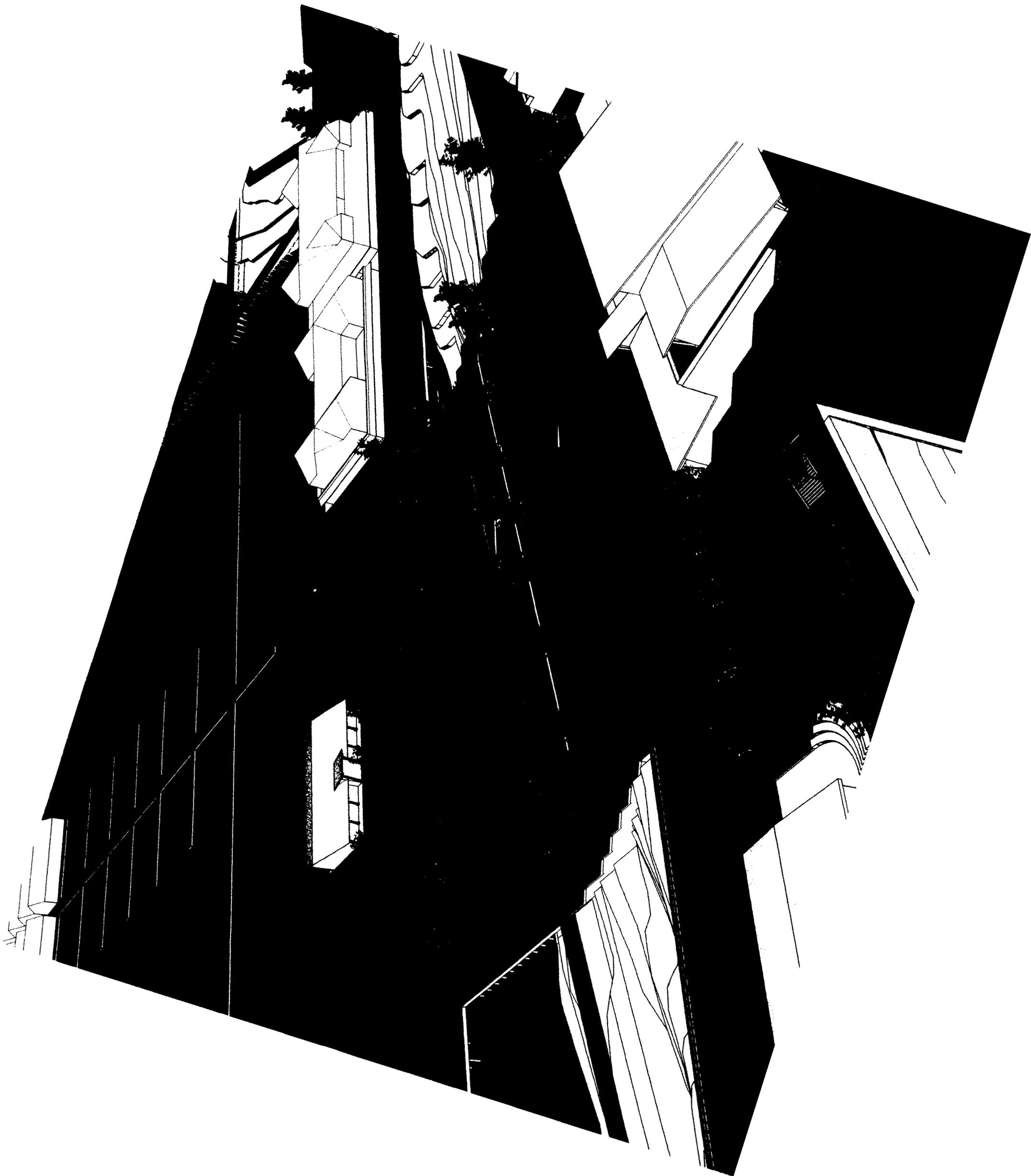




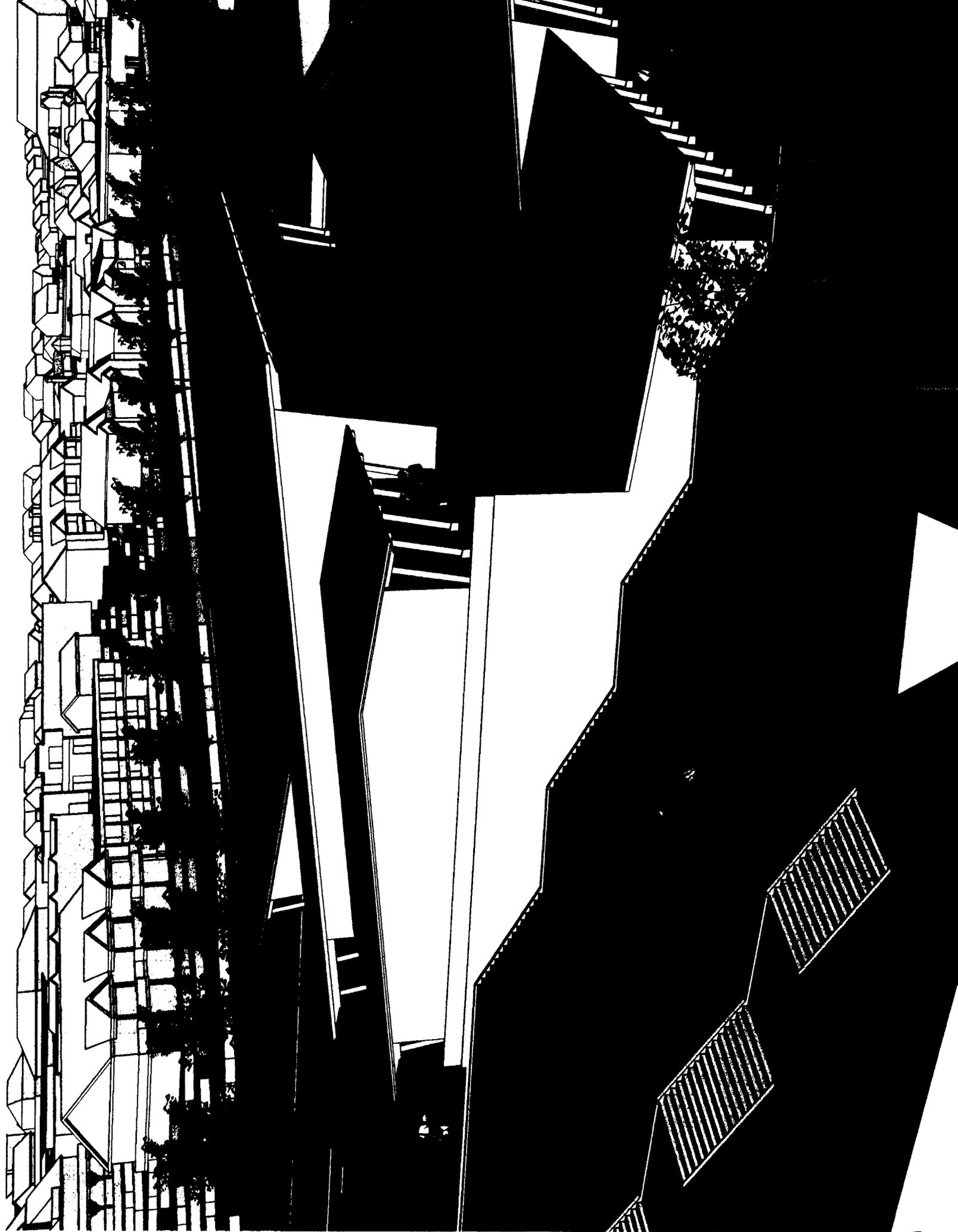


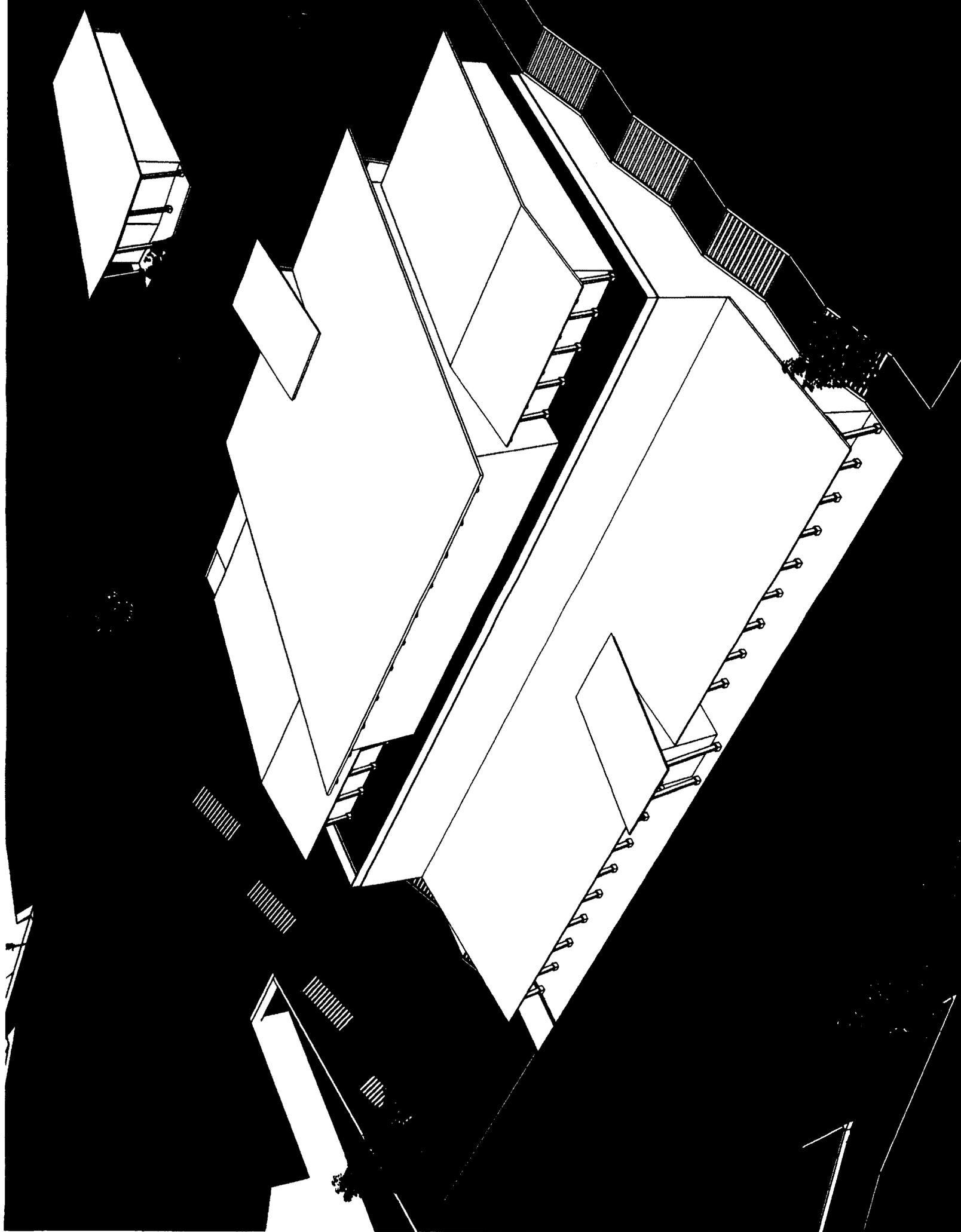








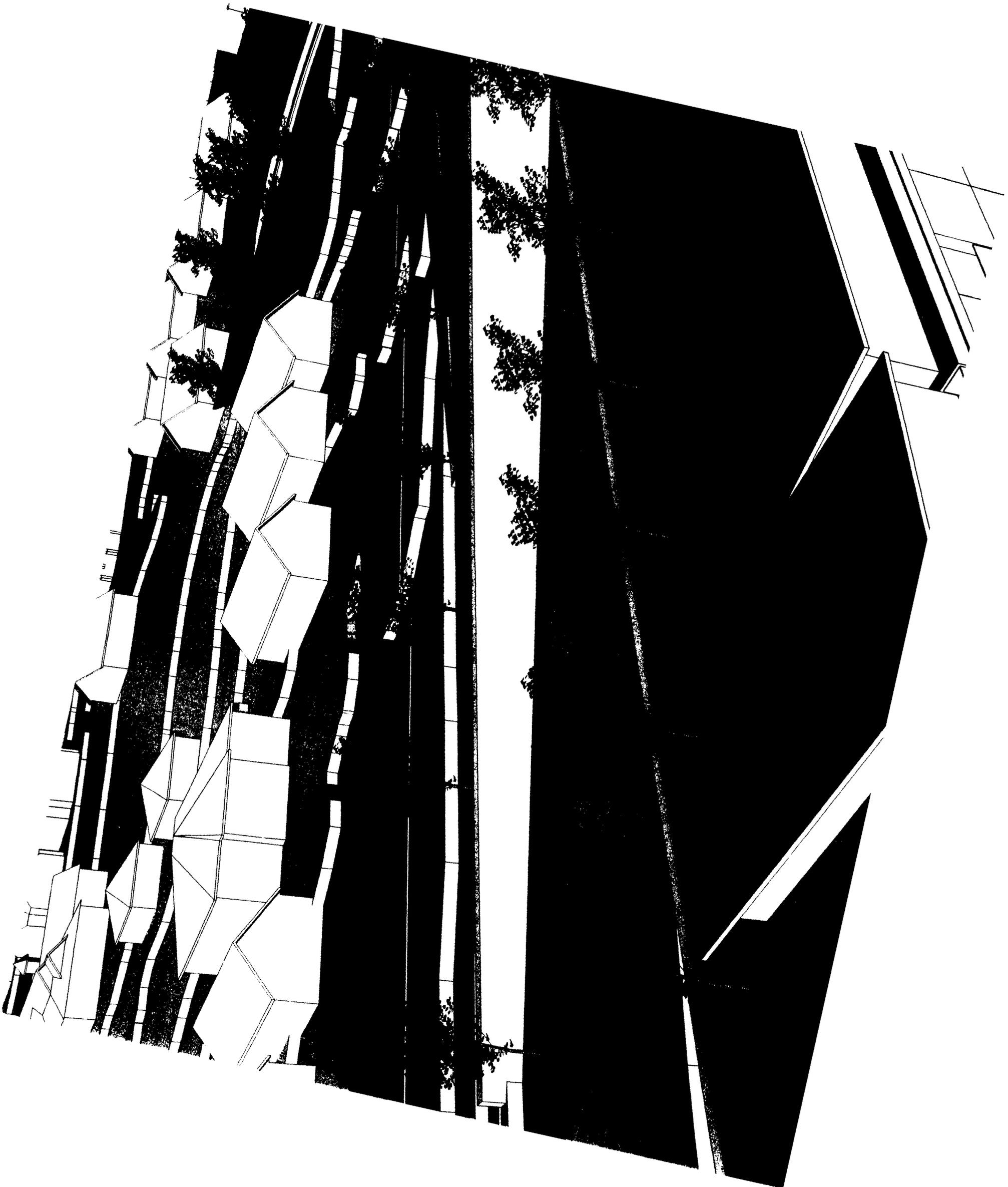












