

**Infill Housing Design Guidelines in Mature Urban Neighbourhoods:
Recommendations for Winnipeg**

By:

Brett Shenback

A Practicum Submitted to the
Faculty of Graduate Studies
in Partial Fulfilment of the Requirements for the Degree of

MASTERS IN CITY PLANNING

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Of

Master of City Planning

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ABSTRACT

A large and growing number of jurisdictions throughout North America have embraced infill housing and residential intensification as policy goals, supported by many programs and initiatives designed to stimulate infill development. In order to promote infill development in mature neighbourhoods that is compatible with adjacent development and neighbourhoods as a whole, infill housing design guidelines have frequently been produced. The development of infill guidelines in Winnipeg could encourage infill housing and increase the probability that infill development will be considerate of the surrounding context.

This study documents four examples of infill housing design guidelines that exist in other North American jurisdictions and makes use of a series of interviews to gain insight on the context for developing infill housing design guidelines locally.

Ultimately, this research has resulted in the development of draft infill housing design guidelines for the City of Winnipeg and presents a number of recommendations that will provide a starting point for the successful integration and use of these guidelines in the City.

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1.0 INTRODUCTION

1.1 Introduction and Research Problem

Infill is great. It's great for the environment, great for the neighbourhood and great for the city as a whole. People just don't like it next to them. It's just often not worth the trouble for us to do it.

(Local Winnipeg developer)

In many of Winnipeg's mature neighbourhoods, opportunities exist for infill housing - a form of residential intensification that involves new construction on parcels of vacant or underutilized land within existing serviced areas. Unlike development in emerging areas, mature neighbourhoods generally have a well established complement of services and amenities – schools, community centres, sewer and water infrastructure, police stations and established public transit routes just to name a few. Consequently, the benefits associated with encouraging new development in mature neighbourhoods are considerable, particularly when development results in an increase in density. The addition of new housing and intensification of land use in established communities reduces suburban development pressures, which often require extensive expenditures on new social and physical infrastructure. Infill housing can also: contribute to the preservation of open space; contribute to the revitalization of neighbourhoods; result in increased densities, contributing to a more walkable and transit-oriented environment; and provide residents with a greater variety of housing options.

Despite the many advantages associated with infill development, a number of challenges and barriers often prohibit its development – the small, scattered nature of

many infill parcels, complex title issues, environmental contamination, and high cost of improvements. Perhaps the most common barrier is the opposition to infill and intensification projects from neighbourhood residents. In Winnipeg, and most other North American cities for that matter, existing residents have frequently organized and rallied against infill projects, particularly when an increase in density is proposed.

Neighbourhood residents have often expressed concerns about increased traffic on residential streets, loss of personal property value, or the development of a vacant site that the community valued and did not expect to part with. Some residents may also be motivated by past infill projects in their neighbourhood that were out of scale and did not fit well in the neighbourhood. In many cases, this has resulted in a lengthy and often heated public hearing process and in some cases a quashed project. For this reason, some developers are reluctant to pursue infill projects in fear of the time, effort, money and headache that is often required to make an infill project a reality.

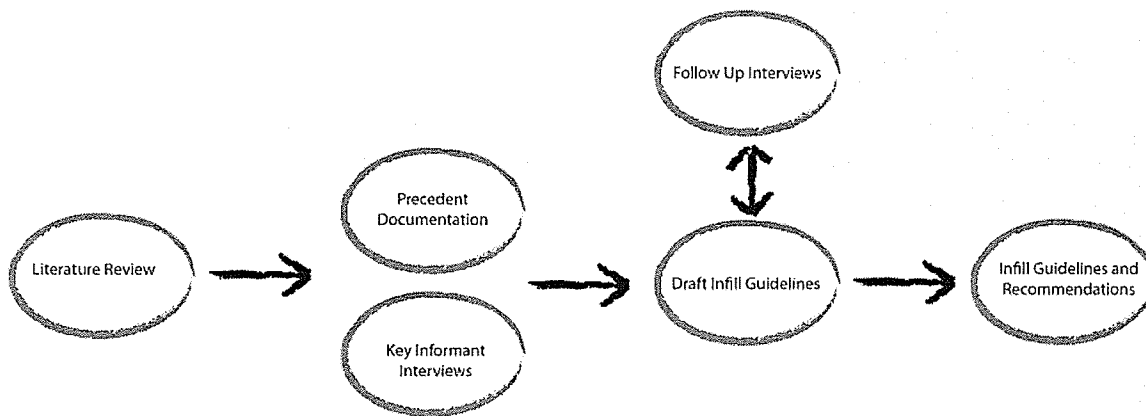
Recognizing the many benefits associated with infill housing, jurisdictions throughout North America have embraced a number of strategies and policies in order to encourage the development of vacant and underutilized sites. A large and growing number of such strategies now include the use of infill housing design guidelines. Generally, guidelines have been developed in other cities to determine what elements within existing neighbourhoods are important and what is expected of new development. Of equal importance, infill guidelines are used to ensure that new development is compatible with the existing neighbourhood context and that it contributes positively to adjacent properties, the neighbourhood and the city as a whole. As this practicum intends to show, in Winnipeg, infill housing design guidelines could aid developers in designing projects that are compatible with the neighbourhoods in which they are located, citizens

and planners in assessing proposals on a consistent and predictable basis, and council in making decisions regarding the suitability of infill proposals in the city's established residential neighbourhoods.

1.2 Purpose and Objectives

Through the use of various research methods – interviews with key informants and the documentation of infill housing guideline precedents – the primary intent of this practicum was to develop a set of infill housing design guidelines and key recommendations for Winnipeg's mature neighbourhoods. Initially, key informant interviews were used to gain local insight and develop an appreciation of how the issue is perceived locally. The precedent documentation was then used to identify “best practice” guidelines from other North American jurisdictions to aid in the development of an initial set of guidelines for Winnipeg. Finally, a second set of key informant interviews were undertaken in order to test the initial set of guidelines to determine which ones are most applicable to the Winnipeg context. The result is a draft set of infill housing design guidelines and key recommendations for the City of Winnipeg (See Figure 1 below).

Figure 1: Project Workflow



This study has three primary objectives. The first objective is to add to the body of academic literature regarding infill housing / residential intensification. The second objective is to explore infill guidelines as a means to reduce neighbourhood resistance to infill development in mature neighbourhoods. The third objective is to provide a set of draft infill guidelines to the City of Winnipeg. Consequently, the following questions have been developed in order to guide this practicum:

1. What other North American jurisdictions have developed infill housing guidelines and which ones are most applicable to the Winnipeg context?
2. What guideline elements would be most appropriate to the Winnipeg context and how could they be successfully employed?

1.3 Research Methods

1.3.1 Selection of Study Area

This practicum was divided into two primary study areas. The first is Canadian and American municipalities, which were used for the precedent documentation phase.

Canadian and American municipalities were chosen because infill guideline initiatives in many of these cities would have applicability to the Winnipeg context. The second and more immediate study area was the city of Winnipeg. This study area was chosen for a number of reasons. While a large and growing number of North American jurisdictions employ infill housing design guidelines, Winnipeg has not yet adopted such a document. In addition, many of Winnipeg's mature neighbourhoods have experienced intensification pressures in recent years. New development in established neighbourhoods has often resulted in existing residents opposing new development, especially multiple family projects proposing an increase in density.

1.3.2 Research Approach

The first phase of research consisted of a review of relevant literature related to infill housing and residential intensification. Through internet searches, as well as a review of relevant books and journal articles, infill housing types were explored, as well as the benefits they provide and potential strategies to stimulate infill development. Infill guideline initiatives in other jurisdictions were also identified at this time.

The second phase of research involved interviews with key stakeholders in the Winnipeg region. In total, seven interviews were conducted with local planners, designers, developers, and city councillors. The primary intent of these interviews was to gain an appreciation of how the infill development is perceived locally and to identify key issues associated with this type of development in Winnipeg's mature neighbourhoods.

The third phase of research involved documenting infill guideline initiatives from other North American jurisdictions. In total, four initiatives were explored – from

Seattle, Toronto, Ottawa and Richmond. The precedent documentation was used primarily to identify “best practice” guidelines from these jurisdictions.

Following the preliminary interviews and precedent documentation, an initial set of infill guidelines was created. These guidelines were “tested” with key stakeholders during the fourth phase of research in order to identify which guidelines are most applicable to the Winnipeg context, resulting in the development of a set of draft guidelines for the City.

1.3.3 Key Informant Interviews

Two sets of interviews were used for this practicum – preliminary and follow-up interviews. The purpose of the preliminary interviews was to gain local insight and identify key issues in Winnipeg. The preliminary interviews were conducted with planners, councillors, developers and designers working in the city.

Individuals were invited to participate through an email invitation that included an introductory letter (Appendix A), which included the interview questions, and a Statement of Informed Consent (Appendix B). Participants were asked to read the introductory letter and consent form and reply to the email if they agreed to participate. Individuals that did not respond were sent a follow up email and lastly a telephone call.

The interview participants were selected based on a combination of convenience sampling and snowball sampling. Because the pool of potential interviewees was large, participants were selected primarily based on the researcher’s personal judgment that they are representative of the key players in the development process. Also, some participants suggested other individuals that could be contacted to participate, whom in

some cases the researcher then contacted. A total of ten interview invitations were sent to key stakeholders and seven preliminary interviews were conducted.

Semi-structured interviews were chosen as the desired approach for this practicum as they are relatively well thought-out and structured, but allow the flexibility to deviate from the designed agenda to ask subsequent questions. Unlike the questionnaire, where detailed questions are prepared in advance, the semi-structured interview allows follow-up questions and interaction between the interviewer and participant. The semi-structured interview is also less intrusive and more natural to those being interviewed than the conventional interview as it encourages communication between the interviewer and participant.

Data obtained from the key informant interviews was in the form of comprehensive notes taken during the interviews. Upon completion of the interview process, the notes were analyzed using literal reading (Mason 2002). According to Mason (2002) there are three methods for reading data – literal reading, reflexive reading and interpretive reading. In this instance, the notes were read literally, paying close attention to their content. On the other hand, data read interpretively and reflexively involves the researcher playing a more active role in data analysis – making inferences and connecting data to theoretical bases. A literal reading was the preferred method of analysis as it allowed for the identification of what the informants were literally saying and for the collection and organization of dominant themes and narratives that were present in multiple interviews. The researcher was particularly interested in common themes and differences that emerged from the key informant interviews, making a literal reading highly appropriate.

The follow-up key informant interviews were performed when the initial set of guidelines for Winnipeg had been developed and were undertaken in order to identify what aspects of the proposed guidelines are most appropriate and applicable to the Winnipeg context. In total, four follow-up interviews were conducted with key stakeholders who were initially engaged in the first round of interviews and agreed to participate in the follow-up interviews. The second set of interviews was conducted in a similar manner as the initial interviews, utilizing a semi-structured approach.

1.3.4 Precedent Documentation

A total of four infill housing design guideline precedents were explored – from Seattle, Toronto, Ottawa and Richmond – in order to identify “best practice” guidelines from these jurisdictions. After reviewing infill guidelines from roughly 20 cities, these four were selected for further analysis based on their compatibility with the following questions:

- 1) Do the guidelines deal primarily with multiple family infill?
- 2) Do the guidelines contain a wide range of design elements?
- 3) Do the jurisdictions in question have similar contexts to Winnipeg (political, population size, growth rate, climate, etc.)?

While many infill guidelines from other jurisdictions satisfied criteria 1 and 2, a limited number of precedents exist that satisfied criterion 3. As a result, in some instances, precedents that excelled in the first two criteria, but did not completely satisfy the third criterion were selected for further analysis. For example, Seattle is contextually

quite different from Winnipeg, however it is one of the most comprehensive and long-standing examples of infill guidelines and was selected for these reasons.

1.4 Limitations

There are a number of limitations associated with this project. Firstly, infill guideline precedents were identified primarily through web searches and selected based on the researcher's personal judgment that they were most applicable to this project. As a result, it is possible that infill guideline precedents exist that were not known by the researcher and may have been appropriate for this project.

The key informant interview also had some limitations. Participants were selected primarily based on the researcher's personal judgment that they were representative of the key players in the development process. The consequence is that an unknown portion of the population may have been excluded.

Infill housing guidelines developed for the City of Winnipeg, or any other jurisdiction for that matter, should be developed with extensive community involvement. Workshops and other engagement strategies should be employed in order to provide a sense of ownership to city residents and to develop a clear understanding of what is important to the community. The intent of these guidelines was to provide a starting point for the City of Winnipeg in developing city-wide guidelines and in developing neighbourhood specific guidelines or Secondary plans, which should be developed with extensive community consultation.

1.5 Chapter Outline

This practicum is laid out in four chapters. The first chapter introduces the project, its purpose and objectives, research methods and limitations. The second chapter is the literature review and explores the different types of infill housing, the benefits of infill / residential intensification and the strategies used to stimulate or encourage infill housing. The third chapter introduces key trends in multiple family / infill activity in Winnipeg, discusses the policy basis for infill guidelines and discusses the findings from the preliminary interviews, as well as the precedent documentation. The fourth chapter presents the infill design guidelines and provides recommendations to the City of Winnipeg in making use of these guidelines.

2.0 LITERATURE REVIEW

The primary intent of this literature review is to explore infill housing and residential intensification in the North American context, with a focus on Winnipeg. While infill housing is certainly not a new concept, it has emerged in recent years as a sustainable alternative to developing greenfield lands. Infill housing can contribute to the revitalization of existing neighbourhoods, it preserves undeveloped greenfield lands, it makes use of existing infrastructure, and provides additional housing options within existing neighbourhoods (Benefield 1999). Recognizing these and many other benefits, a large and growing number of North American jurisdictions have embraced infill housing as a policy goal.

While this study focuses specifically on the development of infill housing design guidelines, the literature review provides a comprehensive exploration of infill housing and the many strategies employed by municipalities in order to encourage infill. Promoting infill housing and development that is compatible with the existing neighbourhood context typically requires a comprehensive approach made up of a number of strategies. In other words, there is no “silver bullet.” As a result, this literature review explores a wide range of instruments, in addition to infill guidelines, that are at the disposal of municipalities.

This literature review is divided into five primary sections, which explore different aspects of infill development. The first section defines infill housing and discusses the many types of infill sites. The second section discusses the benefits associated with the development of infill housing. The third section explores the challenges associated with infill development, including opposition from neighbourhood residents, which is most relevant to this project. The fourth section focuses on the scale

and types of infill development – small-scale, medium-scale, large-scale and mixed-use development. Finally, the fifth section considers the many incentives and strategies employed by North American municipalities in encouraging the development of infill housing by the private sector, including infill housing design guidelines.

2.1 Infill Housing Defined

Infill housing is a form of residential intensification that involves new construction on vacant land or underutilized properties within currently serviced areas. The literature characterizes potential infill sites based on a variety of different factors, such as the size, shape, location and topography of the site, as well as the presence or absence of improvements or contamination. Although infill development may occur in commercial, institutional or industrial areas, the focus of this study is on residential infill in established neighbourhoods. This includes the construction of new housing on vacant lots, as well as the redevelopment of abandoned and underutilized properties. Vacant land infill, brownfield and greyfield redevelopment, as well as adaptive reuse will be discussed below, all of which the literature suggests can offer potential for infilling and residential intensification.

2.1.1 Vacant Land Infill

In Winnipeg, there are many vacant parcels of land with infill development potential. There are a number of possible reasons why these parcels remain vacant – they may be too small or irregularly shaped, possess physical limitations (unstable, flood hazard, etc), or may be held in speculation, just to name a few. A number of authors have attempted to classify the many different vacant land parcel types.

According to Northam (1971) there are five basic types of vacant land within the typical North American city: (1) remnant parcels; (2) parcels with physical limitations; (3) corporate reserve parcels; (4) parcels held for speculation; and (5) institutional reserve parcels. Of the five types of vacant land discussed, Northam argues that remnant parcels (Type 1) are by far the most common. However, because they are often small in size and irregularly shaped, these parcels have been ignored in the past and continue to possess marketability challenges at present. While much less common than remnant parcels, vacant land with physical limitations (Type 2) also exists in most cities. These parcels may be quite large, but site characteristics such as steep slopes, unstable subsurface materials or susceptibility to flooding place considerable constraints on the potential use of these sites. Corporate reserve parcels (Type 3) are parcels of land owned by business corporations in order to provide space for expansion or relocation of the business at a later date. Parcels held for speculation (Type 4) are generally owned by corporations, estates or single-party owners with the expectation that they will be sold in to the marketplace at a later date for a profit. Finally, institutional reserve parcels (Type 5) are tracts of land that are held by a public or semi-public organization for future development.

The Canadian Mortgage and Housing Corporation (1982) in its advisory document regarding new housing in existing neighbourhoods identified six types of vacant sites suitable for infill development: (1) street-related “missing tooth” sites; (2) large lots; (3) school and institutional sites; (4) long lots; (5) corner sites; and (6) sites with unusual conditions. Street-related *missing tooth* sites (Type 1) are typically vacant lots that are located between existing buildings. These sites are the most common of the many different types of infill sites and can range in size from a small single lot to a

number of lots located adjacent to one another. According to the CMHC document, these sites may become available as a result of the removal of an obsolete building, the destruction of a building as a result of a fire, or the splitting of a lot. While much less common than missing-tooth infill sites, *large-lots* (Type 2) with infill potential are occasionally found in existing neighbourhoods. These sites may contain an existing building, but be large enough for the addition of new construction or may be the site of a proposed hospital or school that never materialized and is now available for redevelopment. In many cases, existing neighbourhoods have experienced a declining and / or aging population base, which has resulted in the obsolescence of certain institutional buildings (Type 3), such as churches, hospitals and schools. These sites offer considerable redevelopment potential. *Long lots* (Type 4) include all vacant parcels of land that have limited street frontage, but considerable depth. This unusual configuration makes site design a challenge. *Corner sites* (Type 5) are characterized by two street frontages, which can be used to advantage in infill development. Given the sites exposure to street frontages, mixed-use development is often attractive on these types of vacant land sites. Finally, sites with unusual conditions (Type 6) include sites that are irregularly shaped, on steep slopes, contain unattractive land uses nearby or poor site access.

2.1.2 Brownfield Sites

In addition to the types of vacant infill sites discussed above, *brownfields* – abandoned, idled, or underused industrial and commercial properties where expansion or redevelopment is complicated by real or perceived environmental contamination and/or building deterioration / obsolescence (NRTEE 2003) – have emerged as another potential

site for residential intensification. It has been conservatively estimated that there are as many as 30,000 brownfield sites in Canada and more than 450,000 in the United States that remain idle (NRTEE 2003).

Authors argue that the redevelopment of brownfields presents a number of potential benefits to both the public and private sectors. From a public sector perspective, the redevelopment of brownfield sites has considerable economic, environmental and community development benefits for the municipality in which they are located. From the perspective of the private sector, the location of a brownfield site may offer exceptional opportunity and ultimately profits from its redevelopment. Interest in brownfields from both the public and private sector has resulted in a large and growing body of literature regarding the redevelopment of these sites.

According to Alberini (2004) the remediation and redevelopment of brownfield sites are attractive to communities and policymakers for a number of reasons. First, they have considerable environmental benefits – they reduce the adverse effects of the site's soil and water pollution on human health and ecological systems. Second, they reduce the need for greenfield development and the negative environmental, social and fiscal problems that often associate with it. Third, they promote economic growth in mature areas and may contribute to the revitalization of neighbourhoods.

While the redevelopment of brownfield sites offer potential benefits and often represent exceptional infill development potential, the majority bring with them challenges and barriers which often complicate development. According to McCarthy (2002) there are four primary barriers to the redevelopment of brownfield sites: liability for contamination, availability of funding, uncertain cleanup standards and a complicated regulatory arrangements. Concern about legal liability for contamination is considered

perhaps the greatest impediment (Lerner 1996; Simons 1998). Under current provincial and federal legislation, participants in a brownfield redevelopment project may be exposed to liability arising from the contamination caused by the property's original use, even if the property was managed according to the laws and standards of the day.

Cleaning up the Past Building the Future: A National Brownfield Redevelopment Strategy for Canada (NRTEE 2003) points out that liability issues affect all interested parties, including owners, developers, lenders, municipalities, provincial agencies and the eventual end users.

McCarthy (2002) discusses the lack of available funding for upfront costs as one of the most important barriers to brownfield redevelopment. Fears regarding liability and returns on investment have resulted in lenders displaying trepidation towards supporting the upfront site assessment and cleanup phases of brownfield redevelopment projects. McCarthy also cites complicated regulatory environments as a significant impediment. She argues that complying with government regulations can prove to be a time consuming and costly exercise. A lack of information and coordination among government agencies can further complicate the matter.

Finally, uncertain cleanup standards are noted as another challenge when remediating a contaminated site. In many instances, cleanup standards are not overly straightforward and the costs and potential project delays associated with site assessments diminish the desirability and viability of a project (McCarthy 2002).

As the many different potential barriers come in to play on a site-by-site basis, the potential for redevelopment varies. Consequently, *Cleaning up the Past Building the Future* (NRTEE 2003) arranged brownfield sites into three primary groups based on such barriers. The first group includes all brownfield sites whose market value exceeds the

cost of remediation. This grouping accounts for between 15-20 percent of brownfield sites in Canada. Typically, these sites tend to be quite profitable and are developed quickly often with little assistance. On the other end of the spectrum, roughly 15-20 percent of brownfield sites require remediation costs that far exceed the value of the land after remediation. As a result, these properties typically remain idle and do not attract significant government intervention and incentives. Finally, the middle group, which accounts for between 60-70 percent of Canada's contaminated sites, possess a market value that is slightly above or below the combined cost of land and cleanup. These sites generally sit idle because they face a number of hurdles that are viewed negatively by potential buyers. Typically these sites require strategic public sector intervention to address these hurdles.

According to the literature examined for this project, it appears that the redevelopment of brownfield sites brings with it a number of potential social, environmental and economic benefits. Despite these benefits, the literature presents many challenges and barriers associated with brownfield redevelopment, which significantly complicate the remediation and development process. Without addressing these barriers, many brownfields will continue to be passed over for greenfield sites that are less complex and often less costly to develop.

2.1.3 Greyfield Sites

Greyfields are old, obsolete and abandoned retail and commercial sites, many of which offer immense redevelopment potential. According to the Congress for the New Urbanism (CNU 2001), about 7 percent of existing regional malls are greyfields and another 12 percent are approaching greyfields status in the United States.

According to Chilton (2004) the decline of older enclosed malls can be attributed in large part to new suburban retail development. The “power centre” which consists of a planned agglomeration of big box retail outlets (Lorch 2004) has replaced the enclosed mall as the preferred alternative for commercial developers (Jones and Doucet 2001). This shift has greatly altered the retail environment and contributed to the obsolescence of many older shopping malls. This transition is in many ways reminiscent of the declining retail function of central cities in the 1960’s through the 1980’s as the “mallification” of retail occurred (Lorch 2004).

According to Dover (2004) vacant and underutilized malls offer exceptional potential for redevelopment for a number of reasons:

- Location – Malls are consolidated pockets of development, situated on large sites and typically surrounded by neighborhoods and related commercial development;
- Parking – Malls traditionally offer plenty of parking, which is underdeveloped land that can provide significant redevelopment opportunities;
- Access – Malls are usually located near freeways, major arterial streets and established public transit routes;
- Established Footprint – Malls are already part of the built environment so no greenfield land is used in the redevelopment process.

Building on these points, the CNU (2001) notes that greyfields are aesthetically unpleasing and may contribute to negative perceptions within neighbourhoods. In addition, greyfields result in a loss in tax revenue to the community and their successful redevelopment can prevent tax base erosion and contribute to an increase in tax revenues. In most cases, the redevelopment of such sites contributes to the revitalization of existing

neighbourhoods and the stimulation of investment and redevelopment on adjacent properties.

2.1.4 Adaptive Reuse

Adaptive reuse – the process of adapting old structures for new purposes – is identified in the literature as another important form of residential infill. In North American municipalities, the transformation of old industrial buildings into loft housing is one common example of adaptive reuse. In other cases, abandoned schools and hospitals within existing neighbourhoods offer considerable potential for transformation into unique and often affordable housing.

