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Sensitive Infill Housing Summary Report

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A REPORT PREPARED FOR
CANADA MORTGAGE AND HOUSING CORPO

BY

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ASSOCIATES

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THIS PROJECT WAS FUNDED BY THE CANADA MORTGAGE AND HOUSING CORPORATION, BUT THE VIEWS EXPRESSED ARE THE PERSONAL VIEWS OF THE AUTHOR AND NO RESPONSIBILITY FOR THEM SHOULD BE ATTRIBUTED TO THE CORPORATION.

PREFACE

In 1977 the Ministry of State for Urban Affairs initiated research into the viability of "sensitive infill". At that time governments, the private sector and individuals were experiencing a growing interest in downtown revitalization, rehabilitation and energy conservation. Senior governments were concerned that massive assistance was still being provided for suburban infrastructure when substantial capacity was available in the inner city. Governments were also looking for alternatives to the urban renewal and high rise redevelopment pattern of the sixties and early seventies. In order to improve their fiscal position municipalities were searching for growth options which minimized infrastructure and service investment and increased revenues from declining areas.

MSUA commissioned Peter Barnard Associates to investigate whether sensitive infill could be an economically viable alternative to suburban growth for developers, municipalities and consumers. Infill, new built forms on vacant or underutilized land in existing neighbourhoods, was deemed to be "sensitive" if it conformed with or complemented existing dwellings in scale, form, aesthetics and occupancy. It was recognized that the development of an infill site is in many respects similar to the process of building on a suburban tract. Yet there appeared to be a series of constraints which deterred public and private builders from developing small inner city sites. These may include high land costs, an unproved market, limitations to design and site planning options on small sites, a lengthy or uncertain approval process, difficulty in obtaining financing, and insufficient space for construction material and vehicles.

Phase I of the study undertaken in Toronto concluded that infill provided certain advantages to the municipality in using existing services and to the householder in substantially reduced transportation costs. These results were sufficiently encouraging to warrant proceeding with Phase II of the study, a more in-depth look at the economics of development in segments of four case study cities together with identification of constraints to the infill process via interviews with affected parties.

This study was turned over to CMHC following the dissolution of MSUA. CMHC reoriented the terms of reference to reflect the site-specific nature of infill, considered within an actual municipal growth context. The potential for infill prototypes to serve social housing needs would also be reviewed.

The purpose of the study was to provide sufficient documentation of key issues surrounding infill development to assist governments in making policy decisions. Of particular interest are the economics of infill vs. suburbs decisions. Of particular interest are the economics of infill vs. suburbs from the perspective of each actor, the context for infill to happen, the physical capacity for infill and the accommodation of different client groups. Three case studies were undertaken: Winnipeg, St. John's and Toronto. This summary report discusses the method and results in each area. These cities appeared to present a continuum of a market not yet ready for infill, one ready to take-off and the latter in which infill is a well established form. Although it is difficult to determine to what extent these situations characterize other metropolitan areas, some common prerequisites and planning problems have been identified. it is most important to note that if municipalities or other agencies wish to take steps to encourage infill development, an assessment of the suitability of local market conditions is essential first.

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Dear Sirs:

With this letter we are pleased to submit our summary report on sensitive infill housing. The material here highlights and synthesizes our more detailed analysis of the three case studies undertaken in Winnipeg, St. John's and Toronto. Each case study is the subject of its own report, submitted to you earlier, along with a series of supporting technical appendices.

There is no question that this has been one of our firm's longest and most challenging assignments. The project first originated with the former Ministry of State for Urban Affairs in 1977. Since that time, at least half a dozen project managers have worked closely with us to define the focus, emphasis and direction of what is still a relatively unresearched subject area. As a result, this project represents the first comprehensive study of its type in Canada and the United States. It is directed at public and private decision makers at the local, provincial and federal levels of government.

The following report is organized into three chapters. The first deals with the overall study background, including the objectives and approach which guided the study's direction. In the second chapter we summarize our case study findings and conclusions. Finally, the summary draws some overall conclusions and implications of infill development as a strategy for addressing future urban housing issues. The attached appendix contains the table of contents of each of the three case study reports and appendices for your further information.

PETER
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The material here is both interesting and resolves the majority of questions which we set out to answer. At best it will serve as the starting point in a series of related studies on the future of infill housing strategies from a variety of perspectives.

Given the nature and complexity of the assignment, we have deliberately omitted a "summary of the summary" report. Instead this brief report has been written to provide the executive summary for the overall study as well as the more detailed case study reports. We have enjoyed working on this important project and hope that it will assist the Corporation in its decisions over sensitive infill development as one strategic housing option.

Respectfully submitted,

Peter Barnard Associates

ACKNOWLEDGEMENTS

So many people have contributed to this study that it is impossible to thank them all on the next couple of pages. However, we would like to briefly thank four key groups who provided valuable advice and assistance throughout the course of the work.

- CMHC project managers without whom the study would not have been encouraged and preserved (listed in the chronological order in which they served).
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  - Briane Randall
  - Michael Geller
  - Judy Connolly

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  - CMHC branch office personnel
  - municipal staff and politicians
  - developers, realtors, appraisers
  - engineers, architects and quantity surveyors
  - citizens groups
  - financial institutions

- Our subconsultants who provided needed areas of technical expertise (listed alphabetically)
  - Barton-Aschman(Canada)Ltd. (transportation)
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  - Hanscomb Roy Associates Ltd. (construction costing)
  - M.M. Ross and Associates Ltd. (transportation)
  - Williams and Smith Associates Ltd. (architecture/ planning)

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  - Wayne Bond (Ministry of the Environment)
  - Phil Brown
  - Peter Keilhofer
  - Walter Schreier
  - Peter Spurr
  - Chris Terry
  - Marilyn Whitaker

Detailed contacts for each case study are included in the respective technical appendices.

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1 STUDY BACKGROUND OBJECTIVES AND APPROACH

The Canada Mortgage and Housing Corporation (CMHC) initiated this study with growing awareness that the future of many Canadian cities does not lie in the directions which planners and decision makers felt were important ten years ago. Changing circumstances in our cities have created strong interest in the maintenance, revitalization and development of the existing built-up areas, and not just in suburban development.

Sensitive, small scale infill is one development option of interest to policy makers at all levels of government. For the purpose of this study, "sensitive infill" is defined as low rise development on small scale sites requiring little or no demolition of residential units and capable of being built by small builders. Such development conforms in all other respects with the existing scale and character of the neighbourhood. Furthermore, it is intended to be occupied by households compatible with the surrounding area residents.

Although sensitive infill has occurred in several large cities, its viability depends on a variety of factors which are likely to vary from city to city. This study is directed towards understanding these conditions. The purpose of this introductory chapter is to discuss the rationale for the study, its scope and objectives, and our approach.

CHANGING URBAN CIRCUMSTANCES

Changes in growth prospects and economics for many cities have shifted emphasis away from the preoccupation and concentration on suburban growth during the 1970's. Three trends point to increased interest in sensitive infill development.

1. Slower growth. Over the past five years or so, growth rates have been lower than expected in many major urban areas. While major cities are likely to continu growing, with only a few exceptions, the rate of growt will not be of the magnitude requiring significant development of new land.

2. Emphasis on conservation. The advent of the "conserve society" concept points to the need to use existing resources more effectively. Over the years, cities have made substantial investments in all forms of services in their existing built-up areas. However, many of these services are not used to capacity. Some services are oversized initially in anticipation of population growth that has not occurred. Areas experiencing population declines are faced with under-utilized services. Finally, for many types of municip service, there is a minimum threshold population level needed. Once built, population may be expanded significantly with little or no increase in capital expenditure.

3. Interest in neighbourhood revitalization. This interest on the part of municipalities and other organizations has resulted in new types of initiatives. Municipal planning and finance departments across the country are grappling with the tradeoffs between accommodating growth in the suburbs versus available lands within the existing built-up areas, as well as questions regarding emphasis on new development compared to maintenance and revitalization of existing neighbourhoods.

SENSITIVE INFILL IS ONE DEVELOPMENT OPTION

There are several types of development which a city can encourage by the variety of means at its disposal, in order to accommodate new growth and to accomplish objectives relating to existing areas.

- Suburban development expands the urban boundaries, often absorbs valuable farmlands and requires public expenditures to extend hard and soft services to the area. On the other hand, there is a strong consumer demand as well as strong pressure from many business quarters to continue suburban development.

- Redevelopment of existing areas has of course, been a major development option in most cities.

- Rehabilitation and/or conversion are both development types utilizing the existing housing stock. Encouragement of these options can be geared towards the upgrading of a neighbourhood and/or accommodating additional or different types of households.

- Large scale infill projects are built on lands of considerable size within the mature areas of the city. Frequently they are based on large, vacant lands or smaller parcels combined with demolition of adjacent, often obsolete industrial uses.

Sensitive infill is clearly one development option. All cities possess varying degrees of small, vacant or underutilized parcels of land capable of supporting sensitiv infill projects. Thus this type of project represents one development alternative for builders and one of a number of options for municipalities and other levels of government to consider.

VIABILITY DEPENDS ON WHOSE VIEWPOINT

Whether or not sensitive infill development will work depends on the perspective from which viability is assessed. There are four possible viewpoints.

1. Private Developer. The private developer of a sensitive infill project must go through a complex process, the end product of which must be sufficient profit to justify the effort. He must assess questions of land availability and approval process constraints, includin zoning, development standards and neighbourhood attitudes toward development. Market demand must also be studied. Particularly important are potential purchasers' or renters' perceptions of the desirability of living in the neighbourhood, and financial institutions' willingness to provide funds at appropriate terms.

