READING THE TEXT OF VANCOUVER
A CASE STUDY OF DELAYERING AS AN URBAN ANALYSIS METHOD

by

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This thesis examines an urban form analysis method called delayering. This method examines the street network of a city. By plotting the streets in an electronic format and mapping information based on the spatial properties of streets such as those running east west, and overlaying these with other maps, delayering identifies patterns in the streets. This method was presented in a book titled The Urban Text. In the book the findings of an analysis of the City of Chicago were presented to outline the attributes of the delayering process. These include the ability to find patterns unseen in traditional analysis methods, the ability to read neighbourhood boundaries from the street patterns, and heighten awareness of elements through a unique graphic presentation method. These attributes and claims of the delayering process made it intriguing as a potential tool for the planning profession. Urban physical planning is based on a rational-comprehensive methodology where analysis is used to inform scenario development and decision making. If delayering could add to the analysis phase of planning it could become a useful tool to the profession. To identify this an assessment of the process’ strengths and weaknesses had to be made. To examine this question I reviewed contemporary literature regarding the urban environment, the importance of the street, perception of place, and presentation methods. This provided the background information that supported the importance of the attributes of the delayering process. To test the strengths and weaknesses of the process a case study use of it in the City of Vancouver was conducted. This tested the transferability of the process, its accuracy, and the ease of use. Combining this information with the information of the literature review an assessment of delayering was made. The overall findings were that the process lacks single strength that would make it a useful tool. All of its attributes were somewhat successful in their claims, however the combined process was not seen as superior to traditional methods of analysis of form. The unique methodology of the process, a reverse of the overlay design process, and focus of the street were seen as the overall strengths. The recommendations for the use of delayering is that it adds to the theoretical discussion of the planning profession, it can be helpful in exploratory analysis exercises, and its methodology can be adapted to other types of urban form mapping exercises.
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1.0 Chapter One - Thesis Introduction and Overview

1.1 Introduction

The profession of urban planning is made up of a number of fields of specialization. Each focus on a different aspect of the environments we create, including concerns with: the environment, social issues, economics, international development, the built environment and design.

Each field within the profession of planning has its own circle of influence. However, these influences and foci are not mutually exclusive. The various fields of planning have the common property of being influential on the way we live and the way we develop our towns and cities. Urban design or physical planning is primarily focused on the development of cities and the built forms that make up the human environment. The role that urban design or physical planning plays within the profession appears to be undergoing a change or reassessment within the profession. Increasingly the connection with the way we build our cities and the health of our populations is being accepted.

The accepted importance of physical planning is exhibited by the way it is integrated into the profession on a number of levels. For example: within policy generation as exhibited by the design charrette undertaken to develop the South East False Creek sustainable community policy statement in Vancouver; the regulation of building heights and view corridors as outlined by the City of Vancouver's skyline study; the discussion of built form and design
in professional planning journals such as *Plan Canada*. Urban physical planning is a field within the profession that deals with the control and structuring of the built environment in an effort to provide healthy towns and cities. Sound physical planning achieves positive interrelationships among people and the environment, enhancing their lives, refining human feelings and perceptions, and directly affecting people’s quality of life\(^1\). This is achieved by providing a variety of opportunities for living, working and playing while maintaining access to amenities and interaction.

As this trend of increased awareness and influence of physical planning continues, planners in the future will have to develop a broad design knowledge to effectively participate in physical planning exercises\(^2\). Part of the physical planning process is the generation of descriptive information that outlines the parameters, constraints, and elements with which one will be working. This is no different to most problem solving or creative processes, where something is analyzed or assessed before solutions or concepts are brought forth to address a given situation.

The analysis phase of physical planning has two important components; information regarding important elements or features must be gathered and this information must be accurate. If the analysis process fails to or inaccurately identifies those things that directly

\(^1\)Tuan, *Form, Space and Order*, 1977, p. 102

\(^2\)Urban planning 2010 -Urban Design, internet source, University of Manitoba, 1999
influence the generation of solutions, the result is a less than optimal outcome. In planning that translates to less healthy and less liveable environments.

There are numerous ways of looking at or analyzing the built environment, each with its own strengths and weaknesses. In a book titled *The Urban Text*, Mario Gandelsonas presents an interesting process for analyzing the city. Gandelsonas outlines an analysis that is focused on the influence of street patterns on the form of the city and way we understand the city. The ability to identify unique anomalies, perceived edges and boundaries, and heighten awareness of unseen influences on sense of place are listed as properties of *The Urban Text*'s delayering process.

These elements are important within the field of physical planning because they influence how people perceive and understand the urban environment. If Gandelsonas’ propositions about Delayering are accurate, the process may be a useful mechanism for helping planners analyze and understand the built environment more clearly. Given that the urban environment is so complex, any tool, theory, or process which helps further the understanding of the environment can be seen as a welcome addition to the planning profession. However, the need to understand the complexity of the city should not result in accepting the significance of Gandelsonas’ process or claims without verifying them.

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This thesis analyzes the Delayering process to identify its strengths, weaknesses, opportunities and constraints. This will allow me to assess the claims made in The Urban Text: that it can be used to identify neighbourhood boundaries; anomalies within the gridiron street network; and present information about the patterns of streets in a way that is superior to other contemporary methods. The analysis will also allow me to identify how Delayering may be used within the planning profession as a tool for urban physical planning and design.

1.2 Purpose and Objectives

Planners require methods of analysis that are used during various stages of work programs. These methods or tools help the planner identify important elements and/or relationships affecting the decisions they make. The purpose of this thesis is to assess an urban analysis process call delayering to identify its potential usefulness within the planning profession.

To accomplish this task, the thesis research addresses the following objectives:

- Documentation of the importance of sense of place and livability through a review of contemporary urban design literature;
- Identification of the strengths, weaknesses, opportunities and constraints of Delayering;
- Articulation of the findings of the Delayering process by conducting a case study in Vancouver, British Columbia;
- Assessment of the value of Delayering as a tool for the planning profession.
1.3 Rationale

Physical planning is one of the many professional specializations that create our cities, others include: architectural design; engineering; social, environmental and economic planning; and landscape architecture. Each specialization addresses a different set of elements and scale, with their common goal being the creation of healthy, livable cities.

The decisions and the planning processes undertaken by these professions influence the livability of our towns and cities in a number of ways. They affect transportation, population densities, access to goods and employment, aesthetics, and provision of infrastructure. These decisions and planning initiatives are primarily developed from contemporary planning models. These models are based on a process of generating scenarios based on information gathered throughout an analysis phase. The more sound the preceding phase of analysis, the more successful the scenario development phase can be, and in turn the more successful the final initiative can be.

Physical planning relies on accurate analysis methods to inventory the elements and features of the city to gain insight and understanding. Planners need to understand the city and its elements so that the decisions that are made in the planning process are based on information that is reliable and relevant to the challenge at hand. If not done effectively we lose opportunities to create livable environments. For example, poor connections may be made between neighbourhoods, resulting in unhealthy segregation, and ineffective place making.
and land marking which may reduce community and city identity. Or, disruptive redevelopment initiatives in existing neighbourhoods may fragment these communities.

Change in the form of the city is not a new phenomenon. Change has always been part of the city. As the needs of its population evolve, so does its form. However, the rate and scale of change in the modern city is faster and larger than historically. Recent examples include, large scale retail developments like big box warehouse stores, development of mega scale transportation networks such as the underground transportation corridors in Boston, similarly urban renewal projects such as the comprehensive developments of Concord Pacific Place and Coal Harbour in Vancouver are also rapidly altering modern cities. New districts, neighbourhoods and linkages are being created within a few short years. Meanwhile the existing fabric of the city remains and new relationships between these areas evolve. The potential for disruption is heightened because the incremental nature of change has been reduced and single initiatives or solutions are imposed at a vast scale. The elements of the city grow inexorably in size, with massive transportation systems, and vast districts and complexes created which make people feel irrelevant. People have less sense of control over their homes, neighbourhoods, and cities compared to when they lived in slower-growing communities with smaller scale incremental change.

Because of this increasing scale and pace of development the need for accurate analysis within the planning profession has been heightened. Tools and processes of analysis

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4Appleyard, Toward an Urban Design Manifesto, 1987, p.114
available to planners must be able to account for this type of evolution within the urban environment. The scale of lost opportunities or potential for errors is magnified with these changes. However, the opportunities to positively affect the livability of the city are likewise increased. The vast number of influential elements and relationships within the city make this a difficult challenge for planners today.

To understand the city, planners use a number of processes and tools of analysis. Observation-based analysis, statistical methods, and morphological studies are all employed to gain insight into how the built environment and people’s activities affect livability. The Urban Text describes the process of delayering that may become a useful additional tool to aid the planner.

On initial examination there are a number of elements of delayering that suggest it may be a useful analysis tool for professional planners:

- Delayering involves the plotting or mapping of street patterns and reading the anomalies, shifts in pattern, edges and precincts that influence the sense of place of the city. This pulling apart of the city plan is similar to the design process of overlaying constraints and parameters onto a site to identify the scope of the design program.
- There is substantial research to support the premise that the urban street is one of the most influential features of the city. Street design directly affects livability in terms of sense of place, movement,
communication, and safety\textsuperscript{5}. The texts or maps of delayering are based primarily on the street network of the city and are presented as an analysis of the gridiron street network of Chicago in \textit{The Urban Text}. This process may add insight to existing street analysis tools given that the gridiron is the predominant form of street pattern and in physical planning understanding the many ways the street affects the city is critical.

- The information found in the delayering process is presented in digital format as computer-based maps. The manipulation and plotting of this information is similar to the current progression toward more digitally based tools and design in planning.

If delayering is found to successfully add to the discussion of urban form analysis in an efficient and accurate manner (as suggested by Gandelsonas), it may serve as a helpful tool for the planning profession. Delayering could afford planners the ability to make judgments with a more comprehensive understanding of the city in terms of form if it is proven useful. It is possible that delayering may:

- identify subtle characteristics that make areas of the city unique to each other;
- provide a more complete inventory of the built environment from which to frame planning exercises. Planning exercises would then be framed in a more comprehensive foundation;

\textsuperscript{5}Jacobs, Allen, 1993; Jacobs, Jane, 1961; Anderson, Stanford, 1991
- highlight neighbourhood or precinct boundaries for greater understanding of these relationships and how they help create community definition and strong sense of place.

The effectiveness of planning and design to create sound urban environments is directly affected by the initial stages of the planning process, including analysis. If this reading of the city as proposed by Mario Gandelsonas assists the analysis process, delayering may have a role within the planning profession as an innovative tool to positively influence the way planners understand the city and conduct physical planning.

By examining and analyzing the delayering method I will be able to identify its strengths, weaknesses, opportunities and constraints. This analysis will allow me to assess if delayering can add to the profession of planning as a supplemental tool used to gain awareness and understanding of the city.

1.4 Scope and Methodology

The following is an outline of the research methods used to achieve the thesis objectives.

The concept of sense of place and its importance in relation to livability will be outlined by a review of contemporary urban design literature. In order to explain the connection these subjective features have with the design and planning of the built environment.
A literature review is also used to address the claims Mario Gandelsonas makes in *The Urban Text*. The properties of delayering are compared with broader planning and design literature to identify the properties of the process which are supported by other theorists. This comparative analysis also serves to identify the elements of strength or weakness within the process.

Delayering bases its assessment of the city on the urban street. Therefore, I examined literature focusing on the importance of the street in the urban context. This literature analysis helped to structure the assessment of the findings from my case study application of delayering.

To further support findings from the comparative analysis with contemporary literature, a case study was conducted of the process of delayering. The case study analysis provided insight into the unique properties of the delayering process in a real-life context. A descriptive case study provided data to either support or conflict with the findings of the Chicago analysis, done by Mario Gandelsonas in *The Urban Text*. Further case study analysis also allowed me to make assessments of the process based on my personal observations while undertaking the process. The result will provide further clarification regarding the strengths and weaknesses of the delayering process. Finally, the case study of Vancouver tests the universal applicability of delayering by introducing the process into a different context then used in *The Urban Text*.