According to a document published by the Australian Department of the Environment and Heritage (2004) there are a number of environmental, social and economic benefits associated with adaptive reuse. One of the primary environmental benefits is the retention of the building's "embodied energy" – the quantity of energy required to bring the building to the point of use. By reusing a building, the amount of embodied energy expended is minimal in comparison to new construction. In addition, a number of the environmental benefits associated with vacant land, brownfield and greyfield development apply to adaptive reuse as well. For example, adaptive reuse is a key factor in land conservation and reducing urban sprawl.

Adaptive reuse also possesses a number of important social and economic benefits. For example, the retention of historic and significant buildings presents considerable benefits to a community. The market appeal associated with historic buildings is also considerable (Australian Department of the Environment and Heritage 2004).

According to the literature examined for this project, adaptive reuse brings with it a number of important benefits. However, it also notes that without incentives adaptive reuse is often a difficult and challenging task. As adaptive reuse involves the redevelopment of older structures, the adaptation of heritage buildings presents a considerable challenge to architects and designers to find innovative solutions. Further complicating the matter, Galvan (2006) contends that the prescriptive nature of conventional building codes often makes rehabilitation difficult, costly and inequitable, providing suburban locations with a competitive advantage.

In Winnipeg, the Old Grace Hospital is a prime example of a building located in an existing neighbourhood with adaptive reuse potential. The building, located in the heart of the Wolseley neighbourhood, was used as a hospital until 1967, when a new hospital was constructed at another location in the city (CMHC 2007). The building was sold to the Province of Manitoba and used as offices until 2004 when it was declared surplus. In 2003, the Manitoba Housing and Renewal Corporation was commissioned to determine the feasibility of converting the building into affordable housing units. The adaptive reuse of the Old Grace Hospital building has the potential to yield many of the environmental and community benefits typically associated with adaptive reuse projects, as discussed above.

2.2 Why Infill Housing?

While there are a number of challenges associated with the redevelopment of vacant and underutilized sites, the literature has established that the benefits and opportunities of redevelopment warrant public policies to encourage the infilling of vacant lots (CMHC 1982; MRSC 1997). Reports and studies cited here note that by absorbing growth in

existing neighbourhoods, infill reduces growth pressure on rural areas, provides for efficient use of land, infrastructure, and services and can contribute to the revitalization of established area.

Many developers are bypassing vacant urbanized land for less expensive greenfield land on cities' edges. Conventional North American patterns of sprawling, low-density development at the urban fringe are consuming land at a much faster rate than population growth (Benefield 1999). On the other hand, infill development contributes to a more compact form of development which consumes less land and fewer resources. In addition, making use of existing infrastructure and services (streets, public transit, fire and police service, libraries, etc.) before contemplating infrastructure and service expansion, will potentially save local governments considerable money in capital costs and long term maintenance. Infill development also increases the tax revenue collected by local governments as vacant and underutilized land is brought back on the tax roll (Benefield 1999).

Some additional benefits associated with the development of vacant land, as identified by Municipal Service and Research Centre of Washington (1997) include:

- Infill development is often located in close proximity to major transportation hubs;
- Infill is important in minimizing traffic congestion;
- Infill development offers opportunities to increase the supply of a wide range of housing types to meet the needs of a range of people;
- Infill housing is often located in close proximity to existing jobs and other businesses.

2.3 Challenges and Barriers to Infill Development

While infill development is highly beneficial to neighbourhoods and cities as a whole, as discussed above, the literature identifies a number of challenges and barriers to its development, including: site constraints; regulatory barriers; neighbourhood barriers; and financial barriers.

2.3.1 Site Constraints

Many vacant parcels of land in established areas have site constraints that have inhibited their development. As discussed earlier, a variety of environmental constraints, such as steep slopes, streams or wetlands may restrict the development of a parcel. In addition, the size, width or shape of a parcel may make it difficult to develop in a manner that meets current land use regulations or satisfies current market demands.

According to the Municipal Research and Services Center (1997) another common barrier to infill development is the inability to assemble land in parcels large enough to attract developers. In many cases, building on small parcels may not be economically feasible for a developer. In addition, assembling parcels of land can be expensive and complicated, particularly when dealing with multiple landowners, property owners who will not sell, existing neighbours, and a variety of existing land uses (MRSC 1997).

The MRSC also notes that deteriorating and / or infrastructure that is at full capacity may significantly decrease the viability of an infill project. For example, in many established neighbourhoods, aging sewer and water infrastructure is not adequate to accommodate additional capacity from residential intensification projects. Consequently,

without costly improvements, this barrier can potentially jeopardize an infill project (MRSC 1997).

2.3.2 Regulatory Barriers

There are a number of regulatory barriers noted in the literature that may also challenge or complicate infill development. Zoning bylaws are statutory documents that are used to regulate many aspects of development within a municipality – building height, setbacks, density of development, etc. Zoning bylaws present another common barrier to infill development in the typical North American city. Zoning regulations which limit the potential density and / or building height on a vacant lot may work in direct conflict with the type of residential or mixed-use project suitable for the site, or required in order to ensure its viability. For example, Oakland California's zoning code requires that development provide 150 square feet (approximately 14 square metres) of open space per unit, which may be difficult or impossible to achieve (Wheeler 2002). When zoning codes are not conducive to infill development, developers must pursue numerous variances which may further complicate or delay a project, add additional costs and potentially impact a project to the point where it may no longer be financially feasible to build.

Building codes – sets of rules that specify the minimum acceptable level of safety for the construction of new structures and the remodelling of existing ones – also may complicate the infill development process as they often increase the cost of renovating and reusing existing buildings (Burby 2000; Burby 2006; Galvan 2006).

Galvan (2006) argues that conventional building codes have the potential to stifle four positive effects of revitalization: (1) preserving a historical record; (2) revitalizing

central cities; (3) stimulating economic activity; and (4) encouraging affordable housing. Generally, Galvan contends that the prescriptive nature of conventional building codes makes rehabilitation difficult, costly and inequitable, providing suburban locations with a competitive advantage.

2.3.3 Neighbourhood Barriers

A number of authors note that resistance to infill proposals from existing neighbourhood residents is a common and often debilitating barrier that many infill projects face (Breheny 1997). This phenomenon, sometimes involving the NIMBY (not in my backyard) syndrome can significantly delay or destroy a project. In many cases, infill projects that require the rezoning of land to a more intensive use and / or variances have resulted in considerable opposition from existing residents who rallied against the project. Existing residents are often opposed to higher density housing next to them, even if it is more highly valued than adjacent development or what preceded it (Farris 2001). The Urban Land Institute (ULI 2005) has attempted to dispel many of these negative connotations associated with density, using arguments such as the following:

- Higher-density development does not overburden public schools and other public services and does not require considerable infrastructure and service expansions;
- Higher-density development does not lower property values in surrounding areas;
- Higher-density development does not create more regional traffic congestion and parking problems than low-density development;
- Higher-density development does not lead to higher crime rates;
- Higher-density development is not more environmentally destructive than lower-density development.

- Higher-density housing is not only for lower-income households.

In Winnipeg, infill housing development proposals in established neighbourhoods have often garnered considerable neighbourhood opposition. One recent example of NIMBYism involves an infill project located at 703 Riverwood Avenue, in Winnipeg's Point Road Neighbourhood (City of Winnipeg, Planning Property & Development Department 2005). The applicant proposed a 30 unit, 4 storey multiple family building on a former school site, which required rezoning and a number of variances. At the Public Hearing, 108 area residents showed up in opposition to the project and the City Centre Community Committee rejected the application, despite the Administration's support of the proposal. The local community was primarily concerned that the project did not fit with the character of the neighbourhood, was out of scale and would result in increased traffic. The Community Committee recommendation was reversed and Council approved the rezoning to allow for the development, however this example illustrates the influence that neighbourhood residents and NIMBYism can have on the decision making process.

In addition to opposition from area residents, some authors note that negative perceptions of many established neighbourhoods, including images of higher crime rates, inferior schools and poor quality facilities, has motivated many potential home buyers to disregard many central locations. This phenomenon is a significant challenge for the successful development of many vacant parcels of land located within areas suffering from these real or perceived perceptions. According to Accordino and Johnson (2000) the political and economic fragmentation of many metropolitan areas means that housing within mature neighbourhoods must compete with dwellings located not only within the

same area, but in the larger housing market as a whole. As a result of a number of factors, such as the quality of schooling, government services, public safety, public perception and the quality of the natural environment, inner city communities are often passed over for suburban locations. Accordino and Johnson note that as demand for housing in mature neighbourhoods declines, so to do the rents that landlords charge, resulting in deferred maintenance and decreased services.

2.3.4 Financial Barriers

Infill housing projects often face significant financial barriers that can have a major impact on the viability of a project (DRCOG 2006; Farris 2001). Increased project costs are often associated with the typical infill barriers discussed above – site constraints, which may include costly infrastructure upgrades and land assembly; regulatory barriers, which may include costly planning approvals; and neighbourhood resistance, which may result in costly project delays.

Financing may also present a significant barrier to the development of an infill project. Generally, infill projects must meet the same financial criteria as other forms of development, which is often difficult to accomplish given the complexity of many infill projects (DRCOG 2006). According to Smart (1985) securing financing from lenders is a major hurdle that many infill projects must overcome. Financial institutions are often conservative and less likely to support an infill project because of its location – typically in older and sometimes deteriorating neighbourhoods.

Infill projects may also have a longer development time-frame than lenders are comfortable with. This is particularly the case with projects involving the redevelopment of a site, which often requires demolition and new construction (DRCOG 2006).

As discussed earlier, brownfield sites – properties where development is complicated by real or perceived environmental contamination – offer potential for infill housing. However, given the history of environmental contamination on these sites, lenders are often reluctant to participate in the project (ICMA 2001). A lack of familiarity with brownfields and remediation techniques on the part of the lender may also cause trepidation.

One study in the Albuquerque area compared the costs associated with developing single family and multiple family infill projects versus comparable projects on Greenfield sites. The study concluded that a multiple family project in an infill area would cost seven percent more to develop than the comparable fringe project (Colombo 1988).

2.4 Infill Housing – Scale and Types of Development

Depending on a number of different factors – including market forces, site conditions, developer motivations, financial feasibility, municipal policy and zoning – the literature identifies a number of potential types of residential infill development. These include residential development of varying scales, as well as mixed-use development.

2.4.1 Small Scale Residential Infill

While small sites possess a number of potential challenges and barriers to development as discussed earlier, given the right conditions, small scale residential infill often represents a viable opportunity for residential intensification in mature neighbourhoods. Small scale infill is generally ground-oriented development and can include a number of different potential housing types that are applicable for this project, including: duplex, triplex, fourplex, as well as small-scale townhouse and mixed-use development.

In most North American cities, the vast majority of parcels with infill potential are small in size (MRSC 1997). These parcels are typically street-related “missing tooth” sites as discussed earlier. Consequently, small-scale residential infill can take advantage of these vacant parcels scattered throughout cities.

While there are a number of challenges associated with small scale infill development – financial viability, zoning codes and site contamination (as discussed above) – perhaps the most common is assuring that new development fits in with the established neighborhood context. This involves careful attention to scale, massing, building materials, setbacks, and architectural style, just to name a few factors. Table 1 summarizes some of the many positive and negative outcomes associated with the construction of small-scale residential development.

Table 1 – Small Scale Infill Stakeholders and Potential Outcomes

Stakeholders	Possible Positive Outcomes	Possible Negative Outcomes
Property Owners	<p>Opportunity to house elderly residents or university aged students on the property</p> <p>Opportunity to generate additional income from property</p>	<p>Loss of private space</p> <p>Potential parking problems</p>
Development Industry	<p>Additional development opportunities</p> <p>Contribute to neighbourhood revitalization process</p>	<p>Success of individual property owners in the small scale infill market may effect the development market for higher density infill</p>
Neighbourhood Residents	<p>Additional eyes on the street</p> <p>Community revitalization</p>	<p>Traffic and parking conflicts</p> <p>Loss of vacant lots (may have been used as community garden/open space)</p>
Municipality	<p>More efficient use of existing infrastructure</p> <p>Additional property tax revenue</p> <p>Community revitalization</p>	<p>Additional pressures associated with the increased use of infrastructure and services</p>

Source: City of Edmonton: Smart Choices

2.4.2 Medium Scale Residential Infill

While less common than small-scale infill, the majority of neighbourhoods also possess a number of larger sites with infill potential. Medium scale infill projects can take advantage of vacant parcels of land (long lots, large lots, corner sites and institutional reserve parcels), brownfields, greyfields and aging buildings. While there is no benchmark for medium scale infill, generally speaking it includes townhouse development and low-rise apartments / condominiums.

Working in favour of medium scale infill are the current positive market dynamics for medium density housing. According to the Canada Mortgage and Housing Corporation (CMHC 2008a) continued strength is anticipated in this segment of the housing market as the increase in the price of new and existing homes will increase the attractiveness of multiple family homes. While infill development on larger parcels offers an exceptional opportunity for increased density, it is crucial that its impacts on the surrounding neighbourhood context are minimized (City of Edmonton Smart Choices 2003). Fears of increased traffic and loss of parking, loss of open space and loss of privacy are some of the primary neighbourhood concerns. Table 2 summarizes the many potential positive and negative outcomes associated with medium scale residential infill.

Table 2 – Medium Scale Infill Stakeholders and Potential Outcomes

Stakeholders	Positive Outcome	Negative Outcome
Development Industry	Additional market opportunities	
Neighbourhood Residents	Community revitalization Additional eyes on the street	Potential for traffic congestion Potential for real or perceived loss of privacy Loss of vacant lots (may have been used as community garden/open space)
Municipality	Increased tax revenue More efficient use of existing infrastructure Community revitalization	Increased density may require infrastructure/service updates

Source: City of Edmonton: Smart Choices

2.4.3 Large Scale Residential Infill

Large scale residential intensification includes high rise apartment and condominium buildings. Large scale infill projects can take advantage of vacant parcels of land (large lots and institutional reserve parcels), large brownfields and greyfields and large aging buildings.

While the NIMBY phenomenon is common with infill development in general, it is often most pronounced with large scale residential infill projects. Significant increases in density are often associated with fears of increased traffic, loss of privacy, and decreased property values, just to name a few. Consequently, large-scale residential infill requires an approach that is highly sensitive to the existing neighbourhood context. Table 3 summarizes the many potential positive and negative outcomes associated with medium scale residential infill.

Table 3 – Large Scale Infill Stakeholders and Potential Outcomes

Stakeholders	Positive Outcome	Negative Outcome
Development Industry	Additional market opportunities	
Neighbourhood Residents	Community revitalization Additional eyes on the street Additional housing options within the community High density may result in the increased viability of public transit	Potential for traffic congestion Potential for real or perceived loss of privacy Loss of vacant lots (may have been used as community garden/open space) If not properly planned, building may be out of scale with the community
Municipality	Increased tax revenue More efficient use of existing infrastructure Community revitalization	Increased density may require infrastructure/service updates

Source: City of Edmonton: Smart Choices

2.4.4 Mixed-Use Development

Mixed-use development – a complementary mix of uses such as residential, retail, commercial, civic and entertainment in the same site – has experienced renewed interest in a many North American cities and is certainly an important form of infill development. The concept of *mixed use* is certainly not a new one, as it has been part of the North American urban landscape since the first cities of the 17th century (Tombari 2005). However, the separation of land uses has become a pronounced phenomenon throughout much of the 20th century. This has resulted in less diversity in local areas and increased levels of traffic, as well as reduced safety and diminished attractiveness of local streets (Newman 1997).

An examination of mixed-use development literature produces a number of important benefits and challenges. There is a general consensus among planners and scholars that mixed land use has an important role in achieving sustainable urban form.

According to Grant (2002) proponents of mixed use development emphasize four key benefits:

- Mixed use creates an urban environment that is active at all hours, making optimum use of infrastructure and improving safety (eyes on the street);
- Creates a greater range of housing options;
- Mixing housing types could increase affordability and equity by reducing the premium that exclusive, segregated areas possess;
- Mixing of uses can potentially reduce people's dependence on the automobile, increase pedestrian and transit use, and alleviate some of the environmental consequences of automobile use.

While mixed-use development is an important form of infill housing, which brings with it many community benefits, there are a number of potential barriers or challenges associated with its development that must be overcome, including (Benfield 1999):

- Real or perceived low profit margins;
- Complicated development approval process;
- Neighbourhood resistance;
- Lack expertise in mixed use development on the part of the developer;
- Parking / site access conflicts.

The following table summarizes potential stakeholders and the potential positive and negative outcomes associated with mixed-use development.

Table 4 – Mixed Use Development Stakeholders and Potential Outcomes

Stakeholders	Positive Outcome	Negative Outcome
Development Industry	Additional market opportunities	
Neighbourhood Residents	Community revitalization Eyes on the street Range of housing options Addition of amenities to community Potential for the addition of affordable housing Reduced automobile dependency	Potential for traffic congestion Potential for real or perceived loss of privacy Loss of vacant lots (may have been used as community garden / open space)
Municipality	Increased tax revenue More efficient use of existing infrastructure Community revitalization	Increased density may require infrastructure / service updates

Source: City of Edmonton: Smart Choices

2.5 Infill Development Incentives and Strategies

Recognizing the many benefits associated with infill housing, jurisdictions throughout North America have embraced a number of incentives and strategies in order to encourage the development of vacant and underutilized sites. Through a review of literature, the various strategies and incentives offered by jurisdictions in order to encourage infill development will be discussed.

2.5.1 Financial Incentives

There are a number of financial incentives at the disposal of municipal governments in order to encourage construction, by the private sector, of new infill housing units. These incentives primarily include tax increment financing and property tax abatement.

2.5.1.1 Tax Increment Financing

Tax increment financing (TIF) is a financing mechanism, increasingly used by cities in order to generate economic growth and in many instances encourage infill development. The main premise behind TIF is that any redevelopment activity in an urban area generally creates higher property values in the redeveloped area, increasing the property tax revenues from that area. TIF programs are designed to use the increased property tax revenues generated by a redevelopment project – the tax increment – to finance a portion of the cost associated with the project (Greuling 1987). It is generally argued that TIF stimulates private investment and narrows the gap between building new housing in central versus suburban locations (Dye and Merriman 2000).

Dye and Merriman (2000) identify four general reasons why municipalities may adopt TIF: (1) to correct market failures, (2) to revitalize areas, (3) to provide competitive advantages over other jurisdictions, and (4) to shift revenue to another level of government. Based on TIF's ability to correct market failures and contribute to the revitalization of neighbourhoods, there is a reasonably good fit between TIF and infill development.

There is a considerable body of literature concerned with assessing the successfulness of TIF. The majority of such work has attempted to address the effects of TIF on two fronts: within the TIF district; and at a citywide level. Based on a review of existing literature, there is compelling evidence that suggests that TIF has a positive impact within the TIF district (i.e. increasing property values). Dardia (1998) was one of the first authors to assess the effects of TIF within the TIF district, finding that TIF increased property value growth within the district. More recently, Smith (2004) found that TIF had a positive impact on multi family residential properties in Chicago. Some

literature also indicates that the benefits of tax increment financing reach far beyond the TIF district as well. A number of studies have attempted to determine the successfulness of TIF at a citywide level by comparing the change in property values between cities which adopted TIF and those who did not. Anderson (1990) carried out this comparison for Michigan municipalities and found a direct comparison between property growth and TIF adoption. Using a slightly different methodology, Man and Rosentraub (1998) reached a conclusion similar to that of Anderson, finding that TIF adoption led to increases in property value growth in Indiana municipalities.

Despite its benefits, tax increment financing is not without challenges. A number of authors (Greuling 1987; Chapman 1998; Dye and Merriman 2000) have challenged some of findings presented by advocates of TIF. Periodic abuses, a higher cost for raising moneys than the cost for other strategies, and the removal of property tax resources that would otherwise be available to the community at large are a few of these issues. Additional risks associated with TIF include whether the demand for the new or redeveloped housing and property actually exists and whether the new businesses generated are financially viable enough to generate a sufficient property tax increment for paying off the TIF bonds. Others argue that TIF may simply accelerate development that may have occurred anyways. Finally, TIF may lead to the gentrification of the target area as more affluent individuals move into the area. This often results in the displacement of existing, often lower class residents. Dye and Merriman (2000) urge policy makers to use TIF with caution.

In Manitoba, The Community Revitalization Tax Incremental Financing Act (Manitoba 2008) was recently introduced, which provides the opportunity for Manitoban municipalities to make use of TIF to encourage development. The Legislation permits

the use of some or all of the incremental municipal taxes from the TIF district to be placed into a reserve fund, which can be used to provide financial assistance to development projects. If utilized, TIF has the potential to stimulate considerable infill housing development in depressed neighbourhoods, at rapid transit nodes and within the downtown area.

2.5.1.2 Grants and Property Tax Abatement

Local governments often contemplate providing grants – financial aid that does not require repayment – and / or property tax abatement – the full or partial relief from tax liability for certain properties – in order to encourage infill housing development. The intent of these incentives is to increase the attractiveness of a particular location for investment or rehabilitation.

According to Dalehite (1995) property tax abatement programs are generally defined by four central elements: (1) They provide for a reduction in tax liability for select parcels; (2) they have a purpose beyond tax relief alone, such as redevelopment or economic development; (3) there is a time limit on how long the reduction remains in effect; and (4) they can be used by themselves and not in conjunction with other incentive programs.

The City of Winnipeg Charter permits Council to establish programs of grants, loans, tax rebates and tax credits. In 2002, a Multiple Family Dwelling Grant Program was developed to encourage multiple family development in Winnipeg's Major Improvement Areas, Rehabilitation Areas and the Downtown. The three-year pilot project committed \$2.6 million for sixteen projects (532 dwelling units) leveraging \$89.2 million in private investment (City of Winnipeg, Planning Property & Development

Department 2007). More recently, the City of Winnipeg's Residential Infill Tax Credit Program is another example of property tax-based incentives targeted towards encouraging infill housing. Eligible projects may receive a tax credit of up to \$2000 per year for a maximum of five years for the construction of new, owner-occupied, small-scale infill in certain established neighbourhoods (Winnipeg 2007a). Property tax abatements are common in a large number of other North American jurisdictions (Dalehite 2005).

A number of studies support tax abatements as a positive contributor to economic development. Through examining Chicago's urban regeneration experiences, McGreal (2002) found that property tax based incentives offer considerable potential in encouraging new development in established areas.

The MRSC (1997) identifies a number of potential challenges or negative externalities associated with the use of tax-based incentives. Similarly to tax increment financing, financially based incentives, though often necessary to generate development in a given area, remove property tax resources that would ordinarily be available to the community at large. In addition, in some areas tax incentives have been used to subsidize development that would have occurred without the incentive, while in other instances, they have been awarded to projects offering minimal public benefit (MRSC 1997)

2.5.2 Reducing Neighbourhood Resistance

As discussed earlier, one of the key barriers to the development of a successful, financially viable infill project is NIMBYism. In order to reduce neighbourhood resistance, a number of steps can be taken by local governments, including: developing

infill housing guidelines, which are often accompanied by design review in order to promote new development that is compatible with the existing neighbourhood context.

2.5.2.1 Infill Housing Guidelines

Infill housing guidelines have emerged as perhaps the most common and widespread tools used by North American jurisdictions to guide the design of new infill development. Infill Guidelines are essentially supplementary documents prepared by local governments that provide urban design guidance for new development in established neighbourhoods. In contrast to a city's zoning bylaw, which provides very specific development regulations, guidelines are generally may be used to assist developers and designers in producing infill projects that are appropriate and compatible within the neighbourhood. They also may help citizens and planners in assessing projects and council in making decisions regarding the suitability of a development project.

