

Prairie Fabric:

architectural intensification in saskatoon

by
Logan Kari Hepworth

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AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

ABSTRACT

The residential neighbourhood has the capacity and role to interpret and employ the identity, priorities, values and aspirations of a society into physical manifestations of the built environment. To this effect, the residential environment is a reflection of ourselves, we are defined by the lifestyle it affords us. In the last century residential development has morphed and transformed our landscape, particularly apparent in North America, largely taking the form of suburban sprawl. Suburban living is currently the most significant residential legacy of North America. The lifestyles defined by suburban development has brought about profound impact on the socio economic aspects of our communities as well as the environment in which it inhabits.

This thesis studies how suburban development has occurred over time and posits to architecturally intervene in Saskatoon, a midsize Canadian prairie city. Saskatoon displays many characteristics unique to midsize Canadian cities, however the city is currently experiencing a rapid increase in private and public investment due to above normal population increases and relatively recent economic prosperity. The work will seek to define an appropriate architectural response to the challenges facing Saskatoon housing today.

This thesis seeks to understand the role of design in employing a reflection of how we choose to live; our values and aspirations. Current residential development and architecture provides the foundation and insight into how we might move forward in designing our neighbourhoods.

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Pr

Introduction

CONTEXT AND APPROACH

The city of Saskatoon is anticipated to surpass recent growth averages in the coming decades, from current population of 224 300 to 303 444 by 2026 (CofS, 2010). The increase in population of thirty five percent in sixteen years has presented the challenge and opportunity of accommodating a growing population within the changing needs of society. Issues of land use and zoning, transport infrastructure, education, and social and cultural services are central elements to consider. While growing urban populations are creating new challenges for cities of all sizes around the world, Saskatoon faces a distinct set of issues as a typical midsize Canadian city, which ranges from 25 000 - 500 000 people (Bunting et al. 2007).

There are three primary features of a midsize city, as exhibited in Saskatoon, acting as the existing conditions upon which future growth patterns must be considered. The first is Saskatoon's inherent low density form due to low population density, creating a generally dispersed urban landscape (Lederer, 1990). The second is the 'sense of place' that celebrates the suburban lifestyle, where "abundant greenery, large housing lots, privacy, and auto-oriented convenience entrench the low-density arrangements" (Lederer, 1990). Finally, downtown core decline caused by large retailing activities leaving the downtown and factory closures result in abandoned buildings and housing, leading to an increasing number of people moving to the suburbs (Lederer, 1990). Current trends continuing in low density suburban development with minimal central city infill brings Saskatoon to many of the same issues facing other North American midsize cities.

Strategies for future planning have been outlined by city council in the 'Future Growth Plan of Saskatoon', to be further discussed in section 1.3 Saskatoon: locate and profile, which builds a planning scenario to accommodate a population of 400 000 in the coming decades. The strategy of the city is to annex existing farm land adjacent to current city limits, balanced around the Central Business District (CBD) and to maintain current density averages in these new suburban neighbourhoods. The location of Saskatoon as a relative island on the vast prairie landscape makes these actions seem like a natural response to growth. Further, the prairie condition, which aligns itself with large open skies and vast spaces, might seemingly make low density growth seem like an appropriate type of development for Saskatoon. The preference for suburban development is argued by Saskatoon resident Jeff Montgomery: "We prairie folk love our space and the big yard will keep the city expanding" (Montgomery, 2010). We must, however, consider the consequences of continuing to focus on suburban development as the city grows.

There is proliferation of suburban living across the city when build out low density form on existing low density form, and a potential for suburban sprawl. Sprawl is defined as the spread of suburban development patterns across a region or a nation (Gillham, 2002). In his book, *The limitless City*, Oliver Gillham describes leapfrog development, low density urban forms separated by land uses or zoning, the dominance of the automobile, commercial strips and a minimum of public open space as the characteristics of sprawl. By understanding the effects of sprawl and the potential crisis sprawl presents on the residential community we will begin to bring together possible responses, in term of density, land use and architectural intervention.

METHODOLOGY AND STRUCTURE

This thesis explores the role that architecture could have in addressing the changing needs of Saskatoon as it grows. The focus is to develop a set of visionary principles which are applied as a framework for neighbourhood evolution to occur. This document is organized into five parts.

Part One examines the potential risks of current suburban development trends, the history and role of design practices, and presents the city of Saskatoon as a case study for architectural intervention. The chapter is separated into the following three sections: 1.1 Risk and response, 1.2 Design and the suburbs, and 1.3 Saskatoon: locate and profile. The first section establishes the context of the conversation by articulating the conditions of sprawl. The second section looks at the evolution of design and the suburbs to understand how we've arrived to where we are today. The third section presents Saskatoon as a candidate for exploring future residential design strategies by understanding the history of development in Saskatoon, the factors influencing its growth, its particular socio economic and cultural condition, and current issues around future growth.

Part Two outlines major concepts, trends and normative theories over time as a platform for future neighbourhood planning strategies. The chapter is separated into the following four sections: 2.1 Building history, 2.2 Characteristics of suburbia, 2.3 Challenges of suburbia, and 2.4 Responsive action. Section one uses a timeline to show a brief history of suburban growth, highlighting the salient principles of development over time, and then presents the main characteristics of early suburban to present suburban development. Section two identifies the primary characteristics of current suburban development to establish the parameters in which our building practices operate today. Section three seeks to understand the main challenges facing current suburban landscapes in order to understand how best to move forwards. Finally, section four looks at architectural responses and possible strategies for future development strategies, including Smart Growth practices, introducing the implication of time to our building practices, considering the aesthetic influences of our environments, and introducing a systems thinking approach to our development strategies.

Part Three undertakes a series of case studies to develop a set of guidelines and principles that can be translated into a residential design strategy for Saskatoon. The conversation established in Part Two provides the lens under which each case example is evaluated. Seven projects range in scale and context to provide a varying set of challenges and responses. Each scheme is reviewed in terms of strategies employed, challenges met and mitigated, and opportunities presented in order to understand successful and sustainable design practices.

Part Four develops strategies established in the case study work of Part Three to illustrate the general design principles and concepts explicitly within Saskatoon. As established in Part One, Riversdale is one of the founding neighbourhoods of Saskatoon yet due to socio economic and cultural events holds little legacy for the city and is lacking in resilient neighbourhood qualities. Its position near the downtown core and the river means it has latent potential to provide its residents with excellent residential amenity and this along with its current challenges makes it an appropriate candidate to explore new residential design strategies developed in the document.

Part Five is a discussion of the essential components of the thesis and the lessons learned in the design exercise in Riversdale. The issues that arose when applying the design theories and intensification strategies to the low lying, mid size city of Saskatoon are addressed and the potential outcomes that might occur in other locations are considered. Although the thesis struggles to achieve considerable density levels in Riversdale while maintaining the character of the existing fabric, we try to understand why this conversation is important for the profession of architecture and the future of our planning principles.

1.1 SPRAWL

The characteristics of suburbia, to be further explored in part 2.2, generate a residential language that prioritizes marketability and commodification over inhabitation and community values. The issue with the proliferation of these environments is their fundamental disregard for residential resiliency and evolution. Residential environments must adapt to different and changing behaviours in order to evolve and survive (Lozano, 1990). The complexity and diversity of social interaction offered by dense urban environments is contained into single use, planned and programmed areas, isolating residents and preventing the complexity of relationships and vitality to exist (Koolhaas, 1994).

The sprawl environment described has created a landscape of anonymity where the resident is disconnected from their environment. This disconnection creates a sense of what Edward Relph calls placelessness: “the casual eradication of distinctive places and the making of standardized landscapes that results from an insensitivity to the significance of place.” (Relph, 1976). What is left when a city struggles to define a unique character is what Rem Koolhaas describes as “The Generic City”. Though Koolhaas uses the generic city to describe contemporary urban environments of sameness, the characteristics and qualities they endorse are blatantly apparent in sprawl environments. What is observed by Koolhaas in ‘the generic city’ is “an endless repetition of the same simple structural module; it is possible to reconstruct it from its smallest entity, a desktop computer, maybe even a diskette...its main attraction is its anomie” (Koolhaas, 1994). The described environment which supports little local character or identity is potentially one that will be unable to attract a population to inhabit it.

In addition to the social and cultural implications mentioned above, the physical implications of sprawl, such as the devastation of natural environments, the erosion of rural landscapes and the great demand on road and service infrastructure, all support moves towards urban intensification. In a coming age of acute environmental resource responsibility due to the ubiquitous realization of the limitations of infinite growth and resources, the capability to support a low density, suburban environment which places great demand on the environment will simply be unsustainable.

The image to the right is the footprint of a single family home in a barley field to illustrate the figurative impression of sprawl on our rural landscape.



fig. 1.01

1.2.1 BRIEF HISTORY OF DESIGN GUIDELINES

Building codes and design guidelines are central to the result of the North American suburban landscape (Kunstler, 1993). Design guidelines have evolved from town planning schemes of the 19th Century, developed in response to poor living environments of industrialized urban areas (Gillham, 2002). Community planning schemes of the time are created to reconsider the relationships created in a traditional town, rather than addressing residential developments at merely objects situated for productivity . In addition to large planning gestures relating to town planning principles and relationships, written recommendations on residential fabric is defined to provide residences with adequate access to clean air, daylight, green space as well as maintain a level of quality construction methods (Appleyard & Jacobs, 1987). At the time of rapid modernization, aesthetic guidelines ensured communities maintained a traditional vernacular quality. The Garden City community of Letchworth, UK, planned by Ebenezer Howard, is an early example of implementing design guidelines in a new residential community. Below describes the intentions of the design guidelines for Letchworth in a report produced by the designers:

“The directors of First Garden City , Ltd., are convinced that the high standard of beauty, which they desire to attain in Garden City, can only result from simple, straightforward building, and from the use of good and harmonious materials. They desire as far as possible to discourage useless ornamentation...”

The report goes on to say that a building line will be suggested, but alterations to it will be considered. A sunny aspect for the main rooms is more important than fronting the house to the road. Ample frontage would be provided, and

“...it is hoped that builders will not think of erecting those common, unsatisfactory rows of narrow houses, with unsightly ‘backs’ projecting behind to the exclusion of air and sunshine for which the chief reason has been the high cost of frontage in existing towns.” (Purdom, 1913)



fig. 1.02



fig. 1.03



fig. 1.04

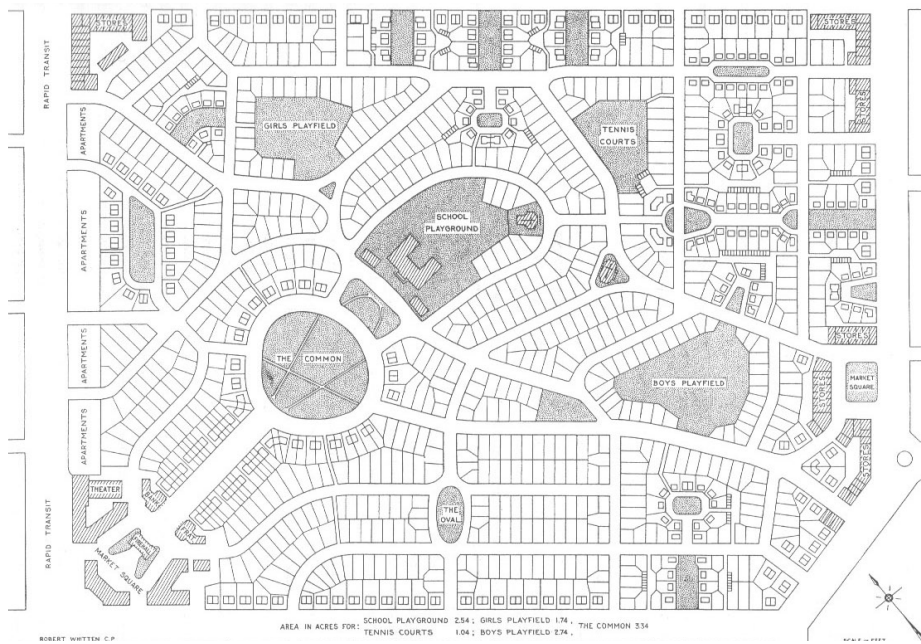


fig. 1.05

The decades following the turn of the twentieth century see further development and refinement of residential design guidelines from the original Garden City movement of 1880s.

In North America Clarence Perry develops framework of a model community, called the *neighbourhood unit* (image above right), in the aim of creating a family-life community arrangement (Perry, 1929). Here a set of guidelines articulate a self-contained neighbourhood including residences, businesses, parks and community spaces. The level of information of the guidelines becomes increasingly specific in the hopes of defining not just building relationships but the quality of place for public/private interaction (Perry, 1929). The model articulates defining density, public space, streets system, building setbacks, walking relationships and building aesthetics to achieve a balanced social community. The *neighbourhood unit* is later refined by Clarence Stein (example plan below right), introducing superblocks, culs-de-sacs, separated pedestrian and vehicle roadways, and houses oriented toward rear walkways and with garages facing the street (Larice & Macdonald, 2007). These neighbourhood units establish the design guideline principles upon which post WWII planners and real estate developers would model suburban developments.

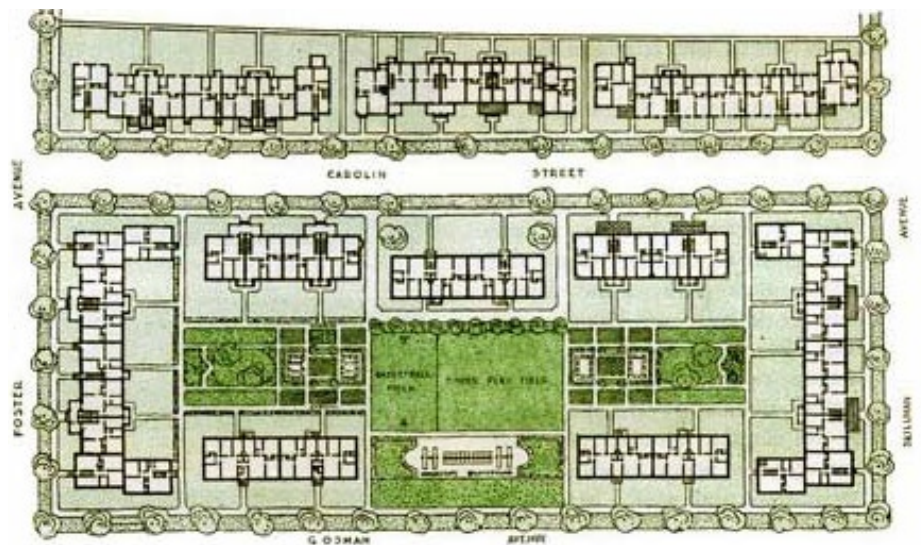


fig. 1.06

The nature of information of the early suburban plan becomes increasingly formulaic in the decades to follow, reflecting an emerging age of mass development and production. The firm of Harland Bartholomew and Associates incorporated the neighbourhood unit concept as a central planning principles in many of the comprehensive plans it prepared for over 550 American cities between 1919 and 1984 (Larice & Macdonald, 2007). As the suburban model is carried out across the north American landscape developers use the design guideline to provide the construction team with formulaic amounts of detail, covering everything from street layout and easements to building materials and design details (Howard, 1993).

1.2.2 POTENTIAL ROLE OF DESIGN GUIDELINES

Design guidelines as they are currently practiced have created a monotonous and sterile suburban landscape, lacking in vernacular qualities or local response (Howard, 1993). The original principles of harmony and relationships between buildings that were so highly calibrated in the work of Howard, Perry and Stein have been simplified to a point abstraction. The illustration to the right by Robert Venturi and Denis Scott Brown's Learning from Levittown design studio at Yale explores the image based suburban landscape we have created. The problem is not, however, that the design guideline exist, it is what they articulate and the resulting cultural values they impart.

A response to generic suburban design guidelines has been developed under the name of New Urbanism by Andres Duany and Elizabeth Plater-Zyberk, which establishes the a new set of principles for a resilient community. Residential elements considered pay more attention to natural ecology, physical street and building proportions and relations, programming, amenities, and architectural vocabulary. While critics of New Urbanism point to its elitist qualities, the new and expensive self contained residential fabric that absolves itself from the problems and of an existing city fabric, lessons can be learned from the overall ambition of the New Urbanist theory. The consideration of the relationship between public and private space, and the role of principle strategies when creating these environments is a valuable lesson for creating future design guideline principles. Future of design guidelines might also establish a framework for evolution within a residential fabric, building on successful characters and relationships and mitigating the challenges of decline.

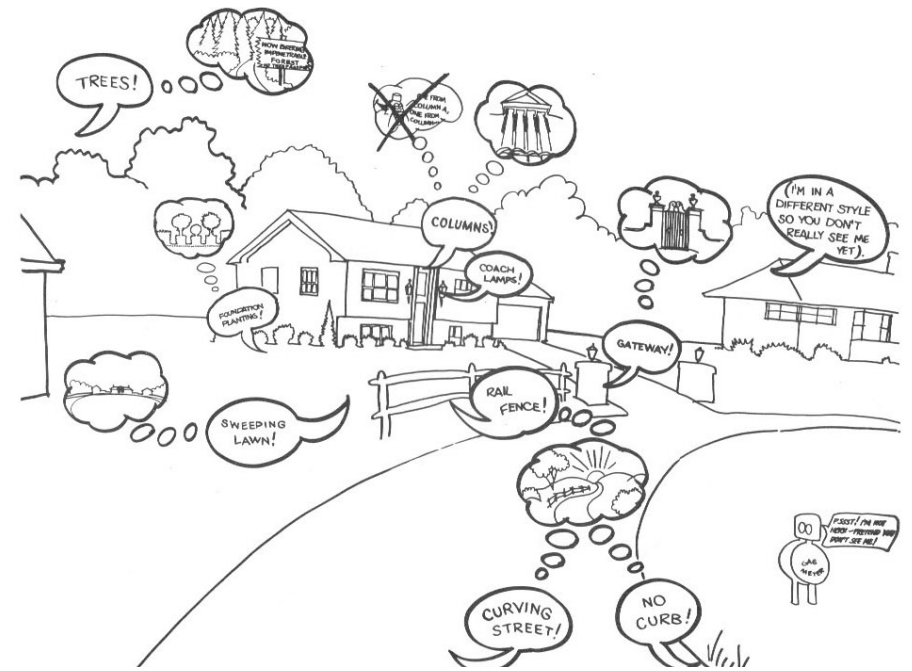


fig. 1.07

1.3.1 BRIEF HISTORY OF DEVELOPMENT

LOCATING SASKATOON

Factors shaping Saskatoon's position as a Canadian midsize city begin with modest settlement on the vast Canadian prairies in Saskatchewan. Though not the most fertile land surveyed in the west, settlers were drawn to the virgin soil of the prairie ecozone for a chance to create a new Utopia, free of the sins and evils of Europe and the older colonies (Delainey & Sergeant, 1974). In 1881 the Canadian government enabled colonization companies to purchase large land grants for settlement and in 1882 The Temperance Colonization Society obtained a block of land traversing the South Saskatchewan River. The deliberate choice along the River would provide water supply and enable cheap transportation and remains the central city armature (Delainey & Sergeant, 1974). Saskatoon remains a relative island on the vast prairie landscape. The immense sense of scale that one experiences on the prairies has made a profound impact of the psyche of its residents, informing the way we experience space.



fig. 1.08



fig. 1.09



fig. 1.10



fig. 1.11



fig. 1.12

RAILWAY AS CATALIST FOR SETTLEMENT

The most significant factor enabling development in Saskatoon is the arrival of the railway, creating a catalyst for settlement. Growth across the prairies supported by agriculture had secured Saskatoon as a major commercial and distribution center for the surrounding agricultural district by 1913, becoming the major commercial hub of the city (Delainey & Sergeant, 1974). In the interests of profitability the two main railway companies, Canadian Northern Railway and Canadian Pacific Railway, had constructed their respective railyards and stations on the north side of the river, informing the growth of the city with respect to the natural line of the river (Delainey & Sergeant, 1974). The image below shows the two rail lines bysecting the city, defining distinct areas and influencing future patterns of development.



fig. 1.14



fig. 1.15



fig. 1.16

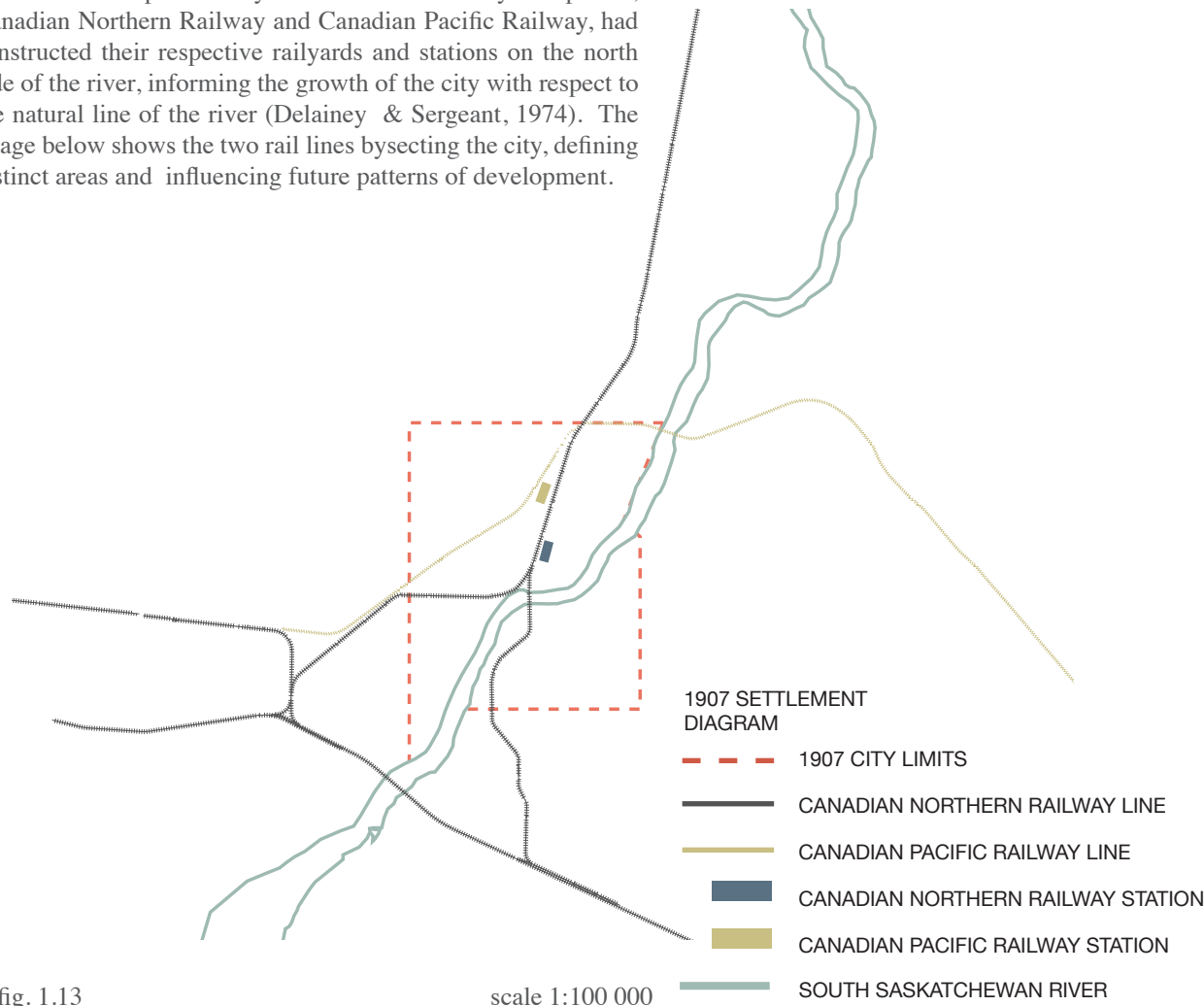


fig. 1.13

scale 1:100 000

HISTORICAL LEGACY

While the railway enables growth, its physical presence creates distinctive neighbourhoods and lasting development patterns. As we will see in part 1.3.2 City Morphology, the railway greatly influences the character of the urban fabric from early settlement to present. When the rail line traveling through central downtown is removed in 1962, as the dependence on the personal automobile becomes prolific, the once light industrial center Saskatoon is no longer required, creating a fissure between central Saskatoon and the west of the city. The site of removed railway and its yards remains vacant for many years and the resulting economic activity has been underdeveloped ever since (Delainey & Sergeant, 1974). The railway creates a lasting legacy for Saskatoon and is one of three factors influencing the historical legacy of the city.

The second factor is the demolition of historic buildings throughout the city and primarily downtown, typical of urban renewal practices of the fifty's throughout North America (Lehrer, 2006). The result of demolition projects is the loss of architectural heritage, severing current connections to local vernacular. This document seeks to understand how we might begin to repair the loss of local vernacular through architectural intensification throughout the city.

Finally, Saskatoon, like many other prairie cities, has a long standing tradition of moving houses from site to site (Delainey & Sergeant, 1974). The flat prairie topography and simple wood frame construction facilitate the ease of transportation. This history of house moving and transience is part of the historical legacy of Saskatoon, defining a city that struggles to keep its local vernacular.

“Tradition evolves with time and place while holding strongly to certain formal, cultural, and personal principles. Nostalgia seeks the security of past forms without the inherent principles.”
Peter Calthorpe

1916



fig. 1.17

2010



fig. 1.18

1.3.2 CITY MORPHOLOGY

THREE DISTINCT SETTLEMENTS

The railway routes and river line define the central armature of the city, still present today. Early settlement, 1907-1913, is focused around the railway stations north of the river and the original temperance settlement (now Nutana) south of the river (Delainey & Sergeant, 1974). The routes of the two railway lines and the river define the physical boundaries of three distinct developments, Riversdale, Saskatoon and Nutana, each with their own qualities and character. In the first thirty years of its history, Saskatoon does not grow as an organic whole, but rather as these three distinct settlements, separated by barriers (Delainey & Sergeant, 1974) creating lasting effects on the patterns of residential development.

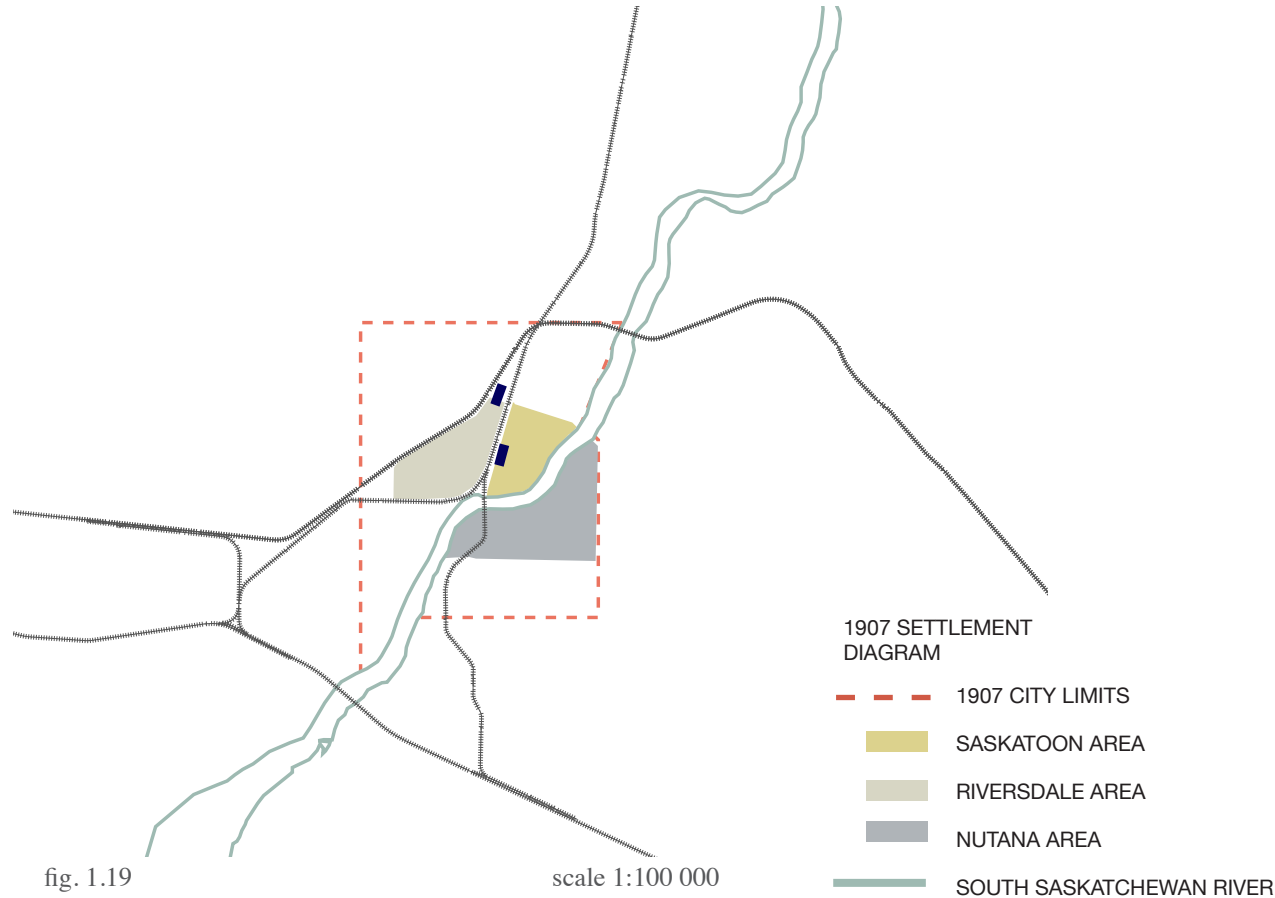


fig. 1.20



fig. 1.21

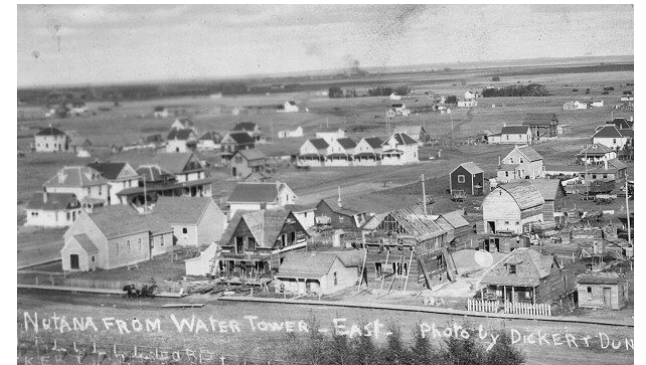


fig. 1.22

THREE SETTLEMENTS: NUTANA

The original temperance colony settlement of 1896 is situated here in Nutana, before the construction of the traffic bridge enables further development north of the South Saskatchewan river (Delainey & Sergeant, 1974). Nutana is developed slower and more securely than the other two developments as is not caught up in the major real estate speculation happening north of the city. As Nutana is developed there is always a strong presence of civic spaces and public amenities, as well as good quality residential lots and environment. The social and political attitudes of the temperance colony identify Nutana as innately conservative (Delainey & Sergeant, 1974).

Key diagram illustrating Nutana

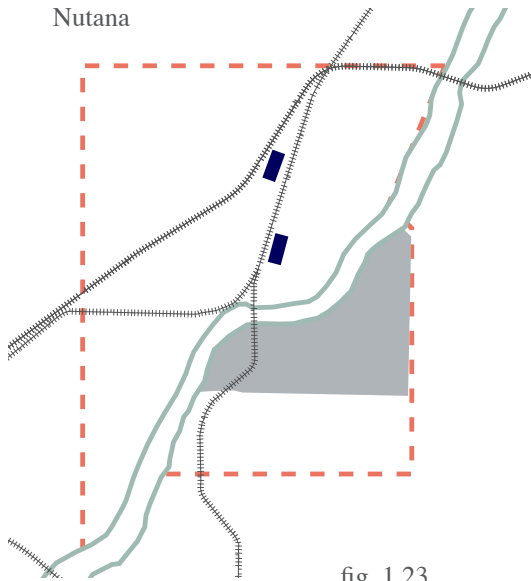
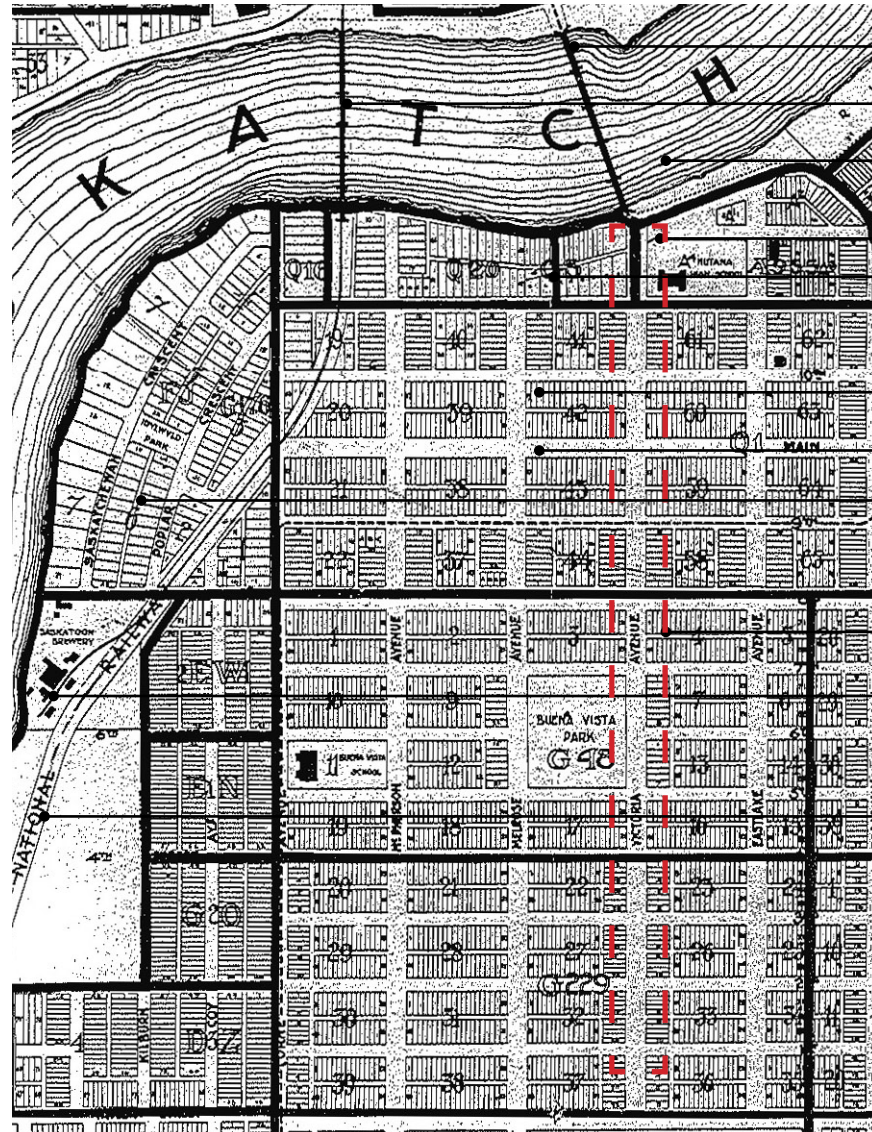


fig. 1.23



1913

- TRAFFIC BRIDGE
- RAIL BRIDGE
- SOUTH SASKATCHEWAN RIVER
- COMMERCIAL STRIP
- GRID BROKEN AT RIVER
- LARGE RESIDENTIAL LOTS
- WIDE STREETS
- GRID BROKEN FOR LARGER RESIDENTIAL LOTS AT RIVER
- RAILWAY YARDS
- INDUSTRIAL AREA
- RAILWAY LINE

fig. 1.24

THREE SETTLEMENTS: SASKATOON

When Saskatoon is incorporated with Nutana in 1907 to form the town of Saskatoon, this area is established as the main commercial centre of the city. Its proximity to the Canadian Northern Railway yards and the station provides access for industries and commercial activity. The area is developed to provide good civic space with large boulevards and the public park area at the riverbank. Residential lots of the area are reserved for the wealthy and illustrate the affluence of the boom years the city is experiencing around 1910 (Delainey & Sergeant, 1974).