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I felt that a number of particular properties needed to be contained in any case study area used to test the process. These constraints were identified to maintain a manageable scope while providing a test that mirrors many of the same primary properties found in the Chicago example. The City of Vancouver was used for the case study. I selected the City of Vancouver as the case study area for the following reasons:

- The area is easily definable by its natural boundaries and is of approximately the same size as the Chicago study;
- There are distinct and definable neighbourhoods present in Vancouver which can be compared with the precincts found by delayering;
- Urban design is of great importance to the City and its Planning Department. It was important to test the process in a professional context that embraces a need for this type of urban planning tool;
- The predominance of the gridiron street network in Vancouver was significant because the findings of the process are largely based on the anomalies within this type of street network;
- The ability to verify findings with direct field observation;

As exhibited through by-laws, processes, and publications that contain major components related to urban design and sense of place. For example: *Designing Safer Urban Environments*, 1996; the Urban Design Panel which reviews new development; the CityPlan process which develops plans and implementation strategies for community based initiatives; *Greenways and Urban Landscape Inventory Implementation*, 1993.
The influential pressures of large scale change and growth in the city to help structure the broad scale findings in a context that would provide true opportunities in the future.

1.5 Chapter Summaries

Chapter One has provided a brief introduction to the topic of this thesis and has outlined how the research question will be examined. Chapter Two presents a review of the literature addressing the urban environment, the important elements within that environment, and perception of place. The third chapter provides a review of the planning and design process, and introduces the delayering process.

Chapter Four presents a detailed overview of the delayering analysis process and its characteristics. Chapter Five will outline the parameters of the case study application of delayering and the findings of that study. Chapter Six concludes with the final assessment of the delayering process, areas of further study, and recommendations for the planning profession for the role of delayering as a tool.
Understanding the interactions and relationships of people with the urban environment is vital to the planning profession. Urban physical planning deals almost exclusively with the influences and connections between people and the built environment. There is an inherent difficulty in working within this field due to the complex nature of these relationships. The urban built environment and the people that live there interact on a multitude of levels that are so complex that they can not be wholly understood. In literature and in common perception the definition of city is imprecise. Various synonyms such as urban or metropolitan are used to describe a wide variety of phenomena. The city is often defined as a set of buildings or artifacts that demark a location. Other times it is described in terms of the population that lives within a given boundary. Yet at other times the social value systems of a population are defined as urban or non urban\textsuperscript{8}.

Many theories have been developed to explain the city in manageable terms. These descriptions and interpretive methods attempt to simplify the characteristics, relationships and elements of the city so that a wholistic understanding is possible. Most of these theories are not attempts at comprehensive definitions of the city. They focus on defining those

\textsuperscript{8}Webber, Order in Diversity
relationships or forms that are most influential on the city and have the greatest impact on how we understand the environments we live in.

No single theory or analysis method has been developed that defines every city in all its complexity at any time and in any context. However, this does not negate the importance of descriptive or analytical theory to the planning profession. Any theory, tool or method that provides insight into the workings of the urban environment has potential to aid the profession. Not only can the descriptions or findings of a given approach become helpful, the reference or framework from which a theory is presented can also help by providing a unique perspective or highlighting a given characteristic previously ignored.

The theory presented in The Urban Text focuses on the elements and patterns that influence the sense of place which can be gained by looking at the patterns of city streets. To maintain manageability and help define the framework of contemporary theory used in the assessment of delayering, the literature review is presented as follows:

- form of the city
- physical planning and the perception of place
- the changing urban environment
- the urban street
- urban planning theory
This information will illustrate how the components of the delayering process are related to contemporary planning methodology and practice, and allow me to assess its strengths and weaknesses based on this information.

I have purposefully left out most theoretical and analytical references that deal with social, cultural or economic influences on sense of place and urban design. The importance of these is not being diminished. Rather the omission of this information is intended to maintain the scope of this thesis and focus on the characteristic elements of delayering.

2.2 Form of the City

The form of our urban environment is directly linked to how we live our lives. The architecture and open spaces of the city are the stage upon which all daily activity takes place. Where we live, work, and interact is dependent on the built form. The buildings, streets, communication networks, residences, and open spaces within the city are some of the elements which make up the urban environment. The combinations of these elements provide the context for the activities of the population. No matter how the city is defined it is at some level understood and dependent upon the built form\(^9\). It is not possible to separate the social and physical elements of the city, they can only be distinguished. The population of a city provides the activity and the form provides the setting\(^{10}\).

\(^9\)Brown, 1990, p. 13
\(^{10}\)Salzano, p. 19
In its most basic breakdown the urban environment is made of four simple elements within which all activities take place. These are the point, line, plane and volume. The point is the prime generator of form. Extended into the second dimension it forms the line and into the third the plane and volume\textsuperscript{11}.

![Figure 1: Point, Line, Plane and Volume](image)

All the places and spaces of our cities are created by combinations of these architectural elements. Without exception, every building, street and neighbourhood owes its form to intricate combinations of these elements, moving from simple to more complex combinations. The features of the city can be simplified into combinations of lines, planes and volumes as illustrated in Figure 2: Simplified Urban Form. In this simple exercise, urban geographer M.R.G Cozen identifies the basic components of a town, the street pattern, land use pattern, and the building fabric. They are understood as lines, planes and volumes.

\textsuperscript{11}Ching, Architecture: Form, Space & Order, 1979, p.19
respectively and define the city in three dimensions\textsuperscript{12}. This shows how one can simplify the city into terms that are more easily understood. Likewise, the delayering process seeks to reduce the complexity of the city in order to facilitate analysis.

![Figure 2: Simplified Urban Form](image)

Even with simplifications of our cities there still exists difficulty regarding which terms or definition of the city should be used or which would be most accurate in a given setting. Not only are cities complex, but our varied definitions of them are also complex. This lies in the numerous ways we can understand the activities, formal elements, uses and relationships of the city\textsuperscript{13}. When attempting to describe the city a planner can express it in terms of its varied characteristics such as energized crowding, cluster of activity, differentiation of uses, resources, monumental framework, buildings and people\textsuperscript{14}.

The planner develops and uses these definitions of the city to gain understanding of what it is that makes up the urban environment. Depending on the scope the program or planning

\textsuperscript{12}Kostof, 1992, p. 26

\textsuperscript{13}Rossi 1992; Anderson, 1991; Weber

\textsuperscript{14}Kostof, 1991; Lynch, 1992
initiative at hand, planners use different definitions of the city to structure their work. This information is in turn used to help plan and design a liveable city for the population that will make it their home. As stated previously, the physical and social aspects of the city are linked. To achieve a livable city for the well being of the community, planners have a set of goals or aims that take into account the inherent connection between physical and social elements\textsuperscript{15}. In \textit{Making Cities Livable}, Eduardo Salzano defines seven aims for livable cities\textsuperscript{16}: 

1. A livable city has no boundaries: it is open to the whole world, and is has no ghettos nor segregated areas. 

2. A livable city is marked by the complexity of its functions and by the richness of the interpersonal exchanges it fosters. 

3. A livable city is a city where the town planners are able to manage the complexity and dynamics so that it does not degenerate into congestion and anxiety. 

4. A livable city has a good relationship with its site and with the environment. 

5. A livable city is the home of the community. 

6. A livable city is a city where common spaces are the centres of social life and the foci of the entire community. 

\textsuperscript{15}Donald Appleyard and Allen Jacobs describe the goals of urban life as: livability, identity and control, access to opportunity and imagination and joy, authenticity and meaning, community and public life, urban self-reliance, an environment for all. 1987 

\textsuperscript{16}Salzano. 1995, p. 19
7. A livable city is not built for the appearance and the glory of architects and city administrators, but for the well-being of the citizens. Although these aims are generalizations, they contain references to political, social, environmental and physical components. None of these fields is of greater importance than another and each should be considered in planning initiatives.

2.2.1 The Urban Environment

The natural landscape is the most widely acknowledged causality for physical forms. The harbour city and river front city are both excellent examples of urban forms that take their cues from the environment\[17\]. For example river towns and harbour towns may acknowledge the banks of these water bodies with street and building patterns that correspond to them. Even those cites that take their cues from the environment have a deeper order that is not easily understood by simple observation. A city’s physical environment also organizes itself into neighbourhoods and/or precincts relating to things other than the natural landscape. Those cities that do not receive their primary characteristics from their natural environment or amend the landscape create a physical framework through the activities of their populations and built forms. In modern urban areas, topography does not generally account for urban form to the same extent as societal or cultural structures. For example in modern North American cities this is exhibited in the influence that the automobile has had on land use planning.

\[17\]Kostof, 1991, p54
Cities are amalgams of buildings and people. They are the setting for the range of daily
activities, and the artifacts and memorials to the achievements and struggles of past and
present populations\(^{18}\). These characteristics make them difficult to define and describe.

Some methods of describing the city have attempted to define it by the predominant patterns
of its plan, using terms such as organic. The organic analogy only points to the difference in
appearance and growth patterns of the city. This type of description does not take into
account the forces that create a given plan of a city. To describe it entirely by any single
attribute or point of view lessens the value of other influential characteristics and forces. The
one common aspect of all cities is that they are the creation of human activity. Cities do not
grow or change of themselves, reproduce or repair themselves. Rather, human willfulness
drives the making of cities\(^{19}\).

Other ways of describing the city have developed classifications of elements. These
approaches include the works of Camillo Sitte and Rob Krier who extensively studied and
cataloged urban spaces and plazas. Their work was centred on identifying types of elements
that could be read and classified. These classifications were made to explain the aspects of
public spaces that affected sense of place. Beginning with the identification of the types of
public spaces and the elements and characteristics of each, one could then move to
assessments of the causal relationships between types of spaces and their effect on people.

\(^{18}\)Kostof, 1991

\(^{19}\)Kostof, 1991; Lynch, 1960
By understanding the effects or reactions to a given type of space the designer could make appropriate choices during the designing of any new spaces and achieve a desirable outcome. Understanding the effects of types allows the designer to make better choices when creating places for people.

However, the idea that a certain type of space will always illicit the same response of users is incorrect. This concept does not take into account the uniqueness of each person’s experiences and the complexity of perceptions. There are norms within which people’s reactions to places will fall. This has to do with the ways people make use of spaces and which activities lend themselves to specific environments. For example, the influence design can have on the safety of environments. Delayering tries to identify the patterns and anomalies of the city street network to help the analyst understand how they influence the environment.

2.2.2 Change

In the urban environment there is only one constant, that of change. Cities are not stagnant entities whose attributes are constant. Populations move and grow, buildings are developed, adapted or torn down, and social and economic forces change. As a result any understanding or description of the city is temporally based. Just as a national census presents a descriptive picture of the population for a given point in time, descriptions of the physical city also reflect time based analysis.
A period of economic prosperity can bring about steady growth or a development surge over a few years or decades. Disaster may make its impact within merely a day or a few weeks. How this change is measured is dependant upon the time scale of analysis. Physical scale is equally important, for example, development of a new building on a vacant site will drastically change the site over a short period of time. If this same site is the only development in an entire district or city precinct over a five month span, it therefore may represent only a small amount of change at the scale of the entire city physically and temporally. These temporal and spatial scale concerns relate to the way planners develop and use varying definitions of the city.

The information must be current, accurate, and appropriate to be effective throughout the various stages of planning. If time and scale are not properly taken into account the effectiveness of planning is threatened. Basing the design of a major redevelopment of industrial lands on poorly defined or inaccurate site plans and analysis would be as effective as developing projections for housing policies based on century old census data. Analysis methods that provide the most sound and accurate data are of most use to the physical planner. Delayering claims to provide information that is unique and will add to the understanding planners have of the city. This increased understanding may give a sounder level of background information for the planner to base their decisions on. It may add an additional level of information not available through other contemporary methods of analysis.
2.2.3 The Street as Public Realm

"Urban public space is the single most important element in establishing a city’s livability."\textsuperscript{20}

Streets largely constitute the public realm. Streets are those areas of the city associated with public life and only occur in public places. The space designated for parks and other public spaces does not match the area of those designated for streets. Twenty-five to thirty percent of all developed urban land is represented by streets and car parks\textsuperscript{21}. The urban street is one of the most discussed formal elements of our cities. This discussion has included the formal and social properties of the street at a variety of scales, the way the street affects the lives of people at the neighbourhood level, as well as the impact of street patterns on the identity and development of entire cities.

The shape of the city and its patterns can provide much insight for the planner. For example, the street and block patterns of a city can add insight into the time period of a city’s development, to geography, to differing cultures, and to political philosophies\textsuperscript{22}. Sociologist Jane Jacobs views the city’s streets as the social stage on which public life takes place and the sense of place is experienced. In \textit{The Death and Life of Great American Cities}\textsuperscript{23} Jacobs highlighted the value of the social interactions that take place on the neighbourhood street. This viewpoint has become a primary point in the profession of planning. Developing

\textsuperscript{20}Lennard, p25
\textsuperscript{21}Jacobs. A, 1993, p. 4
\textsuperscript{22}Lennard, 1995
\textsuperscript{23}Jacobs. Jane. 1961
designs that add to the safety of the street with Jacobs' concept of eyes on the street have also
come common place in the profession. An understanding of the connection between the
design of the built form and the social activities of a population played out on the street are
a significant basis for planning practice and principles today.