2. Public Developer. The public developer can be a municipality, Provincial agency, non-profit group or CMHC, normally working to a predetermined maximum unit price. While market demand is not as significant a factor as for the private developer, demand for various publicly assisted housing programs are not infinite. The public agency must take into account the attractiveness of the location and neighbourhood of an infill site for the intended client group. Often, the public developer is trying to house a particular group for whom the programs are intended, and to assist in broader objectives relating to neighbourhood revitalization and maintenance. Thus, these agencies will often plan infill projects in conjunction with activities of other public agencies (and in many instances private interests as well) to achieve mutually agreed upon goals.

3. Municipality. Viability of infill from a city's perspective depends on two main factors. First, does infill reduce municipal capital and operating costs? Secondly, can infill be used as a strategy to encourage neighbourhood revitalization? Without planning encouragement and the supply of supporting services, market demand and the infill economics for private and public developers can be severely affected. The city's financial position and previous capital investment supporting other types of development can have a bearing on its attitude. Property tax approaches are not always uniform across the city and can result in lower revenues from the same development in two locations. Finally the cost sharing arrangements existing with the provincial or federal governments can often influence which types of development are financially advantageous for the city.

4. Householder. The decision to buy or rent infill housing is a function of both economic and emotional factors. The economics of infill housing compared say, to a suburban alternative depend on mortgage carrying costs, taxes and upkeep differences, plus transportation. An infill location can reduce the need for car ownership and lower operating costs compared to the suburbs. Perhaps even more important than economics, however, is the householder's perception of the desirability of living in the infill neighbourhood. Public amenities, schools, socio-economic characteristics of residents, perceived social problems, proximity to work, shopping and recreation all affect perceptions.

SENSITIVE INFILL MYTH OR REALITY

Despite overall interest in infill, little research has been devoted to the subject. Infill is occurring to varying degrees in some cities, little or none in others. The lack of information on infill poses many questions in the minds of people in both the public and private sector. These concerns centre around the conditions under which infill is viable and the effects of this type of housing development. From the private market perspective questions include:

- What characteristics denote a neighbourhood ready for sensitive infill? Do all cities have such neighbourhoods?
- Which householder groups constitute the key potential markets and why are they attracted?
- What are the costs of development, compared to suburban tract housing?

- What roles should neighbourhood groups, the municipality and lenders play if the opportunity is to be realized?

- What are the major barriers in the way to profitable infill development?

And from the perspectives of public agencies interested in sensitive infill as a potential tool to achieve public objectives, questions include:

- To what extent can a city's anticipated growth be accommodated by small scale infill?

- Does infill housing cost more?

- To what extent are higher inner city development costs the result of high land costs, constrained sites, lack of economies of scale, or the prototypical nature of design and construction?

- Is infill an attractive housing alternative for suburban sites?

- What neighbourhood characteristics and dynamics are conducive to private infill?

- Can infill housing play a role in revitalizing older areas, and preventing large scale demolition and redevelopment?

- In what neighbourhood situations can public investment encourage infill as part of a revitalization process? Can this investment lead to private activity? Do these conflict?

- Can public objectives of appropriate location of housing for senior citizens together with better utilizatio of large older dwellings and maintenance of low income stock be met by infill?

- What are the advantages (if any) to householders of inner city living? What type of householders stand to gain the most?

- What are the real advantages (if any) to municipalities or public agencies in providing services to infill development vs. suburban (capital and operating costs)?

STUDY OBJECTIVES AND APPROACH

With the preceding considerations in mind, CMHC commissioned this study with the following objective:

> *To provide sufficient documentation to contribute to a public strategy towards sensitive infill development as an alternative to more conventional development patterns.*

The study was to comprise case studies in three cities, each involving the viability of infill from the various perspectives involved.

Case Study Cities

To increase the applicability of results to other centres, it was essential to choose cities with a variety of market area characteristics. These characteristics included:

- city
- growth rate - past and projected
- extent of inner city decline
- availability of serviced land on the fringe
- location and housing type preferences of inhabitants
- experience with infill
- municipal control over development
- physical constraints to suburban growth or development

With these factors in mind, CMHC chose three cities for detailed case studies:

1. Winnipeg, a medium sized, slow growth city with a declining core area and until recently, little apparent municipal action to deal with the problem. Infill

development is limited and there is significant commitment to suburban development. In terms of opportunities for sensitive infill, Winnipeg is seen as typical of many western cities.

2. St. John's was chosen as the case study to represent a smaller city and also eastern Canada. Typical characteristics include physical constraints to growth coupled with considerable growth and speculative pressures. Land and construction costs are perceived as high, with a preference for large suburban lots. The City has limited infill experience but there are concerns about high fuel prices.

3. Toronto was chosen as the large city case study. Previously rapid growth is now slowing, but the city has a broad range of examples of infill development, both publicly and privately initiated. There is a strong municipal commitment to housing in the core area and concerns about suburban growth encroaching on agricultural lands.

Study Scope

To provide documentation suitable for public policy development, the study has concentrated on three areas. The first is the costs of residential infill projects to the major actors involved - namely the public/private developer, the occupant and the public sector. These costs must then be compared to costs for similar suburban developments. Secondly, the study has identified the conditions and factors influencing the viability and opportunity for infill development. Finally, the advantages and disadvantages of an infill strategy have been reviewed from a municipal viewpoint.

In each case study the work has progressed through three spatial scales:

- city wide, where land opportunities were identified for various general forms of prototype infill development.

- project scale, where detailed costs and site specific constraints for prototype infill projects were determined from both developer and householder viewpoints.

- community scale to examine overall infill strategies, calculate public service costs and to test general project viability in terms of location.

Overall Approach

Extensive visits were made to each city to assess its overall development situation, current municipal policies and infill opportunities. Typical sites were selected and prototype infill projects prepared. Opportunities were classified according to a series of generic situations. For ease of discussion we have grouped the generic situations into two areas - physical opportunities and client groups/areas served (to satisfy financial, social and planning objectives).

Physical Opportunities	Client Groups/Areas Served
• small vacant lots	• conversion of industr land
• back lot	• along a transportatio corridor
• scattered larger lots	• housing for seniors
• underutilized land limited demolition	• infill in a red lined area

The economics were determined by development cost analyses. Viability was checked against market estimates for the specific area. Household costs were determined for each prototype considered viable from a market standpoint. Both developer and householder economics were compared to similar suburban situations. Finally the prototypes were examined as a group and, together with assessments of the opportunity for infill in the city and the process of infill development, conclusions were drawn on the viability of an infill strategy.

2 CASE STUDY SUMMARIES

Findings on the economic costs and opportunities for infill differed considerably among the three cities studied. In large part the conclusions depended on such factors as growth and development trends, municipal policies and private sector interest in the downtown. For example, there were numerous physical opportunities in Winnipeg but declining growth and a flat housing market meant little marke support for infill. On the other hand, infill housing in Toronto is an accomplished fact. Strong private sector interest coupled with municipal interest and activity have created new infill developments throughout the downtown core area.

The St. John's situation falls somewhere between these two extremes. Physical opportunities were more limited than in Winnipeg, but there were signs of a growing interest in living downtown. While cautious about the concept of infill, developers and municipal officials were beginning to examine the possibility of cost competitive infill housing in the downtown.

In this chapter, we summarize our findings and conclusic for each city. Specifically we review the historical and economic framework for infill, describe the prototypes developed and their feasibility and conclude on the opportunities for, and impact of, infill housing.

A. WINNIPEG

Winnipeg is currently facing a number of complex development issues. The most central is the extent to which the City should encourage a proportion of its limited future growth to take place in the existing built-up area, rather than in the suburbs. It is clear that the City's dilemma is deciding on a growth option as there are several ways of accommodating all anticipated growth over the next 15-20 years. Encouraging small scale infill projects, sensitive to neighbourhood character could be on strategy to achieve this end.

OVERALL DEVELOPMENT TRENDS CHANGING

Over the past five years, the City's pattern of growth and development has been changing. Some of these trends have a direct impact on the potential for infill development.

Population And New Housing Starts Declining

Although Winnipeg has been growing, the rate of growth has been declining steadily. After annual population increases of almost 1.5% during the 1960's, rates of increase are now less than 1%. The decline is more dramatic in the downtown core where there have been net population losses of between 2-2.5% over the last 20 years.

Not surprisingly, the lack of growth has been matched with a decline in new housing starts. For example, 1979 starts at 4,200 were less than half of the 1978 figure of 9,706 new units. The problem in Winnipeg is further complicated by the fact that approximately 13% of total housing stock is in poor condition. Much of the older stock is in the inner city.

Majority Of New Development In Suburbs

The limited growth that has occurred has concentrated in the suburbs. The current amount of serviced land could support all of the City's growth requirements until 1983 with over 20,000 units finally approved. As well, municipal and Provincial land banks, coupled with extensive servicing schemes represent a significant public investment in the suburban areas. Finally, consumer demand has concentrated in the suburbs with sales outnumbering those in the inner city by more than four to one. At present commuting times and house prices do not differ enough to make the city an attractive alternative to some groups.

PHYSICAL OPPORTUNITIES FOR INFILL

Both future population and household growth are forecas to decline for Winnipeg. This, plus the potential fiscal constraints implied by decreased growth are causing the City to reconsider traditional suburban development trends. Continued suburbanization also has implications regarding the housing quality problem facing Winnipeg, and its strategy of maximizing the use of existing services.

Small Scale Infill Has Occurred

Between 1976 and 1979 approximately 700 units have been built through small scale infill projects. In the City Centre, infill has been part of total redevelopment projects. In St. Boniface and St. Vital, examples of singles, back and end lot, row and apartment infill are evident. However, the thrust towards infill is mainly by the public sector with over half of the units developed by the Manitoba Housing and Renewal Corporation, usually in street townhousing or related multiple unit projects.