Key diagram illustrating Saskatoon

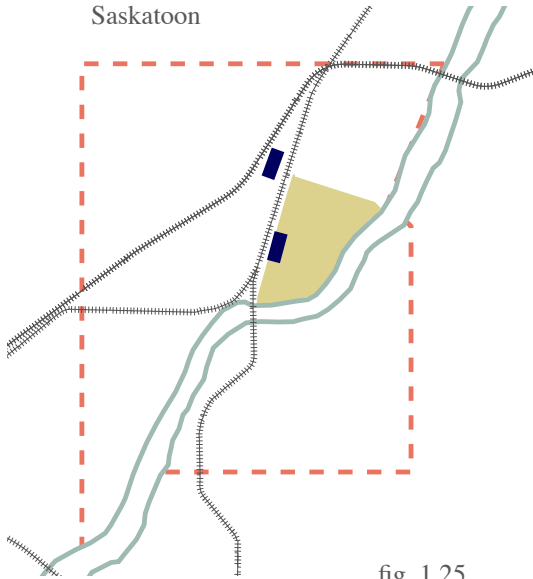
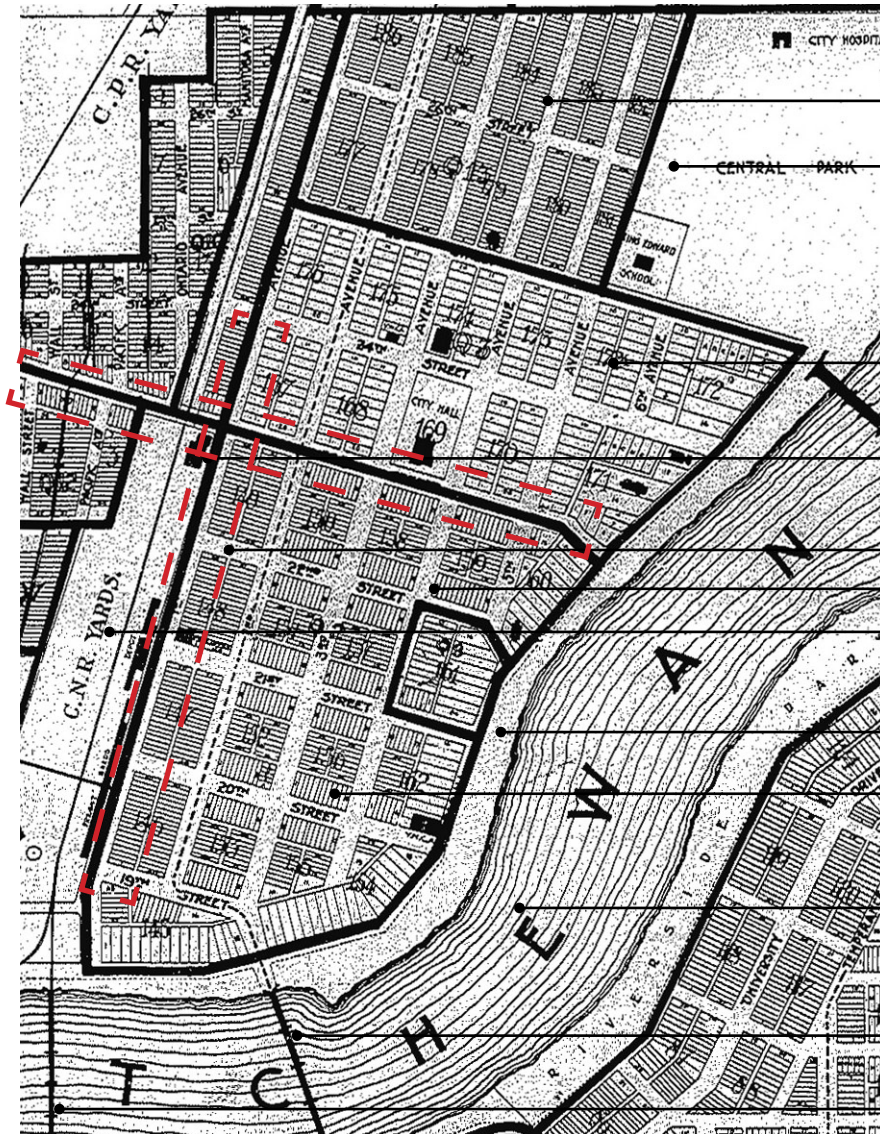


fig. 1.25



1913

fig. 1.26

- WIDE STREETS
- PARK
- LARGE LOTS
- CANADIAN NORTHERN STATION
- COMMERCIAL STRIP
- BOULEVARDS
- RAILWAY YARDS
- RIVERSIDE PARK
- LARGE LOTS
- SOUTH SASKATCHEWAN RIVER
- TRAFFIC BRIDGE
- RAIL BRIDGE

THREE SETTLEMENTS: RIVERSDALE

Situated between the two railway lines, Riversdale becomes the main industrial center of the city, with factories and warehouses construction along the rail line (Delainey & Sergeant, 1974). The effects of the boom years of 1910-1913 are most evident in Riversdale, where during this time land is bought up by private real estate speculators who promptly subdivide the land into relatively small, rectangular residential blocks with narrow streets to maximize profits (McPherson, 1992). The rapid increase of wealth in Saskatoon creates a turbulent real estate market where land changes hands many times between 1910-1913, but few buildings are constructed (McPherson, 1992). The lack of forward planning defines Riversdale as a neighbourhood with the sole purpose of profit over character and quality. Buildings in the area are mainly constructed quickly and of a temporary nature, mostly low cost wood construction of poor quality (Delainey & Sergeant, 1974).

Key diagram illustrating Riversdale

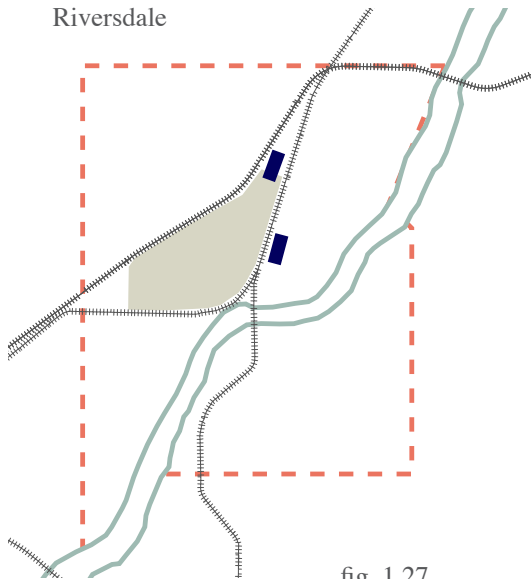


fig. 1.27

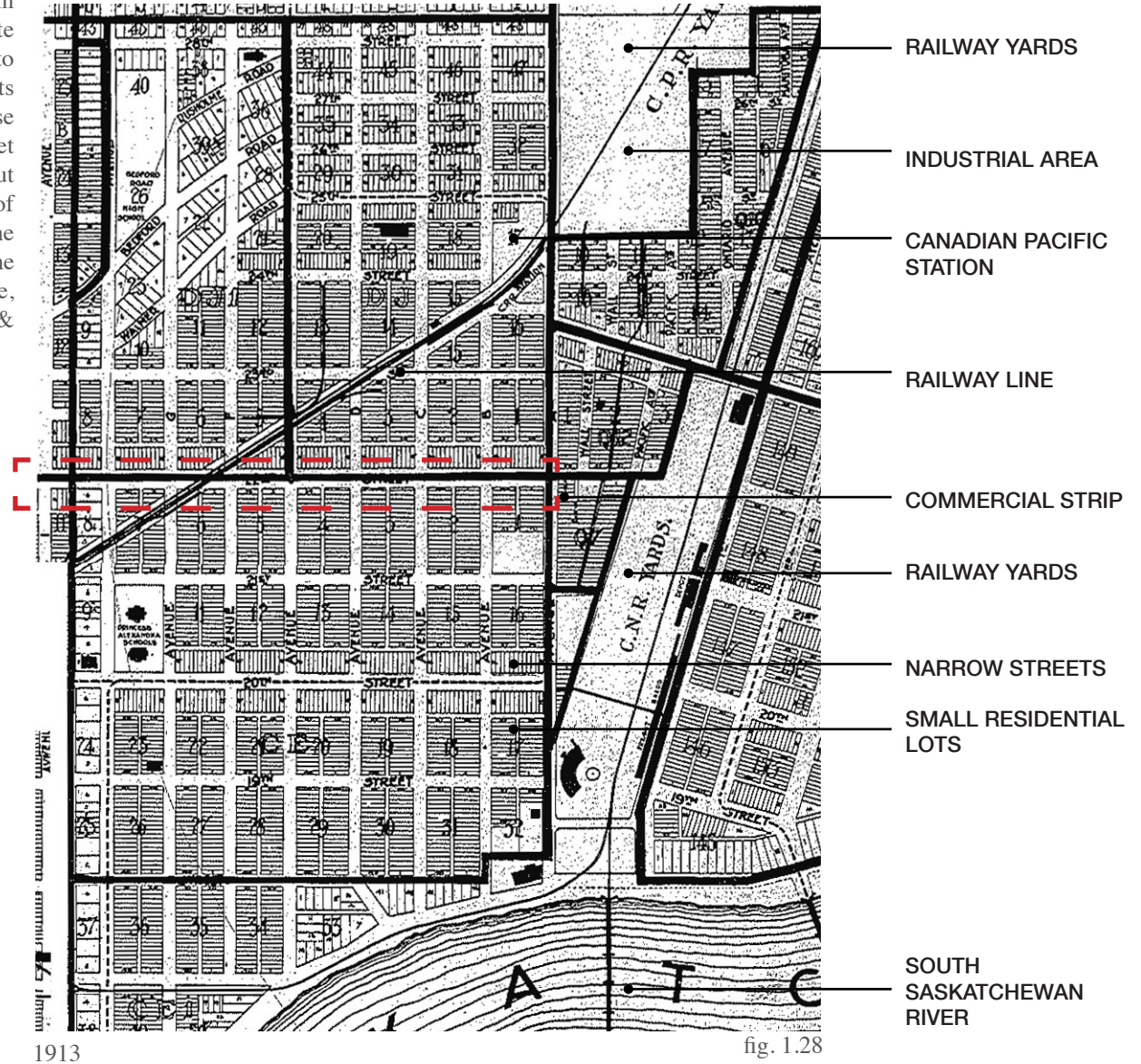


fig. 1.28

COMPARISON: GRID

The physical character of each neighbourhood reveals three distinct settlements with their own residential character and density patterns. The block and lot diagrams below compares the three neighbourhoods at the same scale.

NUTANA

- Laid out on rigid compass orientation.
- Proximity to riverbank.
- Broad, treelined streets.
- Large residential lots.

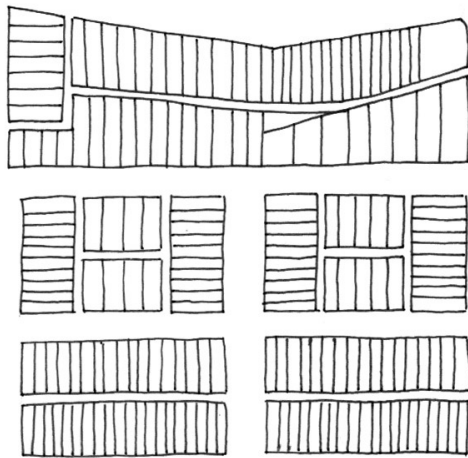


fig. 1.29

SASKATOON

- Grid aligned to Canadian Northern Railway tracks and 1st avenue.
- Street construction spacious, including boulevards.
- 17,300 houses on a site of 10 square miles (26 sq. kilometers)
- Houses built at a rate of 30 per day.

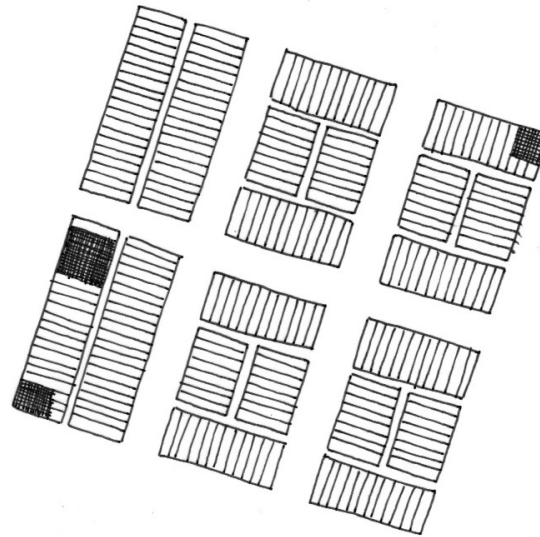


fig. 1.30

RIVERSDALE

- Rigid north-south grid.
- Narrow, closer-spaced streets.
- Real estate speculation means property changing hands many times and a randomness of construction.
- Residential lot sizes narrow to maximise profitability.

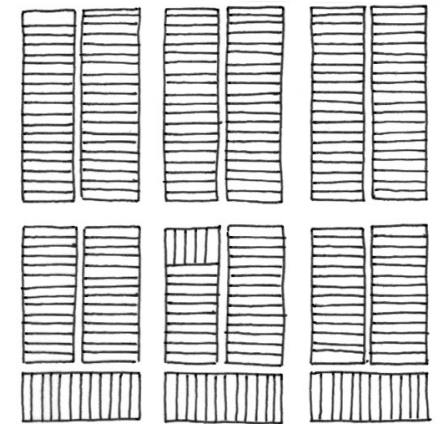


fig. 1.31

COMPARISON: AESTHETICS AND MATERIALITY

The aesthetic and material character of each neighbourhood reveals the socio economic conditions of the time, and are still visible today. The relative wealth established in Nutana and Saskatoon in the Boom years is reflected in the grand houses constructed with permanent materials of stone and brick. Their detailing shows a level of quality and attention to detail. By comparison, the affordable residential area of Riversdale is reflected in temporary housing materials and basic city infrastructure (Delainey & Sergeant, 1974). The house moving practices common in the city are most widely practiced in Riversdale, where low cost houses are built on low cost lots and later moved to more affluent and permanent locations (McPherson, 1992). This practice creates a certain transient community, to be discussed in further detail later in the document.

NUTANA

- House aesthetics of Victorian influence
- Large lot and house sizes.
- Broad streets.
- Landscaped properties suggest the area is built slowly over time and one of the first communities of Saskatoon.
- Construction style suggests permanence and longevity.



fig. 1.32

SASKATOON

- House aesthetics of Edwardian influence.
- Standard size lot and houses.
- Broad streets and landscaped properties.
- Construction style suggests permanence and longevity.



fig. 1.33

RIVERSDALE

- Materials suggests rapid construction and temporality.
- Small lot and house sizes
- Narrow mud streets
- Poor construction quality and little detail present.



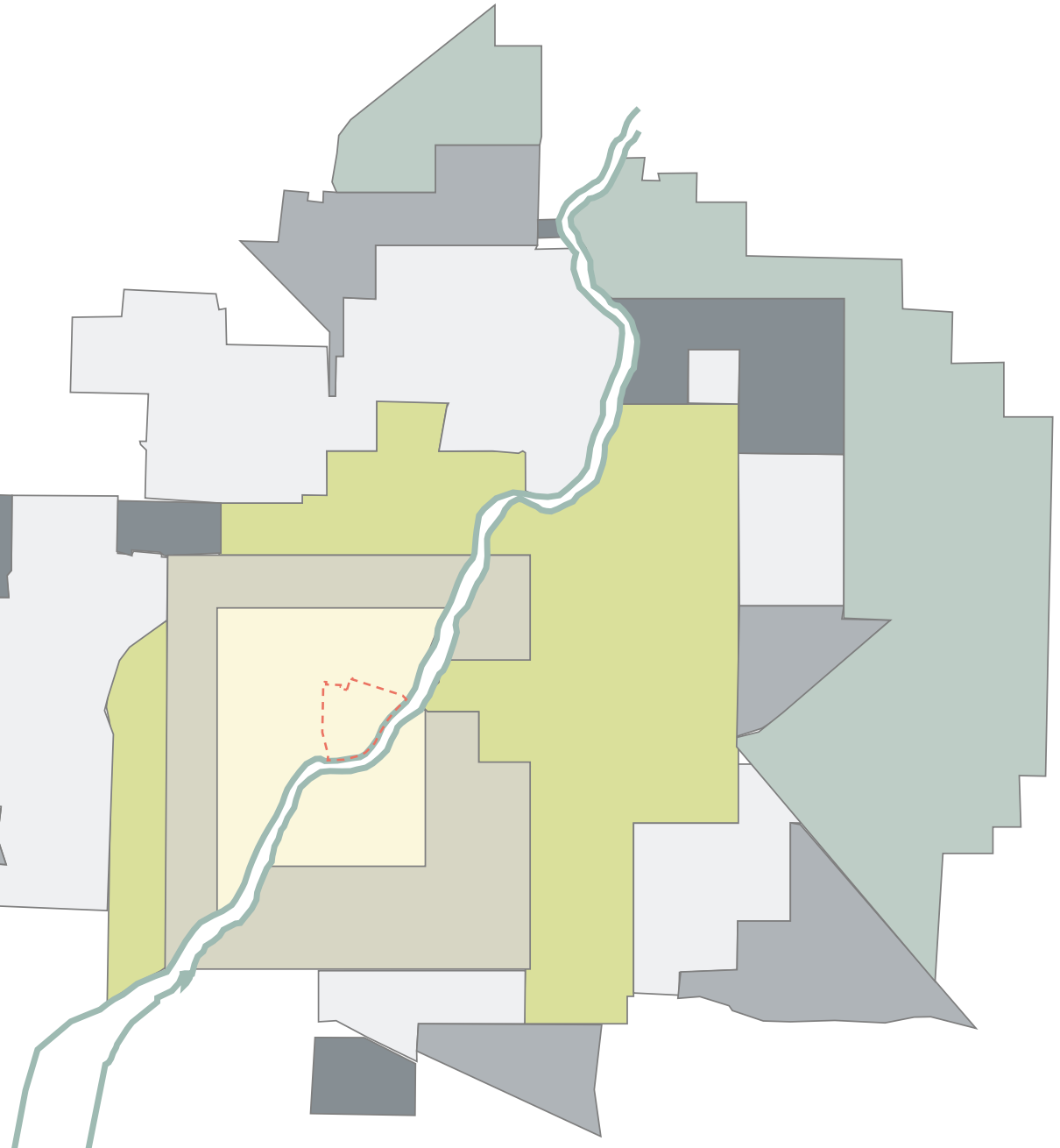
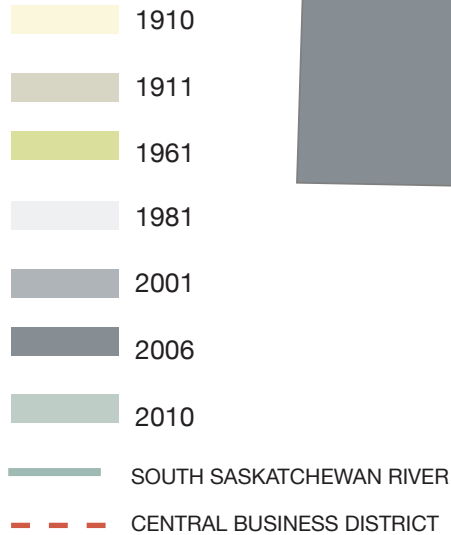
fig. 1.34

1.3.3 DEVELOPMENT OVER TIME

GROWTH AND CONTRACTION

The area of Saskatoon has always been a relatively low density community, illustrating an equilibrium between the land area and its population over time. Its relative urban isolation on the vast prairies landscape means the city is only ever as large as it needs to be. While the city limits grow incrementally, economic forces create cycles of physical positive growth in terms of infrastructure and house building (Delainey & Sergeant, 1974), and as economic contraction occurs business closure and housing vacancy slow density development.

LAND ANNEXATION BY DECADE



scale 1:100 000

fig. 1.35

POPULATION AND DENSITY

1901

Saskatoon is incorporated into the original temperance colony alongside the newly constructed railway.

1911

Following the amalgamation of the towns of Saskatoon, Riversdale and Nutana into the city of Saskatoon in 1906, population increases rapidly.

1961

After The boom and bust years of the previous three decades due to war and depression, the city enters a period of prosperity.

1981

The expansion and diversification of more advanced technology industries bring new growth and attract population.

POPULATION

 = 10 000

"
113


12 004


95 526


154 210

DENSITY

 / KM²

<1 /km²

122 /km²

1 184 /km²

1 253 /km²

2001

The city continues to expand primarily in low density residential form.

2006

Saskatoons place as a midsize city is further defined by the dominance of personal automobile use and its poor public transit network.

2010

Current trends continuing in low density suburban development with minimal central city infill brings Saskatoon to a relatively low density city.

POPULATION

 = 10 000



196 811




202 340



224 300

DENSITY

 / KM²

1 327 /km²

1 184 /km²

1057 /km²

fig. 1.36

1.3.3 URBAN PROFILE

DENSITY

To better understand urban landscape of Saskatoon, the chart below developed by Oliver Gillham establishes general housing densities in terms of dwelling units per acre (Du/Acre) for various residential environments as a comparison guideline. Please note typical developments can vary depending on project age, market, context, local codes and other factors (Gillham, 2002).

	Building type	Du/ acre
RURAL	single-family, 100 acre lot	0.01
	single-family, 25 acre lot	0.04
SUBURBAN	single-family, 1 acre lot	1
	single-family, 1/2 acre lot	2
	single-family, 1/4 acre lot	4
	semi-detached, 2 family	5-12
	townhouse, party walls	5-12
URBAN	semi-detached, 2 family	12
	townhouse	12-24
	apartment, 3 storey	30-50
	apartment, 6 storey	45-75
HIGH DENSITY URBAN	townhouse	36
	apartment, 3 storey	75
	apartment, 6 storey	110
	apartment, 6 storey	220

fig. 1.37

CITY DENSITY COMPARISON

The below information is a comparison of data from the Statistics Canada, used to understand how Saskatoon places relative to other midsize cities on general population and housing density. Based on this information we can see that Saskatoon can be classed as a generally typical suburban city in terms of density. When comparing the housing density of Saskatoon over its total land area the relative density is comparable to a rural setting, indicating the general low density nature of the city.

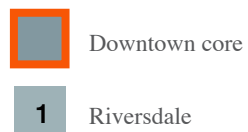
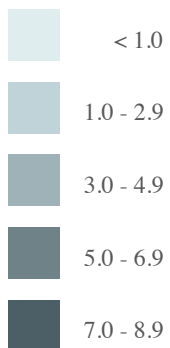
Area	Population density (person/ km ²)	Family density (person/unit)	Housing density (unit/acre)
Regina	57.2	2.4	0.1
Saskatoon	44.9	2.4	0.08
St Catherines/ Niagara	279.3	2.4	0.9
Victoria	474.7	2.2	0.9
Windsor	316.1	2.5	0.5

fig. 1.38

RESIDENTIAL DENSITY OF SASKATOON

A closer look at housing density per neighbourhood area reveals the general low density nature of Saskatoon. As per the Gillham table above, the entire city of Saskatoon is classed as a suburban landscape. The density of the central business district is 6.5 Du/acre, very low my urban city standard. Densities around the downtown core are relatively more urban, characteristic of smaller lot sizes when these neighbourhoods were built, with the exception of Riversdale which maintains a low density of 3.7 dwelling units/acre.

Residential density (DU/acre)



scale 1:100 000

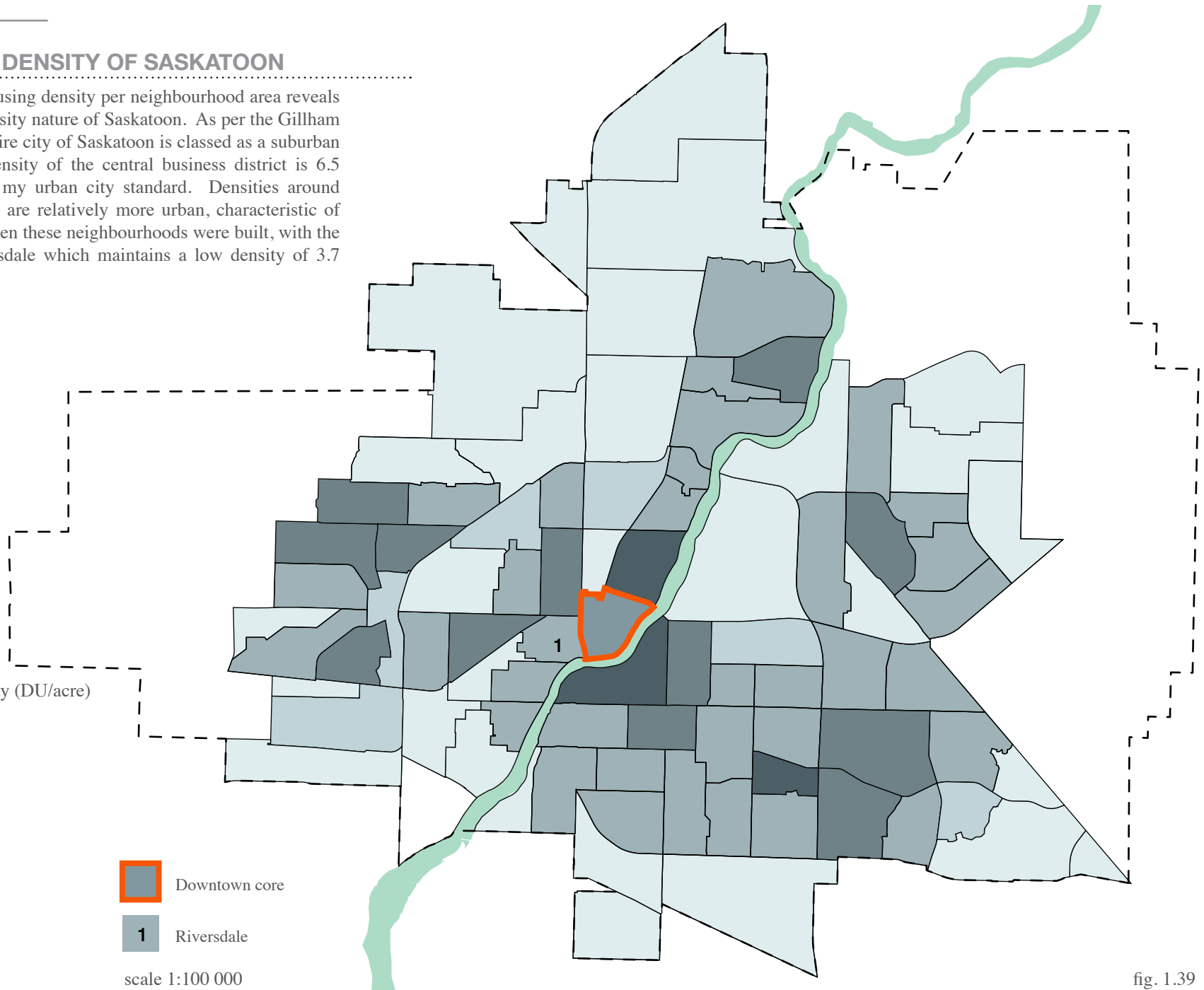


fig. 1.39

HOUSING TYPOLOGY MIX

The Canadian residential landscape is comprised of primarily low density single unit detached housing commonly found in suburban environments (StatsCan, 2006). The below diagram illustrates that Saskatoon follows the Canadian norm, indicative of post war housing practices, as over 90% of all housing in Saskatoon was built in the last sixty years (StatsCan, 2006). A further comparison to housing mix in other Canadian midsize cities (fig 1.46) show that Saskatoon can be classed as a typical housing characteristics, making it an ideal candidate to understand how we might take housing forward.

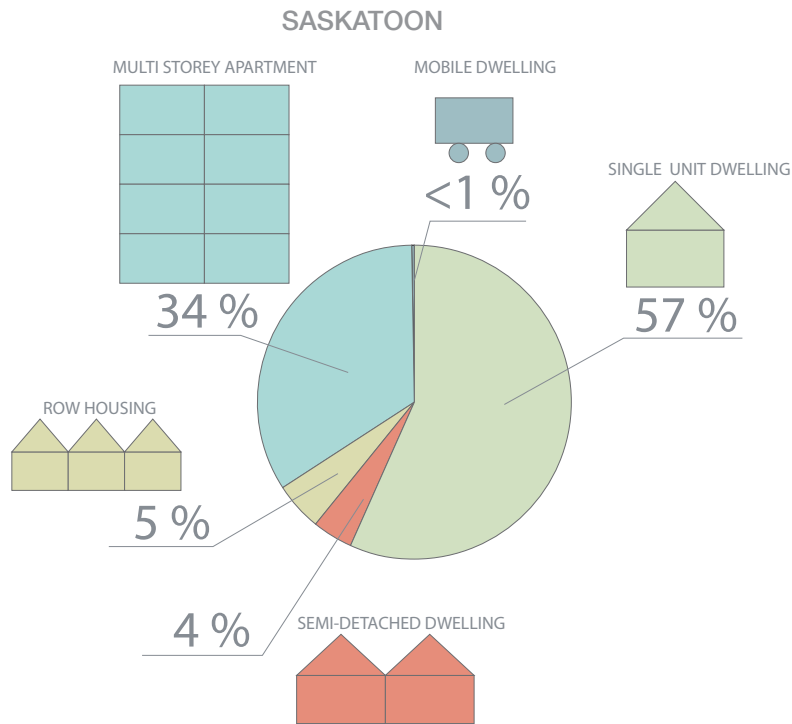


fig. 1.40

Percentage of single unit dwellings

Regina	68%
St Catherines/Niagara	67%
Victoria	43%
Windsor	69%

fig. 1.41

OWNERSHIP

The diagram illustrates Saskatoon as a typical midsize city where single family homes are the dominant residential typology.

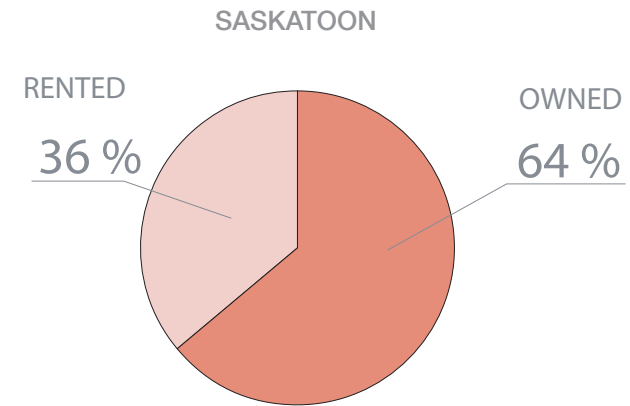


fig. 1.42

	Rented	Owned
Regina	30%	60%
St Catherines/Niagara	25%	75%
Victoria	35%	65%
Windsor	26%	74%

fig. 1.43

1.3.4 SOCIO ECONOMIC PROFILE

HOUSEHOLD STRUCTURE

As the diagram below illustrates, the household structure of Saskatoon shows a balance between households with children, without and single person homes. This is in line with Canadian as well as other midsize cities. What is curious about the information compared to the housing typology mix above is the apparent lack of diversity in housing types to suit this balanced household structure. In terms of housing type Saskatoon consists of 57% detached single unit homes when less than one third of households fit the characteristics for detached single unit housing. Here we can see a potential for new housing schemes that offer greater range for a more diverse household mix.

