Flat City Response

The Role That Architects Can Play In An Adaptable Suburban Revitalization Process

by
Matthew Paul Bolen

A thesis
presented to the University of Waterloo
in fulfilment of the
thesis requirement for the degree of
Master of Architecture

Waterloo, Ontario, Canada, 2009

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

It has become widely recognized that the development of postwar suburbia in North America has had a detrimental effect on community identity, environmental sustainability, and social conscience. Suburban development is often prominent in mid-sized cities made up of a low density or "flat" urban landscape. The Regional Municipality of Waterloo's urban core consists of three such cities (Cambridge, Kitchener, and Waterloo). As one of Canada's most economically stable and fastest growing municipalities, it provides a rich opportunity for regional growth through intensification.

In the Region of Waterloo's latest planning policy plan, "A Vision for a Sustainable and Livable Waterloo Region" is outlined. In addition to this comprehensive policy, a two-part "Visualizing Densities" study provided a comprehensive analysis of the existing communities throughout Waterloo Region and how they can be improved. Both of these documents helped to promote sustainable growth in the downtown and inner city areas, however, they have not effectively addressed how to deal with existing suburban areas. The Visualizing Densities Part II study proposed a redesign of a three selected existing suburban study areas throughout the region. Although these proposals had good intentions, they all but ignored the existing network of streets and built fabric. Therefore, it only really addressed how to design and build a new green field development.

By building upon current suburban redevelopment concepts and strategies, this thesis will develop an adaptable process for existing suburban community revitalization. This process will be applied to a suburban study area set within the city of Waterloo (one of the regions mid-sized cities). A critical aspect of this process will be the renewed role that architects must play as analysts, visionaries and educators. The overall intention of this thesis will be to develop a means of engaging and revitalizing existing suburban areas into more efficient, self-sustaining, and responsive community networks.

acknowledgments

I would first like to thank my supervisor Dr. Jeff Lederer for his unwavering expertise, availability, and direction. I would also like to thank my committee members Rick Haldenby and Dr. John Straube, as well as my external reader Dan Currie, for their encouraging comments and insightful suggestions.

There are a number of people throughout the university community that have contributed to this thesis in various ways. I would like to offer special thanks to Michele Laing, Linda Finn, Sara Perkins, and the rest of the Musagetes Architecture Library staff; Bob McNair, Matthew Oliver and the rest of the ACM staff; Carol Kendrick and Donna Woolcott in administration: and finally, the graduate studies coordinator Andri Lima.

Thank you to my friends and classmates who have always been there, throughout my undergraduate and graduate career, to offer a helpful critique, a friendly ear or a playful laugh. In particular, special thanks to Liam Brown, Heather Brown, Shane Czypyha, Fraser Dow, & Adam Gruchala for your specific thesis contributions and insights.

I would like to thank my entire extended family, especially my parents, Mary Lou & Paul, my brother and sisters, and the Yoshys for always supporting me, encouraging me, and believing in me. And finally, I would like to thank my wife for her unconditional love, support, honesty, and understanding.

for Mariko . . . my beautiful tree

table of contents

[chapter three]

application of the PROCESS

conclusions

list of illustrations

introduction

0.01 aerial view of displaced suburban community >>>

problem

Seventy five percent of everything ever built in North America has been constructed within the last 65 years (Dunham Jones & Williamson, 2009; Kunstler, 1993). When examining the North American suburban condition, it is obviously very important to catalogue all of the shortcomings voiced by the critics (i.e. architects, planners, social and environmental activists), however, it is also important to understand the draw of suburbia and the positive perceptions shared by its supporters (i.e. developers, builders, and homeowners). The conventional appeal of suburban living has been rooted in:

- a perceived abundance of open space, cheap land, and clean air;
- a perceived placement outside of the "noisy, dirty, and dangerous" city;
- the promise of home ownership, and;
- the idealization of the "nuclear family" unit (i.e. the husband, wife, and their children).

Although these perceptions of suburbia have lead to its dominance as a development style, as shown in figures 0.02 and 0.03, they can often times differ from reality. The problem with these types of marketing images is that they are used by developers and builders to sell a house as an independent product to perspective home owners. In reality, a 'home' needs to be more than a simple product used for shelter, sleeping, eating, or entertaining. It needs to act as a component of a larger interactive community and/or facilitate a gradient of connectivity to the outside world.

The ironic thing about this type of marketing material, produced by developers and builders, is that in a roundabout way the built houses actually deliver what they are depicting. The privacy and isolation of the rural settings is realized through the over designed streets, oversized driveways, garage dominated front façades, and tall side yard and back yard fences.

> ***"If what you are selling is privacy and exclusivity, then every new house is a degradation of the amenity. However, if what you are selling is community, then every new house is an enhancement of the asset.."***
>
> ***– Vince Graham, 1997 (Duany et al., 2001: 99)***

0.02 *model home renderings used for marketing*

0.03 *corresponding model homes in suburban context*

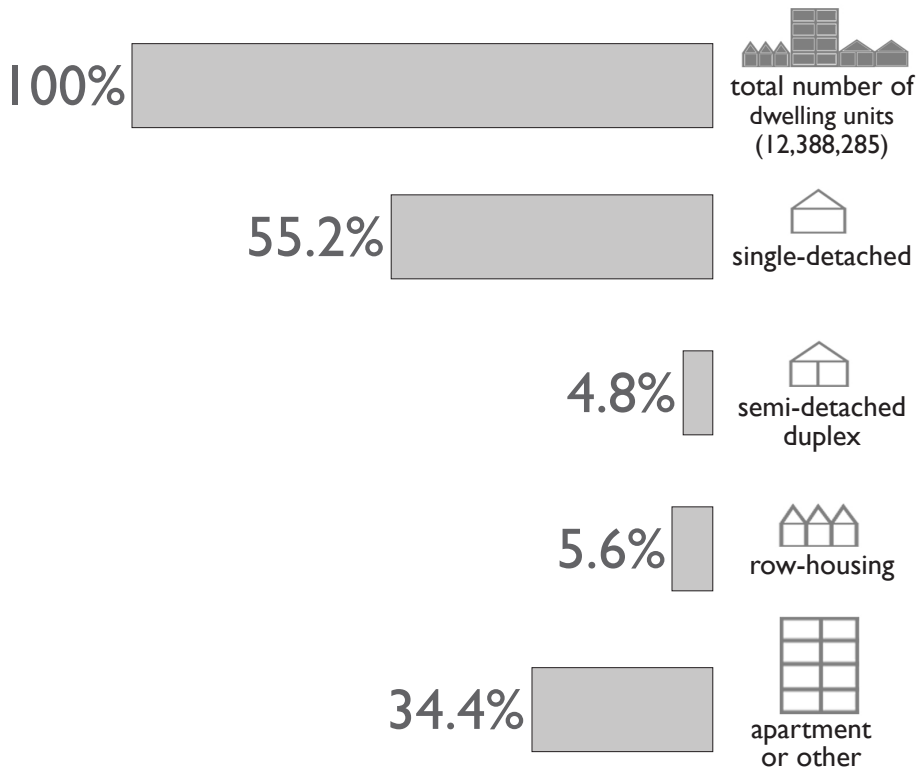
Although developers and builders of suburbs are often criticized for destroying the natural environment and only caring about the profitability of their investments, they are not solely to blame for problems found in such developments. In particular, they are influenced by market experts that mislead their clients and themselves with biased opinion polls given to people that have just moved into suburban housing - therefore cannot be expected to express a preference for something else (Duany et al. 2001). On a larger scale, suburban issues have stemmed from a lack of community collaboration between citizens, governments, designers, developers and builders.

> ***"Sprawl will not become obsolete by changing laws alone. A higher standard of development will become commonplace only if it offers greater profits to those who practice it."***
> ***(Duany et al. 2001: 113)***

In opposition to the appeals of suburbia, some common criticisms include (Dunham Jones & Williamson, 2009; Garde, 2004; Kunstler, 1993; Langdon, 1994):

- a flat, sprawling built fabric.
- a homogenous building use, typology, & resident demographic.
- a lack of public transportation.
- a lack of pedestrian friendly routes (walking & bicycle routes).
- a dominance of private vehicle travel.
- a predominance of cul-de-sacs, crescents, & collector roads.
- a lack of street life and programmed public space.
- a lack of community centres, cultural institutions, & amenities within walking distance.

It is important to note that although these issues and problems are having an increasing impact on society as a whole, they do not directly affect the large majority of suburbia's individual residents, who often own more than one private vehicle.



0.04 breakdown of Canadian dwelling typologies

A large portion of the post-war housing built in Canada and the United States can be classified as suburban. As shown in figure 0.04, over half of all Canadians are currently living in low density, single-detached houses commonly found in suburbia. Although critics cite a missing sense of place, environmental degradation, spatial and social segregation, and a declining public realm as some of the major problems associated with suburban development (Garde, 2004), most of suburbia's residents feel safe and content in their homes and neighbourhoods. Suburbia's inhabitants are, in fact, noted for reacting negatively to any type of change to their environments. This type of resident objection, often referred to as Nimbyism (Not In My Backyard), further demonstrates the great divide between suburbia's appeal to residents, versus its criticism by professionals.

Despite this perceived disconnect, some design professionals contend that it is *"a huge hangover myth that suburbia is what people want. People also no longer want just the car. They want the car and also want walking and transit…They don't want black-and-white choices" (Calthorpe et al. 2005: 58).*

Regardless of the resident versus critic perception, it has become glaringly evident that typical suburban developments are socially, environmentally, and economically unsustainable places in need of revitalization. Due to this realization, a majority of the government planning authorities in North America have recognized a need to limit sprawl. In the province of Ontario for example, the Places to Grow Act strongly advocates urban sustainability and intensification. Despite the best intentions of these types of provincial, regional or municipal growth plans, the existing suburban fabric is being ignored by the 'smart growth' movement. This is not because they are seen as successful neighbourhoods, but because there is no inclusive methodology in place to revitalize this major portion of the contemporary city's urban fabric.

approach

This thesis will first attempt to understand how our existing suburban communities came to be and then propose how an inclusive and responsive revitalization process can transform existing suburbs into more sustainable built environments.

Central to this suburban revitalization process will be the role that the architect must play. Architects for the most part, have been absent from the development of the post-war suburban fabric. A critique of suburbia published in a 1964 edition of New York Times Magazine, stated how shocking it was that more than ninety percent of suburban homes were not being designed by architects. Moreover, it discussed how this development created problems socially, culturally, psychologically, emotionally and aesthetically (Palen, 1995). This lack of architectural influence on suburban design and development has stemmed from two main factors. First of all, the developers and builders of typical suburban developments are often unwilling to invest extensively in 'soft costs' such as architectural design and consultation. Secondly, there has been a general lack of interest on the part of architects, who have viewed suburbia as an uninteresting and uninspiring urban environment. Despite the architectural professions previous neglect the suburban landscape, it is now time for architects to take on a leading role analyzing, strategizing and visualizing possible interventions to the existing suburban fabric.

> ***Suburbia has a multifaceted character and a powerful mythology. This nature make it difficult to define, explain and interpret, however, it encourages and perhaps necessitates a multi-disciplinary dialogue in a modern era of academic specialization. (Harris, 1999: 20)***

Due to the growing economic, social, and environmental degradation caused by suburbia, it has now become critical for suburbia's supporters (i.e. market analysts, developers, builders, and residents) and critics (i.e. planners, architects, designers, policy makers) to bridge the gap between their viewpoints and unite under one common vision for sustainable growth & revitalization. As is the case with any mediation process, an understanding of both sides must first be reached.

0.05 transformative map of the Mississippi River

Over the past few decades there has been numerous movements, concepts and strategies proposed for how to design new 'greenfield' suburban developments better such as transit oriented developments (TODs), traditional neighbourhood districts (TNDs), eco-villages and complete communities (Calthorpe & Fulton 2001; Duany et al. 2001; Kenworthy, 2006; Province of Ontario, 2005). The concept of existing suburban community revitalization and redevelopment, however, has not been as extensively explored.

> ***Suburbs are like noisy, exuberant, troublesome adolescents who seem to deny our values and experience, resisting our attempts to channel and restrict their behavior toward more mature and responsible forms. You find yourself at an impasse, unable to guide change, until you accept the person and situation for what they are: a young being in evolution. (Van der Ryn & Calthorpe, 1986: 34)***

Despite suburbia's many notable issues and problems, the Canadian and American suburban landscape is very young in relative terms. As shown in figure 0.05, the world around us is engaged in an ongoing process of evolution. With respect to our built environments, many of the world's oldest and greatest cities, towns, and even buildings have been designed, built, redesigned and rebuilt many times over; each time taking something from the past and building upon it (figuratively and/or literally). In his book Suburban Transformations, Lukez writes that the difference between then and now is that we are now facing a dilemma of both 'speed and scale' which adds complexity to the task of adapting our built suburban environments. He goes on to state that this current condition, although challenging, offers great opportunities for engaging the existing suburban fabric with new hybrid inventions (Lukez, 2008).

The fundamental question this thesis will look to address is how to engage and revitalize suburban environments. To begin, an awareness of suburbia's criticisms and the cause of its dominance over the built urban environment must be attained. After acquiring this knowledge, an adaptable and site responsive process for suburban community revitalization will be outlined and applied to a study area. This process will be focused within a regional context and will specifically address the importance of collaboration between local governments and property owners. Furthermore, the role that architects can play as visionaries and educators will be discussed.

thesis limitations

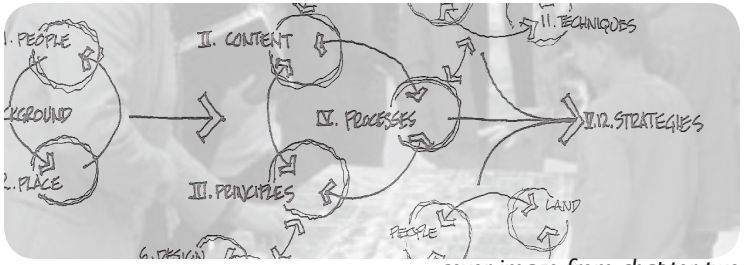
Although suburban style developments are present in all types and scales of cities, this thesis will focus on suburbia in the mid-sized city context. The type of revitalization process outlined in this thesis will be best suited to a city with enough population (over 100,000) and inherent economic resources to drive a vision. Furthermore, a perspective city with a very large population (over 500,000) will have a much more complex planning and development network, and therefore could potentially have trouble maintaining the momentum and direction required by this type of process.

Mid-sized cities are often characterized as being dominated by a low density or 'flat' urban landscape. The Regional Municipality of Waterloo's urban core consists of three such cities (Cambridge, Kitchener, and Waterloo). As one of Canada's most economically stable and fastest growing regions, it provides a rich opportunity for growth through intensification. Although the application of the process outlined in this thesis will be limited to the Region of Waterloo, this process will be designed to be transferable to other North American mid-sized cities.

Although this process is open to application on any post war suburban site, the suburban study area being used for application in this thesis has been developed within the past few decades. The site is taken from the 'Visualizing Densities Part II study produced by the Region of Waterloo. In this document, the region proposed how multiple suburban sites could be designed more sustainably with higher densities. Although the analysis of these sites was quite informative, the proposed new layouts basically ignored the existing conditions of the sites and simply proposed new greenfield developments.

Although it is crucial that the revitalization process developed in this thesis be tested thoroughly by being applied to a wide range of suburban study areas, it is even more important for the proposal to be timely and current. Therefore, the application of the suburban revitalization process will be limited to one suburban study area. This is done with an understanding that further testing, assessment, and discourse will need to be performed on a wide range of study sites in the future.

cover image from chapter one



cover image from chapter two

cover image from chapter three

chapter outline

This thesis is broken into three main chapters or sections:

The first chapter attempts to understand the existing conditions affecting suburban areas in mid-sized cities by first briefly examining their post war history to date. This section explores the smart growth movement, situate suburban communities within the mid-sized city context, express the need for suburban revitalization within mid-sized cities, and outline the possible challenges and opportunities associated with revitalization initiatives of this sort.

The second chapter focuses on the detailed design of a suburban revitalization process. It will lay out the fundamental steps required in order and detail, along with a breakdown of the three different ownership groups that must be engaged in the process. These include the private owners of publicly used land, the public owners of publicly used land and the private owners of privately used land.

The third chapter applies the developed process to a suburban study area in Waterloo, Ontario. This test site is taken from the Region of Waterloo's Visualizing Densities Part II study.

Finally, the conclusion offers a brief thesis summary; states the overall thesis limitations; discusses some future directions for application and research; and provides reflections from the authors perspective.

[chapter one]

understanding existing conditions

1.01 the development of a sprawling suburban fabric >>>

suburban development in North America

Although North America has been known for its great wealth of land, natural resources, and economic prosperity; its current wealth of energy consumption and waste, suburban sprawl, and private vehicular traffic have become a growing topic of debate and criticism.

In the United States, the proliferation of post-war suburbs can be attributed to the support of low-cost insured loans for single-family houses by the Federal Housing Administration along with generous federal pensions given to veterans (Kostof, 1995). In Canada, suburbia's post-war growth can be tied to the creation of the CMHC in 1946 (Central Mortgage and Housing Corporation later renamed to Canadian Mortgage and Housing Corporation in 1979), which sought to house returning veterans by providing discounting facilities for loan and mortgage companies.

> ***"Mass suburbia is a post-WWII occurrence… The cities' existing housing stock was unable to house the growing new families of the baby boom. The suburban single-family home became the American home and suburbia the American way of life."*** ***(Palen, 1995: 4)***

The appeal of North American suburbs has historically been rooted in their abundance of open space, cheap land, and clean air along with their typical placement outside of the perceived noisy, dirty, and dangerous city. This perception, combined with the promise of home ownership, has caused the aspiration for suburban living to become ingrained within North America society.

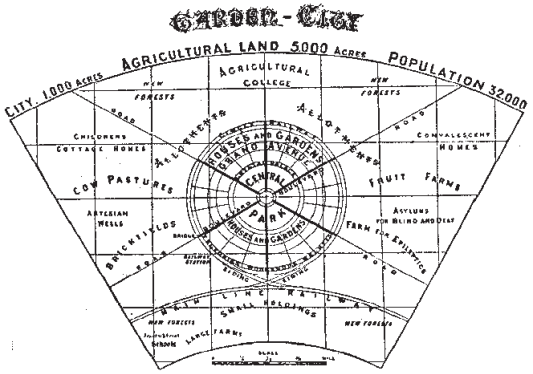
Over the past century the predominant means of transportation has shifted from horse and carriage, to horse streetcars, to cable cars, to electric streetcars, and finally to private automobiles and truck transport (Palen, 1995). The increasing speed and privatization of this transportation model has heavily influenced the sprawling, unsustainable nature of post-war suburbia. This can be seen in the suburbs of today with the scale of the car dominating the built form.

It is a common myth that suburbia's homogenous, sterile and sprawling nature is tied to a lack of planning. This can be disproved by examining the progression of suburban theory and planning in North America over the past century.

In the early 1900s, one of the first visions of suburbia was described by Ebenezer Howard in his "Garden City" proposal which consisted of a regionally connected cluster of cities that would combine the serene atmosphere of the open country with the social advantages of the city (Parsons & Schuyler, 2002).

1900s (pre-war)

[1]



[2]

1.02 timeline of suburban development in North America

Later in the 1920's, the Regional Planning Association of America (RPAA), otherwise known as the "Regionalism" movement of Patrick Geddes, Lewis Mumford, Clarence Stein, and Benton MacKaye, evolved Howard's idea by emphasizing the role of communities as the building blocks of a region. Despite their perceived merits, both of these development strategies have had trouble translating into built form because their ambitious nature required substantial public investment or at least, collective energy on a mass scale. This ambition was rooted in an assumption that their developments would be applied to a 'clean slate', making them much less conceptually constrained (Talen, 2008).

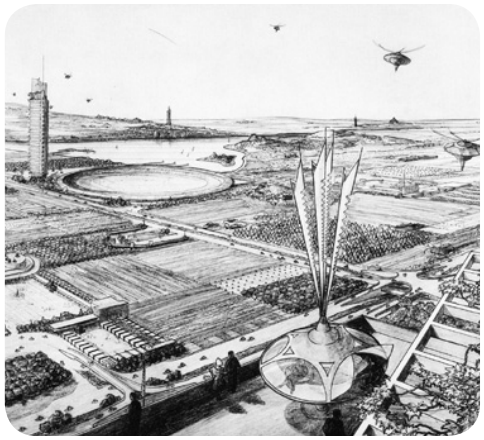
Subsequent visions for suburban developments were offered by architects like Frank Lloyd Wright with his decentrist "Broadacres" vision in 1932. In this proposal, Wright promoted the idea of a nation of individuals (Jenks et al. 1998). In opposition to this, LeCorbusier's "Radiant City (La Ville Radieuse)" was a centrist concept that sought to decongest city centres by increasing their density. This was to be done by using tower blocks to increase open space and improve circulation. Although this "Radiant City" vision was primarily intended for urban application, LeCorbusier was also interested in new high-rise cities in the open countryside (Jenks et al. 1998).

1920s

1930s

[3]

[4]



[5]

[6]

These proposals were met by the criticism of urban planners and activist like Jane Jacobs who argued that density creates diversity which creates a richness of urban life (Jacobs, 1961). She also criticized the centrist visions of LeCorbusier as being crude solutions conceived through 'egotistical authoritarianism' (Jenks et al. 1998). Even after considering these criticisms, however, no one could have ever predicted how dramatically the personal automobile would have distorted the initial utopian visions of suburbia.

1950s & 1960s (post war)

The North American suburb's fixation with the automobile can be clearly seen in some of its earliest and most notable post-war suburban developments, such as Levittown, outside of New York City and Don Mills outside of Toronto. These planned communities consisted primarily of small, single-detached houses set along curving streets, arranged around schools, playgrounds, and parks. Although at first, these communities seemed to offer a wonderful living environment, the vehicle oriented strip plazas and shopping centres that served these developments caused them to sprawl endlessly and display typical symptoms of individual isolation and social segregation (Dunham-Jones & Williamson, 2009).

> ***"Surplus wealth enables people to persist in building wasteful, inadequate communities and then compensate for the communities failings by buying private vehicles and driving all over the metropolitan area in search of what ought to be available close to home."***
>
> ***(Langdon, 1994: ii)***

[7]

[8]

[9]

[10]

Due to misguided market analysis and a general economic shortsightedness, suburban communities have continued to be developed around the needs of the private automobile. Homes are designed with garages as the primary street façade; streets are over designed for the required parking and circulation and thus create pedestrian restrictive environments; and retail and office uses are dispersed along busy collector roads, set behind service stations and seas of parking. Today, suburbia's residents travel in cars from their garages to work, school, play or a drive through window and then back to the comfort and safety of their fenced in backyard or multimedia room. These types of internalized suburban rooms have become substitutes for public parks, community centres and cultural institutions. In effect, the private automobile's dominance over suburbia has led to the creation of "soulless subdivisions" with buildings and residents that insulate themselves from communal life (Duany et al. 2001).

As we now can begin to see, it has not been an absence of planning that has lead to the perils of contemporary suburbia. Instead, many critics have agreed that the perspective of only one particular discipline has too often been used when attempting to solve holistic suburban design issues. As Dobbin states, *"what the civil engineer knows and does in putting together the subdivision plat is essential, but it's way short of everything that should be considered" (Dobbins, 2009: 252).*

Over the past few decades there has been a growing number of forward thinking, smart growth movements, strategies and precedents (i.e. transit oriented development (TOD), traditional neighbourhood development (TND), eco-villages, etc.). Generally speaking, these initiatives have had a positive impact on downtown revitalization and new greenfield development, however, the revitalization of existing suburban areas has not been extensively engaged.

present

[11]

[12]

[13]

[14]

smart growth

Smart growth can be defined as a broad set of policies and goals aimed towards neutralizing sprawl (Downs,2004). Specific smart growth principles can include: directing development toward existing communities; developing compact communities; preserving open space, arable land and sensitive environmental areas; creating walkable neighbourhoods; providing various transportation choices; mixing land uses and demographic groups; promoting attractive, unique communities with a strong sense of place; encouraging stakeholder and citizen participation, and making development decisions fair and cost-effective (Garde, 2004).