Opportunities Exist Despite Current Market

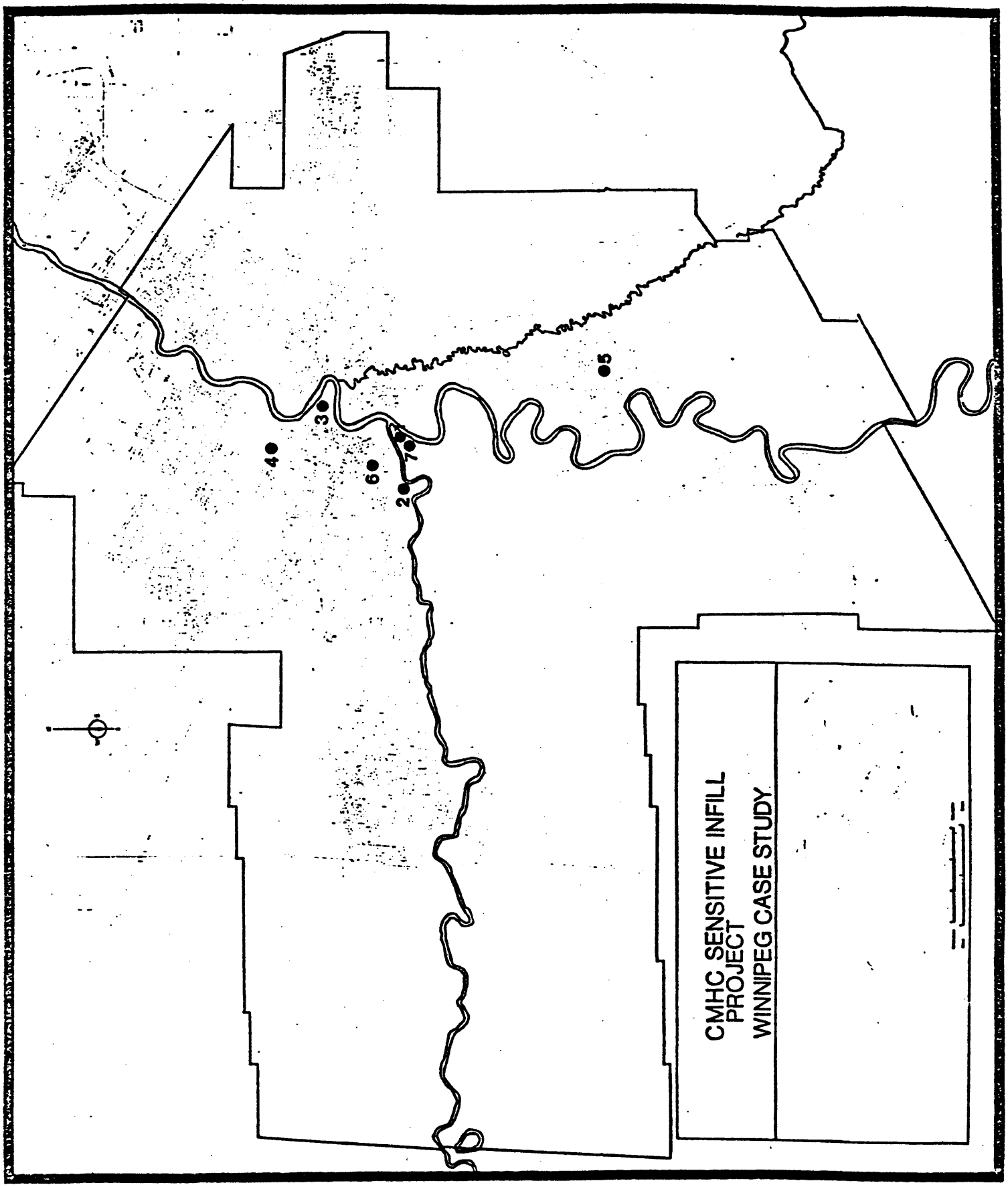
Although recent residential development has located in the suburbs there are some strong reasons to suggest that there is good potential for infill in Winnipeg.

1. Infill sites are available, with approximately 450 ha. (1,100 ac.) of vacant land in the built-up area capable of supporting infill. Parcels vary in size from 7x30 m.(25x100 ft.) up to 1-2 ha.(2-5 ac.) At average densities of 30-35 u.p.ha. (16 u.p.a.) these lands could accommodate 17,500 new units.

2. Demographics favourable for infill. Current projection suggest that by the year 2000, approximately 200,000 people will be between the ages of 15 and 35, with an additional 170,000 seniors and empty nesters. Together these groups will represent a considerable market size. Experience elsewhere suggests that it is these groups who are most likely to live in inner city infill.

INFILL SITE LOCATIONS

EXHIBIT 2.1



3. Commuting could increase demand for downtown living. The desire to reduce commuting time and trouble has been a major stimulant for infill. Although commuting times are relatively short in Winnipeg averaging 20 minutes, rising gasoline prices are beginning to have an impact on commuters. Increases in the cost of running an automobile could encourage more people to live closer to their workplace, usually downtown.

It is important to emphasize that the market for infill housing is not well developed in Winnipeg and that infill will not replace suburban development. Instead, it is one strategic tool available to the City in the maintenance and revitalization of existing neighbourhoods.

GENERIC SITUATIONS AND PROTOTYPES

Seven infill sites were chosen on the basis of being both representative as well as meeting some of the generic situations discussed in the first chapter. Exhibit 2.1 identifies the general areas of Winnipeg where sites were selected. For each site, infill housing prototypes were designed to be sensitive to the surrounding neighbourhood. Existing municipal standards were kept in mind although they were not necessarily complied with in all cases. Characteristics of potential occupants and their compatibilit with the surrounding neighbourhood were also considered.

EXHIBIT 2.2

WINNIPEG'S INFILL SITE AND PROTOTYPE CHARACTERISTICS

GENERIC SITUATION	SIZE	ZONING	FEATURES	LAND PRICE	PROTOTYPES
Medium sized vacant parcel, close to downtown suitable for seniors, transitional neighbourhood, nearby fashionable commercial	15.2x36.6m.	R-3 multiple residential	6m. rear lane runs along rear; limited public amenities	$42,000 76.88/sq.m. ($7.15 sq.ft.)	1) 5 townhouses 93m^2 for professional couples 2) 15 stacked apts. on 3 floors for seniors
Scattered vacant site, adjacent to downtown, stable neighbourhood, some decline	15.2x30.5m	R-3 high density	limited public amenities	75.05/sq.m. ($6.98/sq.ft.)	4 plex with ground access, 4 units of 121m^2 for couples or small families
Vacant, in area with extensive public funding many facilities	26x33.5m	R-2, singles and semis	new public facilities	$33.87/sq.m. $3.15/sq.ft.	1) 4 single detached units 93m^2 for families 2) 6 2-storey townhouses at 116m^2
Declining area, 1½ storey derelict house for demolition, low income households	7.6x33.5 m.	R-3	moderate facilities	$45.13/sq.m. $4.18/sq.ft.	ground access duplex 93m^2 and 116m^2 for low income families
Mature neighbourhood with big backyards, back lot infill, family neighbourhood	lot depth of 6.7 m	R-1	limited demand for public amenities	$15,000/lot	4 single detached units of 93m^2 for families
Parking lot close to core in transitional neighbourhood, under-utilized site	30.5x27.4m	R-4	parks and public buildings	$53.76/sq.m.	1) 5 6-storey units of 116m^2 for families 2) 16 unit 4 storey apt. 2/3 for singles and couples, 1/3 for seniors
Close to fashionable shopping area, residential above commercial, along major arterial	15.2x41.1m	M-1, light industrial	limited public amenities, but near river	N/A due to construction above existing structure	9 2-storey apts. above and behind commercial, 6 bachelor at 42m^2 and 3 1-bd. at 61m^2

Five of the 11 prototypes designed and costed were found to be economically viable. Exhibit 2.2 describes each project and its characteristics. To be viable they would have to be financed under CMHC's non-profit program with reduced interest rates. In all cases, these projects were located in strong, stable neighbourhoods characterized by low land prices and easy site access.

The remaining six prototypes would have required major changes. Land needed downzoning at least to R2 to encourage lower land prices. Unit sizes needed to be reduced, beyond the limit of market acceptance. Finally developer's profits would have needed to be less than 15%.

Whether viable or not, all infill prototypes required significant variances to existing City standards. Specifically, side yard requirements and front yard setbacks needed to be reduced as well as parking requirements. Although open space requirements were at a minimum, no major contraventions occurred.

COST CONCLUSIONS

Infill costs were calculated for the developer, the municipality or public sector and finally the homeowner. As expected, the conclusions show different viabilities for different participants. Similarly, there are variations in the opportunities for both the public and private sector.

1. Although difficult, development costs for infill can be competitive with estimated market values for similar units in the neighbourhood. However, the design of the units is standard and the dimensions small. The most feasible projects occur on medium sized, vacant land parcels or underutilized sites in stable, middle income neighbourhoods. Land costs should be low with a climbing resale market. Non-profit rental projects are most feasible, as market value for existing units in the neighbourhood are often below comparable new construction costs. Construction costs should be kept low through the number of units built or easy site access which reduces time costs.

2. Variance to City standards required, in virtually all projects. More specifically municipal standards would have to be reduced for side yard and front yard setbacks as well as parking requirements. In some cases the reductions would be more than half the current standard.