HOUSING TYPES

- couple w/ children
- couple w/o children
- one person
- other household types

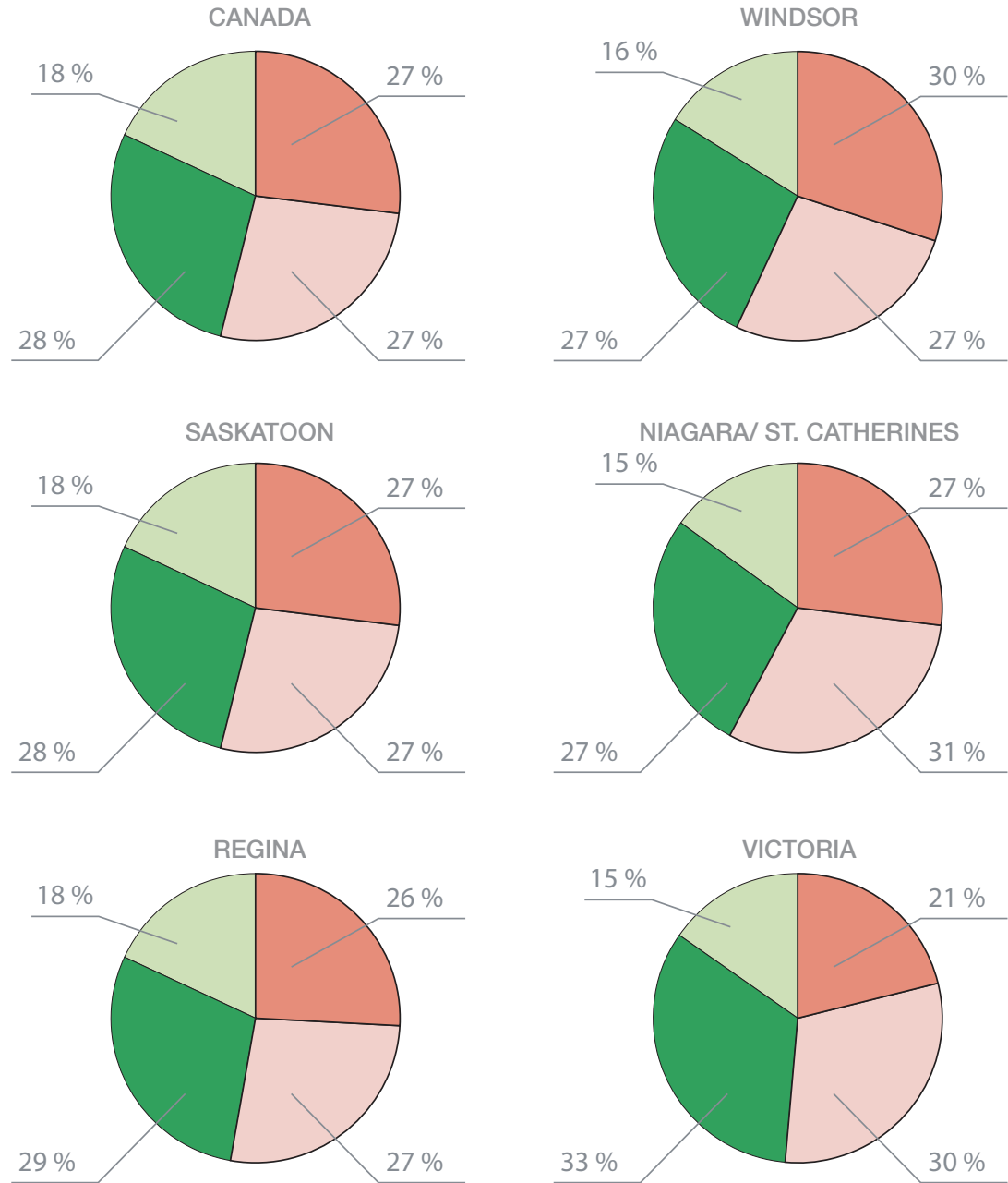


fig. 1.44

CULTURAL CAPITAL

Saskatoon is currently developing new incentives for building arts programs to support and encourage diversity. City council has produced a report, “Culture Plan for Saskatoon”, outlining a strategy to strengthen, harmonize, and raise the profile of cultural endeavors of the city (C of S, 2011). The report illustrates nine drivers for change, or key forces that will encourage creative growth. The elements of the report all seek to diversify Saskatoon and tap into its creative culture. This concept of attracting creative people to create diversity and generate innovation and growth is developed by Richard Florida in “Cities and the Creative Class”, elaborated later in part 2.4.3: Building with lifestyle. Florida studies urban growth by looking at places of human and social prosperity and then evaluating what kinds of people are moving to these places and what factors people look to when choosing a place to live. He finds that places that are abundant in high-quality experiences, display an openness to diversity of all kinds and validate creative identities are powering a new kind of economic growth. These are described as ‘creative centers’ and are the future of growth and prosperity (Florida, 2003).

Many of the incentives outlined in the Culture plan are aimed at supporting the aboriginal legacy within Saskatoon, the peoples of which the city has a relatively high percentage by Canadian standards (see table below).

Aboriginal Population in Major Canadian Cities

(Source: 2006 Census Data)

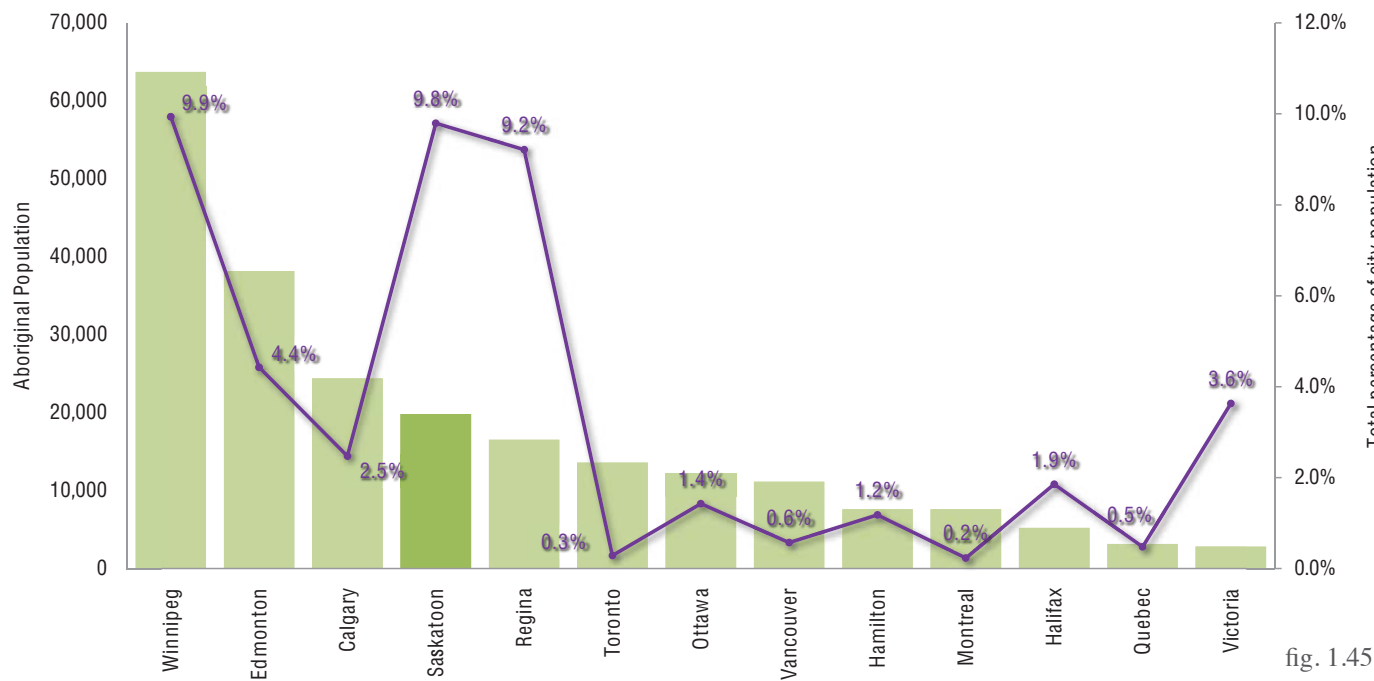


fig. 1.45



fig. 1.46



fig. 1.47



fig. 1.48

NATURAL RESOURCE

The South Saskatchewan river is the central natural foundation of Saskatoon, and acts as the major spine of the city. Growth of the city has straddled the river over the past one hundred years, and it remains the key component for development today (Future Growth Study, 2000). A park system, the Meewasin Valley, provides residents with a physical connection to the river through a series of trails and green spaces. Seven bridges have been constructed to traverse the river, with plans for an additional bridge to support future growth scheduled to open in 2012 (CofS 2011). Images below illustrate the river experience.

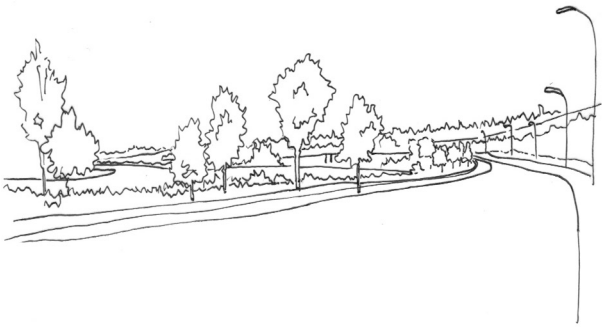


fig. 1.49

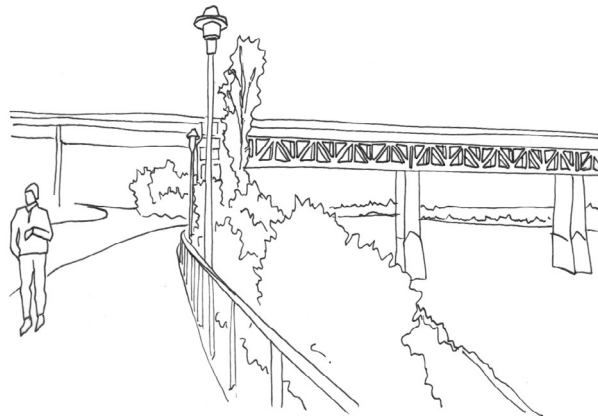


fig. 1.51

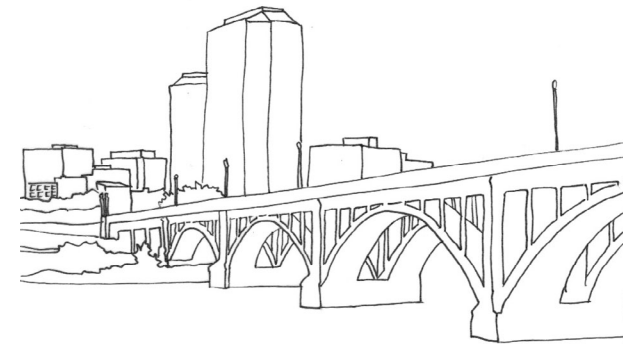


fig. 1.53

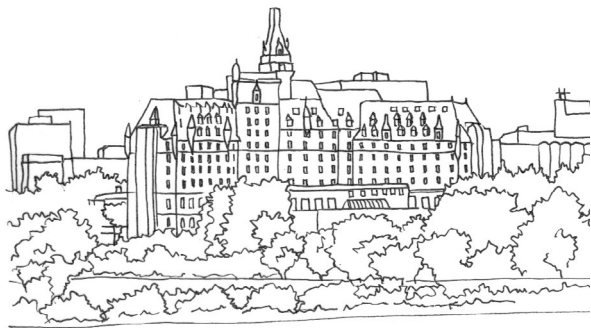


fig. 1.50

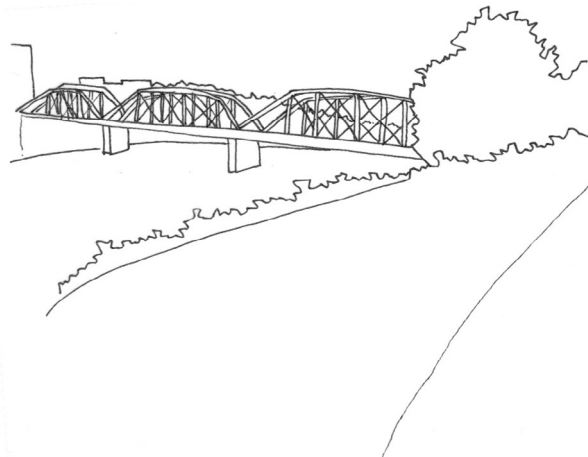


fig. 1.52

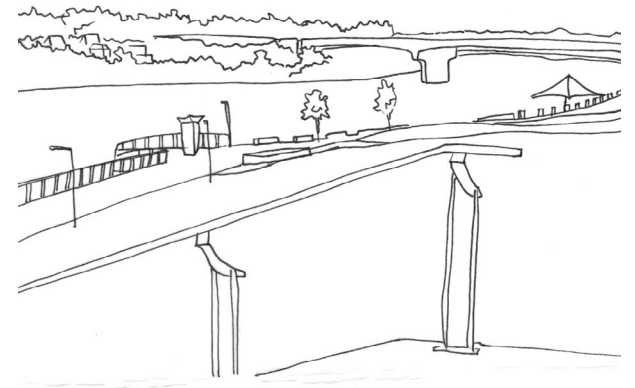
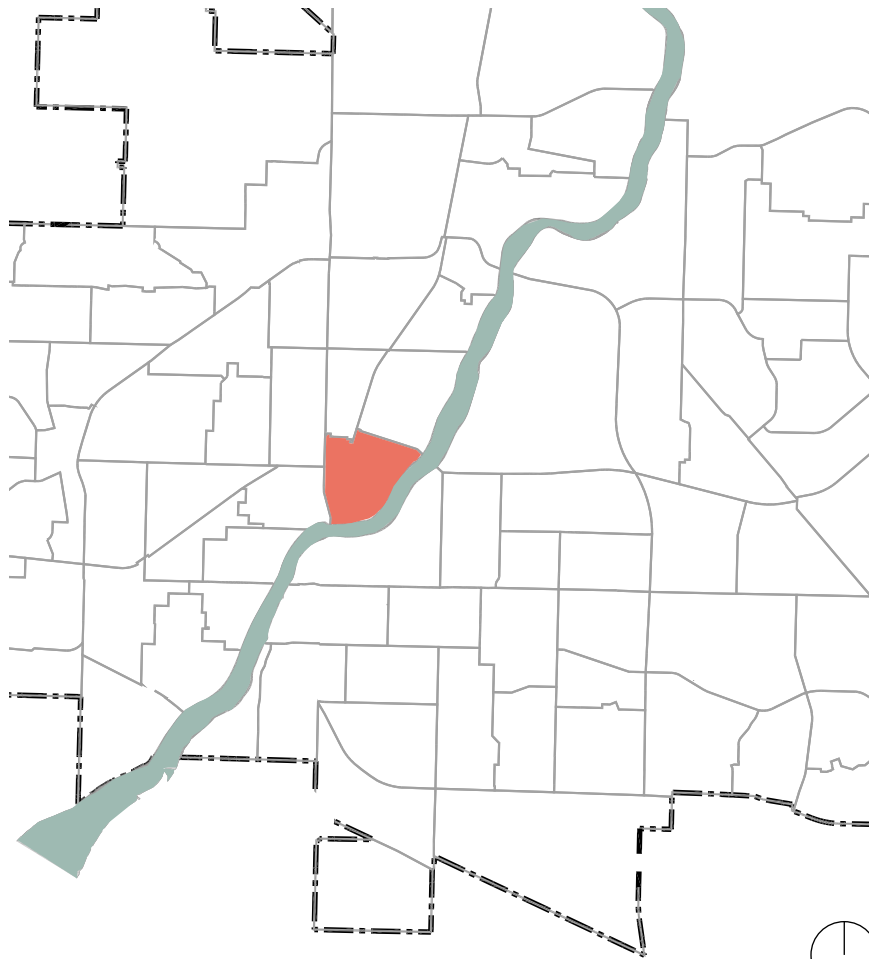


fig. 1.54

1.3.5 CURRENT ISSUES AROUND GROWTH

DOWNTOWN CORE DECLINE

Centrally located in Saskatoon, the downtown core suffers from many of the symptoms characteristic to North American midsize city downtowns (Lederer, 2006). The trend of large retail activities leaving the core has resulted in a low density environment and increasing number of surface parking lot provisions. With a lack of economic activity the area suffers from a pedestrian and community presence.



■ CENTRAL BUSINESS DISTRICT

scale 1:100 000



fig. 1.55



fig. 1.56



fig. 1.57



fig. 1.58



fig. 1.59



fig. 1.60



fig. 1.61

DOWNTOWN SURFACE PARKING

It is estimated that between twenty five and thirty five percent of the downtown core is occupied by surface parking (Shaw, 2010). This is caused by property tax incentives, where only lots with buildings are charged property tax and lots without buildings are tax free. This coupled with the potential profits on private parking income have created an increasingly the low density downtown fabric. Not only is the low density fabric struggle to attract vibrant and diverse public life, the loss of older existing buildings due to demolition has impacted the historical legacy of Saskatoon, as mentioned in part 1.3.1 Historical legacy.



fig. 1.62



fig. 1.63



fig. 1.64



fig. 1.65

1.3.6 ARCHITECTURAL RESPONSE

FUTURE GROWTH OPPORTUNITIES

To accommodate the increasing population of Saskatoon while managing the interests of current and future residents and maintaining efficiency with limited resources, Saskatoon City Council has outlined urban strategies through a series of potential city models. Further development of these models could include increasing density, mixed use and brownfield/ greyfield development and development green space within these framework schemes. The following terms outlined by city council have been evaluated based on the specific interests and needs of Saskatoon:

the **ENVIRONMENT CITY** - doing our part to ensure the future health of our planet by protecting all ecologically sensitive natural areas and integrating them into our future city.



fig. 1.66

the **RIVER CITY** - by developing new neighbourhoods near the South Saskatchewan River where future citizens reap health and social benefits by conveniently using the amenities the river has to offer.



fig. 1.68

the **ECONOMY CITY** - by developing in only the most cost efficient lands and keeping future lot prices at the lowest possible level.



fig. 1.67

the **COMPACT CITY** - by developing a quilt of neighbourhoods integrated into Suburban Development Areas.



fig. 1.69

the **SPRAWLING CITY** - by annexing large areas of the rural municipality and becoming the largest city possible.



fig. 1.70

the **CONCENTRIC CITY** - by growing in a concentric pattern around a well-defined core to encourage people to visit, work and shop downtown and to foster an efficient public transit system.



fig. 1.71

the **BALANCED CITY** - by developing land in the most economical areas on both the east and west sides of the city.



fig. 1.72

FUTURE GROWTH PLAN

Current growth strategy outlined by Saskatoon City Council aims to include principles of the Concentric, Compact and Balanced City, indicated development to accommodate a future city population of 400 000. The plan is to create 3 new Suburban development Areas (SDA), containing all the facilities and amenities to accommodate 50 000 residents each, on a 4000 acre parcel of existing farmland outside current city limits.

The growth strategy encourages low density development, targeting 12.5 people/ acre and averaging at 5 du* / acre.

*average dwelling= 2.5 people

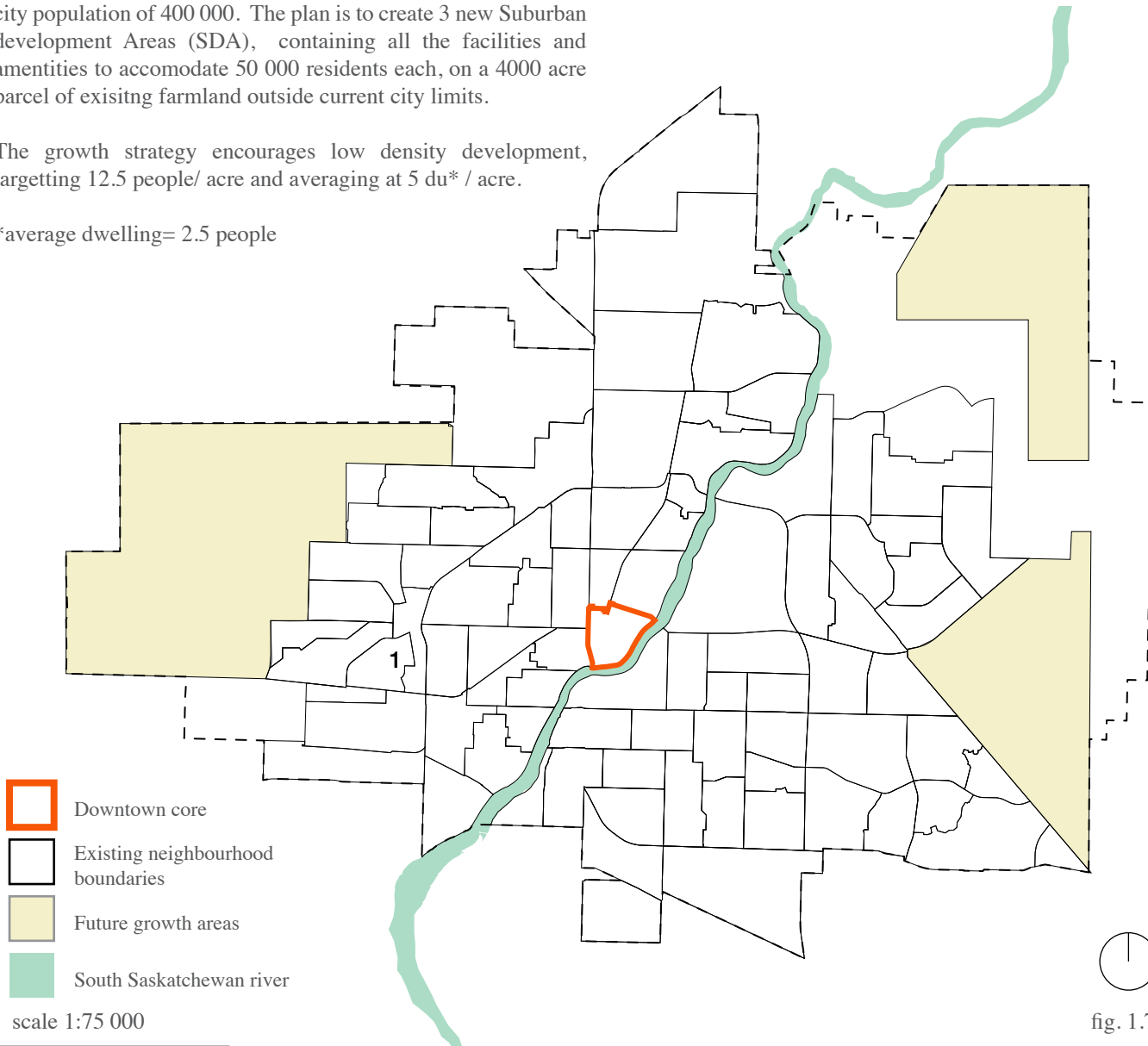


fig. 1.73



fig. 1.74



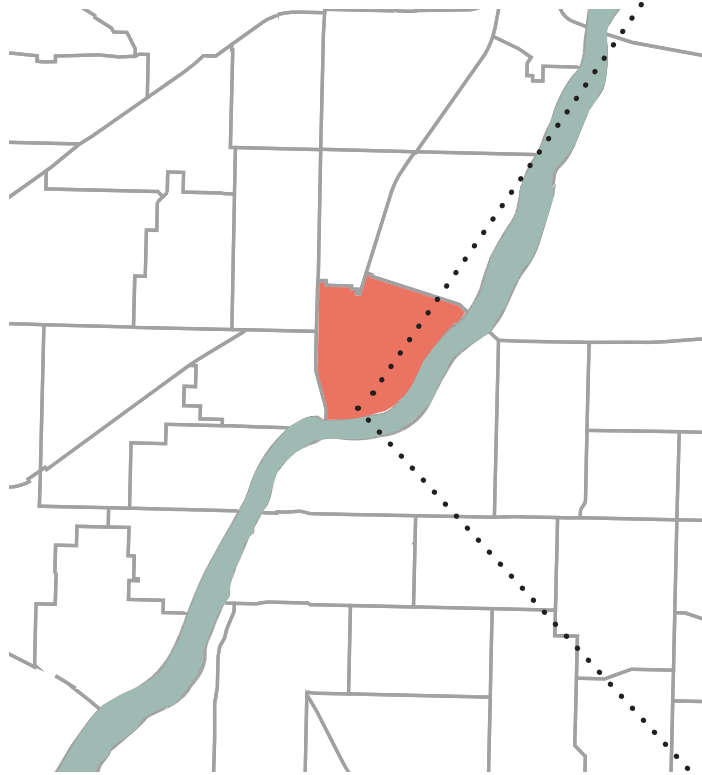
fig. 1.75



fig. 1.76

URBAN INTENSIFICATION: RIVER LANDING

Developed in line with Meewasin Valley hundred year plan, the city is now intensifying the urban riverfront. The River Landing proposal includes public amenities, cultural spaces, event spaces and public gathering spaces, to be built on Saskatoons downtown waterfront (C of S, 2011). By programming spaces along the riverfront and centralizing activities near the downtown core, it becomes a natural and cultural focal point of the city.



scale 1:50 000

fig. 1.77

- Central business district
- South Saskatchewan river



fig. 1.78



fig. 1.81



fig. 1.79



fig. 1.82



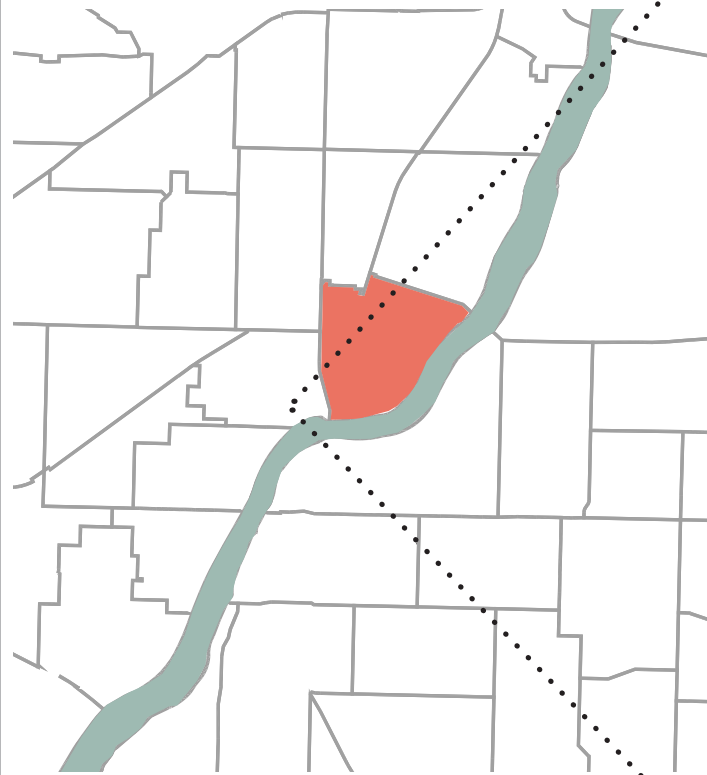
fig. 1.80



fig. 1.83

URBAN INTENSIFICATION: FARMERS MARKET

Adjacent to the River Landing development is the the Saskatoon Farmers Market. Constructed just outside the downtown core, it provides the neighbourhood with new community outdoor and indoor spaces and is used year round. It is the only fresh food and produce market in the city and serves all residents of Saskatoon. The goal of the space is to highlight local food and produce, operating weekly with small retail outlets operating throughout the week.



scale 1:50 000

fig. 1.84

- Central business district
- South Saskatchewan river



fig. 1.85



fig. 1.88



fig. 1.86



fig. 1.89



fig. 1.87



fig. 1.90

URBAN INTENSIFICATION: MIXED USE

The Soca Lofts is a recently completed mixed use project, enabled by a recent change to zoning laws by the planning department at the City of Saskatoon. The project includes a two storey live/work spaces and converted warehouse to residential units.

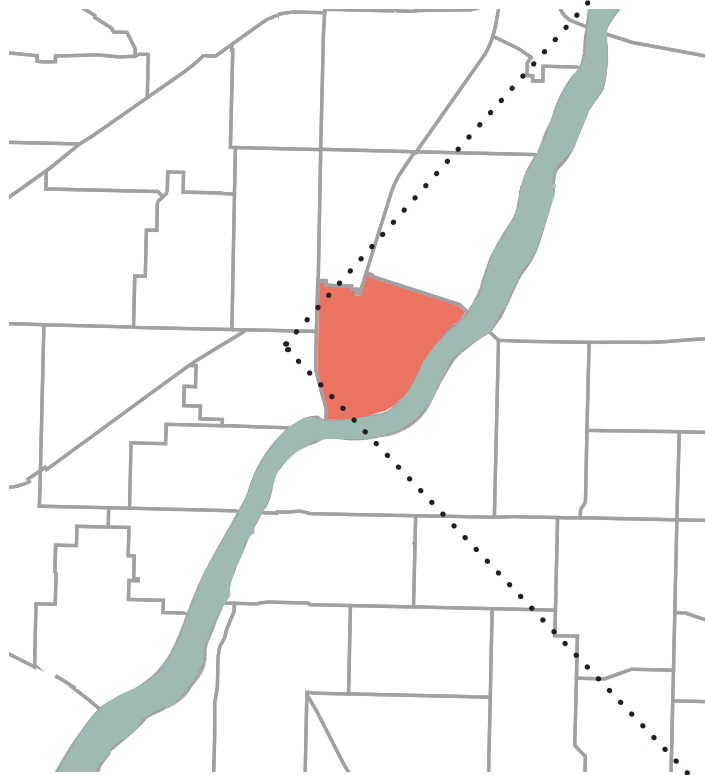


fig. 1.91

scale 1:50 000

- Central business district
- South Saskatchewan river



fig. 1.92



fig. 1.95



fig. 1.93



fig. 1.96

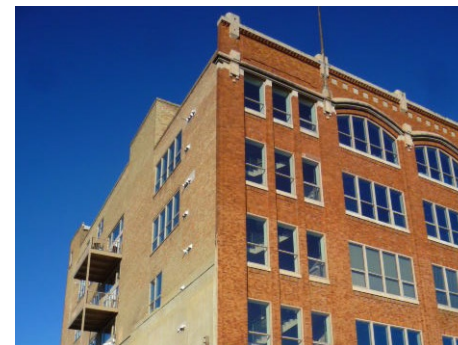


fig. 1.94

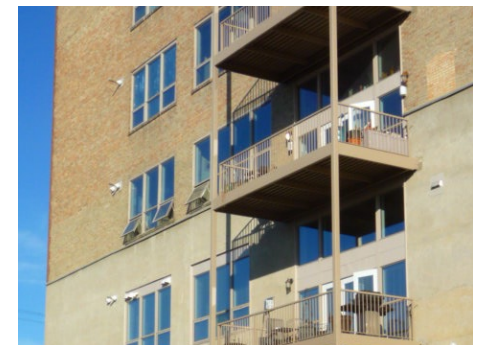
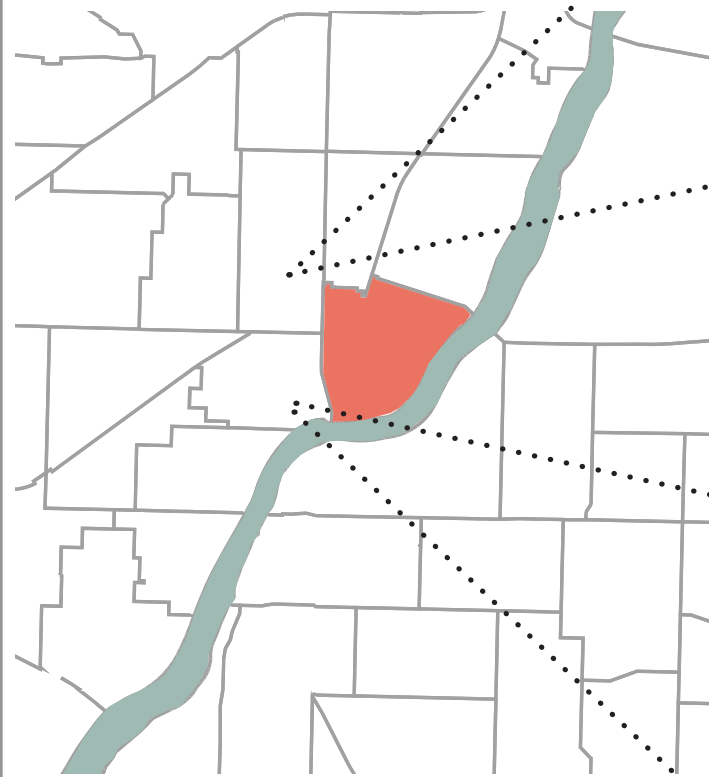


fig. 1.97

URBAN INTENSIFICATION: RESIDENTIAL INFILL

The city of Saskatoon is currently offering tax incentives to encourage intensification (C of S, 2011) and increase residential density. The neighbourhoods adjacent to the downtown core offer ideal location for urban residential infill projects as they are typically the most affordable neighbourhoods in the city (Statscan, 2006).



scale 1:50 000

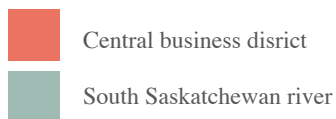


fig. 1.94



fig. 1.95



fig. 1.96

Bueckert house: Live/Work



fig. 1.97

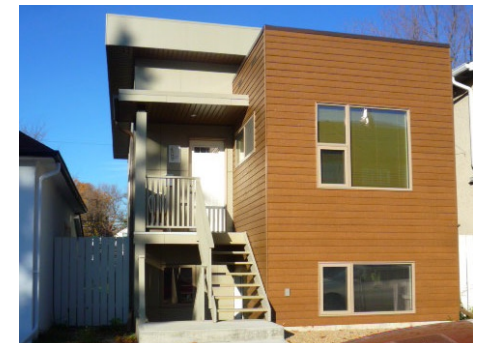


fig. 1.98

Shift Home: Affordable/Flexible

SUMMARY

Saskatoon exhibits many development patterns typical of a midsize Canadian city, and is therefore an appropriate candidate to understand how we might mitigate the challenges facing housing today. We have seen how the development of Saskatoon has led to where we are today:

Early growth and prosperity of the Boom years between 1910 and 1913 set the city up as a major commercial hub for the province and established development patterns still visible today (Delaine & Sergeant, 1974). As the city developed in the post-war years, the presence of the personal automobile began to influence growth patterns and cause downtown decline, similar to the experience of a typical North American midsize city (Lederer, 2006). A major catalyst for downtown decline was the removal of the central city rail line in 1962, which significantly impacted the surrounding neighbourhood character, leaving a void of economic activity in its place and perpetuating low density urban fabric. In the decades following the slow creep of downtown vacancy due to suffering economic activity and decentralized growth in newer suburban areas further out see Saskatoon facing challenges typical to the midsize city condition: declining cores, dispersion of low density fabric creating a loss of sense of place.