Today, many of North America's suburban residents are very comfortable in their car dependant, dispersed built environments. Having said this, society as a whole is beginning to realize that it can no longer afford to support this wasteful development style which is becoming more and more expensive to service and maintain. This recognition has brought about various movements, concepts, and strategies for developing more vibrant, compact and mixed use communities.

new urbanism

The New Urbanism movement, for instance, has produced two main strategies for developing sustainable communities characterized under smart growth principles. The first is traditional neighbourhood development (TND) which consists of designing walkable neighbourhoods that bring back traditional turn of the century architectural and planning elements such as central gathering areas, versatile and pedestrian friendly streets, mixed uses, and front porches (Duany et al. 2001). Perhaps one of the most notable examples of this development approach is Seaside in Florida (figure 1.03). Although this development style has become quite popular, many of its most important concepts have been abandoned in favour of its more superficial and nostalgic ideals (Saab, 2007). For example, developments such as Seaside were built on greenfield sites far removed from existing urban areas and thus essentially become displaced 'bedroom' or 'commuter' communities.

The other development strategy produced by New Urbanism is the transit oriented developments (TOD) which consist of creating compact, mixed use communities within a 5-10 minute walk from a transit station. This type of development style has become a fundamental building block in many growth plans throughout North America and the world (as shown in figure 1.04).

eco-villages

The concept of eco-villages has also come to support smart growth by utilizing environmental technologies and passive design to decrease the impact of urban from on the natural landscape (Kenworthy, 2006). An example of this is the Drake Landing Solar Community in Okotoks, Alberta. This communities building are heated by a district system that stores abundant solar energy underground during the summer and distributes the energy for space heating needs during winter (see figure 1.05).

Being a primarily residential development, disconnected from any urban network, this suburban community shares in some of the same concerns as Traditional Neighbourhood Developments. Having said this, however, all of these developments still offer valuable concepts, strategies, and precedents that can be used in future, more holistic, smart growth initiatives.

everyday urbanism

As opposed to the heavily designed and master planned New Urbanist or Eco-village developments, this movement involves utilizing more grass roots, informal initiatives. Urban spaces and places are developed by default rather than design (Haas, 2008). This, for example, could include informal retail uses spilling out into vacant parking lots, driveways, front yards and residential streets (as shown in figure 1.06). Although this movement may not seem as impactful as more planned developments, in reality it can dramatically strengthen a sense of community and promote the resourceful and flexible use of under used spaces throughout a given neighbourhood.

1.03 traditional neighbourhood development - Seaside, Fl

1.05 drake landing solar community - Okotoks, Alberta

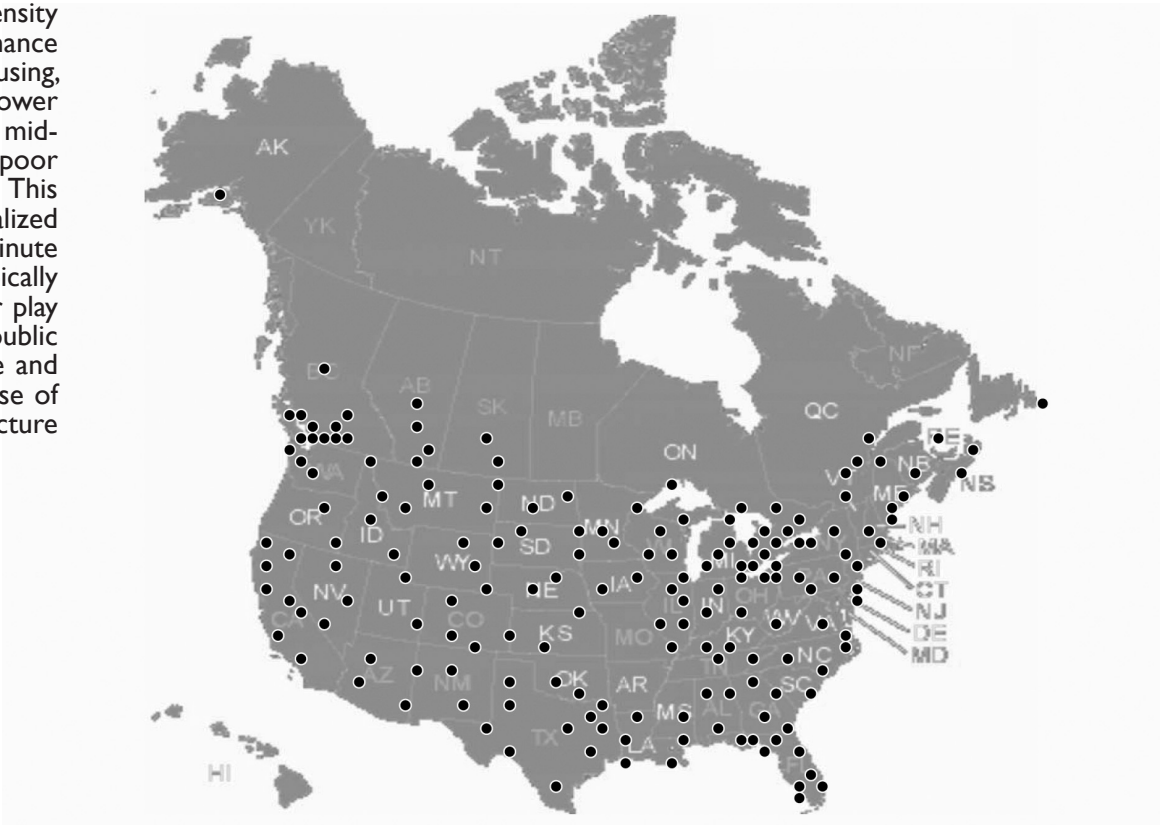
1.04 transit oriented development - Perth, Australia

1.06 everyday urbanism - Washington, DC

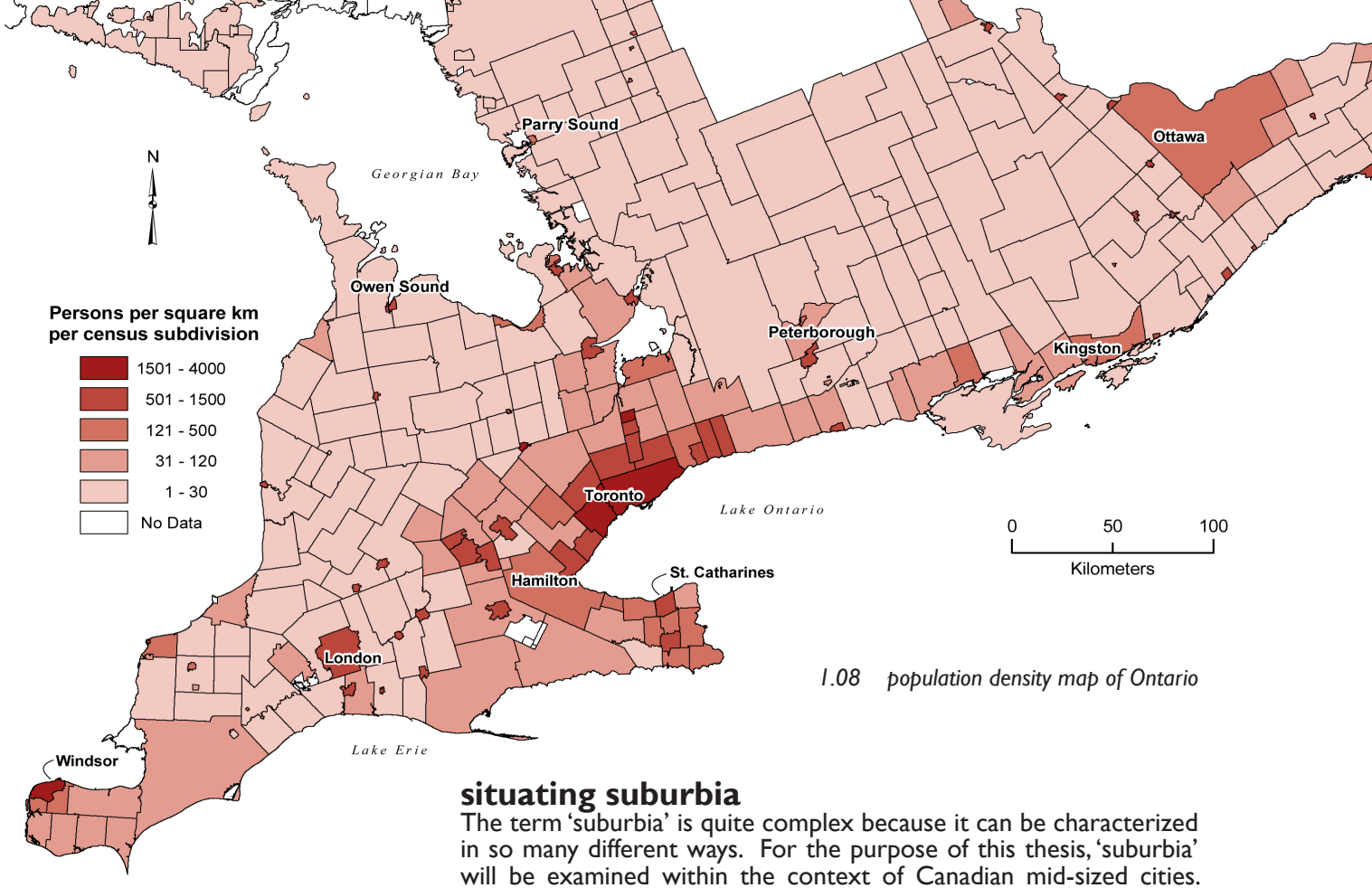
suburbia in the context of mid- sized cities

mid-sized cities

Canadian and American mid-sized cities can range in population from 25,000 to 500,000 (Bunting et al. 2007). As show in figure 1.07, mid-sized cities make up significant portion of the North America built fabric. Aside from population, there are various characteristics that define mid-sized cities. Perhaps the most prominent is the flat, low density nature of their built landscape. This stems from both the dominance of a dispersed and sprawling suburban land use pattern (tract housing, office parks, big box stores, etc) and the lack of a centralized power base (downtown core). Another common characteristic of mid-sized cities is the dominance of the private automobile and the poor network public transit and pedestrian friendly environments. This characteristic both enhances and is enhanced by the flat, decentralized nature of the mid-sized city fabric. The concept of the "ten minute city" further emphasizes this characteristic by stating that it typically takes individuals ten minutes to travel between home, work, or play when using private automobiles and much longer when using public transit (Bunting et al. 2007). This thesis will look to strategize and envision how pedestrian travel times can begin to rival this ease of vehicular mobility by shifting the focus of building and infrastructure development.



1.07 location of mid-sized cities in Canada and the USA



1.08 population density map of Ontario

situating suburbia

The term 'suburbia' is quite complex because it can be characterized in so many different ways. For the purpose of this thesis, 'suburbia' will be examined within the context of Canadian mid-sized cities. Over one third of Canada's population resides in the sprawling and "flat" urban landscape of mid-sized cities (Statistics Canada, 2006). As shown above in figure 1.08, this type of built fabric is characterized for it low population density.

Before we can propose a process for revitalizing our existing suburban landscape, we must first outline the current process for green field suburban development. The Region of Waterloo's urban core consists of three mid-sized cities (Cambridge, Kitchener, & Waterloo). Based on consultations with planning officials at these three municipalities, an understanding of the current process for greenfield development was attained including the role definition of the parties involved and the sequential order of process steps.

greenfield suburban development in mid sized cities

role *

province → Provide generic growth plan for regions and municipalities to follow (i.e. Places to grow).

region → Complete a master policy plan that defines the urban boundaries and provide subdivision plan feedback (and in some cases approval) to municipalities.

municipality → Complete a master policy plan (and possibly secondary and specific community plans) that define zoning requirements, perform environmental assessments, and provide subdivision plan feedback & approval to developers.

developer → Provide subdivision proposal, arrange project financing for infrastructural costs and execute construction.

community members → Individuals, neighbourhood associations, or activist groups can give feedback at public meetings and/or directly to city officials.

steps involved *

i. Province lays out general growth principles to be followed by regions and municipalities
ii. Region defines its urban boundaries and growth strategies in a master policy plan
iii. Municipality defines specific zoning regulations (i.e. residential, commercial, industrial lands, etc.)
iv. Municipality conducts an environmental assessment (i.e. watershed, servicing feasibility plan, etc.)
v. Municipality completes any necessary secondary or community plans to offer more specific regulations for a particular piece of land.
vi. Developer/ land owner submits an initial subdivision plan to a pre-consultation committee made up of the city planners, traffic and utility engineers, school boards, utility providers (i.e. hydro), parks and recreation departments, environmental conservation authorities, etc.
vii. Using the comments and suggestions made during the pre-consultation process, the developer has a contracted or in house designer (planner, architect, or draftsperson) lay out the subdivision in more detail. This detailed plan receives more feedback from the consultation committee before it receives the final approval of the city and in some cases the region.
viii. The developer & builder (may be the same entity) work with the regional and municipal governments (depending on the site) to construct the infrastructural elements of the site (i.e. roads, drainage, sewers, water pipes, hydro lines, gas lines, etc.)
ix. Upon completion, the long term servicing and maintenance of the development becomes the responsibility of the municipality.

* *source: based on consultations with planning officials at the cities of Waterloo, Kitchener & Cambridge*

1.09 greenfield suburban site located in Kitchener, Ontario

the need for suburban revitalization in mid-sized cities

> ***"The systematic development of suburban sprawl was the big architectural project for the last fifty years; we believe that the redevelopment of sprawl into more urban, more connected, more sustainable places is the big project for this century."*** ***(Dunham-Jones &Williamson, 2009: vi)***

Currently many cities throughout the province are attempting to follow Ontario's Places to Grow Plan by intensifying their urban cores and increasing the density of their new green field suburban sites. Having said this, they are ignoring their existing or 'established' suburban neighbourhoods. This poses a problem for mid-sized cities since such a large portion of their built fabric is dominated by suburban style developments and an infrastructure which supports them. To ignore such a major part of the mid-sized cities composition and framework will only lead to a further disconnect between a given cities's downtown, inner city, suburban, and rural areas.

Furthermore, the typical North American suburb has been designed and developed over the years with a cheap and plentiful oil supply in mind. Due to growing fears of 'Peak Oil' and the reactionary rising fuel prices, the costs associated with servicing suburban style developments (i.e. road maintenance, snow removal, water and hydro supply, sewage and waste management, etc.) is becoming a growing concern for municipal governments (see figures 1.10-1.13). Therefore, we must now be proactive, not only with green field suburban planning and building, but also in the revitalization of the existing suburban fabric (Kunstler, 2006).

1.10 water treatment facility

1.11 snow plows clearing the road

1.12 road construction

1.13 traffic congestion

the challenges

Before moving forward with the design of a suburban revitalization process for mid-sized cities, this thesis must first articulate all of the potential challenges that will need to be overcome by this type of process. It important not only to list these issues, but also to consider how they can be overcome. In some cases, the intervention of municipal governments may be required. Others may require the visualizations of architects and urban design professionals. While some challenges may require external pressures (i.e. economic, social, or environmental) to override their significance. Although each one of these challenges will need to be addressed, the primary obstacle that must be dealt with before any other, is the solicitation of support, investment, and collaboration from suburban property owners.

1.14 commercial plaza in Waterloo, Ontario

1.15 public park and elementary school in Waterloo, Ontario

1.16 low density residential housing in Waterloo, Ontario

[primary challenge]

ownership

Without question, the most significant challenge facing existing suburban community redevelopment is ownership. This is because without the support and investment of property owners, any given strategy or vision cannot be realized. In order to address this challenge in the most effective way, it is important to categorize the ownership of suburban property into three distinct groups.

The private sector owners of larger scale, publicly used properties, typically found along suburbia's arterial or collector roads. They could include commercial strips and malls, or industrial properties (in-use and abandoned). These owners have a vested interest in the overall vibrancy, intensity and increased use of their properties by the public. This allows them to see the inherent payback and marketability of revitalization investments.

The public ownership of publicly used properties such as schools, parks, libraries, community centres, streets, alleys, and pathways. This ownership group can include all levels of government, school boards, or neighbourhood associations. These owners have a vested interest in the increased use and social vibrancy of their properties. They also have access to a renewable tax base that can used for investment in revitalization.

The private ownership and use of smaller scale, residential homes typically found within the central core areas of suburban developments, bordered by arterial and collector roads. More specifically this type of property could include single detached homes, semi-attached homes, townhouses and in some cases condominiums. This ownership group is primarily concerned with their own exclusive use of their own property. This perspective obviously makes it much more difficult to entice support and investment for revitalization attempts and often causes NIMBY (Not In My BackYard) opposition to any initiative that threatens to effect them. An important step in dealing with this type of resistance is to ensure there is a clear and legible strategy in place with accompanying visualizations. Some other factors that can overcome this type of opposition include: growing fears of traffic congestion, poor air and water quality; the arrival of a regional transit system; or in older, run-down communities the fear of blight (Dunham-Jones & Williamson, 2009).

[secondary challenges]

redefining roles

The typical role breakdown for greenfield suburban development is relatively straight forward. This is, however, not the case when it comes to the redevelopment of existing suburban communities. Unlike greenfield developments, existing sites bring with them existing residents, businesses, and special interest groups that all have their own established paradigms of what is acceptable. Therefore, any revitalization strategy for existing suburban communities must re-organize the role breakdown for greenfield development to allow for a strong collaboration between all those concerned with the past, present and future aims of their communities development.

diversifying homogenous building type & use

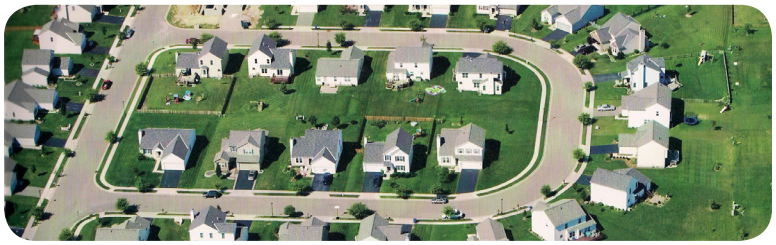
Incorporating smaller local retail properties into the existing residential fabric of subdivisions can be very difficult for various reasons. First of all, resident opposition denies them the opportunity to exist. Secondly, if they do manage to open, they often struggle to compete against large scale 'big box' stores set along arterial and collector roads. Instead of trying to go against the grain of market demands by infusing commercial into the residential fabric, perhaps a more reasonable solution could be to infuse residential into the commercial. By establishing potential mixed use development nodes or corridors along arterial routes that surround the homogenous residential fabric of suburbs, the disconnect between uses can begin to be mediated (Dunham-Jones & Williamson, 2009; Calthorpe & Fulton, 2001; Talen, 2008).

manipulating inflexible street layout patterns

Cul-de-sacs and crescents have become common place in suburbia due to the misconception that these street layout patterns are calmer, quieter, and safer than traditional grid layouts that can, in reality, offer greater flexibility and permeability. It is important to educate suburban residents that cul-de-sacs and crescents are disorienting, inefficient, inflexible and often provide more blinds spots for vehicles and inherent dangers for pedestrians (Duany et al. 2001; Dunham-Jones & Williamson, 2009).

1.17 community stakeholder workshop

1.18 homogenous residential street in Markham, On



1.19 single use residential crescent

1.20 suburban street layout

1.21 traffic congestion

1.22 sustainable buildings with photovoltaic roof system

1.23 homeless person sitting on the street

1.24 close up view of a watch

[secondary challenges]

overcoming vehicle dominance

A big concern of those opposed to densification of built up areas is what will be done with all of the cars once the surface parking lots are used up for infill development. First of all, there are many different typologies capable of accommodating parking including: central lot, perimeter lot, tuck under, internal structure, and underground (Campoli & MacLean, 2007). Furthermore, by encouraging and facilitating more public transit oriented, walkable environments, the dependence on private vehicles can be decreased.

improving building performance

Although suburban homes and buildings built over the past few decades are far superior to those constructed in the early post-war era, there is still room for a great deal of improvement with regards to energy and water efficiency. Retrofitting the existing suburban built fabric can seem like a daunting task since it involves the initiative and investment of individual home owners. However, the commitment of all levels of government can create a wealth of retrofit incentives for home and building owners. For example, Natural Resources of Canada's "EcoEnergy Retrofit" program provides financial support to homeowners, small and medium-sized businesses, public institutions and industrial facilities to help them complete energy saving projects.

managing gentrification

Often times community revitalization initiatives end up attracting an influx of middle-class or affluent residents and displacing the existing lower-class or poor residents. Incorporating diversity and low income housing should be an imperative of any revitalization attempt. (Betancur, 2002; Fulton, 1996; Lee et al. 1986; Talen, 2008)

time & money restrictions

Since redevelopment and infill projects often involve dealing with many known and unknown studies, assessments and approvals, developers are often reluctant to choose an existing developed site over a greenfield site. The primary reason for this is the unknown variables of time and money that cannot be factored into their feasibility studies. This is again where all levels of government can provide legislative incentives for the redevelopment of existing sites.

the opportunities

In any redevelopment project, it is important to direct focus away from the challenges and towards the opportunities. By doing this, these opportunities will begin to outline a clear vision of what is possible. As previously discussed, suburban redevelopment and intensification faces many challenges, however, it also offers a wealth of opportunities for sustainable revitalization and growth. Since sustainability can be generally defined as being made up of environmental, economic and social factors, we can categorize these opportunities under these headings (Sheltair Group Inc, 1998).

> ***"A sustainable community exacts less of its inhabitants in time, wealth and maintenance, and demands less of the environment in land, water, soil, and fuel."***
>
> ***(Van Der Ryn & Calthorpe, 1986: ix)***

1.25 photovoltaics supplying renewable energy

1.26 live work development in Port Credit, Mississauga, ON

1.27 social interaction along multi-use pedestrian street

environmental

Today, there is growing recognition of the negative effects our built suburban environments are having on the natural world. This awareness provides an excellent opportunity to entice support and investment for various land preservation, resource conservation, and renewable energy initiatives. Such initiatives can include redeveloping or infilling previously developed property, thus preserving valuable natural greenfield sites (i.e. farmlands and moraines). Also, by increasing the amount of live-work units and mixed use buildings, within the typically homogenous suburban fabric, the reliance on the private automobile will decrease along with costly fossil fuel use and emissions. On a smaller scale, programs which promote home retrofitting with increased insulation, air tightness, renewable energy production (solar, wind, geothermal, etc.) and water conservation (rain-water collection systems) will decrease the demand on resource supply and water treatment (Dunham-Jones & Williamson. 2009; Garde, 2004; Kenworthy, 2006; Kunstler, 1993).

economic

With the growing fears of "peak oil" and the inherent rise in fuel prices, existing suburban developments have an opportunity to become more economically diverse and self-sustainable by promoting intensified mixed-use and live-work redevelopments, increased building efficiency, improved public transit access, and safer, more convenient cycling and walking options. (Duany et al. 2001; Dunham-Jones & Williamson. 2009; Garde, 2004; Kenworthy, 2006)

social

Typical suburban developments are characterized as consisting of a homogenous building, use, and resident make-up. The revitalization of existing suburban communities will provide an opportunity to diversify the use and social makeup of a given neighbourhood. One way of accomplishing this by infusing affordable housing into commercial areas so that low wage workers could travel less to reach their jobs. This strategy would also simultaneously promote mixed use development and pedestrian movement (Downs, 2004). Another method for achieving diversity is to reduce the amount of vehicle miles traveled and improve public health by creating a transit served mix of uses along a walkable street pattern connected to adjacent uses (Dunham-Jones & Williamson, 2009).

[chapter two]

designing a suburban revitalization PROCESS

2.01 urban design theory and practice >>>


4. HUMAN ACTIVITY
5. CONNECTIONS
3. PHYSICAL ENVIRONMENT
10. TOOLS
9. RULES
11. TECHNIQUES
1. PEOPLE
II. CONTENT
I. BACKGROUND
IV. PROCESSES
V.12. STRATEGIES
2. PLACE
III. PRINCIPLES
LAND
PEOPLE
6. DESIGN
8. ORGANIZATION
MONEY
7. CHANGE

the PROCESS

> ***"In some areas the built environment may require preservation and enhancement, in others open space may need special protection, elsewhere open land may be seen as having a downgrading effect, and thus be ripe for intensification. Understanding differences and responding to them is a key to providing solutions that have the potential for success."*** ***(Jenks et al. 1996: 344)***

Before we can develop a revitalization process for existing suburban areas set within a mid-sized city fabric, we must first provide a listing and role breakdown of the parties that will need to be involved (see figure 2.02). Although all levels of government will be required to participate in this process, municipal governments arguably have the most direct and comprehensive control of how their urban fabric is developed and therefore should administer this process. This will involve soliciting the insights and concerns of community stakeholders (i.e. property owners, developers, builders, neighbourhood associations, etc.) as well as commissioning architects and other urban design professionals (i.e. planners, engineers, etc.) to analyze a given site and prepare site responsive revitalization strategies and visualizations. These strategies and visions will be presented to the community stakeholders by the architects and must focus on educating each group about the specific ecological, economic and social improvements that a given initiative can provide them directly.