2.2.4 The Street and Urban Form

The urban street is more than just a corridor for communication and the movement of people
and goods. Streets moderate the form and structure of communities. The space between
buildings, the sidewalk, and the activities taking place are all part of the street. This stage of
activity can be a more, or less, positive environment depending upon the built forms that
define it and the activities taking place. The street network influences the form of the city and
it is more than just the void space between buildings. Streets are present in all city precincts
regardless of use or zoning. With building facades and setbacks, buildings relate to the void
of the street creating a contained volume of public space. The network of street volumes are
a city wide datum which helps define the form of the city. Understanding how the street
network influences the city’s forms and activity is important to physical planning.

The way in which street intersections are laid out also help define the identity of a place. The
rhythm and number of intersections set the grain of an area. The finer the grain the more
complex the experience of place is. The number of intersections at the city scale relates to

visual and spatial complexity, the numbers and sizes of spaces, and the numbers of individual choice points that are available to people. At every intersection where two different paths meet there is at least one choice that can be made, to go this way or that\textsuperscript{25}. In areas where there are more complex patterns and numbers of intersections there are also more points of choice available, which directly affects the sense of place of an area.

Streets also have an important role to play as signals of transitions to users. They can act as boundaries or edges to city districts and help order space in the minds of a population. The linear nature of streets can also act as a unifying force. In \textit{A Pattern Language}, Christopher Alexander prescribes the importance of defining and moving through boundaries. He states that at various levels in the structure of the town, there are identifiable units, including communities of work, housing clusters, and neighbourhoods. All of these units get their identity most clearly from the fact that one must pass through a definite gateway to enter them. The gateway acts as a threshold which creates the unit. A strongly defined edge allows people to perceive the neighbourhood as a single unit and understand when they are entering or leaving it's precinct\textsuperscript{26}.

\subsection*{2.2.5 The Street and Urban Design}

As described earlier the elements that form our places also inform and help shape our perceptions. Allen Jacobs has spent a great deal of time identifying those streets that are great

\footnotesize
\begin{itemize}
  \item \textsuperscript{25}Jacobs, p. 202, 1993
  \item \textsuperscript{26}Alexander, p. 277, 1977
\end{itemize}
streets, similar to the work of Krier and Sitte. To do so he focused on the physical, designable qualities that help define the sense of place of the street. Jacobs notes elements of importance such as lighting, paving treatment, landscaping, street furniture, block patterns and signage. In Great Streets, his recommendations for the design of streets come from careful analysis of proportions and measurements and first hand experiential assessments of streets world wide. He describes these in terms of categories or types, as one would with building types. Jacobs’ work is focused on streets because he feels that they are the public spaces of primary importance to the urban environment. The great street has a positive effect on the urban environment within which it is contained, this effect enhances the lives of the people who use the street.

Thomas Schumacher\textsuperscript{27} combines both Allan and Jane Jacobs’ descriptions of healthy urban environments as they relate to urban streets. His list of formal factors that create positive streets are clearly similar to both theorists. Schumacher states four major components of healthy streets, that in turn create healthy urban environments:

1. user density;
2. mixed land-use;
3. pedestrian/ vehicular interaction;
4. configuration of street and setting.

\textsuperscript{27}Anderson, On Streets, 1991, p. 133
These four points are related to the activities and form of the street as well as the activities and form of the greater context of the city. Neither is independent of the other. Each of the points is also linked to an aspect of the planning profession. User density is influenced by residential development and transportation; land use is a balance between zoning and development; the pedestrian realm and street setting can be influenced by development and design guidelines. Each area is in some way linked to planning. The street and the city are married and mutually influential and dependent, and both are influenced by planning. The health of the community is at least partially affected by the manner in which these elements mix.

The multiple nature of streets as social conduit for human interaction, functional corridor for movement, and as a structuring force within other developments make them one of the principle influences on the livability of the city. The importance of the role streets play in the lives of people is shown by documents such as Pine Street: Commitments and Actions for a Great Street. This publication of the City of Seattle was produced to outline the aspects of a well designed street to positively affect the health of the community. The goals of this report are similar to those of Schumacher.

\[28\text{William C. Ellis, in Anderson; Kostof, 1992}\]

\[29\text{City of Seattle, 1995}\]
The Heritage Canada Foundation's *Main Street Canada* program is another example of a program created to influence the physical environment and sense of place through the design of the street. The manual *Appropriate Design on Main Street*\(^3^0\) documents the design goals for creating a healthy urban street. This text presents the importance of structuring the built environment around the well designed main street to create an environment whose focus is the public space of the street benefitting the community.

In all these examples the common thread is the value of the street to the health of the community and the city as a whole. Physical planning must maintain an awareness of this relationship between the user population, the urban environment.

### 2.3 Physical Planning and the Perception of Place

The activities of a city's population are equally important to defining or understanding the city as are the built forms. The sense of place is often used to describe the more complete expression of the combination of the city's physical environment and the population's activities. Sense of place is a function of the formal features, their uses, and the meanings people attribute to them. Since sense of place is linked to both physical and social elements, defining the term is difficult and somewhat subjective.

By the narrowest definition, physical planning is concerned with the spaces between buildings and land use patterns. This leaves the architects and landscape architects to develop

\(^3^0\)Fulton, 1989
solutions for the forms of the city. However, the reality is that all the policies and guidelines that regulate the built form of the city and its activities are within the realm of the planner. In addition, the quality of an environment is not just a function of its forms. It is based on the combination of form and use. Therefore, to achieve a livable environment the planner must address the broad scale of planning that includes the traditional scopes of architecture and landscape architecture.

The role of the environment as a source of support or inhibition of activity is presented in *On Streets*[^1]. Stanford Anderson contends that the physical environment has three measures defined by the way they affect the use by a population. The categories are: the potential, the influential, and the latent environment. The potential environment is divided by the latent or unrealized potential, and the influential or realized potential. The realized potential is that area of the environment that is used by the population and represents the most livable areas.

In *Space and Place: The Perspective of Experience*[^2], our relationship with the physical world and perception is explored in similar terms to that of Anderson. Tuan also sees three principle types of space to be perceived by the user: the mythical, the pragmatic, and the abstract[^3]. The urban planner’s understanding of each type of space is useful at different times. During the analysis phase of design, an understanding of the realized (used


[^2]: Tuan, Yi-fu, University of Minneapolis, 1977

[^3]: Tuan, p. 12, 1977
environment) and influential (entire built environment) environment is sought. This information guides the development of the conceptual/potential environment (newly developed environment) design at the next phase. The designer takes the information and tries to develop a potential environment that maximizes the realized environment. Restated, the process is the design of the most vibrant and healthy environment by examining the successes and failures of the existing urban environment as related to societal needs, uses and concerns.

The better the planner understands the environment and how it influences users the better they will be adapted to design new environments. Delayering tries to add to this understanding by aiding an analyst’s ability to see elements that are not identifiable through other methods. This additional insight may help at the subsequent stages of planning.

2.3.1 Describing the Elements

Camillo Sitte’s examination of public plazas and their design discusses the importance of public square elements which help define and influence its success as an active and enjoyable public space. For example Sitte explores the siting of an entrance to a plaza and the multiple levels of influence it has beyond the entering and exiting of plaza users. When Sitte explains the importance of sense of place to the relationships of entrances to building facades, sight lines, movement and scale, he is attempting to identify those elements of form that are most important to creating healthy urban environments in public squares. To do so Sitte looks beyond the utilitarian designs of the built forms and spaces, he is deciphering the
relationships between them and how people perceive them. Understanding this form of information can guide design discussions. For example, at a relatively small scale, knowing that trees will enhance the aesthetics for most users within a given streetscape, the designer can make the choice to include trees and achieve a more pleasing visual character for the street. With increased scale the problem of identifying which features are most influential to the population, and at what level, becomes greater. Knowing how elements influence a small scale environment does not necessarily translate to larger scale environments. Delayering explores how street patterns influence the perceived environment at a city wide scale.

2.3.2 How Elements Relate

Movement, sightlines, and scale are all key concerns for urban design success; their placement creates relationships that affect the sense of place in the city. Urban physical planning is also dependant upon the ‘artistry’ of relationship and contextual placement of elements. The failing of looking only at elements and ignoring their relationships is expressed by Sitte:\(^{34}\):

> We designate as a ‘plaza’ even the empty space which is formed when a building lot bordered by four streets remains unbuilt. This might hold true for hygienic and other technical considerations, but from the artistic point of view a merely unbuilt piece of ground is not yet a city plaza. Aesthetically speaking, a great deal would still have to be added in embellishment, in meaning, and in character.

\(^{34}\)Sitte, 1965, p. 32
The fine grain of architectural details, buildings, spaces, character and style are all perceivable features of the city. In *The Concise Townscape*[^36], Gordon Cullen focuses on describing a sort of typology of relationships at a human scale. These are elements that relate to a person’s direct or immediate environment, including benches, building facades, sculptures, road and building proportions. The sketches that accompany Cullen’s text also express the importance of interrelationships of elements.

![Figure 3: Serial Vision](image)

Through sketches Cullen describes the fine grained characteristics and patterns of urban form (see Figure 4: Serial Vision). Cullen describes human scale streetscape elements of point, line, plane and volume and how they affect people’s understanding and perception of place. These can be understood as the small scale equivalent to Kevin Lynch’s paths, edges, districts, nodes and landmarks. However these relationships do not translate well and are ineffective descriptions at the large scale\(^\text{36}\).

A more complex visual representation and description of how elements relate to define the city and urban form is seen in Kevin Lynch’s technique of diagraming, creating a visual language of the city. The reader sees the city as a collection of interrelationships, the elements of the city that give it form and define its image in Lynch’s theory: paths, edges, districts, and nodes. These descriptions of relationships can easily be understood as transportation routes, differing land uses, neighbourhoods and active public places for example. The importance of Lynch’s work is that the physical planner can use these simplified descriptions to work with very complex components of form and use.

The shortcoming of these descriptions is that they are not defining any specific location and can only be used to describe a place in a theoretical framework, no actual definition of location is provided. To be more effective in pragmatic terms the descriptive illustrations require actual points in space that can be translated to the ground. Gandelsonas’ delayering

\(^{36}\)Lynch, 1960, p84
method attempts to combine the theoretical type of presentation while maintaining accurate mapping of the city.

2.3.3 Memory

Architect Aldo Rossi believes that the importance of form only arises when elements have existed for a length of time and have moved into the collective memory of a population. How people remember places and activities related to them brings life to built forms\textsuperscript{37}. The importance and social value of the built form changes with the perceptions of a population over time. As buildings are adapted for new uses, neighbourhoods mature, and populations move, meaning is added to places over time.

The planning of areas within existing neighbourhoods can be complicated by the difficulty of measuring or identifying important elements understood by the collective memory of a community. These elements are more than just the heritage of landmark buildings. The collective memory can outlive built form and use. It can correspond to many areas of seeming little landmark value when viewed from outside the community. Important events such as demonstrations, or rituals such as daily markets can become part of the collective memory, attaching a specific meaning to a location over long periods of time.

\textsuperscript{37}Rossi, 1982.
Similar to Rossi’s concept of memory, Christopher Alexander describes the link to urban form and the recurring activities that take place there. Alexander identifies these activities as giving life to the city. He explains this connection between use, memory, and form:

There is a central quality which is the root criterion of life and spirit in a man, a town, a building, or a wilderness. In order to define this quality in buildings and in towns, we must begin by understanding that every place is given its character by certain patterns of events that keep happening there. These patterns of events are always interlocked with certain geometric patterns in the space. Indeed, as we shall see, each building and each town is ultimately made out of these patterns in the space, and out of nothing else: they are the atoms and the molecules from which a building or town is made.\textsuperscript{38}

Alexander reiterates the connection between the complexity of the city and the challenge of understanding the environmental elements that influence peoples lives and urban physical planning. Contained within the challenge of creating vibrant urban environments are the properties of how we understand and perceive our environments. Cities are great reservoirs of understanding, full of messages waiting to be deciphered by casual observation as well as by strict analysis and interpretation. The spaces and buildings of cities and the activities and relationships they support form the underlying connection for cultural development and everyday life.\textsuperscript{39} The planner must be aware of the obvious activities and physical attributes of the city. Additionally, the planner must understand the unseen meanings and remnants of

\textsuperscript{38} Alexander, 1979, p. X
\textsuperscript{39} Lyndon, 1996, p. 24
form that can have importance in the lives of a population. These can significantly affect sense of place and also livability\textsuperscript{40}.