Though the implications of sprawl face Saskatoon at a less violent scale than other multi-million person cities, the potential effects are recognized. The possible response of densification as an alternative to sprawl will be explored through a series of guidelines to develop a framework for sustainable and successful evolution of the urban fabric of Saskatoon. The use of guidelines in city planning has long been the method of managing growth and creating working environments in urban environments, however recent practice which focuses on zoning and segregation of programme is perhaps becoming obsolete and working against its very manifesto of creating living, breathing cities. This thesis hopes to develop a set of design guideline principles based on the design theory to follow. In establishing the necessary relationships and characteristics that generate a resilient urban fabric we can create a framework for residential evolution. The study area of Saskatoon will be examined and a design response will be executed based on a series of design layers: urban strategy, site strategy, programming, architectural vocabulary, materiality and vernacular.

P2

**Literature
Review**

2.1.1 TIMELINE OF SUBURBAN GROWTH

CONCEPT

THE INDUSTRIAL CITY

Increasing urban habitation caused by centralized manufacturing is creating poor living conditions for the increasing working class. Poor conditions include overcrowding, poor air and water quality, and disease, and begin to define city centers as undesirable and corrupt environments (Sewell, 1993). In response, developments in transportation infrastructure secure the opportunity for the middle class to live outside the urban center.

GARDEN CITY MOVEMENT

Sir Ebenezer Howard in the UK defines a holistic vision of residences, industry and nature. The plan is a self contained, self sufficient community that would provide the necessary balance of work and life (Howard, 1965). It was to be 'a marriage of town and country, of rustic health and sanity and activity and urban knowledge, urban technical facility, urban political cooperation' (Howard 1965) The theory behind the garden city is that it would combine the serene atmosphere of the country with the social advantages of the city, a the town-country relationship; the blueprint for cities that would fit the modern age (Sewell 1993)

REGIONALISM

The Regional Planning Association of America (RPAA), founded in 1923 by Patrick Geddes, Lewis Mumford, Clarence Stein, and Benton MacKaye, carry a mandate to create new build fully conceived residential environments, and the first ideological seeds of a planned community is created. The approach to suburban building relies on a clean slate, where dispersed yet concentrated urban culture is integrated with elements of the natural landscape (Talen, 2008). The model is created by denser residential development, brick row houses of two and half stories, while integrating open space and green space in the form of private front and rear gardens and a landscaped central court shared by all.

APPROACH

MASS INDUSTRY HOUSING

RETURN TO COUNTRY LIFE

PLANNED COMMUNITY

STRATEGY

SLUM CLEARANCE

THREE MAGNETS

CITY BEAUTIFUL

LIFESTYLE

OVERCROWDING

TOWN-COUNTRY HARMONY

ELITIST



fig. 2.01

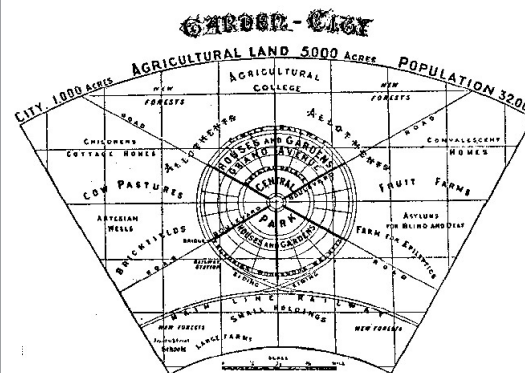


fig. 2.02



fig. 2.03

1900s

1910s

1920s

MODEL

L O N D O N

L E T C H W O R T H

S U N N Y S I D E

CONCEPT

RADIANT CITY

A utopian design developed on a tabula rasa of the existing downtown fabric is the central ideological principle conceived by Le Corbusier in France. The scheme called Ville Radieuse, replaces the congested, interlayered city with giant towers intended to densify the area and make way for wide roadways and expanses of green space (Sewell, 1993). For Le Corbusier, this design provides the necessary social amenities for a population and is the catalyst for social reform in France. The plan generates relationships between the car and space, reflecting the excitement of technology and speed, which would become driving forces of the Modern movement.

POST WAR

Suburban Development in North America begins to hit its stride with the GI bill in 1944, giving returning war veterans an opportunity to acquire new home mortgages (Bennett, 1996). New opportunities for affordable housing and work creates a suburban landscape that is no longer reserved for the wealthy, but is now achievable to a wider cross-section of the population, an becoming the standard quality of life for North Americans (Bennett, 1996).

TRACT HOUSING

Planned tract housing developments of largely identical, mass produced homes are rolled out over empty farmland, defining the aesthetic of the suburbs. The affordable house typology uses uniform, pre-fabricated parts, applying the economies of scale means to the residential landscape with components that can be quickly and easily produced (Kunstler, 1993). There is, however, criticism of the new suburb by planners, expressing that its not a planned new town but simply an unending collection of street lined by repetitious and inexpensive houses. (Sewell 1993) The personal automobile is now essential to modern life, providing freedom and access to the suburbs.

APPROACH

EFFICIENT HOUSING

DEMOCRATIC

FREE MARKET CAPITALISM

STRATEGY

TABULA RASA

AFFORDABLE HOUSING

MASS PRODUCTION

LIFESTYLE

MODERN

THE AMERICAN DREAM

PROSPERITY



fig. 2.04



fig. 2.05



fig. 2.06

1930s

1940s

1950s

MODEL

VILLERADIEUSE

SALTBOX

LEVITTOWN

CONCEPT

INFINITE GROWTH

The development of the interstate highway has insured the distribution of people and resources across the continent; a new system of habitation is created where people live far away from where they work, live and get their necessities (Heinberg, 2003). The vision of the city is decanted into the countryside, and all of its functions soon follow: the shopping, the office, and the retail. (Kunstler, 2003) The massive increase in speed and production of building fabric has resulted in a suburban environment lacking in substantial social content. A dependence on the automobile is solidified, and an important shift is generated in the population, where they move from citizens to consumers.

GENTRIFICATION

In larger cities, social issues of racism, feminism, and environmentalism that arose in the later half of the 1960s have generated public awareness and involvement in downtown cores. Advocates for the quality and diversity of the public realm, such as Jane Jacobs, are advocating the richness of downtown cores as models for a good neighborhoods. Their argument is that the greater and more plentiful the range of interests and activities that city streets can satisfy, the safer the streets and civilization of the city (Jacobs, 1961). New investment in urban areas creates a class-oriented shift in real estate valuations; and the first seeds of Gentrification begin to occur.

SMART GROWTH: NEW URBANISM

As effects of infinite growth begin to show signs of suburban sprawl, housing development begins to shift towards policies and goals aimed at neutralizing sprawl, called Smart Growth (Downs, 2004). New Urbanism is created as a return to early European architectural and planning principles to develop sustainable, community centered neighbourhoods. The design is based on increased residential and employment density with a town square presence and an abundance of natural space; (Filion et al. 2007) becoming walkable, pedestrian friendly neighborhood. Its criticism, however, is that like traditional suburban development, New Urbanism also requires greenfield sites far removed from existing urban areas.

APPROACH

GROW THE MIDDLE CLASS

PUBLIC PARTICIPATION

PEDESTRIAN FRIENDLY MIXED USE

STRATEGY

MOBILITY

RETURN TO DOWNTOWN CORES

RETURN TO TOWN CENTER

LIFESTYLE

CONSUMER

COMMUNITY ORIENTATED

NEO TRADITIONALIST



fig. 2.07



fig. 2.08



fig. 2.09

1960s

1970s

1980s

MODEL

I N T E R S T A T E

G R E E N W I C H V I L L A G E

S E A S I D E

CONCEPT

SMART GROWTH: TOD+EDGE

Planning approaches begin to take many forms, all falling under the umbrella of Smart Growth, based on New Urbanist principles. While New Urbanism is deemed to be too prescriptive (Saab, 2007), Smart Growth looks at what is appropriate for each city then implements growth (Kentworthy, 2006). TOD (transit oriented development), Edge City, Compact City are examples of this new planning theory, focused on density and mixed use development. TOD consists of creating compact, mixed use communities within a 5-10 minute walk form a transit station. Edge City focuses on periphery development and Compact city is mainly focused on density.

SMART GROWTH: ECOVILLAGE

As axiomatic environmental awareness becomes part of public rhetoric, government and public agencies begin to launch 'green' building programs, such as LEED (Leadership in Energy & Environmental Design) accreditation. Now entire housing development plans begin to integrate passive environmental technologies and natural systems with building and residential growth. The term EcoVillage is defined to articulate this movement (Kentworthy, 2006). The discussion of Peak Oil informs us that we can no longer continue to build unsustainably, although widespread unsustainable suburban sprawl is rampant and globalization is prevalent.

DESIGN FOR A FUTURE

Smart growth initiatives continue, although the automobile generating suburb now has so many generations used to the suburban lifestyle that it has become normal life, and will be a tremendous struggle to maintain in the future (Kunstler 2003). Internalized suburban design (garages as primary street facade and automobile dominating the public realm) have resulted in little pedestrian presence, where residents insulate themselves from communal life, generating 'soulless subdivisions' (Duany et al. 2001). Industry experts suggest we will have to downsize and downscale everything we do (Kunstler 2003), does this mean a return to agrarian living or can we continue to inhabit suburban centers ?

APPROACH

DENSIFICATION

SUSTAINABLE BUILDING

HOLISTIC

STRATEGY

NODES + VILLAGES

NATURAL SYSTEMS

SYSTEMS

LIFESTYLE

COMMUTER

BEING 'GREEN'

STOP THE GRAVY TRAIN

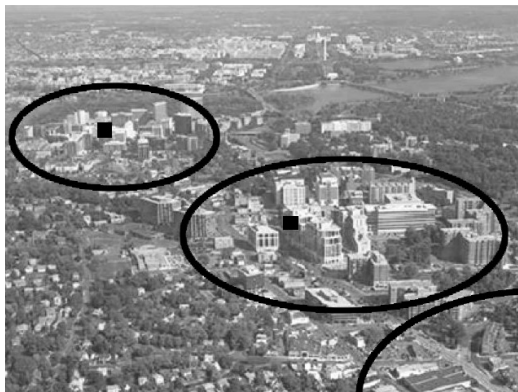


fig. 2.10



fig. 2.11



fig. 2.12

1990s

2000s

2010s

MODEL

A R L I N G T O N

O K O T O K S

2.1.2 EARLY SUBURBAN MODELS (1900-1930)

In the first three decades of the twentieth century industry and manufacturing begin to transform traditional urban centers. The cities of the time developed a stigma of overcrowding and poor living conditions, a city of evil horror full of noise, fire, and darkness (Sewell, 1993) and as a response, the first suburban living models emerge. Early theories developed by Sir Ebenezer Howard in the UK define a holistic vision of residences, industry and nature, where the physical limitations and minimal greenspace of the city are escaped for the serene atmosphere of the country. Garden City represents a significant shift in lifestyle for the wealthy middle class, who are able to inhabit a community 'of rustic health and sanity and activity and urban knowledge, urban technical facility, urban political cooperation' (Howard, 1965).



fig. 2.13

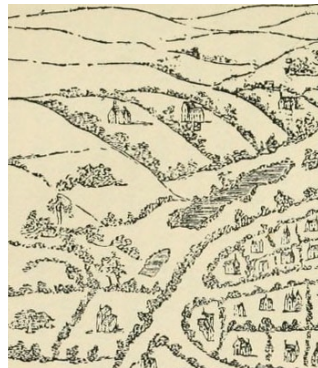


fig. 2.14



fig. 2.15

STYLE

The aesthetics and materiality of early suburban models are developed from English Georgian, Victorian, and Arts and Crafts movements, and begin to define the style of the wealthy American middle class (Kunstler, 1993).



Letchworth house, 1911

fig. 2.16

Arts and Crafts style triple fluted tall brick chimney

English vernacular low, sloping roof line

Arts and Crafts style small, leaded paned windows grouped in pairs or threes

GARDEN CITY

- Nodes of self contained, self sufficient communities, or 'satellite towns', linked by railway.
- Physical distinction between home (residential area), work (industrial area) and nature (green space).
- 32,000 residents on a site of 2400 ha (24 sq. kilometers)
- A spatial balance between work and play.

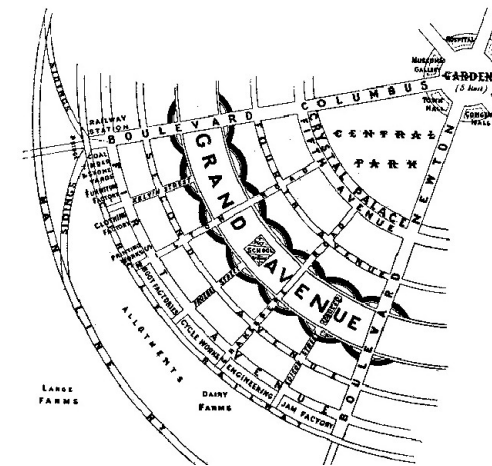


fig. 2.17

AMERICAN INFLUENCE

In the United States, neighborhood plans are developed by Fredrick Law Olmsted (below, left), Daniel Burnham, Clarence Perry (below, right) and Louis Mumford to emulate Howards' ideology of a balance between nature and home (Sewell, 1993). There is a quality of construction, and individuality of aesthetic because of construction practices and materials of the time. These arterial neighbourhoods are separate from the activities and diversities of the urban core. Only wealthy individuals with the ability to buy the property upfront would be able to inhabit Perry's visions, and therefore they become elitist residential environments (Kunstler, 1993).

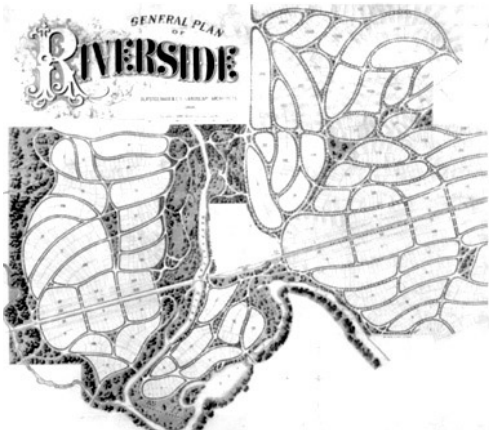


fig.2.18

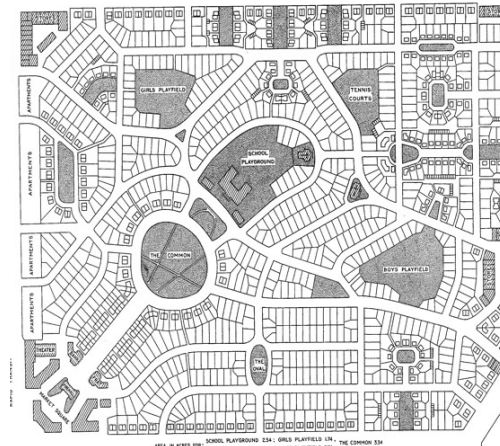


fig.2.19

'Make big plans; aim high in hope and work, remembering that a noble, logical diagram once recorded will not die.'

Daniel Burnham

PLANNING

Planned communities create the notion of an instant community, one that upon construction completion affords the necessary balance between work and life, both spatially and ideologically (Perry, 1929). This represents a shift in how we view communities, from a slow maturation over time to an instant realization.

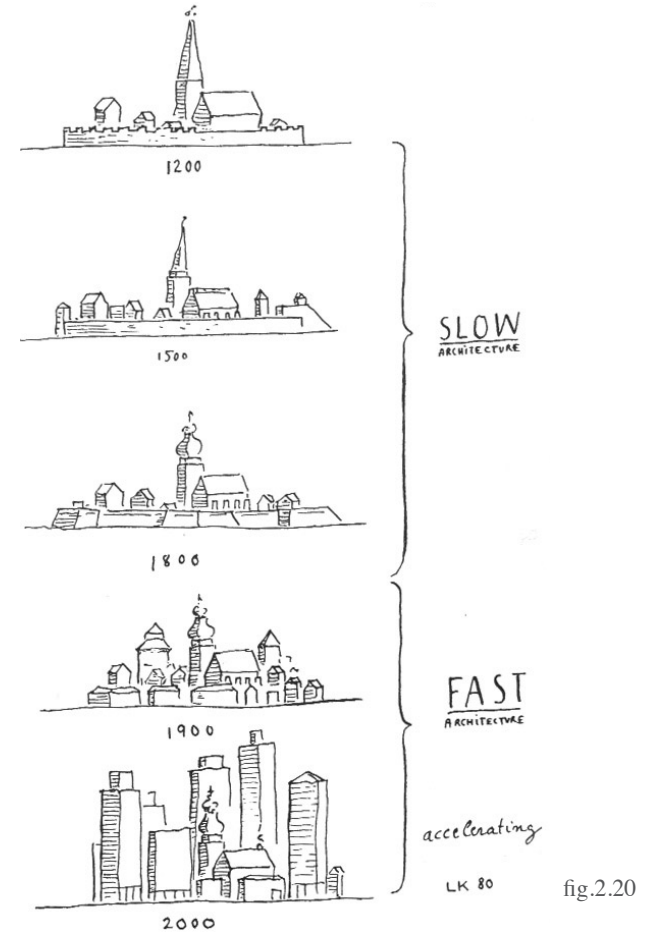


fig.2.20

2.2.3 POST WAR SUBURBAN DEVELOPMENT (+1945)

The end of WWII and the introduction of the GI bill in 1944 represents the most significant shift in the idea and practice of the suburban lifestyle North America has yet experienced (Kunstler, 1996). This creates an rising middle class population in need of affordable housing.

The wealthy middle class homeowner of the early 1900s is replaced by the consumer of industrialized North America. The suburban single family home becomes the American home and suburbia the American way of life (Palen, 1995). The notional value of the house is then transformed from personalized dwelling to commodity (Kunstler, 1996). The diagram below illustrates



fig. 2.21



fig. 2.22

LEVITTOWN

- Emphasis on ownership, where every citizen is now entitled to their own house, car and piece of the American Dream.
- Tract housing rolled out over farmland.
- 17,300 houses on a site of 10 square miles (26 sq. kilometers)
- Houses built at a rate of 30 per day.



fig. 2.23

“ All that is solid melts to air”

Marshall Berman

AUTOMOBILE

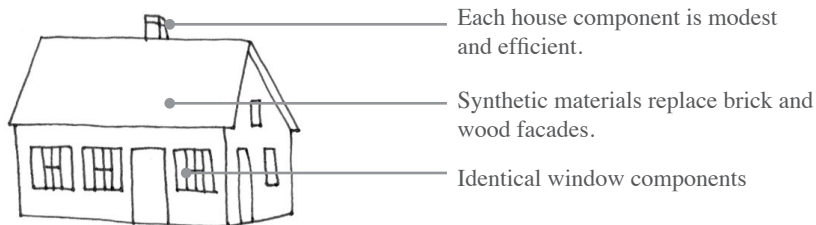
‘The American Dream’ of owning a house and a car is proliferating the new middle class of consumers, and the automobile is now an essential part of everyday life . The way we experience space and time is now from our personal automobile, moving from home to work and back independently.



fig. 2.24

STYLE

The aesthetics of the post war suburban house are based on a kit of parts of mass produced components that can be quickly and easily transported across the continent. The generated post WWII style is a landscape of homogenous houses, lacking identity and character (Kunstler, 1996).



Levittown, 1947

fig. 2.25

SPACE + TIME

The influence of Modernist thinking on the North American landscape is profound in terms of scope and scale. Modern ideology of speed and efficiency developed through industrialization generates a preoccupation with production and consumption. The suburban landscape is now designed based on the principles of speed and efficiency (Kunstler, 1996). As well as the speed of production, cultural commodities such as the telephone, automobile and airplane generate a new way of experiencing space and time (Sewell, 1993). The perspective drawing below by Futurist architect Antonio Sant’Elia captures the spirit of the age, where space is arranged to embody time as a sequence of vectors, or flows, without any confined sense of boundary as a series of fluid movements.

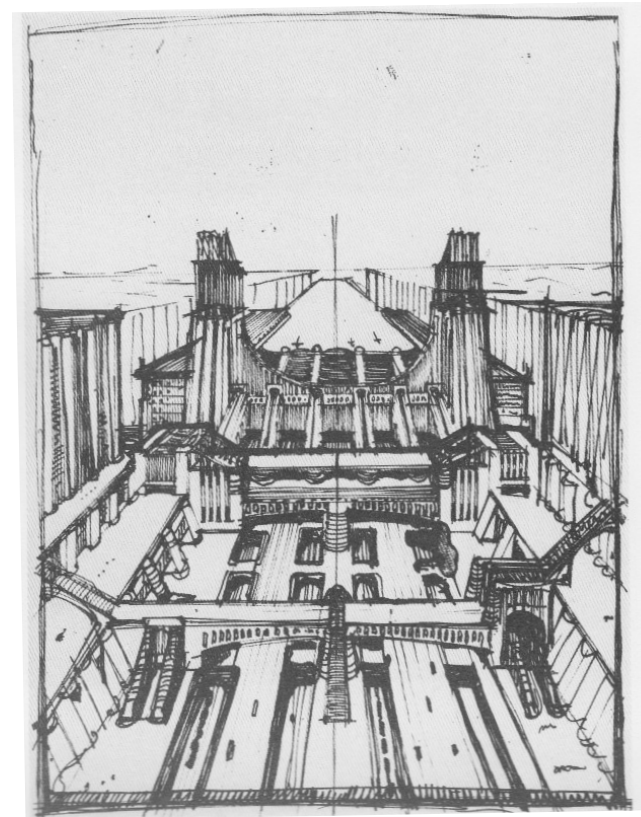


fig. 2.26

2.2.1 LEAP FROG DEVELOPMENT

As suburban development increases across North America we begin to identify patterns of growth. A characteristic pattern of the suburban landscape is a haphazard patchwork of subdivisions, shopping centers and office parks on farmland, generated by incremental private development (Gillham, 2002). This type of development, referred to as “leapfrogged”, requires large amounts of land and motorway and service infrastructure at massive cost.



fig. 2.27



fig. 2.28



fig. 2.29

*“The American city is decanted into the countryside,
and all of its functions soon follow.”*

James Howard Kunstler

ZONING

The deliberate segregation of land uses for single purpose development allows leap frog development to proliferate the North American landscape. While the space of older downtown areas is a combination of residential and commercial spaces, the practice of zoning separates these uses, sometimes by large distances (Gillham, 2002).

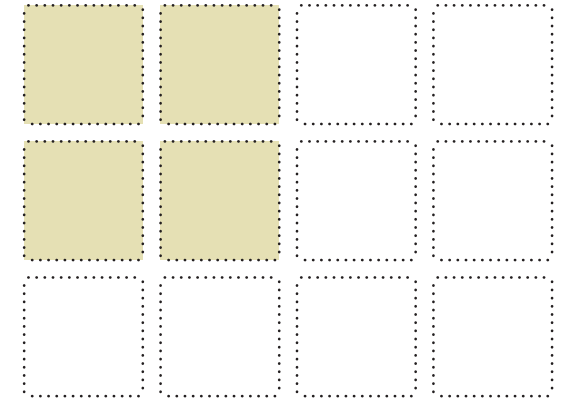


fig. 2.30

2.2.2 COMMERCIAL STRIP DEVELOPMENT

Suburban development is taking form as a series of private residential tracts linked by motorways, arterial roads and commercial strips. The commercial strip is characterized by the shopping centers, gas stations, fast-food restaurants strung along arterial roads in low, long boxes or pavilions (Gillham, 2002). Retail is separated by vast parking lots and almost always accessed by private automobile and there is little sidewalk and pedestrian presence.

LACK OF DIVERSITY

The proliferation of goods and services due to the economies of scale results in a landscape that is homogenous and lacking in physical and cultural diversity (Kunstler, 1996).



fig. 2.31

SPEED OF CONSTRUCTION

The construction model of the suburban landscape is calibrated for efficiency and speed. The rate of construction of new developments is essential to recoup the massive costs of infrastructure and services required on greenfield and farmland sites.

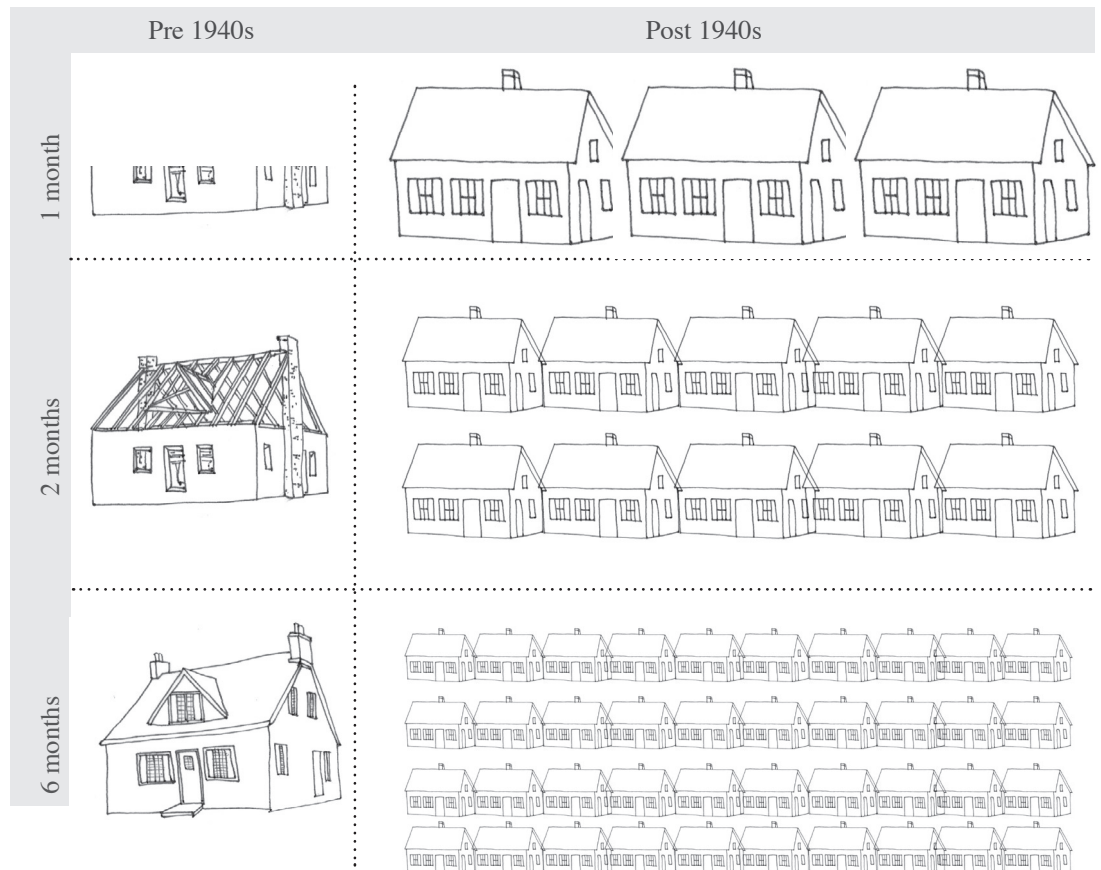


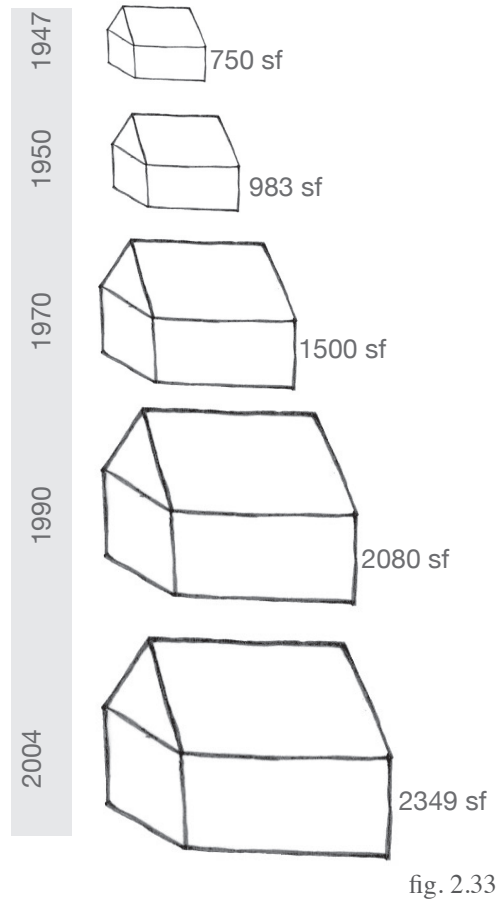
fig. 2.32

2.2.3 LOW DENSITY

Individual space is increasingly paramount in the suburban model, and personal environment governs the size and scale of the suburban landscape. The low density form of the suburban landscape is not only characterized by comfortably spaced single family homes, but taller buildings are often separated by large areas of roadways and parking (Gillham, 2002). The landscape is low density in terms of number of people per acre and floor area ratio (FAR) in comparison to the urban environment.

SPACE SHIFT

Increasing house areas (square footage) through time represents the suburban model based on continuous economic growth and prosperity.



ca. 1920

fig. 2.34



ca. 1940

fig. 2.35



ca. 2010

fig. 2.36

“We have created a new system of habitation, where people live miles and miles from where they work, get food and get all of their other necessities.”

Richard Heinberg

PUBLIC TRANSPORTATION

The consequence of large scale low density development means the landscape grows out of the scale of personal mobility, causing poor accessibility (Gillham, 2002). Residential areas exist far away from employment centers and retail areas, and the personal automobile becomes the primary source of transportation. The dependence on the personal automobile along with the vast scale of development means that public transportation is not economically viable to serve the needs of a low density suburban community.

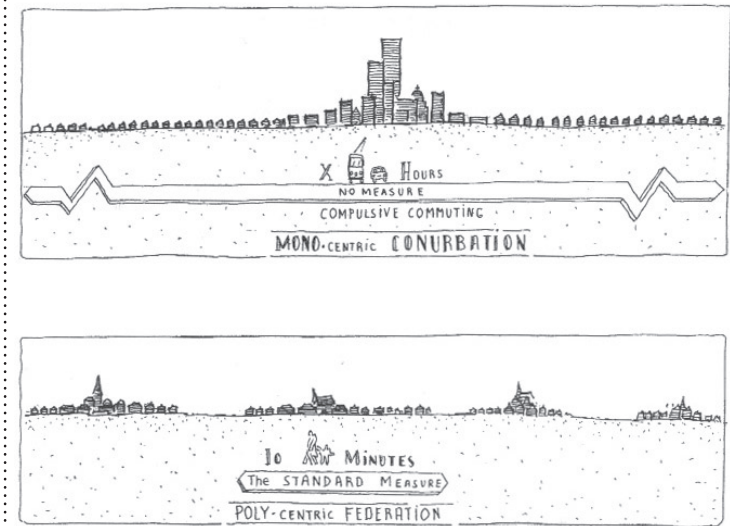


fig. 2.37

2.2.4 AESTHETICS AND MATERIALITY

A shift in aesthetics and materiality brought about by the Modern movement has greatly influenced the practices and character of our suburban landscape. The legacy of modernism creates a residential landscape that speaks very little of context and local issues. Rem Koolhaas picks up on the deliberate indifference towards context in the work of Le Corbusier, where the principles towards mass produced functionalism generate an easily reproduced style, later influencing an “International style”. The residential scheme by Le Corbusier in Pessac near Bordeaux (below) is an early example this commitment to serial production to create affordable housing. The practice of serial production of building elements becomes the language of prefabricated North American suburban housing, which is removed from local context.

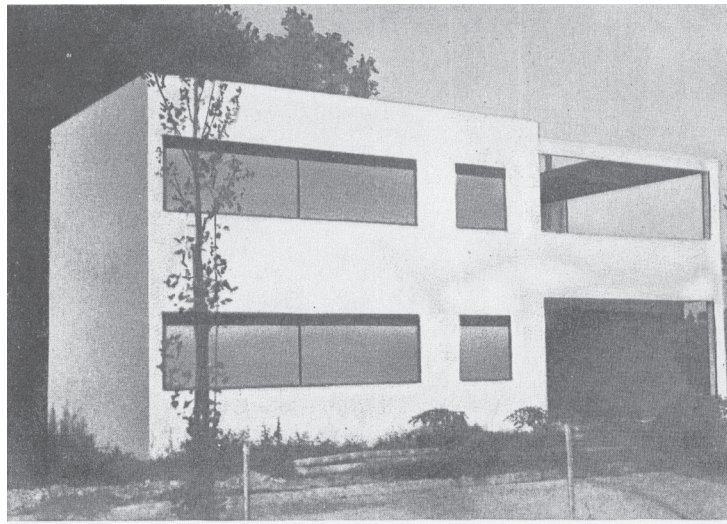


fig. 2.38

VERNACULAR

Through both sketches below articulate their contemporary design environment, that is, their aesthetic quality and materiality arise from the situation of the day in terms of available materials and building practices. The resulting difference brings about a question of authenticity. The above illustration suggests a connection to local craft and context whereas the illustration below seems to loose this authenticity in the pursuit of efficient and affordable building. While former suggests a vernacular and character the latter conveys banality. The issue of authenticity and context should perhaps play a central role to designing residential environments that convey an identity.