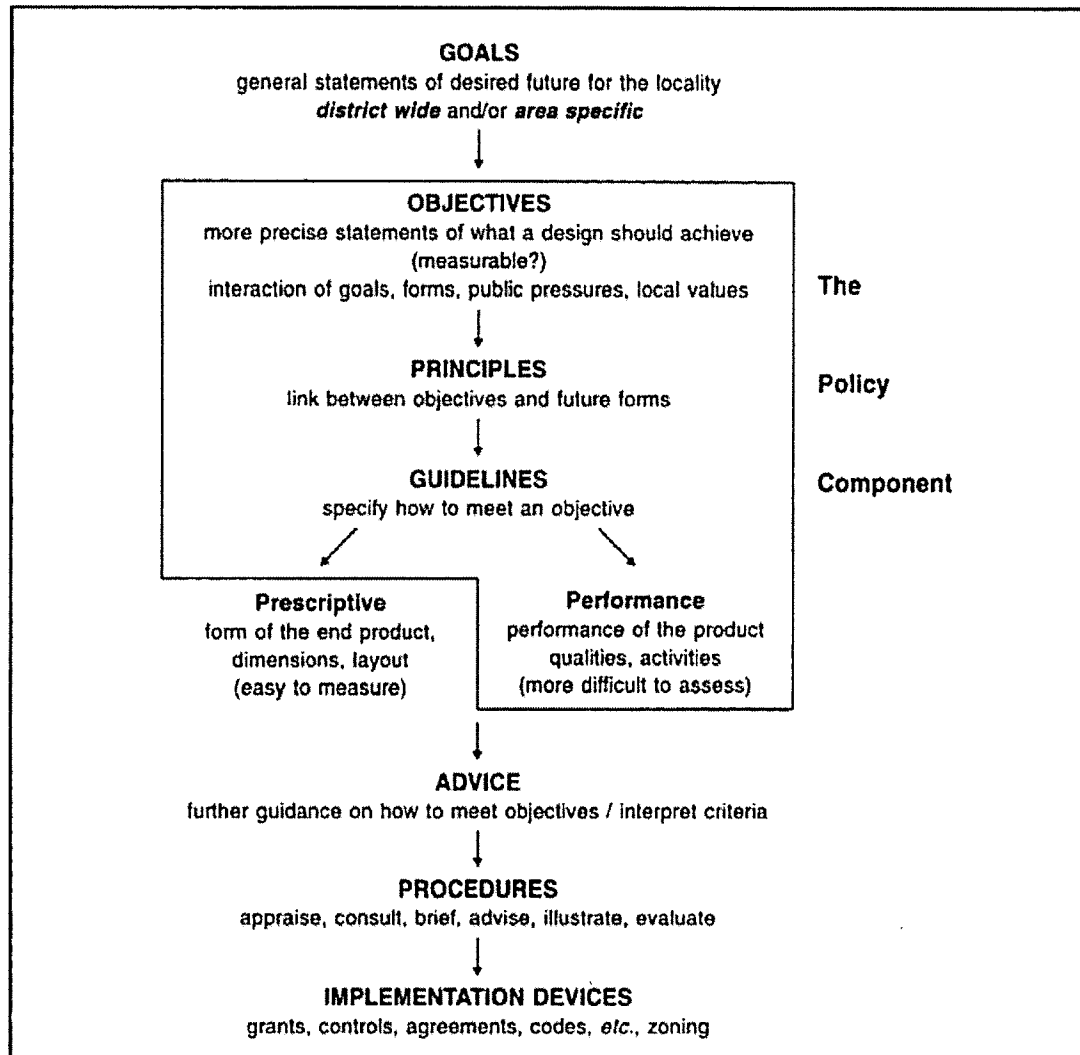
According to an MRSC report (1997) there are four primary reasons why a jurisdiction would consider developing infill guidelines: (1) to determine what neighbourhood residents value and determine their expectations for new development, (2) to promote infill development that fits into the existing neighbourhood context, (3) to promote connectivity between the infill project and the neighbourhood as a whole, and (4) to promote high quality development.

In general, the primary concern for design guidelines is to ensure that new development is compatible with the existing neighbourhood context. Compatibility does not necessarily mean that new development needs to copy or mimic existing development, but rather it should fit into the neighbourhood through proper building design and site planning, taking cues from the existing built form and neighbourhood

character (Punter 1999). Consequently, infill guidelines typically address aspects of site design, building height, bulk and scale, architectural elements and materials, landscaping patterns and the pedestrian environment (Seattle 1999; Ottawa 2005; Toronto 2004; Richmond 2004). According to Punter (1999) one of the features of the best design principles is the emphasis that they place on the proposed building's relationship to the public realm and the pedestrian experience.

Punter (1999) argues that guidelines should clearly articulate how to meet a desired design objective and do so with an appropriate level of prescription (Figure 2). According to Punter, there are two primary types of guidelines – those that are prescriptive and those that are performance based. Prescriptive guidelines generally prescribe a certain form of development. For example, a prescriptive guideline may seek a specific amount of public space per building square footage. On the other hand, performance related guidelines articulate a series of detailed principles and outline how they might be achieved, leaving the designer to establish appropriate responses. For example, a performance based guideline may be that new development should maximize sunshine. Prescriptive guidelines tend to be easier to measure than performance based guidelines but are often criticized for stifling creativity on the part of the designer (Punter 1999).

Figure 2 – Key Components of Design Policy



Source: Punter (1999)

2.5.2.2 Design Review

Design review, often used in conjunction with design guidelines, is an increasingly popular method used by cities to review private development projects in order to ensure that they are compatible with the existing context. In most cases, infill guidelines form the backbone of the design review process and qualifying developments are reviewed by a design review board, the constitution of which may include architects, planners, and in

some cases, community members and developers. While the specific goals of design review may vary by jurisdiction, in general, there are a number of primary goals, including: to encourage development that is compatible with the neighbourhood through building design and site planning; to provide flexibility in the application of development standards; and to improve communication and participation among key stakeholders early in the development process (Seattle 2005).

According to Punter (1999) there has been a dramatic growth in design review since the 1970s in North American jurisdictions. A 1992 study of 360 American towns and cities revealed that 83 percent were undertaking some form of design review.

2.5.3 Increasing the Availability of Land

A major obstacle to infill development involves the fragmented ownership of vacant and underutilized parcels of land, especially within inner-city neighbourhoods. In many cases, the reluctance of owners to develop or sell properties is another major barrier to infill development. Consequently, there are a number of tools and strategies at the disposal of local governments in order to increase the availability of land for infill development, including: eminent domain, land banking, split-rate taxation and building code reform.

2.5.3.1 Expropriation

In order to advance a unique or exceptional infill project, a municipality may be able to make use of its eminent domain powers – the expropriation of private property without the owner’s consent as long as it is for a legitimate “public use” in which the owner of the condemned property is provided “just compensation” for its taking (Leigh 2003) – to acquire land for resale to an interested developer.

Every state or province has a statute, or statutes, establishing how the expropriation power may be exercised at the local level. In order to acquire or assemble land, The City of Winnipeg Charter Act (2002) provides the opportunity for the City to expropriate land and improvements in accordance with The Expropriation Act (2008). The City's expropriation powers are broad and can be used for projects that are beneficial to the community.

Conventionally, expropriation has been used to facilitate the construction of roads and other transportation infrastructure, utilities and parks. However, municipal governments have also employed eminent domain for projects that are considered economically beneficial (Staley 2005). This often involves the use of expropriation in less affluent neighbourhoods for urban revitalization purposes.

According to the National League of Cities (2005) eminent domain is most often used to: (1) address dilapidated properties or areas; (2) transfer property ownership; (3) address compensation disputes; and (4) as a tool to promote the redevelopment of an area.

Leigh (2003) recognizes that expropriation has been highly beneficial to municipal revitalization efforts, but these efforts have also generated some significant criticism. In many cases, property owners have protested the taking of their land, citing insufficient compensation. Others have protested that condemned parcels may not actually be derelict, or that expropriation was not for economic development purposes, but rather a transfer of property rights between private landholders to the benefit of the new landowner.

2.5.3.2 Land Banking

Local governments often establish land bank authorities to acquire properties with the intent of selling them to other organizations to promote neighbourhood revitalization.

Land banks often assemble parcels of land into larger blocks, enhancing their attractiveness to the private sector (Leigh 2003).

While land banks offer a great deal of promise in terms of urban revitalization, they also carry with them a number of challenges. The Municipal Research Services Center (MRSC 1997) identified some of these challenges associated with land banks:

- Acquisition and potential remediation costs can be significant;
- Land banks often require considerable start up costs;
- Properties are removed from the tax roll when under ownership by the land bank;
- Land banks often require a municipality to make use of its expropriation powers in order to acquire a property.
- Property acquisition can be time consuming.

In 1999, CentreVenture Development Corporation – an arm’s-length agency of the City of Winnipeg – was created with a focus on the revitalization of downtown Winnipeg (CentreVenture 2008). CentreVenture has the authority to transact deals, provide incentives to prospective developers, assemble land and lobby for changes in municipal policy CMHC (2004).

2.5.3.3 Building Code Reform

Building codes are sets of rules that specify the minimum acceptable level of safety for the construction of new structures and the remodelling of existing ones. As discussed

earlier, despite the obvious benefits of building codes, a number of authors have noted that in many cases they stifle efforts to revitalize urban areas by increasing the cost of renovating and reusing existing buildings (Burby 2000; Burby 2006; Galvan 2006)

In order to alleviate some of the negative externalities associated with conventional building codes, a number of jurisdictions – New Jersey, Maryland and Pennsylvania for example – have designed *rehabilitation codes* or *smart codes*. Revitalization codes encourage redevelopment as they are applied proportionately to the work required on the property. Therefore, if the work required is minor, then minimal requirements are applied, while if the work is major, then stricter requirements apply (Galvan 2006). In addition, rehabilitation codes contain clear guidelines that allow builders to accurately predict their expenses (Galvan 2006).

2.5.3.4 Zoning Bonuses / Variances

In order to allow developers to make better use of their sites, municipal governments may provide zoning bonuses, or allow variances to ease parking requirements for example. A zoning bonus is a tool used by many jurisdictions to encourage affordable housing, infill development, residential intensification and other public benefits. Zoning bonuses represent a trade off between private and public sector objectives. Zoning bonuses allow developers to build additional units, thus increasing their rate of return on a project, while cities are able to secure a public benefit, such as affordable housing units, public art, a mixed-use component and other public benefits (Getzels et al. 1988).

2.5.4 Stimulating Developer Interest in Infill

Greenfield sites possess a number of key advantages over infill properties – cheaper, more readily available land and fewer existing neighbours, just to name a few – which in many cases propels developers in the direction of more peripheral sites. Consequently, a key approach or strategy at the disposal of municipal governments is the use of design competitions and demonstration projects to illustrate the potential viability and attractiveness of infill projects.

2.5.4.1 Design Competitions

Design competitions present municipalities with a relatively inexpensive method to heighten awareness of the development potential of infill sites. In addition, design competitions can facilitate better quality infill designs that are more likely to win the support within the communities that host them. A large and growing number of North American municipalities now utilize design competitions in order to satisfy a number of objectives, including the promotion of infill housing. For example, the City of Ottawa sponsors an urban design awards competition, considering projects from four categories, one of which is urban infill. The submissions are judged based on their understanding of context, site planning, massing and pedestrian amenities. Some comments from the 2005 competition illustrate the contest's focus on recognizing and promoting neighbourhood compatibility (Ottawa 2007):

I thought this was a very successful infill / intensification project which successfully preserved and optimized the use of existing structures for community usage, breathed life into a 'rear lane', making it more viable as a public access

way while reinforcing the scale and quality of an established (historic) neighbourhood.

It is a fine example of the direction we promote for Smart Growth. The gentle and sensitive intensification of existing neighbourhoods which deliver a net positive benefit for residents and stakeholders alike.

I agree that the scale of the development and especially the lane facing aspect is urbanistically appropriate. Most importantly, it is a good precedent for similar projects in the core area.

2.5.4.2 Demonstration Projects

Municipalities will often make use of demonstration projects in order to display the feasibility of a proposed project or concept which may be unproven or possess real or perceived barriers / challenges. Demonstration projects with the intention of illustrating the viability and potential associated with infill development are commonly used throughout North American cities (CMHC 1997; MRSC 1997). They can be used to convince developers and lenders that a market exists for infill (MRSC 1997) and can persuade prospective buyers that infill is an attractive alternative.

The City of Victoria, British Columbia presents us with an example of how demonstration projects can yield positive outcomes. In 1990, the City embarked on a two-phased infill housing project that involved the development of infill housing design guidelines and a demonstration project (CMHC 1997). The first phase of the project involved the development of small-lot infill housing design guidelines that were to be

considered by developers constructing infill housing. The primary objective of the second phase was to test the infill guidelines that were developed in phase one by building three infill homes in established neighbourhoods. The units were completed in 1995 and more than 800 people attended the public viewings over a two week period. Those who attended the viewings were asked to complete a survey related to how the infill houses fit into the neighbourhood. Despite the higher density, results indicated that 80 percent of respondents found that the project was a positive development and 90 percent believed that the project fit into the existing neighbourhood. The infill program also garnered considerable media attention in the city and received a number of local and national awards. Through the development of infill guidelines and the use of a demonstration project, the city clearly demonstrated that small-lot infill housing could be a positive addition to an existing neighbourhood and supported by local residents (CMHC 1997).

2.5.5 Anti-Sprawl Policies

Many jurisdictions have made a commitment to promoting compact urban form and utilizing existing infrastructure, while discouraging development that is land consumptive, often referred to as urban sprawl (Bennefield 1999). Some strategies include: urban containment and development impact fees.

2.5.5.1 Urban Containment

Urban containment – creating geographical constraints on urban growth – has emerged as an important policy instrument in managing urban growth and encouraging infill

development. Greenbelts, urban growth boundaries and urban service boundaries are some of the more common methods for containing growth. The underlying assumption of these approaches is that if new territory is no longer available to the development market, the market will look inward and seize bypassed opportunities.

According to Nelson and Dawkins (2002) there are four primary goals associated with urban containment: (1) preservation of natural land and farmland; (2) the cost efficient construction and use of urban infrastructure; (3) reinvestment in existing urbanized areas that might otherwise be neglected; and (4) the creation of higher density land-use patterns that encourage a mix of uses and patronage public transit, leading to a more efficient utilization of land in urbanized areas.

In the State of Oregon, urban growth boundaries were created for Portland and each of the state's 241 cities in the 1970's as part of the state-wide land-use planning program (Hough 2004). Examining Portland's experience with the urban growth boundary, the Reason Public Policy Institute (1999) found that the urban growth boundaries can be used to achieve goals such as infill development and residential intensification. However, they also found that there are a number of unintended side effects that may accompany urban growth boundaries, including: higher housing costs, less private open space, and growing opposition to urban containment over time from local residents.

2.5.5.2 Development Impact Fees

Equally important as incentives to encourage infill are disincentives to discourage urban sprawl and indirectly encourage infill development. Development impact fees, also

referred to as development cost charges or exactions – expenditures that developers are required to make as a precondition for approval of their project – are increasingly being utilized by municipalities in order to finance new growth and in some cases satisfy planning goals, such as directing development to efficient locations.

Tomalty (1997) identifies the two primary approaches used by municipalities to apply impact fees; the average cost approach and the marginal cost approach. With an average cost approach, impact fees are assigned on a municipal-wide basis according to specific criteria, such as the number and type of dwellings, so that all projects meeting the same criteria pay the same charge regardless of the actual cost they create. On the other hand, a marginal cost approach takes a site-specific perspective, charging higher impact fees to locations that are less efficient. For example, sites that are more expensive to service because of topography, distance from existing infrastructure or location outside of areas targeted for intensification would pay higher fees.

According to Sargent (1994) a marginal cost approach to development impact fees could be used to satisfy planning goals, such as optimizing the use of existing infrastructure, intensifying the use of land and ultimately encouraging infill development. For example, a well-designed impact fee system can reinforce planning goals by steering development away from high-cost sites to more efficient locations. For instance, the City of Lancaster, California established a method of assigning development fees in expanding concentric circles out from the centre of the downtown (Sargent 1994). Consequently, projects located closer to the downtown pay a smaller development impact fees than those located near the edge of the city. The variation in impact fees across the city helps to encourage development in established areas and narrow the cost gap between

developing an infill versus greenfield site. According to Sargent (1994) a 50% reduction in development cost charges for infill site could reduce costs by approximately \$7,000 in Lancaster.

2.5.6 Affordable Housing Policies and Programs

Jurisdictions may indirectly encourage the development of infill housing by encouraging the construction of affordable housing units. “Affordable housing” is generally defined as housing which has a market price or rent that does not exceed 30% of a household’s gross income (CMHC 2008b).

Unfortunately, the market often falls short of meeting the required supply of affordable housing in most jurisdictions. According to a *Discussion Paper on a Regional Affordable Housing Strategy for Greater Vancouver* (2006) shortfalls in affordable housing supply are generally a result of a number of factors:

- Insufficient new rental construction to meet demand;
- Loss of existing affordable;
- Insufficient affordable entry level housing.

In order to address the shortfall in affordable housing, municipal governments have a number of tools at their disposal. According to the *Discussion Paper on a Regional Affordable Housing Strategy for Greater Vancouver* (2006 page 11), the range of municipal initiatives includes:

- Policy and regulatory actions (density bonuses; demolition and conversion control bylaws)

- Financial actions (write-downs on municipal land; affordable housing reserve funds and homelessness trust funds)
- Partnerships (partnering with senior governments on homelessness projects; with non-profit and social housing providers on affordable housing projects).

While the primary objective of these municipal initiatives is to encourage the development of affordable housing, often units will be constructed within the city's built up area on infill sites as opposed to greenfield lands, indirectly contributing to residential intensification. One local example is a recently announced \$1.5 million, affordable housing infill project that will provide new homes for ten families in Winnipeg's Centennial Neighbourhood. The infill project received over \$730,000 in funding from the Winnipeg Housing and Homelessness Initiative – a partnership between the Government of Canada, the Province of Manitoba and the City of Winnipeg (CMHC 2008c).

2.6 Conclusion

The primary intent of this literature review was to gain a comprehensive and holistic understanding of infill housing and residential intensification, particularly related to the Winnipeg context. The literature review has revealed that there are many challenges associated with the development of infill housing and neighbourhood resistance is certainly one that cannot be overlooked. The literature review has also revealed that despite these barriers, there are a number of tools and strategies at the disposal of municipal governments in order to overcome these barriers. One such strategy is the development of infill housing design guidelines, which are intended to aid in the development of infill housing that is compatible with the existing neighbourhood context.

While the focus of this study is on the development of infill housing design guidelines for the City of Winnipeg, it was important to explore the full spectrum of issues and potential policy responses to gain a solid understanding of the subject matter. In addition, the development of infill guidelines is one piece of a much larger puzzle and is certainly not sufficient, on its own, to promote infill development on a large scale in the city. Ultimately, a comprehensive strategy made up of numerous responses would be most effective in encouraging infill housing and promoting compatibility.

The next section of this study builds on the literature review and further explore infill housing design guidelines specifically, ultimately working towards the development of infill guidelines for the City of Winnipeg.

3.0 DEVELOPING INFILL HOUSING DESIGN GUIDELINES FOR THE CITY OF WINNIPEG

The literature review for this study presented infill housing guidelines as one of many strategies or tools at the disposal of local governments in order to encourage infill housing and promote development that is compatible with the existing context. The primary intent of this section is to build on the literature review and attempt to lay the foundation for the development of infill housing design guidelines for the City of Winnipeg. This section will attempt to answer the following questions:

- Why are infill housing design guidelines needed in Winnipeg? Is now the right time?
- What are the key issues in Winnipeg related to infill housing? What might guidelines look like in the city?
- What was the policy basis for the establishment of guidelines in other jurisdictions? What guidelines were developed?

This study utilized a number of approaches in order to answer the above noted questions: analysis of the Winnipeg market and existing policy environment; interviews with key informants; and the documentation of infill guideline precedents from other jurisdictions. The examination of the Winnipeg market and policy environment was intended to identify the need for infill guidelines in the city. The key informant interviews were conducted in order to identify key issues locally and determine what guidelines are most appropriate for the city, while the precedent documentation was intended to identify “best practice” guidelines from other jurisdictions.

3.1 Rationale for Infill Housing Design Guidelines in Winnipeg

There are two primary factors that illustrate and provide justification for the development of infill housing design guidelines in Winnipeg at this time: (1) a growing trend towards multiple family development and increasing opposition within established neighbourhoods towards infill housing, particularly when resulting in an increase in density; and (2) a policy environment that is favourable towards infill housing and the development of infill guidelines.

3.1.1 Multiple Family and Infill Activity in Winnipeg

The city of Winnipeg has experienced a growing trend in multiple family housing starts (semi-detached, row housing and apartments) in recent years. Historically, multiple family dwelling units have accounted for approximately 25 percent of total units constructed, with single-family dwellings accounting for the remaining 75 percent. However, since 2003 the number of multiple family units constructed in Winnipeg has increased substantially – accounting for 43 percent of total units constructed between 2003 and 2006 (see table 5 below). According to the Canada Mortgage and Housing Corporation (CMHC 2008a) a strong multiple family market is anticipated in Winnipeg for at least the next few years with greater than 1200 multiple family units anticipated annually to 2009. Looking out longer term, the Conference Board of Canada (2008) predicts a steady increase in demand for multiple family units to 2030 in Winnipeg. By 2030, the Conference Board of Canada predicts a 60/40 split in demand for multiple family and single family units in Winnipeg.

Table 5 – Building permits issues by the City of Winnipeg for single and multiple family dwelling units

Year	Single family		Multiple family		Total
	units	% of total	units	% of total	
1996	767	76.2%	240	23.8%	1,007
1997	883	71.4%	354	28.6%	1,237
1998	881	67.6%	493	37.8%	1,304
1999	850	75.4%	277	20.1%	1,127
2000	898	86.0%	146	14.0%	1,044
2001	937	72.6%	353	27.4%	1,290
2002	1,212	83.5%	239	16.5%	1,451
2003	1,319	59.7%	889	40.3%	2,208
2004	1,489	63.8%	846	36.2%	2,335
2005	1,474	67.7%	703	32.3%	2,177
2006	1,360	41.3%	1,929	58.7%	3,289

Source: City of Winnipeg, Planning Property and Development Department

While accurate and reliable figures regarding the quantity of lands with infill / intensification potential does not exist in Winnipeg, the draft Residential Land Supply Study (City of Winnipeg 2004) attempted to estimate this figure. According to the study, there were approximately 2328 infill lots in 2002. In addition, sites with redevelopment potential, such as the Fort Rouge Yards and the former Molson Brewery site offer additional infill / intensification potential.

There are a number of planning approvals that often accompany infill housing projects. This may include a rezoning, subdivision, conditional use and often several variances. These planning approvals trigger a process that allows for public input (public hearing) and ultimately a decision from council. Public hearings provide an opportunity for neighbourhood residents to oppose a project, which has frequently

resulted in lengthy and hostile approval process in Winnipeg. In some cases neighbourhood opposition has even resulted in the death of a project.

3.1.2 Policy Basis for Infill Guidelines

There are a number of important statutory documents that guide infill housing and provide policy basis for infill development and infill guidelines in Winnipeg. *Plan Winnipeg* is the City of Winnipeg's development plan – a statutory document which sets out the land use policy directions for long-term growth and development in the city, while taking into account important social, environmental and economic matters. While *Plan Winnipeg* supports infill development in Winnipeg through a number of policies, they are somewhat vague and lack depth and detail. Nonetheless, they provide support for infill development and justification for the preparation of infill housing guidelines.

The following are *Plan Winnipeg's* key policies related to infill development:

1B-01 Support Neighbourhood Revitalization

iv) Encouraging targeted private sector investment in neighbourhoods including the provision of infill housing and local services.

2B-02 Commit to the Reduction of Greenhouse Gas Emissions

i) Reducing the need for motorized transport through integrated planning and the promotion of compact urban form and mixed land use.

3A-02 Promote Compact Urban Form

iv) Encouraging infilling of vacant lands and the revitalization of existing neighbourhoods to maximize the use of existing infrastructure.
v) Supporting new development which is adjacent to and compatible with existing development and which is designed to minimize the spatial use of land.

3A-03 Integrate Land Use, Urban Design, and Transportation Planning

ii) Ensuring that all residential development supports the provision of efficient, attractive, and cost-effective transit service through appropriate design considerations.

3A-04 Protect Traffic Flows from Significant Increases

ii) Directing new development with high intensity uses to locations that are supported by transit operations.