2.3.4 Perceiving the Environment

By accepting that we can plan and design cities in such a way that they affect the health of a population, we must understand that how the environment is perceived is very important. The perception of the user is the defining test of an environment’s desirability. If an environment meets the needs of a given person it will be preferred to one which does not. This assessment and choice is influenced by personal preferences, perceptions and history. There are many influential elements that surround us: the forms and activities of the city; communication and travel networks; and any other number of choices we can make regarding daily activities. Kim Dovey characterizes the perception of place as the conjunction of the activity of daily life, meanings and memories, social contact and the physical world\textsuperscript{41}. Dovey illustrates the connection of these features in Figure 5: Experience of Place.

\textsuperscript{40}If Place is something more than a location, what is it? Place has been defined as a location of experience, as the container of shapes, powers, feelings and meanings and as a matrix of energies, a piece of the whole environment that has been claimed by feelings”. Rypkema, p. 58

\textsuperscript{41}Dovey, An Ecology of Place and Placemaking, 1985, p. 105
To create a sound healthy environment the planner needs to understand and create environments that address the past, provide user choices and interactions in a positive physical setting. The final test of success of this is the experience or sense of place that a population feels. The planner must have information regarding the environment and all the ways it affects the way people use it to achieve the goal of developing a healthy environment. The analysis stage of planning tries to provide the planner with this information. From this information design and planning decisions will be made.

2.4 Conclusion

This chapter has provided an outline of the complex discussion of the urban environment through a sampling of recent and current theory. It has also highlighted the difficulty of defining the city and its many attributes in ways that can be helpful to urban planning. The diversity of uses, elements, and activities all combine to create the urban environment that planners must work with. Various ways of describing the city and the elements that make it a vibrant place to live have been presented. Each of these approaches add a level of
understanding about the city that can be used within the planning profession. The way this information is used to guide development affects the lives of the population of the city.

The way people perceive the built environment is the final test of success or failure of urban planning. A city space that is positively perceived is preferable to one that is not. However, perceptions of places are equally as intricate as the cities themselves, adding to the difficult task of planning. The importance of a population’s perception of a place is clear. Understanding the elements that influence the way people feel or function in a space is very important. In the analysis stage of planning a key task is the generation of information about these elements. The more the planner uncovers in the analysis stage of planning the better suited they will be in the later stages of planning.

The Urban Text presents a method of analysis that maps the patterns and anomalies of the street network to help identify its influence on city boundaries, edges, and landmarks. These are some of the characteristics that define the sense of place and livability of the city. This method called delayering, could provide another tool to the profession of planning if it works as described in The Urban Text. Many analysis methods at the disposal of planners do not work well at large scales. Delayering examines the streets of the city. These elements are the most predominant, and the most significant public realm within the modern city. Because delayering deals with elements on such a large scale it could help the planner in ways that other methods can not, acting as an additional analysis tool.
In the next chapter I will examine the contemporary planning process to review the potential application of delayering. This will illustrate the importance of urban analysis to the planning profession, and explain why new methods such as delayering are necessary.
3.0 Chapter Three - Planning Process

3.1 Planning Process

It would be difficult, if not impossible, to examine an urban analysis process such as delayering without first discussing the planning design process. It is within the planning process that delayering may find application as a useful tool. By examining the theory and application of professional planning the potential role of delayering may be assessed.

Current planning theory is primarily focused on rational planning principles. The operational definition of rational planning when applied to a given problem will generally contain the following activities:

1. Definition of the problem to be addressed, or goals and objectives;
2. Modeling and analyzing the situation;
3. Designing solutions or scenarios;
4. Evaluating the feasibility of solutions;
5. Decision;

\(^{42}\) Friedmann, unknown source
The rational-comprehensive model attempts to base decisions on a full understanding of all the elements involved. The assumptions made within the rational-comprehensive planning model are described by Forester\textsuperscript{43} as:

1. a well defined problem;
2. a full array of alternatives to consider;
3. full baseline information;
4. complete information about the consequence of each alternative;
5. full information about the values and preferences of citizens;
6. adequate time, skill, and resources.

The difficulty inherent in this model is the amount and accuracy of information needed. Providing a full picture for any planning program is limited by constraints in time, human resources and economics. To acquire the most comprehensive set of information, planners use a variety of analysis methods. The methods used are dependent upon the types of information sought. They can include: statistical analysis of census data, assessments of the built form of the city; or social research methods such as surveys, and direct observation. The analysis stage is critical to the rational planning model. The information gathered represents the foundation upon which the other stages are built.

3.1.1 Physical Planning

\textsuperscript{43}Forester, unknown source
In physical planning, one of the main types of information required is that which describes the physical elements of the city. Through use of these descriptions the planner can gain understanding, test concepts, and communicate information to a given audience. This helps to inform citywide policy such as the development of mass transit routes, the design of scenic road corridors or bicycle routes, and to reinforcing a city’s image and landmarks for identity and tourism.

It is clear that the inaccurate portrayal of the environment through poor or ineffective information gathering techniques can seriously affect the results of the solutions generated. The same negative effects can result from insufficient information being gathered during the analysis phase of the planning program. For large scale developments this could result in lost opportunities or miscalculations such as:

- disjointed connections with the existing transportation network through not fully understanding the movement patterns of the population, or not effectively connecting new streets into the existing network;
- unclear or ineffective definition of neighbourhood boundaries through not identifying the elements of adjacent communities which make them unique;

44. Architecture and urban space design employ a non verbal 'design language' to create contexts and to make value judgements.” Lennard, p. 28
45. Chaskin, 1995, p. 1
• initiatives that do not develop landmarks at significant nodes or gateways which could add to the identity of place;
• developments that disrupt existing neighbourhoods through poor linkages of street patterns, inappropriate boundary or community edge definitions or conflicting scale of development.

The more comprehensive the analysis of a program's parameters and elements, the more effective the scenario building and decision making stages can be. This is true of all the components contained in a planning program including social, economic, environmental and other concerns. Given the constraints of time, economics and human resources, the planner must make an assessment of the types of information gathering tools and processes they will use to derive the information needed. The value of a given choice will be determined by a cost benefit analysis of what data and insights they can provide, what strengths and weaknesses are inherent in it and the resources required. The more effective any analysis process is in terms of this assessment the greater the potential net value it will have for the planner.

3.1.2 The Neighbourhood and Planning

Modern planning practice has incorporated a strong focus on planning and designing for the neighbourhood unit. The neighbourhood can be understood from three viewpoints. The neighbourhood as a social unit, the neighbourhood as a spatial unit and the neighbourhood as a network of relationships and patterns of use. Each of these views requires a different set
of analytical methods and parameter definitions. Due to the complex nature of
neighbourhood definition, specific neighbourhood boundaries defined by different groups
or individuals rarely agree precisely. In terms of the spatial dimensions of a neighbourhood
and identification of a central core and boundaries, there may be strong correlation between
perceptions on the central blocks contained within a given neighbourhood. Consensus greatly
dissipates at the edges\textsuperscript{46}.

Although the varying definitions and structures of neighbourhoods make it difficult to plan
for them the principles of New Urbanism outlines a commonly accepted structure for
planning and designing for neighbourhoods. These principles set a number of criteria that
order the basic elements of neighbourhoods. Howard Kunstler\textsuperscript{47} defines these principles:

- The basic unit of planning is the neighbourhood.
- The neighbourhood is limited in physical size, with well-defined
dges and a focused centre.
- The secondary units of planning are corridors and districts.
- The neighbourhood is emphatically mixed-use and provides
housing for people with different incomes.
- Buildings are disciplined on their lots in order to define public
space successfully.

\textsuperscript{46}Chaskin, 1995
\textsuperscript{47}Kunstler, 1996
• The street pattern is conceived as a network in order to create the greatest number of alternative routes from one part of the neighbourhood to another.

• Civic buildings, such as town halls, churches, schools, libraries, and museums, are placed on preferential building sites, such as the frontage of square, in neighbourhood centres, and where street vistas terminate, in order to serve as landmarks and reinforce their symbolic importance.

• In the absence of a consensus about the appropriate decoration of buildings, an architectural code may be devised to establish fundamental unities.

These principles are intended to focus the efforts of planning and design to ensure the creation of healthy neighbourhood environments. Within each principle falls a number of aspects that must be considered. Many new urban communities have had these principles incorporated into their design. Many existing urban areas have also adopted processes and initiatives that follow the intent of these principles. For example, many of the principles incorporated in the City of Vancouver’s planning practices relate to those of New Urbanism. The City’s focus on creating healthy neighbourhoods is expressed by the following examples:

• The CityPlan process based on planning each neighbourhood as a unique unit and designing services at a neighbourhood level.
- Developing and using Local Area Maps to identify study areas and focus planning programming.
- Requirements for affordable housing to help insure an economically mixed community.
- Requirements for family oriented housing to provide mixed housing types.
- Public art requirements to help create civic spaces.
- Design guidelines to ensure formal/visual unity throughout neighbourhoods.

Vancouver's planning structures and requirements listed above exhibit the determination of the City to guide development and change at the neighbourhood level.

As with any of the important elements of our built environments identified earlier, understanding the neighbourhood is a complex challenge. The precinct that defines a neighbourhood area and its boundaries are not easily understood or mapped. There are social, economic and physical boundaries that can distinguish one neighbourhood from another. Each characteristic has a different set of tools and criteria with which the planner can identify them. Any process that can aid a planner's in identifying the boundaries of local areas and neighbourhoods by any of its characteristics is a potential positive attribute.
3.2 Delayering as an Analysis Process for Planning

In 1991 Mario Gandelsonas published a book titled The Urban Text, in which he outlines an urban analysis process called delayering. This process may aid planners by providing an option to develop analysis that is superior or more economical than existing contemporary methods. Delayering may achieve this by providing new types of information which form a basis to develop a more comprehensive picture. This process may also allow information to be gathered in a more economical way.

The suggestions made by Gandelsonas regarding the way in which delayering can aid planners are intriguing. There are a number of properties inherent in the process and findings that could justify the incorporation of this form of analysis for certain planning programs if found to be valid. The specific claims and properties of this process that have brought me to this conclusion are outlined below:

1. Delayering examines the influence of street patterns on urban form at a significantly large scale of one square mile.

2. Delayering focuses on the gridiron street network that is predominant in North American cities.

3. The process claims to identify the anomalies of the street patterns that help provide a clearer picture of cues in the environment that help define sense of place.

4. The graphic representation of information is in a digital format.
5. The suggestion that delayering can provide additional information about the urban environment by identifying the edges, boundaries and precincts within the city that correspond with neighbourhoods.

6. Delayering claims the ability to present information unavailable in other contemporary analysis and presentation methods.

As described earlier, physical planning is influential to the health of the city and its successes are partially based on the analysis of the built environment. In the following chapters the attributes of delayering listed above are examined and assessed to identify their strengths and weaknesses and to determine if this particular analysis process may be a helpful addition to the tools used by the urban planner today.
4.0 Chapter Four - The Delayering Process

4.1 Delayering

The delayering process is a type of mapping used to analyze urban form. There are a number of distinct steps involved in the process. The follow abbreviated outline describes the process of delayering.

4.1.1 The Study Area

A study area is first defined in order to generate a base map. From this base map additional maps are generated in a number of series that explore specific attributes. The maps or texts are created by plotting the streets of the study area with a CAD\textsuperscript{48} application. The only information contained within the texts are the lines representing the streets and blocks of the study area. These texts are presented as sets of colored lines on a field of black. This presentation heightens the awareness of the reader to the mapped information without distraction from other data\textsuperscript{49}.

4.1.2 The Series

The next step of this process is the development of the text series. Text series are sets of maps that explore a given property of the street network. For example, locating clusters of

\textsuperscript{48} CAD is an abbreviation of computer aided design.

\textsuperscript{49} See Appendix A
a given block proportion, identifying sets of parallel streets, or examining the coverage of an area by the gridiron pattern. The maps that are contained in the series each present a single property or relationship of the streets in the study area. These maps develop as a progression from simple relationships to more complex pairings and examinations. Essentially the later texts of a series develop from the previous texts. This type of progression is also the case from one series to another. The following represents a typical progression of texts in a series:

- the first text may show all the streets that are parallel;
- the second text may differentiate the parallel streets in terms of direction, such as east-west and north-south;
- the third text may take the existing grid of the entire street network and remove all those parallel streets that run east-west;
- this process of pulling apart small details of information and examining relationships continues through the series.

By removing layers of information from the plan of the street network the reader is able to maps very specific relationships. These maps are then overlaid and combined to allow the analyst to draw comparisons, identify anomalies, similarities, clusters, and other spatial relationships of the elements presented in the texts. The number of series and texts produced is a function of the time available in the work program of the analyst.