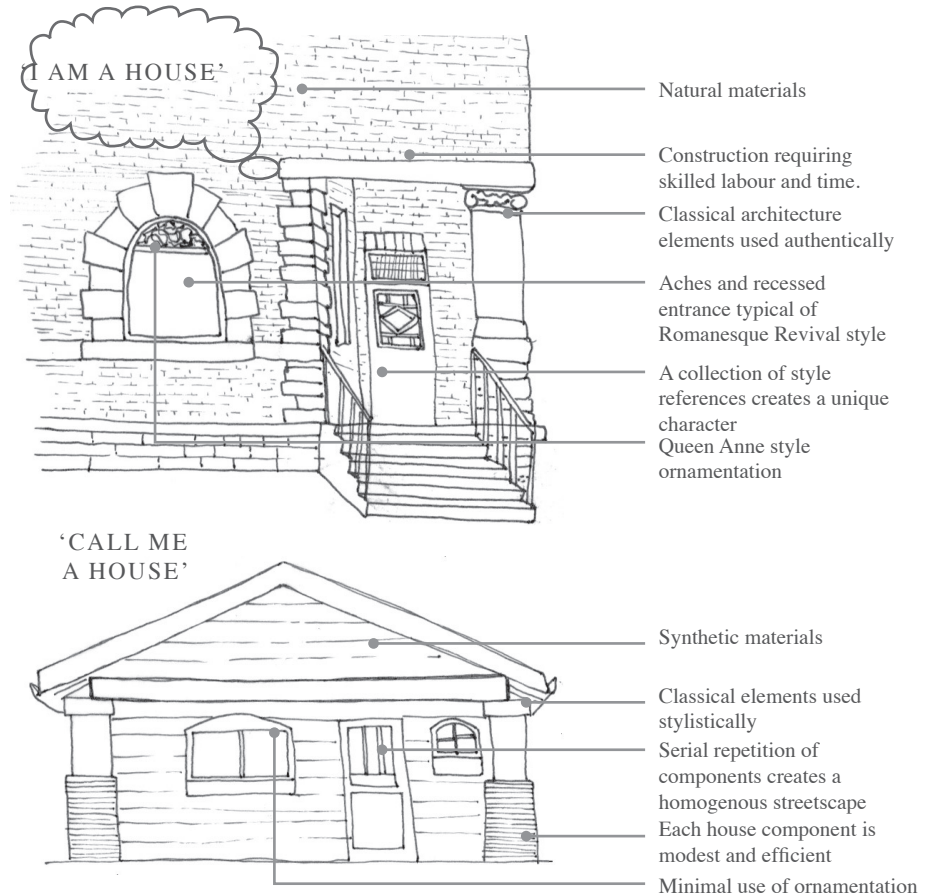


fig. 2.39

2.3.1 SPRAWL

The physical land requirements needed to generate the suburban landscape has meant our suburban per capita footprint is more than five times that of the average urban dweller. Vast tracts of low density growth has generated a term called sprawl, which has become the typical form of most types of late-twentieth century suburban development (Gillham, 2002). The nature of development of the suburban model is such that continuous development is required to recoup the costs of the previous project, and thus the model is self-perpetuating. The photograph below captures a sub-divided landscape that awaits suburban development.



fig. 2.40

“In 1950, more than half of Americans living in metropolitan areas were central city residents but by 1990 this proportion had declined to less than a third.”

Persky and Wiewel

SINGLE-USE DEVELOPMENT

This dispersed urban form due to single use development creates a flat line due to low population density. This is further emphasized through segregation of land uses inflicted by zoning.

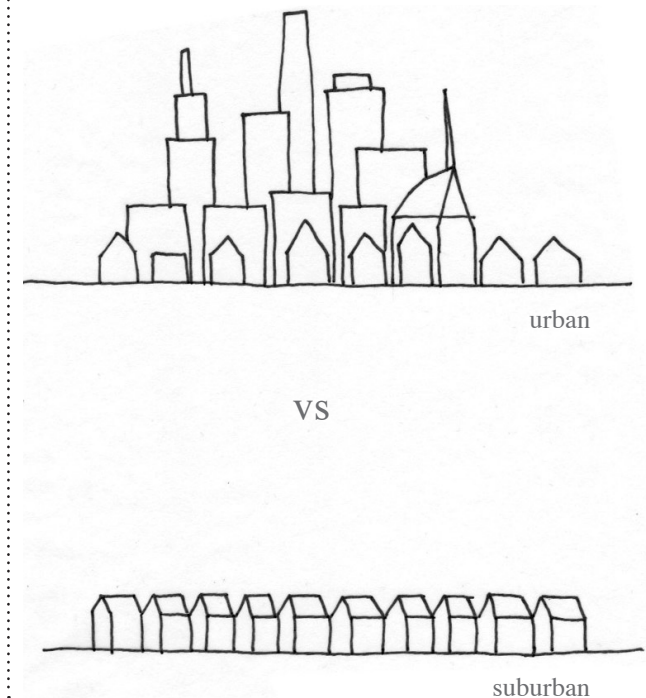


fig. 2.41

2.3.2 HOMOGENEOUS DEVELOPMENT

The suburban landscape consists of zoned parcels of highly specialized program, purpose built for marketability. The agents of speed, efficiency and mass production have refined the suburban land into a standardized environment where elements of the residential landscape act independently of one another (Ralph, 1976). A homogenous environment lacking in real connections creates devastating effects on the way we relate to our residential environment. The loss of sense of place is what Edward Relph calls placelessness: “the casual eradication of distinctive places and the making of standardized landscapes that results from an insensitivity to the significance of place.” (Relph, 1976).



fig. 2.42

“Modern designs stripped places of their identity, history, and meaning and hence that space was turned into generic places”

Ute Lehrer

PLACE THEORY

A further look at the urban vs suburban fabric illustrates the signs of diversity and homogeneity, respectively, that creates our sense of place or placelessness. Place is generated by well connected, accessible landmarks and buildings of local community significance, where social connections and activities create meaningful experience. Single use zoning and growing auto dependency have contributed to the disappearance of informal gathering spaces and thus the spaces for community life cannot exist.

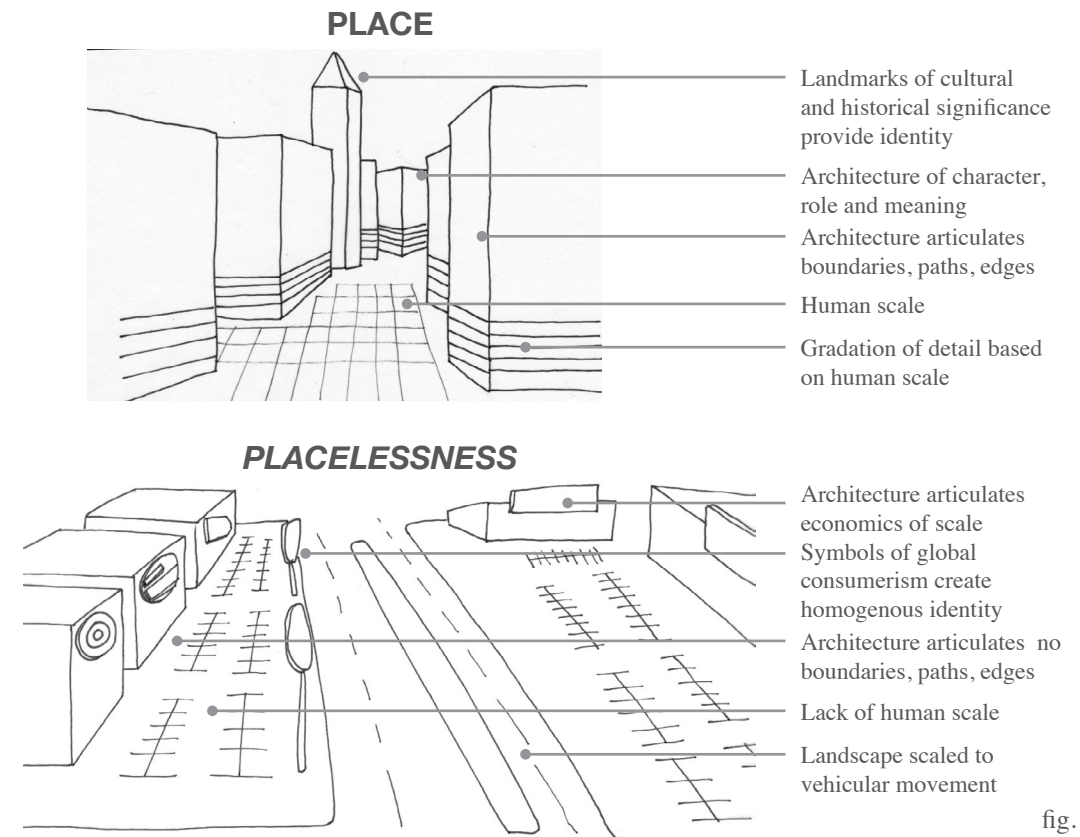


fig. 2.43

2.3.3 ENVIRONMENTAL OPPRESSION

The theory of the suburb is established on a connection to nature by the physical proximity to natural features of landscaped gardens, parks and clean air and light. To maintain the connection over time, as the immense scale and scope of the suburban landscape is realized, the very act of producing this natural connection results in a complete and permanent loss of the natural landscape. The image below illustrates the changing aesthetic of our natural landscape, which is giving itself over to the consequences of our development practices.



fig. 2.44

“The suburban project is the greatest missallocation of resources in the history of the world.”

James Howard Kunstler

MARKETABILITY

The idyllic affect that the early suburban models tried to achieve presented a connection to nature, houses nestled in a leafy, park like setting (Gillham, 2002). The reality of current practices is the wholesale removal of natural landscape for the subdivision of land into private property separated by only public roads. Typically housing developments are named after the things that are destroyed to create them (Kunstler, 1996). For example, the two newest subdivisions in Saskatoon are ‘Evergreen’ and ‘Willowgrove’.



fig. 2.46



fig. 2.45

2.4.1 SMART GROWTH

Smart growth is an umbrella terms for responsive action to suburban sprawl developed in the 1990s. Through land use and development principles, such as infill and densification, the aim is to enhance the quality of life and preserve the natural environment through socially and environmentally responsible development. By implementing smart growth principles, developing more compact and mixed use communities, we create more walkable neighbourhoods and promote more diverse and unique places, encouraging citizen participation (Grade, 2004).

“Smart growth can be defined as a broad set of policies and goals aimed towards neutralizing sprawl.”

Anthony Downs

NEW URBANISM

- Increased residential and mixed use density.
- Traditional town square presence and street oriented retailing.
- Emphasis on walkability.
- Example is Seaside, Florida



fig. 2.47

EVERYDAY URBANISM

- Emphasis on grass roots initiatives over heavily designed masterplans.
- Urban spaces are developed rather than designed. (Hass, 2008)
- Sense of community is strengthened by neighbourhood involvement.
- Community retail creation, for example local farmers market, in vacant parking lots, alleys, streets, driveways.



fig. 2.48

ECO VILLAGE

- Emphasis on environmental technologies and passive design.
- Decrease impact of urban form on natural landscape. (Kenworthy 2006)
- Holistic, smart growth approach to development.
- Example is Drake Landing Solar Community in Okotokes, Alberta



fig. 2.49

2.4.2 BUILDING WITH TIME

The speed of construction associated with suburban development has shifted our notions of time in building practices and use. The British architect and professor Jeremy Till discusses this shift in his book 'Architecture Depends'. He argues that we are currently experiencing an ideological residue from the modernist movement where the will to order and control presents an uncompromising closed system of architectural communication (Till, 2009). The dominance of the fully realized vision of the architect suggests that ideal building can only exist in the realm of the architects render or drawings. Instead of the total will to order, Till proposes an architecture that accepts the contingencies of reality and life, creating a necessary duality between order and contingency. Till goes further to describe the employment of contingency in architecture not as a benign process but one that addresses the political normalizing of society in pursuit of order and certainty. Only in addressing the dichotomy can architecture become equipped with the skills to be resilient to the flux of the everyday.

'INVISIBLE CONGESTION'

A strategy used by Rem Koolhaas and OMA to generate places of diversity necessary for successful urban areas is by creating opportunities for mixed use interaction within a set of fixed guidelines, creating a positive quality of congestion. The competition design for Park de la Villette in Paris (fig. 2.50) is an example of this preoccupation, where the plan accommodates the large amounts of programme required by setting up a rigid framework whereupon a variety of inhabitations can occur. Programme is arranged in bands across the site, simulating floor plates of a skyscraper on its side, to create juxtapositions of uses across a continuous activated ground plane. Here the ground plane is seen as a tapestry whereby the user moves across the space in a Baudelairean 'flaneur' manner, drifting across a landscape of permanent change (Gargiani, 2008). Programme congestion creates endless possibilities for interaction, so that uses and inhabitation can continually evolve.

"Mess is the Law."
Jeremy Till

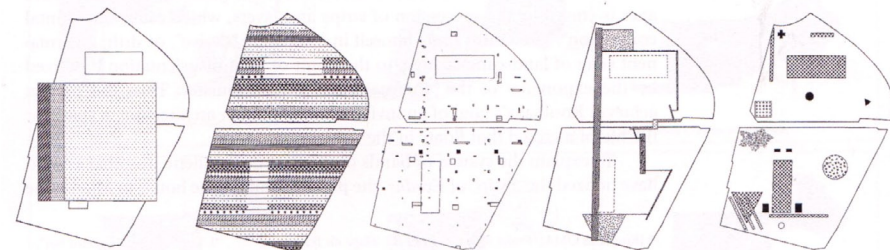
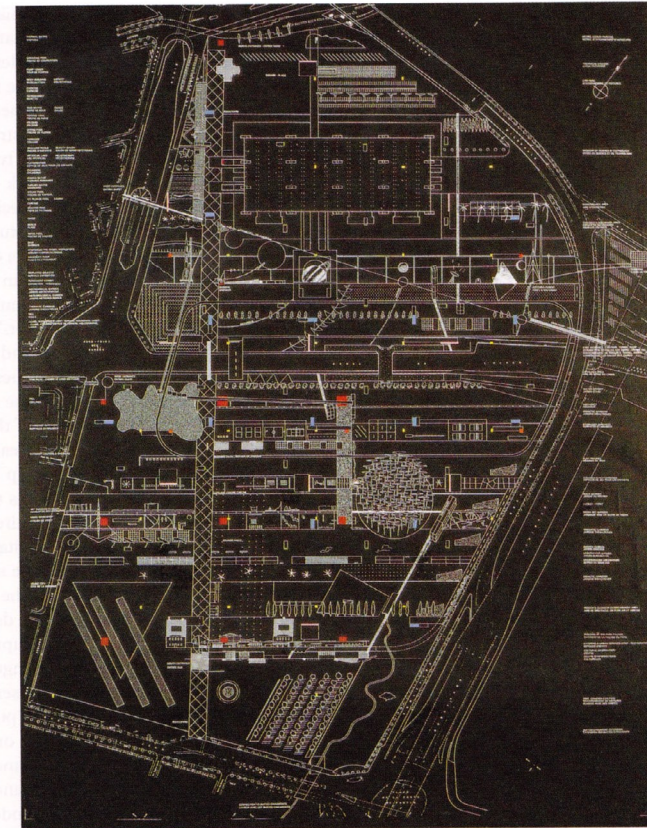


fig. 2.50

2.4.3 BUILDING WITH LIFESTYLE

By studying existing and emerging models of the relationship between lifestyle and architecture we can begin to posit on how we might define varying lifestyles with varying architectural interventions. Here both factual research and fictional writing offer useful insight into the possibilities of this relationship.

'AGAINST NATURE'

This fiction work by Joris-Karl Huysmans illuminates the relationship between the role of architecture and lifestyle. The novel follows the main character, Des Esseintes, who decides to separate himself from the rest of the world after reaching a point of malaise with his bourgeois 19th C Parisian lifestyle. Des Esseintes moves out to the suburbs of Paris and transforms his suburban home into a highly calibrated and personal environment that attempts capture the essence of his lifestyle. The individual nature of the home is such that every design decision is based entirely on lifestyle, for example, mood, feeling, The book is his journey into his imagination where he calibrates his lifestyle to a eccentric bespoke architectural environment.

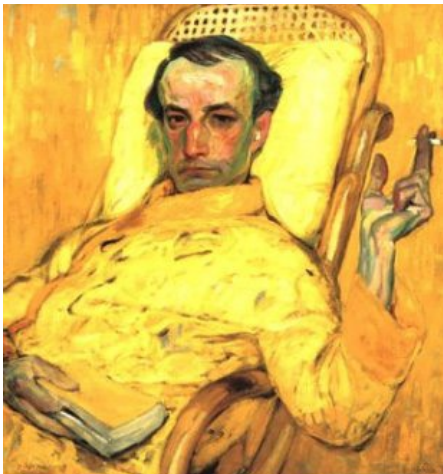


fig. 2.51

“more open and diverse places are likely to attract greater numbers of talented and creative people- the sort of people who power innovation and growth”

Richard Florida

“anyone who dreams of the ideal, prefers illusion to reality”

Des Esseintes

THE CREATIVE CLASS

new models of urban development based on lifestyle begin to emerge that promote diversity and provide places that are open and possess low entry barriers for people. The reality of this new city is that it is the center of experience, lifestyle, amenities and entertainment (Florida, 2003) for an emerging ‘creative class’ of individuals looking for this lifestyle. It provides an environment of technology, talent and tolerance, which are the 3 T’s of economic growth that cities should be focused on, according to Richard Florida.

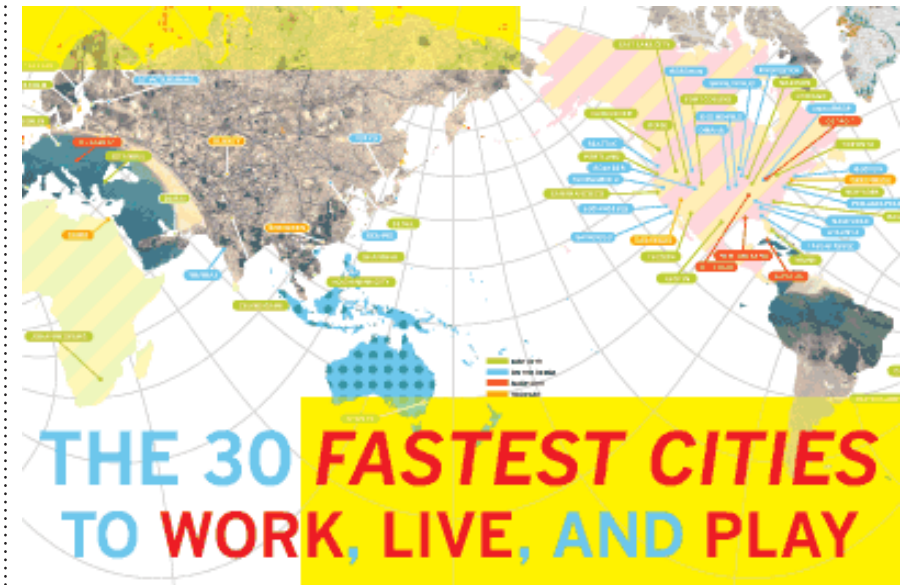


fig. 2.52

2.4.4 AESTHETIC INFLUENCES

In his book *Emotional Design*, Donald Norman provides a fundamental framework for understanding and manipulating aesthetics in architecture. The book presents the underlying cognitive and emotional processes occurring in the brain as we interpret our environment, revealing why we love or hate what we see. By approaching aesthetics from a scientific understanding, we are able to see the factors influencing our reactions to aesthetics.

According to Norman, the brain operates on three levels, the visceral (the automatic, prewired), the behavioural (processes that control everyday behavior), and the reflective (contemplative). The visceral level is automatic and a result of human evolution, whereas the behavioural and reflective levels are sensitive to experiences, training, and education. The levels interact with one another, either through the 'bottom-up' (driven by perception) or 'top-down' (driven by thought). Norman explains that each level is specific to a style of design and that the design requirements for each level vary greatly. By understanding how the brain engages with an image or product, we can tune a design to generate a specific response.

“How does the designer cope with popular taste if it has little to do with substance? It must strive for balance among the three levels of design.”

Donald Norman

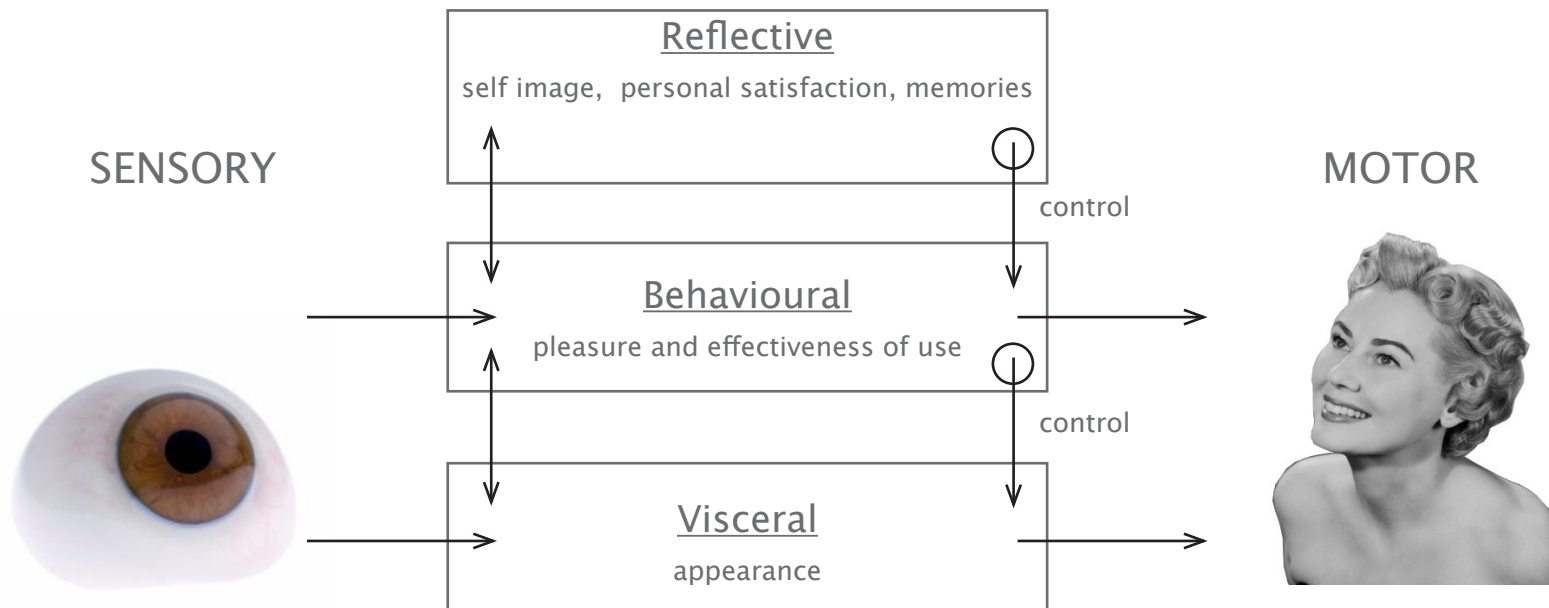


fig. 2.53

2.4.5 SYSTEMS THINKING

The work of James Kay into self-organizing living systems in *An Ecosystem Approach for Sustainability: addressing the challenge of complexity*, provides a fundamental understanding of how the development of an ecosystem approach in design can be a way of understanding and managing our role in the biosphere. The work generates a systems thinking approach to design in architecture, rather than a traditional approach to architecture as single and self serving entity. In understanding our built environment as a holistic system we become acute the necessary balance of this system and the pressures that act on it. Kay shows us that all living systems can be considered compels ecosystems and can therefore be a useful model when considering the architectural environment as a complex, self organizing and constantly evolving system.

INTEGRATING NATURAL SYSTEMS

The example to the right illustrates the possibility of incorporating the systems approach into our residential environment as a way of integrating natural systems with architecture. Here, rainwater is collected and stored in an on site tank before going through a natural tidal wetland for filtration. The filtered water can then be used as the houses' greywater supply as well as used for the houses heating/cooling energy source.

LANDSCAPE URBANISM

A relatively recent (1996) theory developed by Charles Waldheim, James Corner, Chris Reed, and Mohsen Mostavi which uses landscape as a medium of urban order for the contemporary city (Waldheim, 2006). The three main themes of Landscape Urbanism are process in time, surface, and form. In his essay entitled 'Terra Fluxus', James Corner describes the process of urbanization as fluid and in flux, comparable to a systems theory, rather than a fixed state (Waldheim, 2006). The process concept becomes useful when understanding how we might mitigate the challenges of a fixed suburban model.

“Living systems are self-organizing. Our challenge is to promote this capability to self-organize, while still procuring what we need from the biosphere.”

James J. Kay

“Ecosystem dynamics are complex..they are continually evolving and going through birth, growth, death, renewal process at different temporal and spatial scales.”

James J. Kay

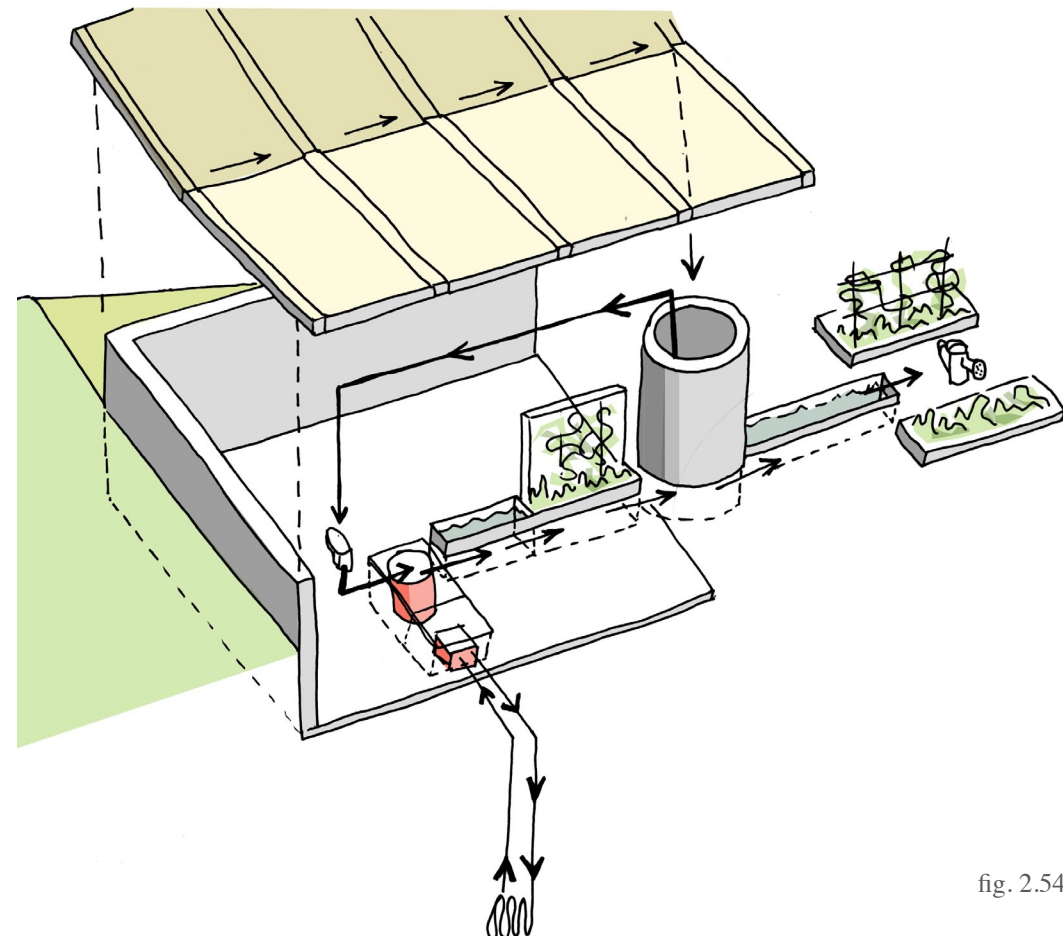


fig. 2.54

SUMMARY

As reviewed in this chapter, the idyllic vision of the suburb developed by Howard, Olmsted, and Perry has evolved from a balanced community to serve the needs of the residents to an environment created to serve the interests of the individual. The preoccupation of private space created by the American Dream ideology has led to the shifting landscape based on a series of isolated personal spaces (Kunstler, 1996). The idea of private space holds greater value than public space, and we lose the notion of community. As Damon Rich, architect and founder of the Center for Urban Pedagogy, argues “You just can’t have your own private built environment.” (AA lecture, 2011).

In evaluating the suburban condition we are able to understand how we arrived at the challenges we are facing today. Not only has current suburban practices eroded the physical connections we make to our environment through interaction and diversity of place, but low density, single use, homogenous development has defined an environment that lacks in local identity and is essentially unsustainable, called sprawl.

The opportunity to mitigate today's challenges has been undertaken with a series of architectural design responses that provide principles and foundation for moving forwards. We can see how design considerations intent on creating community connection, environmental connection and a local connection offer guidelines to move forward with. The ideas presented are the foundation upon which we can formulate a design response for Saskatoon, with the intention of creating a resilient community environment.

RB
Case

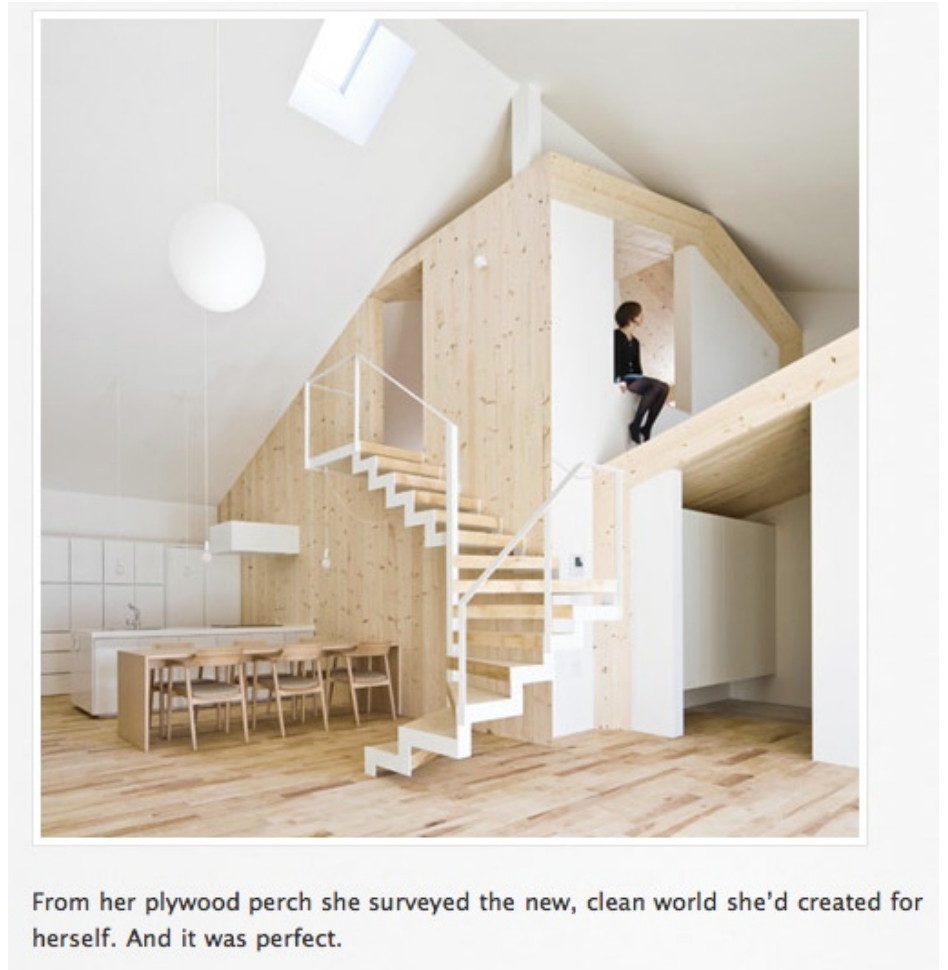
Investigations

3.1 CASE INVESTIGATION STRATEGY

To understand how the principles established in part 2 are applied to the built environment we can look to existing architectural interventions to understand the elements behind their success and failure. The following precedent investigations are undertaken to provide a lexicon of design principles that can be used to address post-suburban housing and applied in future design strategies. The work evaluates some of the salient aspects of the projects as they address issues of density, time, scale, lifestyle, and context. In each case there is a clear negotiation between the realm of the ideal, the design vision, and the contingency of reality, the construction, inhabitation and re-inhabitation, which is where the project is tested for its success.

When we consider the design vision of a project as the first component to the inhabited environment, we are able to better understand the role of design in shaping the built environment. Jeremy Till reminds us that history and context place the architecture before an open field of possibilities, exposing the most stable plans to unforeseen forces that inevitably disrupt them. Rather than the architecture being the finished product, Till suggests that its real test is when the project is exposed to the contingency of reality, its appropriation by the community it serves.

The image to the left captures the sentiment of a necessary balance between the conceived and lived architecture necessary to evaluate the success of our built environment. The photograph shows a new, clean, ideal representation of architecture that is free of the clutter and amenities of a real life situation. The caption conveys a sense of irony by indicating that the scene is resisting the realities of inhabitation and that the unattainable ideal represented in the photograph is bound for change. The piece represents a moment where the idea of architecture faces the 'everyday' of reality. The image highlights the awkwardness of an architecture bound to rules of order in the ideal and points out the necessary compromises that need to take place in order that the architecture can contribute to a balanced and livable environment.



From her plywood perch she surveyed the new, clean world she'd created for herself. And it was perfect.

fig. 3.00

3.2 PESSAC, FRANCE

Planned and designed by Le Corbusier in 1970, the project is a new-build, low cost housing development near Bordeaux. Le Corbusier imposes the modern architectural ideologies of order and functionalism in a gesture to solve the social and political problems of the area. His vision is a 'machine-for-living' designed to make efficient use of the grid in order to promote serial production and control construction costs.