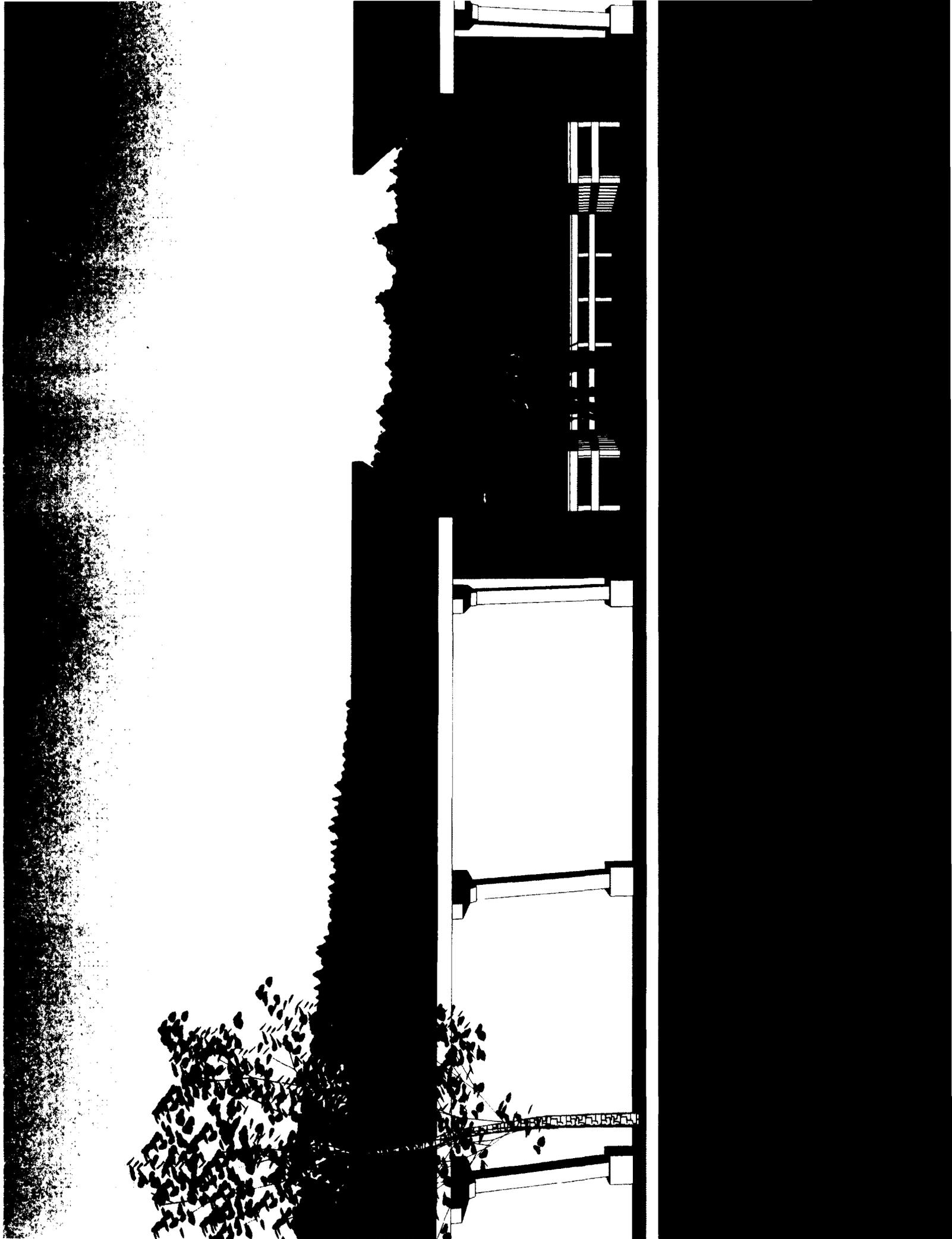






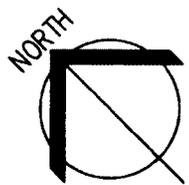












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