Just as the green field suburban development process is responsive to the demands of current markets and economies, so to must this revitalization process. Similar to the methodology laid out by Lukez in his book "Suburban Transformations", this process will act as an operating system that promotes the development and design of the suburban context through an iterative process of "erasure and writing" (Lukez, 2008: 49). In the short term, this process will look to provide a framework for creating more efficient, diverse and vibrant suburban communities within the built fabric of Canadian and American mid-sized cities. A long term ambition of the process will be to create a new paradigm for suburbia. One that can be clearly understood, nurtured and invested in by designers, developers, municipal governments and community stakeholders. The process will be made up of five essential steps which are shown in relation to one another in figure 2.03.

role breakdown

province → Provide incentives to regions, cities & land owners for public transit growth, hybrid parking, property infill, intensification, adaptive re-use, & efficiency upgrading.

region → Complete public transit and transit oriented development (TOD) master plans. Provide incentives to cities & land owners for public transit growth, hybrid parking, property infill, intensification, adaptive re-use, & efficiency upgrading.

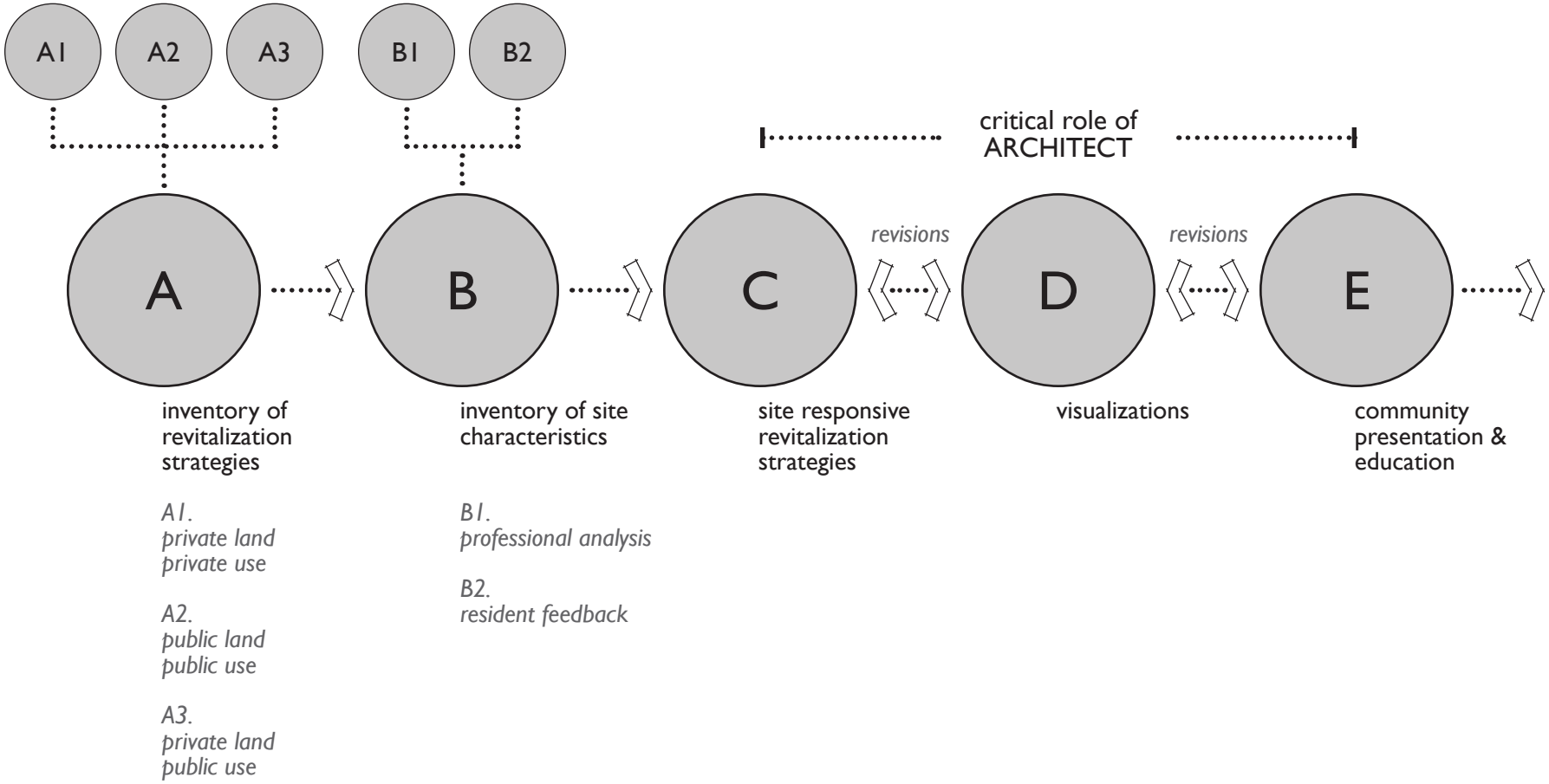
municipality → Complete TOD plans & specific suburban community revitalization plans. Provide incentives to land owners for hybrid parking, property infill, intensification, adaptive re-use, & efficiency upgrading.

land owner → Utilizing incentives from all levels of government, invest in hybrid parking, intensification, adaptive re-use, & efficiency upgrading.

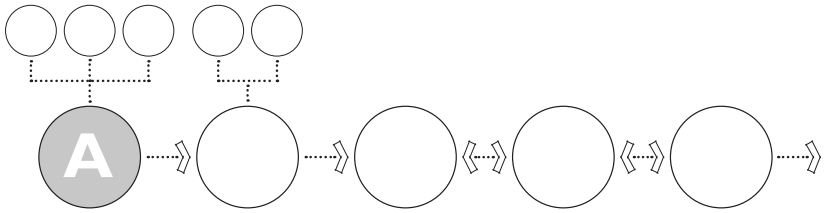
ARCHITECT → Provide existing suburban site analysis and responsive revitalization plans and corresponding visualizations. Also, present these strategies and visualizations to the land owners and community stakeholders.

developer/ builder → Utilizing incentives from all levels of government, invest in the infill style development of under-used suburban lands.

neighbourhood association → Work with municipal government to facilitate better social connectivity and an increased pedestrian presence in suburban communities.



2.02 diagram showing the complete suburban revitalization revitalization process

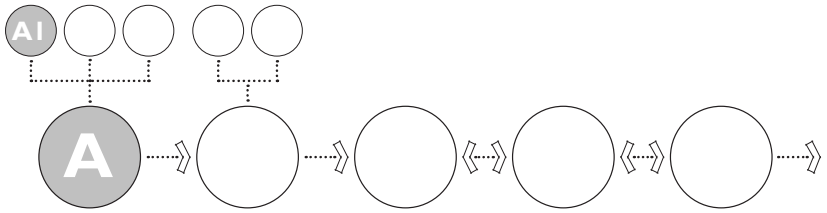


STEP A inventory of revitalization strategies

This step will consist of assembling potential revitalization strategies into three groupings based on the ownership and use of the property needed for application of a given tactic. The first grouping of strategies will be for properties that are privately owned and publicly used, typically found along suburbia's arterial or collector roads. These could include commercial strips and malls, or industrial properties (in-use and abandoned). The second set of strategies will be for publicly owned, publicly used properties such as schools, parks, libraries, community centres, streets, alleys, and pathways. The third type of strategy grouping will be for smaller scale residential homes typically found within the central core areas of suburban developments which are outlined by the arterial and collector roads. More specifically this type of property could include single detached homes, semi-attached homes, townhouses and in some cases condominiums.

These strategies will need to be executed by the owners of these properties in collaboration with the rest of the suburban communities stakeholders, and with the legislative support of all levels of government. The organizations of these strategies into use and ownership groups will enhance the flexibility and adaptability of the entire process by enabling any of these parties to execute a strategy individually or in collaboration along variable time lines and scales. This first step of the revitalization process will act as somewhat of a constant that can be applied to any suburban study area. Having said this, the strategies outlined will need to be continually reviewed, revised, and edited in order to keep up with new and/or more proven strategies as well as address unforeseen site specific characteristics.

2.03 diagram showing the three different groupings of revitalization strategies



A1. private land - private use

i. increase the density of the suburban residential fabric by permitting and promoting owners to add granny flats or accessory apartments with as of right duplexing and lodging certifications (Campoli & MacLean, 2007; Dunham-Jones & Williamson, 2009; Talen, 2008; Van Der Ryn & Calthorpe, 1986). (see figure 2.04)

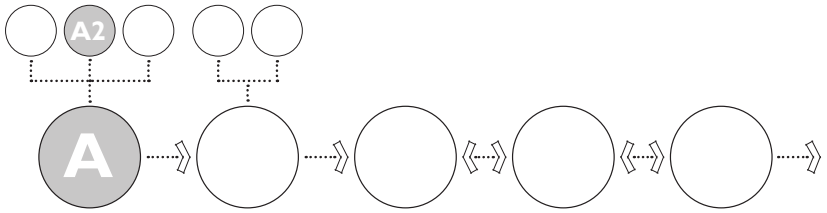
ii. provide incentives for energy upgrades, retrofits, and renewable energy production and consumption (Bullfrog Renewable Energy Production; Natural Resource Canada's EcoEnergy Retrofit Program; Newman & Jennings, 2008; Van Der Ryn & Calthorpe, 1986). (see figures 2.05)

iii. homeowners to install and use grey water re-use and rainwater collection and storage systems in order to decrease the demand on municipal water supply and treatment (Kenworthy, 2006; Van Der Ryn & Calthorpe, 1986). (see figure 2.06)

2.04 accessory units over residential garages in Longmont, Colorado

2.05 photovoltaic roof system

2.06 rainwater collection and re-use



A2. public land - public use

i. local government to provide zoning and code variances and incentives to property owners looking to redevelop, retrofit, or intensify (Dunham-Jones & Williamson, 2009; Dobbins, 2009; Garde, 2004; Talen, 2008).

ii. regional and municipal governments and/ or private service providers to reorganize public transit with minor street lines, major street lines, regional bus lines with designated lanes and/ or light rail transit that could enhance user efficiency, public perception, and ridership (Garde, 2004; Newman & Jennings, 2008; Van Der Ryn & Calthorpe, 1986). (see figure 2.07)

iii. local governments and neighbourhood planning associations to define and promote the creation of programmed public space such as permanent and temporal street/ parking lot markets, community gardens, and programmed multi-use pathways, alleys, bridges and lanes. (Duany et al. 2001; Fulton, 1996; Garde, 2004; Newman & Jennings, 2008; Talen, 2008; Van Der Ryn & Calthorpe, 1986). (see figures 2.08 & 2.09)

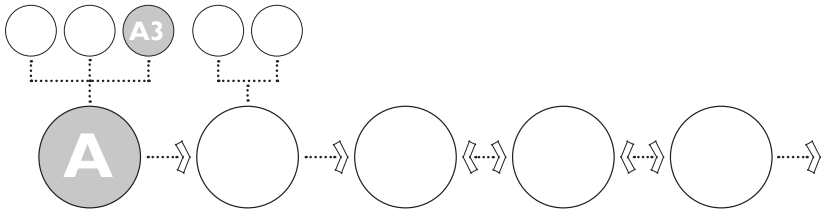
iv. local governments to appropriate privately used residential lands at potential connection points between cul-de-sacs and crescents in order to increase access and promote social vibrancy between streets (Duany et al. 2001; Dunham Jones & Williamson, 2008; Kenworthy, 2006; Talen, 2008). (see figure 2.10)

2.07 regional bus system stop in region of waterloo

2.09 shared community garden

2.08 bicycle and pedestrian bridge connecting multi-use path

2.10 connective route between suburban residential streets



A3. private land - public use

i. promote the public transit oriented development of nodes and corridors along arterial and collector roads (Calthorpe et al. 2005; Dunham-Jones & Williamson, 2009; Fulton, 1996; Garde, 2004; Jenks et al. 1996). (see figure 2.11)

ii. mixed use intensification of existing single use properties (Calthorpe et al. 2005; Duany et al. 2001; Fulton, 1996; Talen, 2008). (see figure 2.12)

iii. infill development of under used properties and surface parking lots (Calthorpe et al. 2005; Garde, 2004; Talen, 2008). (see figure 2.13)

iv. grayfield development of unused existing buildings such as strip malls, big boxes, or office buildings (Dunham-Jones & Williamson, 2009; Garde, 2004; Places to Grow, 2005; Talen, 2008). (see figure 2.14)

v. brownfield development of unused, contaminated sites such as factories, mills and other industrial buildings (Calthorpe et al. 2005; Garde, 2004; Places to Grow, 2005). (see figure 2.15)

vi. development of central lot, perimeter lot, tuck under, internal structure and underground parking solutions to decrease the need for surface lots and open up valuable land for infill buildings and public space (Campoli & MacLean, 2007). (see figure 2.16)

2.11 public transit oriented node

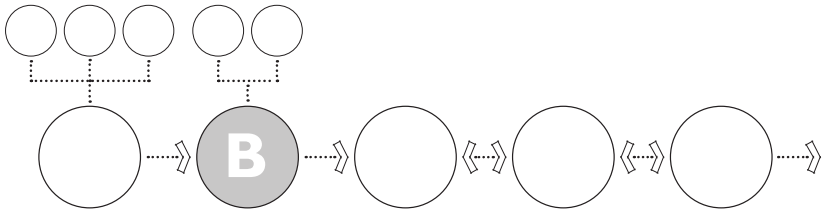
2.12 mix-use development integrated around big box building

2.13 infill development: eyelid house

2.15 brownfield redevelopment in Waterloo, Ontario

2.14 grayfield redevelopment of retail store into a public library

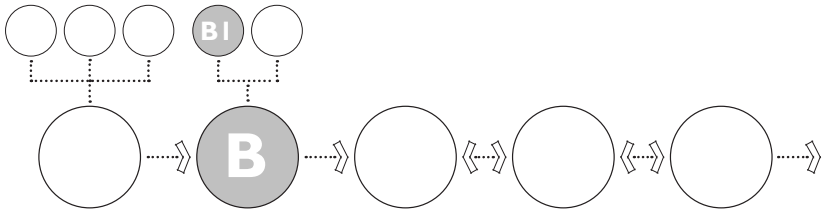
2.16 internal parking structure in Tampa, Florida



STEP B inventory of site characteristics

This step will involve using quantitative and qualitative methods to attain an in-depth understanding of a suburban areas traits at a range of scales (XL, L, M, S). The quantitative analysis will be done by urban designer professional and involve researching, diagraming, mapping and cross mapping a chosen suburban study site (see figure 2.18). Although these professionals are able to hypothesize on the more qualitative aspects of a given site, the residents who inhabit these areas are in fact much more qualified to produce this type of data (see figure 2.19).

2.17 diagram showing two types of input required by the STEP B



B1. professional analysis

In order to provide a tool kit of sorts for the professional analysis of a given suburban site, we must list all of the mappable attributes that have effected a community to present and what will effect it in the future (see figure 2.20). These attributes can then be cross mapped in order to give insight into their collective interdependence.

> ***"Cross mapping two or more systems, sets of attributes, or phenomena at a time can help identify problems, opportunities and challenges facing a particular community. It can also inform of a site's underlying order (i.e. the hierarchy of terrain, roadways, and buildings in a city's layout)." (Lukez, 2008: 75)***

ownership & access

historical growth

buildings

zoning

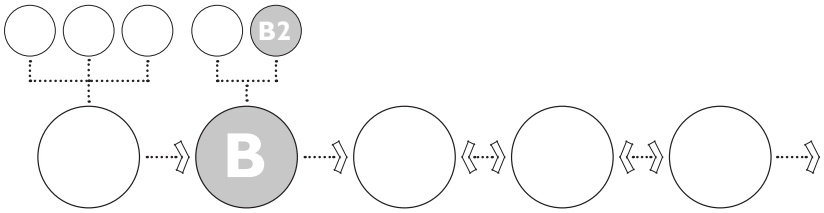
infrastructure- private vehicle

infrastructure - parking

public transit, bicycle, pedestrian

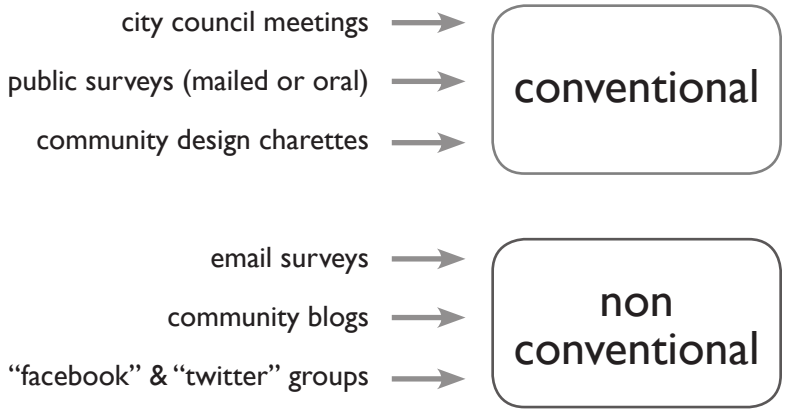
natural areas & parklands

2.18 existing suburban community mappable attributes

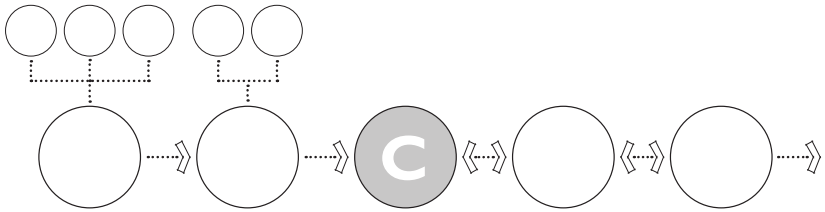


B2. resident feedback

Although there is no one better equipped to catalogue the qualitative characteristics and needs of a community then those who live within it; due to the insular, anti-social nature of suburban developments, it is extremely challenging trying to solicit residents viewpoints. Some conventional means of attaining this type community member feedback has been with mailed or orally conducted surveys, public town hall meetings, and more recently community design charettes. In this contemporary age of online innovation, however, perhaps it is time we began to engage the extremely valuable insights of suburbia's residents in a more non-conventional way with online email surveys, community blogs, or even "facebook" & "twitter" based scavenger hunts! Regardless, of how it is done, the input of community residents in this step of the process is crucial (see figure 2.21).



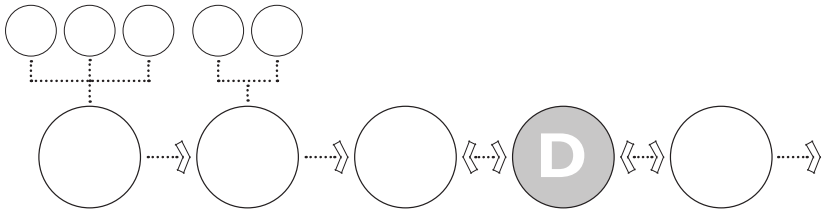
2.19 different ways to attain community feedback



STEP C site responsive strategies

This step will require the architect to make connections between the inventory of site characteristics and the revitalization strategy classification in order to develop specific and detailed site responsive application strategies.

> ***"This is where a vision for the transformation begins, by deciding what information to use, and what sets of values and processes filter this information for future design purposes."*** ***(Lukez, 2008: 89)***



STEP D visualizations

Using these site responsive application strategies, the architect can then create corresponding visualizations that will allow the community stake holders to see what a specific revitalization strategy could look like. These visualizations can be done with various types of media including physical or computer modeling, computer aided rendering or hand sketching and rendering.

> ***A long-term vision is the starting point for catalyzing positive change, leading to sustainability. The vision needs to reflect the distinctive nature and characteristics of each city."*** ***(Newman, 2008: 8)***

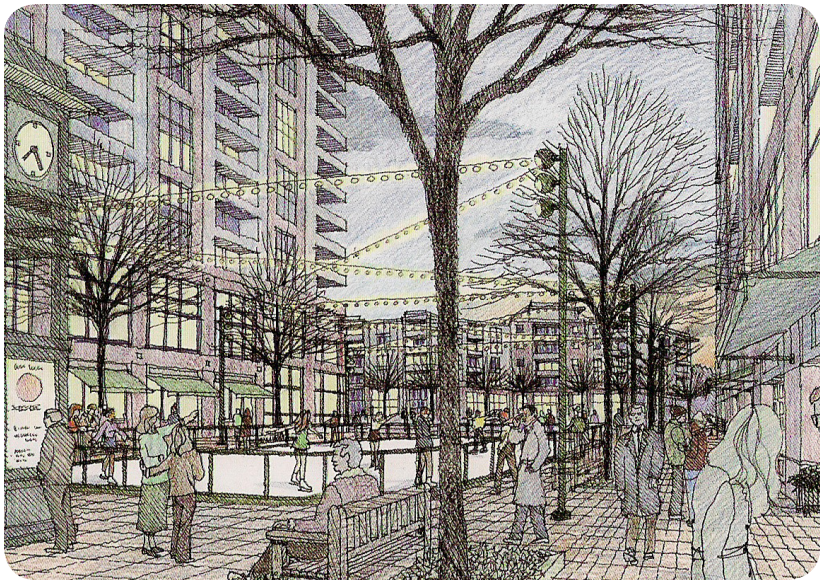
examples

transit oriented development

metrowest - vienna, virginia, usa

land to the south of a metrorail station and to the north of an existing residential subdivision were used for a transit oriented redevelopment which accommodates a dense mix of urban housing and offices set between apartment complexes and a local interstate highway (Dunham Jones & Williamson, 2009) (see figures 2.20 & 2.21).

2.20 "before" aerial indicating proposed redevelopment



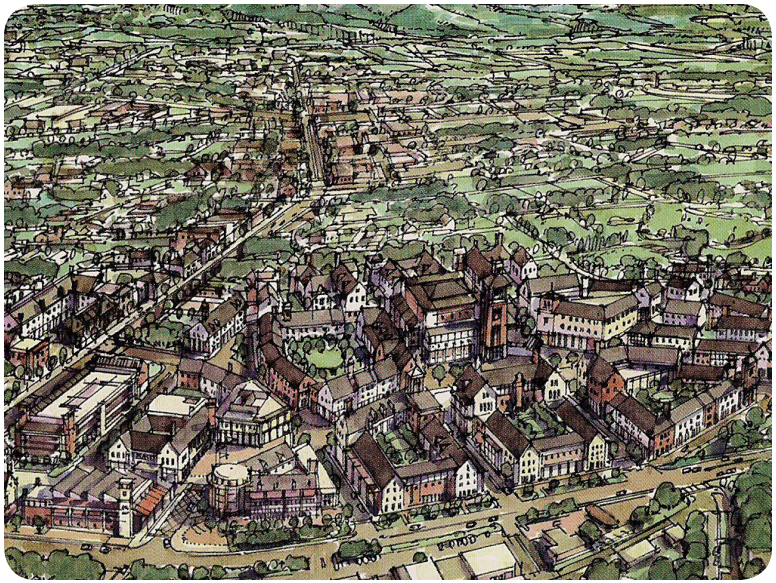
2.21 experiential perspective of transit oriented development (TOD)

infill/ grayfield development

cottonwood mall redevelopment - holladay, utah

a windowless mall is replaced with a mixed-use neighbourhood consisting of historical precendents, green design techniques and specific view corridors which create a variety of scale and types of spacesm (Dunham Jones & Williamson, 2009) (see figures 2.22 & 2.23).

2.22 "before" aerial image of existing mall



2.23 "after" rendering of cottonwood mixed-use redevelopment

brownfield development

bauer lofts - waterloo, ontario

a century old historic industrial building redeveloped into loft-style residences, street front stores, and indoor markets (see figures 2.24 & 2.25).