Photographs of the development after construction and twenty years on illustrates the reluctance of the residents to accept the new Modern ideology; here the vision of the architect is usurped by the occupancy and lifestyle of the user. Once constructed, the inhabitants modify architectural elements of the modern buildings to resemble the traditional architecture they are accustomed to. The project shows us that changing a building through use is a key way to experience a building because through inhabitation the architecture is defined. The everyday generated in the social space of architecture is a will towards entropy. The conversation of building aesthetics is central to the project.

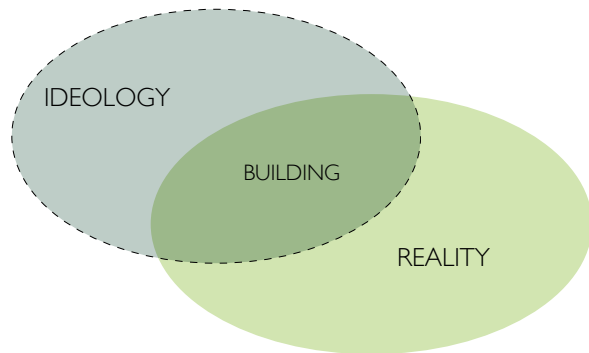


fig. 3.01

“Contingency is, quite simply, the fact that things could be otherwise than they are.”

William Rasch

“Because architecture is an event, it is always contingent.”

Kojin Karatani

STRATEGIES EMPLOYED

- Modules are repeated in different ways to generate three house types across the fifty one-unit housing development.
- Serial production.
- The house is stripped down to its essential components.
- Le Corbusier develops the modern aesthetic.

DENSITY CALCULATION

51 dwelling units on 4.7 acre site

=

11 dwelling units/ acre

PROJECT TYPE

NEW BUILD

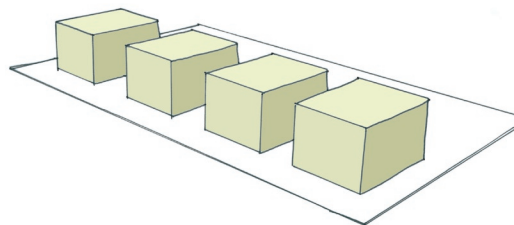


fig. 3.02

OPPORTUNITIES

- Social change through architectural intervention.
- Modern ideology and technology are carried into habitual lifestyle.
- Experimentation with new architectural models addressing mass development and affordable housing.
- Traditional ornamentation is stripped to reveal true forms and geometries.

CHALLENGES

- The ideological vision of the architect was resisted by the residents, who are accustomed to traditional architectural elements and styles. The project is transformed beyond recognition twenty years on.
- To design a housing unit that can accommodate the contingency of life.

CONSTRUCTION AND INHABITATION

PROJECT COMPLETION

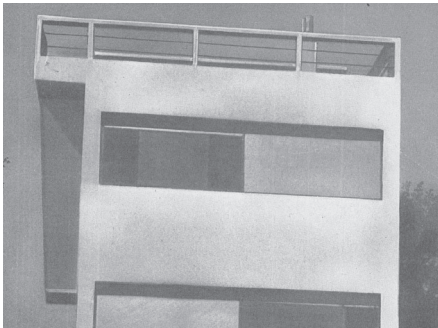


fig. 3.03

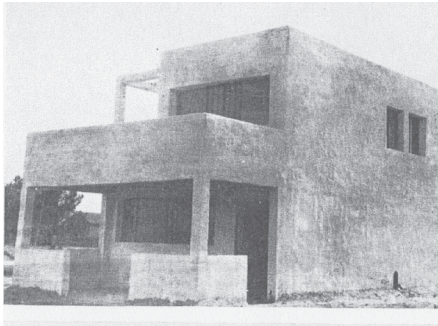


fig. 3.04

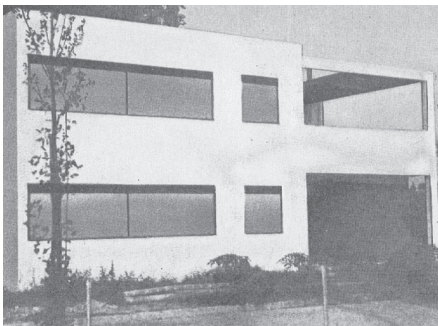


fig. 3.05

20 YEARS AFTER COMPLETION



fig. 3.07



fig. 3.08

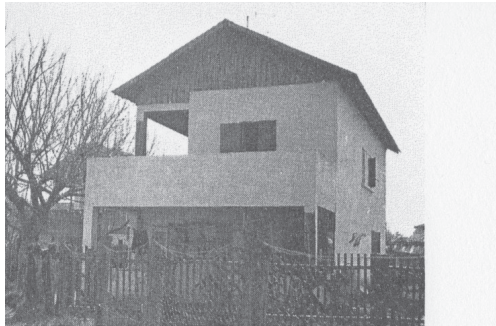


fig. 3.09

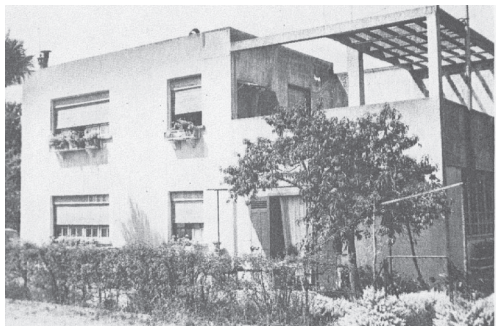


fig. 3.10

WILL TOWARDS ENTROPY

The images below show the adaptation of the same home at completion and twenty years on. By comparing the newly constructed to the lived architecture a will towards entropy through inhabitation is clear.

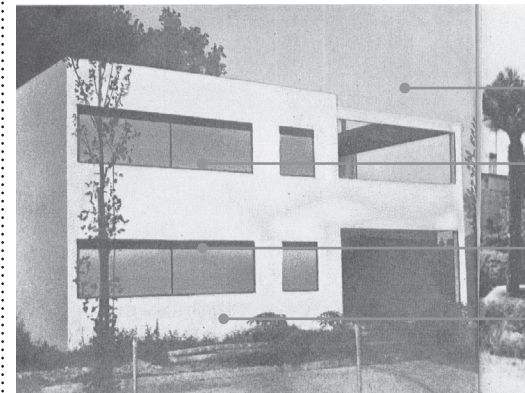


fig. 3.06

- Roof terraces open to street and sky.
- Generous size window openings.
- Storage/ entrance area open to street.
- No facade ornamentation.

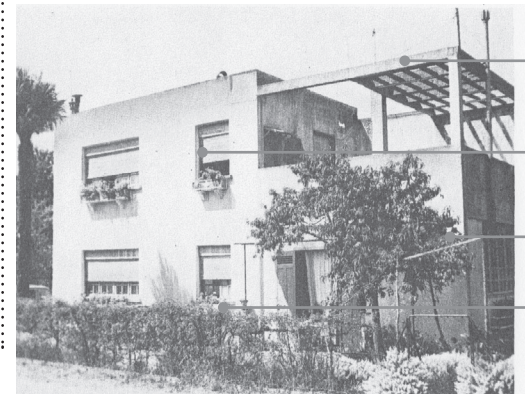


fig. 3.11

- Roof garden open to street and sky.
- Window size reduced.
- Storage area converted to garage.
- Flower boxes added for ornatmentation.

3.3 DIAGOON HOUSING PROJECT, NETHERLANDS

The notion of flexible design is explored by architect Herman Hertzberger to create a row housing typology that can adapt and accommodate the size configuration of the family over time. The project sets out to create a flexible plan based around a fixed core so that the inhabitants can complete the space to their own needs.

In principle, a split level structure is arranged across the width of the building that is both economical and creates a diversified spatial experience. The floor plan is developed around two fixed cores, with the staircase on one side and kitchen (and bathroom above) on the other. Two staggered split levels span between the cores that can be used in different ways. A central light well provides the inner zone with natural daylight. “What has been designed should be seen as an incomplete framework. The skeleton is a half-product that everyone can complete according to their own needs.” (insert ref). Internal balconies, external terraces and a flexible outside area are some examples of the spaces that anticipate being taken over.

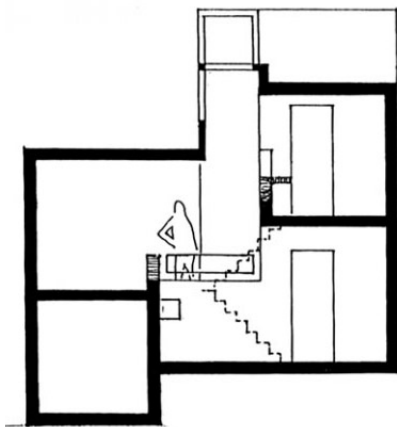


fig. 3.12

STRATEGIES EMPLOYED

- Fixed core housing the stair and plumbing.
- Flexible partition placement enabling a variety of room configurations.
- Flexible exterior space, allowing for terrace or car park.
- Inhabitants modify the facade to suit needs.
- Compact and efficient space design.

DENSITY CALCULATION

12 dwelling units on 1 acre site
=
12 dwelling units/ acre

PROJECT TYPE

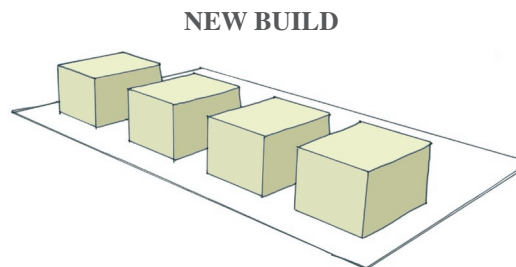


fig. 3.13

“Vaild ambiguity promotes usable flexibility.”

Robert Venturi

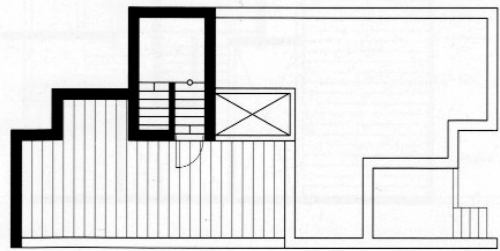
OPPORTUNITIES

- The duality of order and contingency is managed by establishing a few key architectural principles, enabling the occupants to modify the space to suit their needs.
- The duality of order and contingency is managed by establishing a few key architectural principles, enabling the occupants to modify the space to suit their needs.

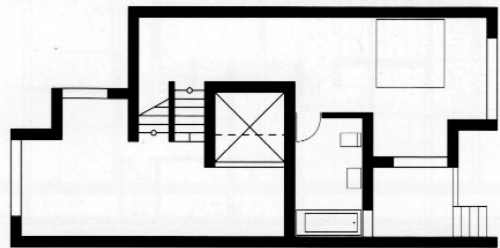
CHALLENGES

- When no space is fully programmed for any one time there is risk of lack of usability at all times.
- The layout of the house is ultimately up to the homeowner, and its success is therefor dependent on a party with possible no design experiece of expertise
- The permanent nature of the fixed core with flexible surrounding space is in itself inflexible for further additions and modifications beyond the initial flexibility.

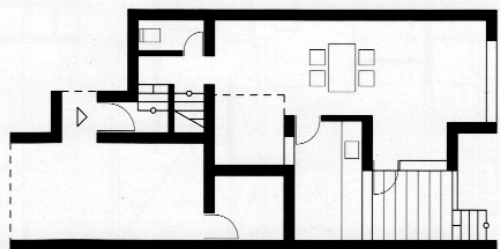
FINAL PLANS



2nd upper floor



1st upper floor



Ground floor

fig. 3.14

“By opening the system to contingency we arrive at an architecture that is “thus a form of communication conditioned to occur without common rules.”

Jeremy Till

POTENTIAL CONFIGURATIONS

The images below show two potential configurations of the same space.



fig. 3.15



fig. 3.16

3.4 SHIFT HOME, SASKATOON

The shift home takes advantage of one of the many residential infill sites within central Saskatoon to test some innovative design and construction strategies in an affordable housing approach. The design process mandate is to involve a wider online community by opening the design discussion globally. Using Avi Friedman's Grow Home and other compact living arrangements, the project team sets out to accommodate a variety of lifestyles, from the entrepreneur/artist, the loft dweller, the first time home buyer and the family, within one house shell. The exterior design solutions for the project as well as passive and sustainable technology solutions are opened up for public input and comment. After several exterior design iterations and a final design render by a local designer the project is sold at an affordable price to a local resident. Salient moments of the project, including design iterations, net zero energy solutions, material selections and construction process, are blogged online to communicate the project to an online audience.



fig. 3.17

“The cardinal rules for the designer of more-affordable homes are ‘Keep it Small’ and ‘Avoid Complexity’.”

Avi Friedman

STRATEGIES EMPLOYED

- Design by committee online
- *Grow Home* and Compact living plans
- Accommodate flexible lifestyles
- Passive design strategies
- Low energy mechanical systems
- Environmentally sustainable materials
- Employ local technology and materials

DENSITY CALCULATION

2 dwelling units on 1/6 acre lot
=
12 dwelling units/ acre

PROJECT TYPE

RESIDENTIAL INFILL

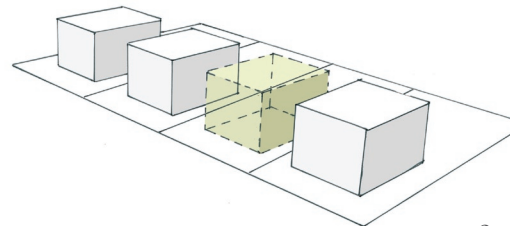


fig. 3.18

OPPORTUNITIES

- Bring the notion of sustainable architecture to Saskatoon
- Bring Saskatoon architecture to the world by online design by committee
- New strategies for infill residential sites
- New solutions for affordable housing in Saskatoon
- Using local manufacturers and technologies to bring sustainable solutions to housing.

CHALLENGES

- Managing a design by committee process. Ultimately the design was iterated by a local designer, as aesthetics of the projects needed called for the overarching or “master eye” of the designer.
- No qualified architect was needed or used for the project.
- Leeds certification didn't happen because NO leeds certificated individuals in the province upon completion.

FINAL PLANS

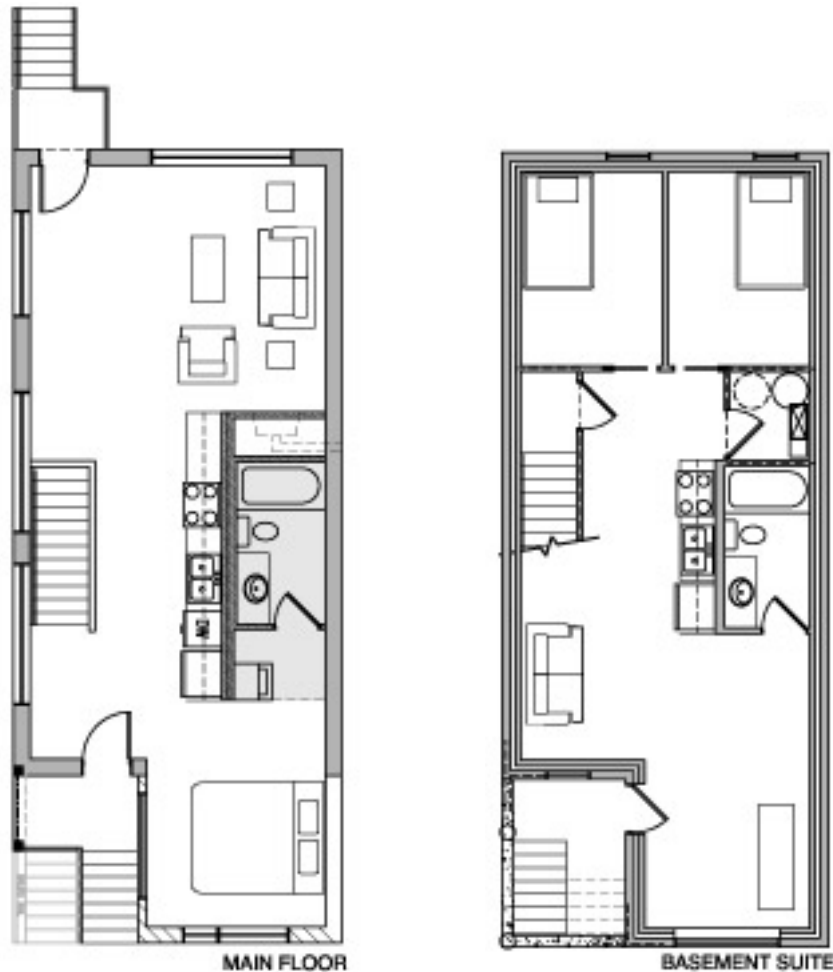


fig. 3.19

We must confess something: we gave our first design a 6/10. We certainly weren't sold on it. Some parts were good. Some...needed your help."

Curtis Olsen and Daren McLean

ONLINE DESIGN PROCESS



fig. 3.20

3.5 THE BEACH COMMUNITY, TORONTO

The new housing development, built on the fringe of the Beaches, Toronto, is a simulacra of the original Beaches neighbourhood.

The scheme applies the aesthetic quality and vernacular of the old beaches development to a new row housing typology, taking detail references colour themes from the existing residential area. By adopting the form of the beaches vernacular it historically preserves the Beaches aesthetic, however the superficiality of the preservation is apparent in the visibly new scheme.

While the project is a likeness of its predecessor, it is clear the project is a veneer of the original vernacular, unable to recreate the patina of culture, taste and class that neighbourhoods develop over time.



fig. 3.21

“We are too fixed on ordering an aesthetic direction for architecture that we forget time and the architecture becomes frozen.”

Jeremy Till

STRATEGIES EMPLOYED

- Aesthetic characteristics of the Beaches single family home applied to a row housing typology.
- Consultation with current beaches residents to distill the character of the neighbourhood.
- Connection to street using outdoor patio areas at grade, second and fourth floor.
- Parking garages are solely accessed off rear alley.

DENSITY CALCULATION

15 dwelling units/ acre (approx.)

PROJECT TYPE

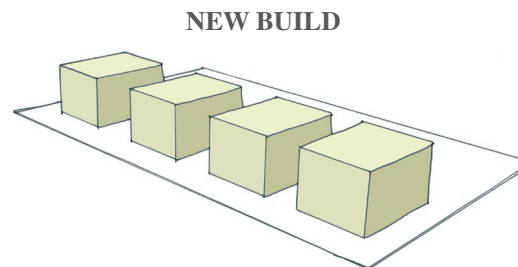


fig. 3.22

OPPORTUNITIES

- To distill the architectural style from the beaches vernacular.
- To recreate the legacy of the old beaches neighbourhood in a new housing development.
- To improve upon some of the architectural relationships and street character of the old beaches.

CHALLENGES

- To create a development in line with the beaches vernacular.
- To create a varied street appeal to uniform row housing.
- To apply the form of a single family house to a denser housing typology.
- The details of the new beaches are fully realized, highly specific and do not accommodate alterations.

“The shift of attention from the object itself to the representation of the object signals a retreat into a more controllable but less real realm.”

Jeremy Till

ORIGINAL BEACHES VERNACULAR VS. NEW DEVELOPMENT



- Varying roof lines and window types.
- Primarily two and three storey demi detached and detached single family homes.
- Details indicate minor additions and alterations over time.
- Colour palate and use of materials creates street appeal.
- Vernacular of porch frontages above grade for privacy.
- Accomodates driveway and street parking.

fig. 3.23



- Single roof line datum, however varying dormers creates illusion of variation.
- Illusion of variation in window types and facade protrusions.
- Facade penetrations suggest similar floor area and layouts across the development.
- Outdoor space at grade, free from driveway and street parking.

fig. 3.24

3.6 WATERSHED, UNBUILT (CONCEPTUAL BY AUTHOR)

The project engages with current sustainable dialogue, understood as the application of new sustainable technology to current building typology, as an afterthought. Rather than using sustainable technology as an applique to current architectural practices the projects tries to understand how an architectural typology could reflect a sustainable ideology.

A systems approach to residential housing is explored. This is executed by understanding household energy consumption as an integral part to the house and uses a systems approach to integrating sustainable technology with architecture to define a new sustainable typology. The work considers the built home as an essential component a natural cycle. Rather than existing power stations and water treatment centers that act as monuments to energy consumption the watershed home strives to become a monument of an energy cycle as a means of sustainable housing.

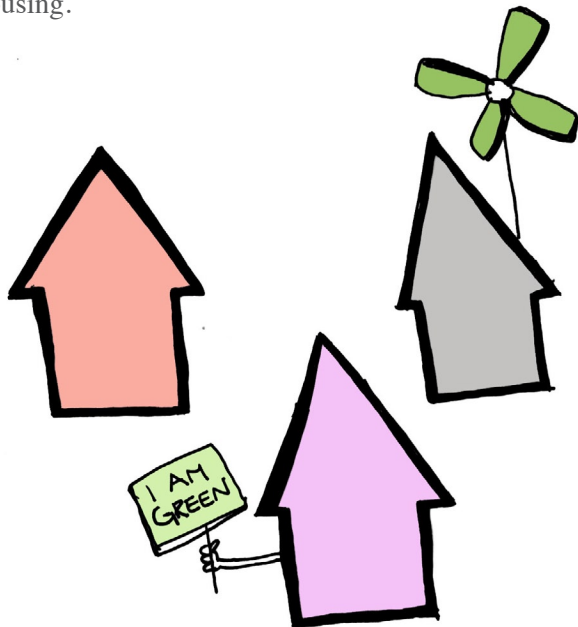


fig. 3.25

“We don’t yet know how to build a society which is environmentally sustainable.”

Alex Steffen

STRATEGIES EMPLOYED

- Building siting, massing, and orientation are designed as passive environmental elements to reduce the environmental impact of the house.
- Watercycle broken down into collection, treatment using an indoor tidal wetland, storage and reuse.
- Electricity is gained by stored energy from thin photo voltaic panels installed on the roof.
- Fresh air is delivered through operable high level windows and a plant wall emerging from the aerobic tidal wetland tank.
- Heating and cooling is provided by a closed loop geothermal heat pump. Refrigerant is plastic pipes distributes hot/cold energy though a radiant floor system.

DENSITY CALCULATION

1 dwelling units on 1 acre lot

1 dwelling units/ acre

PROJECT TYPE

NEW BUILD

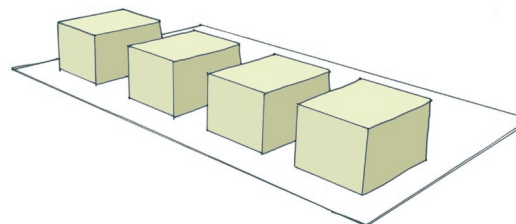


fig. 3.26

OPPORTUNITIES

- Define a sustainable typology
- Understand household consumption by integrating it within the form of the house.
- Allow the architecture to manipulate technology, as opposed to current practices.

CHALLENGES

- Working with existing technologies to define a new typology.
- Applying a working systems approach to current conceptual and physical infrastructure.
- Creating a systems approach to energy consumption that is adaptable and truly sustainable.

PROJECT RENDERS

“Always remember, ‘the system imbedded in another system imbedded in another system imbedded in another system...’ and the challenge of sustaining a dynamic, changing, evolving, self-organizing eco-system.”

James Kay



fig. 3.27



fig. 3.28

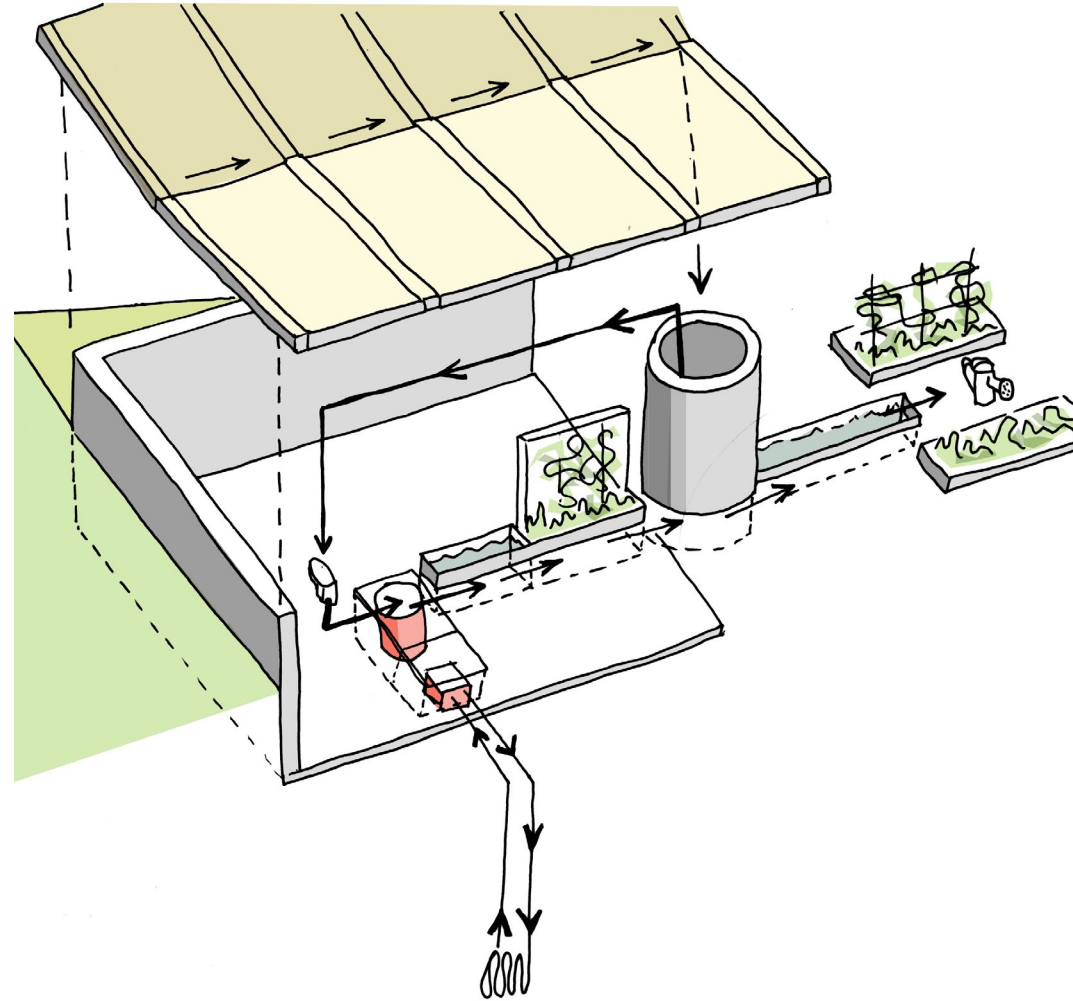


fig. 3.29

3.7 WYCHWOOD BARN, TORONTO

Originally the site of the Toronto Transit Commission (TTC) streetcar storage and maintenance facility, the barns are constructed from 1917-1921 for industrial purposes. After the decommission of the barns sat unused for many years until they were bought by Artscape, a city agency, in 1998 and transformed into a multi purpose community space in 2006 by Joe Lobko Architects and Du Toit Allsop Hillier (DTAH).

The conversion of the industrial building maintains the essential architectural elements of the original two-story steel frame building. Most of the exterior envelope of brick and glass is retained, with additions of glazing to suit the new program. The brownfield redevelopment of the barns includes private live/work studios and housing for local artists, a community gathering space, private spaces for non-profit organizations, and greenhouse and community gardens. In addition, the site is converted into park space outfitted with a children's playground. The success of the redevelopment is best experienced on a Saturday morning, market day, when local food producers and artisans share their passions with the community.



fig. 3.30

“Preservation and renewal of historic buildings, districts, and landscape affirm the continuity and evolution of urban society”

Andres Duany and Elizabeth Plater-Zyberk

STRATEGIES EMPLOYED

- Brownfield redevelopment, reusing century old historic industrial building.
- Creating a space that the local community can appropriate.
- Creating gathering space for local artisans, non-profit organizations, and community residents
- Live/work studios, indoor/outdoor market, park space, greenhouse environment for food education and production.
- Sustainable strategies include a large cistern to collect roof water for irrigation and use in washrooms, and a provision for a ground source heat pump HVAC system.

DENSITY CALCULATION

26 dwelling units on 3 acre site

=

8.7 dwelling units/ acre

PROJECT TYPE

BROWNFIELD

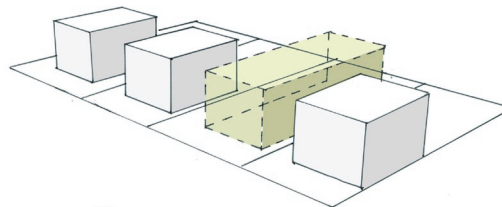


fig. 3.31

OPPORTUNITIES

- Create architecture that creates place through evolution and re-appropriation of the existing.
- Creating an environment where community and commercial activities can cohabit.
- Working with the superimposition of new and old.

CHALLENGES

- Maintaining the architectural integrity and legacy of the existing.
- Ensuring the reuse suits the needs of the community.
- Integrating public market and community space with private living space.

“The place of an individual, both socially and spatially, defines how she/he perceives, conceives, and lives spatial relations”

Ute Lehrner

PROJECT IMAGES



fig. 3.32



fig. 3.33



fig. 3.34



fig. 3.35



fig. 3.36

3.8 WRITERS CABIN, LONDON

Built in the back garden of a residential property in Highgate, North London, the writers studio offers the resident a quiet working space that is physically discounted from the home, a retreat from domestic life. The intention of the project is offer the writer a natural setting to allow the creative process to flourish, while providing the practical conditions for year round occupation. The design accommodates a variety of working and living arrangements within a compact space, including desk, daybed and kitchenette and storage.

The garden shed style of the cabin is created using a prefabricated timber structure assembled on site, plywood cladding both inside and out, and a grass roof. The retreat takes full advantage of natural light conditions by penetrating the facade on all sides.



fig. 3.37

“Another route toward revitalizing housing stock and choice in aging neighbourhoods is through accessory apartments.”

Ellen Dunham-Jones and June Williamson

STRATEGIES EMPLOYED

- An environment is created to sit within and be surrounded by nature.
- Natural building materials used.
- The form and aesthetic of the unit is based on a garden shed.
- Building openings create multiple views out to the woods and allow light to penetrate the space from all directions.
- A variety of programme for the unit are conceived to ensure maximum usability and flexibility.

DENSITY CALCULATION

2 dwelling units on 1/2 acre lot

4 dwelling units/ acre

PROJECT TYPE

ACCESSORY UNIT

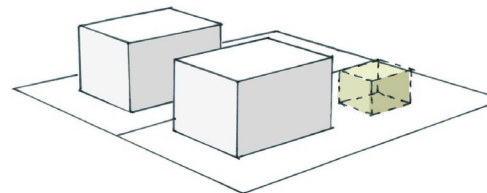


fig. 3.38

OPPORTUNITIES

- Create new living arrangements and strategies in existing neighbourhoods.
- Diversifying the existing housing stock to increase density and flexibility and adaptability.
- Informing existing notions of single use occupancy and fixed zoning laws to create resilient housing stock and neighbourhoods.

CHALLENGES

- Building accessory units for permanent occupation is often practiced outside of existing building codes.
- Creating a working, habitable living space within often tight space conditions.
- Designing within an existing neighbourhood aesthetic to ensure the addition is appropriate to the existing vernacular.
- Creating an environment that can be occupied year round.

PROJECT IMAGES



fig. 3.39



fig. 3.40

“At a large scale, the good bones of the neighborhoods have provided an accommodating urban structure for ensuing generations, allowing improvement and adaptation over time.”

Ellen Dunham-Jones and June Williamson



fig. 3.41

3.9 CASE INVESTIGATION SUMMARY

PRINCIPLE	<p>CONTINGENCY</p> <p>The architect must understand that their role is one aspect of the project rather than the finite aspect of the work. The unrealized design process must be understood to exist in a vacuum and only becomes architecture when engaged with the social, the everyday of life.</p>	<p>DIVERSITY</p> <p>Architecture must create opportunities for social interaction through diversity. The most diverse neighbourhoods offer residents many possibilities of engagement and sustain lasting community presence</p>	<p>SCALE</p> <p>The negotiation between the space and the user is a primary preoccupation of architecture. The understanding of scale allows the architect to use space appropriately.</p>
STRATEGY	<p>ARCHITECT AS CATALYST</p> <p>The role of the architect must be understood to act as one element of the architecture. The strategy is to apply a set of fixed guidelines that allow for change. The application of design guidelines must be established in a way that allows the user to interpret and change their environment.</p>	<p>DENSITY</p> <p>Diversity is best achieved when residents are given possibilities for a range of social interactions. By increasing density you increase diversity.</p>	<p>BUILDING RELATIONSHIPS</p> <p>The design guideline must consider the most appropriate height, setback and relation to other residential units in order to achieve a harmonious street presence.</p>
SOURCE	<p>Architecture Depends</p> <p>Lived-in Architecture: Le Corbusier's Pessac revisited</p> <p>Rem Koolhaas</p>	<p>Density in communities</p> <p>Cities and the creative class</p> <p>Density, Size, Dispersion: Towards Understanding the Structural Dynamics of Mid-Size Cities</p> <p>Rem Koolhaas</p> <p>"What is Sprawl?"</p>	<p>Place and Placelessness</p> <p>Geography of nowhere: the rise and decline of America's man-made landscape</p> <p>The death and life of American cities</p> <p>"What is Sprawl?"</p>
APPLICATION	<p>FEW, FIXED GUIDES</p> <p>The balance between the order of the design guideline and the contingency of its use is created by establishing fixed guidelines, used sparingly.</p>	<p>FLEXIBLE LOTS AND PLANS</p> <p>The guideline must ensure that a range of occupied configurations can occur.</p>	<p>STREET PRESENCE</p> <p>The guideline must make clear goals towards build a street presence and develop a harmonious street scale. By establishing a guideline that defines scale relationships the architecture can relate to the user.</p>
MODEL	PESSAC/ WRITERS CABIN	SHIFT/ WRITERS CABIN	SHIFT

PRINCIPLE	CONTEXT The context in which architecture sits places it within a specific time in history.	SYSTEMS THINKING By understanding our environment as a number of interacting elements we consider the building as one element that relates to social, cultural, environmental and political forces.	ADAPTIVE REUSE The term brownfield or greyfield development is used to describe the adaptive reuse of an existing building, historical or otherwise (brownfield redevelopment) or contaminated site for reuse (greyfield redevelopment).
STRATEGY	BUILD WITH TIME The legitimacy and validity of the architecture is established by building within the context of time.	ESTABLISH NETWORKS The building must interact with local social, cultural, environmental and political elements occurring on site. This will build relationships between the neighbourhood and its surrounding environment.	INCREASING DENSITY AND The existing building or site is reconsidered for new application to suit the morphology of the neighbourhood. Rather than a demolition of the existing building or simply leaving the site untouched the strategy seeks to redefine existing uses for purposes of densification and reuse.
SOURCE	Density, Size, Dispersion: Towards Understanding the Structural Dynamics of Mid-Size Cities Cities and the creative class Rem Koolhaas Against nature Emotional Design, Why we love (or hate) everyday things.	An Ecosystem Approach for Sustainability: addressing the challenge of complexity Cradle to cradle: remaking the way we make things landscape urbanism reader	Retrofitting suburbia: urban design solutions for redesigning suburbs Architecture Depends
APPLICATION	CONSIDER THE VERNACULAR The design guideline must sit within the context of what can before and consider the range of what could occur in the future. Understand how people live and build within that context.	BUILD LOCAL The set of design guidelines must consider local technologies, materials, demographics to maintain a relevance within the neighbourhood.	TRANSFORMATION The latent possibility of a site and/or building is explored to allow the historical and cultural legacy of the neighbourhood to thrive and evolve.
MODEL	NEW BEACHES/ WYCHWOOD	WATERSHED	WYCHWOOD/ WRITERS CABIN

SUMMARY

The intention of the case study analysis is to provide a set of principles upon which a residential design intervention for Saskatoon can be developed. The case investigation summary table addresses themes from Part 2: Literature review within the context of each project to flush out a set of design guidelines and principles that promote a resilient community. When considering a midsize city such as Saskatoon, explored in Part 4: Application, the design manifest must consider the most appropriate elements from the following set of principles for the specific location and context. It is understood that only the elements appropriate the conditions of Saskatoon will be introduced in the design intervention, and that if the design were to be applied to a different situation, perhaps a high density city, the design strategy would adapt to those specific conditions.