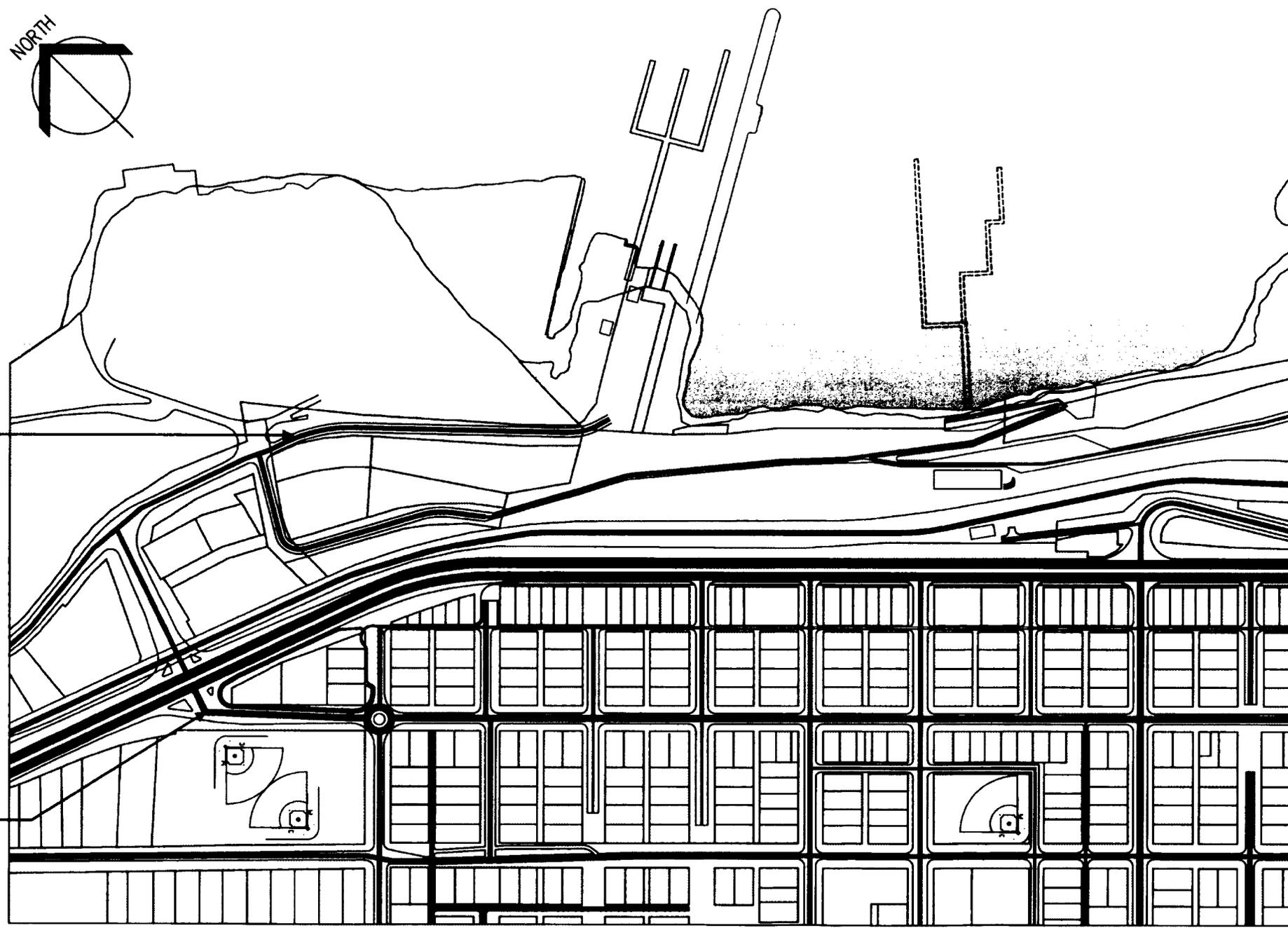
ROCKEY CREEK ROAD

E&N RAILWAY

TRANS CANADA HIGHWAY

FIRST AVENUE

SECOND AVE



DS ST

EN ST

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