This method of pulling apart elements and overlaying them is similar to other common design processes. Designers often overlay constraints and design concepts to develop the
program and parameters of a design. The progression of the delayering texts and series also follow the generation of forms as described earlier, moving from points, to lines, and then to planes and volumes.

From these maps and overlays the reader can identify the unique aspects and previously unseen patterns of the street network. The information generated can then be introduced into the next phase of the planning process as would other information gained from planning analysis.

4.2 The Properties

In this section I am examining three of the attributes and claims of the delayering process identified in the previous chapter. Specifically:

- the importance of a street based analysis method that is able to identify information unavailable in other contemporary methods;
- the use of a digital format for the process;
- the quality of delayering’s graphic presentation method.

The strengths and weaknesses of these attributes will be presented at the conclusion of this section. In the following chapter I will examine a number of the other claims of the delayering process through a case study. Both assessments will be combined in Chapter Six to make a recommendation regarding the potential for delayering to be used as a planning tool.
4.2.1 Street Based Analysis

The scale of development, proportions of buildings and other important esthetic components are the elements that come together to create cities. However, the street has a significantly larger role in the city. The previous chapter presented the value of the street’s multiple role within the city and its influence on the built form and population. The street acts at a personal scale while also acting at a city-wide scale. The street is not a vacuum. It cannot exist in a vacuum; it is inseparable from its environment. In other words, it is no better than the company of houses it keeps. The street is the matrix: urban chamber, fertile soil, and breeding ground. Its viability depends as much on the right kind of architecture as on the right kind of humanity\textsuperscript{50}.

There are many ways of examining the small scale elements of the street which can help create the built environment at the human scale. This includes streetscape analysis such as that illustrated in Figure 6: Streetscape Analysis. In this set of figures some of the architectural patterns of the street wall are examined: the roof line, the spaces between the building facades and depth.

\textsuperscript{50}Rudofsky, Bernard, \textit{Streets for People}, 1969, in Lennard, \textit{Livable Cities Observed}, 19??, p. 34
Delayering looks at the streets of the city and tries to identify unique characteristics at a much larger scale. These characteristics are the forms that define neighbourhood edges and opportunities for landmarks where street patterns shift. Delayering attempts to identify the locations where the street network, at the large scale, creates unique places within the rhythms of the city’s buildings and developed blocks. Two examples of unique and important forms that become evident through this process as presented by Gandelsonas are, invisible walls, and breaks in the gridiron. According to Gandelsonas, both of these are important to the understanding of the city and unique to the delayering process.
4.2.2 Invisible Walls

The invisible walls that are found through the delayering process are those locations where a pattern of parallel streets ends. The relationship between a pair of parallel streets changes when one street ends or deviates from the path of the other. Gandelsonas has described the lines that run perpendicular to the street where these changes occur as invisible walls. These breaks in street pairs can combine with others to signify an edge or boundary. The small walls may help explain the minor changes that often represent the movement from one neighbourhood into another. Just as changes in architectural style, lot size, and landscaping can be indicators of neighbourhood edges these invisible walls where street patterns shift may also indicate neighbourhood edges\textsuperscript{51}. This is an intriguing finding because it makes the reader aware of one of the subtle patterns of the city that is not easily visible through other ways of looking at the city.

In a gridiron pattern, a string of invisible walls will be found where the grid shifts or ends, or where an area contains a different street pattern. A new large scale development may be an example of such a shift. Although streets may continue in the development, a shift in orientation of the streets would create an invisible wall, a subtle signifier of a threshold. By making the planner aware of these it may help them explain community boundaries or identify areas where this type of transition could be used.

\textsuperscript{51}“When they do not rely on built barriers, urban divisions can assert themselves through less clear cut but equally effective devices.” Kostof, p. 105
Larger invisible walls could easily be found by examining aerial photographs or plans of the city. However the smaller walls that consist of one or two pairs of streets are more difficult to identify with these methods because of the amount of information presented in these types of plans. Delayering is able to highlight this subtle relationship between streets in a way that I believe would not be as efficient in any other way.

### 4.2.3 Grid Breaks

The gridiron street network is the most common form of street pattern, it is also deceiving. The gridiron appears to be uniformly stretched out with little deviation, dividing the land into equal blocks. “The organizing power of a grid results from the regularity and continuity of its pattern that pervades the elements it organizes. Its pattern establishes a constant set or field of reference points and lines in space.”\textsuperscript{52} The delayering process was presented as an examination of the gridiron street network of Chicago. Within the Chicago grid it was able to identify a complex network of streets that run contrary to the grid and make up a large portion of the study area.

This information removed the conventional view of the Chicago street network and how the various areas of Chicago relate to each other in terms of the grid, and replaced it with a more accurate depiction of reality. The importance of this is that this analysis process is able to pull apart the elements of the grid that do not conform and highlights them for the reader to see. These overly simplified maps function in a way that clarifies the subject to successfully

\textsuperscript{52}Ching, 1979, p. 238
present a new set of information and perspective. If planners are able to easily identify the unique shifts of the grid or obscure street alignments, they may be able to highlight these places as landmarking opportunities.

Both the invisible walls and grid breaks are properties of the street network that would be difficult to identify through other contemporary analysis methods with the same ease as through delayering. Both also hold the potential to be useful attributes to the understanding of the urban environment for planning purposes. The use of these characteristics will not be explored to maintain a manageable scope for this thesis. However, the ability of delayering to replicate the finding of these elements will be tested in the case study.

4.3 Computer Based Presentation

The fact that delayering uses the computer as a component of an urban analysis method is a significant positive attribute. The greatest difficulty with software use to generate the texts is digitizing the street network into a CAD format. However, this problem is becoming increasingly irrelevant. The use of CAD information data bases that contain entire cities in plan view is essentially the way modern city engineering and planning departments function. Those that do not presently have the technology will soon be adapting their practices as the hardware and software become more cost efficient.

The strength of using the type of analysis format used in delayering include:

- Digital formatting allows for easy adaptation and editing of maps;
• Capacity to export and import the findings into other digital plans and design drawings allows the process findings to be incorporated into the scenario building phase of the planning process easily;

• As technology allows, elements within the various series will be updated in real time;

• Digital formatting allows the analyst to generate and overlay numerous texts with limited effort, significantly expanding the scope of what patterns can be explored compared to what was presented in The Urban Text.

Because the tools used for this process are digital generation, manipulation, and display of information, delayering has the ability to be used in a large number of contexts. It therefore should be adaptable as design technology becomes increasingly present in the planning profession.

4.4 Graphic Presentation

Sound urban physical planning can be aided by initiatives which address the formal patterns of a city. Diagrams of urban form are directly connected to how cities are understood and designed. The planner must be able to identify these features and work with them prior to implementation of a given design. Therefore, the nature of design initiatives are directly
linked to how a problem is described, analyzed and articulated. "The design of cities is hardly a matter confined merely to formal issues, but nevertheless we need a rational understanding of our cities as physical images." \footnote{William C. Ellis in Anderson, 1991, p115}

One of the positive attributes identified within Gandelsonas' book is the unique way the maps are presented. This graphic presentation is an advantage because it removed all recognizable forms and landmarks from the reader's perception and heightened the awareness of the reader to the patterns within the texts.

As described earlier, a person's understanding of the environment is influenced by the physical characteristics of that environment. With this understanding of place one builds a mental map of the place. Since each person uses their own experiences to develop an understanding of place, each person's mental image varies. One reason for this is the varied definitions people use to describe the environment. Another is the selective manner in which people take notice of things within their surroundings.

The attributes of delayering's graphic presentation format make it unique. However, this alone does not determine whether it is helpful to the planning process. An assessment of delayering's graphic presentation will be made compared to other contemporary graphic

\footnote{Ching, 1979; LeGates, 1996}
\footnote{Tuan, 1977, p. 13}
presentation formats. These formats are the plan view, perspective views, and panoramic views.

The predominant methods of representing the city can be defined by two broad categories: views that look down on the city and views that look across at the city or slice through it. Each has traditionally been built upon a subsystem of serial imagery. Only recently have techniques of aerial photography allowed map-makers to add a high degree of accuracy, producing a totally unified urban image\textsuperscript{56}.

The plan view of the city, while comprehensive, does little to identify formal elements. Complex information is displayed with little ordering structure, making reading of urban form very difficult. Plan views of the city are either a maze of lines, impossible to read, or they are empty diagrams with little information on the nature of relationships\textsuperscript{57}.

Another aspect of representing the city in plan is the type of information represented. For example, the zoning plan is both descriptive and regulatory; it interchanges definitions of use and form. These characteristics make it difficult to use as a tool for urban form analysis. Changes in use in a residential neighbourhood such as family structures and home based businesses make interpretations of a given zoning area difficult. The same zoning in a different precinct could identify vastly different uses and community populations while the

\textsuperscript{56}Blau, 1989
\textsuperscript{57}Lynch, 1992, p.348
form may be similar. The zoning plan is too broad in scope in its parameters of use with too few indicators form.

Site plans and aerial photographs also fall into this category of visual representation. The primary differences in these are the method for generating the image, and the scale at which they are used. Site plans are clearly the smallest in scale with air photos generally being used for very large areas.

Perspective views of the city are similar, with the subject being viewed from a vantage above the ground plane. Due to the distortion of the subject these visual representations can be limited; however, they are very useful for providing a general image of the city’s urban form. Much of the unique features of skylines, natural topography, and general architecture are well represented by these views.

Like plan views, panoramas attempt to grasp the city’s image in a manner unavailable to the unaided eye. The difficulty arises in finding a single acceptable viewpoint that can communicate the complexity of the subject. The inability to illustrate interrelationships other than in the horizontal plane make panoramas primarily only useful for smaller scale analysis\(^58\).

Generally the approach used by delayering is similar to any number of plan view presentations of the urban form. However, the simplicity of the black background with linear

\(^58\)Blau, 1989, p.215
elements on the foreground does heighten the awareness of spatial relationships between elements. The lack of all other information except that which is being compared on a given layer helps focus the reader. By removing information which can help the reader establish reference points throughout the area being examined, the process reduces the instances where the reader’s preconceived notions or experiences of place taint the analysis. The maps are only presenting the relationships of elements and patterns. The analyst must bring this information back into the greater context later.

Upon reviewing the texts of the Chicago analysis I agree that they do have a visual quality that sets them apart from other contemporary graphic methods. Further, the Chicago texts heighten the spatial relationships being examined. However, since I do not have personal experience with the study area I am at a disadvantage to identify to what extent this characteristic affects the value of the process. To further this discussion and attain a better assessment of delayering as an urban analysis tool, this thesis examined delayering through a case study in the City of Vancouver. The findings are presented in the following chapter. My final assessment is then outlined in the final thesis chapter.

4.5 Conclusion

This chapter has introduced the delayering process in some detail, describing its methodology and characteristics. The general characteristics that I have identified are:
• delayering analyzes the patterns of the urban street for which there is
  strong evidence that it is a key element to healthy cities and is the
  greatest area of public realm within the city;
• delayering identifies unique and obscure patterns and precincts within
  the street network;
• based on the gridiron street network which is used extensively;
• takes advantage of digital technology
• heightens awareness of certain spatial relationships with its graphic
  presentation method
An assessment of these characteristics, or strengths and weaknesses of delayering can not be
made without identifying a few other attributes of it. By conducting a case study of
delayering in the following chapter I will further explore those characteristics presented in
this chapter as well as assess three additional points:
  • to test if the process is transferable
  • to test the accuracy of the text;
  • to test the ease of which the process can be undertaken.
Once this is complete I will present my assessment of delayering as an analysis tool for the
planning profession in Chapter Six.
5.0 Chapter Five - Vancouver Case Study

5.1 Case Study

The previous chapter was able to present some of the strengths and weaknesses of Gandelsonas' urban analysis process. However, there are a number of aspects that need to be further explored and examined in order to develop a final assessment of delayering. By conducting a case study I will be able to develop a more full understanding of delayering and make a better assessment of its strengths and weaknesses. The characteristics that I will be exploring through the case study are:

1. to test if the process is transferable and its findings are not unique to the Chicago example;
2. to test the accuracy of the information found in the texts;
3. to test the ease of which the process can be undertaken;

In selecting the location for the case study I developed a set of criteria that I felt would allow this case study to build upon the findings of Gandelsonas' and help with the development of the assessment. The parameters I used to achieve these goals and maintain coherence and manageability are:

1. The case study must be of approximately the same size as that of the Chicago study so that both tests are at the same scale.
2. Because the delayering method is based primarily on finding unique features within the gridiron street network the case study area must have a predominant grid street pattern.