Secondary plans – a second tier of plans that provide more detailed direction regarding the development and redevelopment of lands within a geographical area – are also important statutory documents that cannot be excluded from discussions surrounding infill development in mature neighbourhoods and the preparation of infill guidelines. The *North St. Boniface Area Structure Plan*, *Osborne Village Neighbourhood Plan* and *West Alexander and Centennial Neighbourhood Plan* are three relevant examples in Winnipeg. Secondary plans are typically developed with considerable community consultation and often contain policies regarding urban design and infill housing. Unfortunately, few secondary plans have been prepared for Winnipeg's mature neighbourhoods, heightening the need for infill guidelines to direct infill development in those neighbourhoods.

3.1.3 Summary

A strong multiple family / infill market, coupled with frequent NIMBYism in Winnipeg's established neighbourhoods has resulted in the urgent need for a tool that can guide the development of infill housing in existing neighbourhoods. Further, the policy environment in the City is amiable to the development of guidelines with support from Plan Winnipeg, the City's long range, visionary document. A lack of secondary plans to guide development at a neighbourhood scale also magnifies the need for infill guidelines to provide guidance in the absence of secondary plans. Ultimately, infill guidelines can be used as a tool for the development industry in designing an infill project and for

neighbourhood residents, city councillors and city planners in assessing the suitability of an infill proposal.

3.2 Preliminary Interviews: Infill Housing and Key Issues in Winnipeg

The following section discusses the findings from the preliminary interviews with key informants in Winnipeg – the development industry, city planners and city councillors.

The primary objective of the interviews was to: (1) identify major challenges and obstacles associated with infill development in Winnipeg; (2) identify opportunities to overcome these challenges and obstacles; (3) determine what makes a successful and unsuccessful infill project in Winnipeg; and (4) establish how infill development can be successfully integrated into existing neighbourhoods from the perspective of each stakeholder.

In May and June of 2008, a total of seven preliminary interviews were conducted with key informants. The interviews, which ranged from approximately 30 minutes to 60 minutes in duration, made use of a set of standardized questions that were developed prior to the interview process (see Appendix A). These questions were intended to provide a starting point to generate discussion with each informant. A semi-structured approach was utilized for the interviews, which allowed the flexibility to deviate from the standardized questions and provided an opportunity for greater interaction between the interviewer and participant. Each informant brought a different perspective to the discussion, and while the same standardized questions were initially used to generate discussion with each stakeholder, additional questions were later asked that flowed from the discussion. For example, when several informants from the development community were asked to discuss the major barriers to the development of infill housing, the

regulatory environment was identified. This triggered questions from the interviewer regarding how guidelines may be perceived from the development community and if they were of the opinion that guidelines would further complicate the process. City councillors and planners did not identify this as a major barrier to the development of infill housing and consequently, there was no follow up question regarding this matter from the interviewee.

Below is a discussion of the key issues identified by informants from the development industry, city planners and city councillors.

3.2.1 Development Industry

The development community is typically responsible for many aspects associated with making an infill project a reality – land acquisition, project design, obtaining necessary development approvals, etc. In total, three informants were interviewed from the development community who had experience in developing / designing infill housing projects in Winnipeg. An effort was made to select informants with varying backgrounds and roles in the development process. For example, one of the informants practiced as an architect and had a strong background in designing infill projects, another one of the informants had considerable experience in the financial aspects of infill and greenfield multiple family projects throughout the city, and the other informant had experience in project managing a wide range of housing developments, ranging from medium-scale infill projects to large-scale greenfield developments.

While a number of concerns and / or barriers to the development of infill housing were identified by all three informants, opposition to infill projects from existing neighbourhood residents was by far the most pronounced. In many cases, existing

residents have opposed new infill projects – particularly ones proposing an increase in density – resulting in a lengthy and often frustrating review and public hearing process before approval. Developers were most concerned that many residents lack an understanding of what makes a compatible infill project and as a result will oppose virtually everything. For this reason, developers in Winnipeg are often reluctant to pursue infill development opportunities. One developer was quoted as saying:

Infill is great. It's great for the environment, great for the neighbourhood and great for the city as a whole. People just don't like it next to them. It's just often not worth the trouble for us to do it.

In order to overcome this barrier, informants from the development community noted that ensuring that infill is compatible with existing development is important in gaining neighbourhood acceptance. This is particularly the case in terms of the perceived height and width of new housing. It was noted that a well designed project that respects or compliments the adjacent properties and neighbourhood as a whole is somewhat more likely to be supported by the community. Further, developers noted that consultation with community members early in the development process can reduce nasty conflicts later in the process.

Informants also noted development costs and the affordability or price point of units as a primary concern when developing an infill project. It was stressed that the key to a successful infill project is ensuring that the selling price is in line with single-family homes elsewhere. This is often difficult to accomplish as a result of a more complex development process and the many required development approvals. Consequently, a number of developers displayed minor trepidation towards infill housing guidelines as they may add another layer of complexity. However, there was the recognition that if done well, guidelines have the potential to create an environment with a greater level of

certainty, which may improve the development process. This can be accomplished if planners and decision-makers use the guidelines consistently and predictably.

Developers also noted that guidelines in Winnipeg should be performance based and avoid detailed regulations, minor design elements and personal taste or preference. Performance based guidelines are preferable as they allow for flexibility and creativity in the design of new infill. One informant was quoted as saying:

I think design guidelines are a great idea, as long as they don't tell me how to do every little thing. I don't want some architect telling me what colour my building has to be.

3.2.2 City Planners

City planners are typically responsible for assessing development proposals and formulating professional recommendations regarding their suitability. In total, two planners from the City of Winnipeg, Planning, Property and Development Department were interviewed for this project. Both of these individuals were district planners who managed development applications for areas of the city with a number of existing neighbourhoods that have experienced infill housing / residential intensification in recent years.

Both planners stressed that infill development, if done appropriately, has the potential to positively contribute to mature neighbourhoods and the city as a whole in the following ways:

- increase in housing choices;
- increase in population to support neighbourhood commercial development; schools and community centres;
- more efficient use of existing infrastructure;

- developing animated and safe streets and open spaces.

According to these planners, the most critical element to a successful infill project is its compatibility with adjacent properties and the neighbourhood as a whole. Infill development that results in an increase in density is often negatively viewed by neighbourhood residents. Increased traffic, loss of privacy and decreased property values are of particular concern. These concerns are exceptionally apparent in neighbourhoods that are predominantly single-family. As a result, planners expressed the importance that infill assumes the scale and appearance of adjacent development in order to gain acceptance from the community. Compatibility can also be achieved through appropriate site planning, setbacks that are consistent with adjacent development and appropriate roof forms, building materials and window / balcony placement. Ensuring that new development does not have negative impacts on the privacy of adjacent properties (balconies overlooking adjacent yards, windows facing each other, etc.) was also cited as being extremely important.

Planners also noted that new development should positively contribute to the streetscape and walkability of an area. New development should ensure that parking is screened, broken up and / or located underground if possible in order to minimize its negative aesthetic effects and impact on the pedestrian environment. Planners also noted that new development should connect with the street, rather than turn its back. Overall, planners felt that there needed to be a balance between automobiles, pedestrians and other modes of transportation.

The natural environment and open space were cited by planners as critical elements to a successful infill project. Infill should consider ways of minimizing its

impact on the environment through the use of environmentally sustainable practices – for instance green roofs, geothermal, solar orientation, maintaining existing trees. In addition, they stressed the importance of incorporating open spaces and pedestrian pathways into the design of a project. These spaces should be functional, safe and designed in a manner that encourages social interaction.

3.2.3 City Councillors

City councillors are ultimately the decision-makers and are responsible for approving development proposals. In total, two councillors from Winnipeg were interviewed for this project. The councillors that were selected to participate were chosen because their wards contain a wide range of established neighbourhoods that have recently experienced residential intensification pressures.

Both councillors indicated that NIMBY syndrome was the primary barrier to the development of new housing in established neighbourhoods, particularly when an increase in density is proposed. Often neighbourhoods rally against a proposal at public hearing, causing significant delays and in some cases, quashed projects. According to councillors, ensuring that infill development is compatible with adjacent development is the most effective way of overcoming this barrier. Of particular importance is making sure that infill respects the character of mature neighbourhoods. Appropriate scale / massing and ensuring that new development does not intrude on the privacy of adjacent properties is of particular importance. One councillor was quoted as saying:

Lots of people see the benefits of infill housing, they just don't want it next to them, especially if it doesn't look like it fits in.

Councillors also noted walkability as another important factor associated with infill development. Councillors argued that infill should connect with the street by ensuring that the building is oriented towards the street and if possible has windows and / or balconies that provide passive surveillance. Generally speaking, infill development should contribute to a safe, attractive and accessible pedestrian environment. One councillor stated:

There's nothing worse than a building turning its back on the street, especially when it's a pedestrian friendly street.

Finally councillors noted sustainability as another important consideration when designing an infill project. This includes embracing green building practices and preserving existing trees to the greatest extent possible. For example, one councillor was quoted as saying:

Infill guidelines are a great opportunity for us to nudge developers towards thinking green....green roofs, geothermal....just to get them thinking more about that stuff. There's lots of opportunity there.

3.2.4 Summary

While the key informants interviewed for this study are from different backgrounds, there was general concurrence regarding the key issues associated with the development of infill housing in Winnipeg. Each informant agreed that infill housing has the potential to significantly benefit neighbourhoods and the city as a whole, but that it also possesses some considerable challenges and barriers. In every case, opposition to infill projects from neighbourhood residents was cited as the most considerable barrier. Discussion with key informants also revealed three common themes related to the development of infill housing design guidelines: (1) the importance of compatibility between infill and

the neighbourhood; (2) an emphasis on enhancing the pedestrian environment; and (3) embracing environmentally sustainable practices.

Compatibility was stressed by the development community and particularly planners and councillors as the most important element of a successful infill project. It was argued that building design and site planning that is sensitive to the existing neighbourhood context will be more likely to gain acceptance from neighbourhood residents and avoid costly delays during the development approval process. The most commonly mentioned consideration was the scale of development, which informants argues should assume the appearance of adjacent properties. In addition, informants noted that maintaining the privacy of properties located adjacent to an infill project is important in ensuring compatibility.

Promoting an environment that is amiable to pedestrians and positively contributes to the walkability of an area was of considerable value to developers, planners and councillors. Informants noted that many established neighbourhoods are walkable and have a well-defined streetscape pattern, which is important to maintain and reinforce. The general objective is to promote an environment for pedestrians that is safe, attractive and accessible and that promotes a balance between motorized and non-motorized modes of transportation.

Sustainability was also commonly noted by key informants as an important consideration with infill development. Infill guidelines were positively viewed as a tool to promote “green” concepts and practices. Maintaining existing trees and vegetation, as well as incorporating green elements (green roofs, geothermal, passive solar design, etc.) into new buildings was viewed extremely positively.

3.3 Precedent Documentation: Looking to Other Places

The following section discusses the four precedents selected for documentation: Ottawa, Ontario; Richmond, British Columbia; Seattle, Washington; and Toronto, Ontario. The primary intent of the precedent documentation was to determine the policy basis for the establishment of infill guidelines and to identify “best practice” guidelines from each jurisdiction. These best practice guidelines would then provide a starting point for the development of guidelines for this study.

Each precedent was selected for further analysis because it exhibited qualities or characteristics similar to the Winnipeg context and / or possessed an inherent trait that was valuable in developing guidelines for Winnipeg. The City of Ottawa provides one of the most recent examples of infill guidelines from the perspective of a modestly sized, Canadian city. Ottawa is also home to many single-family neighbourhoods facing intensification pressures and the guidelines focus specifically on medium density housing. Richmond’s guidelines contain a wide range of design elements focusing specifically on multiple family infill and the city is home to a number of neighbourhoods that are predominantly single-family. In addition, Richmond is a modestly size Canadian city with a similar political context to Winnipeg. Seattle’s design review program and their accompanying design guidelines are among the most sophisticated and comprehensive in North America. While the city is contextually much different than Winnipeg, the wide range of design elements focusing specifically on multiple family infill makes it extremely valuable. Toronto provides an example of design guidelines that are somewhat more prescriptive in nature and deal specifically with townhouse development – a popular form of medium density housing. While Toronto is much

larger than Winnipeg, it is home to a wide range of neighbourhoods experiencing intensification pressures and contains a similar political environment.

The following section discusses the policy basis for the establishment of infill guidelines in each jurisdiction and summarizes each section of guidelines within the infill guideline documents.

3.3.1 Ottawa

3.3.1.1 Overview / Policy Basis

The City of Ottawa is the capital of Canada and the country's fourth largest city with a population of 808,391 (CMA population of 1,146,790). The city is located 350 kilometres northeast of Toronto and 165 kilometres west of Montreal and is part of the National Capital Region.

In May of 2003, Ottawa City Council adopted *Ottawa 20/20* as the City's Official Plan. Embedded within the plan is a growth management strategy that encourages residential intensification within the built up area. Section 2.5.1 of the Official Plan describes that intensification within mature neighbourhoods requires a sensitive approach. The *Infill Housing Design Guidelines* (Ottawa, 2005) were developed to help fulfil some of the design strategies as outlined in the Official Plan and to assist developers, designers and property owners in creating well-designed residential infill that integrates harmoniously into the existing neighbourhoods.

3.3.1.2 Guideline Elements

Ottawa's *Infill Housing Design Guidelines* deals with four broad categories that are relevant to this project: public streetscapes, building design / built form, parking and garages, and service elements.

Public Streetscapes

Public streetscapes or the public realm typically refer to exterior public spaces, such as streets, sidewalks, boulevards, back lanes and parks. Ottawa's guidelines encourage infill development that contributes to the character of public spaces, creating public streetscapes that are attractive for pedestrians, cyclists, transit riders and automobiles through five key considerations: (1) new infill should emphasize the ground floor and building façade; (2) landscaping patterns should be consistent with established landscaping and mature trees should be retained; (3) landscaping should be used to create a sidewalk edge; (4) new streetscape patterns should enhance or compliment the existing pattern; and (5) pedestrian scale lighting and decorative paving should be used to enhance the pedestrian environment.

Building Design / Built Form

Ottawa's guidelines also consider a buildings design and built form through careful attention to its siting, mass and height, facade and architectural style. The primary objective is to ensure that the design and form of new development is compatible with existing development through five key considerations: (1) careful attention should be paid to local lot sizes and patterns of development, including rooflines, placement of doors, windows and balconies, projections and recesses, building materials, height, scale, mass and setbacks; (2) buildings should be sited in a manner that respects the privacy of

adjacent properties; (3) techniques should be used to mitigate the perceptions of mass and height; (4) sustainable measures, such as green roofs and passive solar design should be considered; (5) public entrances should encourage “eyes on the street” and dominate the streetscape as opposed to the garage.

Parking and Garages

Ottawa’s guidelines also consider parking and garages and their impact on streetscapes and the pedestrian environment through four key considerations: (1) the amount of paved area and curb cuts should be minimized; (2) parking should be relegated to the rear of buildings when rear public lanes exist; (3) garages should not dominate the façade of a building; and (4) surfaces with a greater degree of permeability should be encouraged.

Service Elements

Ottawa’s guidelines aims to reduce the impact of service elements on streets and open spaces through two key considerations: (1) locate service elements in non-prominent locations; and (2) incorporate service elements into the design of new development and appropriately screen these elements without interfering with pedestrian and vehicular circulation.

Summary

Generally, the content of Ottawa’s infill guidelines captures the dominant themes that emerged from the key informant interview process for this project. Ottawa’s *Infill Housing Design Guidelines* place a strong emphasis on two key elements – compatibility and the pedestrian environment, which were also strongly emphasized during the key

informant interviews. Through careful attention to scale, mass, rooflines, building materials, setbacks, landscaping and existing patterns of development, the guidelines provide a framework to ensure that new infill development can integrate harmoniously into existing neighbourhoods. In addition, the guidelines encourage high quality public streetscapes that enrich the pedestrian experience. The guidelines ultimately aim to encourage an environment where automobiles, cyclists and pedestrians can ultimately exist harmoniously.

While not as dominant of a theme as compatibility or the pedestrian environment, Ottawa's guidelines place a considerable emphasis on sustainability and the natural environment, which also emerged as key theme during the key informant interviews. For example, the guidelines encourage green roofs, retaining existing trees, design that capitalizes on solar orientation, and limiting the use of permeable surfaces.

Overall, Ottawa's *Infill Housing Design Guidelines* present a relatively non-prescriptive approach, which encourages new development to fit within its physical context and work well within its surroundings. While they certainly do not encourage infill to copy or mimic existing development, they provide a framework for new development to fit and work well in existing neighbourhoods, while at the same time encouraging a safe and positive pedestrian environment and contributing to environment sustainability.

3.3.2 Toronto

3.3.2.1 Overview / Policy Basis

Toronto is located on the north-western shore of Lake Ontario and is the Provincial capital of Ontario. With a population of roughly 2.5 million people (5.5 million CMA population), Toronto is Canada's largest city (Toronto 2008). In 1998, the City of Toronto, as it functions today, was created following the amalgamation of six municipalities - Toronto, North York, Scarborough, Etobicoke, East York and York (Toronto 2004).

In November of 2002, the newly amalgamated City of Toronto adopted *Toronto Plan* (Toronto 2002), the City's Official Plan and long-range visionary document. Embedded within *Toronto Plan* is a commitment to both residential intensification and urban design guidelines. *Toronto Plan* embraces an urban village strategy, which intends to direct new growth to the Centres, Avenues, Employment Districts and Downtown. The Plan's focus on residential intensification resulted in an increased need to ensure the compatibility of new development and hence the importance of design guidelines and other design control mechanisms. Consequently, design guidelines are considered an important piece of *Toronto Plan's* overall implementation strategy.

The commitment to design guidelines resulted in the development of two primary types of guidelines within the Greater Toronto Area; district / area based guidelines and citywide guidelines. Thus far, 45 district / area based guidelines (Toronto 2008a) have been developed that provide design guidance for a specific site or geographic area. In addition, four citywide guidelines have been developed that are applicable throughout the city as a whole. This includes guidelines for sites with drive thru facilities, tall buildings, greening surface parking lots, and more importantly for this analysis, infill townhouses.

Townhouses can be defined as low-rise residential units that share a common wall and are grade-related (Toronto 2003). While the majority of the GTA's housing starts remain single-family and apartment units, there had been a growing interest in townhouse development leading up to the development of Toronto's *Infill Townhouse Design Guidelines*. The primary intent of the guidelines was to encourage new townhouse development that fits well within its context and enhances the streetscape. The guidelines were designed to aid the development community in designing projects and planners and residents in assessing infill townhouse proposals.

3.3.2.2 Guideline Elements

The *Toronto Infill Townhouse Urban Design Guidelines* document is divided into four primary sections; streets and open space, building location and organization, building form, and a comfortable environment for pedestrians.

Streets and Open Space

Streets and open spaces are a major consideration within Toronto's *Infill Townhouse Design Guidelines*, with a focus on three key considerations: (1) new townhouse development should use existing streets and connect with adjacent development in a manner that is safe and accessible for pedestrians and automobiles; (2) open spaces associated with new townhouse development should work with the existing topography and natural attributes of the site, while encouraging safety through passive surveillance; and (3) walkways associated with new townhouse development should create extensions of existing public sidewalks, connecting pedestrian routes to adjacent developments in a safe and accessible manner.

Building Location and Organization

Toronto's guidelines considers building location and organization as an integral factor associated with infill development and contains three key considerations: (1) the main façade should be parallel to the street and inline with adjacent properties; (2) balance the demand for parking with the need to preserve the neighbourhood character; (3) minimize the impact of servicing utilities through careful attention to their placement and the use of screening.

Building Form

Built form is a major consideration within Toronto's guidelines, with a focus on three key considerations: (1) street proportions should be considered through adequate separation and transitions between buildings; (2) new development should use the natural grade; and (3) new development should ensure light, views and privacy conditions through appropriate separation distances.

A Comfortable Environment for Pedestrians

Toronto's *Infill Townhouse Design Guidelines* aim to foster a safe and comfortable environment for pedestrians through a number of key elements: (1) streetscape improvements, including plantings, paving and lighting; (2) ensure pedestrian safety through passive surveillance, adequate lighting and minimizing the potential for automobile/pedestrian conflicts.

Summary

Overall, Toronto's *Infill Townhouse Design Guidelines* addressed the three key themes that emerged from the key informant interview process for this study – compatibility, the pedestrian environment and environmental sustainability. The general purpose of the guidelines in Toronto is to clarify the City's interest in addressing development impacts, with a focus on protecting streetscapes and ensuring the compatibility of new development within existing housing patterns.

Punter (1999) argues that there are two primary types of guidelines – those that prescribe a form of development and those that are less prescriptive or performance based, as discussed earlier. Overall, Toronto's *Infill Townhouse Design Guidelines* embrace elements characteristic of both types of guidelines described by Punter. On one hand, they encourage consideration of the many design and compatibility issues associated with new development and demonstrate to applicants what is expected of their projects. On the other hand, there are many instances where guidelines are restrictive, prescribing specific dimensions or conditions.

3.3.3 Seattle

3.3.3.1 Overview / Policy Basis

With a population just over half-a-million people (3.8 million in the CMA) Seattle is the industrial, financial and service centre of the Pacific North-West and is continually rated among the most liveable cities in the United States (Punter 1999).

In response to growth pressures, the State of Washington passed a Growth Management Act (GMA) in 1990, which required local governments to adopt comprehensive plans (Washington 1990). Consequently, the City of Seattle began work

on its first comprehensive plan, entitled *Comprehensive Plan: Towards a Sustainable Seattle*, which was adopted in June of 1994. The Plan was primarily based on three values: stewardship of the environment, promotion of economic opportunity and an equitable distribution of costs and benefits. The centrepiece of the comprehensive plan was an urban village strategy, which intended to direct 80 percent of new growth into five urban centres, four hub urban villages, 17 residential urban villages and 26 neighbourhood anchors (Seattle 2004).

During the planning process, a design review program for the City of Seattle was developed. At the centre of the program is *Design Review: Guidelines for Multi-family and Commercial Buildings*, designed in large part to ensure consistency and predictability in the review process. Equally important, the guidelines were also intended to protect the character of existing urban villages and neighbourhoods.

In tandem with the design guidelines the city developed a series of design review boards. These entities review projects in one of the seven geographical districts of the city. Each board has five members that are chosen to represent the players in the development process - design professionals, the development industry, local residential representatives, and members from the local business community (Seattle 2007). The intent of the City of Seattle's design review program is to provide a forum for citizens, developers and the City to review and guide the design of qualifying commercial and multiple family development projects.

In order to provide a greater degree of predictability to developers, designers and the general public, as well as ensuring consistency in the design review decision-making process, the *Design Review: Guidelines for Multi-family and Commercial Buildings* document was used, which was later supplemented by *Design Review: Guidelines for*

Downtown Development and 18 neighbourhood specific guidelines. Proponents of all projects exceeding a predetermined threshold are required to present their design proposals to the Design Review Board at a minimum of two public meetings as part of the Master Use Permit (MUP) process. The board holds at least one early design guidance meeting, followed by at least one recommendation meeting after submittal of the full MUP application (Seattle 2007).

3.3.3.2 Guideline Elements

Seattle's *guidelines* deal with five broad categories of design elements; site planning; height bulk and scale; architectural elements, expression and materials; pedestrian environment; and landscaping.

Site Planning

According to Seattle's guidelines, site planning refers to the organization of a project's components, including the siting of a building, as well as the location of features, such as service areas, open space and parking lots. The guidelines consider 10 key aspects of site planning: (1) the siting of buildings should respond to site characteristics, such as topography, lot configurations, natural features and views; (2) new development should respect the existing streetscape patterns; (3) front entries should be visible from the street; (4) new development should encourage street-life and eyes on the street; (5) the design of new buildings should take into account adjacent properties in order to minimize intrusion; (6) new buildings should provide an appropriate transition between the building and sidewalk in order to ensure safety, privacy and social interaction; (7) new development should maximize opportunities for functional open spaces; (8) Parking and

vehicular access should not negatively impact the pedestrian environment and adjacent properties; (9) parking fronting on major streets should be minimized; and (10) buildings on corner lots should be oriented to the corner.