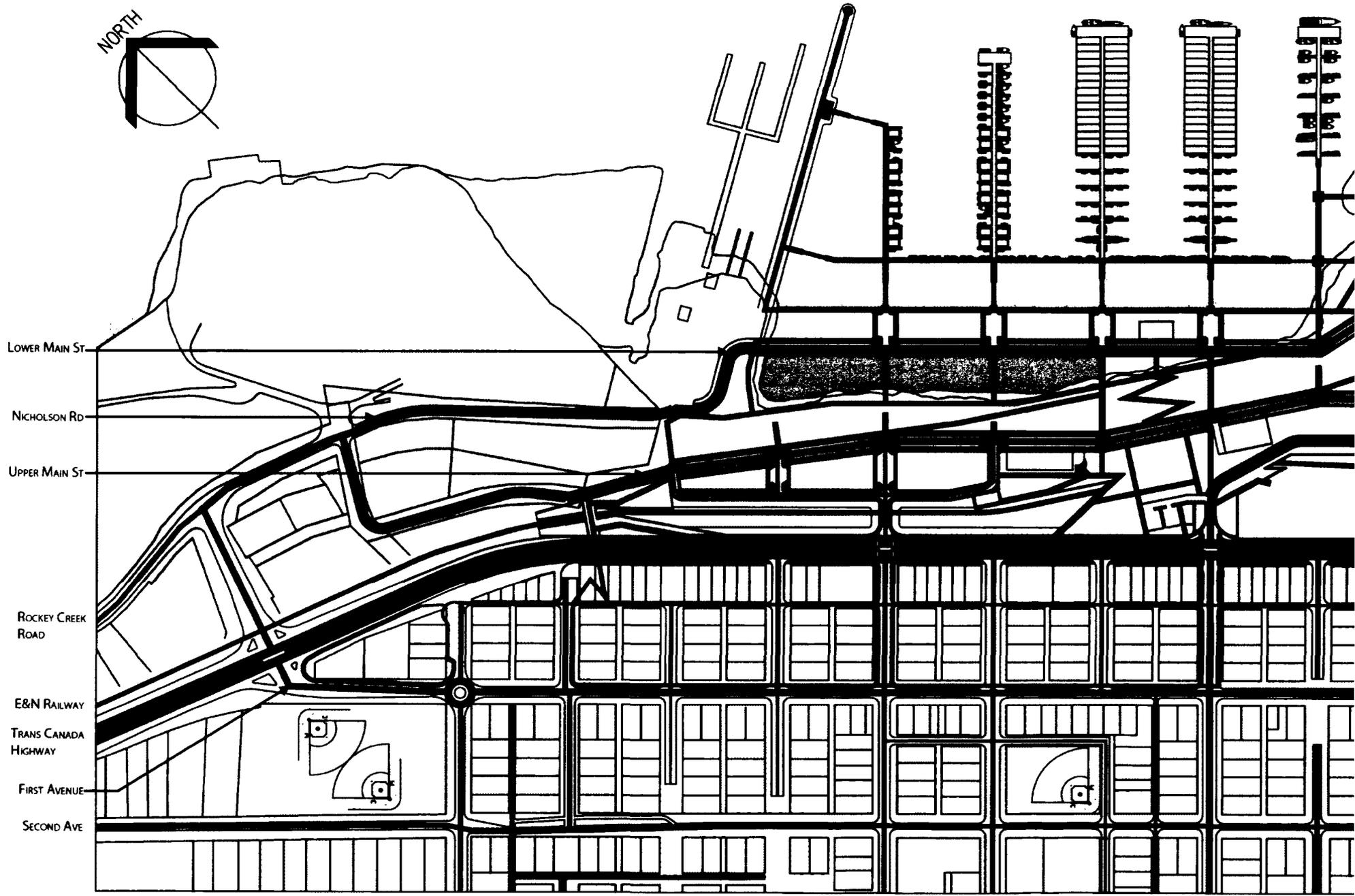
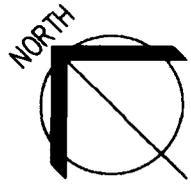
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LOWER MAIN ST