3. Infill housing in Winnipeg is generally more expensive than comparable new suburban units. Existing zoning inflates inner city land prices while large tracts of vacant land are available on the fringes of the built-up urban area. Constrained sites and the custom design of infill also make construction costs higher than for more conventional suburban housing.

4. Overall household costs slightly favour infill, particularly for multiple townhouse units on under-utilized sites. Reduced personal transportation expenditures are the major factor with infill households saving subustantially, due to reduced car ownership needs and shorter travelling distances. For example, a suburban family moving to an infill site could save as much as $2,410 by selling one of two cars. Rough calculations suggest this saving could enable a family to add $16,000 to their mortgage. However, it is important to note that all other household costs are lower in the suburbs, primarily due to lower property taxes.

5. Under current cost sharing arrangements, infill does not provide a municipal cost advantage. The prime reason for this is education costs. However, if the City adopted an inner city growth strategy for non-family households, infill could result in annual cost savings of roughly 30%.

To conclude, the costing analysis suggests that infill can occur successfully in a variety of generic situations However, the generally low market value of much of the inner city's existing stock affects the feasibility of infill. Except for transportation cost savings, homeowners do not gain substantially from infill and the municipality only benefits under certain demographic strategies. All of this suggests that infill costs must be examined with other facto such as better utilization of existing facilities and the maintenance and preservation of existing neighbourhoods.

B. ST. JOHN'S

The twentieth century has seen St. John's emerge as Newfoundland's centre of finance, industry, services and education. Recent off-shore oil discoveries have enhanced St. John's position and land values are starting to escalate as outside interest in the area continues. However, in spite of this growing importance, St. John's continues to be a relatively depressed urban area in Canada with the highest unemployment rates and low per capita incomes. This study provides a substantially different setting for studying infill. Like Winnipeg, the downtown has been declining in both population and housing quality. However, unlike Winnipeg, there is a tremendous influx of new interest in St. John's which could provide the potential for a downtown turn around.

PUBLIC INTEREST IN REVITALIZATION

Downtown St. John's is unique in terms of topography and setting. Although physically attractive, the urban area has been subject to fire, hasty reconstruction and construction problems associated with steep slopes and rocky terrain. Low incomes and an exodus of middle income families from the downtown to the suburbs have increased the housing problems in the downtown. However, there are now signs of change. Public and private interest in the downtown is increasing and there is evidence that it is becoming an attractive housing area for certain groups.

Downtown Declined in Recent Years

Since the early 1960's, downtown St. John's has lost population. However during the 1971-76 period the decline was an unpredicted 24%. The prime group moving out were young families, leaving the downtown with smaller non-family households. In addition, total housing stock declined with the 1971 figure of 3,220 units reduced by 290 to 2,030 units in 1976.

While the inner city was declining, suburban St. John's was experiencing major growth. Total population in these outlying areas grew by 14% during the 1971-76 period, primarily in the young family households. Over 10,000 new units were built to house this growth and over $5 million was spent by the public sector to provide the necessary servicing infrastructure. The majority of development has occurred to the southwest of the downtown, in the Mount Pearl New Town.

Programs in Place to Turn Around Downtown

The situation in downtown St. John's became serious enough that a variety of programs were put in place to stem the population outflow and rebuild the downtown neighbourhoods

1. Federal NIP/RRAP prgrams have jointly contributed over $17 million to improvements in the downtown. At present there are six Neighbourhood Improvement Areas and over 1,300 units have received funds through the Residential Rehabilitation Assistance Program. There is evidence that after six years of these programs, private sector rehabilitation is also occurring, particularly in the east end of the downtown.

2. St. John's Heritage Foundation, has also made a significant contribution to downtown revitalization. Approximately 20 properties have been restored in the last three to four years and the Foundation hopes to restore up to 50 properties by 1982-83. Resale prices in these neighbourhoods are increasing as private interest in the area is growing.

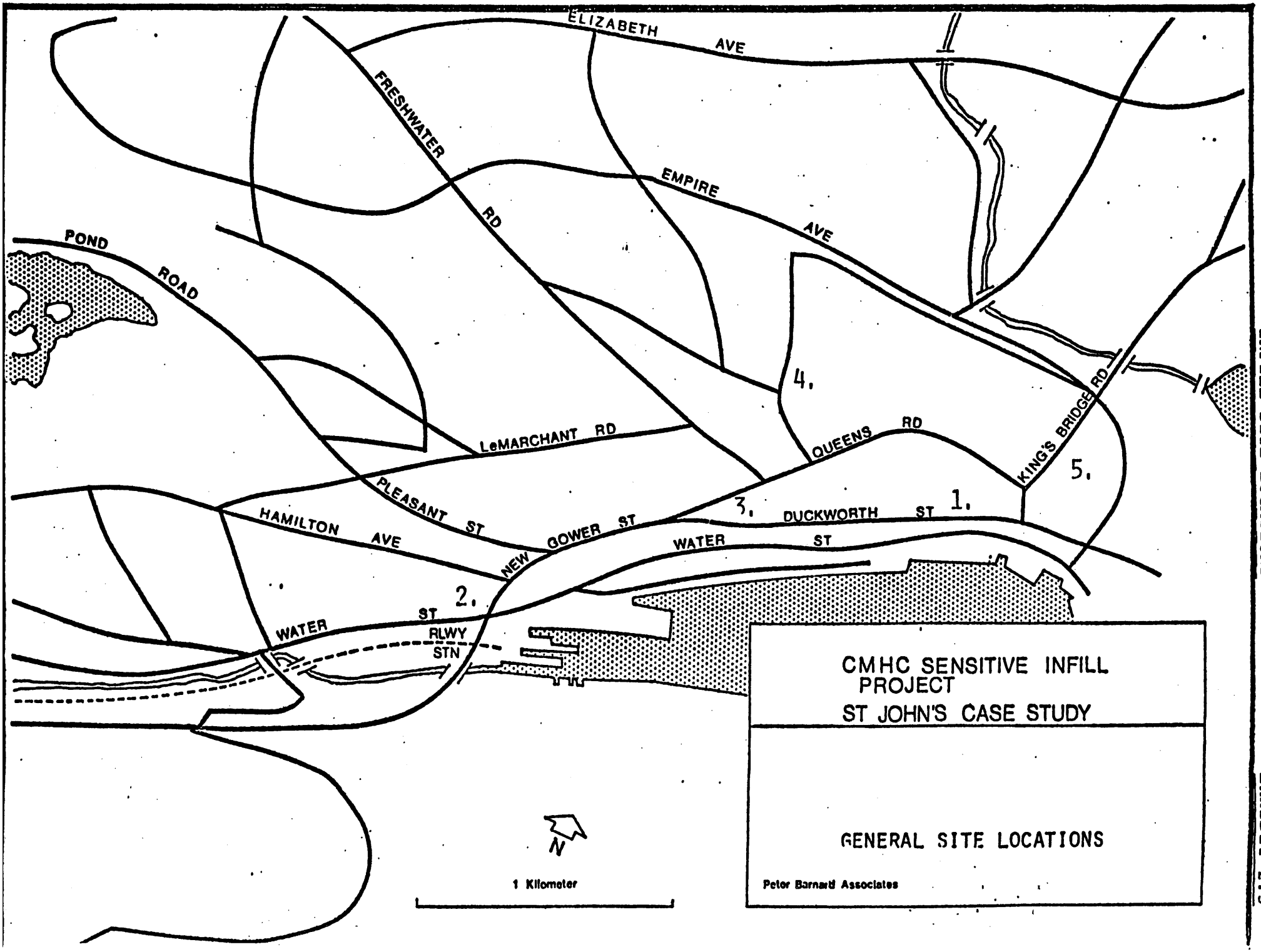
The combination of these programs and the general economic prosperity in St. John's is working to restore interest in the downtown. Resale prices increased by approximately 17% during the first half of 1980 and much of the new market buoyancy in the downtown has been caused by young professional couples moving into the area.

This trend, could encourage substantial new infill housing. But before this can occur, the ongoing city debate over substantial demolition and redevelopment versus less demolition and more restoration must be resolved.

Land Availability only Infill Constraint

Although there are signs that St. John's is now ready for infill, the turn around is recent. To date, the only examples are public row housing and townhouse projects developed during the 1950's and 60's. Private rebuilding of units destroyed by fire has happened sporadically but is too haphazard to be clasified as infill.

Current and proposed zoning throughout the downtown is suitable for infill housing. As well hard services, schools, police and fire protection can readily accommodate potential growth. The one problem area is the lack of physical sites available for infill development. More specifically, estimates are that less than 15% of St. John's future growth could be



INFILL SITE LOCATIONS

EXHIBIT 2.3

accommodated on infill sites. However, this still accounts for approximately 5,000 people or 6% of the City's current population which could be housed through an infill strategy.

INFILL OPPORTUNITIES

We identified certain situations in St. John's where infi could be tested. In developing these generic situations it was important to consider development characteristics uniqu to St. John's, while at the same time typical of infill opportunities generally.

In total five sites were selected for further study, as shown in Exhibit 2.3. For each site, prototypes were designed keeping in mind our guidelines of physical and social compatibility, recognition of current municipal standards, and opportunities for innovative design. Exhibit 2.4 describes the prototypes and their features.

After initial costing, three prototypes were redesigned due to excessively high costs relative to market prices. In all redesigns, unit sizes were reduced, additional units were added and in some cases parking was reduced. In each case, the redesign led to contravention of zoning and amenity space requirements.

COST CONCLUSIONS

The overall conclusion of the St. John's work is that infill in all examples tested is financially viable from all perspectives. However, the feasibility of developing infill projects depends upon continued market buoyancy and a relaxation in municipal building standards.