2.24 courtyard perspective of bauer lofts mixed use redevelopment

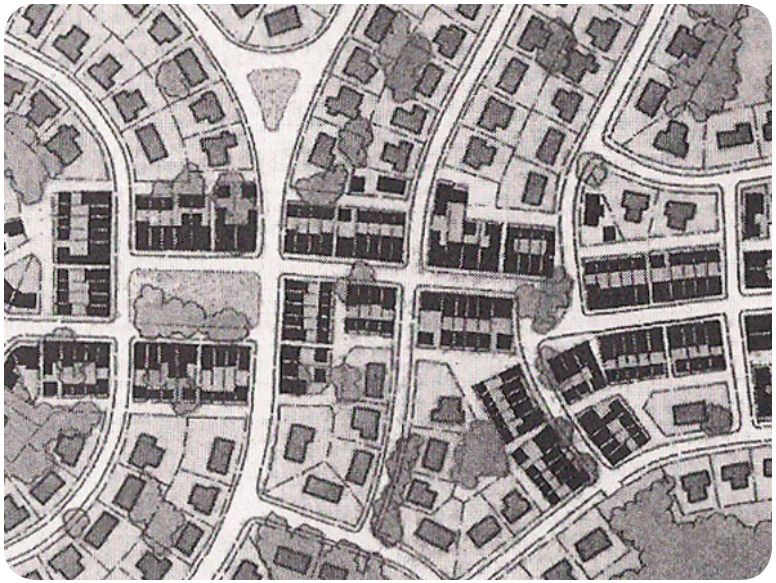
2.25 exterior street perspective of bauer lofts mixed use redevelopment

connect the cul-de-sac

laurel bay on parris island, south carolina

a retrofit plan for a military housing subdivision attempted to transform a mono cultural subdivision by infusing a mix of public spaces and housing types (Dunham Jones & Williamson, 2009) (see figure 2.27).

2.26 rendering of pedestrian routes and public space

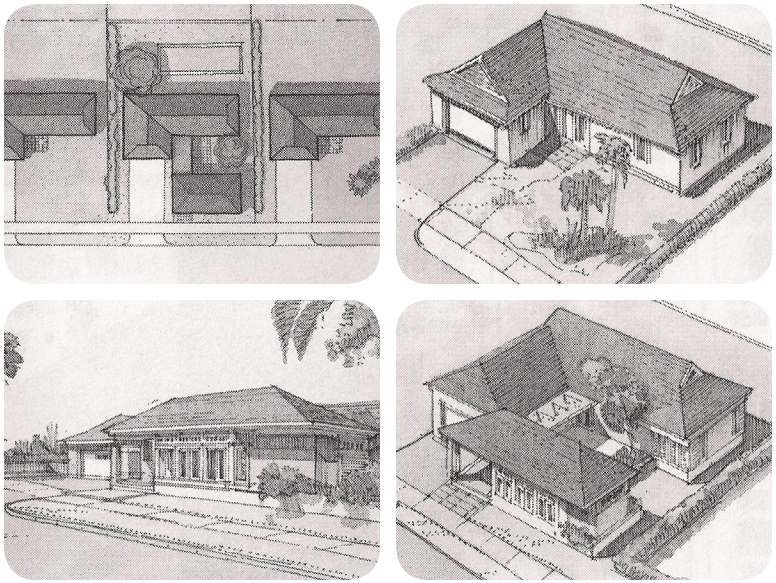


2.27 connect the cul-de-sac proposal for military subdivision

accessory units

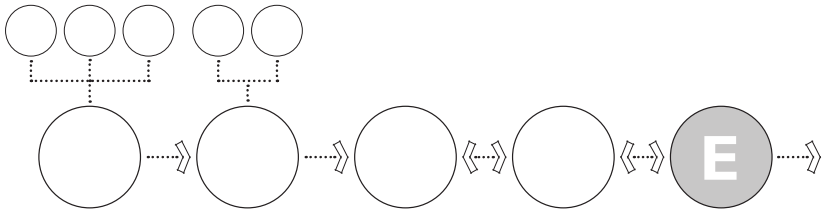
ranch house retrofit - apollo beach, florida

a provocative 2004 proposal by DPZ proposed placing an additional building in the middle of the front yard setback in a suburban neighbourhood (Dunham Jones & Williamson, 2009) (see figure 2.28).



2.28 renderings of proposed ranch house infill project

2.29 digital rendering of a "granny flat" accessory apartment

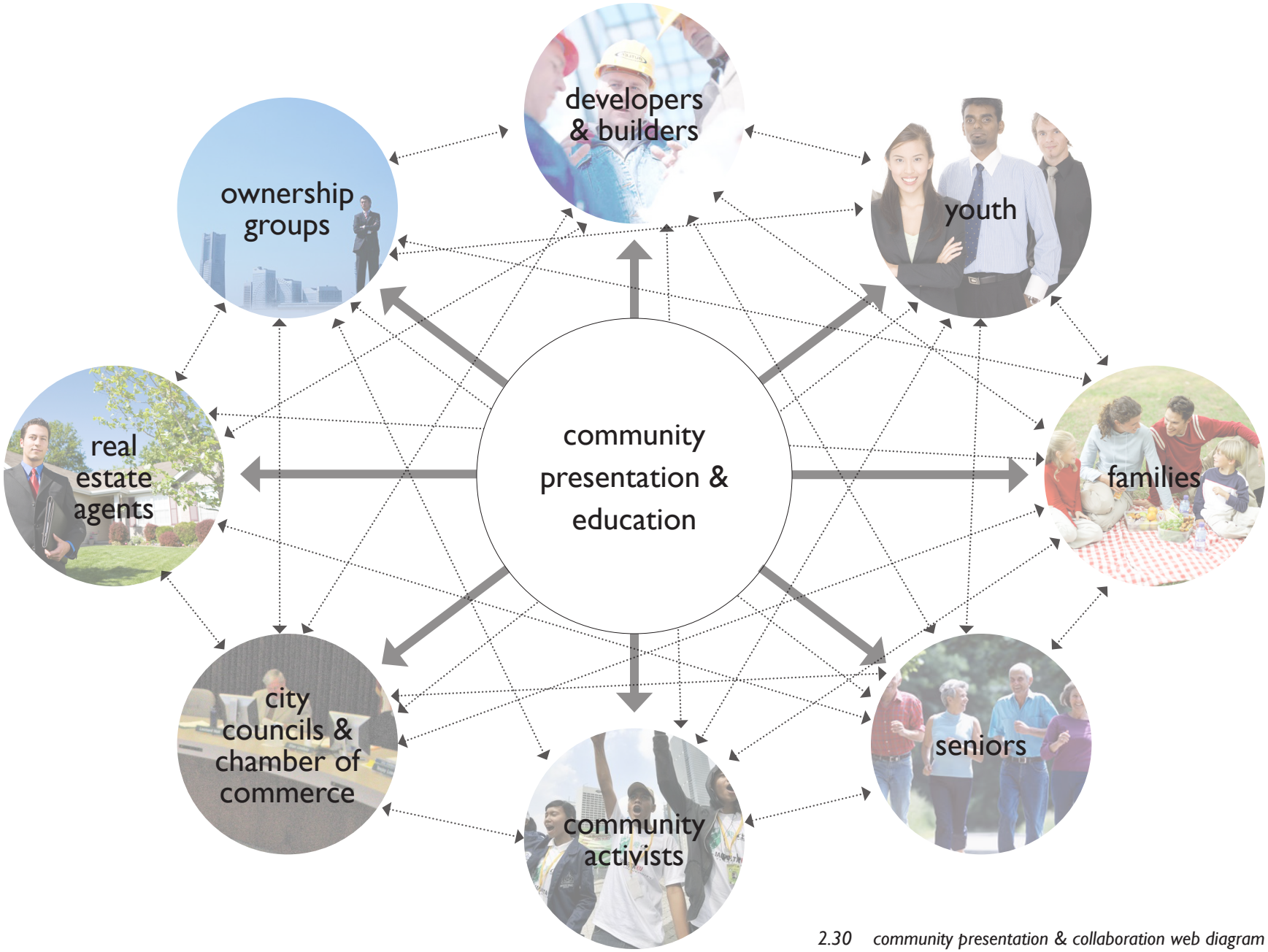


STEP E community presentation & education

> ***"The main responsibility of city planning and design should be to develop - insofar as public policy and action can do so - cities that are congenial places for this great range of unofficial plans, ideas and opportunities to flourish, along with the flourishing of public enterprises."***
>
> ***(Jacobs, 1961: 241)***

Perhaps the most important step in this process will be the presentation of the site responsive strategies and visualizations at a series of formal and informal meetings geared towards specific ownership groups as well as other community stakeholders (see figure 2.30). This is because without the support, collaboration and investment of these community stakeholders, any revitalization attempt cannot be realized. The presentations themselves should draw upon a number of techniques and be directed towards the interests of the specific ownership or stakeholder groups it is being made to. The primary goal of this last step will be to educate specific members of the community on how they can enhance the quality of their cities built fabric (Macdonald, 2008; Knapp & Talen, 2005; Burby, 2003; Perry et al, 2000; Fischel 1999).

Although the participation and investment of all a given communities stakeholders is essential. A special focus must be put on engaging the local developers and builders in the process. A clear and convincing argument must be made by the architect (with corresponding visualizations), as to how redesigning, retrofitting and intensifying the existing suburban fabric will not only provide greater environmental, social and economic sustainability, but will create a profitable new market within the building and development industry.



2.30 community presentation & collaboration web diagram

PROCESS summary

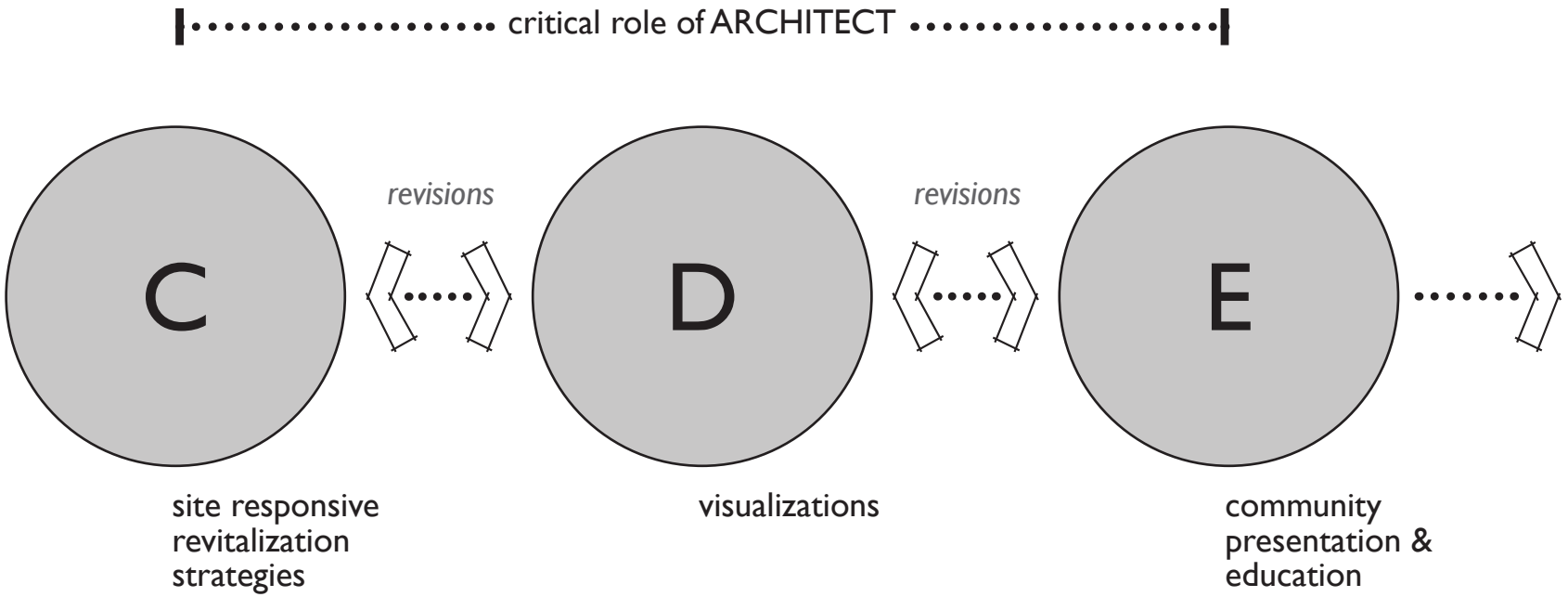
Before this process for existing suburban community revitalization can be tested and applied, the importance of two of its crucial components must be stressed.

responsiveness & adaptability:

Any initiative which attempts to transform an existing landscape (natural or urban) must be prepared to deal with the reactions of the inhabitants and the environment itself. Within the scope of this thesis, this existing landscape will be made up of existing suburbs set within the fabric of Canadian and American mid-sized cities. There is a wide range of ecological, economic and social reactionary forces affecting these existing communities. Although some are perceived to be more influential then others (such as economic market demands) it is important to address all of these forces with an adaptable set of principles, strategies and visualizations. As shown in figures 2.02 & 2.31, this responsive nature will be fundamentally achieved in this process by allowing revisions and re-directions to take place between steps C, D, E of the process. In addition, adaptability will be realized by continually reviewing and updating step A inventory of revitalization strategies and synergizing them together with site specific characteristics defined in step B.

role of the ARCHITECT:

The importance of site responsive strategies and accompanying visualizations in this process cannot be understated. As previously, there has been a significant lack of influence from the profession of architecture in post-war suburbia. Having said this, there has also been a lack of site responsiveness and visualization in suburban developments (other than that the superficial, isolated marketing images shown in figure 0.02). Therefore, suburban revitalization offers an excellent opportunity for the renewed participation of architects that engages there analytical, holistic, vision-making abilities. The last three steps of the process outlined in this thesis call for these talents in order to entice an entire communities support, collaboration & investment. (see figure 2.31)

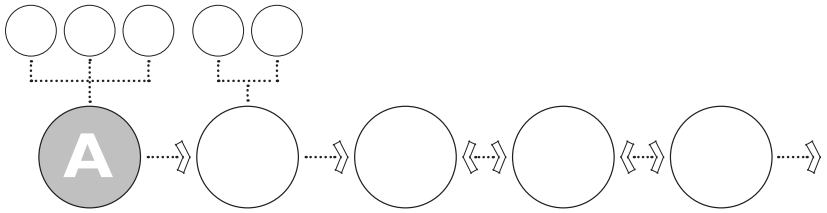


2.31 exert from the suburban revitalization process outlined in figure 2.03

[chapter three]

application of the PROCESS

3.01 aerial image of suburban study area >>>



STEP A revitalization strategy classification

A1. private land - private use


residential housing densification


renewable energy production/ consumption & energy upgrades

A2. public land - public use


reorganize public transit

A3. private land - public use


transit oriented redevelopment

mixed use redevelopment

3.02 compilation of strategies listed in chapter two (STEP A)

resource conservation

?

future strategies

?

future strategies

?

future strategies

programmed public space

connect the cul-de-sacs and crescents

?

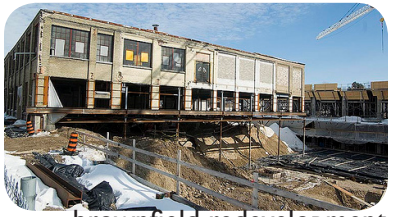
future strategies

?

future strategies

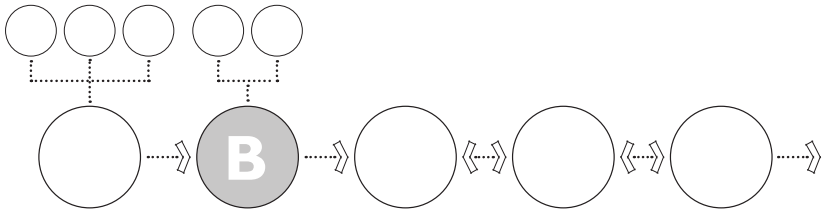
infill development

grayfield redevelopment

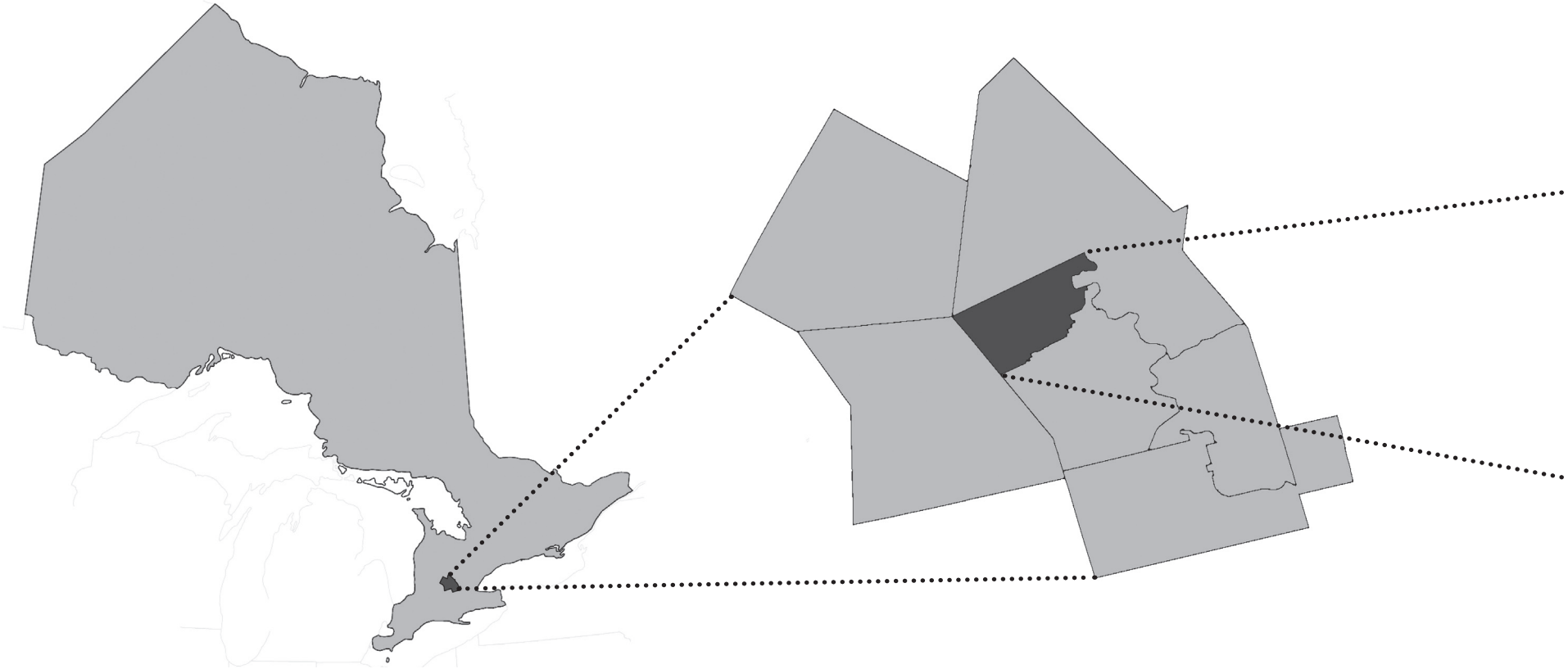


brownfield redevelopment

hybrid parking solutions

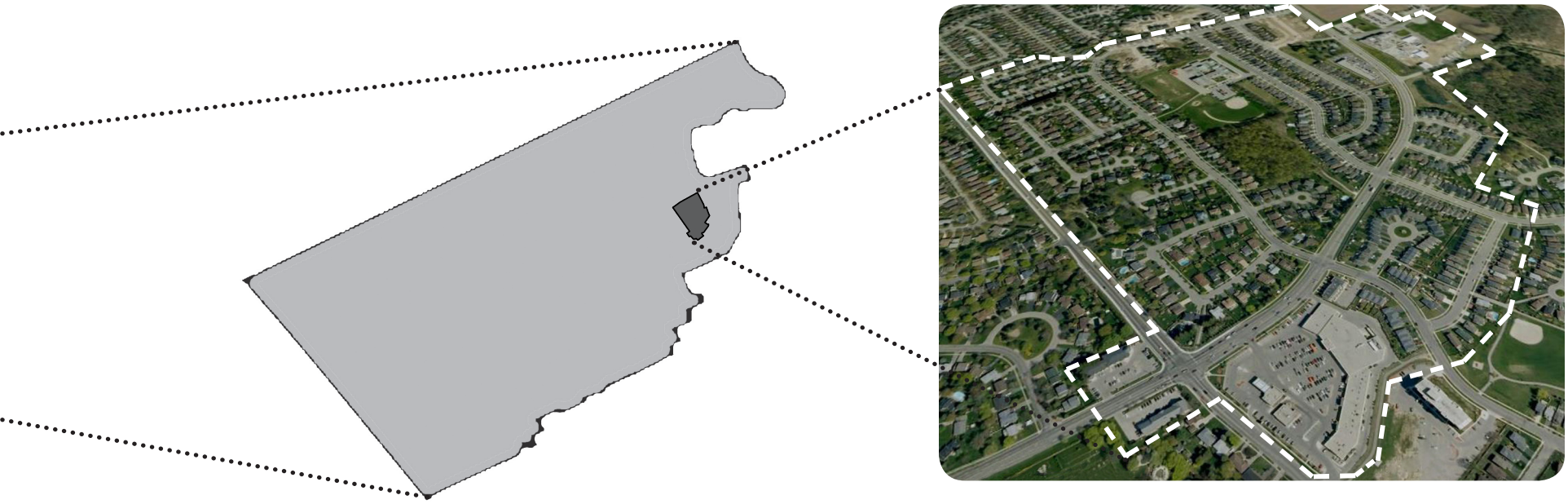


STEP B inventory of site characteristics



[XL] province

[L] region



[M] mid-sized city

[S] suburban study area

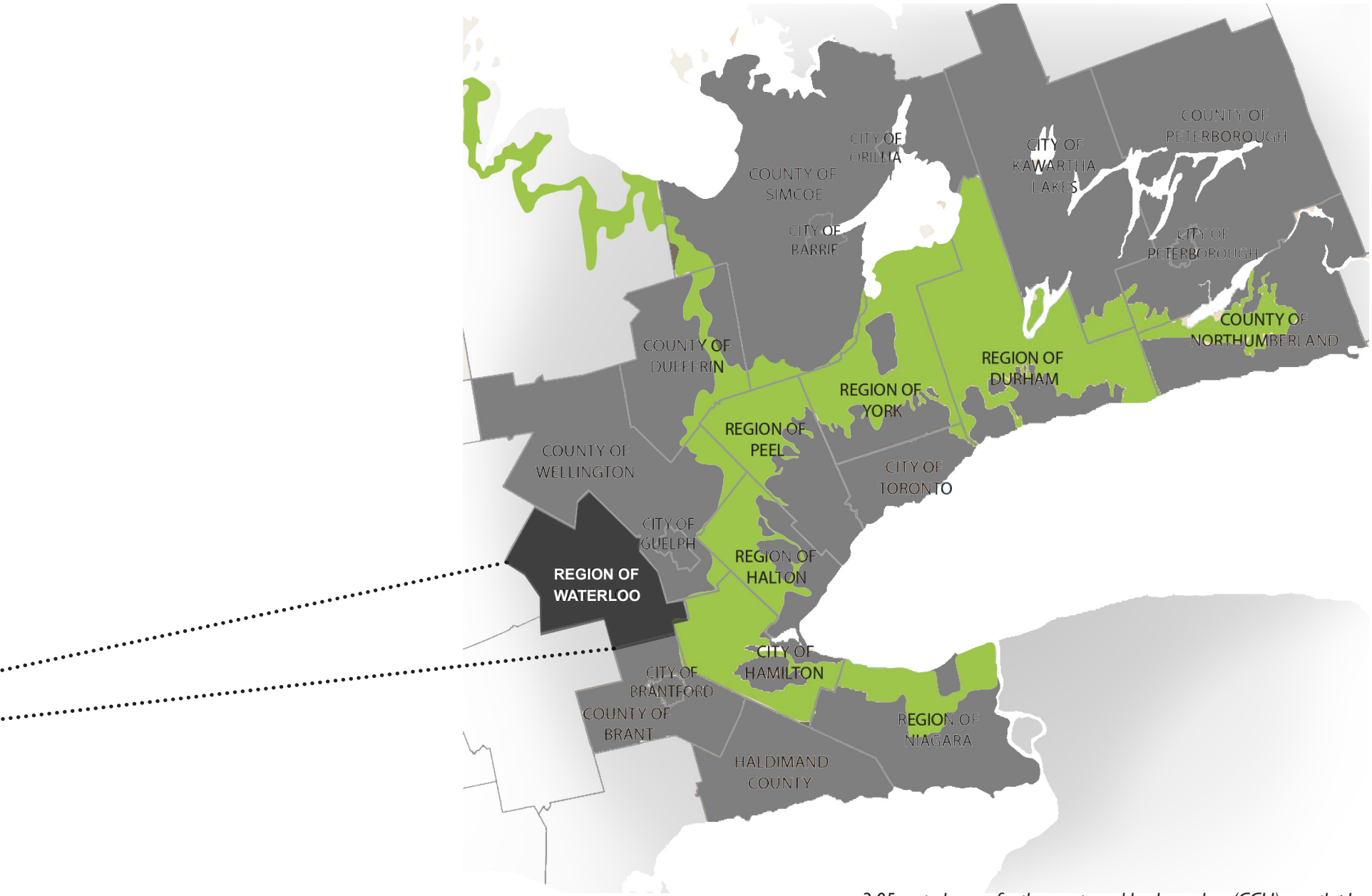
3.03 suburban study area within medium, large , and extra large context

[XL] province
places to grow and the GGH

As discussed in chapter one, many planning authorities throughout North America have adopted smart growth principles. In Ontario, the Places to Grow Act was passed in June 2005. This plan was produced by the Ministry of Public Infrastructure and Renewal (PIR). It aims to outline visions and policies for accommodating growth in and around the GGH (Greater Golden Horseshoe - see figure 3.03) from now until 2031. This provincially legislated plan specifies intensifications and density targets that regional and municipal governments can strive towards. The overall goal is to ensure that every regional growth plan promotes growth that balances the needs of the economy with the environment and the community (Government of Ontario, 2005).