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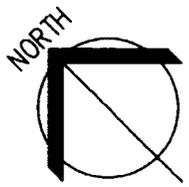
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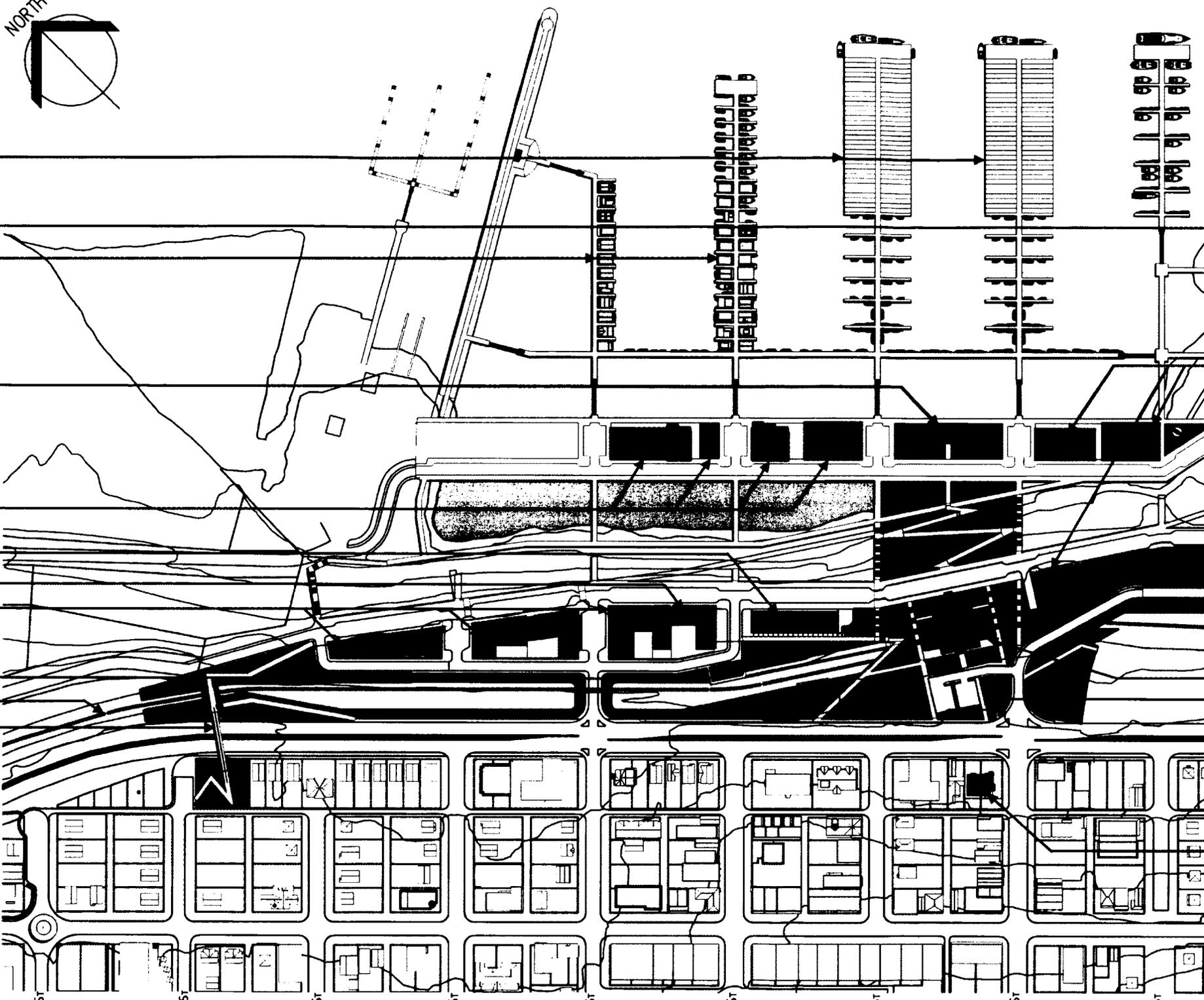
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- BOATHOUSES
- PLAYFIELD
- FLOAT HOMES
- WHARF OFFICE
- 2-STORY MIXED-USE
- MACHINE SHOP
- HOTEL
- 4-STORY MIXED-USE
- TRAIN STATION
- E&N RAILWAY
- PEDESTRIAN BRIDGE
- TRANS CANADA HIGHWAY
- FIRST AVENUE