3. There must be a diversity of building types and uses in the area. This diversity will be used to determine if delayering is able to identify the edges and boundaries of these precincts.\(^{57}\)

4. Because Gandelsonas suggested that his process could be used to identify neighbourhood boundaries the study area must have a number of recognized neighbourhoods to test this and a way of verifying them.\(^{58}\)

5. The area must have significant development taking place, so that the ability of delayering to identify the edges of new precincts can be examined.\(^{59}\)

The downtown peninsula of Vancouver met all these requirements. The case study area is a square centred on False Creek, with boundaries of Burrard Avenue to the west, 16\(^{th}\) Avenue to the south, and Ontario Street to the east. The northern boundary cuts across downtown to complete the case study area.

\(^{57}\)See Appendix B
\(^{58}\)I will use the City of Vancouver Local Area Maps. See Appendix C
\(^{59}\)See Appendix B
5.2 Context

The city of Vancouver has had a number of distinct initiatives that have greatly influenced the form of the City as it stands today. As described by Roger Kemble\textsuperscript{60}, the unique qualities of Vancouver’s downtown form can be linked to three historic shifts in the grid pattern development of the City.

Burrard Inlet was first settled in 1862. Hastings Mill community became established later. Gassy Jack Deighton settled a community next to the mill which became officially recognized in 1870 as Granville. These two communities were contiguous but their patterns did not coincide. Placed together the new street layout made a twist and turn. The Canadian Pacific Railway came in 1886 and aligned the streets

\textsuperscript{60}The Canadian City, 1989, p. 42
differently again, and a third block proportion was introduced as the City of Vancouver was born. On the north shore of False Creek a worker camp sprang up, whose layout became Yaletown. Then as commercial prosperity provided expansion west towards Stanley Park another shift of block development was created.

Since the historic patterns were set in Vancouver’s development the City has grown substantially. Through its evolution Vancouver has developed a number of unique formal characteristics in addition to those original shifts in the grid. These characteristics are closely linked to Vancouver’s sense of place and identity. The City of Vancouver Planning department understands the importance of these patterns and their influence on the livability of the City. Some of the initiatives they have employed that directly influence the built form of the city and its sense of place are:

- Maintaining public access to the waterfront through a series of parks and the seawall walk;
- The regulation and protection of mountain and water landscape view corridors;  
- Development of bicycle corridors called greenways;

Lance Berelowitz in *Metropolitan Mutations* explains how much these elements play a role in Vancouver’s form and identity: “At a distance the city appears as a nascent Manhattan, rising sheer out of the surrounding sea: tall, dense, complex and urban. But the more one looks at it and the closer one gets, the less of a city it seems to become... the symbol and focus of the city is still the downtown peninsula. But downtown is perceive more as something to be looked at from a distance or, for those actually living or working there, as something one looks out from, rather than the more common civic phenomenon of the city as a place to be in. What remains unique about Vancouver is the extent to which the surrounding natural landscape, as opposed to the built form, is the source of inspiration in the creation of urban form... there is something two-dimensional about this sensibility.” p. 162
• The community visions program where planning initiatives are focused on the neighbourhood unit.

These initiatives help direct the actions and development of the City in a way that adds to the livability of the urban environment for its population.

5.3 Text Series Parameters

The text series developed for testing the delayering process are designed to follow essentially the same progression of those presented in The Urban Text. Information is presented starting with basic elements to the more complex patterns. This progression starts with simple linear elements, moves to more complex patterns of streets and ends with overlays and texts presenting area block patterns. A few text series were not included. Those omitted were done so for the following reasons:

1. To confine the texts to two dimensional patterns and maintain a manageable scope of the case study.
2. To focus on large scale patterns in order to test if delayering successfully functions as an urban analysis tool at this scale.
3. To focus on precincts and edges influenced by the street pattern. This is done because one of the claims of delayering is its ability to identify these types of edges.

5.4 The Series

The entire text series are in Appendix A. This list generally outlines each series and the findings for the Vancouver case study.\textsuperscript{63}

1. Series One: Basic Elements. An introductory set that outlined the basic elements that were examined.

2. Series Two: Street Hierarchy. This is a series of texts that described the streets by their type in terms of experiential qualities. No engineering or transportation planning definitions were used to define the street characteristics. Specifically, the different experiential types of streets that I identified were: lanes; streets; curved streets; bridge streets; and intersections. Each of these street types has unique qualities based on their dimensions, traffic patterns, relationship to buildings, and function. For example the less active lane has a different sense of place compared to the active environment of the main street. Bridge streets also play a significantly different role in the city as they represent gateways and transitions from land, over water, and to land again. Intersections were also mapped because they indicate the density and/or complexity of potential chance meetings. The greater the number of

\textsuperscript{63}The texts are contained in Appendix A
intersections the greater the number of paths cross, increasing the number of meetings. This has a direct impact on the sense of place.

3. Series Three: Vertical, Horizontal, Diagonal. In this set I mapped the elements of the gridiron. Those linear streets that help form the predominant pattern of Vancouver’s street network, the north-south streets, the east-west streets, and the diagonals of east and west angled streets.

4. Series Four: Gridiron. In this set of texts I mapped only those areas that have a complete gridiron pattern formed from the elements of the previous series. I also created a final text formed by taking the basic elements of the first series and removing all the gridiron patterns.

5. Series Five: Invisible Walls. This series mapped out the invisible boundaries of the City that may help identify subtle neighbourhood edges.

6. Series Six: Blocks. Similar to series two I developed a set of texts that plot the different types of blocks in the study area. The types were based on the differences in size. I felt this was important because the size of block influences the scale of development and the grain of streets in the area.¹⁴ "As the basic unit of orthogonal planning, the block and its structure in three dimensions give the urban grid its character." Kostof, 1991, p. 147
of these properties influence the sense of place on the street. An area with larger scale development and a large grain of streets has a very different feel to that of a finer grained precinct with a larger number of buildings and streets. I also included a text on t-block groups. These are combinations of three blocks that contain an internal street layout in the form of a T. These groups indicate a unique relationship to the movement along the street and create a boundary in their internal street pattern. They also break the rigidity of the grid.

7. Series Seven: Direction & Communication. This set maps the axial streets that act as major corridors because they do not deviate in course or because they connect the quadrants identified in series one.

By developing each of the series I was able to gain a greater understanding of the use of the delayering process and what information it can retrieve to be used as a planning assessment tool. The assessment of the information I gathered through delayering about the City of Vancouver case study was generated by comparing it to information from the City Planning Department\textsuperscript{65} and personal experience.

\textsuperscript{65}The primary source for comparison of the texts was the Local Area Maps used by the City planning department, see Appendix C.
5.5 Findings

Through the case study analysis of Vancouver's Downtown peninsula I was able to identify a number of characteristics of the area. To help assess the accuracy with which the texts of the case study were able to describe the patterns of Vancouver as was claimed by Gandelsonas I compared them to the Local Area Maps used by the City of Vancouver. The Local Areas Maps are plans of the City that describe various neighbourhoods for planning purposes. Although these maps are generated for small areas the detail found on the Local Areas Maps is quite extensive including information on:

- general boundaries of local areas;
- smaller neighbourhood boundaries;
- land use;
- parks;
- transportation corridors.

The local areas that fall within the study area include Fairview, Mount Pleasant, Downtown and the West End. These areas often contain additional smaller neighbourhood boundaries, for example: Yaletown, Chinatown and Gastown in the Downtown local area.
When comparing the elements identified in the texts with the Local Area Maps to test the accuracy of delayering’s findings, a number of elements were found that corresponded to both. The following charts identify each local area and the elements that correspond with the findings from delayering, and the unique patterns delayering identified.
<table>
<thead>
<tr>
<th>Local Area</th>
<th>Local Area Elements Strongly Identified in Texts</th>
<th>Local Area Elements Poorly Identified in Texts</th>
</tr>
</thead>
<tbody>
<tr>
<td>West End</td>
<td>• Burrard Street corridor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• clearly identified boundary</td>
<td>• False Creek North</td>
</tr>
<tr>
<td></td>
<td>between the West End and Downtown</td>
<td>comprehensive</td>
</tr>
<tr>
<td>Downtown</td>
<td>• Burrard Street corridor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• main core of downtown</td>
<td>• Granville Island</td>
</tr>
<tr>
<td></td>
<td>including major streets of</td>
<td>comprehensive</td>
</tr>
<tr>
<td></td>
<td>Howe, Granville, and Richards</td>
<td>• South False Creek</td>
</tr>
<tr>
<td></td>
<td>and the Central Business</td>
<td>development</td>
</tr>
<tr>
<td></td>
<td>District and Downtown South</td>
<td></td>
</tr>
<tr>
<td>Fairview</td>
<td>• Burrard Avenue</td>
<td>• Granville Island</td>
</tr>
<tr>
<td></td>
<td>• Cambie Street</td>
<td>comprehensive</td>
</tr>
<tr>
<td></td>
<td>• Vancouver General Hospital campus</td>
<td>• South False Creek</td>
</tr>
<tr>
<td></td>
<td>• Granville Street corridor</td>
<td>development</td>
</tr>
<tr>
<td></td>
<td>• Broadway Avenue corridor</td>
<td></td>
</tr>
<tr>
<td>Mount</td>
<td>• Cambie Street</td>
<td>• 6th Avenue light industrial area</td>
</tr>
<tr>
<td>Pleasant</td>
<td>• Broadway Avenue corridor</td>
<td></td>
</tr>
<tr>
<td>Linear Elements</td>
<td>Precincts</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>• four-way intersections are grouped and less dispersed than three-way intersections</td>
<td>• the invisible walls edge large open areas helping define areas such as the Vancouver General Hospital campus</td>
<td></td>
</tr>
<tr>
<td>• three-way intersections form edges</td>
<td>• blocks are clustered according to relative size</td>
<td></td>
</tr>
<tr>
<td>• there are only three streets that cut through the study area without deviating from a straight line</td>
<td>• the orientation of blocks shifts in the West End</td>
<td></td>
</tr>
<tr>
<td>• the north and south quadrants have a distinctly different orientation of streets</td>
<td>• the gridiron of the City is very flexible and broken up</td>
<td></td>
</tr>
<tr>
<td>• false creek acts as the separator where the street pattern shift</td>
<td>• approximately only half of the study area is a regular grid pattern</td>
<td></td>
</tr>
<tr>
<td>• very few of the streets correspond to the shoreline edge</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The case study of delayering allowed me to discover the way the process works and what information it provides through its analysis of a city’s streets. The charts above outline my findings. By combining these with the information from Chapter Four I can make an assessment of the success of Gandelsonas’ urban analysis method to provide insight into the urban form in a way that can be used in the planning profession. Chapter Six details this assessment.
6.1 Introduction

We need to keep alert to the implications of structured perception, to be cautious lest they lead us too easily along the paths that no longer inform about our real circumstances. It is prudent to force ourselves periodically to step aside and wonder whether the patterns of image and thought with which we surrender our selves to enlighten or obscure, whether they fashion effective ways of viewing the world or deflect our attention away from things that should be carefully considered.⁵⁶

This introductory quote explains the reason why I undertook this examination of the delayering process. The central goal of this thesis, as described in Chapter 1, has been to explore the strengths and weaknesses of an urban analysis process called delayering, and identify its potential role within the planning profession. The previous chapters focused on the findings of the City of Vancouver case study of delayering and the assessment of the use of delayering in The Urban Text. The purpose of this chapter is to draw conclusions and general lessons from this information and highlight potential uses of the delayering method as an analysis tool for the planning profession.

⁵⁶Lyndon, 1996, p.3
6.2 Conclusions

There are a number of characteristics of delayering presented by The Urban Text that made it an intriguing analysis method to examine as a potential tool for the planning profession. I examined these characteristics through a review of contemporary literature and through a case study application of delayering.

Initially there were three characteristics that I examined. They were:

- the ability to identify unique patterns and anomalies of the street network;
- the digital format of the process;
- the graphic presentation method of the process.

The importance of the street in the city lead me to believe that an analysis method that examines the pattern of the street may aid the planning profession as an analysis tool. I also conducted a case study to test the following characteristics of delayering:

- the transferability of the process;
- the accuracy of information found in the texts;
- to test the ease of application of the delayering process.

This added information that allowed me to make an assessment of delayering’s strengths and weaknesses, and identify its potential as a tool for the planning profession. The following summarizes my findings on the six characteristics of delayering that I examined.

Unique Patterns and Anomalies:
Delayering is able to pull apart the elements of the street network in a way that helps one identify a number of unique properties not found in other contemporary methods.