Some of this growth plans most difficult to reach objectives include the mixing of residential and employment uses, the increase of density to a public transit supportive level, and the requirement for 40 percent of residential development to take place within existing built up areas by 2015 (Filion, 2007). Although the challenge of implementing these smart growth goals is great, the Places to Grow Plan's ambitious nature provides the Greater Golden Horseshoe's regions and municipalities with a solid framework upon which they can build their own smart growth development plans.

3.04 map of ontario with region of waterloo darkened



3.05 study area for the greater golden horseshoe (GGH) growth plan

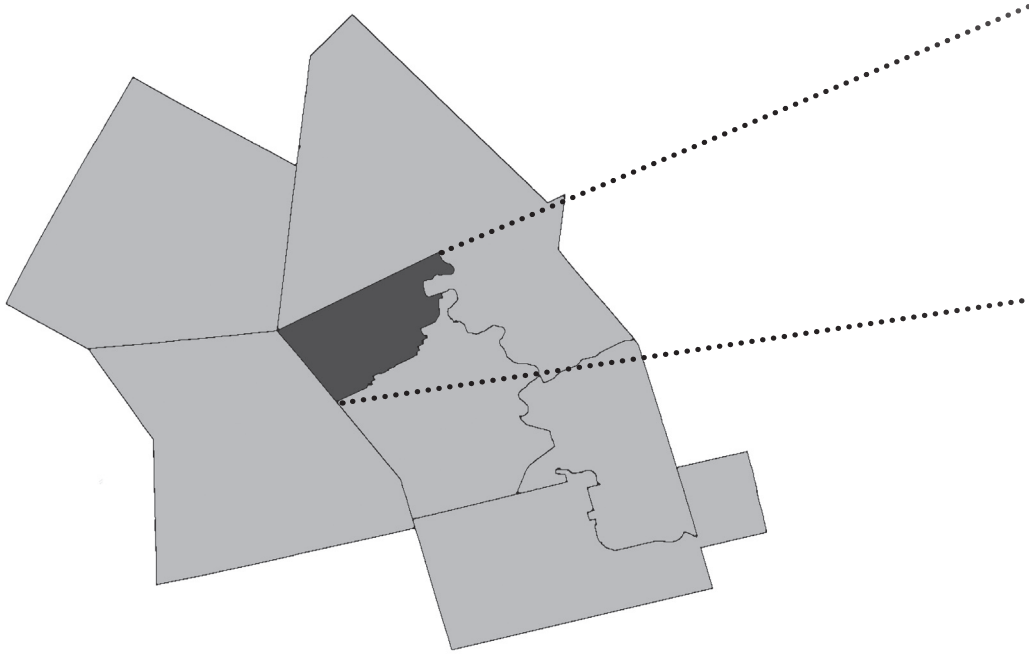
[L] region
the regional municipality of waterloo

Typical suburban developments are prominent in mid sized cities made up of a flat, low density built fabric. The Regional Municipality of Waterloo's urban core consists of three such cities (Cambridge, Kitchener, and Waterloo). As one of Canada's most economically stable and fastest growing municipalities, it provides a rich opportunity for regional growth through intensification.

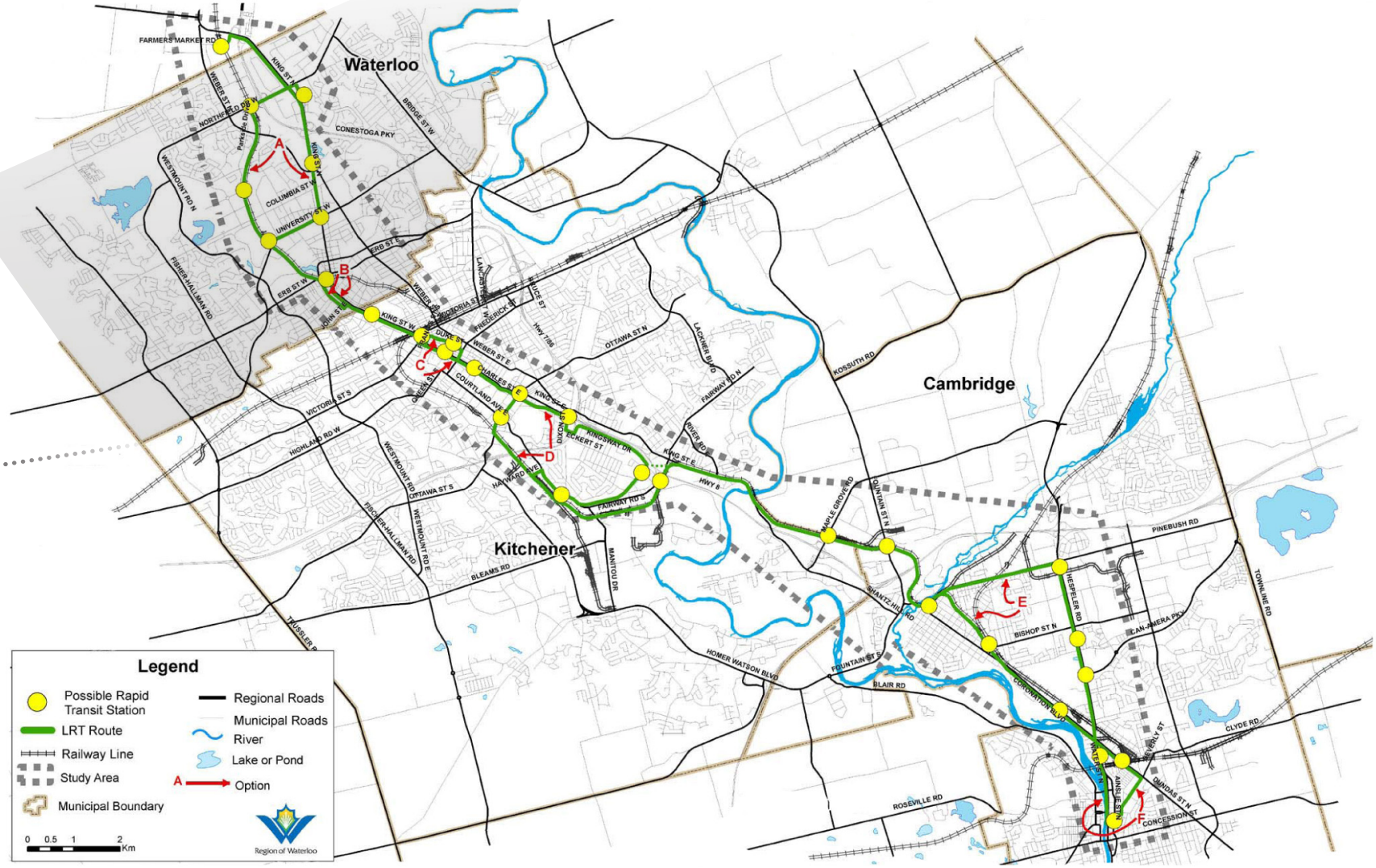
In 2003, the region adopted a Regional Growth Management Strategy (RGMS) which lays out a long term vision for accommodating growth. This strategy, in line with the provincial Places to Grow Plan, centres around intensifying downtowns and limiting suburban sprawl. A fundamental tool proposed to accommodate this type of growth is a regional based Rapid Transit system with a Light Rail Line (LRT) (see figure 3.06) or Bus Rapid Transit (BRT) line running down a Central Transit Corridor (CTC) connecting Waterloo, Kitchener, and Cambridge.

As shown in figure 3.07, the Region of Waterloo's urban landscape has grown dramatically over the past few decades. This growth has consisted primarily of low density, homogenous greenfield suburban developments. Recently, various studies produced by the region, have attempted to articulate problems and propose future smart growth solutions. Some of these include a Reurbanization Market Analysis and Feasibility Study (2005); a two part Visualizing Densities study (2006-2007); a Vital Signs Report (2007); a Station Area Plan Pilot (2008) and a Rapid Transit Environmental Assessment (2009).

The Visualizing Densities Part II study in particular, defined specific existing suburban study areas in Cambridge, Kitchener and Waterloo, and proposed how they could be redesigned (as greenfield sites) to accommodate higher densities. Since the existing built form of these study areas was ignored in this report, it can serve as an excellent departure point for the application of the revitalization process developed in this thesis. The specific study area chosen for application is located in Waterloo and bordered by Bridge Street to the west and University Avenue to the south and east.



3.06 region of waterloo map with the city of waterloo darkened



3.07 region of waterloo map with proposed LRT corridor

timeline of important events

1853 County of Waterloo set apart from the United Counties of Wellington and Grey (Region of Waterloo).

1958 Announcement made that two hundred acres of land acquired in Waterloo would become the campus of the University of Waterloo. Later, complex negotiations caused the creation of two separate universities (University of Waterloo and Wilfred Laurier University) (McLaughlin, 2007).

1973 The Regional Municipality of Waterloo is created from the existing County of Waterloo. It consists of four townships (Woolwich, Wellesley, Wilmot & North Dumfries) and three municipalities (Waterloo, Kitchener & Cambridge). The cities of Waterloo and Kitchener each expanded by taking on portions of Waterloo Township. Preston, Hespeler, Galt, and a portion of Waterloo and North Dumfries Townships were amalgamated into the new city of Cambridge (Region of Waterloo).

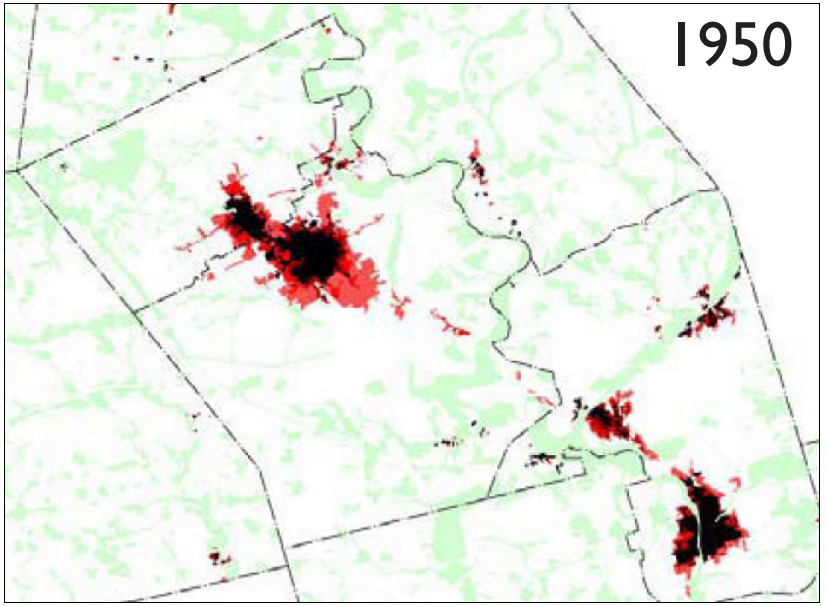
1990s An initiative for revitalization and intensification is started in Uptown Waterloo after the closure of various major industries, most notably Seagram distilleries (McLaughlin, 2007).

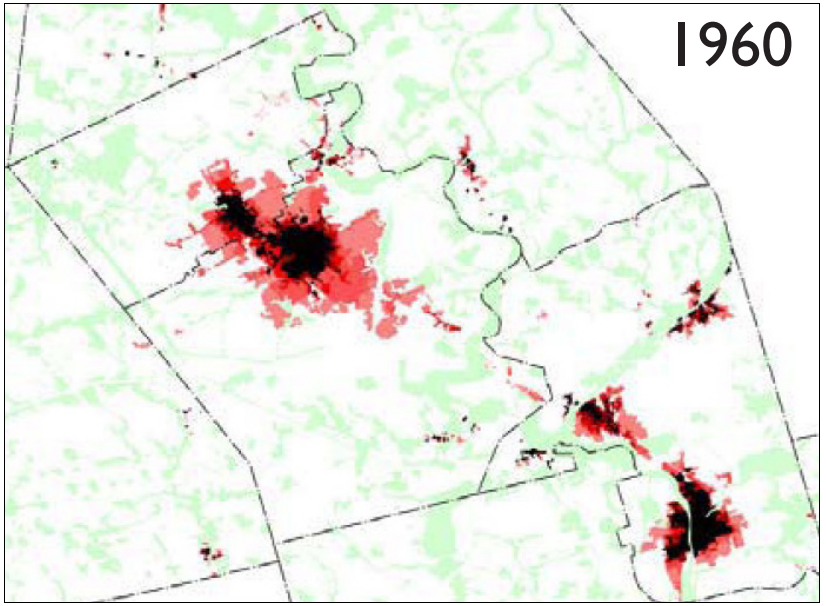
1995 Ontario Ministry of Municipal Affairs and Housing approved the current Regional Official Policies Plan (ROPP) which is in place until 2016. This plan outlines long term goals for regional vibrancy and sustainability and is continually review and revised (Region of Waterloo ROPP, 2006).

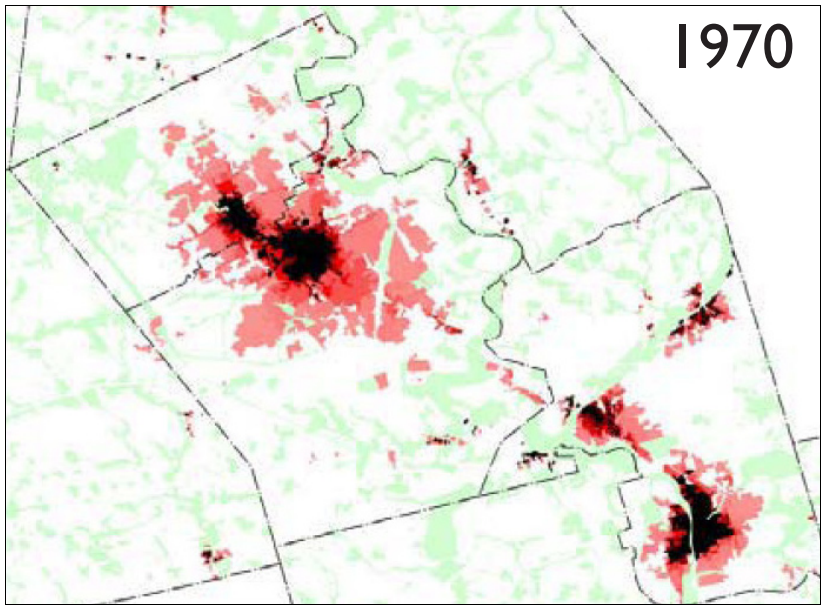
1999 This plan outlines the First Research In Motion pager sold as a *Blackberry* signaling the growth of a world renowned high tech telecommunications industry in throughout the region and in the City of Waterloo in particular (McLaughlin, 2007).

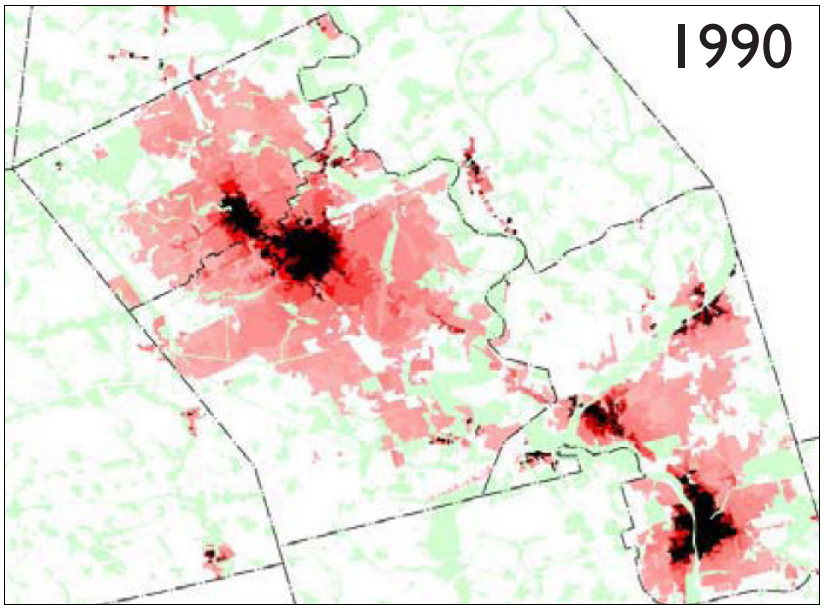
2003 Regional Growth Management Strategy (RGMS) adopted.

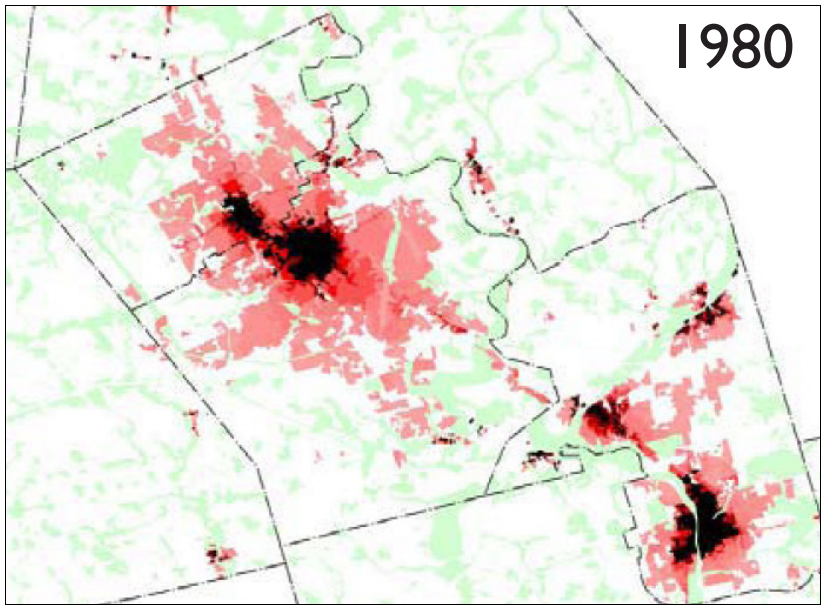
2004/ 2009 UW School of Architecture moved to downtown Galt in Cambridge and UW School of Pharmacy opened in downtown Kitchener as part of two separate downtown revitalization initiatives.

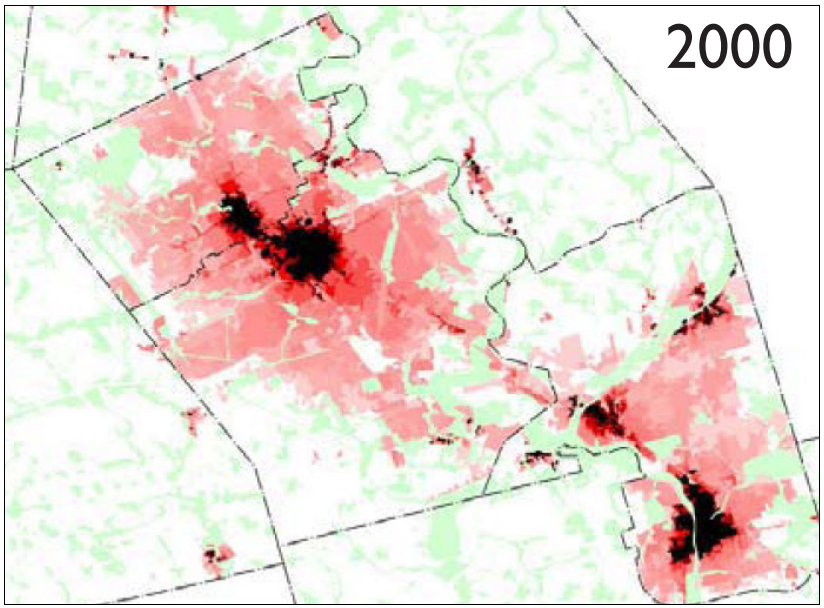








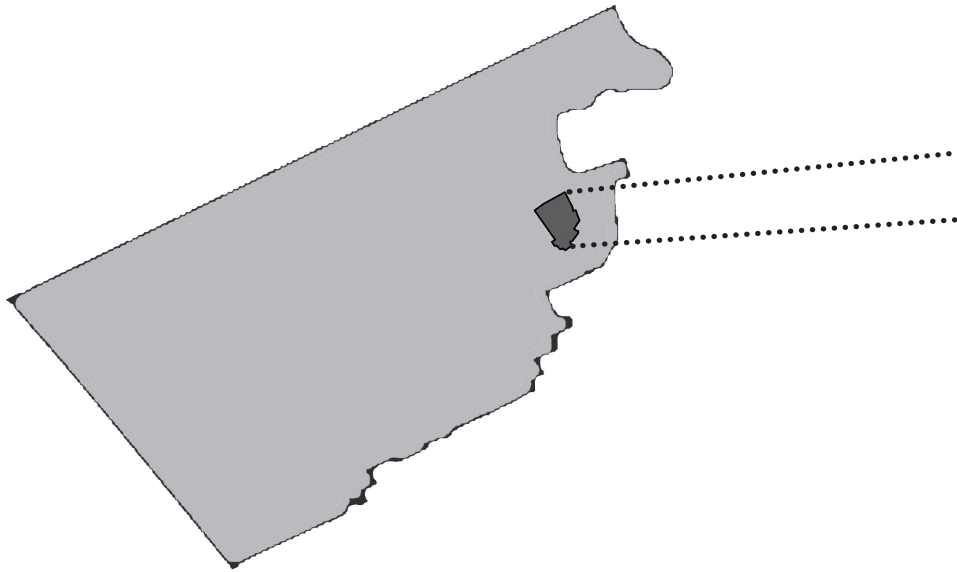




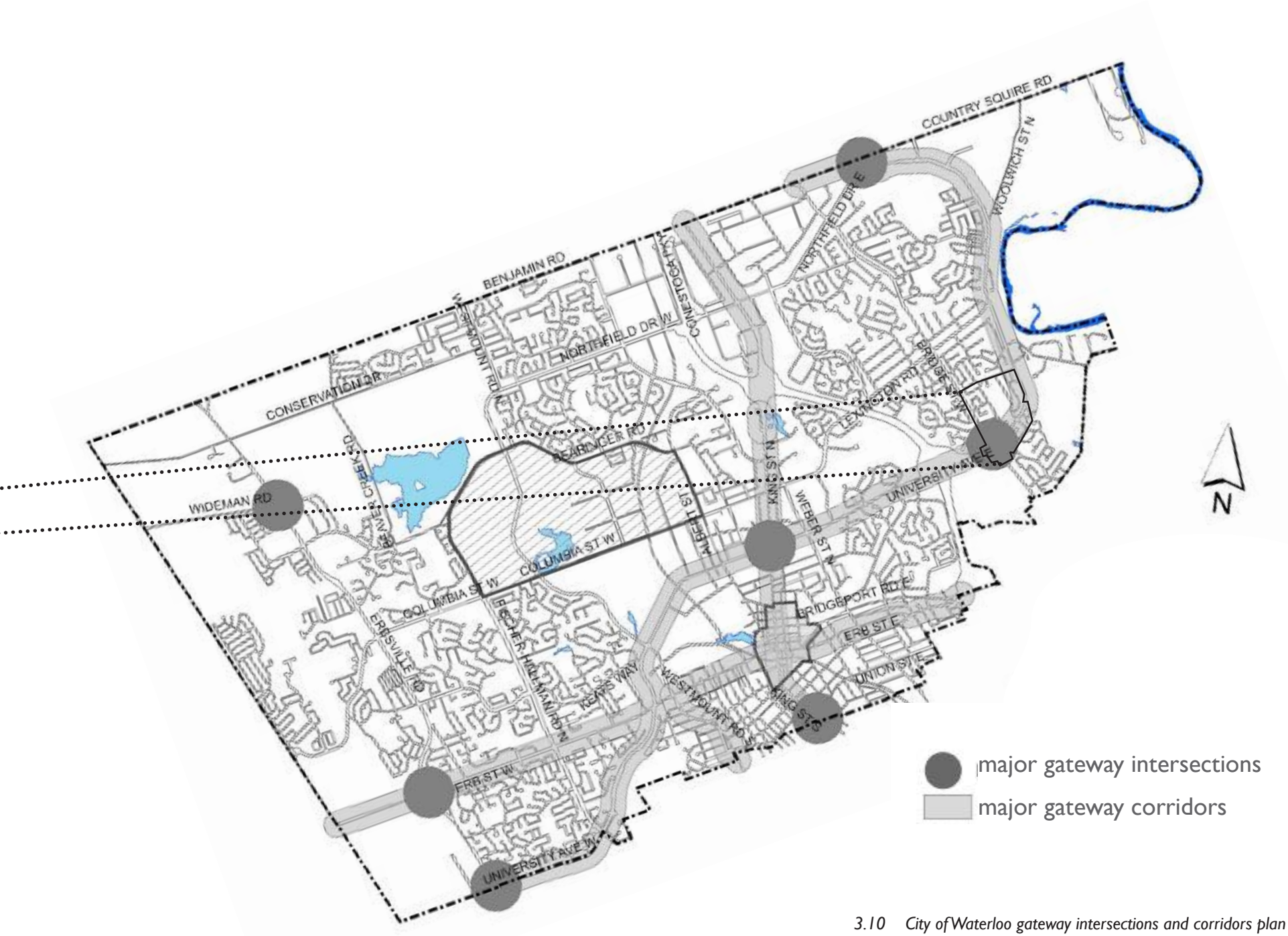
3.08 evolution of built fabric in the Region of Waterloo

[M] mid-sized city
the city of waterloo

The city of Waterloo has a history of innovation and stability. Most of its growth into a mid-sized city of approximately one hundred thousand people has taken place within the last quarter century. This has occurred through subdivision development out towards the urban edges and high tech industry and academic institution development within the central part of the city. More recently the city is looking to promote the intensification of existing urban areas along various corridors and nodes (as shown in figure 3.09). Currently the city is working on producing a consolidated set of urban design guidelines for use by developers and industry professionals. Having said this, there is still a strong focus towards existing urban areas and a general lack of attention paid to existing suburban areas that surround them. The suburban study area used in this thesis will include one of the cities defined nodes (University Downs Plaza) and corridors (University Avenue) along with a portion of the surrounding suburban residential fabric. This will allow for connections to be made between node & corridor intensification and suburban neighbourhood revitalization.