- INDS ST
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- RTS ST
- ELL ST

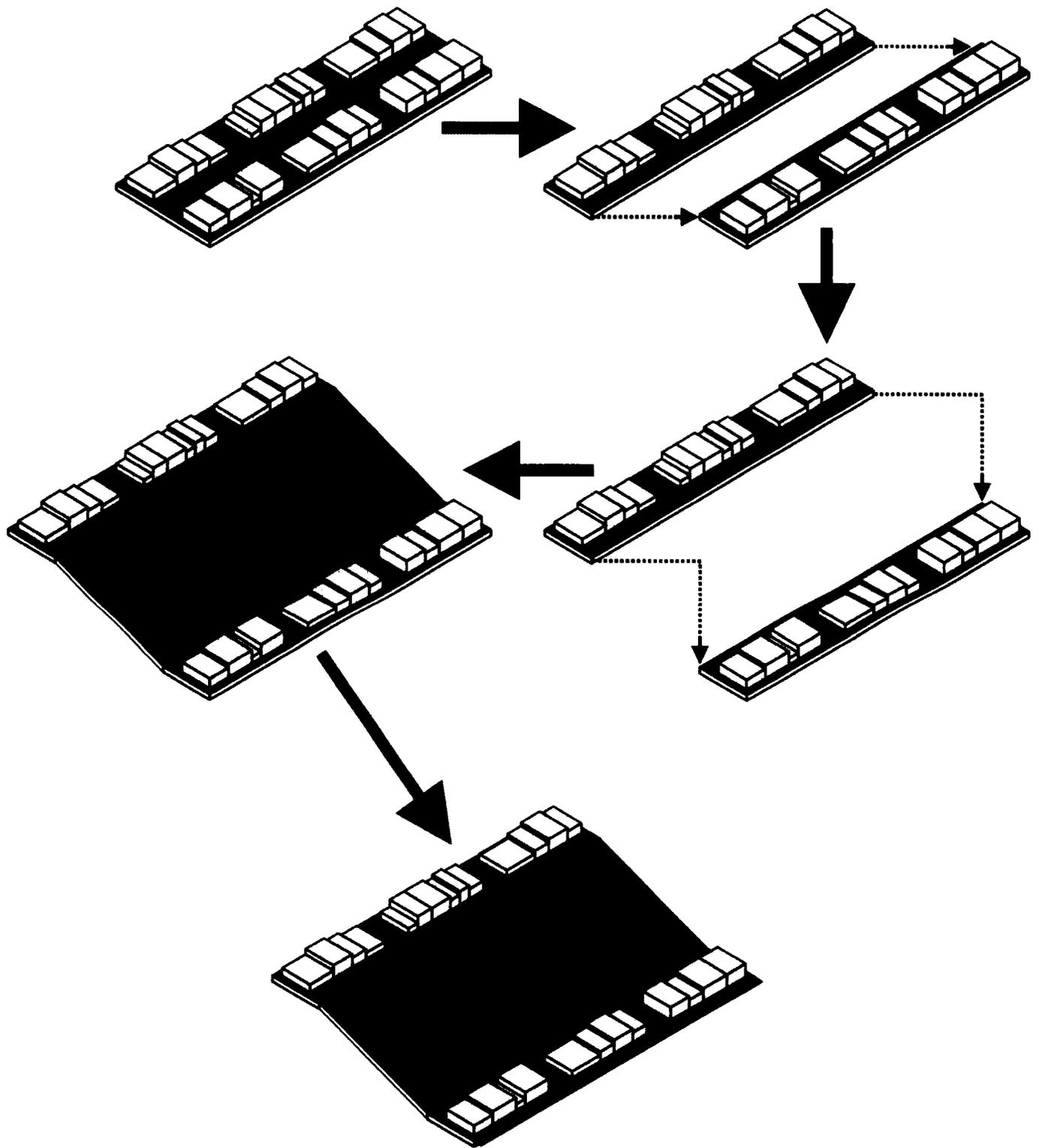
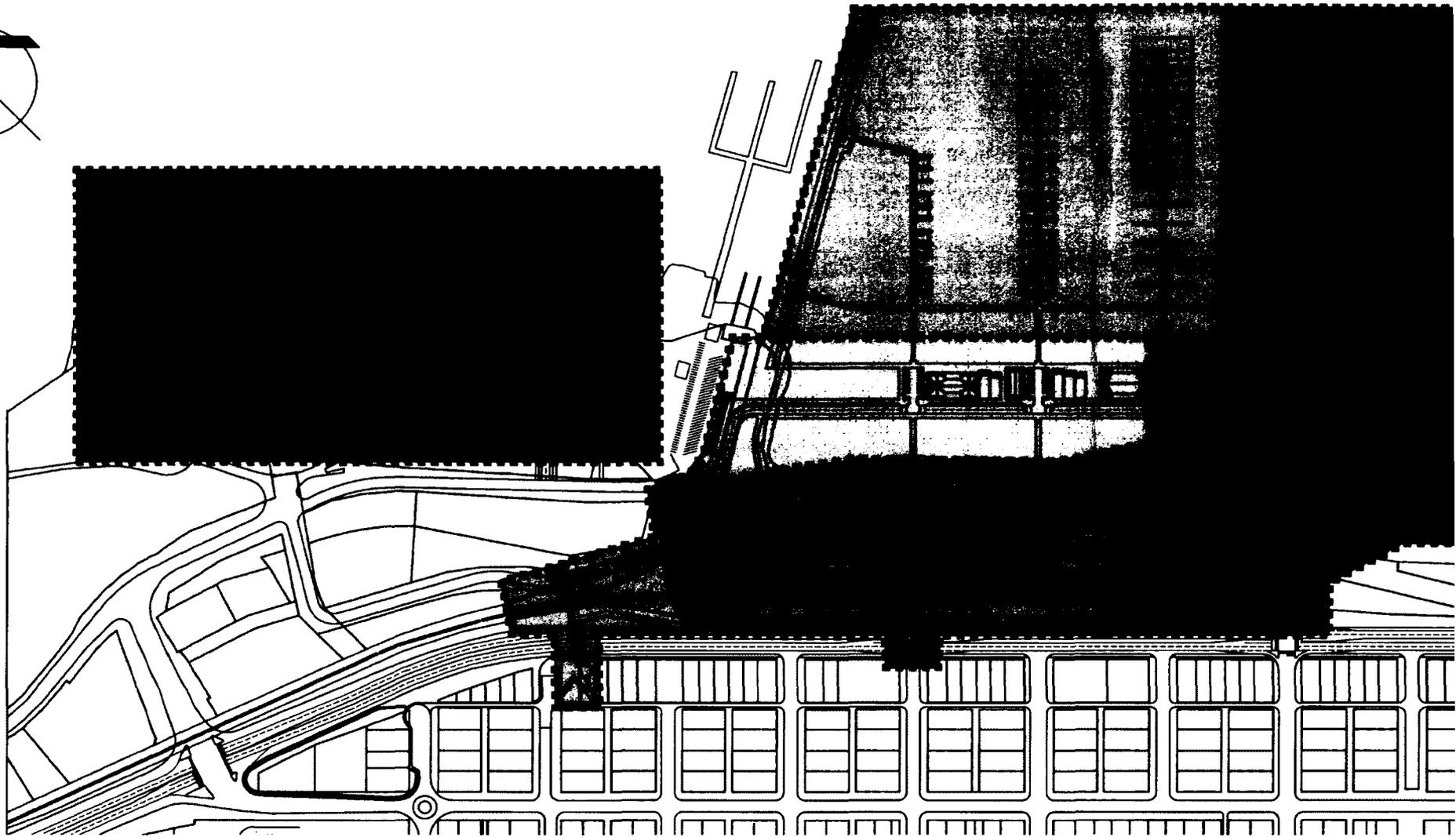
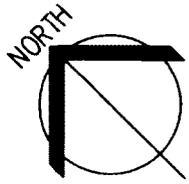
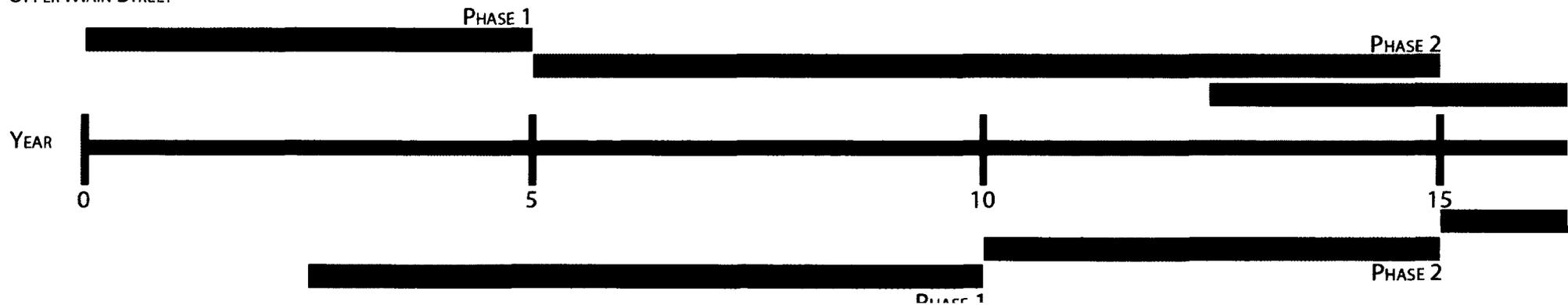
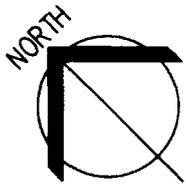