The patterns found during the case study confirmed this premise presented in the Chicago texts. For example:

- the extent to which the grid in Vancouver is not regular and is disjointed;
- the invisible walls that help define the edges to local areas and precincts;
- the nature of the block patterns and clusters in the city being very uniform.

This is a claim of the process that proved to be effective and is a strength of the process.

Digital Format:

The digital information format is a positive attribute of delayering. With the increased use of this type of information it would likely become easier to undertake as a process. This is also a strength of Gandelsonas’ method.

Graphic Presentation Method:

The graphic presentation of delayering is unique. It serves the reader well in its presentation of the information by highlighting the spatial relationships of elements. It is superior to the other contemporary methods with which it was compared in
showing these types of patterns. However, the lack of any reference points or scale make its use less effective and less practical. This could be overcome by incorporating some of the aspects of traditional plan or aerial views into the development of the texts. Overall I believe that the positive and negative attributes of this characteristic are balanced.

Transferability of the Process:
The case study proved that the types of patterns such as, invisible walls and gridiron breaks can be found through the delayering process in different contexts. Delayering’s ability to help read these patterns is transferable.

Accuracy of Information:
The accuracy of the information was tested through the case study by developing the texts and reading the edges and precincts that were suggested. These were compared to the City of Vancouver’s Local Areas Maps to test their accuracy. The large scale edges of local areas had a high correlation between the two sets of maps. As Gandelsonas suggested, delayering was able to identify these patterns. However, the smaller neighbourhood areas that define themselves more through social or architectural properties were not identified. Delayering does not map these features and street patterns do not have that fine a grained influence on place, to allow these areas to be identified. This makes me question the value of the process for finding
these types of boundaries. It may be useful in identifying edges and precincts which could then be examined through more traditional methods, to foster discussion about certain areas of the city and how they are defined. For example, delayering could be used to inform planners about new divisions or connection opportunities that had gone unseen previously. The combination of this characteristic and that of identifying unique patterns is a significant attribute to the process. The challenge will be to identify a way of using this type of new information in a practical fashion.

Ease of Application of the Delayering Process:
The application of the process is significantly difficult in the beginning and concluding phases of the delayering process. The initial digitizing of the information is tedious and difficult. This will be remedied as digital information becomes the common place of the planning profession. The developing of the texts is rather easy and interesting. The process of delayering is so much like the design process that the act of pulling elements apart and overlaying them in different comparisons is interesting. The reader is seeing the city in a new way and is exploding a new place in the texts. Once the information has been gathered, the patterns have been identified, and the location of these and how they relate to the elements on the ground, the difficulty begins again. With no scale or reference points the reader has to explore the plan of the city looking to find the patterns that were easily seen in the texts. This would be aided by developing the texts in a format that allowed the
overlay of an aerial photograph as an additional layer within the CAD application being used.

The measure of the delayering process is not just these specific weaknesses and strengths, it is how the entire process functions as a whole. In my assessment, delayering is not a process that seems to provide information that is very effective in practical application compared to other analysis methods presently used today. The subjectivity of the process and its limited accuracy at identifying the elements it claims to also detract from it significantly. In terms of seeing delayering as a commonly used process that will work along side other urban analysis processes or presentation methods I thing delayering fails. However, delayering’s unique presentation and the ability to identify unseen patterns in streets may make it useful in general analysis initiatives that explore grand scale relationships, and also, exploratory/descriptive type analyses.

Generally, after reviewing its characteristics, I believe the delayering process’ greatest strength is not in the information it provides. I believe that the greatest advantage provided by this process of analysis is its methodology. The examination of streets and how they influence the form of the city, and how they can influence the sense of place for a population are both very important goals for the planning profession. As identified in the previous chapters the street has a multiple nature inherent to it. The examination of the way the street affects our urban environments
is not unique. In fact, many other examinations have successfully provided much needed understanding into the role of streets in our cities. The added information provided through delayering, although somewhat useful and enlightening in a number of ways, does not aid the urban planner in pragmatic ways. The methodology of delayering does successfully add to the tools of the urban planner. The method of examining a problem by reducing it to its singular and/or unique elements and then overlaying them to identify patterns is a very useful tool for analysis. Conducting analysis of form in a reverse order of the design process is the single most important feature of delayering.

6.3 Further Study

This study of delaying only examined a few of its properties and has not been exhaustive of the contexts in which it might be used. There are a number of questions that have arisen given the findings from this case study, and the study of Chicago. Delayering was relatively successful in some of its components while being unsuccessful in others. Further study of the delayering process as an analysis tool and as a methodology could identify how best to utilize the positive attributes of delayering, for example:

- identifying at what scale delayering reveals the most useful information regarding street patterns and block patterns;
- which of the patterns delayering identifies have the greatest use for adding insight into the urban environment;
which elements of three dimensional form, use, social characteristics, can be added into the process to make it more informative;

• identifying what other areas of analysis could benefit from the methodology of reversing the overlay design process.

6.4 Recommendations for the Planning Profession

Delayering is of most use as a tool to generate some understanding of the patterns and unique features of city streets. This can help identify the way new development fits into an existing area, or the way block patterns change in some neighbourhoods, or other generalized large scale information. It is perhaps most useful at an introductory phase of the design process and for gathering an inventory of unique patterns and features. However, after reviewing the information in The Urban Text and the case study of Vancouver I believe the greatest strength and usefulness of delayering rests in the new perspective it gives to the reader of the texts.

Delayering is a process that requires the analyst to seek patterns and relationships in a way that is unique to other analysis methods. It is subjective in the methodology of exploring relationships by pulling apart and reassembling layers. However, this subjective nature forces the analyst to try illustrating new pairings of information in seeking insight. I believe that the exercise of delayering a city could aid any planner by providing them with new eyes into a familiar environment.
Although the findings of this assessment of delayering were not completely favourable one of the aspects that I would like to identify as a recommendation to come from Gandelsonas’ book is that the planning profession be open to exploring new theories and methods of analysis. The observational analysis of the use of public plazas done by William Whyte represented a pivotal point in urban analysis for the planning profession. His analysis of public spaces and people’s activities in them through direct observation and stop motion photography represented a breakthrough in the way planners look at the city. Allan Jacobs’ Great Streets is an example of analysis that brings a greater level of scientific persuasion to what was previously only the realm of more subjective analysis methods. Jacobs brought extensive statistical, and measurable data into the discussion of design of streets for urban environments. Delayering embraces new technology and attempts to use it to add new qualities to existing processes, specifically urban form analysis. Delayering tries to heighten awareness of elements that have until now gone unseen or unnoticed. Planning is inherently focused on the future, its methods should reflect the necessary forward thinking attitude of the profession and explore new processes and theories to advance the profession. “There is no inherent opposition between theory and practice; the former enlarges the latter; practice supplies theory with its materials and with the test and check which keep it sincere and vital.”67

67Achambault, 1964
The use of delayering or similar analysis approaches developed from digital methods will continue. These processes are developed to heighten awareness or generate forms of information that are more easily understood by professionals and the public. By working with tools such as delayering the urban planner will better understand the elements with which they will be working. The process of analysis in itself can generate meaningful understanding even if a pragmatic use for its findings is not readily evident. Having a more full understanding of the built form of the city from a variety of perspectives will only aid the planner.


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8.0 Appendix A: Case Study Text Series

This appendix presents the texts developed during the case study of Vancouver. The text series were developed to follow essentially the same progression of those presented in The Urban Text. This progression starts with the more simple linear elements; moves to more complex patterns of street elements; ends with some overlays and texts presenting area block patterns. This progression helps identify elements to the reader and how they relate to one another and combine to form patterns within the urban environment.

A few text series were not included. Those omitted were done so for the following reasons:

- To maintain a manageable scope of the case study.
- To focus on larger scale patterns.
- To focus on patterns that may define edges as suggested by delayering.

To present the information of the delayering case study in a manner that is easy to read the text series are presented in the following order:

- Series One: Basic Elements
  Introductory set that outlines the elements that will be examined.
- Series Two: Street Hierarchy
  A series of texts that describes the streets by their type in terms of experiential qualities.
- Series Three: Vertical, Horizontal, Diagonal
  The patterns of similar street combinations and orientation.
- Series Four: Gridiron
  Patterns of gridiron within the City and anomalies.

• Series Five: Invisible Walls
  Exploration of boundaries.

• Series Six: Blocks
  The patterns of block areas.

• Series Seven: Direction & Communication
  Patterns of edges and corridors.

Each series has an introduction describing the texts that are being presented. The findings of the assessment of the delayered texts are presented in Chapter Six.

**Text Series One: Basic Elements**

This is the introductory series. The reader is introduced to the visual qualities of the way information is presented in de-layered texts. The simplicity of the texts allows for a concentrated look at singular elements and as the other series are developed, more complex formal relationships will become evident. This set of four drawings describe the primary elements of the case study area that will be examined: the street layout, false creek, the quadrants, and the resultant combination of the three.

**1: Plan**

This is the base plan of the street network of the study area. A commonly used representation of the city that contains all the components of the layers that will be pulled apart latter. However, the complexity of this type of plan makes it difficult to identify many features.

**2: Natural Elements**

An image of the predominant natural feature of the study area. A plan of the one natural element that acts as a boundary.
3: Quads

The Quad text separates the study area into four equal quadrants and will be used periodically to divide the area into smaller components to compare elements or patterns.

4: Basic Elements (1 + 2 + 3)

The fourth drawing of this first series illustrates the complexity of information that is presented in even the simplest plan view of the City. The various gridiron patterns are evident, as is the shoreline. There is little information presented about the built environment that could suggest anything but the simplest division of areas. Unique features, anomalies or more complex relationships of street pairings or groups are not yet clear. These four texts are the beginning of the delayering process.
Text 2: Natural Elements
Text 4: Basic Elements
Text Series Two: Street Hierarchy

This series presents how a hierarchy of streets may indicate the first elements of precincts or boundaries in the city pattern. This hierarchy is based on the experiential differences between street types. For example, the differences between a main public street and a laneway can significantly influence our perception of place. Some of the differences between these two types of public streets that may define this are:

- speed and ease of movement;
- quality and quantity of interaction;
- differences in progression from public to private space;
- accessibility.

The other types of streets that have also been identified because of their unique experiential quality are curved streets, bridge streets and intersections.

5: Roads, 6: Lanes

Because of the differences in experiences of traveling down main roads and lanes they have been separated into two texts.

7: Curved Streets

Text 7 presents the curvilinear streets within the built form of a gridiron city because the experience of moving along them is very different. All things being equal, the type of serial vision experienced along the axis of a straight street has less inherent opportunities for surprise or change than that of a curved street; although, they are understood as axises more easily. The block patterns along curved streets are also less regular and the built forms on them relate differently to the street compared to straight roadways.

8: Bridge Streets
This text includes the streets that connect directly with the bridges that cross False Creek. These streets are unique in that they are the ones that allow the communication of movement across the two shores of the study area. They also act as corridors for moving through the area south of False Creek to the north or through the north to the south.

The experience of moving over water and gaining a visual perspective over the ground plane of the City can influence perception of place and progression, as well as landmark gateways into other neighbourhoods. These streets also influence opposite shores with the communication of movement. This is further explored in series seven.

9: Intersections
The intersections text looks at the spatial relationships between four-way intersections and three-way intersections of the straight streets. Because this process primarily looks at the components of the gridiron only those streets that define that pattern were mapped.

With this text it becomes evident that three-way intersections bound areas primarily defined by four-way intersections. The four-way intersections seem to be in larger groups and less dispersed. As one moves through these areas the three-way intersection signifies a boundary or transition into another area. The complexity of the number of potential crossings is greater in areas with four-way intersections, giving these areas greater potential for interaction.

10: Curved Streets + Natural Elements (7 + 2)
By combining the curved streets and natural elements texts the reader sees that few of the study area’s streets take their cues from the shorelines. This comes as a surprise considering the that the transition from sea to land is such an important
feature of Vancouver. The natural environment, although important in terms of views and access is not a major influence on patterns of built form for the City. This series clearly shows how the structure of the grid has set the foundation of how Vancouver is to be understood.
Text 5: Roads
Text 7: Curved Streets
Text 8: Bridge Streets
Text 10: Curved Streets + Natural Elements
Text Series Three: Vertical, Horizontal, Diagonal

This series describes Vancouver’s Downtown Peninsula in terms of the elements of the gridiron: north-south (vertical) streets, east-west (horizontal) streets, east and west angled (diagonal) streets. This series breaks down the elements that combine to create the gridiron network in the study area. This set of texts also illustrates how streets of different orientation are clustered in separate groups throughout the study area. The historic shifts of the street layout are evident in these texts.