3.09 city of waterloo map with the suburban study area darkened

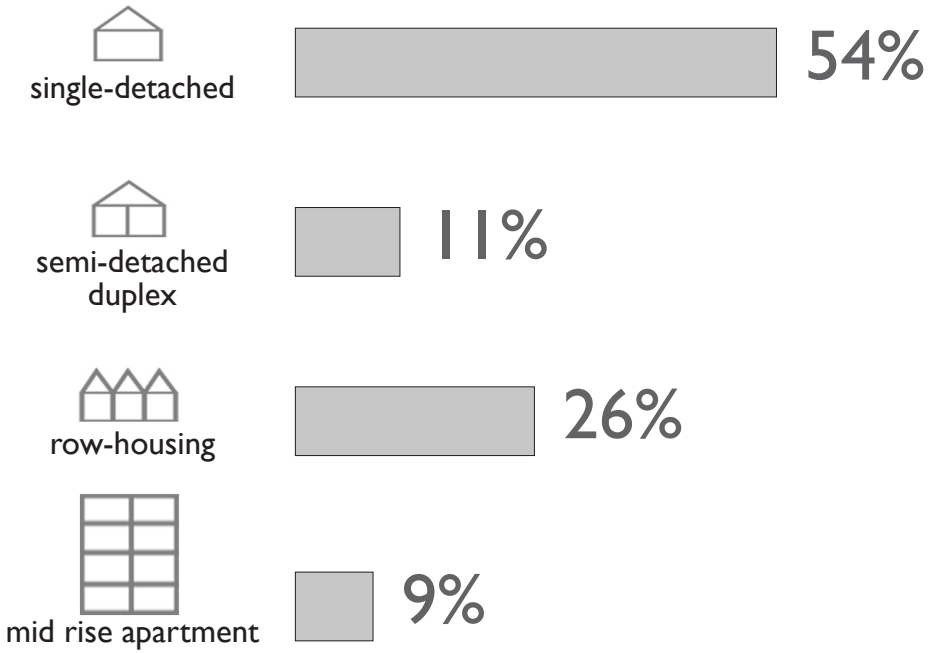


3.10 City of Waterloo gateway intersections and corridors plan

[S] suburban study area
university avenue & bridge street

general site information

- approximately 60 hectares on Waterloo's east side
- suburban residential fabric bordered by two major arterial routes (University Avenue & Bridge Street).
(see figure 3.11)
- yields a density of 38 residents and jobs per hectare comprised primarily of single detached residential dwellings
(see figure 3.10).



3.11 breakdown of study area dwelling typology

3.12 aerial map showing boundaries of suburban study area

site mapping analysis

ownership & access

suburban study area boundary

private ownership/ public use site

private ownership/ private use

public ownership/ public use

1 - University Downs Plaza

2 - pedestrian path / schoolgrounds

3 - residential housing

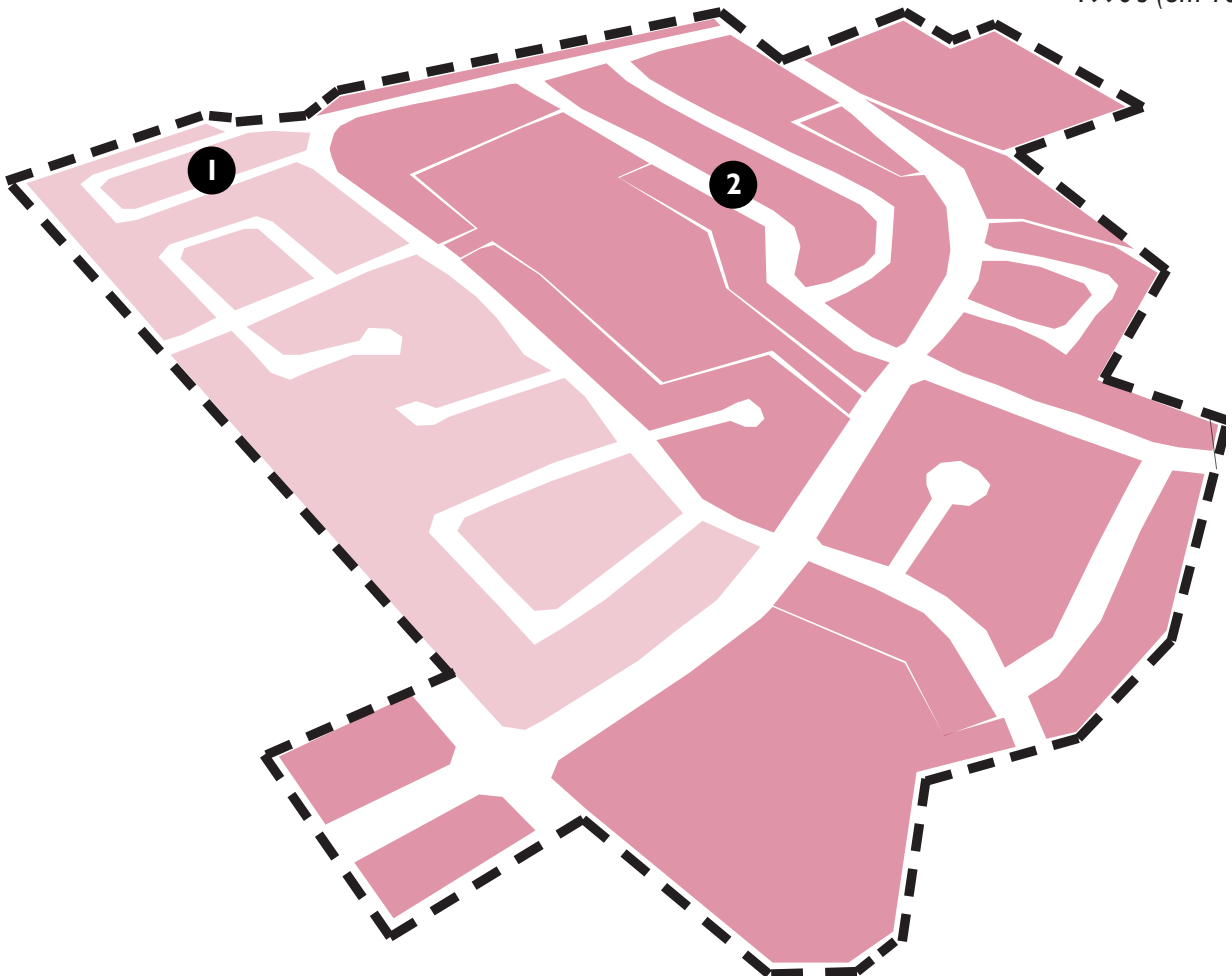
3.13 ownership & access map diagram

historical growth

suburban study area boundary

1980's *(15m-20m typical lot frontages)*

1990's *(8m-10m typical lot frontages)*



1 - development from the 1980s

2 - development fron the 1990s

3.14 historical growth map diagram

site mapping analysis (continued)

buildings

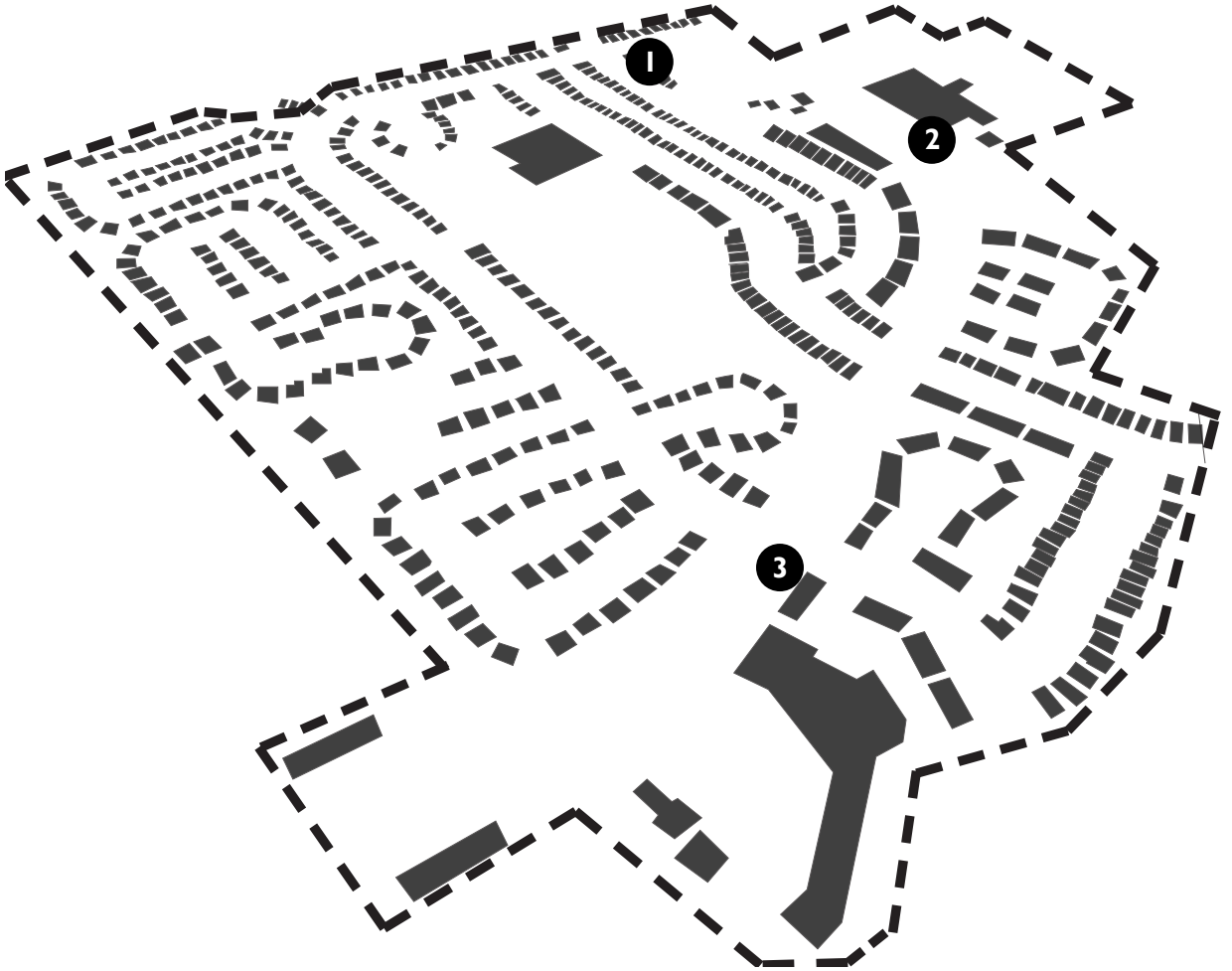
suburban study area boundary

existing buildings

1 - single detached housing

2 - commercial plaza

3 - townhouses



3.15 existing building map diagram

zoning

- suburban study area boundary
- single residential
- semi-detached
- multiple residential
- commercial
- institutional
- green zone
- agricultural
- industrial

1 - Pillar's Industrial facility

2 - University Downs Plaza

3.16 zoning map diagram

site mapping analysis (continued)

infrastructure - private vehicle

suburban study area boundary

major arterial road

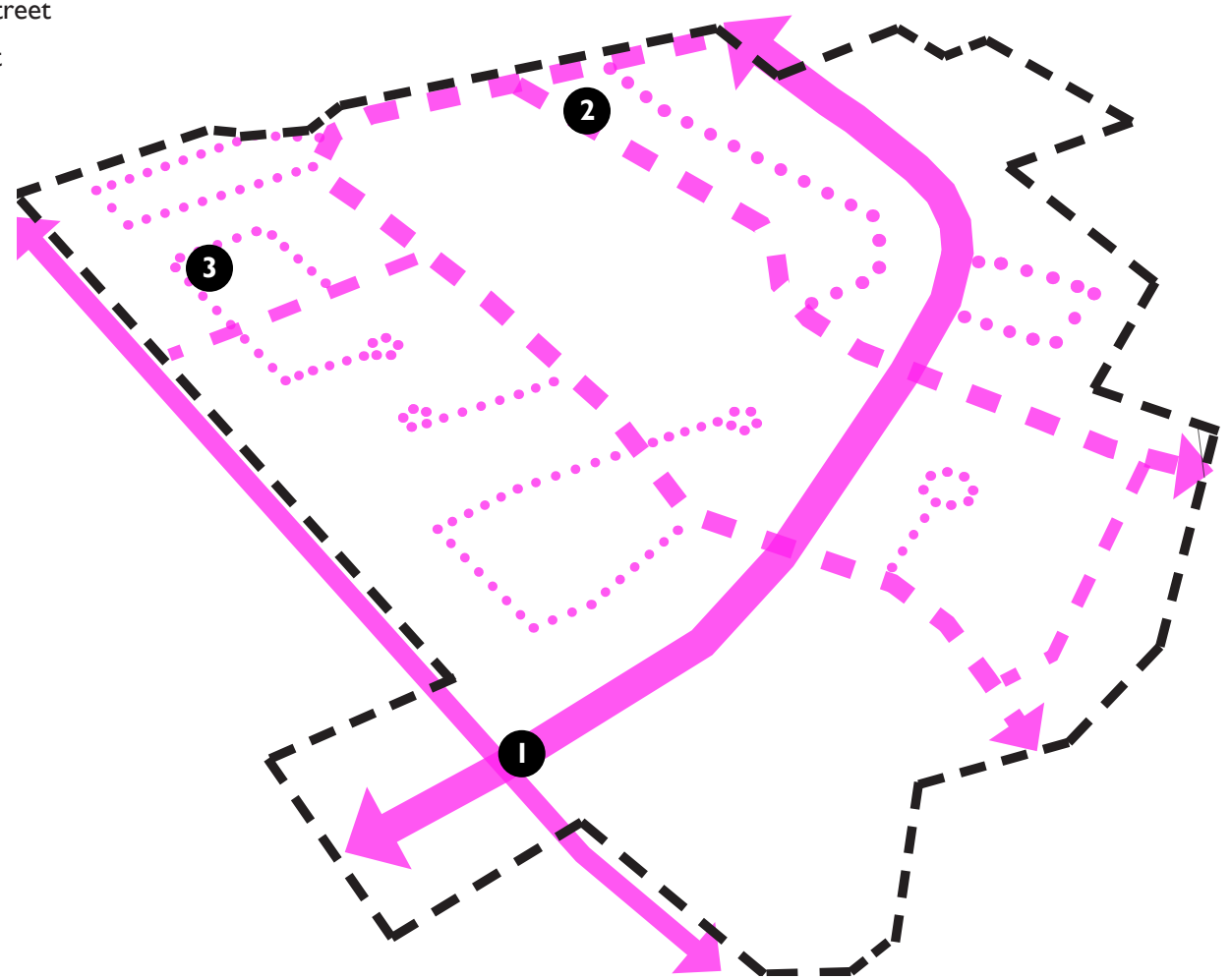
minor connective street

cul-de-sac/ crescent

1 - Bridge St. & University Ave

2 - Pastern Trail connective street

3 - Crimson Crescent



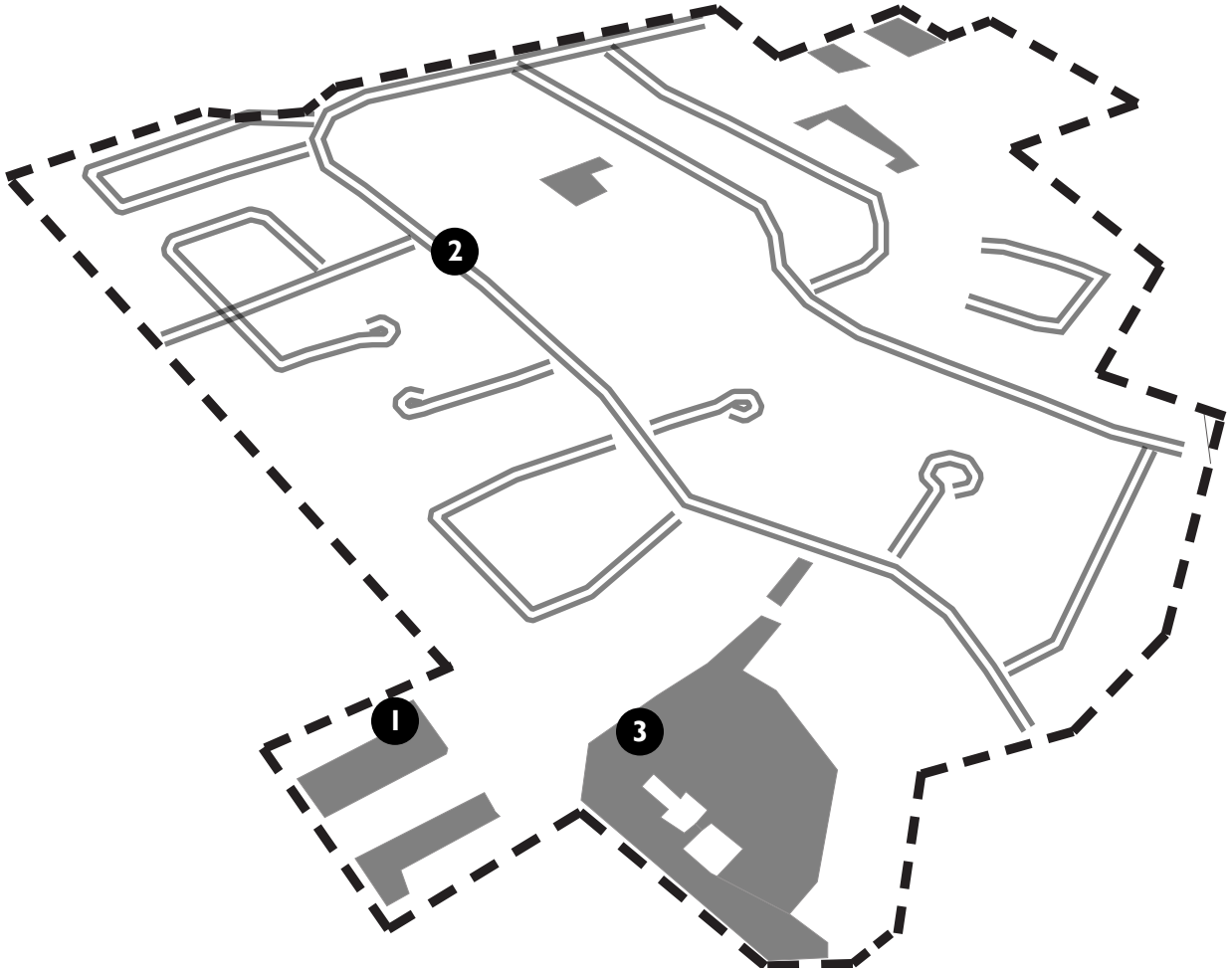
3.17 vehicular infrastructure map diagram

infrastructure - parking

suburban study area boundary

surface parking lot

street parking



1 - small surface parking lot

2 - street parking

3 - large surface lot parking

3.18 parking infrastructure map diagram

site mapping analysis (continued)

public transit, bicycle lanes & pedestrians

suburban study area boundary

public transit route (bus)