FIGURE 4-44
MAIN STREET SPLIT DIAGRAM

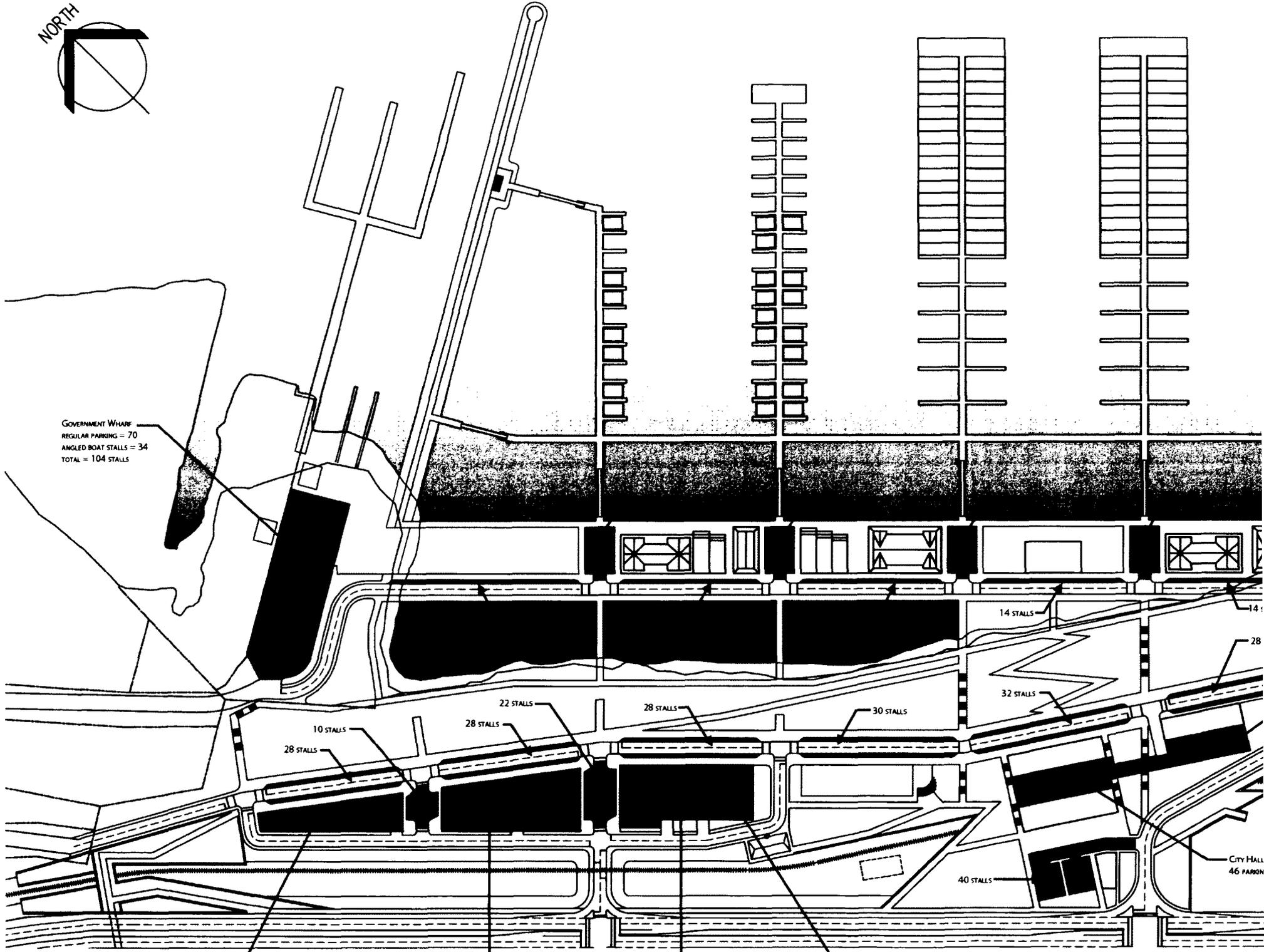


UPPER MAIN STREET





GOVERNMENT WHARF
REGULAR PARKING = 70
ANGLED BOAT STALLS = 34
TOTAL = 104 STALLS



Part 5. Conclusion

5.1 Conclusion

Identity is the extent to which a person can recognize or recall a place for being distinct from other places - as having a vivid and unique, or at least a particular character of its own.