EXHIBIT 2.4

ST. JOHN'S INFILL SITES AND PROTOTYPES

GENERIC DESCRIPTION	SIZE	ZONING	FEATURES	LAND COST	PROTOTYPES
Medium sized vacant lot on major downtown commercial arterial; considered prime development site; parking poses constraint	1,160 sq.m.	commercial	public transit	86/sq.m.	apts. above ground level commercial, 10 2-storey 85m^2 units; 10, 1-bd. 40m^2 units; 340 m^2 commercial; for young professionals and small craft shops
West end where up to $3 million invested through NIP; low and moderate income households	800 sq.m. (150 through severing back lots)	R3 high density residential	NIP park	$27/sq.m.	3 storey walkup; 9 2-bd. apts. of 80m^2 for single parent families and 2 person moderate income households
Top of steep hills, adjacent to heritage conservation area; row of units, some destroyed by fire, low to moderate income families being replaced by young professionals	735 sq.m. (including 4 existing houses at 50 sq.m. each)	R2 medium density residential	view of harbour and narrows	$43/sq.m. ($20,000 for 4 existing houses and land)	3 storey row townhouses; 9, 3-bd. 96m^2 units for young couples moving downtown
Classic "missing tooth" as result of fire; central city in a middle income area	75 sq.m.	R3	limited	$27/sq.m.	Single family infill; 1 3-bd. 3 storey house of 90m^2 for moderate income family
Medium sized under-utilized vacant parcel; church owned; adjacent to commercial area; surrounded by residential	1000 sq.m.	institutional	public transit	$22/sq.m.	6 bachelor and 6 1-bd. apts. on 2 storeys, bachelors at 36m^2 and 1-bd. at 45m^2 for singles, seniors and 2 person households

1. Infill development costs competitive regardless of project size or unit type. In all instances, prototypes ranging from small singles to residential above commercia could be developed for costs equivalent to those for adjacent development. Rising land, construction and energy costs have raised the prices of existing housing and new urban stock can now be price competitive. Howeve it is also important to note that the strong demand for housing in St. John's has caused increased development activity and contributed to the viability of urban infill in particular..

2. Land and construction costs contribute to infill attractiveness. At $27 per sq. m. ($2.90/sq. ft.) land costs are lower than downtown land in other Canadian citi This cost is also well below the average $35 per sq. m. ($3.76/sq. ft.) for serviced land in the Mount Pearl New Town. Similarly construction costs between $340-370 per sq. m. ($36-40/sq. ft.) compare favourably with the $365 ($39) average in the suburbs. Selling prices and rental rates between infill and the suburbs were also found to be within 15% of each other.

3. Private market freehold most financially viable opportuni However to be cost competitive, modifications were required. More specifically, greater site coverage, reduced setbacks and side yards as well as higher densiti were required. Rental and apartment units were only viable under non-profit schemes including interest writed The current property tax system also constrains apartment development, although the new system of capital valuation scheduled for use in 1981, will improve the taxing on apartment projects.

4. Household costs favour infill development, over suburban housing. However, as in Winnipeg, the cost savings are due to transportation as opposed to house carrying costs or property taxes which are equivalent in downtown St. John's and the suburbs. However, the availability of public transit and minimal car requirei could translate into personal savings. For example, if a two car suburban family moves downtown and sells one car, they could save up to $2,000 annually.

5. Infill development definitely favours public sector. Public sector savings were found to be substantial for infill housing. If a population equivalent of 5,000 people were housed in infill, additional capital costs would be $214,000 compared to $13 million if the same population was located in Mount Pearl New Town. Suburban operating costs would total $3 million for 5,000 new residents compared to $600,000 if the same population were located downtown where services are below capacity.

6. However, infill and suburban markets differ. Although the housing is relatively the same price and despite potential personal savings through transportation, there is little likelihood that all suburban residents will be attracted to downtown St. John's. Suburban purchasers tend to be young and family oriented while infill purchasers or those expressing interest in down town St. John's are more non-family oriented. Demographics suggest that the one other potential group, suburban empty nesters, are not a significant market size in St. John's.

In conclusion, all infill prototypes are economically viable under existing market conditions in St. John's. At present, two actual infill projects are at the land assembly and design stage, suggesting that infill is starting to become a form of development in St. John's. In terms of personal costs, the infill prototypes are not unduly expensive, especially when compared to the suburban alternative. And, finally, from the view of public sector costs, additional capital expenditures are very low and operating expenditures appear within reason given that an additional 5,000 people will be served, representing an increase of 6% in the City's population.

C. TORONTO

Toronto provided yet another perspective on sensitive infill development. Like the other cities, Metro Toronto has been experiencing declining population growth rates. However, dramatic decreases in average household size, particularly in the City of Toronto have increased demand for housing. This, coupled with a growing interest to live in the downtown area, has produced considerable rehabilitati infill and redevelopment activity.

REAL INTEREST IN INFILL

In Toronto, social, economic and political conditions have combined to create both a significant supply of and a strong demand for new infill housing. Over the past decade the momentum for infill housing has accelerated as new, often smaller households have shown a clear preference for downtown living. Although first recognized and supporte by young professionals, infill housing gradually became attractive to other groups such as developers, City official and most recently, groups living in more suburban oriented areas.

Interest in Downtown Preceeded Infill

By the late 1960's suburban subdivisions were becoming less attractive to some Toronto residents. In retrospect, several factors were encouraging a renewed interest in the downtown. First of all, it was convenient to employment, retail and cultural/recreational activities. As well, there were a variety of stable yet diverse residential neighbourhc downtown. The range of housing types and architectural

styles were seen as a refreshing change from the homogeneity of suburban development. Finally, the housing downtown was often substantially less expensive. For example a standard $36,000 house in North York in 1970, could be purchased for $15-29,000 in the City depending on the location and condition of the unit.

A review of the conditions which led to the attractiveness of infill, suggest that several changes took place during the late 1960's and mid to late 1970's.

- Emphasis on sensitive development increased, particularly during the 1966-71 period. Changing attitudes in urban living resulted in shifts in the City's demographic composition. More and more young professionals and people with alternate lifestyles moved downtown and became concerned with neighbourhood preservation. The success of the rennovation and rehab activity increased the demand for downtown housing. A strong anti-development feeling began to grow against projects like the Spadina Expressway and St. Jamestown. In total, they were seen as threats to neighbourhood stability.

- Municipal support was strong for the downtown, largely as a result of the activities just mentioned. With the support of the electorate, planners and politicians began to take strong development positions. Height and density limitations such as the 45 ft. height restriction were vehicles for controlling development and protecting existing residential communities. Small scale private sector rennovations were well received as compatible with the form and nature of the City's residential areas. Communities like Donvale, Cabbagetown and the Beaches flourished.

- Stability and growing demand encouraged developers, to respond to this new market, comprising over 70% of the residential activity in the City from 1971-76. Despite the growing market, development restrictions of the early 1970's caught many developers with downtown holdings. Some were pressured into infill as a last resort when their options to go up were restricted.

- City entered market too. Although the City had adopted policies in support of downtown neighbourhoods, politicians and officials were concerned about the growing affordability problem. Private developers were focussing on more expensive units, with the result that more moderate income families were being forced out of the downtown. In 1975, with assistance from CMHC, the City formed a non-profit housing corporation, providing more affordable housing for groups wishing to live in the downtown. Of the 32 projects completed to date, one half have involved some type of infill.

As a result of these activities, infill has become a well utilized development form in the City of Toronto. Private infill is a reaction to the strong demand for urban housing and the limited development options available to downtown property owners. Public sector involvement has emerged to attempt to correct imbalances caused by the private activity in the City's housing stock.

TORONTO PROVIDES INFILL EXAMPLES

Infill is a housing form is occurring throughout Metro Toronto. The boroughs however are in the early stages with neither the variety nor volume of the Toronto situation.