street bike lane

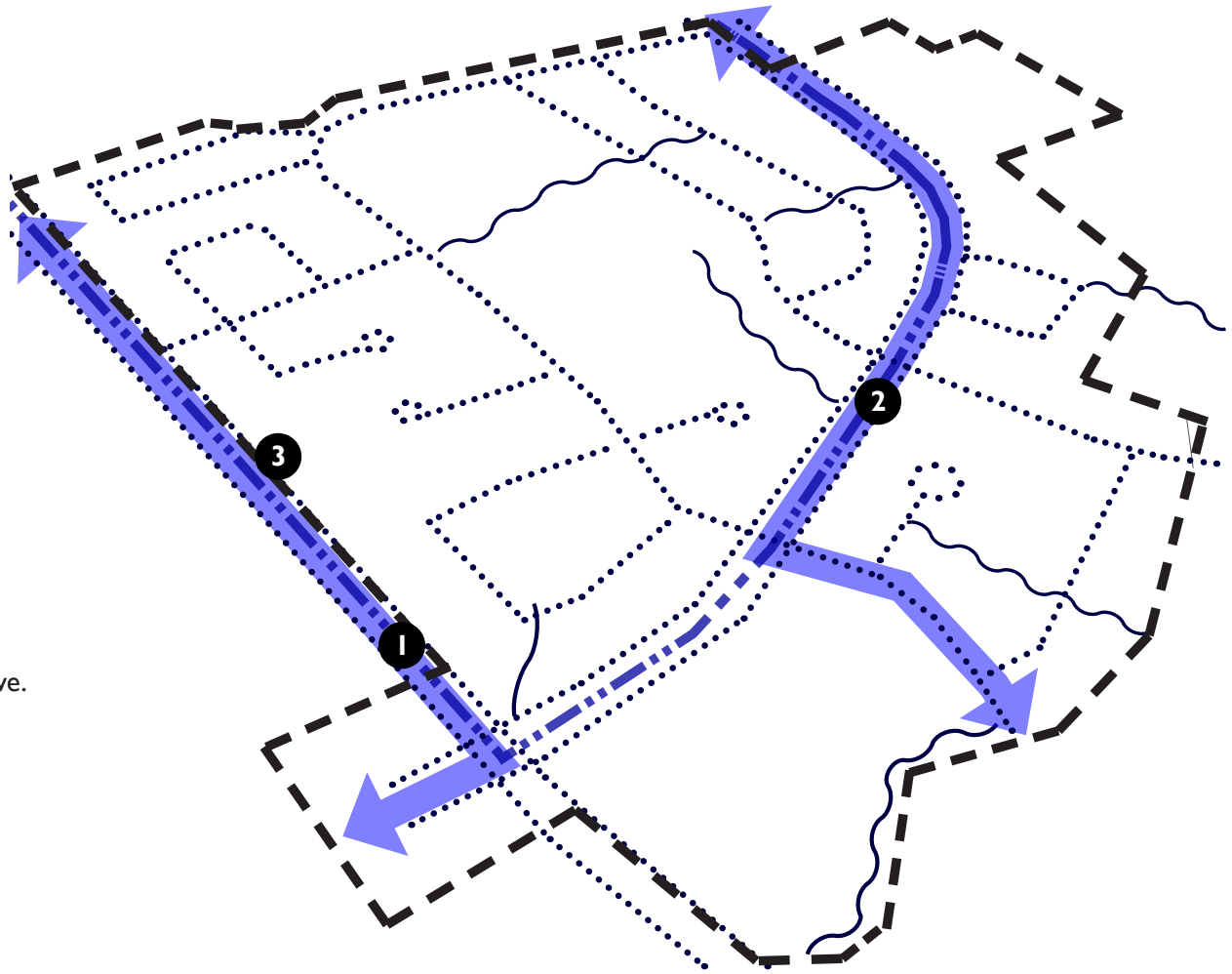
sidewalk

multi-use trail

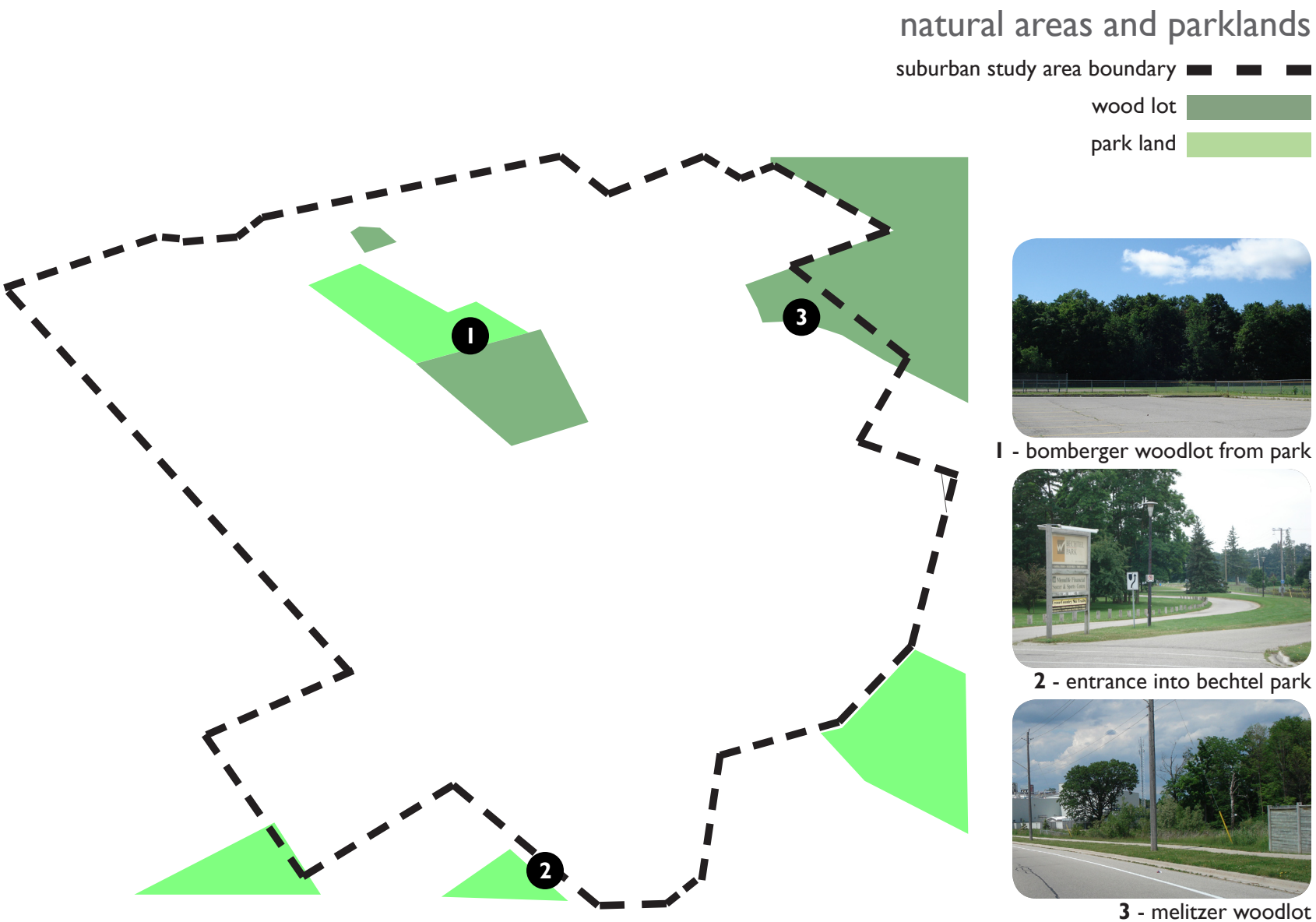
1 - public transit on Bridge St.

2 - pedestrian path at University Ave.

3 - bicycle lane on Bridge St.



3.19 public transit, bicycle & pedestrian map diagram



1 - bomberger woodlot from park

2 - entrance into bechtel park

3 - melitzer woodlot

3.20 natural areas and parklands map diagram

cross mapping

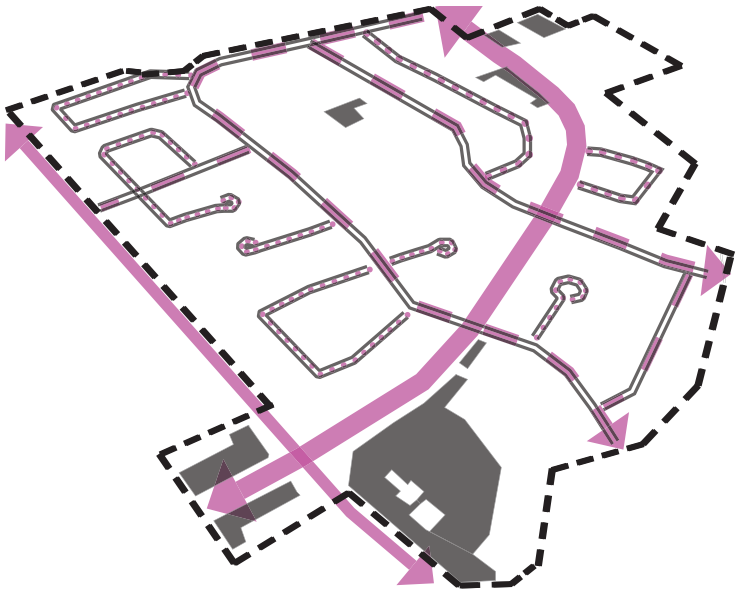
ownership & access
historical growth

- suburban study area boundary
- private ownership/ public use site
- private ownership/ private use
- public ownership/ public use
- 1980's *(15m-20m typical lot frontages)*
- 1990's *(8m-10m typical lot frontages)*

buildings
zoning

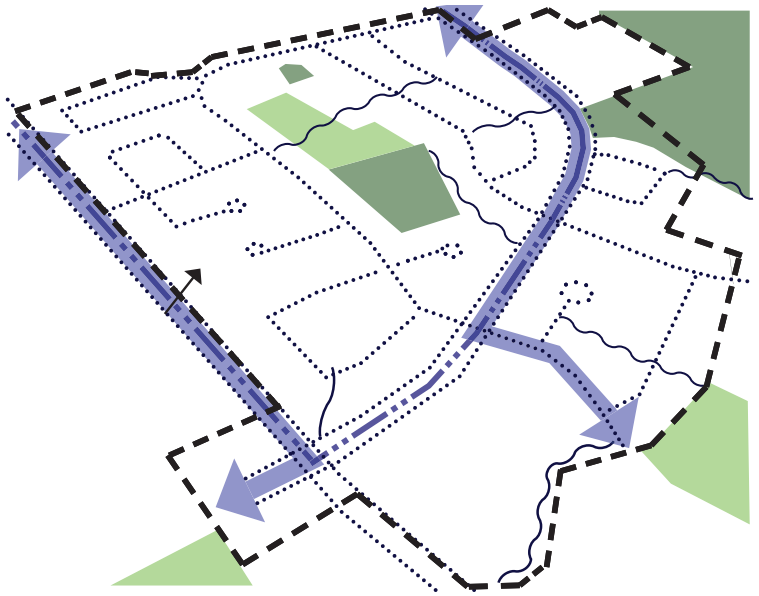
- suburban study area boundary
- existing buildings
- single residential
- semi-detached
- multiple residential
- commercial
- institutional
- green zone
- agricultural
- industrial

infrastructure - private vehicles
infrastructure - parking



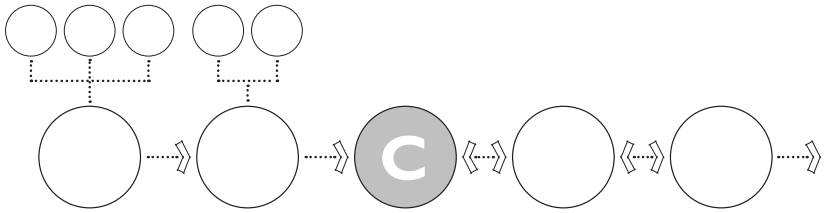
suburban study area boundary
major arterial road
minor connective street
cul-de-sac/ crescent
surface parking lot
street parking

public transit, bicycles & pedestrians
natural areas & park lands



suburban study area boundary
public transit route (bus)
street bike lane
sidewalk
multi-use trail
wood lot
park land

3.21 cross mapping studies



STEP C site responsive strategies

primary applications *(see visualizations in step D)*

1

infill low density residential properties

(private ownership/ private use)

As shown in the mapping analysis, the homes built during the 1980s have very generous lot frontages which results in a relatively low density. This density could be increased by rezoning these properties and allowing for infill mixed-use development. These property owners could then be provided with incentives to increase the density of their property with accessory apartments, granny flats, live work units, or small scale retail buildings.

2

connect the cul-de-sacs

(public ownership/ public use)

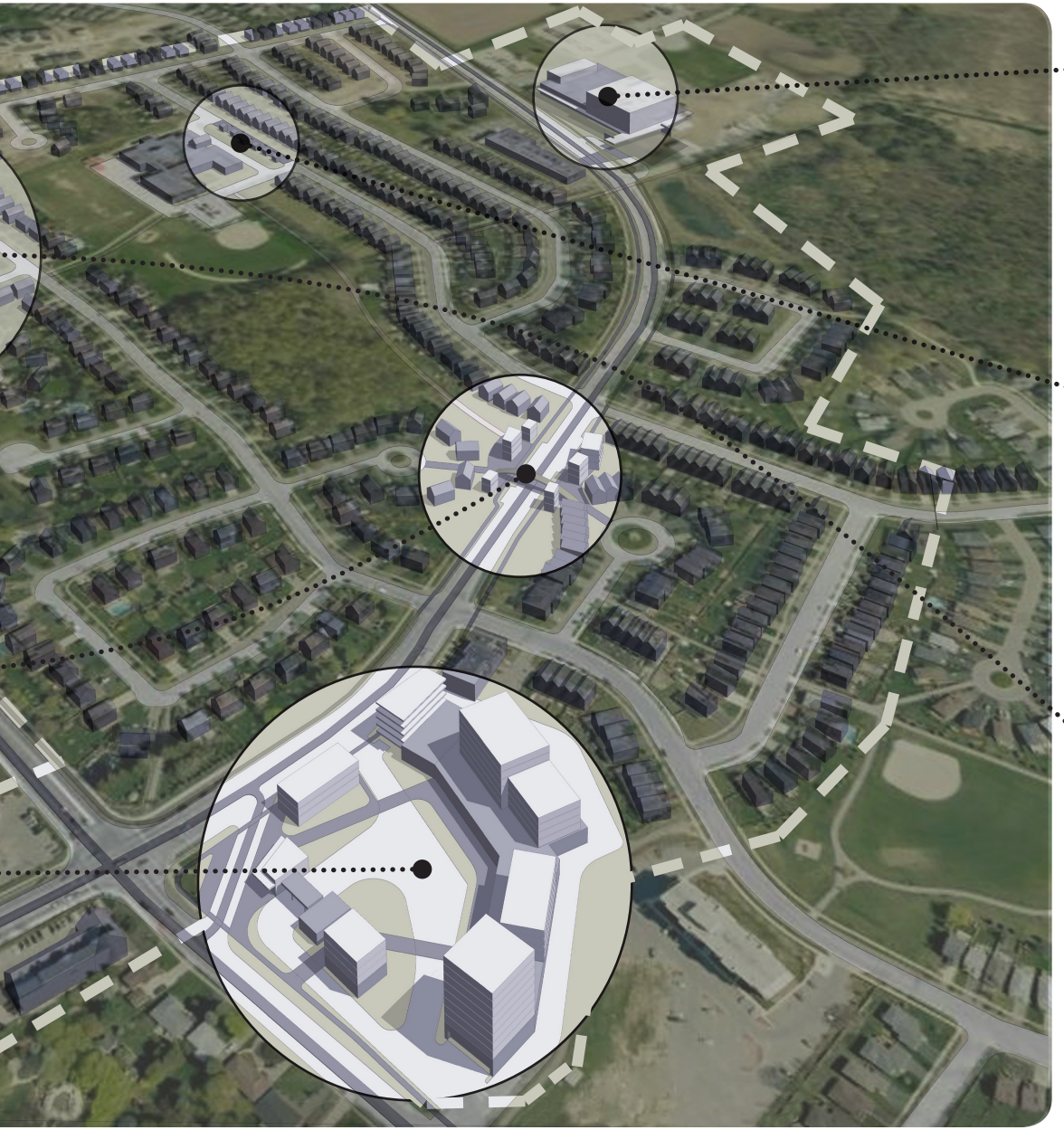
A cul-de-sac containing single detached homes to the north of university avenue and one containing attached townhouses to the south of university avenue will be connected by appropriating a portion of the private residential lands at each end of the cul-de-sacs. This connective path will offer programmed uses with new and/or retrofitted buildings addressing it, along with a pedestrian/ bicycle overpass, unconventional pavings, benches, and vegetation.

3

intensify transit oriented node

(private ownership/ public use)

This site, otherwise known as University Downs Plaza, is currently defined by the region and the city as a minor public transit node. Despite this, the site is completely dominated by the private automobile. This vehicle dominance can be seen in the oversized sea of parking, the lack of pedestrian movement and residential occupancy, and perhaps most directly, the gas station positioned as the central 'focal point'. This initiative will look to provide various means of parking (opening up valuable property at grade); create open public space surrounded by commercial and service amenities; infuse live-work units and mix-use buildings, and establish a GRT transit kiosk as the new 'focal point'.



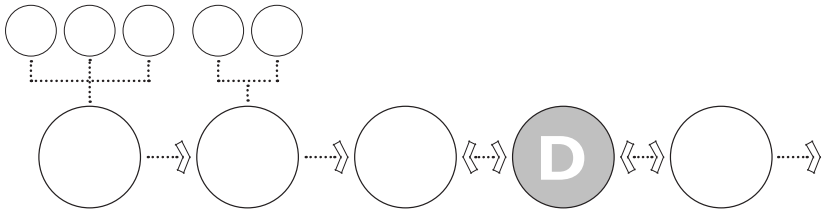
3.22 aerial perspective showing site responsive application strategies

other possible applications

brownfield redevelopment
(private/public)
Although this site, located at the sites north end on university avenue, is currently in use as an industrial facility, its location adjacent to Melitzer park and the grand river could offer an excellent opportunity for brownfield development if the plant were ever to shut down. This redevelopment could provide community or city amenities and institutions such as a library or community centre that could engage with the natural environment.

programmed predestrian street
(public/public)
Define a pedestrian realm along the residential street adjacent to a local elementary school. This hybrid street condition will consist of a raised platform with unconventional paving (providing much needed traffic calming), adjustable, multi-use pavilions, and exterior furniture. All of these elements will contribute to the delineation of a pedestrian environment suitable for a street market, festival, skateboard park or even a gathering space for parents and school children at drop off and pick up times.

home efficiency retrofitting
(private/private)
Utilizing government and resource supply industry grants, rebates and other incentives, homeowners can improve the comfort and efficiency of their homes by retrofitting them with various resource conservation and energy production devices and systems. These upgrades could take place at a smaller scale with increased insulation, upgraded windows, improved air tightness, cloths lines, rain water collection systems and new energy efficient appliances. At a larger scale, solar (photovoltaics), wind (turbines), and geothermal renewable energy production could be utilized for electricity, heating and cooling needs.



STEP D visualizations

I

infill low density residential properties
(private ownership/ private use)

i. existing single detached houses on large under used lots

ii. mixed use building with affordable housing & live-work units

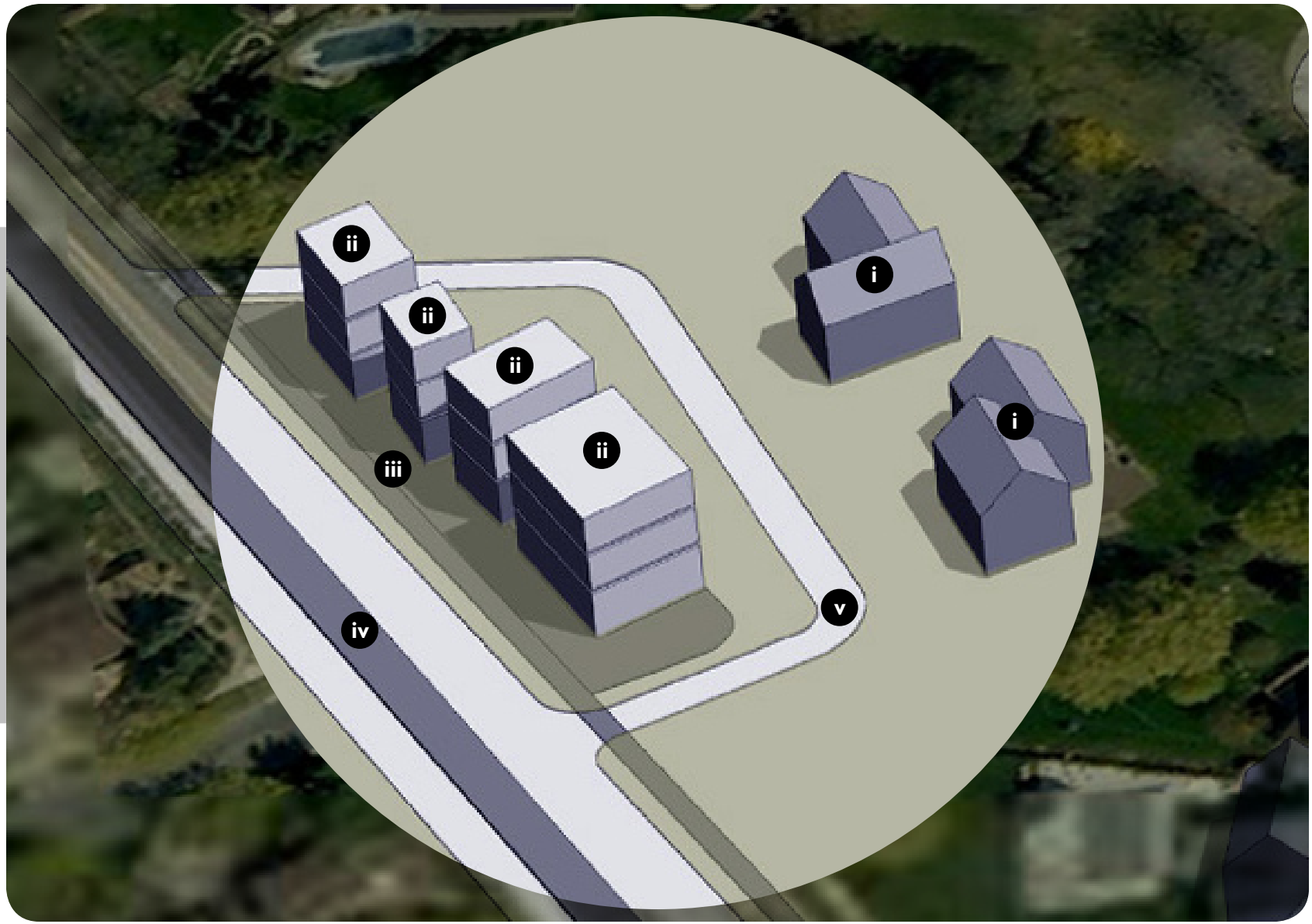
iii. minimal set backs (commercial uses to engage the street)

iv. designated public transit lane (LRT or BRT)

v. existing driveways to become double loaded service lane

[before]

3.23 existing aerial photo of two large single use residential properties

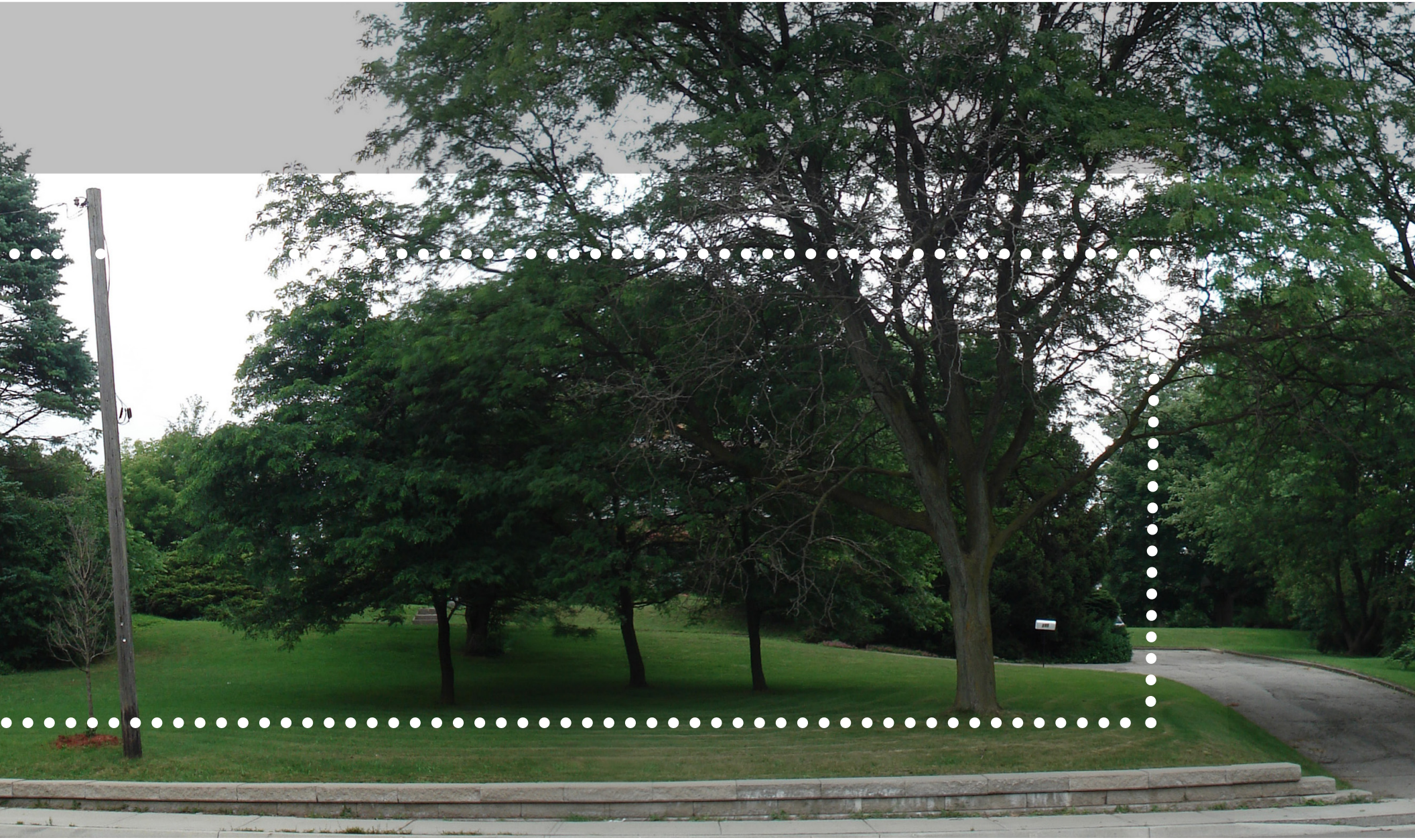


3.24 diagramatic blocking model of proposed residential infill

[after]

infill low density residential properties

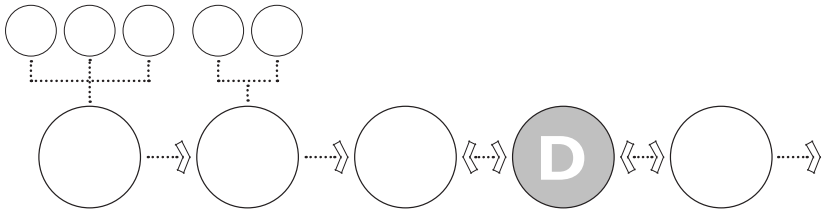
[before]



3.25 existing panoramic view of two large low density residential lots (zoned agricultural)

infill low density residential properties
[after]

3.26 proposed visualization of low density residential infill



STEP D visualizations

2 connect the cul-de-sacs

(public ownership/ public use)

[before]

3.27 existing aerial photo of two cul-de-sacs intersected by University Ave.

i. existing single detached residential cul-de-sac with multi-use pedestrian connection made to University Avenue.