Height, Bulk and Scale

The guidelines consider a number of design elements related to height, bulk and scale. Generally, the height, bulk and scale of a new development should be compatible with development in the surrounding area and be cognizant of adjacent zones that are less-intensive. Use of similar roof forms, reducing the bulk of the building's upper floors and increasing a building's setback are some mitigation measures intended to ensure a more appropriate fit.

Architectural Elements and Materials

Architectural elements, including roofs, windows, porches, materials, balconies, etc, is a major consideration in Seattle's guidelines, with five key considerations: (1) new buildings should be compatible with or compliment the existing neighbourhood context in terms of articulation, scale, style, roof forms, fenestration and building materials; (2) building design elements and massing should create a well-proportioned and unified building and exhibit an overall architectural concept; (3) new buildings should be built to human scale; (4) exterior materials should be attractive and of high quality; and (5) the presence and appearance of garage entrances should be minimized.

Pedestrian Environment

In order to create an environment for pedestrians that is attractive, comfortable, safe and vibrant, seven key aspects of the pedestrian environment are considered in Seattle's guidelines: (1) convenient, safe and attractive access should be provided with new development; (2) blank walls should be avoided or treated with art, landscaping, etc; (3) retaining walls should be designed to reduce their impact on the pedestrian environment; (4) parking lots adjacent to sidewalks should pay careful attention to their impact on the pedestrian environment; (5) the visibility and impact of at-grade parking structure should be minimized; (6) servicing elements should be located away from sidewalks or adequately screened; and (7) the design of new development should consider personal safety and security.

Landscaping

The guidelines consider three broad aspects of landscaping: (1) landscaping should reinforce the character of adjacent properties and streetscapes; (2) landscaping should be incorporated into new developments in order to enhance the project; (3) landscaping should consider conditions, such as view corridors, existing trees and steep slopes.

Summary

The purpose of Seattle's *Design Review: Guidelines for Multi-family and Commercial Buildings* is to ensure that new development in established neighbourhoods is compatible with the existing context. Seattle's citywide guidelines complement the Land Use Code and require developers and designers to think about the site and its surroundings.

Through a focus on site planning, scale, architectural elements, the pedestrian

environment and landscaping, the guidelines are meant to encourage the consideration of site-specific conditions and result in buildings that complement and enhance the adjacent properties and the neighbourhood as a whole. These principles embedded within Seattle's guidelines were very much in-line with the themes that emerged from the key informant interview process for this project.

Like Ottawa, Seattle's guidelines present a relatively non-prescriptive approach. Through the use of examples, the guidelines provide applicants with ideas and expectations of how their projects can fit and work well within its context.

3.3.4 Richmond, British Columbia

3.3.4.1 Overview / Policy Basis

Richmond, British Columbia is located on Canada's west coast within the Greater Vancouver Regional District and is home to approximately 185,000 people. In 1999, the City of Richmond adopted its *Official Community Plan*, a visionary document, intended to guide development to the year 2021. A major focus of the Plan was a growth management strategy that aimed to protect agricultural lands, concentrate growth in the city centre and retain the character of existing neighbourhoods (Richmond 2003a).

Built into the City's Official Community Plan are a number of Development Permit Guidelines, including guidelines for multiple-family buildings. The primary intent of these guidelines was to ensure that new development is carefully integrated into existing neighbourhoods.

3.3.4.1 Guideline Elements

The City of Richmond's Multifamily Guidelines are broken up into 15 categories which are summarized below:

Circulation System

Richmond's guidelines intend to ensure that automobiles and pedestrians can coexist harmoniously through the appropriate placement of vehicular access points and pedestrian paths.

Building Scale and Form

Richmond's guidelines considers a number of key design elements related to building scale and form: (1) new development should ensure adequate access to sunlight; (2) new development should be mindful of privacy issues with adjacent development; and (3) the scale of new development should be compatible with adjacent properties and utilize design and detailing to reduce the apparent scale if necessary.

Pedestrian Oriented Streetscapes

Richmond's guidelines intend to give prominence to the pedestrian realm through a number of guidelines: (1) new development should ensure pathways are functional, safe and accessible; (2) transition zones should be provided between buildings and sidewalks; (3) streetscapes should animate the street and new development should be built to human scale; and (4) yards should be open and inviting, with fences that are not overbearing and landscaping that defines the street edge.

Roofscape

Richmond's guidelines encourage a variety of roof forms in order to provide interest, reduce mass, create a transition in height and express a traditional residential form.

Entrances, Stairs and Porches

Richmond's guidelines encourage entrances associated with new development to front public streets and provide clear and safe access at grade level. In addition porches are encouraged and should be integrated into the building's façade.

Windows and Skylights

Richmond's guidelines encourage the placement of windows and skylights in a manner that respects the character of the neighbourhood and maximizes light / solar gain and views.

Materials

Richmond's guidelines encourage the use of materials that are considerate of the local climate and are visually interesting.

Landscaping

A key consideration within Richmond's multifamily guidelines is landscaping.

Wherever possible, special attention should be paid to the preservation of mature trees and existing vegetation. In addition, landscaping should be used to provide a transition between developments and screen parking and service elements.

Amenity Space

Richmond's guidelines clearly outline the minimum requirements for indoor and outdoor amenity space for projects greater than three units in size. They also provide locational guidance for outdoor amenity space – they should be barrier-free, take advantage of sunlight and should be consolidated as opposed to scattered.

Parking

Parking is a consideration within Richmond's multifamily guidelines and aims to minimize the impact of automobiles on the landscape. The guidelines encourage locating parking in non-prominent locations, screening parking and ensuring a pleasant environment for pedestrians.

Lighting

Adequate lighting should be provided in order to increase night time safety, but should ensure that spillover onto adjacent properties is minimized.

Services

Richmond's guidelines provide clear requirements for garbage, recycling and other service elements for the convenience of residents.

Security

Richmond's guidelines encourage eyes on the street in order to increase safety. In addition, all exterior spaces should be defensible so that people can control their surroundings.

Acoustics

Traffic noise should be mitigated using a number of measures, such as screening, careful site layout, setbacks, etc.

Universally Accessible Housing

Richmond's guidelines also encourage the inclusion of universally accessible units in all multifamily development in order to ensure opportunities and choices for people who are differently-abled.

Summary

Richmond's multiple-family guidelines place a strong emphasis on compatibility – ensuring that new multiple family developments are carefully integrated into existing neighbourhoods. This is primarily accomplished through careful attention to built form and site planning. While not as dominant of a theme as compatibility, Richmond's guidelines also place a considerable emphasis on the pedestrian environment, safety and the natural environment. These three themes were in-line with the dominant themes that emerged from the key informant interview process for this study – compatibility, pedestrian environment and environmental sustainability.

Richmond's guidelines present a blend of prescriptive and performance based guidelines that encourage the integration of new multiple family developments into

mature neighbourhoods. On one hand, they encourage the consideration of many design and compatibility issues associated with new development and demonstrate to applicants what is expected of their projects. On the other hand, there are many instances where guidelines are restrictive, prescribing specific dimensions or conditions. For example, the guidelines contain specific regulations related to minimum plantings and spacing. They also contain specific dimensions with respect to minimum indoor and outdoor amenity space, pedestrian pathways and transition zones. Overall, the level of prescription is highly appropriate and does not stifle creativity and / or originality.

3.3.5 Precedent Summary

As discussed earlier, there are four primary reasons why a jurisdiction would develop infill housing guidelines: (1) to determine what neighbourhood residents value and determine their expectations for new development, (2) to promote infill development that fits into the existing neighbourhood context, (3) to promote connectivity between the infill project and the neighbourhood as a whole, and (4) to promote high quality development (MRSC 1997). In each of the precedents documented for this project, the primary objective in developing the guidelines was to ensure that new development complements and is compatible with existing development and is well connected to the larger neighbourhood. More often than not, there is also a focus on determining what the communities' expectations are for new development and generally raising the quality of development within the city. While there is a greater emphasis on compatibility, all four of the goals of infill housing guidelines, as presented by the MRSC are embedded within the goals of each jurisdictions infill guidelines.

The documentation of infill guidelines precedents also revealed a number of very powerful common themes. In all four precedents, the guidelines strongly focused on built form and the compatibility of new development with adjacent properties and the neighbourhood as a whole. This was very much in-line with the dominant themes that emerged from the key informant interviews conducted for this project. Guidelines paid careful attention to compatibility of scale, mass, rooflines, building materials, setbacks and landscaping. While not as prevalent as compatibility, the pedestrian environment also emerged as a common focus in each of the four precedents. For the most part, guidelines aimed to encourage walkability and an environment that is amiable to pedestrians. Ultimately, the guidelines intended to create an environment where automobiles, cyclists and pedestrians can exist harmoniously. The natural environment and sustainability also emerged as a common theme amongst the precedents, though not as prevalent as compatibility and the pedestrian environment. Each guideline document promoted the preservation of mature trees and existing landscaping, and in some cases, encouraging passive solar design and green building technologies.

The level of prescription differed amongst the four guideline precedents. As discussed earlier, Punter (1999) argues that there are two primary types of guidelines – prescriptive and performance based. Overall, Toronto's *Infill Townhouse Design Guidelines* were the most prescriptive. While some guidelines provide developers with the flexibility to produce creative solutions, others are very prescriptive. In many instances, guidelines prescribe very specific dimensions or conditions, leaving little room for creativity on the part of the developer. On the other end of the spectrum, Seattle and Ottawa's guidelines were highly performance based, providing many examples of how

things could be accomplished, but leaving design solution in large part up to the developer.

3.4 Summary

The research conducted for this section of the project – an investigation of development activity in Winnipeg and an examination of the existing policy environment in the city, interviews with key informants, and a documentation of infill guidelines in other jurisdictions – provides a foundation for the development of infill housing design guidelines in Winnipeg.

An examination of the current environment in Winnipeg reveals that there has been a renewed interest in multiple family housing / infill development in the city. Plan Winnipeg, while somewhat lacking in detail, provides support for infill development and the preparation of infill guidelines. However, the increased interest in infill / residential intensification has resulted in considerable NIMBYism in Winnipeg's established neighbourhoods resulting in significant project delays and in some cases quashed projects.

Interviews with key informants uncovered some of the key issues associated with the development of infill housing in Winnipeg's established neighbourhoods. These interviews were paramount in connecting the study to the local context.

The precedent documentation revealed some of the many similarities and differences that infill guidelines in other jurisdictions possess. It also allowed for the identification of "best practice" guidelines which aid in the development of guidelines in Winnipeg.

The interviews and precedent documentations clearly identified three common and dominant themes: (1) compatibility; (2) walkability and the pedestrian environment; and (3) Environmental Sustainability.

Compatibility of infill projects with the existing neighbourhood was noted by informants as the most important factor in a successful infill project and it was believed that infill guidelines, if developed correctly, could promote more compatible development. Further, the infill guidelines documented for this project were all developed in order to promote development in established neighbourhoods that is compatible with the existing context and there was a strong compatibility theme that emanated from each document.

Key informants also identified the pedestrian environment as key area that infill guidelines should address. This was also a significant focus of the precedents documented for this project, particularly in the case of Ottawa and to the greatest extent, Seattle. In these instances, there was a considerable emphasis placed on creating environments that are amiable to pedestrians.

Finally environmental sustainability was noted by key informants as an important consideration associated with infill housing and guidelines should be used to promote this. While environmental sustainability was not as dominant of a theme as compatibility and the pedestrian environment within the guidelines of the precedents examined for this project, it was certainly a recurring theme within the guidelines.

4.0 DEVELOPING INFILL HOUSING DESIGN GUIDELINES AND KEY RECOMMENDATIONS FOR WINNIPEG

Thus far, the primary intent of the literature review, preliminary interviews and precedent documentations has been to develop a comprehensive understanding of infill housing, residential intensification and infill housing design guidelines, particularly related to the Winnipeg context. The next objective is then to link this information together and develop infill housing design guidelines, as well as provide recommendations for Winnipeg going forward.

4.1 Infill Housing Design Guidelines

The aim of this project has been to develop a draft set of infill housing design guidelines for the City of Winnipeg that would aid all stakeholders in the planning and development of compatible infill housing that contributes positively to its surroundings. **Please refer to Appendix C to view the draft infill housing design guidelines prepared for this project.** The guidelines consist of three categories: (1) Compatibility; (2) Walkability and the Pedestrian Environment; and (3) Sustainability. These categories represent the three dominant high-level themes that emerged from the preliminary interviews and precedent documentation.

Compatibility

The primary thrust behind the development of infill guidelines in most jurisdictions is to promote infill development that is compatible with the existing neighbourhood. The four guidelines documented for this project – Seattle, Toronto, Richmond and Ottawa – are certainly no exceptions. In each case, promoting infill housing that is compatible in

terms of building orientation, height, massing and architectural style are of particular importance. Interviews with key informants in Winnipeg reinforced compatibility as the key element to a successful infill project. One informant was quoted as saying:

What makes a successful infill project is one that looks beyond the site and considers what's next to it and what's within the neighbourhood.

For this project, the compatibility category is intended to promote infill housing that works well and fits within the existing neighbourhood context. This is particularly important when infill development is built at a higher density than adjacent development. The compatibility category consists of four sub-categories, the intent of each is briefly discussed below:

- Siting / Building Orientation – In many established neighbourhoods, there is a well defined pattern of development. Through the use of two key guidelines, the intent of this sub-category is to promote infill housing that respects the established development pattern in the neighbourhood and encourages development that positively contributes to the neighbourhood and pedestrian realm.
- Building Mass and Height – Multiple family infill is often taller and / or wider than existing development. This is particularly the case when multiple family infill projects are proposed in predominantly single-family neighbourhoods. Through the use of four guidelines, the primary intent of this sub-category is to encourage infill housing that is built to an appropriate scale.
- Architectural Style / Character – Many of Winnipeg's established neighbourhoods were constructed during the first half of the 20th century and have distinct traditional features, which are well established and valued. This is particularly the case with respect to building materials, roof forms, articulation, etc. This

category is intended to encourage infill that responds to prevalent architectural features of the neighbourhood without stifling innovation and creativity through three primary guidelines.

- Light, Views, Noise and Privacy – Multiple family infill projects, particularly when built adjacent to single family homes, have the potential to negatively impact these properties in many ways – light spillover, balconies / window overlooking adjacent yards, buildings blocking light / views, etc. are of particular concern. The intent of this category is to reduce the intrusion of new development on adjacent properties through the use of five guidelines.

Walkability and the Pedestrian Environment

While not a primary focus of the guidelines documented for this project, promoting walkability and an environment that is amiable to pedestrians is a major objective within all of the guidelines documented. Guidelines related to the pedestrian environment typically aim to promote a public realm that is both safe and attractive for pedestrians. The ultimate goal is to create an environment where automobiles, public transit, cyclists and pedestrians can exist harmoniously. Ensuring that the public realm is attractive and comfortable can encourage walkability, resulting in a greater sense of community and improved safety. This was also emphasized by key informants during the preliminary interviews. The walkability and the pedestrian environment category consists of five sub-categories which are briefly discussed below.

- Streetscape – In many established neighbourhoods, well-defined streetscape patterns exist. Through the use of four guidelines, the intent of this sub-category

is to promote an environment that is attractive for pedestrians and reinforces existing streetscape patterns.

- **Open Spaces and Pathways** – Open spaces and pedestrian pathways are important components of any neighbourhood. Through the use of four guidelines, this sub-category is intended to promote open spaces and pedestrian pathways that are logical and functional for users.
- **Safety and Security** – The orientation and design of a building has the potential to impact the safety of an area in a significant way. This is particularly the case with respect to the placement of windows and balconies, sightlines, lighting, etc. Through the use of six guidelines, this sub-category is intended to encourage the safety of public spaces through site planning and building design.
- **Service Elements** – Multiple family projects typically require garbage storage, utility boxes, transformers, air conditioner compressors, etc., which if placed improperly can negatively impact the pedestrian environment. The intent of this sub-category is to reduce the negative impact of service elements on the pedestrian environment through two main guidelines.
- **Parking and Site Access** – Multiple family projects typically require significant amounts of parking. Sometimes parking internal to the building is a viable option, but this is often not the case. As a result, large quantities of surface parking are often required on site, which can significantly impact the pedestrian realm. Vehicle access to parking, which typically require curb cuts, as well as parking ramps and garage doors also may impact pedestrians. This sub-category is intended to reduce the impact of automobiles and parking on the pedestrian environment through five key guidelines.

Sustainability

While the guidelines documented for this project did not explicitly promote sustainability, it was a common theme embedded within many of the guidelines. This was particularly the case with respect to green building practices and the retention of existing landscaping. Sustainability was also a common theme mentioned by key informants as an important consideration with infill development. Many informants were of the view that infill guidelines can be used, at the very least, to get developers to start thinking about what they can do to improve the sustainability of a project. Through the use of three primary guidelines, the intent of this category is to promote environmentally sustainable practices, such as passive solar design and green roofs, as well as the retention of existing landscaping and mature trees.

4.1.1 Follow-up Interviews

The following section highlights the findings from the follow-up interviews with key informants in Winnipeg. The primary intent of these interviews was to “test” the draft guidelines in order to ensure that the categories, sub-categories and guidelines are appropriate and that no key areas were neglected.

In August of 2008 a total of four interviews were conducted following the development of a draft set of infill guidelines, including one city councillor, one city planner, one designer and one developer. The interviews, which were approximately 30 minutes in duration, made use of a set of standardized questions that were developed prior to the interview process (see Appendix A). These questions were intended to guide discussion, however the semi-structured approach afforded the opportunity for

considerable interaction between the researcher and interviewees as discussion deviated from the initial questions.

Below is a discussion of the key issues identified by informants from the development industry, city planners and city councillors related to the draft set of infill guidelines developed for this project.

Compatibility

The informants interviewed during the follow up interviews reinforced the significance of compatibility and were pleased that it was addressed to the extent that it was within the draft guidelines. Informants were also pleased that the guidelines made use of many pictures and line drawings that showed how the guidelines may be followed. One informant was quoted as saying:

Words are great, but what's most effective is when people can actually see what they should or shouldn't be doing...these guidelines not only explain, but also show how to accomplish the guidelines.

Walkability and the Pedestrian Environment

Informants were also generally pleased that the guidelines aimed to encourage walkability and promote a balance between motorized and non-motorized transportation.

One informant was quoted as saying:

Plan Winnipeg speaks to encouraging pedestrian comfort and safety, but we often don't build in this way...these guidelines promote what our city vision says that we should be doing.

Sustainability

Informants interviewed for this project acknowledged that sustainability is one of the most important considerations going forward, not just with infill housing, but in every aspect of our lives. As natural resources become increasingly scarce and costly, a number of informants noted that we must pay more attention to how we build and make an effort to reduce our ecological footprint. It was thought that these guidelines would at the very least get the development community to think about more sustainable building practices.

Summary

Overall, the draft infill housing design guidelines were well received by the four informants interviewed during the follow-up interviews. There were very few concerns expressed by informants and they were generally satisfied with the draft set of guidelines. What was most pleasing, was that interviewees displayed considerable enthusiasm that the draft guidelines have the potential to promote more compatible and higher quality design or at least get the development community to recognize and consider certain important design elements. One informant was quoted as saying:

These guidelines, in my opinion are a great first step towards getting the development community to look beyond the site and consider what's next door and throughout the entire neighbourhood for that matter. While I don't think these guidelines will solve all of our problems, I can certainly see them helping quite a bit.

4.1.2 Potential Challenges and Anticipated Successes for Winnipeg

The primary intent of developing infill housing design guidelines in Winnipeg is to encourage infill housing in the city's established neighbourhoods that is compatible with existing development and positively contributes to the neighbourhood as a whole.

However, in developing, implementing and using these guidelines, there are a number of potential challenges, as well as anticipated benefits / successes, which are explored below.

Potential Challenges

Infill housing design guidelines in Winnipeg would certainly not come without challenges and criticisms. These potential roadblocks may include: (1) inconsistent use of guidelines by city administration and decision-makers; (2) difficulty in interpretation; (3) difficulty in determining an appropriate level of prescription; (4) negative perceptions that may accompany guidelines; (5) inadequate “buy in” from stakeholders; (6) lack of detail may make guidelines ineffective; and (7) guidelines may stifle creativity.

A key concern expressed by the development community is that guidelines may be used by city planners and decision makers inconsistently. The adoption of infill guidelines in Winnipeg will require city administration and decision makers to use the guidelines in a manner that is consistent and predictable. It was argued by one informant that decision makers occasionally “cherry pick” certain policies or guidelines to suit their needs. This informant was quoted as saying:

Councillors love to pull out Plan Winnipeg and dwell on certain policies when it helps their position...I can see the same situation emerging with infill guidelines...they'll make a big deal about certain guidelines only if they already have a strong position about a project and need to bolster their position.

Related to this challenge, there may be confusion on the part of key stakeholders regarding interpretation of the guidelines, as well as in determining how and when they apply. For example, interpreting guidelines, particularly when they are performance

based may be challenging. There is a clear difference between regulations, which are mandatory and more quantitative in nature and guidelines, which are strongly recommended and generally more qualitative. As a result, guidelines are somewhat more ambiguous and open to interpretation.

The level of prescription, as discussed earlier, is a key component in developing successful infill guidelines. Striking an appropriate balance between guidelines that are prescriptive, with a high level of detail and those that are performance based can be a challenge. For example, guidelines that are highly detailed may stifle creativity and innovation on the part of the designer, while guidelines that lack detail may be too vague and ambiguous. This was expressed as a key concern by informants from the development community interviewed for this project and was also prevalent within the literature that was examined.

Another potential challenge in developing and using infill guidelines in Winnipeg is overcoming negative perceptions that may accompany the guidelines, particularly amongst the development community. Infill guidelines may be viewed as an impediment to the development process, resulting in unnecessarily lengthy processes with negligible benefits. In reality, design guidelines have the potential to reduce conflicts with neighbourhood residents, which could significantly reduce project delays and costs. Informants from the development community were somewhat mixed on this front, citing their concerns with additional project requirements, but also acknowledging the potential for reductions in project delays related to neighbourhood opposition.

Receiving concurrence or a “buy in” from key stakeholders is also extremely important. In order for guidelines to be successful, it is critical that those who must use

them see their value. During the preliminary interviews for this project, one councillor was quoted as saying:

The most successful programs and initiatives are the ones that those who are affected have bought into.

Another challenge associated with design guidelines is that they are applied on a citywide basis. Consequently, some would argue that the guidelines lack the level of detail necessary to be effective at the block or community scale.

Finally, because infill guidelines promote compatibility, some would argue that they encourage development to mimic or copy existing development. This is particularly the case when guidelines are overly prescriptive. It is possible that the design community may view guidelines as restricting creativity and uniqueness. This point was emphasized by developers interviewed for this project and there was a concern that guidelines may dictate every detail, down to the colour of their buildings.

Anticipated Successes

Despite the anticipated challenges associated with infill housing design guidelines in Winnipeg, the research conducted for this project indicates that the development of guidelines could yield considerable dividends for Winnipeg going forward. These benefits may include: (1) improved compatibility; (2) a basis for decision making that is fair; (3) increased level of certainty / clear expectations of projects for developers / designers; (4) increased level of certainty for neighbourhood residents; (5) a tool for education; and (6) improved design.

As discussed throughout this paper, the primary objective of infill housing design guidelines is to improve the compatibility of new development in established

neighbourhoods. In Winnipeg, this is certainly no exception as infill guidelines would contribute to infill housing that is more appropriate within the site, block and neighbourhood which its proposed.

As discussed earlier, the City's zoning by-law contains very specific regulations with respect to setbacks, building height, etc. However, the zoning by-law contains very little language related to urban design and compatibility. As a result, in the absence of guidelines, City administration and decision makers have little basis with which to assess proposals in terms of their design and compatibility with adjacent development. The adoption of infill housing design guidelines in Winnipeg would provide the basis with which proposals could be assessed and decisions made.