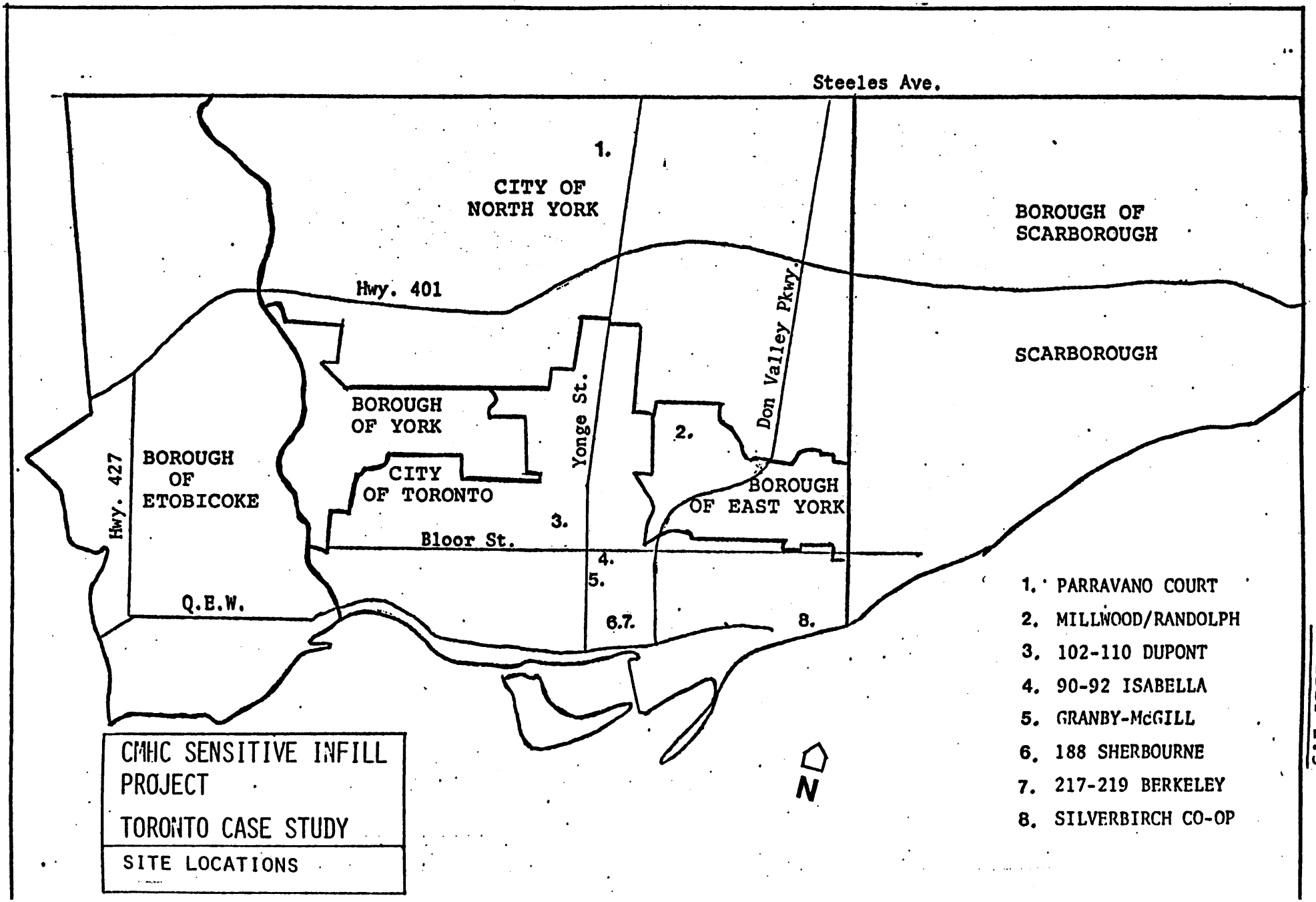

Steeles Ave.
1.
CITY OF NORTH YORK
BOROUGH OF SCARBOROUGH
Hwy. 401
Don Valley Pkwy.
SCARBOROUGH
BOROUGH OF YORK
Yonge St.
2.
Hwy. 427
BOROUGH OF ETOBICOKE
CITY OF TORONTO
BOROUGH OF EAST YORK
3.
Bloor St.
4.
5.
Q.E.W.
6.7.
8.
N
1. PARRAVANO COURT
2. MILLWOOD/RANDOLPH
3. 102-110 DUPONT
4. 90-92 ISABELLA
5. GRANBY-McGILL
6. 188 SHERBOURNE
7. 217-219 BERKELEY
8. SILVERBIRCH CO-OP
CMHC SENSITIVE INFILL PROJECT
TORONTO CASE STUDY
SITE LOCATIONS

EXHIBIT 2.5

Our analysis has shown that the City is by far the leader in infill activity with over 400 units on stream, followed to a lesser extent by North York. Consequently, our focus has been on existing projects in Toronto, with less emphasis on the other boroughs.

Although, infill projects vary greatly according to location, design and size, there is not nearly the same variation in site characteristics. All projects tend to fall into one of the following generic types:

- vacant land parcels, either overlooked or with the original use no longer viable. Still others were held in speculation and suffered as a result of downzoing in 1973-74.

- underutilization of land in terms of proximate uses or changing trends. For example, school land, church properties and parking lots are often underutilized and now being developed.

- back lot infill involving underutilization of the back portions of private lots. These residential lots are considered excessive by today's standards and the rear portions are being developed for housing.

- replacement/redevelopment of nonconforming/obsolete use sites no longer economically viable in their curre use are being redeveloped for housing. Most of these sites are low either retail or industrial.

Given these basic site characteristics, we proceeded to identify infill projects which would meet the study objectives as well as representing typical infill projects in Metro. The eight projects selected are shown in Exhibit

EXHIBIT 2.6

TORONTO INFILL PROTOTYPES FOR DETAILED ANALYSIS

PROJECT AND LOCATION	GENERIC SITUATION	UNIT SIZE AND CHARACTERISTICS	REASONS FOR SELECTION
1. Granby-McGill City of Toronto	Infill on vacant land parcels	20 townhouses private market	Interesting assembly with zoning bylaw amendment
2. Silverbirch Coop City of Toronto	Underutilization of land	16 unit coop for mother-led families	Non profit coop; costs all available
3. 217-219 Berkely City of Toronto	Underutilization of land (includes demolition)	3 townhouses private market	In area that has experienced assisted infill housing
4. 188 Sherbourne City of Toronto	Back lot infill	3 apartments municipal non-profit	One of very few small-scale municipal infill projects Interesting approval process
5. 90-92 Isabella	Back lot infill	8 townhouses to rear of 'historic' building private market	Reasonable selling price Co-operation between City and developer in approval process Obtained interview with developer
6. Parravano Court City of North York	Back lot infill	12 single family detached units private market	A 'typical' example of a North York infill opportunity Obtained interview with developer
7. 102-110 Dupont City of Toronto	Conversion of obsolete use	23 townhouses private market	Very long approval process necessitating redesign of project
8. Millwood/Randolph Borough of East York	Conversion of obsolete use	10 townhouses	Developed as moderate income housing

and discussed in Exhibit 2.6. Selection was based on availability of information, representativeness of different parts of Metro Toronto, even distribution among generic types discussed in the first chapter and representing a range in the number of units. Whenever possible projects were to be well related to surrounding development. At least two projects were to include examples of non-profit development, and private examples were to be among the least expensive.

COST

CONCLUSIONS

The existing situation in Toronto suggests that infill will only be initiated by the private sector if the land is moderately priced, the physical and social infrastructure is at or above standard and if there is a clear demand for new units in the central area. Municipal support is a necessary prerequisite to infill, although not necessary through formal policies. However, there must be an established set of conditions to follow and straightforward procedures for dealing with proposals for infill development Interestingly, public costs are not an issue as the existing infrastructure, both hard and soft is operating below capacity. Finally, based on the historic development of infill in Toronto, neighbourhood opposition is rare. More specifically, existing infill examples in Toronto suggest some definite conclusions about physical and market characteristics of successful infill projects.

1. Infill market is healthy, expensive and freehold. The average infill market of eight to 15 townhouses is absorbed quickly, often within two to four months. Usually at least 25% of the units are presold and to date there have been few resales. By far the majority of infill is private market, freehold ownership, ranging in price from $98,000 to $175,000. High land costs ($35-40,000 per unit), the custom nature of infill, long term carrying costs and market demand all work to keep prices higher than the suburbar counterparts. High prices also affect the City's ability to provide more moderately priced housing in the downtown. As a result, non-profit projects are being undertaken on a larger scale to keep costs down.

2. Majority of infill is in townhousing, with over 61% of our sample of Metro projects in this form. Zoning often prohibits larger scale projects and changes could involve a lengthy and therefore costly approval process Townhousing is generally compatible with the existing scale of development and there is a strong market demand for ground-related multiple units. Finally, high land costs and constrained sites often influence and encourage the decision to construct townhouses.

3. Newness, location and specific features are critical factors in the attractiveness of infill. Potential residents want proximity to transit and are only interested in new units with interior design and space features. Large expanses of glass lighten and brighter the space, which should be at least 121 sq. m. (1300 sq. ft.). Outdoor amenties should be private with side and back yard fencing. Similarly, clearly marked parking spaces often with attached or undergrou garages are important project features.

Our analysis suggests that infill residents want vehicle storage space even though they use their cars to a much lower degree than their suburban counterparts. Consequently, transportation cost savings do not appear to be a major incentive for moving downtown. Given the expense of the unit, residents tend to emphasize convenience and reduced travel time.

4. Maximum use of lot affects provision of open space and landscape requirements. In almost all projects examine minimum setbacks were relaxed by as much as 50% and development proceeded though zoning amendments and/or minor variances. Similarly lot widths and side yards were often reduced below City standards. The tight fit of the unit on the site affects the provision of open space which, depending on location, could be as much as 30-40% of the total site area. These requirements are most often met through extensive use of outdoor decks and balconies which are either ground-related or extensions to second or third floor space.

5. Infill residents usually childless, well established and often rented in downtown before purchasing. The purchase of an infill unit is therefore not usually a major change in lifestyle, although in our analysis, up to 20% of purchasers were moving to the downtown from the outlying area. Furthermore, up to 30% of the market is composed of couples without children. Empty nesters in their mid-50's are one of the strongest groups attracted to new housing in the downtown. Finally, afforability does not appear to be an issue with average downpayments of 15-40%.

6. Developers are small, area based and often come from different fields. Unlike the larger, experienced land developers in the suburbs, infill developers are usually small one man operations working on a single project at a time. Many are new to property development, having come from real estate, architecture and engineering fields. In almost all cases, these developers rely on outside financing. Given their size and small volumes, infill developers usually have insufficient funds to finance their own projects without risk. Outside sources provide starting and interim financing funds, with the result that project financing is extremely sensitive to the length of the approval process. Because of this, most projects try to avoid delays by conforming closely to the zoning bylaws and depending on minor variances if necessary. Finally, infill developers often do not realize large returns on their investment. Our analysis suggests that profits range between 1% and 20% of total development costs. These developers tend to be committed to the concept of infill rather than its profitability and often complete only one project.

7. Infill not a suburban alternative, but borough infill could attract some suburban groups. Our analysis of new suburban development in the Region of York has shown an entirely different type of development, and a different market demand. As expected, developmen is predominantly single family , detached housing on large lots with curving streets, and self-contained community services. First time buyers want moderately priced housing which is seen as good value. This perceived value coupled with a growing familiarity with a lifestyle and physical area, combine to keep much

of this group in the suburbs for their subsequent home purchases.