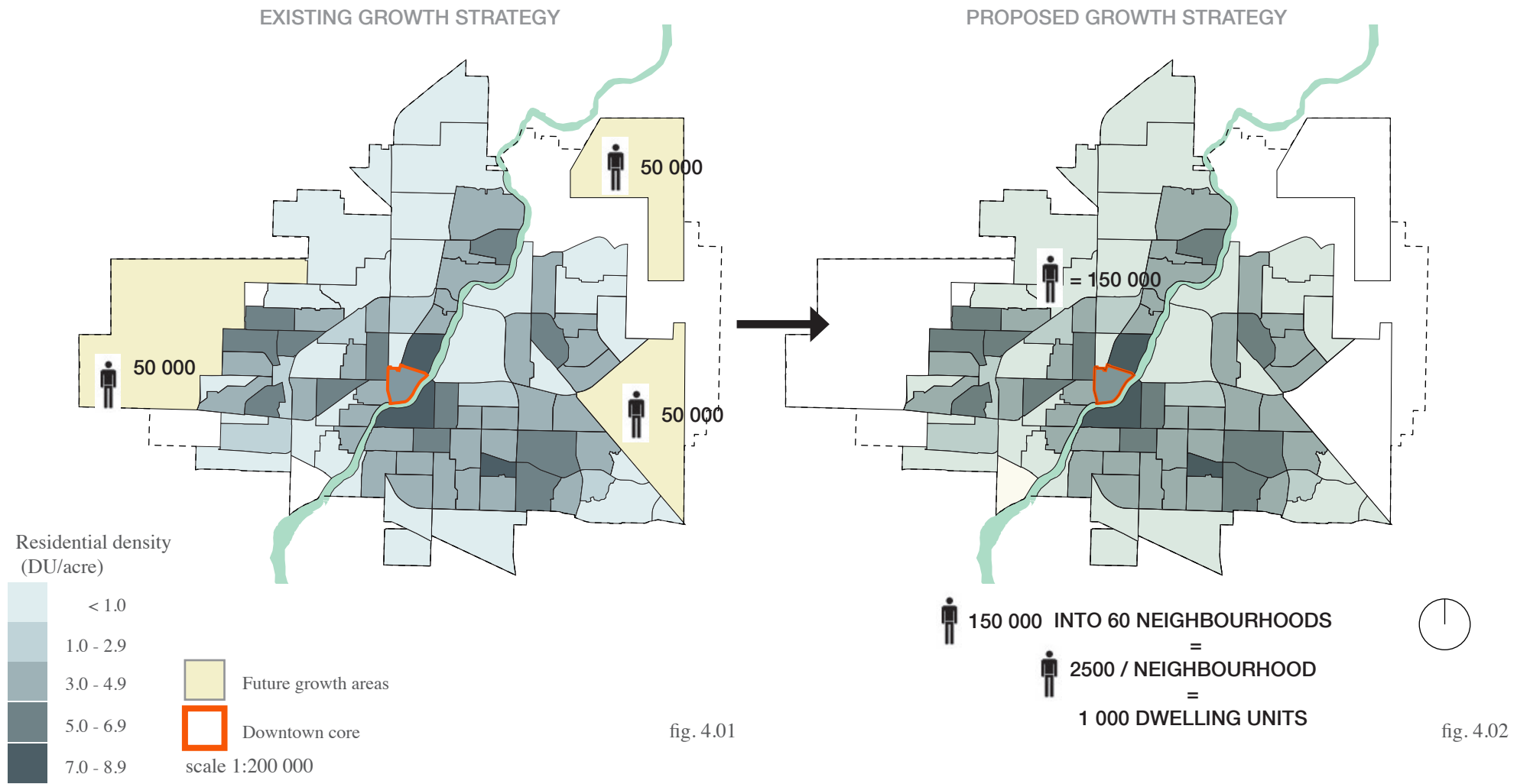
What is difficult to address in the scope of this document is the role that inhabitation plays on the success of the design intervention, as discussed in the case investigation strategy. While the document considers the essential role that time and inhabitation has on the proposed architecture, it is perhaps best to develop a strategy for Saskatoon that engages an ongoing design, evaluation and redesign process. The vision for Saskatoon is to develop a set of principles from the table below to intensify the city within the existing city boundaries.

P4

Application

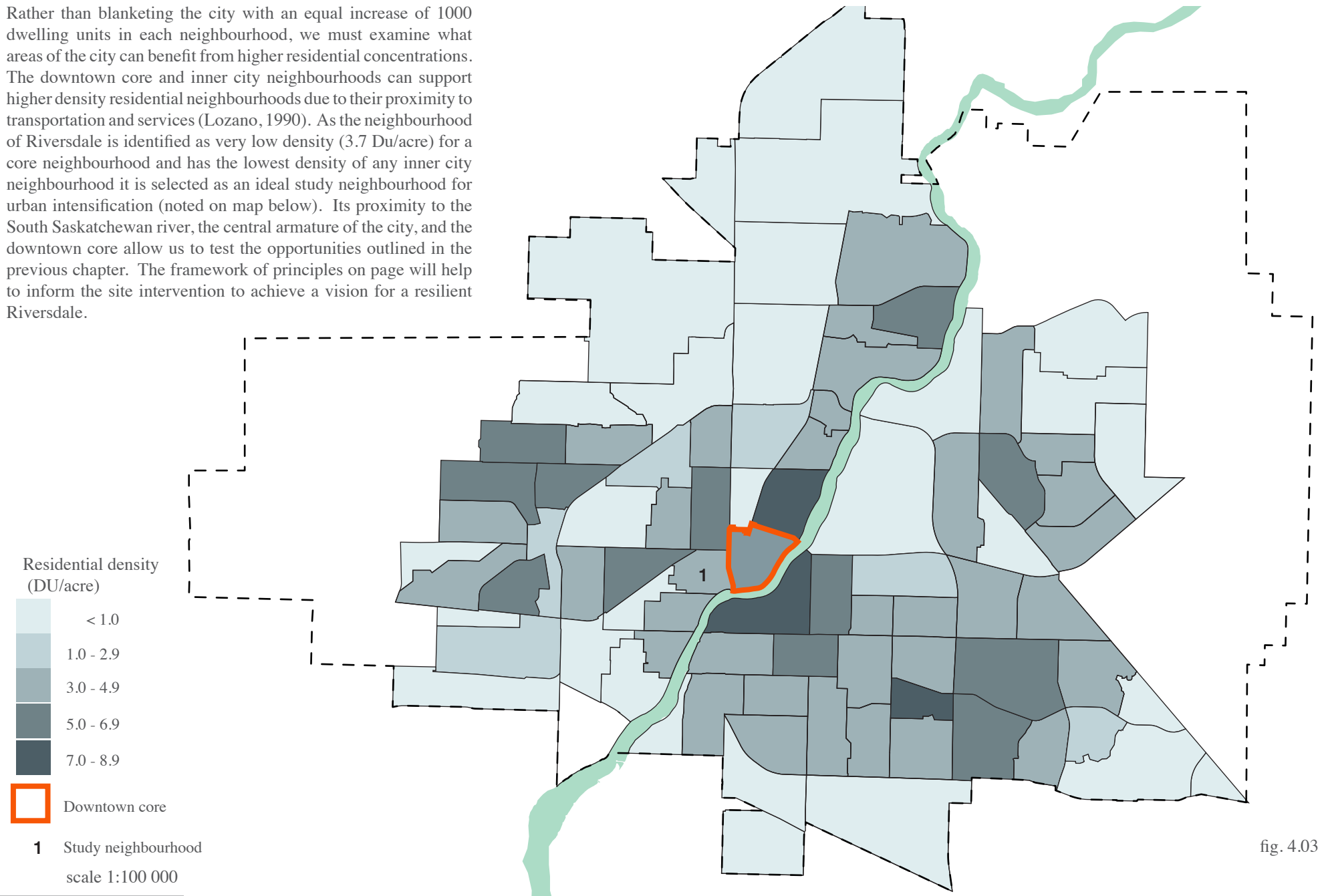
4.1 APPLICATION STRATEGY

We have seen the challenges facing the current suburban model for development throughout this document. If Saskatoon continues to grow in both land area and population the city will unequivocally face the challenge of sprawl, making it difficult to serve the changing needs of a growing population and support a sustainable residential fabric. As Saskatoon for the most part displays low density form, characteristic of a midsize city, in line with what Oliver Gillham would classify as suburban (1-12 dwellings/acre) it has great potential for urban intensification. By using the growth targets outlined in the Future Growth plan (part 1.4: Architectural response) we can apply the framework of principles established through the case investigations to achieve an appropriate intensification strategy for Saskatoon.



4.2 SITE SELECTION: RIVERSDALE

Rather than blanketing the city with an equal increase of 1000 dwelling units in each neighbourhood, we must examine what areas of the city can benefit from higher residential concentrations. The downtown core and inner city neighbourhoods can support higher density residential neighbourhoods due to their proximity to transportation and services (Lozano, 1990). As the neighbourhood of Riversdale is identified as very low density (3.7 Du/acre) for a core neighbourhood and has the lowest density of any inner city neighbourhood it is selected as an ideal study neighbourhood for urban intensification (noted on map below). Its proximity to the South Saskatchewan river, the central armature of the city, and the downtown core allow us to test the opportunities outlined in the previous chapter. The framework of principles on page will help to inform the site intervention to achieve a vision for a resilient Riversdale.






DENSITY IN RIVERSDALE

Figure ground density in Riversdale illustrates the fine grain characteristic of pre war residential development. The design intervention will explore options for achieving an average urban density between 5 and 12 du/ acre while maintaining the existing residential grain.

Current area = 215 acres
 Current Du = 800 units
 Current density = 3.7 Du/ acre
 Density target = 5 - 12 Du/ acre
 Density increase = 8.3 Du/acre

	Building type	Du/ acre
SUBURBAN RURAL	single-family, 100 acre lot	0.01
	single-family, 25 acre lot	0.04
	single-family, 1 acre lot	1
	single-family, 1/2 acre lot	2
	single-family, 1/4 acre lot	4
	semi-detached, 2 family	5-12
URBAN	townhouse, party walls	5-12
	semi-detached, 2 family	12
	townhouse	12-24
	apartment, 3 storey	30-50
HIGH	apartment, 6 storey	45-75
	townhouse	36
	apartment, 3 storey	75
	apartment, 6 storey	110
	apartment, 6 storey	220

fig. 4.04

-  STUDY AREA
-  SOUTH SASKATCHEWAN RIVER
-  RAILWAY



 scale 1:6 000

fig. 4.05

4.3 SITE HISTORY

TIMELINE

BARR COLONISTS ARRIVE
FIRST DEVELOPMENTS ON RIVERSDALE SITE



[1]

STREETCAR LINES

IMPROVED ACCESS BETWEEN RIVERSDALE AND THE REST OF THE CITY



[3]

GREAT DEPRESSION

AVAILABLE RIVERSDALE PROPERTY USED FOR INDUSTRIAL PURPOSES AND BECOMES THE BACK DOOR OF CITY



[6]

1903

1908

1909-1912

1914

DEPRESSION
LITTLE GROWTH REINFORCES CHARACTER OF THE NEIGHBOURHOOD

1920

1927

IMMIGRATION
RIVERSDALE ACTS AS RECEPTION CENTER FOR MANY NEW IMMIGRANTS



[4]

1928

1930

TRANSIENT POPULATION

HOUSE MOVING IS WELL PRACTICED IN RIVERSDALE. SETTLERS BUILD WOOD FRAME DWELLINGS IN THE AFFORDABLE AREA AND RELOCATE ONCE THEY HAVE THE FINANCIAL RESOURCES



[5]

WILD REAL ESTATE SPECULATION
RIVERSDALE BOUGHT BY PRIVATE REAL ESTATE FIRM

CANADIAN PACIFIC STATION BUILT
RIVERSDALE BOUGHT BY PRIVATE REAL ESTATE FIRM



[2]

NATIONAL HOUSING ACT

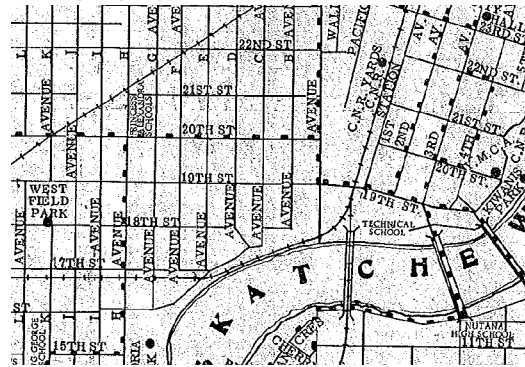
RIVERSALE ENTERS HOUSING BOOM. OVER HALF OF HOUSING UNITS FINANCED BY CMHC. HOWEVER MIXED LAND USE DISCOURAGES RESIDENTIAL PROSPERITY.



[7]

REMOVAL OF RAILWAY TRACKS AND YARDS

RAIL BRIDGE CONVERTED TO AUTOMOBILE BRIDGE. LAND CONVERTED TO SHOPPING MALL AND RIVERSDALE BUSINESS AREA FALLS INTO DECLINE.



[9]

1944

1920-1960

DWELLING REMOVAL
DWELLING REMOVAL BECOMES COMMON PRACTICE. THE CITY SEES 2400 DWELLING REMOVAL IN THE PERIOD.

1951

1960

IMMIGRATION

ABORIGINAL PEOPLES BEGIN COMMING INTO THE CITY FROM RESERVES. RIVERSDALE IS PRIMARY ARRIVAL NEIGHBOURHOOD

1964

1965

20TH STREET EXTENSION

REMOVAL OF RAILWAY YARDS ALLOWS FOR 20TH STREET TO RUN THROUGH TO DOWNTOWN

1976

RENEWAL

ECONOMIC DECLINE IN RIVERSDALE INITIATES THE FIRST NEIGHBOURHOOD IMPROVEMENT PLAN IN SASKATOON. LACK OF FUNDING SEES LITTLE CHANGE.

1931-1945

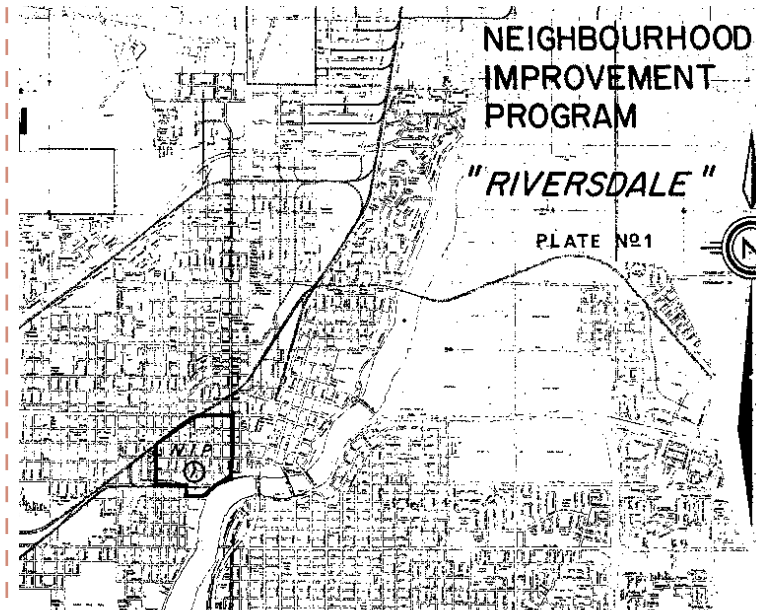
IMMIGRATION BRINGS FAMILY RUN BUSINESSES
FAMILY RUN SHOPS GIVES RIVERSDALE AN INDIVIDUAL PERSONALITY

REMOVAL OF STREETCAR LINES

TRAFFIC PATTERNS IN RIVERSDALE BEGIN TO CHANGE



[8]



[10]

fig. 4.06

4.4 SITE CONTEXT

PROGRAM

To best understand how we can build on the residential fabric of Riversdale the following context identifies the characteristics and qualities of the existing urban fabric. A specific four block study area is identified to establish the scale of intervention.



CIRCULATION







scale 1:6 000

fig. 4.08

PUBLIC SPACE



-  FARMERS MARKET SQUARE
-  PARK AREA
-  STUDY AREA
-  RIVER
- 1. PRINCESS ALEXANDRA SCHOOL GROUNDS
- 2. OPTIMIST PARK
- 3. ISINGER PARK
- 4. VICTORIA PARK / MEEWASIN VALLEY TRAIL

 scale 1:6 000

fig. 4.09

4.5 SITE ANALYSIS

AREA DEVELOPMENT

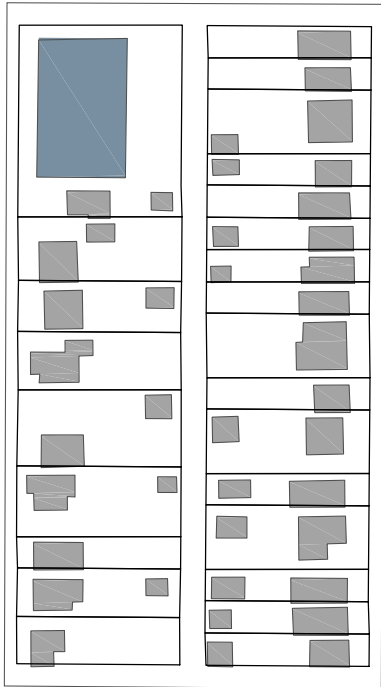


fig. 4.10

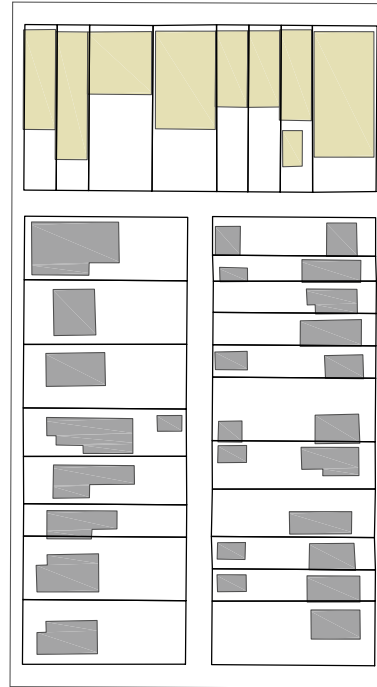
BLOCK TYPOLOGY

The existing block character exhibits three distinct block typologies.

RESIDENTIAL



COMMERCIAL/ RESIDENTIAL



MIXED USE



- RESIDENTIAL
- MULTI UNIT RESIDENTIAL
- COMMERCIAL
- FRONTAGE

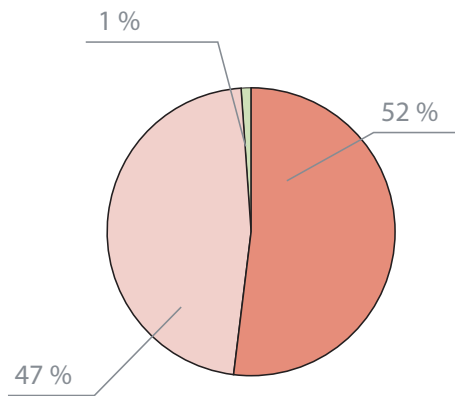


fig. 4.11

HOUSING TYPOLOGY MIX

Riversdale residential mix illustrates higher than city average of single unit dwellings. As the below diagram of household structure illustrates, there is a great variety of family types with little range of typology choice.

HOUSEHOLD STRUCTURE



HOUSEHOLD TYPES

- couple w/ children
- couple w/o children
- one person
- other household types

fig. 4.12

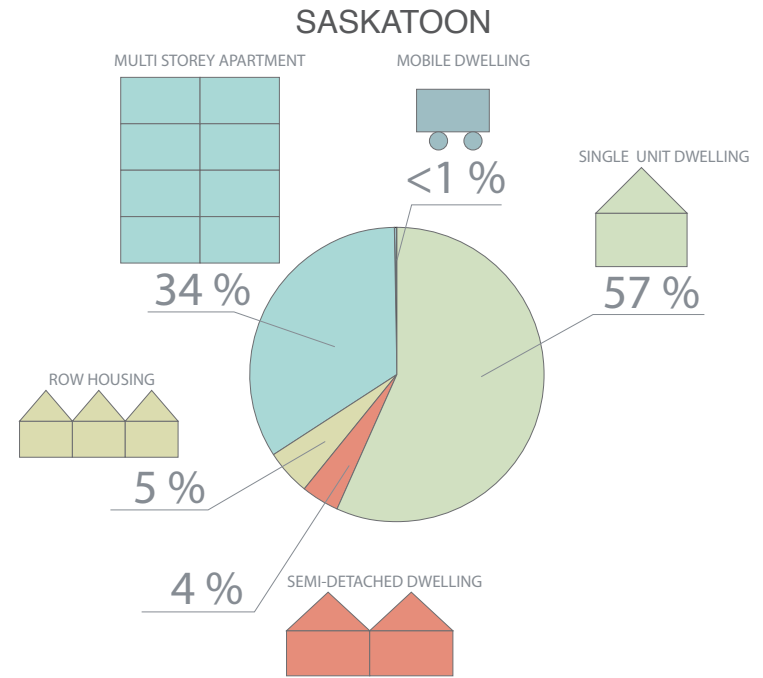


fig. 4.13

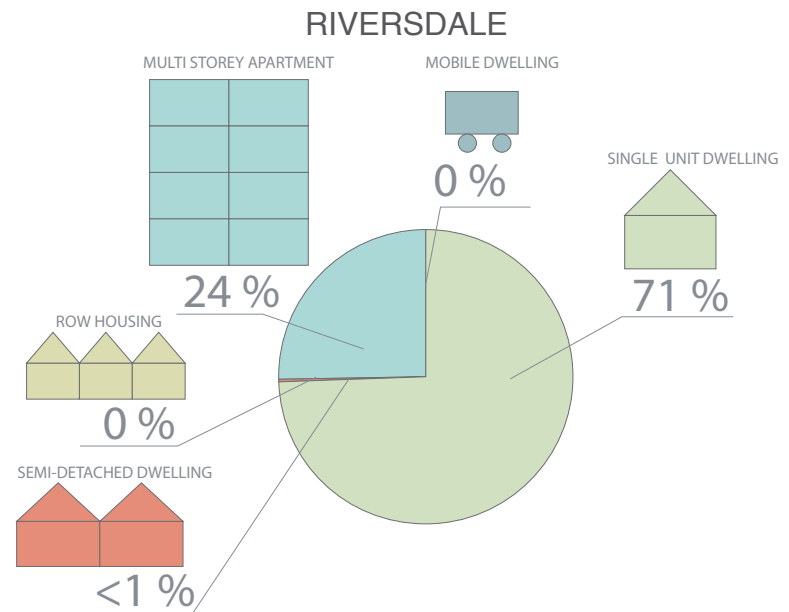


fig. 4.14

DENSITY COMPARISON

Comparison between the core residential neighbourhood of Riversdale and a typical suburban neighbourhood, Lakeview, reflects relatively modest lot and building size of the urban setting to that of the suburban setting while achieving relatively similar density.

RIVERSDALE, SASKATOON

GROSS DENSITY: 19% TOTAL AREA
NET DENSITY: 50% BUILDABLE AREA

AVERAGE HOUSING DENSITY: 3.7 dwelling unit/ acre



fig. 4.15

LAKEVIEW, SASKATOON

GROSS DENSITY: 24% TOTAL AREA
NET DENSITY: 40% BUILDABLE AREA

AVERAGE HOUSING DENSITY: 4.1 dwelling unit / acre

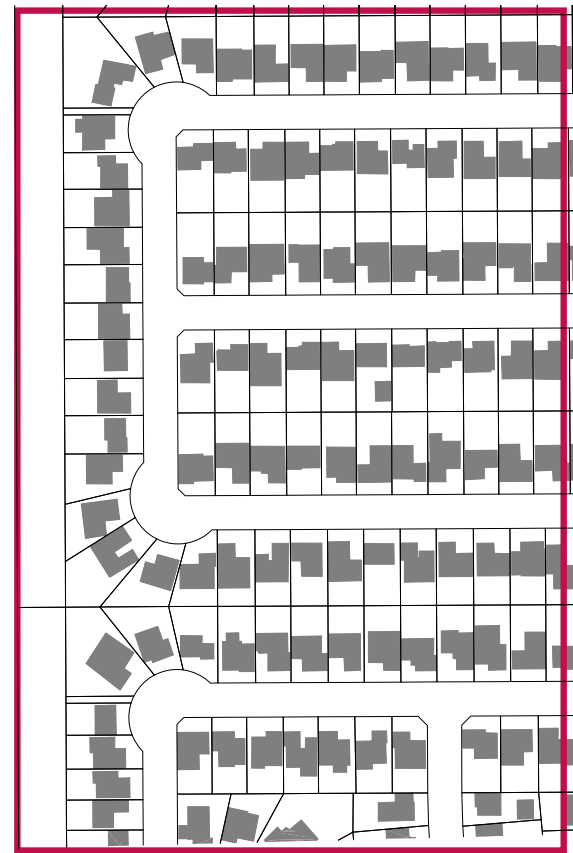


fig. 4.16

HOUSING VERNACULAR

The vernacular of housing aesthetic and materials suggests a non-descript housing stock, typical of post-war North American development.

Form

Primarily wood frame construction.
1-2 storey form.
Entrance at grade or 1.2M above grade.
Pitched roofs throughout.

Material

Primarily vinyl and painted wood siding.

Style

Style reflects post WW1 and WW2 construction.

Comments

No signs of pure stylistic references or professional craft, indicating self-built work. Individual style kept within a modest material and colour palette to maintain a simple consistency across the area.



fig. 4.17

SUMMARY

The overview of Riversdale establishes its mixed use fabric of low density development and history of immigrant communities in flux, all of which have had an impact on the growth of the neighbourhood over the years. As a core neighbourhood, Riversdale suffers from economic decline characteristic of midsize city development, outlined earlier in the document. Neighbourhood improvement plans have been developed over the years to mitigate the decline, however the continuing transient population and its position as a low income neighbourhood have persisted. The resulting residential fabric is modest and of poor quality, with many sites of vacancy, and does not offer the spaces of community interaction needed to generate a strong community presence. Despite being one of the oldest neighbourhoods of the city Riversdale show little signs of local heritage and vernacular in both residential and commercial areas.

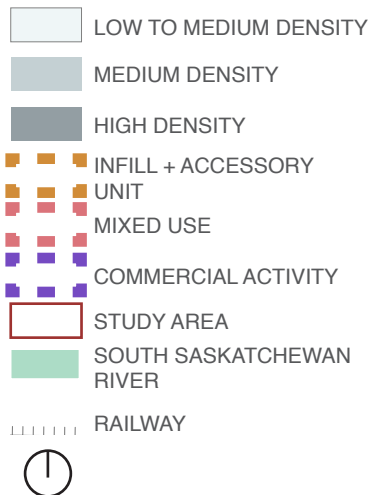
The intervention seeks to use the principle guidelines established for creating a resilient residential fabric: Contingency, Diversity, Scale, Context, Systems thinking, and Adaptive reuse. These principles will help define an appropriate strategy for Riversdale to mitigate the specific challenges it faces. By building on existing amenities such as the Farmers Market food network and the mixed use fabric of the area, the intervention aims to define the most appropriate intensification for the site.

4.6 SITE INTERVENTION

DENSITY STRATEGY RIVERSDALE

To illustrate the density strategy we will use a 4 block neighbourhood unit as a study area. The study area is at the cross section of a number of density proposals to illustrate several intensification strategies.

RIVERSDALE AREA = 215 ACRES
DWELLING UNITS = 800
DENSITY = 3.7 DU/ACRE
STUDY AREA = 18 ACRES



scale 1:6 000

fig. 4.18

STUDY AREA STRATEGY

ALLOTMENT PROGRAM

In combination with systems approach and a knitting together of community activity and food production. This is developed in conjunction with the plant and seed center and commercial spaces as well as the accessory unit strategy for a new public/ private city space.

Total proposed dwelling units: 0

COMMERCIAL + COMMUNITY

The greyfield site is activated into usable commercial and community space with the implementation of programme. The strategy activated the main commercial strip of the neighbourhood..

Total proposed dwelling units: 32

RESIDENTIAL INFILL

The residential infill created new housing opportunities on vacant lots. This is an opportunity to introduce new typologies to the neighbourhood. There is potential of combining lots to create more detached housing typologies.

Total proposed dwelling units: 12



scale 1: 2 500

fig. 4.19

BROWNFIELD DEVELOPMENT

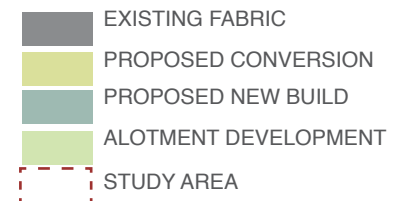
The brownfield site is transformed into multi storey apartments, taking advantage of the higher density of the area and the mixed use zoning. There is the possibility of opening the ground floor for retail space.

Total proposed dwelling units: 24

ACCESSORY UNITS

The accessory unit is viewed as a strategy to increase density and create more flexible living arrangements, accommodating a more diverse set of resident needs. By using light weight wood construction there is the potential to move the units on and off the lot, depending on the needs of the residents.

Total proposed dwelling units: 14



RESIDENTIAL INFILL

As shown in the typology study and site analysis, Riversdale supports a low range of housing types, varying little from the low density single family home. The proposal suggests increasing residential density and creating variety in the housing stock by infilling existing residential lots with new typologies. Increasing residential density will help to mitigate the issues of sprawl occurring in current new build developments on the periphery of the city. Introducing new typology help to encourage a range of residents with a variety of circumstance and needs.

EXISTING



PROPOSED



fig. 4.20

fig. 4.21

DENSITY CALCULATION

2 dwelling units on 1/6 acre lot

12 dwelling units/ acre

PROJECT TYPE

RESIDENTIAL INFILL

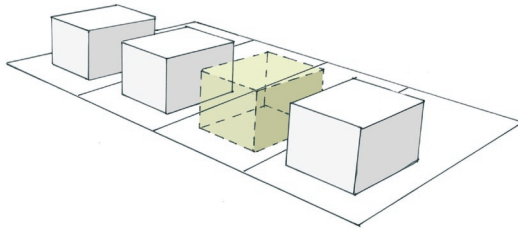


fig. 4.22

PRINCIPLES APPLIED

- Scale: Building relationships and street presence. New typology is in character with the the scale of its surroundings.
- Context: considering the vernacular. New building form is informed by the vernacular of peaked roofs and prairie barns and sheds.
- Diversity: Designing for possibility of using flexible lots and plans.
- Adaptive reuse: The scheme seeks to improve the housing stock of a older neighbourhood.