With a clear framework with which to assess proposals and make decisions on a consistent and predictable basis, the development community is provided with clear expectations of their projects and an increased level of certainty. As discussed throughout this paper, a lack of predictability has been cited by the development community as a primary concern.

Infill guidelines, if consistently used by decision makers, will also provide an increased level of comfort to neighbourhood residents that their property values, personal investment and the character of their neighbourhood will be preserved. The guidelines developed for this project would promote infill development that is compatible with the existing neighbourhood context and that positively contributes to the neighbourhood as a whole.

Infill guidelines could also serve as a valuable resource for knowledge and capacity building amongst the general public regarding urban design and compatibility. Guidelines could empower and inform residents in assessing development proposals in

their neighbourhood and help them articulate what they believe to be appropriate design. Overall, infill guidelines could foster an urban design culture and elevate the level of discussion regarding infill development in established neighbourhoods.

Finally, infill guidelines have the potential to raise the bar in terms of the overall quality of urban design within the city. Infill guidelines could elevate the design consciousness of all stakeholders and get developers / designers to be more cognizant of important urban design issues not only internal to the site, but within the greater urban fabric.

While there are many potential challenges associated with infill housing guidelines in Winnipeg, they are not so great that they outweigh the benefits that guidelines would bring to the city. Further, there are a number of steps that can be taken to mitigate some of the anticipated challenges, as presented in the Recommendations section of this project.

4.2 Recommendations for Winnipeg

The aim of this project has been to develop a draft set of infill housing design guidelines for the City of Winnipeg that would aid all stakeholders in the planning and development of compatible infill housing that contributes positively to its surroundings. While the development of infill guidelines is a positive first step, there are a number of additional steps that the City should take in order to encourage the construction of infill housing and promote infill development that is compatible with the existing neighbourhood. The following set of recommendations, while certainly not exhaustive, are intended to

provide a starting point for the City of Winnipeg in overcoming some of the anticipated challenges associated with the development of infill housing design guidelines in Winnipeg and ensuring that the guidelines are successfully integrated.

1. Consult a Wide Range of Stakeholders Prior to Council Endorsement

One of the most important factors in making sure that infill guidelines are successful in Winnipeg is ensuring that a cross-section of stakeholders are involved in the development of guidelines from early on in the process. An ivory tower approach in which guidelines are developed by an individual stakeholder (i.e. planners) is unlikely to succeed. A collaborative process consisting of planners, developers / designers, councillors and community members would be most effective. Planners interviewed for this project argued that a good planning process is one that is collaborative and consultative and the development of infill guidelines for Winnipeg should certainly be no exception. An opportunity for public input through surveys, focus groups, open houses and / or workshops may prove useful in ensuring that a wide range of stakeholders are afforded the opportunity to participate in the guideline development process. While comments from some key stakeholders was incorporated into the development of the draft guidelines for this project, input from a much wider range of stakeholders must be integrated into guidelines that are eventually endorsed in Winnipeg and concurrence should be attained from these stakeholder groups.

The most logical starting point in developing infill guidelines in Winnipeg is to organize a working group consisting of a cross-section of key stakeholders. This group, led by a project manager (city employee) should work collaboratively towards developing draft guidelines. An opportunity for public input should not be overlooked.

Prior to the endorsement of these guidelines by Council and their eventual use throughout the city, the draft document should be circulated to key stakeholders for review. The potential list of stakeholders that should be involved in the process is considerable, and summarized in the table below.

Table 6 – Infill Guideline Development – Potential Stakeholders

	Potential Stakeholders
Development Community	Infill developers Project designers Development industry associations (i.e. Urban Development Institute)
Public / Community Stakeholders	Neighbourhood residents Community groups Neighbourhood associations
City Administration / Decision Makers	City councillors Board of adjustment members Current and long range planners Transportation planners Park planners CPTED specialists Universal design specialists

It is critical that these stakeholders are consulted in order to ensure that: (1) as many people as possible are provided the opportunity to contribute to the development of the guidelines and ensure that their concerns are addressed and input incorporated into the document; (2) stakeholders develop a sense of ownership of the guidelines; (3) stakeholders are aware of the guidelines and become familiar with them.

One of the greatest potential failures in developing infill guidelines in Winnipeg is excluding certain stakeholders from the guideline development process. Without

widespread consultation, it is less likely that guidelines will effectively capture the goals and expectations of the community. It is also less likely that stakeholder will “buy into” the guidelines if they are not involved in the process of developing them.

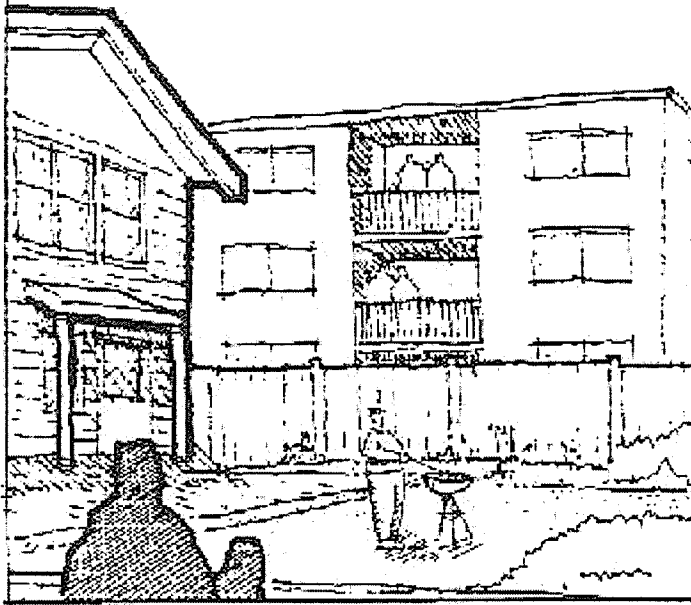
2. *Ensure that guidelines are properly communicated to the public*

While many of the potential users of infill guidelines in Winnipeg have a strong background in urban design, the majority are not familiar with sophisticated urban design terminology and concepts. This is particularly the case with neighbourhood residents attempting to assess the appropriateness of an infill proposal in their neighbourhood. Overcoming this language barrier was noted by a number of stakeholders as being somewhat challenging. In many cases, neighbourhood residents – often referred to as CAVE people (Citizens Against Virtually Everything) – will oppose projects in their neighbourhood, but have little understanding of the development process or what constitutes a good “fit” for their community. Guidelines prepared in Winnipeg should contain a sufficient level of detail and sophistication, but ensure that they are presented to the public in a manner that is attractive, easy to understand and simple to use.

For the most part, the guidelines examined for this project are appropriate and fully accessible to a wide-ranging audience. Seattle’s *Design Review: Guidelines for Multi-family and Commercial Buildings* is perhaps the best example of providing performance-based guidelines that illustrate how objectives may be achieved in a manner that is easy to follow and understand. The document contains a sufficient amount of introductory material that explains design review and where the guidelines fit into the overall development process. The guideline document also contains an abundance of line drawings, which effectively illustrate how the principles may be applied, as well as a

checklist that is intended to help the user determine which guidelines are most applicable to a particular site.

Figure 3 – Example of one of Seattle’s many line drawings



AVOID THIS

Source: Seattle, Guidelines for Multi-family and Commercial Buildings

The City should also contemplate sponsoring a design competition, which could be used not only to acknowledge good design, but promote infill housing and the use of infill housing design guidelines in the city. As discussed earlier, design competitions are relatively inexpensive ways of heightening awareness among the development community and city as a whole.

3. *Sponsor a Demonstration Project*

One of the key challenges associated with infill guidelines in Winnipeg, as discussed earlier, is convincing the development community and to a lesser extent neighbourhood residents that infill guidelines will reduce neighbourhood-developer conflicts and will not

stifle creativity or increase development costs / project delays. The preliminary interviews indicated that while the development community recognizes the value in infill guidelines, there is still a degree of scepticism or trepidation on their part. In other words, they are open to the idea, but have adopted a “wait and see” or “show me” attitude.

In order to overcome these hesitations and negative perceptions, the City should contemplate sponsoring a demonstration project, which could be used to test the infill housing design guidelines and illustrate their applicability. Through the development of infill guidelines and the use of a demonstration project, the city can clearly demonstrate that infill housing can be a positive addition to an existing neighbourhood and supported by local residents.

As discussed earlier, the City of Victoria developed small-lot infill housing design guidelines and sponsored a demonstration project to show the development community and neighbourhood residents that infill housing, even at higher densities, can be well integrated into existing neighbourhoods. The demonstration project, which closely followed the infill guidelines won a number of national awards and was well supported by the community (CMHC 1997).

4. Incorporate design guidelines into the development approval process.

Unlike the City’s zoning bylaw and development plan, infill housing design guidelines would not be mandatory. However, they would form the basis upon which multiple family infill housing development proposals in the city would be assessed and should be strongly recommended by the city. As a result, it is critical that these guidelines are well integrated into the development approval process and not used on an ad hoc basis. It is

also important that there is a clear understanding of where infill housing design guidelines apply in the city.

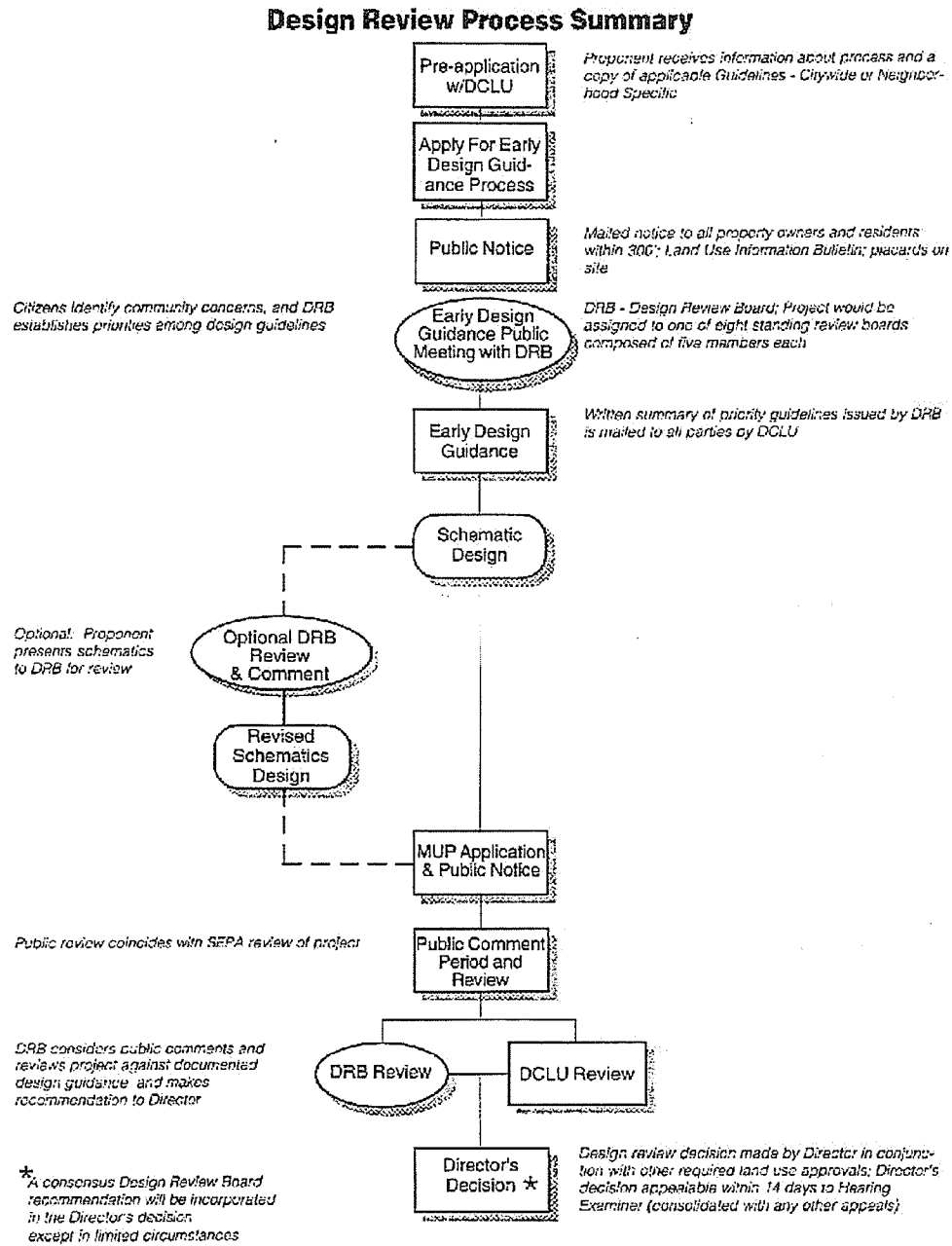
The City of Winnipeg has recently initiated a pre-application process, which is intended to identify and resolve issues at an early stage in a project. For a small fee, the pre-application process involves a meeting with key players from City Administration and the identification of potential issues prior to an application being submitted. Applicants contemplating multiple family projects, particularly in predominantly single-family neighbourhoods should be strongly encouraged to make use of the pre-application process. During pre-application, it is critical that applicants are made aware of the infill guidelines and provided with clear guidance regarding neighbourhood compatibility at this point in the process.

In Winnipeg, developers are often encouraged to hold public meetings (not to be confused with public hearings) in the neighbourhood in which their projects are proposed. During the preliminary interviews for this project, developers and planners noted that holding a public meeting and genuinely engaging neighbourhood residents often reduces the number of conflicts that might occur later on in the development process. These meeting should be strongly encouraged for infill housing projects. At these meetings, the public should be made aware of the guidelines and have an opportunity to assess a project based on its compliance with guidelines.

The City of Seattle's design guidance strategy provides an exceptional example of integrating design guidelines and in this case, design review into the development process. In Seattle, proponents of all projects exceeding a predetermined threshold are subject to the Design Review process. Initially, a pre-application meeting is required with the city and at this point the developer receives a copy of the guidelines. The

proponent must then submit a preliminary application with site plans. The next step is holding a public meeting in the neighbourhood where the project is proposed, which will be attended by the proponent, City staff and interested neighbourhood residents. At this meeting, attendees will determine what guidelines are considered most relevant in this instance. City staff will then provide a written summary to the proponent, providing early design guidance. The proponent will then submit their Master Use Permit (MUP) application, which is expected to have incorporated early design guidance. Staff will then review the project concurrent with a public comment period, at which point, staff and citizens can assess the project based on its compliance with the guidelines. The Design Review Board will then hold a meeting, which is open to the public and the Design Review Board considers information from the entire process. A project requires support from 4 out of the 5 Design Review Board members (Seattle 2007).

Figure 4 – Seattle Design Review Process



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Source: Seattle Design Guidelines for Multi-family and Commercial Buildings

While the City of Seattle's infill design guidance strategy is certainly more complex and comprehensive than in Winnipeg and includes design review boards, it provides us with an interesting case study to draw ideas from in integrating guidelines into the development process in Winnipeg.

5. *Ensure that use of guidelines and decision making is consistent and predictable*

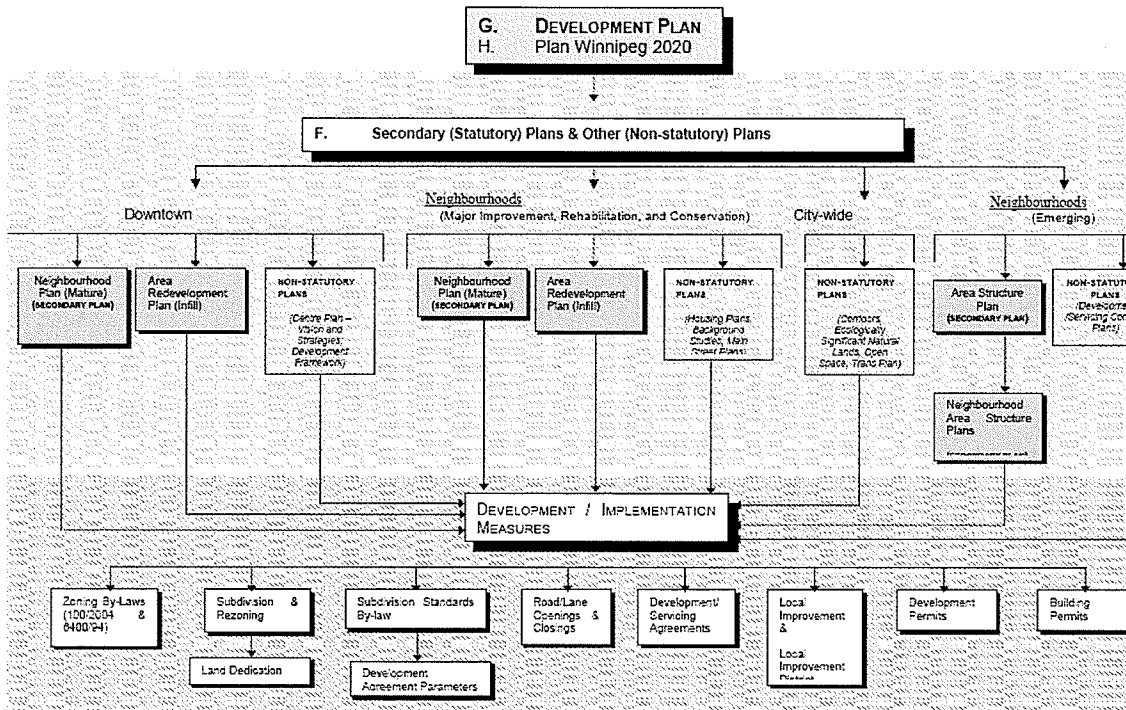
One of the key potential challenges discussed earlier and a major concern expressed by the development community during the preliminary interviews is that guidelines may be used inconsistently by administration and decision-makers. Key informants interviewed for this project stressed that it is critical in ensuring that guidelines are used consistently and predictably by planners and decision-makers. They argued that in order for the guidelines to be successful and taken seriously by the development community and neighbourhood residents, everyone needs to be on the same page and all projects need to be assessed with the same criteria in mind. Using the guidelines inconsistently and "cherry picking" individual guideline elements in certain situations should be strongly avoided. Guidelines that are used consistently will provide a level of certainty to the development community and a greater degree of assurance to communities.

6. *Continue to develop Secondary Plans for Winnipeg's mature neighbourhoods*

While infill guidelines will play an important role in guiding infill development in established neighbourhoods, one of their key criticisms, as discussed earlier, is that they are typically too general and vague. Infill guidelines developed for Winnipeg would be applied to all of the city's established neighbourhoods. As a result, the level of neighbourhood / area specific detail in infill guidelines is less significant than secondary

plans, which are statutory documents that provide a greater level of detail regarding the development of lands within a given neighbourhood.

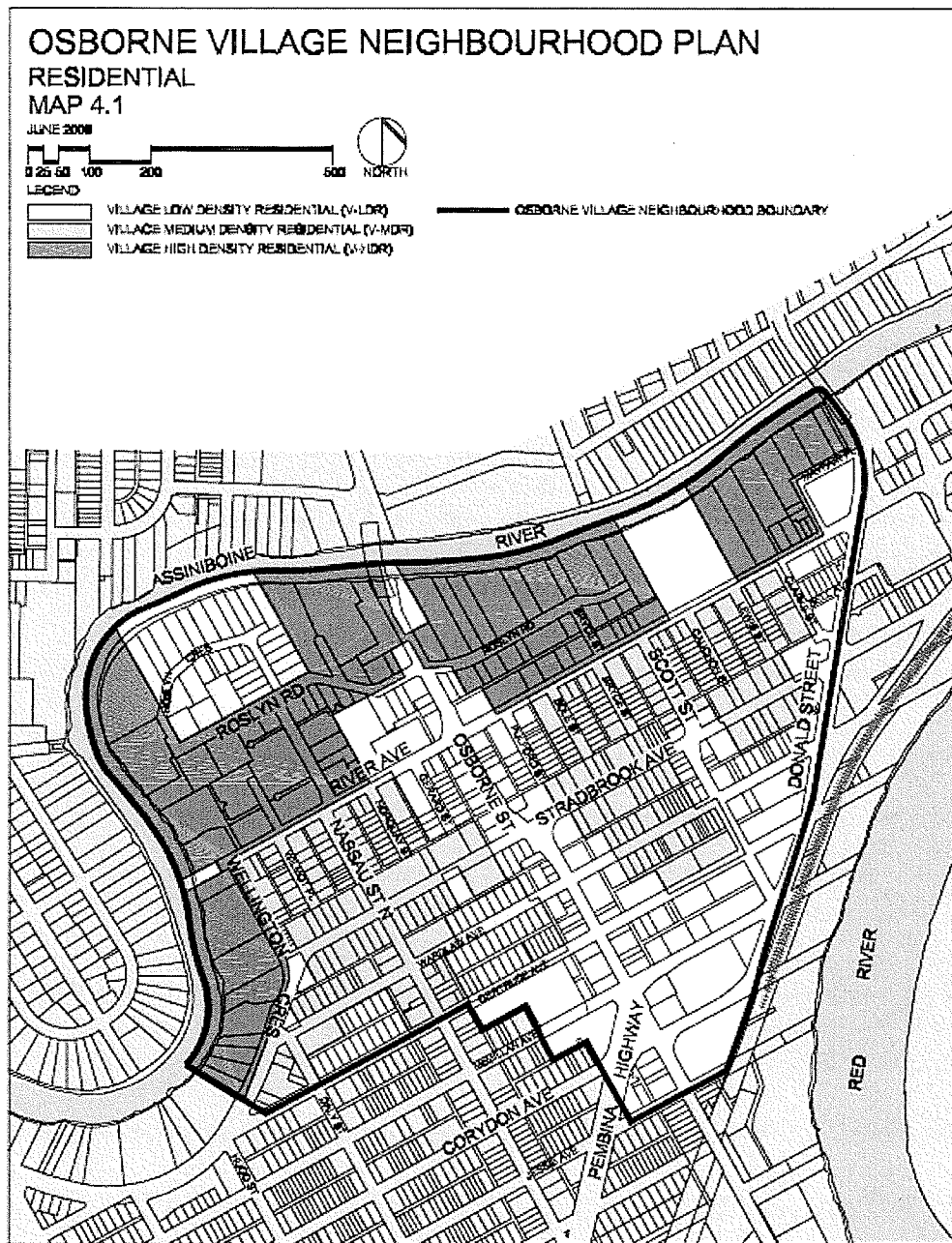
Figure 5 – Winnipeg Planning and Develop Framework



Source: City of Winnipeg, Planning, Property and Development Department

During the preliminary interviews, planners eluded to the significantly positive impact that secondary plans have had within mature neighbourhoods, particularly related to reducing conflicts between developers and neighbourhood residents. The Osborne Village Neighbourhood Plan (2006) is a great example of how a Secondary Plan can address development pressures in a mature neighbourhood and guide new development. Through extensive stakeholder consultation and community engagement, the Plan presented policies with respect to development expectations within the neighbourhood going forward, with the main objective of maintaining the unique character of the village.

Figure 6 – Osborne Village Neighbourhood Plan – Residential map and Select Village Medium Density Residential (V-MDR) Policies



4.1.3.C – New development along River and Stradbrook avenues east of Osborne Street may have a maximum of 5 storeys, provided structured parking is included and 4th floor and above are setback from public streets;

4.1.3.D – Mixed-use buildings combining residential with low-intensity office or commercial uses on the ground floor may be approved on River and Stradbrook avenues east of Osborne Street.

Since the Plan's adoption, the Osborne Village neighbourhood has experienced a marked decrease in opposition to infill projects according to councillors and planners.

According to Winnipeg city councilor Jenny Gerbasi (2007):

It (the plan) has already shown to be very useful in guiding development and the result has been new development proposals that are welcomed into the community and suit the character of the neighbourhood. It works well for developers who have a better idea of what and where to develop properties and better for maintaining the beauty and character of the village.

Since the Plan's adoption, there have been a number of multiple family and mixed use infill proposals that have been approved with little opposition from the neighbourhood. For example, 522 River was the first significant infill project since the adoption of the Osborne Village Neighbourhood Plan. The project, which required a rezoning and subdivision application, as well as numerous variances, proposed to demolish the two existing dwellings on the site and construct a 4 storey mixed-use building. There was no opposition to the project, which was uncharacteristic of infill / intensification projects prior to the development of the plan (Winnipeg 2007a). Since then, numerous other infill projects, such as 374 River have also been approved with little or no neighbourhood opposition (Winnipeg 2007b). With policies in place that were developed with considerable involvement from a cross-section of stakeholders, including neighbourhood residents, clear expectations of infill projects are now well established in the neighbourhood, resulting in a significant reduction in opposition to infill projects.