11: Vertical Streets, 12: Horizontal Streets
These map those streets that generally relate to the north south and east west axis of the study area.

The horizontal street text is of finer grain than its vertical counterpart. This is because of the number of lanes that have the same orientation. The vertical streets text is the most diffused of all four texts in series three. There are few streets that cross from the southern quads to the northern. In the northern quads there is an almost complete absence of vertical streets.

These lower quads seem to have a more homogeneous pattern of streets with a consistent rhythm of vertical and horizontal streets. Where the vertical streets are slightly compressed in the west there is a break in the flow of the horizontal streets. One other significant break is in the centre west of the horizontal streets.

13: West Diagonal Streets, 14: East Diagonal Streets
The density or grain of the diagonal streets in the upper quadrants is sharply varied. The reader sees two well defined groups of streets, one defined by east diagonal street, the other by west diagonal streets. The rhythm of these two different areas seems to be essentially the same.
There are no components of either diagonal in the lower quadrants.

This series illustrates the difference of pattern between the area to the north of False Creek and that of the area south. These texts show that there are distinct areas defined by the predominant street pattern orientations. The upper quadrants each have a specific area covered by the two diagonal streets. With the exception of a very small number of horizontal streets in the upper quadrants, and few diagonal streets in the lower quads, the upper two quads share no similar linear street orientation with that of the lower. False Creek represents a shift in pattern between the predominant orientation of the northern and southern areas of the case study.
Text 11: Vertical Streets
Text 12: Horizontal Streets
Text 13: West Diagonal Streets
Text 14: East Diagonal Streets
Text Series Four: Gridiron

Upon initial viewing of the plan of Vancouver the gridiron street pattern seems to only be broken on a few areas and is relentless in its coverage of the City. To examine the amount of the study area for which this is true this set of three drawings describes the areas of the study area that have an unbroken regular gridiron pattern. The areas that correspond to the regular gridiron pattern are illustrated as coloured blocks.

The gridiron street pattern upon initial viewing seems to uniformly cover the entire study area. This series examines the breaks within the gridiron to show that it is flexible throughout the city with many deviations and breaks.

15: Vertical Gridiron, 16: Diagonal Gridiron
The first two texts show the areas of vertical and diagonal grid that are unbroken and regular. The diagonal grid areas coincide for the most part with the areas suggested by angled streets text. The third drawing shows those areas of Vancouver that do not fall into this regular grid.

One can see in these texts that Vancouver’s street pattern is not as structured by the gridiron as it would seem from casual observation. The grid in Vancouver is flexible and varied throughout the city, with pockets of gridiron.

17: Basic Elements - Gridiron (4 - 15 - 16)
This is a text where the areas of gridiron have been subtracted from the basic elements shown in series one. What is left are those portions that do not correspond to a regular unbroken gridiron. These areas contain anomalies in street patterns that set them apart form the regular block patterns of the gridiron.
In areas where these shifts of pattern occur there is a change in the built environment. These changes can include sight lines, block size and orientation, and corridors for movement. This can help define one local area from another as people’s perception of the built environment changes when they move through it. Continuity can be an important feature within urban environments; however, boundaries or edges can also be very important as elements that unite areas or act as environmental cues of difference or progression through the city. It is by crossing edges that we often experience a sense of movement into a new neighbourhood or precinct, a gateway. Edges can also act as unifying elements. For example “mainstreet” provides the continuous form from which other streets branch off into other areas in many small North American towns. (Lynch, 1960, p. 65) There are a number of texts that are beginning to suggest the edges of two major precincts in the upper quads: bridge streets, angled streets, intersections, true grid.
Text 16: Diagonal Gridiron
Text Series Five: Invisible Walls

As the name of this series indicates the elements represented here are not presented in the traditional plan. I am exploring the subtle edges within the city in this series. These edges may shed light on the unique formal properties of different local areas. The layers of the horizontal, vertical and diagonal streets show in their breaks or discontinuities invisible walls\(^\text{69}\) that fragment the plan of the city. An invisible wall is created at the point where a pair of parallel streets ends or diverges and no longer runs parallel. The invisible walls are named by the corresponding street pairings.

18: All Invisible Walls, 19: Large Invisible Walls

The small invisible walls suggest minor changes within the predominant street pattern. The large invisible walls are those that are created by the divergence of four or more parallel streets. These are presented to examine major changes in the continuity of the street pattern that could represent a change from one local area to another.

20: All Invisible Walls + Natural Elements (22 + 2)

In no significant way do these invisible walls correspond with the shoreline. It appears that an immediate connection to the coastal environment is not easily read in Vancouver’s street pattern.

The invisible walls are clustered in such a way that large open areas are defined. These areas generally correspond to the grid areas shown in Series Four, the most substantial being in the upper quads. The most continuous invisible walls occur in the upper west quad; a group of five walls in the lower west quad that correspond to

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\(^{69}\) The invisible walls are defined by the line drawn at the end or divergence of any pair of parallel streets. The Reduced Walls set of this series is a distillation of the complex invisible walls of the first set. Only those invisible walls that were indicated by two pairs, four parallel streets, are drawn to describe significant changes in formal pattern. Gandelsonas, 1991, p.51
the bridge streets text; the pair of walls along the lower portion of the study area. In each of these areas there are fine grained walls that further demarcate boundaries at a finer grain. The large walls separate the study area into four divided areas when the natural barrier of False Creek is added.
Text 19: Large Invisible Walls
5.7 Text Series Six: Blocks

This is the only series where blocks are examined. The focus is on regular blocks with square or rectangular proportions because they are similar to the regular street gridiron described earlier. The blocks have been delayered in a hierarchical manner. This was developed because of the influence that size of block can have on the sense of place. Larger blocks generally allow for a greater massing of built form reducing the grain of the urban environment.

One additional characteristic block pattern was added because of its connection to invisible walls, T-blocks. These are sets of three blocks whose configuration creates an inner T shape of common lanes, these are also the areas bounding the three-way intersections illustrated earlier.

21: All Regular Blocks
The first text in this series shows three alignments of these blocks, two in the upper quads and a uniform horizontal alignment in the lower. The middle ground surrounding False Creek contains none of the regular gridiron based blocks. It is only when one moves away from the water body that the regular block patterns emerge.

22: Large Regular Blocks, 23: Medium Regular Blocks, 24: Small Regular Blocks
These three texts present an image of Vancouver's form as very separated. Each of the block types is found in clusters, with limited dispersal. Each acting as the edge to the next.

25: T-Block Groups
This text shows how unique this block configuration is within the study area. Although there was a much larger number of three-way, or T-intersections, they are created by internal laneways.
The one grouping of these blocks in the lower west quadrant corresponds to the bridge streets text and seems to act as a clear edge between areas east and west of it.
T-Block Groups
This series explores how street help different areas communicate and relate to each other. It also maps streets that act as axis through the study area.

26: East/ West Through Streets
The east-west through streets are the only axial streets that cut through the entire study area without deviation. These streets clearly link areas on either side and remind us that this study area represents only a portion of the City. However, the fact that these are the only streets that act in this manner is significant. To travel through the study area one cannot take a direct and uninhibited route other than in the east west direction on these streets; one must move through a variety of unique street patterns and as the street pattern changes so does the sense of place, suggesting that the study area is divided into separate precincts.

27: Communication Streets + Quads (+ 3)
The communication text illustrates all streets that join one or more of the quads. This shows how adjacent areas relate to each other through movement. This may be indicative of city-wide axis or significant street corridors.

28: All Directional Streets + Quads (+ 3)
The directional streets text presents those groupings of streets corresponding to the directions explored in Series Three. The lower two quads have elements perhaps representative of axis or corridors, while the upper have large areas defined by this street pattern. The upper quads’ directional streets also closely correspond to the gridiron areas illustrated earlier.

29: T-Block Groups + North/ South Directional Streets (29 + 32)
When the vertical directional streets are combined with the T-blocks of Series Six the corridor/boundary where they interact is clearly defined.
Text 29: T-Block Groups +
North/ South Directional Streets
9.0 Appendix B: Central Area

Areas Undergoing Change

1. Triangle West
Estimated: 4,000 residential units; 7,000 people
High-density housing is under construction. A streetscape plan has been adopted and further neighbourhood planning is underway.

2. Victory Square Area
A concept plan has been drafted with new zoning and other initiatives. This will help meet heritage objectives, protect existing housing, facilitate some new housing and set guidelines for compatible mixed-uses.

3. Southeast False Creek: 50 acres
Estimated: 5,000 residential units; 8,100 people; limited commercial and industrial space.
Planning is underway for a model, environmentally sustainable, urban neighbourhood.

4. Central Waterfront Port Lands
The City and the Vancouver Port Authority have completed a Policy Statement to give a vision for the future of this area. A Development Agreement will guide development, set land and water uses, building form and protect Portside Park.

5. False Creek Flats
City Council supports the retention of the 300 acre industrial area east of Main Street for city-serving industry, transport and service uses. As well, new 1-3 zoning was introduced to allow the development of high-tech industries.

New Neighbourhoods Underway

6. North Shore of False Creek: 204 acres
Estimated: 8,500 residential units; 14,500 people; 2.6 million sq. ft. of commercial space.
This is the largest project in the False Creek area. A mixed-use neighbourhood is being built including residential areas, commercial/retail, community facilities, an arena and parks.

7. Coal Harbour
Marathons: 80 acres total; up to 31 acres of land.
Estimated: 2,200 residential units; 3,300 people; 2.25 million sq. ft. of commercial space.
Bayshore: 22 acres total; up to 16 acres of land.
Estimated: 950 residential units; 1,300 people.
These developments offer the first downtown residential neighbourhoods on Burrard Inlet. The location between Stanley Park, the West End and the Central Business District, provides a unique and attractive opportunity for urban living.

8. Downtown South: 128 acres
Estimated: 5,600 residential units; 11,000 people, commercial areas under study.
Downtown South is a rapidly developing, high-density residential neighbourhood south of the Central Business District, with areas of mixed-uses and commerce. More than 4,000 residential units have been built or are in the application process. Granville Street is being revitalized.

9. East False Creek: 14 acres
Estimated: 1,500 residential units; 2,800 people; 370,000 sq. ft. of commercial space.
This area, centred around the Main Street SkyTrain station, provides the link between Mt. Pleasant and Chinatown. Construction is underway.

10. Granville Slopes: 25 acres
Estimated: 2,000 residential units; 3,000 people.
New residential developments are underway and a neighbourhood park has been built in this adult-oriented, high-density neighbourhood.

Existing Neighbourhoods

11. West End: 460 acres
Current Population: 41,000
Estimated: additional 2-3,000 residential units; additional 1-4,000 people.
The objectives for the West End are to maintain and enhance the livability and diversity that characterizes this higher density, inner-city neighbourhood. A special conservation effort is underway for the heritage “Mole Hill” block.

12,13,14 & 15, Historic Areas: Downtown Eastside, Gastown, Chinatown and Yaletown
Key initiatives are underway to secure the long-term viability of these vital communities. Included are: an overall housing plan, development impacts monitoring, a new Gastown land-use plan and a lanes clean-up program. Chinatown already has a recent new plan.

☆ New Trade and Convention Facilities
The Province and the City are assessing a proposal for new trade and convention facilities in Vancouver. The aim is to encourage an innovative expansion which builds upon the success of the existing facilities while minimizing costs to government.
Appendix C: Local Area Maps

Figure 9: The West End
The large scale elements within the West End local area that are used to compare the findings of the case study of delayering are:

• boundaries of Burrard Street, Georgia Street;
• the Denman Street, Robson Street, and Davie Street commercial corridors;
• residential precincts throughout the local area.
The large scale elements within the Downtown local area that are used to compare the findings of the case study of delayering are:

- boundaries of Main Street, False Creek, and Burrard Street;
- a number of neighbourhoods in the area: the Central Business District, Downtown South, Yaletown, Chinatown, and False Creek North.
The large scale elements within the Fairview local area that are used to compare the findings of the case study of delayering are:

- boundaries of Burrard St., 16th Ave., Cambie St., and False Creek;
- the comprehensive development area of South False Creek;
- the Broadway commercial corridor;
- Vancouver General Hospital campus;
- the Granville Street commercial and bus corridor;
- residential districts on either side of Granville Street south of Broadway.
Figure 12: Mount Pleasant

This map depicts a simplified version of existing land use only and should not be relied upon for zoning information.
The large scale elements within the Mount Pleasant local area that are used to compare the findings of the case study of delayering are:

- boundaries of Cambie Street, 16th Avenue, False Creek;
- Broadway Avenue, and Cambie Street commercial corridors;
- light industrial district between False Creek and Broadway.