- Kevin Lynch,

The Image of the City

The remaking of the post-industrial waterfront as a means of enhancing – and in some cases reshaping – the overall image of the city is a process of connection and extension of the characteristics and culture of the existing urban fabric. It is not a formulaic process whereby pre-defined development typologies are manipulated to fit the site. Projects that were successful in one place cannot just be replicated in another; success stems from unique and bold gestures that draw on existing urban conditions and forge meaningful links between old and new.

The city of Boston, in the most extreme case, has been reshaping its waterfront throughout its existence, constantly extending into the harbour as its needs changed. Buildings that were once located at the water's edge and reflected the maritime character of the area were absorbed into the urban fabric as the city grew outwards. This in turn affected the shape and character of the development at the waterfront. One begets the other.

The size of Manhattan has increased by over a third since New Amsterdam was settled – again the result of reshaping the shoreline to suit the changing needs of the city. Part of that reshaping resulted in Battery Park City and the World Trade Centre, each of which made significant contributions to the image of the city and its relationship to the waterfront. For thirty years, the Twin Towers were a symbol of the city's transformation at the waterfront and the economy of New York as a whole. And Battery Park City –

built on the fill excavated for the construction of the towers – signaled a new way of looking at the urban waterfront. It drew on the traditional street and block patterns of the city to turn the site into a mix of ‘park and street.’ The fine-grained esplanade directly engaged the waterfront as an urban amenity, and became a template for the city’s later waterfront development.

Much like the city itself, the urban waterfront is composed of pockets of unique development that enliven the experience of the whole and connect the heterogeneous pieces. On a Sunday afternoon in Vancouver, a walk along the seawall to the cobblestone streets of Granville Island will bring you into one of the busiest, liveliest parts of the city. There, the industrial history of the island is on full display as you pass by galleries and boutiques housed in the old machine sheds clad in corrugated metal siding; the Ocean Concrete plant in full production; and the boat yard teeming with activity. And all of this is juxtaposed against the backdrop of the city’s new waterfront and its gleaming high-rise towers.

In Seattle, the constructed landscape of Olympic Sculpture Park links the urban grid of the city to the water’s edge, bridging the gap created by the roads and rail lines that have separated the two for years.

In Victoria, the Dockside Green mixed-use development is located next to an old shipyard, and has a clear view of the Lafarge Concrete plant across the harbour. However, the project has injected new life into a part of the city that has long been the domain of industry and is only now being tied back into the larger urban fabric. And it has done this while also setting new standards in green building practice, with LEED® platinum ratings for each phase of its development.

What becomes obvious when looking at the different (successful) waterfront redevelopment projects is that no two are exactly alike. Each is uniquely suited to its context and does not attempt to directly replicate something that has worked elsewhere. While there may be similarities between them, the identity of each can be directly linked

to the surrounding urban fabric and the geographical context. That is not to say, however, that underlying principles cannot be identified and used to guide new projects at a variety of scales.

Firstly, waterfront development is an ongoing process, much like the city as a whole. That constant evolution is what makes for an interesting and engaging environment, and ultimately presents a visual history of urban growth. In that same vein, the redevelopment of the urban waterfront must be looked at as a long-term endeavour; building quickly for short-term gain will rarely yield a desirable, or sustainable result.

Second, the waterfront can't be considered as just an edge condition. For it to truly engage the rest of the urban fabric it must extend and overlap with it, and vice versa. There is an interrelationship between what happens at the water's edge and the adjacent inland areas. The stronger that connection, the more enlivened both become.

Third, the waterfront must be treated as an amenity for the entire community, with access for all. Having for so long been isolated from the public conscience by a barrier of industrial and transportation infrastructure, the feeling of separation must be overcome, along with persistent notions of the waterfront as an area to be avoided.

Fourth, there must be a diversity of activities at the water's edge. The industrial waterfront was a large single-use zone with which the community only interacted when it had to; it was a "border vacuum."¹ Cities around the world have demonstrated that even ongoing large-scale industrial operations do not preclude other activities from occurring at the water's edge. Until very recently, there was a seafood restaurant in Vancouver called *The Cannery*, access to which was through the gates of the port. A diverse mix of functions can co-exist, even in seemingly strange combinations.

Fifth, the urban waterfront is an exceptional place that is able to sustain bold and unique design gestures. It shouldn't be exclusively reserved for quaint and nostalgic buildings

¹ See Jacobs, J. (1961). [Footnote 16]

that give it a thematic appearance. One need only consider the impact that the Guggenheim museum has had on the city of Bilbao. It is unlikely 20 years ago that the average citizen would have considered adding an amorphous, titanium-clad museum to the city's industrial waterfront a contextual fit, yet now you could not imagine Bilbao without it.

Sixth, and perhaps most importantly, the urban waterfront is not a world unto itself, but an extension of the larger urban environment that surrounds it. As such, it requires a solid urban design even if it is not necessarily in a conventional context.

These principles can be applied to the redevelopment of post-industrial waterfronts in towns and cities alike. The only major difference is the scale at which redevelopment occurs, since the available resources in a city like New York are more substantial than those of the Town of Ladysmith! But regardless of scale, cost, location, geography or context, the industrial waterfront is ready to be [re]connected as part of the larger urban fabric, and the town with a waterfront can finally become a waterfront town.

5.2 Consideration

Hanging on the walls of the National Gallery of Canada is a painting by E.J. Hughes from 1950 titled *Tugboats, Ladysmith Harbour*. It depicts two tugboats towing log booms out of the harbour with the rocky outcroppings of the Dunsmuir Islands in the background. Although this scene was painted over 60 years ago, it is a scene that can still be witnessed today from the shores of Ladysmith. Jack Shadbolt once described Hughes as "the most engaging intuitive painter of the British Columbia landscape since Emily Carr." With this painting, Hughes captured a moment that is evocative of the town's formative history. The scene portrayed is simple, yet it strikes a chord with a viewer familiar with its context because of the indelible link to its setting.

The tugboats will continue to haul log booms through the waters of Ladysmith Harbour as long as there is logging in the area. And hopefully, some day soon, instead of watching them go by while standing on the contaminated peninsula of coal slack, they will be viewed from a new Main Street along the waterfront.



Fig 5-1
Tugboats, Ladysmith Harbour, 1950
E.J. Hughes

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