PRINCIPLE STRATEGY: INTRODUCE NEW TYPOLOGY

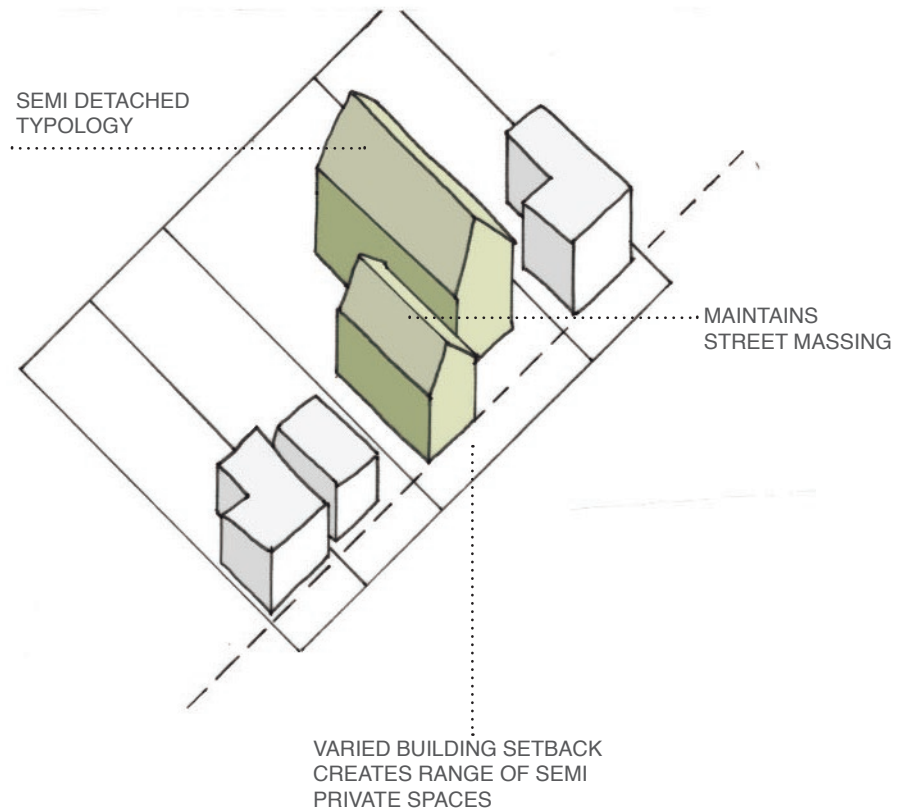


fig. 4.23

BROWNFIELD DEVELOPMENT

To encourage the mixed use quality of the neighbourhood and support medium density development the proposal would recycle existing materials and use the site for townhouse and apartment units. The building would be served off a internal courtyard, as a means of secure by design.

EXISTING



fig. 4.24

PROPOSED



fig. 4.25

DENSITY CALCULATION

8 dwelling units on 1/4 acre lot

32 dwelling units/ acre

PROJECT TYPE

BROWNFIELD

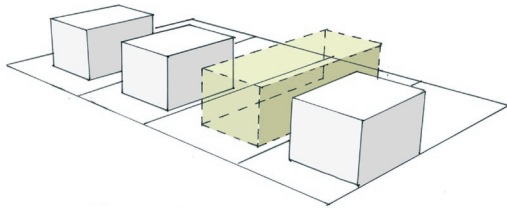


fig. 4.26

PRINCIPLES APPLIED

- Scale: The proposed scheme enforces the density of the block and establishes a harmonious relation to the neighbourhood.
- Adaptive Reuse: The proposed building is a brownfield redevelopment of a previously light industrial site.

PRINCIPLE STRATEGY: COMPLETE THE BLOCK

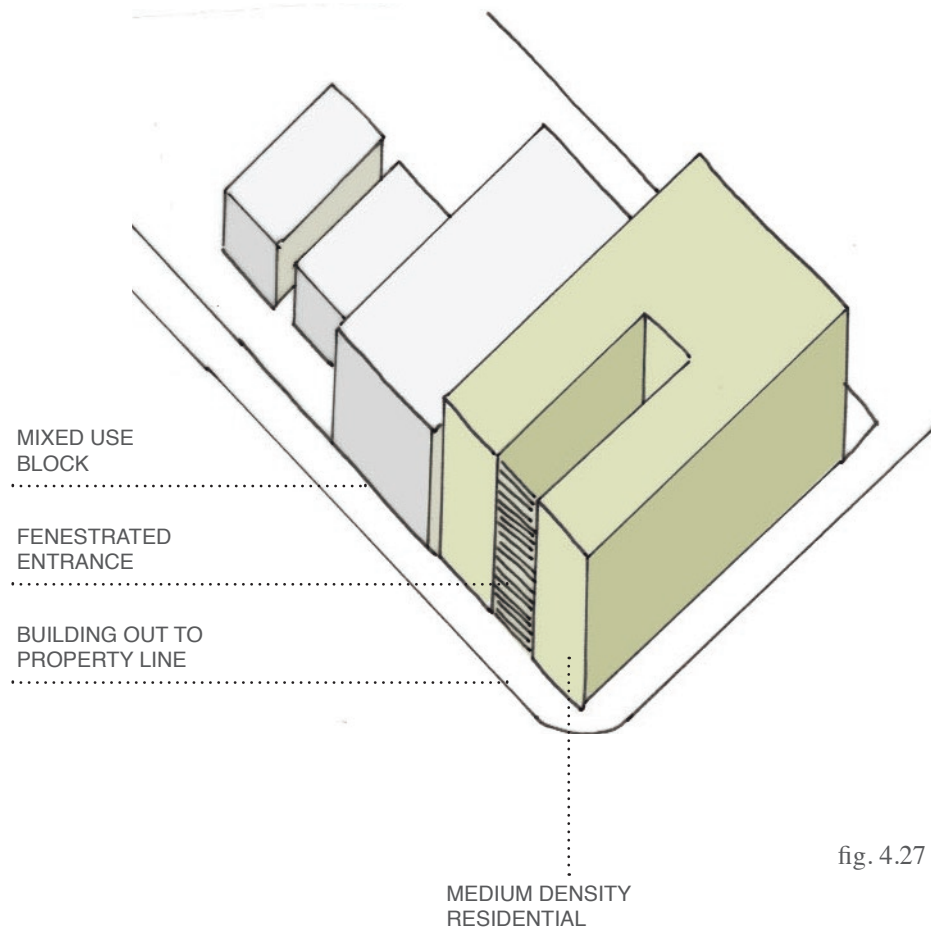


fig. 4.27

ACCESSORY UNITS

To increase density within an existing lot structure a living pavilion is proposed towards the back of the lot. The pavilion is intended to encourage a variation of family living situations over time by acting as a flexible space on site. There is also potential for refurbishment to study, studio or work room, to suit the needs of the inhabitants. During the winter months the patio space connecting the new and existing buildings may be enclosed to encourage year round use.

EXISTING



fig. 4.28

PROPOSED

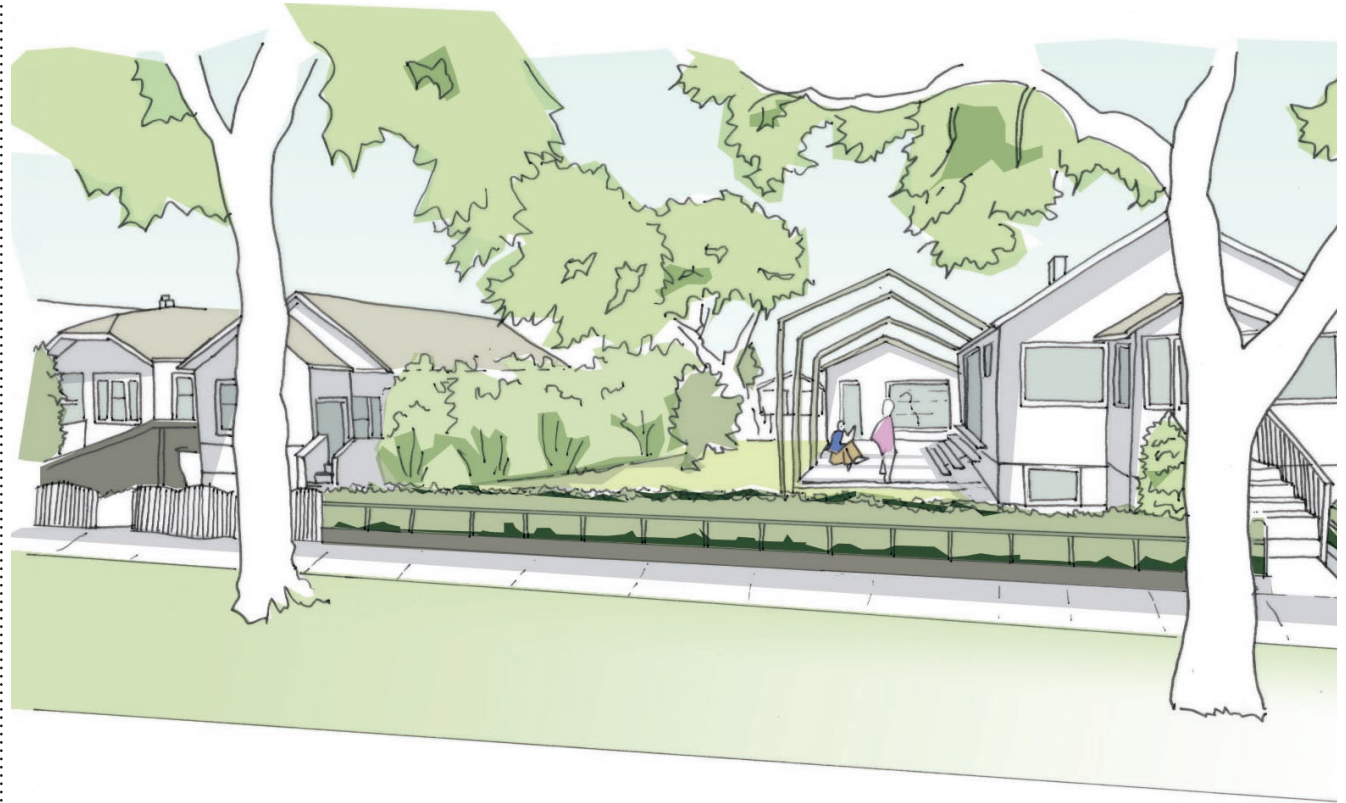


fig. 4.29

DENSITY CALCULATION

2 dwelling units on 1/6 acre lot

12 dwelling units/ acre

PROJECT TYPE

ACCESSORY UNIT

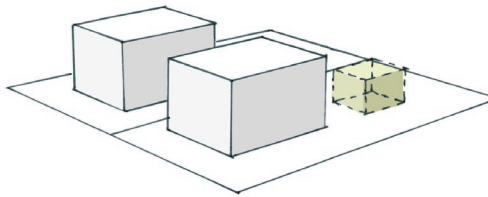


fig. 4.30

PRINCIPLES APPLIED

- Contingency: The scheme uses the fixed accessory unit to allow a variety of conditions to occur.
- Diversity: The flexible nature of the accessory unit accommodates the evolving needs of the neighbourhood.
- Adaptive reuse: The unit enables the existing lot and house to become the catalyst for new and dynamic living situations.

PRINCIPLE STRATEGY: INCREASE LOT DENSITY

BACK YARD SPACE
PRESERVED

ADDITIONAL
LIVING PAVILION

POSSIBLE ADDITIONAL 3
SEASON ROOM

EXISTING STREET
PRESENCE MAINTAINED

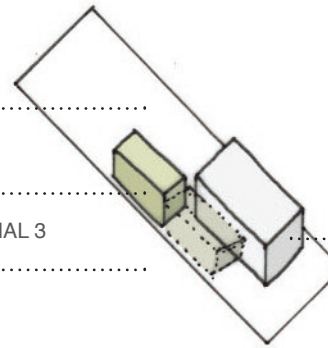


fig. 4.31

ALLOTMENT PROGRAM

To introduce a systems approach to the residential fabric the proposal looks to encourage small scale food production by allowing residents to build up allotments of their own or rent their allotment zone to local neighbours. The allotment program would be organized through the community seed and planting centre at the end of the alley, on 20th street. The low density nature of the neighbourhood is well suited to good sunlight conditions.

EXISTING



fig. 4.32

PROPOSED



fig. 4.33

DENSITY CALCULATION

0 dwelling unit / acre

PROJECT TYPE

NEW BUILD

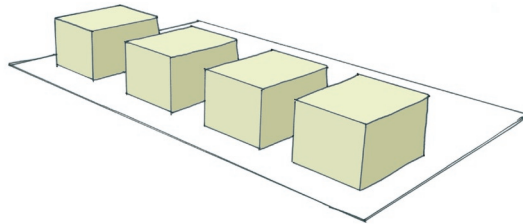


fig. 4.34

PRINCIPLES APPLIED

- **Systems thinking:** The proposal seeks to reconnect residences with their natural environment by placing them within a natural growing cycle, creating a more sustainable residential environment.
- **Adaptive Reuse:** The evolution of the neighbourhood towards a local and sustainable environment is created by adapting under-used outdoor space.

PRINCIPLE STRATEGY: SEMI PRIVATE ALLOTMENT ZONE

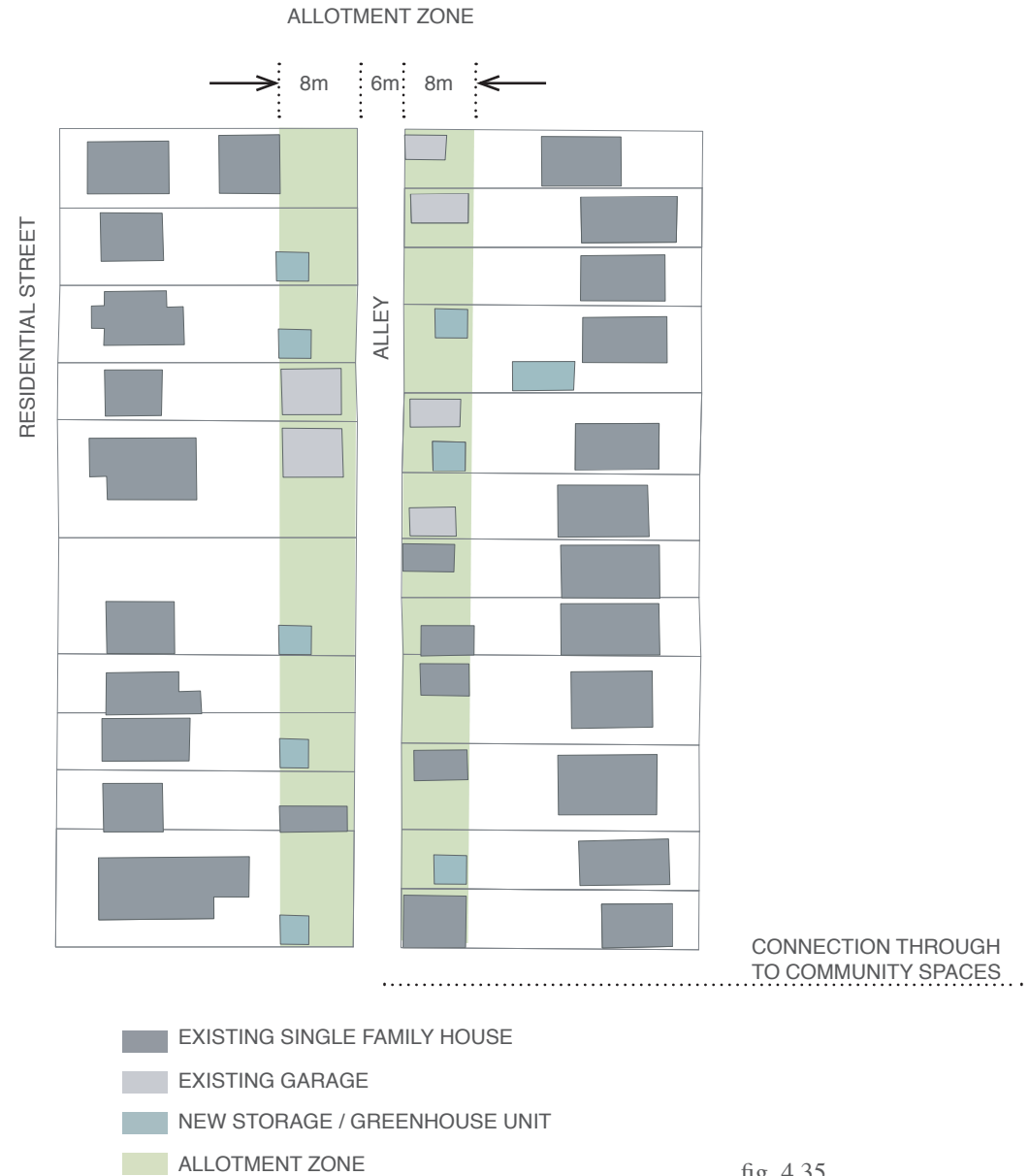


fig. 4.35

COMMERCIAL + COMMUNITY

The site on the main commercial strip of the neighbourhood becomes a community and commercial catalyst for local and city wide residents in the heart of the city. The project uses the brownfield site to layer program with site strategy and the larger urban context. The space is intended to encourage interaction between the commercial aspects and community aspects of the scheme through a common environmental objective. The main community space offers a seed bank for local residents and allotment users. The outdoor square is programmed for restaurant seating, community drives and activities, as well as daily sitting and meeting area. As the commercial building is divided into smaller retail environments they are capable to accommodating a variety of semi permanent or permanent activities depending on the season and the commercial potential.

EXISTING



fig. 4.36

PROPOSED



fig. 4.37

DENSITY CALCULATION

0 dwelling unit / acre

PROJECT TYPE

NEW BUILD

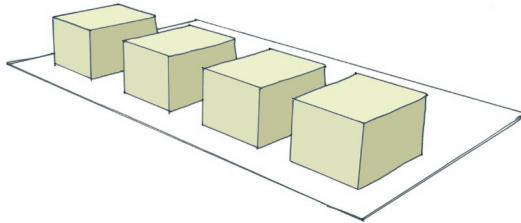


fig. 4.38

BROWNFIELD

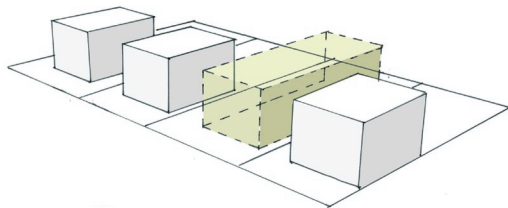


fig. 4.39

PRINCIPLES APPLIED

- Adaptive Reuse: The site applies brownfield redevelopment by using the existing architectural skeleton for new commercial space.
- Context: The vernacular of the neighbourhood is considered in the form and materiality of the proposed community space.
- Systems thinking: The community and commercial programme are developed to evolve with the needs of the neighbourhood, ensuring a sustainable existence.

PRINCIPLE STRATEGY: COMMUNITY ACTION

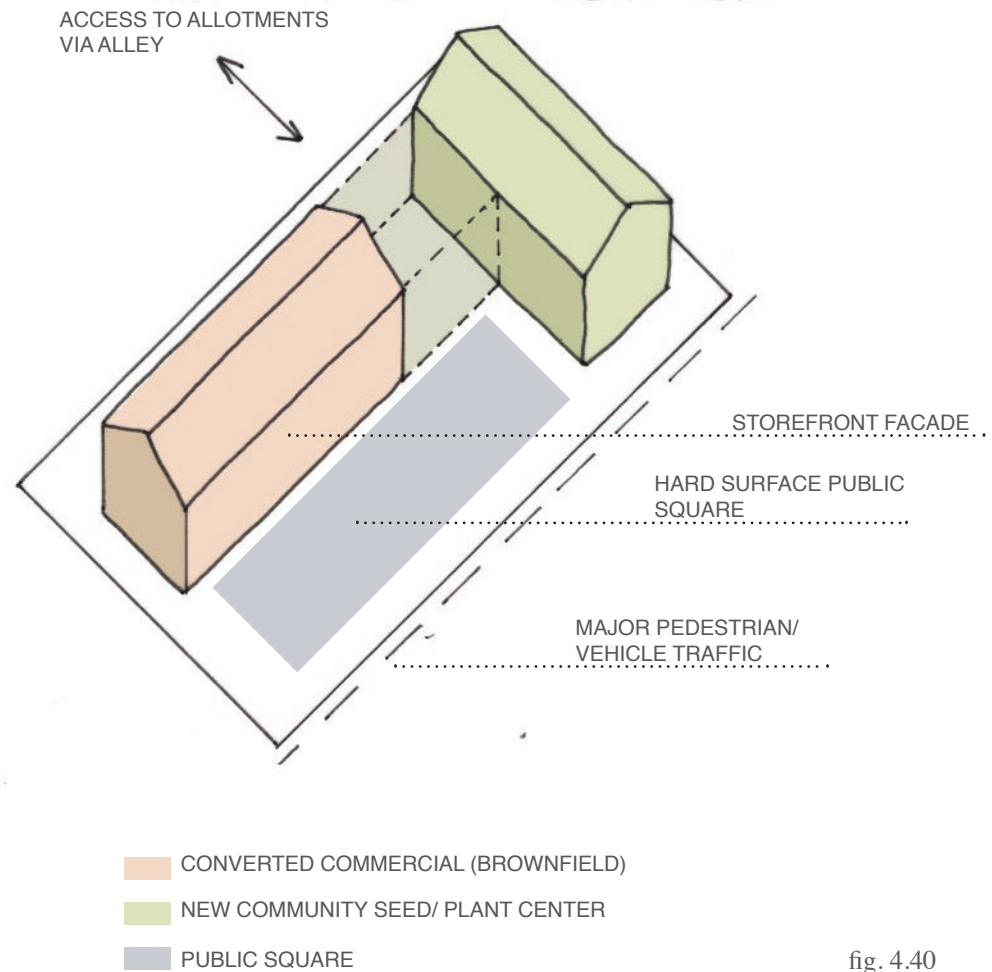


fig. 4.40

AESTHETICS + MATERIALS

The proposing scheme responds to the transient and often temporary quality of the neighbourhood. Rather than the current culture of single use construction followed by demolition and replacement with yet another single use building made of poor quality and temporary materials, the proposal uses the vernacular of the prairie aesthetic. The materials and forms used seek to reinforce the legacy of the prairie style and offer a platform for continuing use and appropriation.

Form

Simple form.
Pitched roofs.

Material

Wood, brick, stone.

Style

Contemporary barn aesthetic.
Industrial and warehouse influences of the neighbourhood.

Comments

Introduce a level of craft and workmanship to the neighbourhood to create a legacy.



fig. 4.41



fig. 4.42



fig. 4.43



fig. 4.44

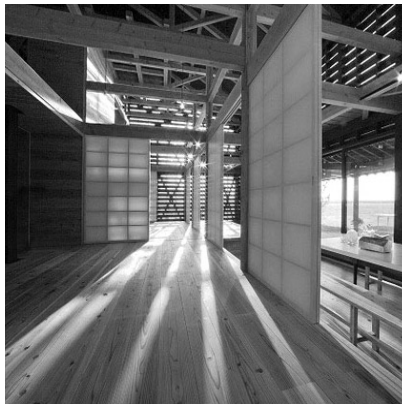


fig. 4.45



fig. 4.46



fig. 4.47

SITE PERSPECTIVE



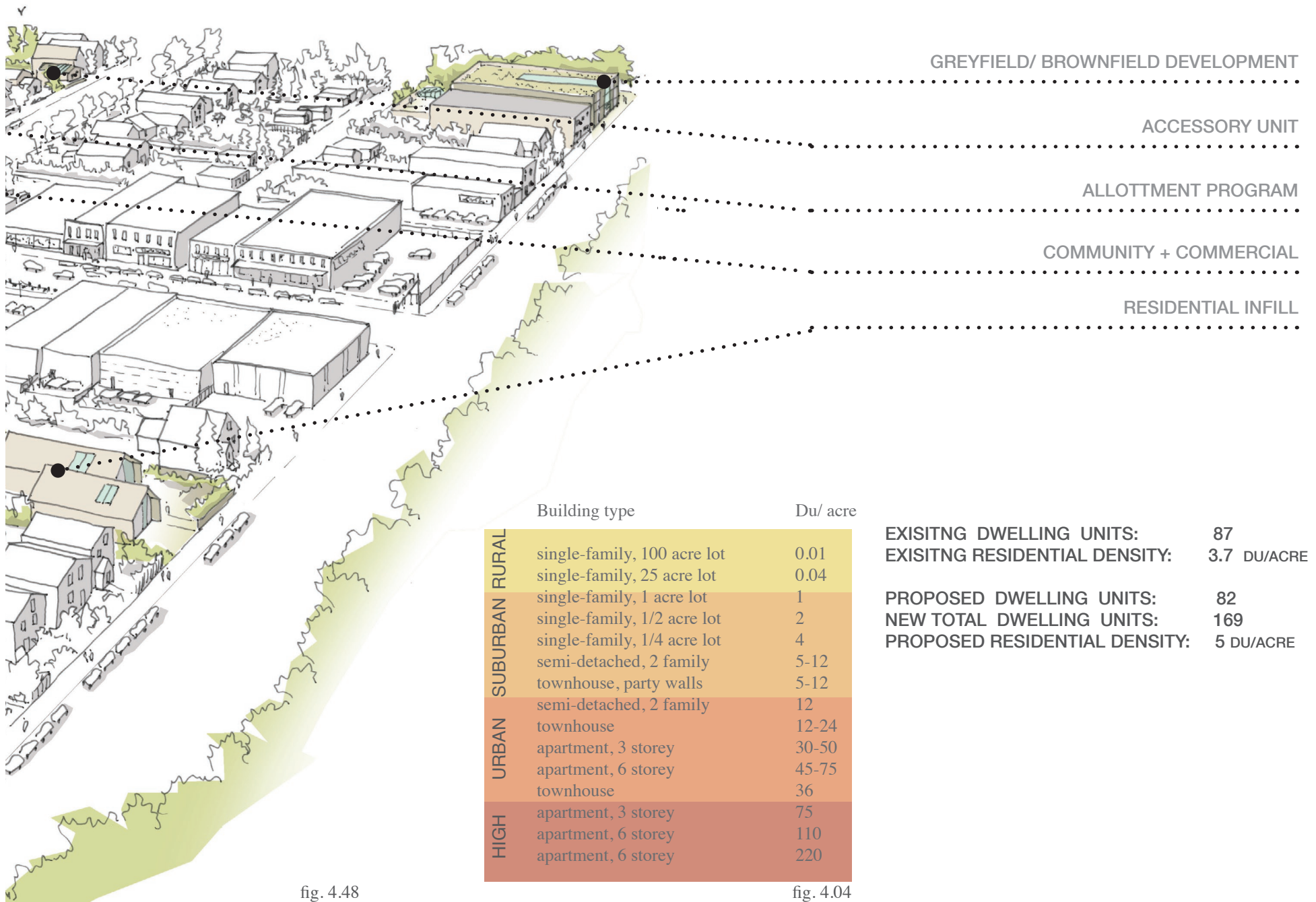


fig. 4.48

fig. 4.04

SUMMARY

From the design intervention we have seen how urban intensification is used as a tool to generate diverse residential environments. By examining the existing four block residential fabric of Riversdale we were able to build on existing social, commercial and natural networks to intensify the fabric. Through density is often maligned in urban environments, associated with crowded slums and poor living conditions (Lozano, 1990), the exercise has revealed that the existing fabric of Riversdale, even with its small lot sizes and low building heights has the potential to support new architectural relationships.

The light touch of the intervention, using infill lots, brownfield development, back garden accessory pavilions enables the neighbourhood to maintain the original scale and character while introducing new opportunities for community interaction and more diverse living arrangements. A range of building types invests in the goal of creating new typologies in an otherwise mainly single unit residential fabric.

The allotment scheme of the intervention connects the residents to their natural environment and carries great potential to work into other community programs, such as seed swaps, compost events, local vending and pop up restaurants. The scheme reveals that we can consider other alternatives to encourage diversity of place and ownership of ones residential environment. The process of a natural system is intrinsic with life cycles and timelines needed to secure a legacy for the neighbourhood, and encourages a lasting relationship between residents and their environment, needed to generate a sustainable neighbourhood.

The issue of vernacular and locality is addressed through the use of aesthetic and materials throughout the intervention. The scheme encourages local materials and practices to support the existing wood frame character of the neighbourhood. The aesthetic of new buildings plays into the barn like quality of the prairie vernacular while evolving the language to include more contemporary design elements.

PS

Conclusion

CONCLUSION

Saskatoon is experiencing high rates of growth relative to other Canadian cities, attracting new and diverse populations along with their needs and demands. The city plans to manage growth by developing new low density suburban areas on the periphery of existing low density fabric. This thesis questions this strategy and proposes an alternative. While suburban development served post WWII housing needs, as discussed in part 2.1: Building history, later extensions of this form have created challenges of sprawl and lack of residential diversity, and have been shown to be unsustainable in current national and global circumstances. This document is based on concern for a sprawling Saskatoon, where new fabric is built out in low density suburban form, supported by few transportation services and devoid of diverse residential environments. The response to plans put forward by city council begins with an investigation of the existing fabric and develops intensification strategies for a resilient residential fabric.

The thesis first evaluates the suburban condition as it has developed over time and then speculates on the significant challenges facing the suburban environment today. The most significant physical challenges facing the suburban form are the homogeneous and non-contextual qualities of the development. These qualities abstract new development from the local surroundings and define the social challenges created. The homogenous quality is different from other types of housing developments over time and is specific to the suburban condition. For example, 18th Century British Victorian and Edwardian terraced housing employs repetition of building form and materials to create a larger urban effect. The repetition of the scheme works to establish a clear design guideline and is distinguished by its articulated planning practices. This is enhanced by the level of detail, craft and materiality of the terraced housing that relates its contemporary situation. The repetition of the development conveys a language of its contemporary craft while relating to the individual in terms of detail and physical connectivity between units. In opposition, the homogeneous suburban development reflects the lack of physical connection and inability to relate to the individual. This is furthered by the nature of ownership in suburban development, which is attributed to the division of space into personal, private property. This creates a language of commodification and in turn is the primary characteristic of the suburban condition. It is the social implications that of physical form that must be mitigated in suburban development. The nature of private, low density property creates a social disconnection from the neighbourhood and instead focuses on the individual as removed from their local context. This quality prevents place making, which in turn builds a self reliant, connected, and evolving community.

Further to the homogenous, personal landscape is the absence of context in suburban planning, which has evolved from the ideologies of the Modern period. The modern mentality seeks to dismantle its historic predecessors and create a new set of design principles supposedly based on logic, contemporary materials and practices. The modern artifact is erected on a tabula rasa, a utopian blank slate, where pure form is expressed in terms of speed and process without the distraction of style and ornamentation. The removal of context is one of the grounds for suburban planning, where large tracts of empty farmland become a blank slate to roll out low density, private housing. The notion of context is replaced by rigid planning and zoning guidelines that restrict a natural appropriation of the site and possibility of future context to exist. Cities experiencing major suburban development practices under modern ideologies are dislocated from a palimpsest of local context and histories. We have seen how Saskatoon's development follows patterns in line with general suburban standards, and therefore is a useful study area when considering future approaches to creating a true urban context. This thesis posits another layer to the history and occupation of the city, while taking a responsible and pointed approach.

Opportunities for Saskatoon became apparent in the investigation of residential densities, housing structure and mix within the city. The initial investigations show that Saskatoon exhibits low density suburban form across the city, including the downtown core and surrounding urban neighbourhoods. Arguments for densification made by Eduardo Lozano point to the positive effects of density in cities, including the potential for inhabitants to interact with a great number of people and institutions concentrated in that town or city (Lozano, 1990). This intensification creates a vitality and positive congestion described by Koolhaas, where inhabitants create and evolve their own environments. Both positive and negative social interactions caused by intensification are characteristic of denser urban environments, however when individuals engage with civility, courtesy and refinement they define the very civilization and citizenship that are at the heart of our urban environments (Lozano, 1990). The balance that must be considered when arguing for the benefits of density is the necessary level of intensification to serve the needs of the community versus the over population and demand on services in conditions of extreme diversity that can lead to the breakdown of the urban system. In addition to social benefits of urban environments, the greater number of individuals depending on infrastructure, resources and services helps to make these things more robust and creates better connectivity.

Household structures in Saskatoon are shifting towards a balance between couples with and without children, single person houses and other types of social structures. This changing structure reflects a changing demand, however existing housing stocks consist of over fifty percent single unit dwellings, reflecting the suburban form. At a time of growing diversity in housing demands new typologies developed in the design intervention seek to provide the necessary elements to fulfill a rich language.

The literature review, Part 2 of the thesis, establishes a set of normative values used to address specific design schemes in Part 3: Case Investigations. The intention of the thesis is to see how broad notions such as time, lifestyle and systems engage with more specific characteristics of the built community. Later we see how these values are applied on real term projects of varying scale and context to develop a framework of strategies for intervention, becoming the a set of design guideline that are applied to Saskatoon.

The language defined through the design intervention of Part 4: Riversdale, establishes a necessary scale of intervention to successfully absorb and build on existing city fabric. The approach to intensification of the existing fabric of Saskatoon involves treating the city as an ongoing and evolving project, one that is responsive to the contingencies and is sensitive to the scale and context of the neighbourhood. Michael Sorkin reminds us that “the good city is an evolving project” (Sorkin, 2006/07) and the series of design interventions in Riversdale reveal that neighbourhood building can be an ongoing process, often unconsidered in today’s suburban development practices. This is the ever important element of time that the architect must engage with. While planning principles as they are currently executed destroy the natural evolution of a residential area by trying to order time and anticipate the future, planning principles should instead focus on the evolution of relationships created by a residential community, both physical and social. This is where the architecture is broken down into a series of considerations, becoming the strategy for future development and evolution of the building fabric. In Riversdale this is executed by developing the overall urban strategy in terms of density, several site strategies addressing context, the site relationships in terms of programming and the character of the neighbourhood in terms of aesthetics and materials. When we use these elements as layers for the residential fabric they become connected to the particulars of place and can evolve with the community as they are defined and transformed based on needs.

The design application of this thesis would undoubtedly show a variety of results, depending on the study area selected. Where the existing fabric of a neighbourhood was already dense the design intervention might seek to transform the existing fabric to reflect a possibility of an evolving neighbourhood and the potentially changing and diverse needs of the community. Although the thesis discussion is aimed at mitigation of current suburban design practices, the study area selected inspires a discussion that would be relevant in many kinds of urban and suburban environments. Where the discussion began to address suburban planning guidelines and principles, the thesis results show that the specific design conversation could be useful in all of our residential environments as a tool for understanding our communities and building on their strengths.

The final evaluations of the thesis call to refine and reform current planning and design guideline practices. Taking a view that includes time and community values and aspirations we can build environments that are a reflection of their inhabitants and the aspirations of their community. The intention of the thesis was to work on an expanded notion of what architecture might be; a tool for planning and education, a lens for understanding a community and its residents. The document shows us that a resilient community is one where residents are invested in the quality and nature of their residential environment, where building types and relationships support a range of interactions and uses, that can evolve with residents over time.

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