This type of infill which does offer some potential for attracting suburban residents, are the single detached and semi-detached units now being completed in boroughs such as North York. Now that the boroughs offer a more complete range of housing, these residents can change their housing needs and expectations without leaving their suburban lifestyle.

Unlike Winnipeg and St. John's, our Toronto conclusions have been based on existing examples of infill. In general, we have found that small scale, private sector infill is both a popular and expensive housing form within the City. However, several factors suggest that infill developers do not realize great profit. The expense of sensitive infil has forced the City into larger scale projects in an effort to keep costs more reasonable. As well, the high cost of units has meant that suburban housing is considerably less expensive on a per unit basis. Consequently, those attracte to infill are not really concerned with the potential personal transportation cost savings. Finally, the municipality does not incur costs as a result of infill and generally benefits from a better utilization of its existinc services. Consequently, municipal policies support the conc of infill and standards are relaxed to encourage its development.

3 SUMMARY OF FINDINGS & CONCLUSIONS

The case studies in three quite dissimilar cities have provided us with a range of perspectives on sensitive infill development. Each city showed quite unique circumstances, and certainly different degrees of interest in infill development on the part of developers and the municipality, as well as that key actor, the housing consumer. Thus the findings and conclusions from each city differ. However, while extrapolation to general conclusions is difficult based on examination of only three cities, some broader conclusions have emerged from our work.

A. INDIVIDUAL CASE STUDIES

The order in which the case studies were conducted showed a gradation in the extent of sensitive infill development in the three cities. Winnipeg's limited experience, led to St. John's latent opportunity, followed by Toronto's extensive experience with various infill forms.

IN WINNIPEG, INFILL NEEDS ENCOURAGEMENT

Winnipeg's broad range of physical opportunities for infill development are offset by many constraints and marginal economic justification compared to suburban development. Public initiative will be needed to encourage further exploration of this development option.

Opportunities, But Also Constraints

Winnipeg's land and services situation are favourable for sensitive infill development. The available land could accommodate 50% of the City's growth for the next 20 years and excess capacity is available in all municipal services. Furthermore some neighbourhoods have qualities which would attract infill development. These include neighbourhoods with one or more of the following characteristics:

- near retail/commercial areas which are complementary to the lifestyle of infill housing purchasers
- in a state of transition from lower to higher market attractiveness as evidenced by increasing land values, resale activity and private rehabilitation
- readily assembled land parcels which can accommodate small infill developments without disruption to the area
- municipal investment in upgrading municipal services and amenities (such as in the NIP areas) and housing rehabilitation, both privately financed and publicly assisted

The limited infill activity to date in Winnipeg points however, to the major constraints affecting this development type in the future. First, slow overall growth in the City and the poor image of inner city neighbourhoods has stifled private market demand for the generally higher priced infill housing. Second, municipal development standards are too restrictive. Finally, the City has had no active policy of

encouraging infill development, preferring to concentrate its interest in the suburbs. However, at the time of writing, some changes have occurred in the City's attitude and there are prospects of new initiatives to revitalize the downtown area, with Federal and Provincial assistance.

Viability Is Marginal

Our prototype studies indicated that, in a couple of specialized instances, infill projects could be developed for the private market. To be viable, projects have to be in a neighbourhood with the characteristics discussed above, with generally small unit sizes (in the order of 93 sq. m. (1000 sq.ft.). In other cases the development would be too costly to be marketed successfully. On the other hand, non-profit infill projects could be developed and justified based on comparisons with alternative suburban locations. For certain client groups, including senior citizens, singles and childless couples, downtown areas could be the preferred location.

Regardless of whether projects are developed privately or with public assistance, there are significant transportation cost savings for infill households, compared to living in a suburban location. In the private market case these savings make up for the added costs of carrying the higher priced infill house. For non-profit, the result is a real cost saving for these households generally needing two cars when living in the suburbs.

Viewed objectively, however, infill development is not an alternative to suburban development. Market demand is clearly oriented towards suburban development while infill housing is more costly and market demand is limited.

Public Initiative Is Needed

Winnipeg's limited growth can be readily accommodated within existing suburban development commitments. Infill's role over the near term will be to maintain and revitalize neighbourhood's to achieve social and financial objectives of the City. To do this Winnipeg will have to:

- decide on infill's role in the various long term development options being considered by the City

- make changes to encourage infill development by modifying present site planning standards and zoning in key neighbourhoods; facilitating back lot and end lot infill; and coordinating programs of various municipal agencies to make evident the City's goals of neighbourhood maintenance and revitalization

- support more non-profit infill housing while encouraging CMHC and Provincial agencies to review their policies affecting infill

- consult with the City's strong resident groups to ensure their support

ST. JOHN'S IS RIPE FOR INFILL

In comparison to Winnipeg, St. John's represents a different set of opportunities and constraints. Interest in infill is growing, although the overall number of units likely to be developed is not large, and some public sector initiatives would be appropriate.

Several Reasons

There are a number of reasons to suggest that infill activity could start to increase in St. John's. First, a market for infill is beginning to develop, bolstered by the presence of a strong downtown residential community and the public sector support program activity, such as NIP and RRAP Also, expectations of strong housing demand resulting from unprecedented economic prosperity and high rates of in-migration, should accelerate infill activity.

St. John's is also beginning to consider broad planning goals which could imply encouragement of infill activity. More efficient use of existing services, preservation of existing downtown neighbourhoods presently losing population, and provision of lower cost, non-profit housing are all issues under discussion. There is an ongoing debate between groups favouring rehabilitation and preservation of downtown housing, and those with interests in large scale demolition to permit redevelopment. Sensitive infill with limited, small scale demolition offers a compromise solution.

Impact Will Be Limited

While infill activity is likely to pick up in the future, the overall impact will be limited by several factors.

- Topography and the intensity of development that has already taken place mean that there are a limited number of infill sites in the downtown area - limited probably to housing an additional 5000 people or 6% of the City's present population

- Some available sites are unlikely to be developed due to neighbourhood opposition or to the fact that they are owned by organizations (such as churches) not interested in development.

- Commitment to suburban development is strong, both from the consumer point of view and also from all thre levels of government who have substantial infrastructu investments in suburban areas.

Finally, the success of infill in St. John's will be dependent on continued health of the economy and strong market demand both of which will be affected by long term resolution of current oil and fisheries disputes.

Needs Encouragement

Because infill housing of the type examined in this study has not previously been built in St. John's, the advantages of infill will have to be shown to the concerned parties. These include the potential developer, purchaser and, although they are already sympathetic, municipal and other government politicians and officials.

Both the City and CMHC will have to make major efforts to convince the development industry - particularly smaller builders - of the advantages of infill housing. Zoning and development standards sensitive to infill conditions will have to be developed and current procedures for assessing proposed projects from a planning and engineering perspective will need revision. A Council policy formally endorsi infill housing would also be a positive move.

In turn, CMHC should review its lending limits (or maximum unit prices) which are currently a deterrent to infill, and it should actively promote use of the non-profit program in downtown areas. Finally, a private market, but CMHC encouraged, demonstration project could be developed to show the viability of infill in St. John's.

Equally important will be the promotion of downtown living to residents of St. John's. Our studies show transportation cost savings which more than offset infill's cost compared to suburban house prices. Availability and general underutilization of schools, day care, parks and recreational facilities as well as the benefits of nearness to work, entertainment and shopping are also advantages to be stressed.

TORONTO'S EXPERIENCE PROVIDES MANY LESSONS

In comparison to the other two cities, Toronto's active downtown housing market and extensive infill activity have provided us with the opportunity to examine what has already happened, rather than to speculate about future possibilities. Perhaps Toronto's most important lesson is that public goals for infill can be successfully accommodated in the context of private market initiative. Despite an already well developed infill market, the City and surrounding Boroughs of Metropolitan Toronto still have many options for future encouragement of the infill option.

Private Market Initiated

Extensive infill development in the City of Toronto, and more recently in the Borough of North York, was

initiated by private builders in response to existing market conditions. Demand for downtown housing has been strong for over a decade. The advent of infill developments was preceded by significant private rehabilitation of older housing stock in attractive, convenient, inexpensive inner city neighbourhoods. As suburban housing spread further, rising concerns over energy coupled with a good public transit system contributed to demand. Despite relatively high prices, there was a sufficient market for new housing within downtown neighbourhoods and a supply of smaller land parcels which, with some demolition, provided sufficient land for small scale infill projects.

No Active Infill Policies

Not until significant amounts of infill housing had been developed, did municipal officials begin to consider the role infill was playing. It was then seen that infill held the potential to help solve various problems by:

- redressing imbalances in the socioeconomic mix created by white painting, through development of lower cost housing

- reversing trends to declining populations in downtown neighbourhoods

- maximizing returns on the municipality's early investments in services

- reinforcing the continuation of downtown neighbourhoods by creating developments in the scale and character of the older housing

While no municipality has particular policies encouraging infill, the City promotes infill through a series of informal policies which include speeding up the approval process for such developments and permitting significant reductions in development standards on a project by-project basis. The City's Housing Department has also built small scale infill under the non-profit and cooperativ housing programs. There is evidence of a growing interest in infill development on the part of one or two Boroughs.