While the City has developed Secondary Plans for a number of mature neighbourhoods, additional opportunities exist to pursue secondary planning (Point Douglas, Corydon, West Broadway, Armstrong Point, Wolseley, Spence, etc.).

Secondary planning should be strongly encouraged as a means to provide more detailed and area or even site-specific guidance for multiple family developments in Winnipeg's mature neighbourhoods going forward. However, secondary planning is a significant endeavour that requires considerable time, resources and funding. In the meantime, infill guidelines can provide design guidance in neighbourhoods without secondary plans and can supplement existing secondary plans, providing additional design detail.

7. *Develop a Comprehensive Infill Housing Strategy*

While infill housing design guidelines are an important step towards promoting infill housing that is compatible with the existing neighbourhood, these guidelines should represent a piece of a larger puzzle. A number of informants interviewed for this project noted that a comprehensive strategy that goes beyond just infill guidelines would be most effective in encouraging infill housing and promoting compatibility. An infill housing strategy could be developed that includes a number of strategies – demonstration projects, design competitions, design guidelines, financial incentives, etc. – to overcome the barriers associated with infill development, as discussed in the literature review and throughout this paper.

The City of Sacramento, California (2002), for example, has developed an infill housing strategy to promote infill development within the city. The strategy included a comprehensive citywide exploration of infill housing that incorporated the following:

- identifying vacant and underutilized land within the city;
- identifying constraints to infill development;
- examining actions taken by other jurisdictions to promote infill housing;

- meeting with local developers to identify key issues;
- meeting with neighbourhood and business groups to identify issues;
- identifying potential options to promote infill development.

Ultimately, the investigation resulted in the development of an infill strategy that includes five key components: (1) strong policy commitment and support from decision-makers and City departments; (2) Plans that support infill housing; (3) significant financial incentives to encourage infill development; (4) infill housing design guidelines; and (5) streamlined regulatory process and flexible standards.

The City of Winnipeg could benefit considerably from developing a comprehensive infill housing strategy. The City has recently launched a review of *Plan Winnipeg 2020 Vision* – the City’s long-range visionary plan. While *Plan Winnipeg* contains some guidance regarding infill housing, it is somewhat vague and lacks detail. The review of *Plan Winnipeg* may provide the City with an opportunity to present more concrete guidance and support for infill housing going forward.

8. *Ensure that guidelines are not overly prescriptive*

As discussed throughout this paper, it is important that infill guidelines are developed with an appropriate level of prescription. Blaesser (1984) argued that “guidelines should be detailed and employ precise language but not be too design-prescriptive.” According to informants interviewed for this project, there is a strong preference towards guidelines that are performance based. It was argued that performance based guidelines can provide a general level of direction, but still leave room for creativity on the part of the designer. This position is also supported by

literature reviewed for this project. According to Punter (1998) guidelines are most effective when they provide clear explanations and many examples / ideas as to how each design objective might be achieved, but are not prescriptive about solutions.

The precedents documented for this project are generally performance based, with a relatively low level of prescription. For the most part, design objectives were clearly explained and many potential solutions were provided, typically supported by positive and negative examples, clearly illustrated through the use of photographs and line drawings.

9. *Consider developing a planning education program*

In order to provide a better understanding of the planning and development process in Winnipeg, the city should contemplate a planning education program. One of the concerns expressed by key informants is that guidelines may be difficult to interpret and there may be confusion regarding how and when they apply. Further, the general public, for the most part, does not have a good understanding of the planning and development process in the city. Providing a planning education program can be used to better educate the general public of the planning and development process

The City of Edmonton, for example, developed the Planning Academy, which aims to help the citizens of Edmonton better understand and participate in the planning process. The program consists of core courses (Land Use Planning: The Big Picture; Getting a Grip on Land Use Planning; and Come Plan with Us: Using Your Voice), as well as elective courses (Transportation; and Urban Design) and participants receive a Certificate of Participation by completing the program (Edmonton 2008). Following

every public meeting related to rezoning and plan amendment applications, attendees are encouraged to participate in the academy. The program is also well advertised on the City's website.

4.3 Conclusion

This project has promoted the use of infill housing design guidelines as a tool to guide the development and redevelopment of lands within Winnipeg's mature neighbourhoods. As discussed earlier, the number of potential benefits associated with infill housing is considerable – utilization of existing infrastructure, conservation of open space, revitalization of neighbourhoods, etc. However, many barriers and challenges, including resistance from neighbourhood residents, as presented earlier in this project, often prohibit the development of infill housing. Community opposition to infill projects in Winnipeg's existing neighbourhoods has often resulted in lengthy delays and in many cases quashed projects, illustrating the need for infill design guidelines to reduce / avoid neighbourhood-developer conflicts and ensure that new development in mature neighbourhoods "fits in" and "works well" within the existing context.

These infill housing design guidelines and the accompanying recommendations presented in this research project are intended to provide a starting point for the City of Winnipeg in promoting infill development that is compatible with existing development and contributes positively to the neighbourhood as a whole. Given the growing demand for multiple family housing in Winnipeg coupled with interest in more compact urban forms and the utilization of existing infrastructure, mature neighbourhoods will continue

to capture a portion of new construction resulting in intensification pressures in the future, strengthening the need for infill housing design guidelines in the City.

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APPENDICIES

Appendix A

INTRODUCTORY LETTER



UNIVERSITY
OF MANITOBA

Department of City Planning

Winnipeg, Manitoba
Canada R3T 2N2
Telephone (204) 474-9458
Fax (204) 474-7532

Research Project Title: Infill Housing Guidelines in Mature Urban Neighbourhoods:
Recommendations for Winnipeg

Researcher: Brett Shenback

This research is being conducted as part of the requirements for the Masters of City Planning program at the University of Manitoba. The purpose of the research is to gain an appreciation of how infill housing / residential intensification is perceived in Winnipeg and to aid in the development of draft infill design guidelines for the City. This practicum will make use of semi-structured interviews with key informants. This may include planners who process development applications in the area, developers and designers who have worked on projects in the neighbourhood, Council and Board of Adjustment members, as well as community groups active in the area. As a key stakeholder, your participation in this project would be most appreciated.

The interview process will consist of two separate phases. The first phase will involve a series of preliminary interviews. This information will be used in order to help determine what guideline elements are relevant in the Winnipeg context. Along with precedent studies conducted by the researcher, the information gathered in the interviews will be used in the development of the initial set of draft guidelines. It will also help the researcher gain a greater appreciation of how infill issues are perceived locally – challenges, barriers, potential solution, etc. The second set of interviews will commence the development of the initial set of draft guidelines for Winnipeg's mature urban neighbourhoods. The primary intent of the second set of interviews is to "test" the draft guidelines with key stakeholders. This will be instrumental in determining which of the guideline categories and sub-categories (drawn from the precedent documentation) are relevant and appropriate to the Winnipeg context.

It is important to note that your identity will be kept confidential and no one other than the researcher and his supervisor will know who took part in these interviews. Also participants should feel free to discontinue their participation in the study or halt the interview at any stage. In addition, an oral introduction of the practicum will be provided prior to the interview in order to familiarize participants with the purpose and scope of the project.

INTERVIEW QUESTIONS:

Preliminary Interview Questions

Introduction: The primary intent of the preliminary interview questions is to gain a greater appreciation of how infill housing and residential intensification are perceived in Winnipeg and to aid in the development of the initial set of draft infill design guidelines for Winnipeg's mature urban neighbourhoods.

1. Could you please explain your current and past employment or activities and how it relates to infill housing and residential intensification?
2. Please discuss the extent of infill housing and residential intensification in Winnipeg.
3. Could you describe a good infill/intensification project in Winnipeg.
4. Could you please describe a bad infill/intensification project in Winnipeg.
5. What are the major obstacles to the development of infill housing and residential intensification in Winnipeg's mature urban neighbourhoods?
 - a. Land availability
 - b. Site access
 - c. Building regulations
 - d. Cost of land
 - e. Cost of construction
 - f. Community opposition
 - g. Low profit margins
 - h. Planning requirements (i.e. parking requirements/height restrictions/etc.)
 - i. Other (please specify)
6. What are the major factors that would make infill housing and residential intensification attractive in Winnipeg's mature urban neighbourhoods?
7. How could local authorities encourage infill housing and residential intensification in Winnipeg's mature urban neighbourhoods?

Follow Up Interview Questions

Introduction: The primary intent of the second phase of interview questions is to “test” the draft infill guidelines with key stakeholders in order to determine which guideline elements are relevant to the Winnipeg context.

1. Of the categories and sub-categories presented in the initial set of infill guidelines, which ones are relevant to the Winnipeg context and how are they relevant? How would you anticipate them working, or why do you think they would not? Are these categories exhaustive?
2. Of the guidelines presented in the initial set of guidelines, which ones are relevant to the Winnipeg context?
3. Do you have any other thoughts regarding infill housing/residential intensification in Winnipeg’s mature neighbourhoods or the initial infill guidelines?

Thank you for taking the time to read the enclosed information. Please contact me if you would like to participate in the project. If I do not hear from you, I will contact you in two weeks to see if you would like to participate.

CONTACT INFORMATION:

Researcher: Brett Shenback, Graduate Student, TEL: ; Email:

Supervisor: Dr. Richard Milgrom, Assistant Professor, Department of City Planning, University of Manitoba, 201 Russell Bldg., Wpg, MB, R3T 2N2, Tel: 474-6868; Fax: 474-7532; Email: milgrom@cc.umanitoba.ca

Appendix B

STATEMENT OF INFORMED CONSENT



UNIVERSITY
OF MANITOBA

Department of City Planning

Winnipeg, Manitoba
Canada R3T 2N2
Telephone (204) 474-9458
Fax (204) 474-7532

Research Project Title: Infill Housing Guidelines in Mature Urban Neighbourhoods:
Recommendations for Winnipeg

Researcher: Brett Shenback

This consent form, a copy of which you may retain for your records and reference, is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask via an email, telephone call or in person. Please take the time to read this carefully and to understand any accompanying information.

This research is being conducted as part of the requirements for the Masters of City Planning program at the University of Manitoba. This research is being conducted among key stakeholders involved in the planning, development and approval of infill housing/residential intensification projects in Winnipeg. The purpose of the research is to gain an appreciation of how the issue is perceived locally and to aid in the development of draft infill guidelines for the City of Winnipeg.

The interview will take approximately 30 to 45 minutes to complete. Responses will be confidential with only the researcher and supervisor having access to this information. Data will be safely stored and destroyed upon the projects completion. Participants will have the opportunity to obtain a summary report of the research once it is completed.

I would like a copy of the final report.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and /or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

Thank you for your participation. Your responses are extremely valuable to this research and are greatly appreciated.

CONTACT INFORMATION:

Researcher: Brett Shenback, Graduate Student, TEL: _____ ; Email: _____

Supervisor: Dr. Richard Milgrom, Assistant Professor, Department of City Planning, University of Manitoba, 201 Russell Bldg., Wpg, MB, R3T 2N2, Tel: 474-6868; Fax: 474-7532; Email: milgrom@cc.umanitoba.ca

This research has been approved by the Joint-Faculty Research Ethics Board. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Secretariat at 474-7122, or e-mail margaret_bowman@umanitoba.ca. A copy of this consent form has been given to you to keep for your records and reference.

Participant's Name (please print)

Participant's Signature

Date

Researcher's Signature

Date

Appendix C

DRAFT INFILL HOUSING DESIGN GUIDELINES

Infill Housing Design Guidelines for Winnipeg's Mature Neighbourhoods



Introduction

Background

Infill housing involves new construction on vacant or underutilized land within established areas of the city. Infill housing utilizes existing infrastructure and transportation systems, reduces suburban development pressures, which often require extensive expenditures on new social and physical infrastructure, and contributes to the preservation of open space. Because infill development typically occurs within close proximity to existing residences, careful attention to site planning and built form is critical in promoting development that is respectful of adjacent properties and the neighbourhood as a whole.

Purpose

The purpose of these infill housing design guidelines is to provide a basic framework to guide the development of multiple family infill housing in Winnipeg's established neighbourhoods. The goal is to ensure that new development is compatible with existing built form and contributes positively to adjacent properties and the neighbourhood as a whole. New development does not need to replicate or copy existing development, but should work well and fit within the existing neighbourhood context through appropriate design.

These guidelines focus on three key areas that guide the development of infill housing that positively contributes to Winnipeg's neighbourhoods:

1. Compatibility
2. Walkability and the Pedestrian Environment
3. Environmental Sustainability

Introduction

Who should use these Guidelines?

These guidelines should be used by all stakeholders concerned with the development of new multiple family buildings in established neighbourhoods – developers, designers, city planners, city councillors, community groups and neighbourhood residents – to assist in determining what constitutes appropriate design.

Developers and Designers

These guidelines will provide developers and designers of infill housing with clear and consistent expectations of their projects. They will also aid developers and designers in determining how their projects can be compatible with the form of the existing neighbourhood.

City Planners

These guidelines will help planners in assessing proposals and formulating professional recommendations regarding infill housing on a consistent basis.

City Council

These guidelines will aid city councillors in their decision-making processes regarding the suitability of infill proposals.

Community Groups and Neighbourhood Residents

These guidelines will provide neighbourhood residents and those most affected by new infill development with a tool to assess proposals and articulate what they believe to be appropriate designs for their neighbourhood.

When do they apply?

These guidelines should be used for any multiple family infill projects (townhouse, apartment, condominium, etc.). These guidelines should be used in conjunction with other relevant documents, such as Winnipeg Zoning By-law No. 200/06 and applicable secondary plans.

1

COMPATIBILITY

Infill housing has the potential to have positive impacts on neighbourhoods in a number of ways. Unfortunately, when a site and/or building is poorly designed, new multiple family buildings in established neighbourhoods can have negative effects on adjacent properties, particularly single-family residences. Infill development that is too tall or does not fit with the scale and character of the neighbourhood is of particular concern. The following compatibility guidelines should be used when assessing whether new development works well and fits within the existing neighbourhood context.

Compatibility Categories:

Siting / Building Orientation

Building Mass and Height

Architectural Style / Character

Light, Views, Noise and Privacy

Compatibility

Siting / Building Orientation

Guidelines

1) New development should animate the public street and open spaces, with a clearly visible and accessible main entrance (Figure 1). Avoid designing buildings that turn their back or sides to the street (Figure 2).

2) When a uniform setback exists along a street, infill should match this setback. In cases when there is no uniform setback, infill should generally be consistent with abutting lots (Figure 3 and Figure 4).



Figure 1: Building is oriented towards the public street and the main entry is clearly visible. This should be encouraged.

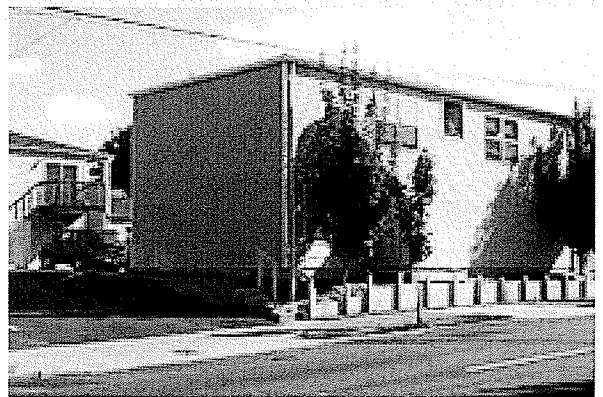


Figure 2: Building turns its back to the street with no entrances, few windows and large areas of blank wall. This should be avoided.

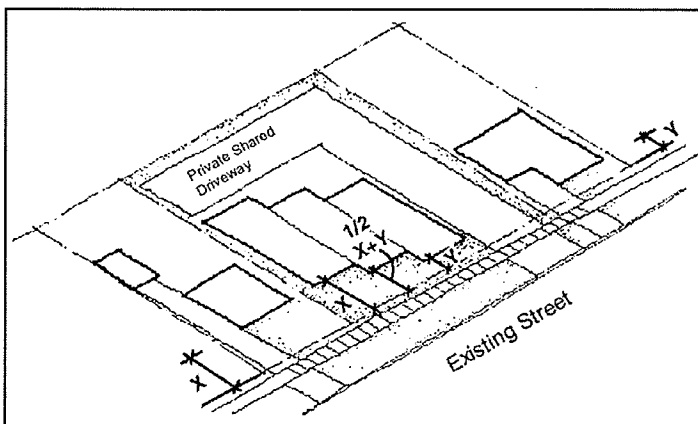


Figure 4: Front yard setbacks are consistent with abutting properties.



Figure 3: This infill triplex maintained a setback consistent with the prevailing street pattern.

Compatibility

Building Mass and Height

Guidelines

- 1) In cases when new development is taller than existing development, use architectural treatments (articulation) that will reduce the perception of height and avoid the appearance of blank walls (Figure 5).
- 2) Use building elements, such as porches and bays as well as careful selection of colours and materials to reduce the perception of height.
- 3) When new infill development is significantly wider than existing development, the building face should be broken up into smaller components (intervals) to give the appearance of individual units along the street (Figure 5 and Figure 7).
- 4) Design buildings to step back to provide a suitable transition to adjacent properties that are not as tall (Figure 6).

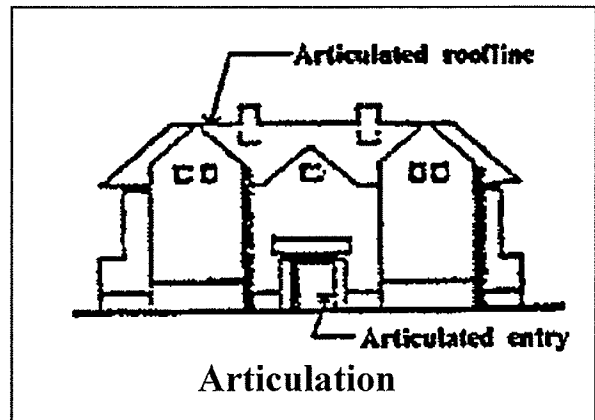


Figure 5: Articulation (above) and interval (below) can be used to create a building form that fits in with adjacent single-family homes.

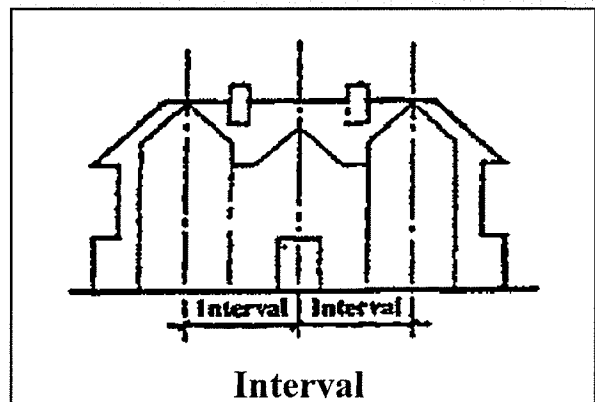


Figure 7: This four unit infill project was divided into two distinct building volumes, reflecting the massing of adjacent properties (existing building visible to the right).

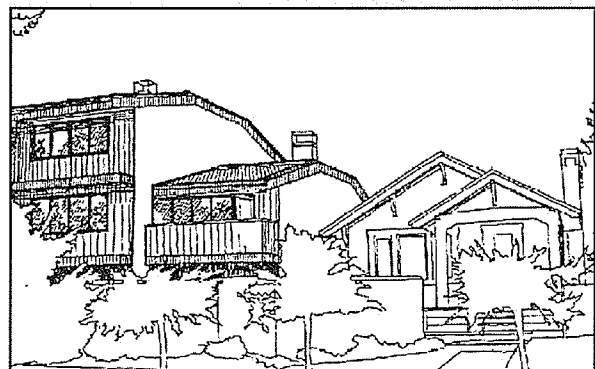


Figure 6: Stepped back upper story to provide a transition to adjacent single-family home.

Compatibility

Architectural Style / Character

Guidelines

1) Infill should be designed to respond to prevalent architectural features of the neighbourhood context, particularly in areas where patterns established by recurring architectural features are highly valued. Consideration should be given to:

Similar building articulation;
Similar or complimentary architectural style;
Similar or complimentary roof forms;
Similar fenestration patterns;
Similar or complimentary building materials.

2) Garage doors should not dominate the façades of new buildings.

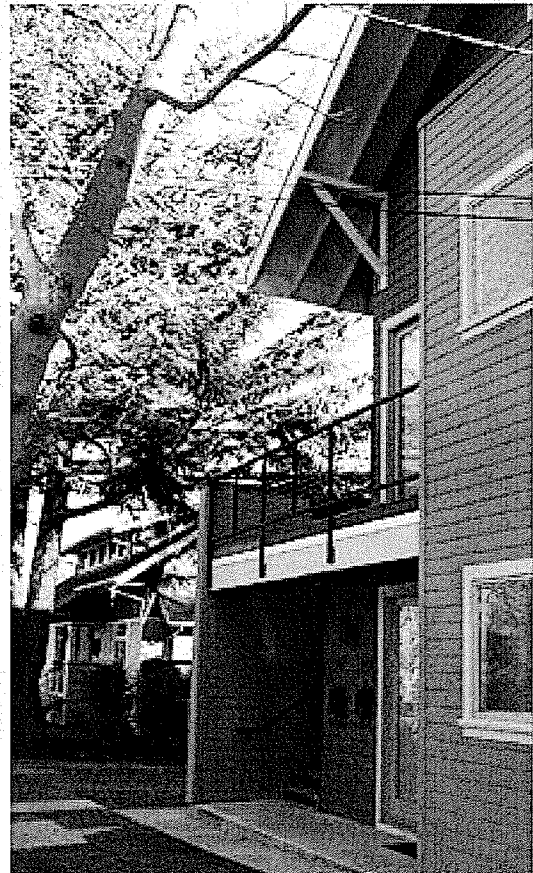
3) The location of building entrances should be consistent with the existing neighbourhood pattern.



Figure 8: This duplex (above and below) is contemporary in design but incorporated traditional features common to the area.



Figure 9: This infill triplex incorporated similar materials, roof form and architectural style that is consistent with the street and neighbourhood.



Compatibility

Light, Views, Noise and Privacy

Guidelines

- 1) New infill development should be designed to minimize shadowing, view, noise and loss of privacy.
- 2) Windows and balconies should be arranged in a manner that maximizes light and view, and minimizes intrusion and overlooks to adjacent properties (Figure 10 and Figure 11).
- 3) Screening should be used to reduce the impact of new development on adjacent properties.
- 4) Lighting should be oriented in a manner that minimizes spillover onto adjacent properties.
- 5) Sufficient side yard setbacks should be provided in order to reduce intrusion on adjacent properties (Figure 12).

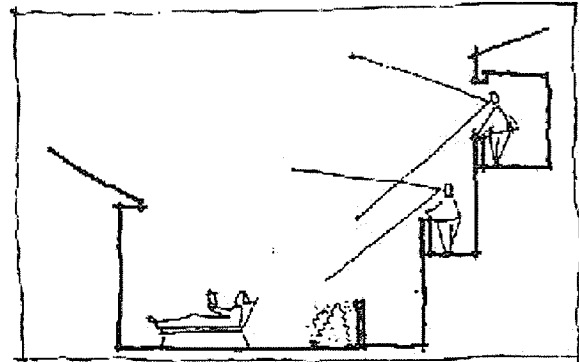


Figure 10: The improper placement of windows and balconies can reduce the privacy of adjacent properties. Avoid this.