Achieved Some Goals But Not Others

Infill developments have generally been successful in the market place despite very high prices compared to un-renovated (and even renovated) nearby housing. From a publi policy perspective infill has:

- Assisted in neighbourhood revitalization, but only after other public and private sector revitalization, including service and amenity improvements and housing rehabilitation, have preserved the neighbourhood from deterioration

- Helped positive change in urban land use, by providing housing on lands which were previously nonconforming or obsolete uses

- Reduced transportation costs - as in the other case studies, households occupying infill housing have lower transportation costs than suburban residents

On the other hand, infill has not been without its shortcomings, from a public policy perspective at least.

The problems encountered in Toronto include:

- Added to social imbalances. High costs and good demand have resulted in high prices of infill units which have limited the market to higher income groups. Small scale, non-profit infill developments have generally not proven feasible given the high costs of land and construction. Rent controls and high carrying costs have effectively eliminated this type of housing.

- Offered a limited range of housing. In the City, infill has been almost exclusively townhousing whereas in the Boroughs only singles and semis have been built. Cramped sites have forced townhouses to be multileveled with limited open space making them generally less suitable for senior citizens and families.

- No reduction in car ownership. Despite the convenience of infill locations, the generally high income owners have retained their cars. Thus potential transportation cost savings have not been realized and parking is often a problem.

Several Policy Choices

In Toronto, infill cannot be regarded as an alternative to suburban development. The markets are distant from one another, fundamentally different and usually not served by the same builders. With infill, a well developed phenomenon, the Toronto area municipalities can view infill from one or both of the following perspectives.

1. Private market encouragement, in which case municipalities should continue to relax restrictions and speed up processing. The result will be continuation of the trend to higher priced infill housing for upper income groups.

2. Housing for moderate income households. If this is to be a goal, CMHC's maximum unit prices will have to be adjusted to reflect true costs and a subsidized land acquisition program may be needed. Setback, parking and open space requirements may also have to be reduced. To make major cost reductions for non-profit housing, larger scale projects (minimum 50 units) are possibly required.

Regardless of the alternatives selected, municipalities should consider adopting formal policies for infill on a neighbourhood level. It is particularly evident that the future opportunities for infill development in Toronto lie in what could be called the "mature ring" areas - the neighbourhoods in the Boroughs lying between the inner city and the suburbs. Here land parcels are more plentiful and the chance still exists of accommodating both private market and lower income housing.

B. OVERALL FINDINGS

In developing the broader implications emerging from our analysis on the viability of sensitive infill, it is important to qualify our results. It is difficult to draw conclusions based on an extrapolation of trends from three case studies. However, we have tried to use the findings in the three cities in the context of the general regional and national setting. In this way, there seem to be some lessons to be learned by public and private decision makers interested in exploring an infill development strategy. More specifically, we have identified seven basic conclusions.

1. Infill is one of several development choices available to a municipality. First of all, it is clear that infill alone will never be able to address or accommodate a municipality's total housing needs. Instead, infill exists as one of several housing alternatives. Extensive redevelopment, rehabilitation and new suburban development are other options.

   In growth areas as well as developed centres, the physical inventory of available sites limits the total amount of new population which can be reasonably accommodated at existing densities. In addition, there will always be a group who prefer the suburban lifestyle, regardless of the attractiveness or cost savings which can be offered in alternative downtown housing. This group tend to be family oriented and value large units on spacious lots, with available community facilities. As these suburbs age and develop there is evidence that alternative types of housing

(eg. rowhouses, low and highrise apartments), will develop to accommodate the changing age structure and housing requirements of residents.

Infill housing activity tends to be part of a larger general development pattern. First growth in an urban area places demands on the existing and planned housing stock. As prices escalate, certain residents start to explore alternative housing. Downtown areas are attractive as older neighbourhoods often provide a mixture of housing styles and types, at prices below new units in the suburbs. Individual rehabilitation and renovation in the downtown in turn generates a renewed interest in these neighbourhoods which is ultimately manifest through political support. The political support encourages small private developers and speculators to invest, resale activity increases and the area starts upgrading. Ultimately, small scale infill is built in response to a growing market, at prices four or five times higher than the original value of properties in the adjacent area. At this stage, infill housing is only viable for upper income groups.

2. Considerable opportunities exist in most cities, regardless of the stage in the infill development process. Perhaps the greatest opportunity is in the amount of physical land available.

In addition to physical possibilities, infill can be built at the density and scale of existing inner city development. Because much of the stock is older row-housing, newer units can usually meet the standards

of this development. However, as discussed earlier, it is not always possible to meet more recent standards usually adopted after the war when municipalities were more concerned with open space, parking and more planned neighbourhoods.

3. Several generic infill types are evident and suitable for infill. An examination of existing infill projects indicates that they tend to be identified through a series of physical characteristics. All cities have numerous vacant or underutilized sites. Obsolete or nonconforming uses are also common. Areas with lanes or large back lots provide yet another infill opportunity, as does industrial land which has been surrounded by residential uses.

   There are some advantages in developing infill along major transportation corridors, as it provides better utilization of public transit. Housing for seniors is another possibility, as it enables residents to use the urban community facilities while living in the same neighbourhood. However, once infill becomes an acceptable established housing form, the concept tends to change. Instead of acting as a catalyst to the downtown, infill becomes a housing form for upper incom professionals and childless couples interested in a downtown lifestyle. In this phase, infill as a generic situation does not allow the municipality much scope for using infill as a policy tool to promote broader public objectives.

4. Infill is viable from some perspectives, and depends upon the stage of infill development and the actors involved. Certainly in its initial stages, infill is economically advantageous to the homeowners. Personal cost savings, particularly for transportation, mortgage carrying costs and in some cases property taxes are as high as 25%. On the other hand, the developer's costs at the embryonic stage are high and often result in profits of less than 15%. An uncertain approval process, difficulties with development standards and a questionable market demand all work to make sensitive infill a risky proposition.

As the process matures and downtowns become discovered and renovated, the economies of infill development change. Developers start to realize higher profits as demand rises and unit prices escalate. Municipal support favours the developer as well, through clearer policies for new housing in existing built-up areas. Conversely, as infill becomes more expensive personal costs also rise. Potential residents no longer realize the earlier cost savings and ultimately infill housing can become more expensive than other alternatives.

However, it is interesting to note that the municipalit tends to benefit throughout the process, regardless of the stage in development. Certainly the municipality can develop policies and influence the provision of housing more easily at the beginning. But as far as the economics are concerned, the municipality tends to benefit in all scenarios. Existing services, both hard and soft tend to be oversized and can support the

demands incurred through sensitive small scale infill development. The only additional costs arise through some increases in public works and education. However property taxes cover off these costs and often leave excess revenues for the municipality.

5. Several constraints are common, in the process of developing infill. Initially, uncertain market demand influences financial institutions' willingness to lend money for infill projects. Once infill is a tried and proven concept, monies are more easily obtained but other constraints emerge. Municipal development standards often inhibit design and restrict the number of infill projects. Usually projects require relaxing of existing standards which in turn requires time and therefore money to wait for the necessary approvals.

   Municipalities' traditional orientation to suburban development is a problem, although the effect is often subtle. With existing interest and policies in place for new development in outlying areas, there is no real need to focus on infill policies. The resulting vacuum translates into a lack of public sector housing programs in the downtown and treatment of infill development on an ad hoc individual basis. Finally, despite physical opportunities, large cities have difficulties overcoming the scale and intensity of existing development. Geographical features coupled with densely developed downtowns can limit the sensitive infill potential in an existing built-up urban area.

6. Strong rationale for municipal encouragement, despite the constraints just mentioned. An analysis of existing infill projects demonstrates that infill can assist in the revitalization and rejuvenation of downtown neighbourhoods. By definition, the scope and characteristics of sensitive infill development preserve the scale and character of older neighbourhoods. As well, infill has been shown to maximize the public sector return on municipal services. However, it is difficult to stimulate interest in the downtown without some degree of growth and a market demand. Public investment in infrastructure and community facilities are not enough. Without a market, it is impossible to produce new infill units at prices within 15% of existing units in the area.

Municipalities interested in encouraging sensitive infill development, have several options for encouragement. First of all, they can adopt policies in support of downtown neighbourhood preservation. This could also involve participation in various government programs as well as municipal financial commitments. As development proposals are put forward, there should be clear guidelines to follow and some degree of flexibility on certain standards. While specific infill policies might work to restrict innovation and potential infill projects, the lack of any guidelines has the more serious effect of keeping developers away from the concept entirely. Throughout the process, the municipality should work to ensure a speedy approval process.

In cities where infill is just starting or where neighbourhoods are starting to stabilize and begin the

process of rehabilitation, municipalities might consider the formation of a non-profit housing corporation. If started early enough, it could be an instrumental vehicle for a municipality to use to achieve its social housing goals. However, the initiative must be taken earlier rather than later to avoid expensive land and development costs, and the need therefore to build larger scale redevelopment-typ projects.

7. CMHC has a role to play, if it wants to assist municipalities in adopting sensitive infill as one means of providing new housing. Assistance could be provided at various levels. Perhaps initially the Corporation could work with municipalities where infil is occurring to rationalize existing development and zoning regulations. As part of this review process, the ceilings for maximum unit prices should be considered, in light of specific infill projects. On a more involved scale, CMHC could encourage demonstration projects in areas where private potentia exists but has not yet been realized. Similarly they could contribute to non-profit programs for certain rental projects which are only viable in today's market within financial subsidies.

In summary, our analysis suggests that small scale sensitive infill does have a role to play in the housing process occurring in urban areas across Canada. Although it will never be a panacea for solving all housing needs, there are distinct benefits to both the municipality and certain client groups. Under the right market conditions, infill can flourish and be economically advantageous to

public and private interests. However, the concept is only successful after an initial reinterest for and investment in living downtown occurs by the private sector, followed by strong municipal policies supporting the private interests.

APPENDICES

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