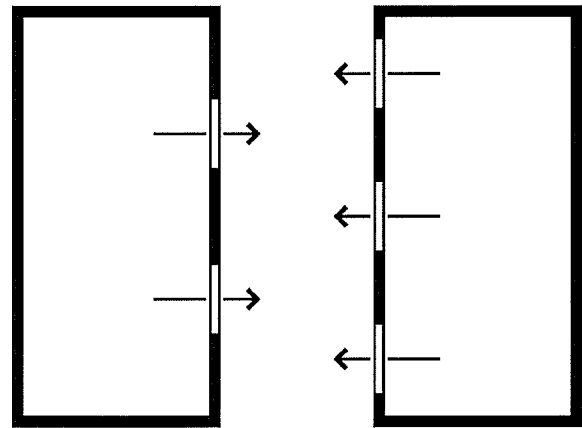


Figure 11: Orient windows in a manner that avoids privacy impacts (above). Do not align windows to look into each other (below).

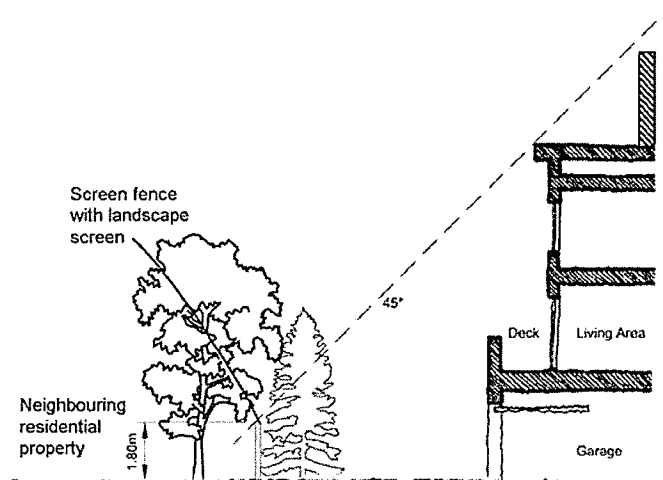
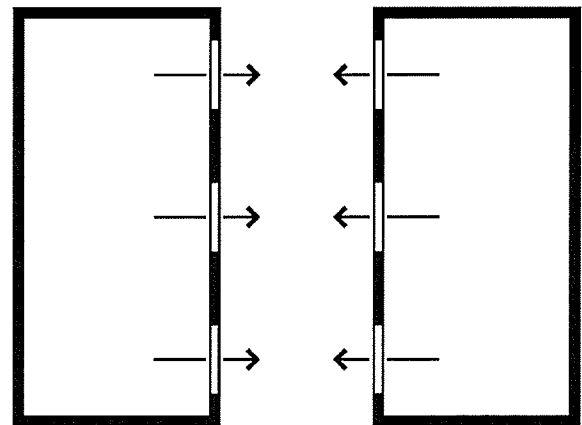


Figure 12: Infill should be set back so that it does not project into a 45° angular plane measured from the adjacent residential property line to the top of the proposed infill building.

2

WALKABILITY AND THE PEDESTRIAN ENVIRONMENT

Walkability refers to the extent to which the urban environment is amiable to the presence of pedestrians. Infill development in established neighbourhoods has the potential to have both positive and negative impacts on the pedestrian environment. Ensuring that the public realm is attractive and comfortable can encourage walkability resulting in a greater sense of community and improved safety. The following walkability and the pedestrian environment guidelines should be used in order to avoid undesirable conditions and contribute to safe, attractive and universally accessible streetscapes and open spaces that are consistent with the existing neighbourhood context.

Walkability and the Pedestrian Environment Categories:

Streetscape

Open Spaces and Pathways

Safety and Security

Service Elements

Parking and Site Access

Walkability and the Pedestrian Environment

Streetscape

Guidelines

- 1) New development should contribute to a streetscape that is safe, inviting and accessible for pedestrians, cyclists, public transit and automobiles.
- 2) When appropriate, landscaping should be used to create a sidewalk edge.
- 3) Landscaping associated with new development should be consistent with or enhance existing neighbourhood landscaping patterns.
- 4) Provide visual interest and a human scale level of detail avoiding large areas of blank wall.



Figure 13: Shrubs, trees and other vegetation can create a pleasant sidewalk edge.

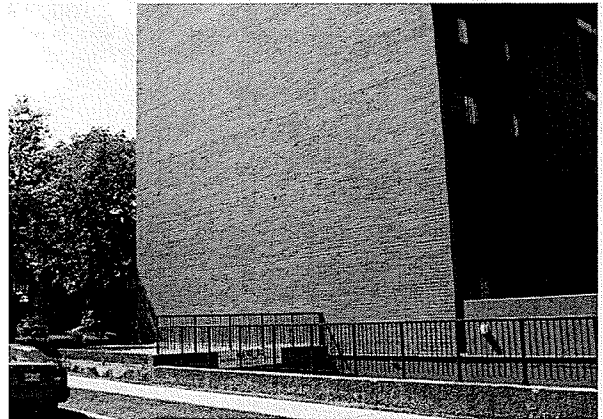


Figure 14: Blank walls are visually uninteresting and do not contribute to the safety of an area.

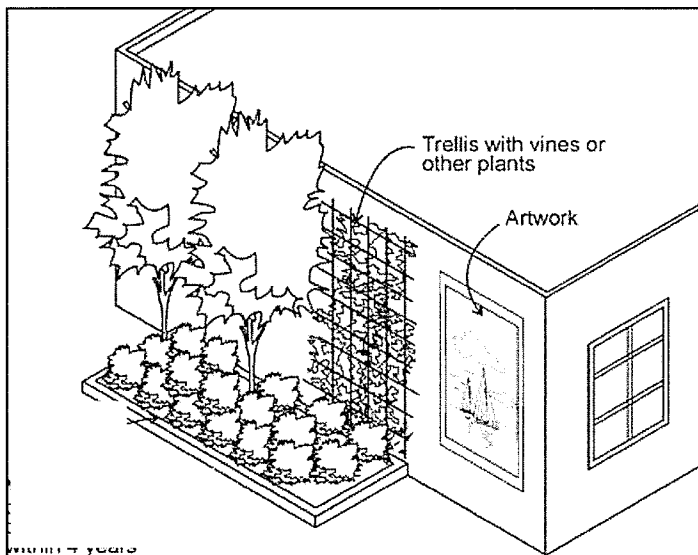


Figure 16: Windows, balconies, architectural and landscaping treatments can be used to avoid blank walls.

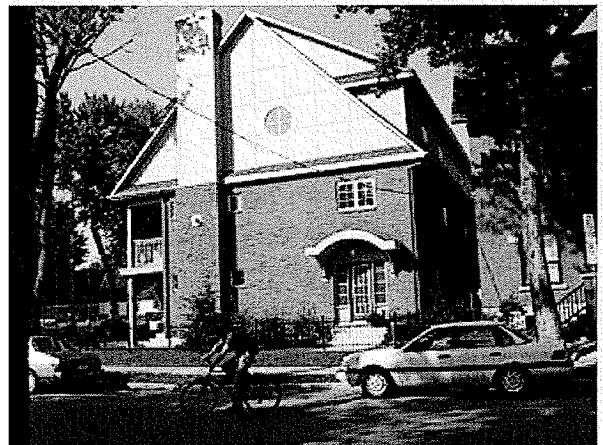


Figure 15: Architectural detail enhances the streetscape.

Walkability and the Pedestrian Environment

Open Spaces and Pathways

Guidelines

- 1) Buildings should be oriented to maximize opportunities for usable, attractive open spaces and pedestrian pathways (Figure 17, Figure 18 and Figure 19).
- 2) Open spaces and pathways should be located to take advantage of sunlight.
- 3) Windows, balconies and doors should open onto public spaces (Figure 20).
- 4) Open spaces and pathways should be designed to ensure barrier free access (refer to the City of Winnipeg's Universal Design Guidelines).

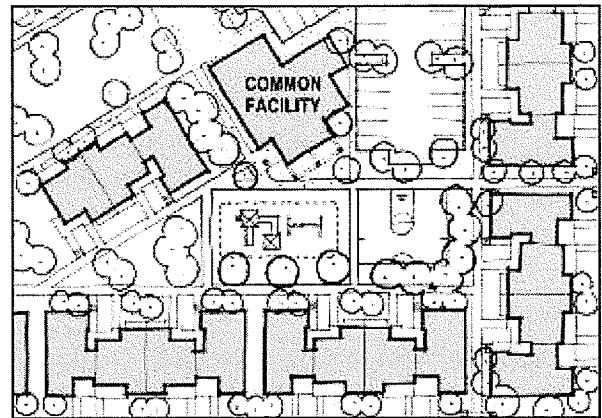


Figure 17: Building are configured to allow for usable open space.

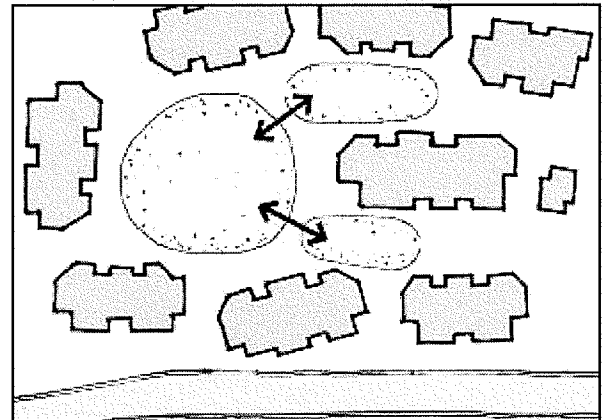


Figure 18: Large and small open spaces are connected.



Figure 20: Buildings enhance the quality and safety of this open space.

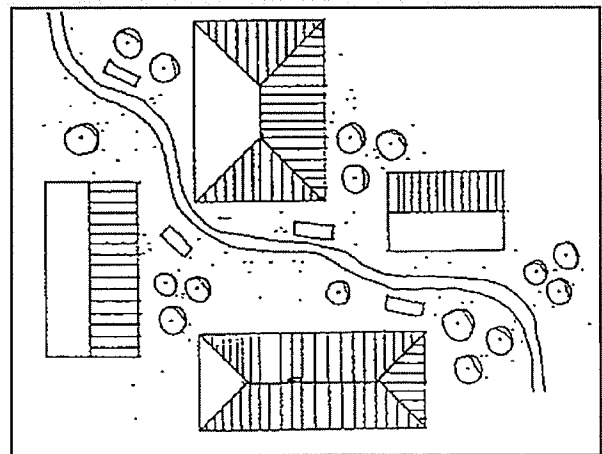


Figure 19: Buildings are oriented to allow for usable open space.

Walkability and the Pedestrian Environment

Safety and Security

Guidelines

- 1) New development should consider the principles of Crime Prevention Through Environmental Design (CPTED) in order to improve safety and security.
- 2) New buildings should encourage “eyes on the street” through the placement of balconies, windows, etc. (Figure 21).
- 3) Parking areas and open spaces should be designed with clear sightlines and in a manner that allows informal surveillance (Figure 23).
- 4) Entrances to buildings should be visible from the street or by neighbours.
- 5) Landscaping and service elements should be placed in a manner that avoids creating blind spots (Figure 21 and Figure 22).
- 6) Adequate pedestrian scale lighting should be provided to promote safe evening use, while limiting light pollution (spillage onto neighbouring properties).

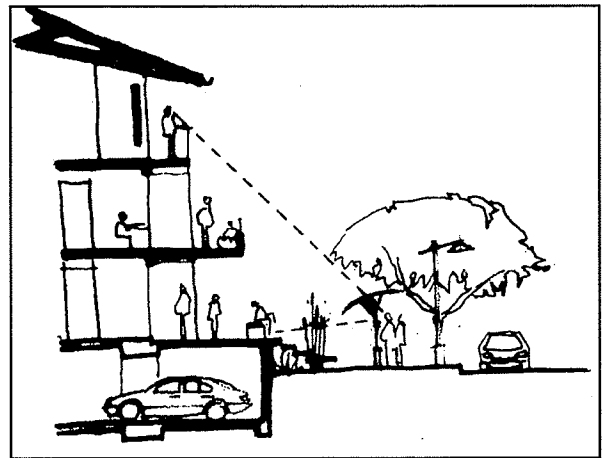


Figure 21: Balconies and windows encourage passive surveillance or “eyes on the street.”

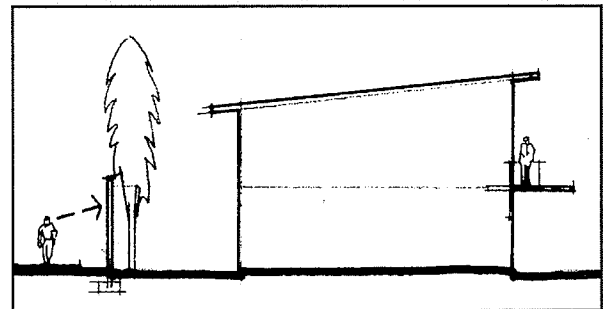


Figure 22: Pathways should not be located in areas that have poor surveillance.

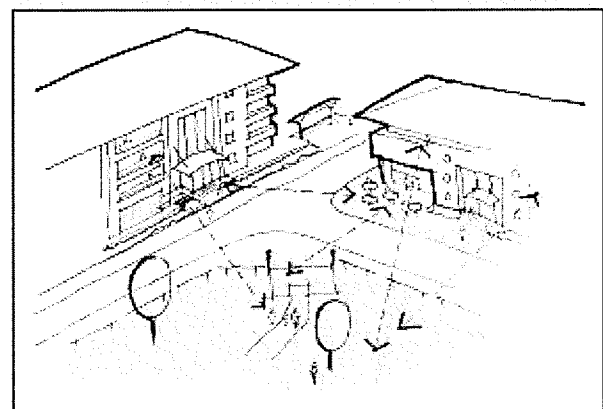


Figure 23: Location of buildings and open space allows for clear sightlines.

Walkability and the Pedestrian Environment

Service Elements

Guidelines

1) If possible, service elements should be integrated into the design of new buildings and / or located in non-prominent locations that do not detract from the aesthetic appeal of the streetscape or provide hazards for pedestrians, cyclists or automobiles.

2) Screening, such as berms, fences, decorative walls and landscaping should be used in order to conceal service elements.



Figure 24: Service elements are integrated into the design of this building.

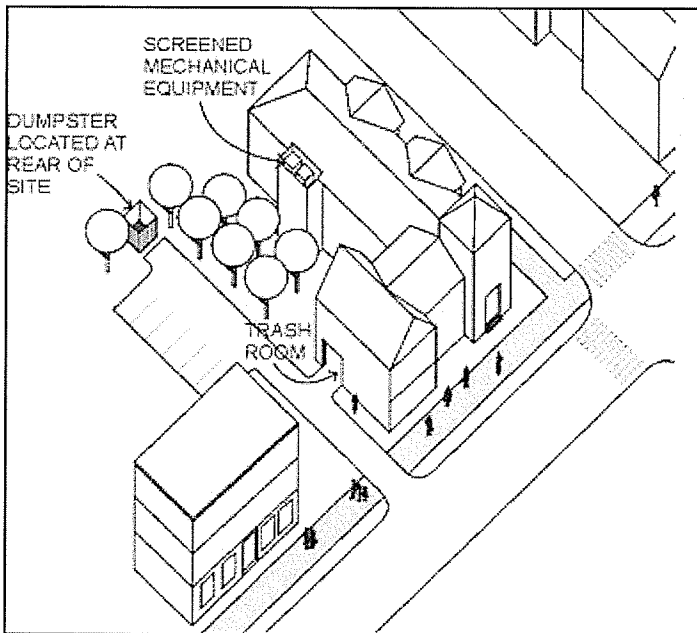


Figure 26: Service elements are located away from the street and generally not visible from the sidewalk.

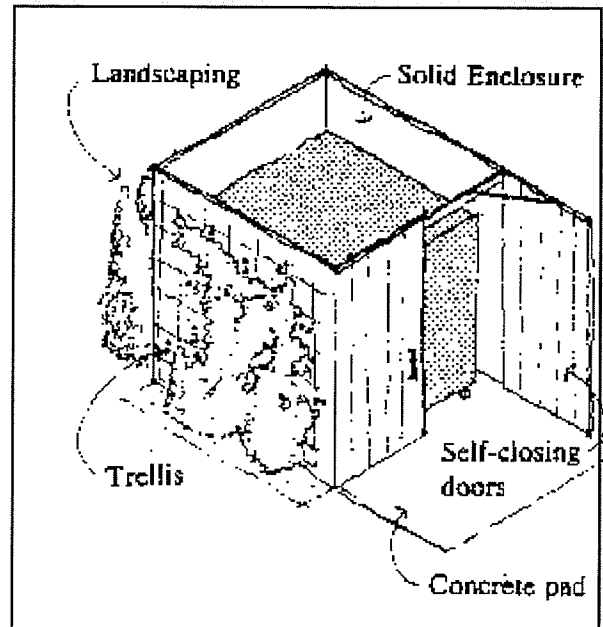


Figure 25: Screening is used to conceal this dumpster.

Walkability and the Pedestrian Environment

Parking and Site Access

Guidelines

- 1) Parking should be provided at the back of new buildings when rear public lanes exist (Figure 30).
- 2) When no back lanes exist, the width of garages should be limited (Figure 27).
- 3) The number and width of driveways and curb cuts should be minimized.
- 4) Parking areas should be buffered from adjacent residential properties.
- 5) New development should embrace universal design principles and be accessible to those who are differently-abled (Figure 28 and Figure 29). Refer to the City of Winnipeg's Universal Design Guidelines.



Figure 27: Recessed garages, overhanging balconies and landscaping are used to reduce the prevalence of garages in this building.

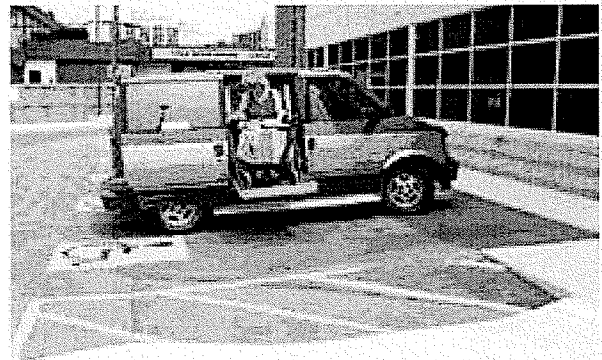


Figure 28: Parking should accommodate people with a range of abilities.

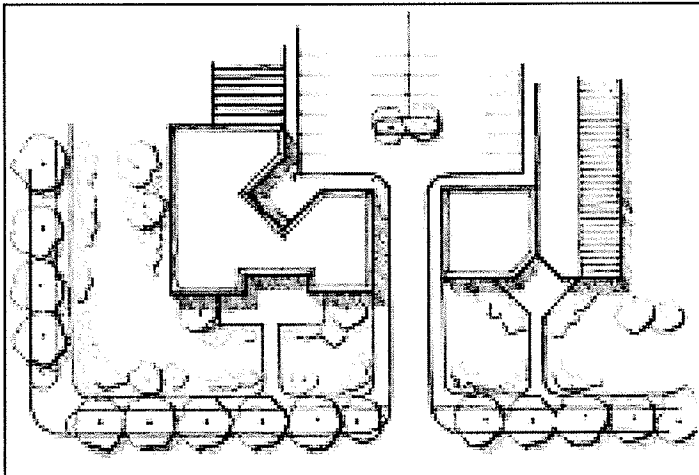


Figure 30: Parking located behind buildings.



Figure 29: Texture and colour differences on a walkway, smooth surfaces and curb ramps make paths safer and easier to navigate for pedestrians.

3

ENVIRONMENTAL SUSTAINABILITY

There are a number of opportunities that exist to increase the sustainability of an infill project and reduce its ecological footprint through building and site design. The following Environmental Sustainability guidelines should be considered in order to ensure that a projects impact on the environment is limited.

Environmental Sustainability

Guidelines

- 1) New buildings should consider environmentally sustainable practices, such as green roofs, passive solar design and geothermal technologies.
- 2) Paved surfaces should be limited, with water permeable surfaces such as turfblock, cobblestone or grasscrete considered as alternatives to asphalt and concrete driveways and walkways.
- 3) When possible, retain established landscaping, including mature trees.

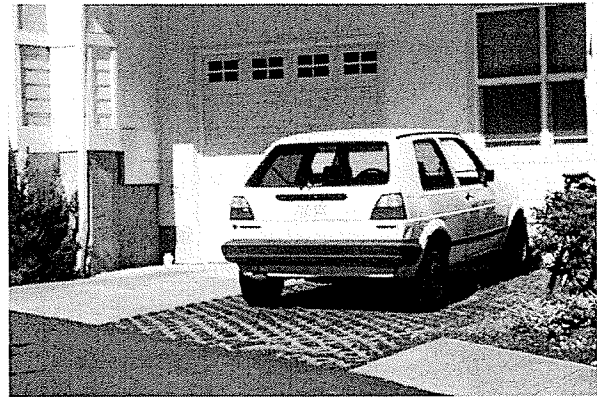


Figure 31: This driveway makes use of grasscrete which is water permeable.

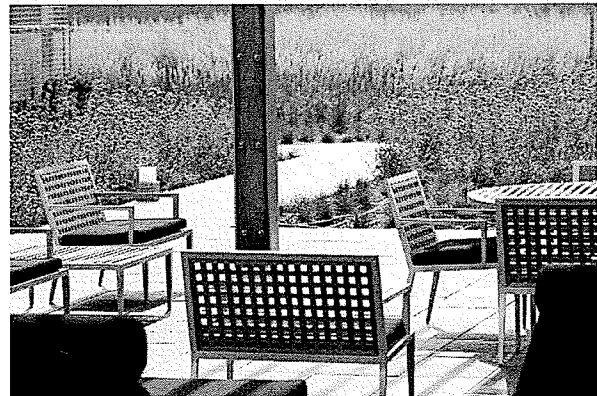


Figure 32: This multiple family project incorporated a green roof into its design.

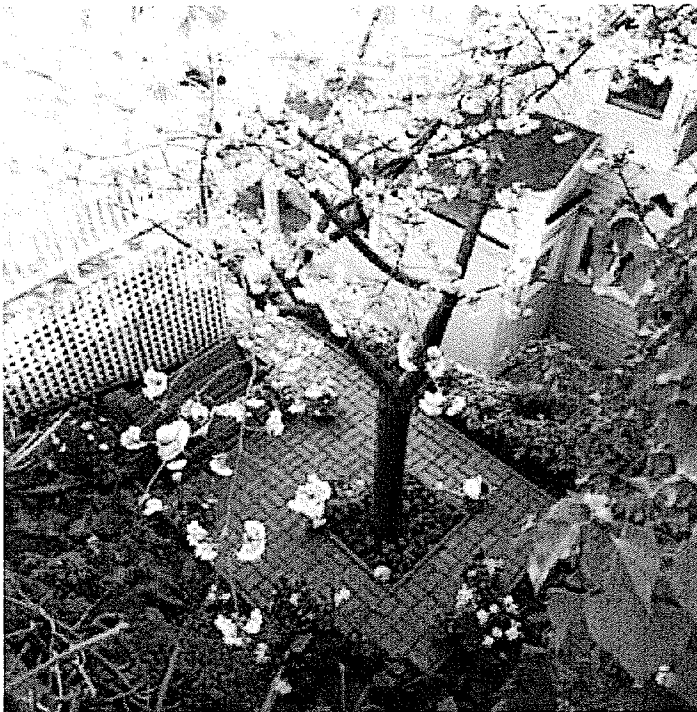


Figure 34: Careful site planning can allow for the preservation of existing trees.



Figure 33: Mature trees make up Winnipeg's urban forest.

Resources

Precedent Documents

Ottawa

Ottawa (City of) (2005). Residential Infill Housing Design Guidelines. Ottawa: Planning & Growth Management Department.

Portland

Portland (City of) (1998). Community Design Guidelines. Portland: Bureau of Planning.

Richmond

Richmond (City of) (2003). Multiple-family Guidelines. Richmond: Planning and Development Department.

San Diego

San Diego (City of). Multi-family Development Guidelines. San Diego: Southeastern Economic Development Corporation.

Seattle

Seattle (City of) (1998). Design Review: Guidelines for Multifamily & Commercial Buildings. Seattle: Department of Planning & Development.

Toronto

Toronto (City of) 2003). Toronto Urban Design Guidelines – Infill Townhomes. Toronto: City of Toronto Urban Development Services.

Picture Credits

Figure 2 - City of Portland. (2008). Draft Infill Design Toolkit.

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