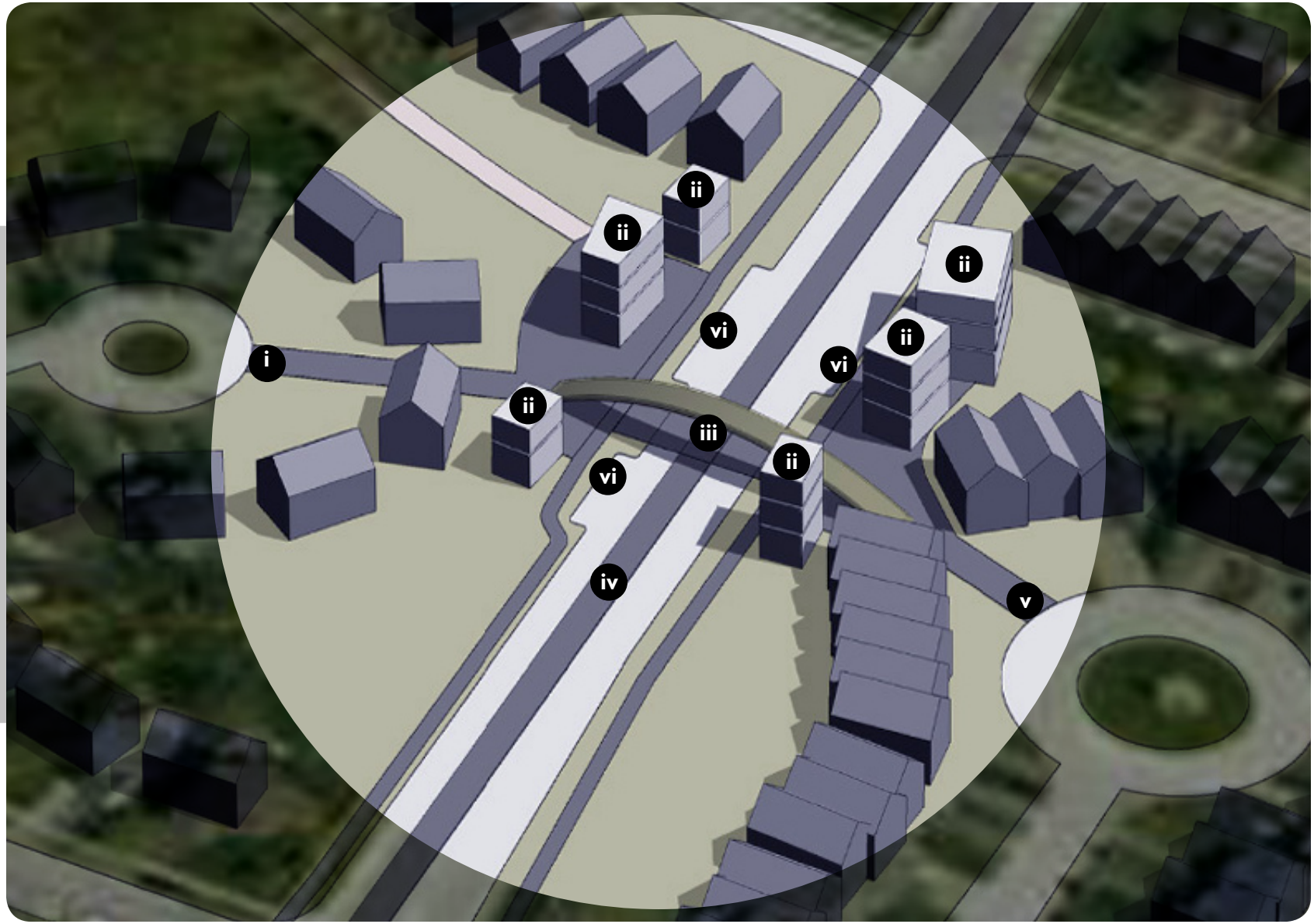
ii. mixed use building with affordable housing & live-work units

iii. pedestrian bridge and public transit stop

iv. designated public transit lane (LRT or BRT)

v. existing multi-attached residential cul-de-sac with multi-use pedestrian connection made to University Avenue

vi. street parking



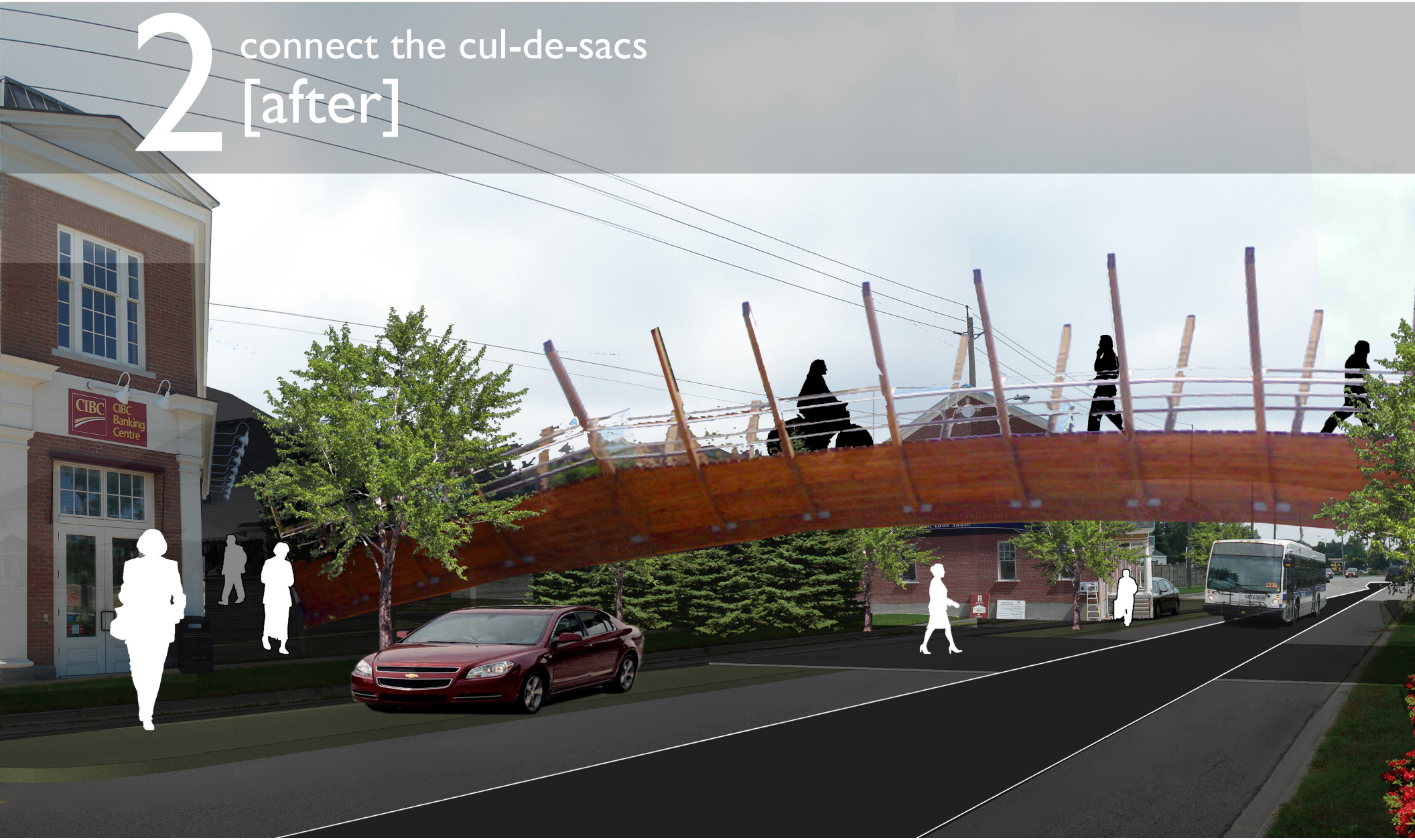
3.28 diagramatic blocking model of proposed cul-de-sac connection

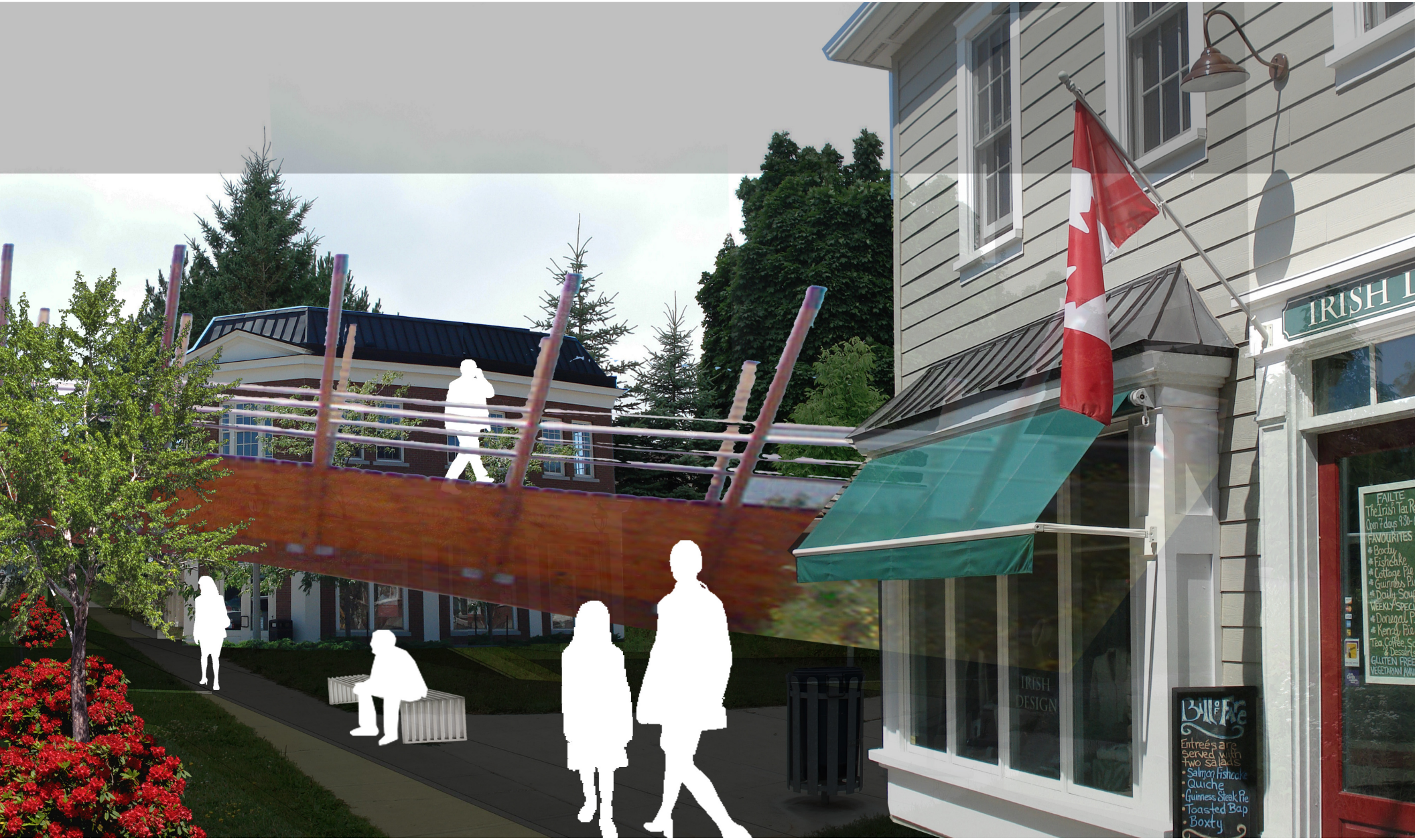
[after]

2 connect the cul-de-sacs [before]

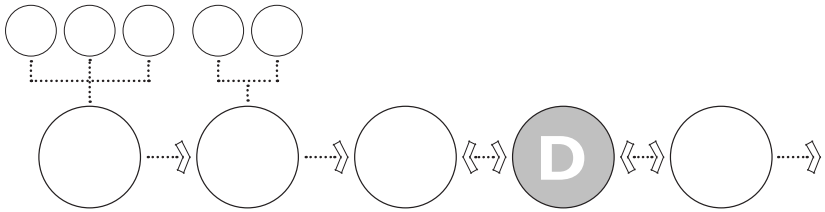
3.29 existing panoramic view of University Ave. connection point between two cul-de-scs

2 connect the cul-de-sacs [after]





3.30 proposed visualization of University Ave. connection point between two cul-de-scs



STEP D visualizations

3

intensify transit oriented node
(private ownership/ public use)

[before]

3.31 existing aerial photo University Downs Plaza (UDP)

i. existing gas station

ii. existing commercial strip mall

iii. public transit depot

iv. mixed use building with affordable housing & live-work units

v. above ground parking structure

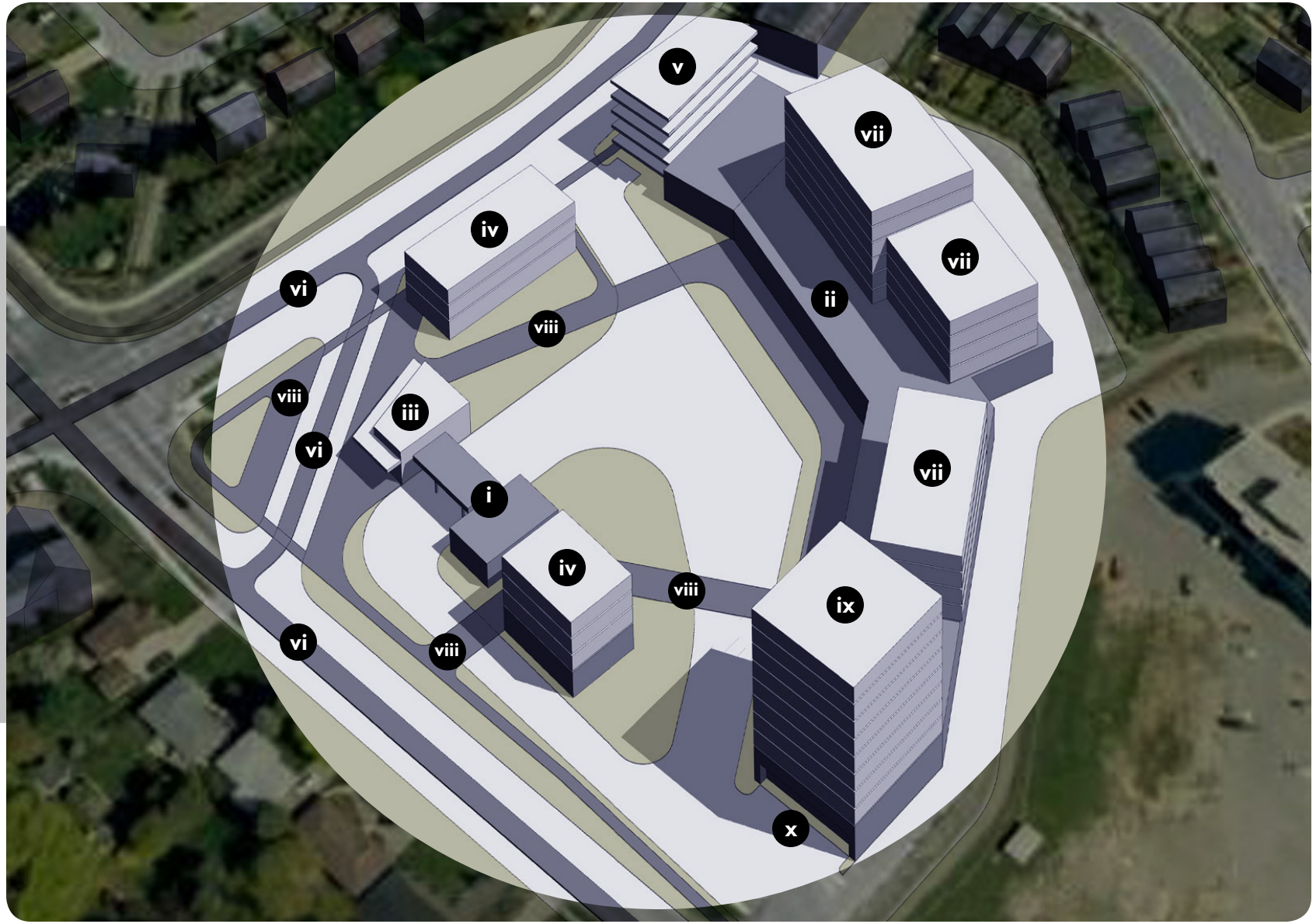
vi. designated public transit lane (LRT or BRT)

vii. retail, office, service & residential mixed use building density

viii. multi-use pedestrian pathways

ix. condominium building with view over Bechtel Park

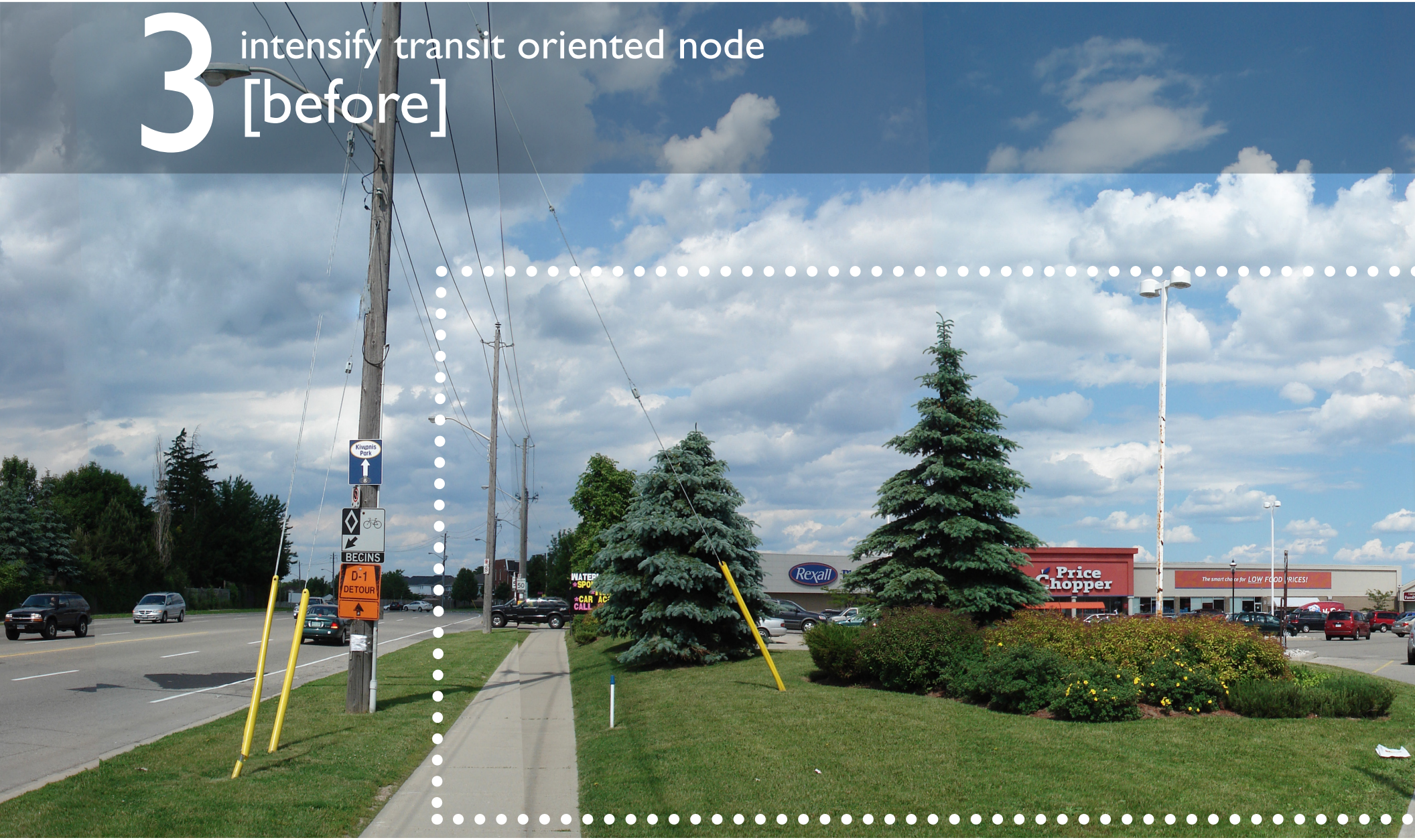
x. underground parking



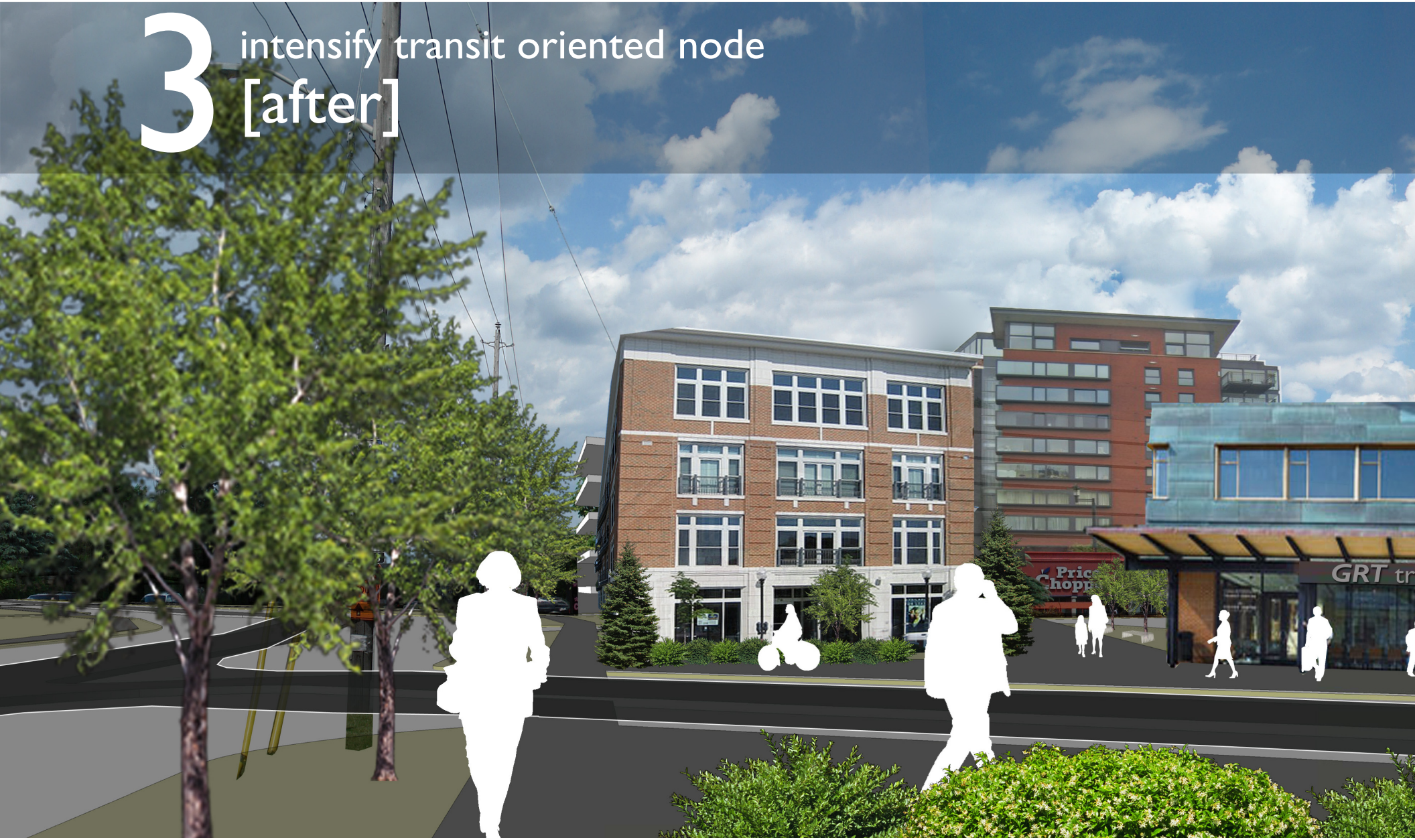
3.32 diagramatic blocking model of proposed intensification of UDP

[after]

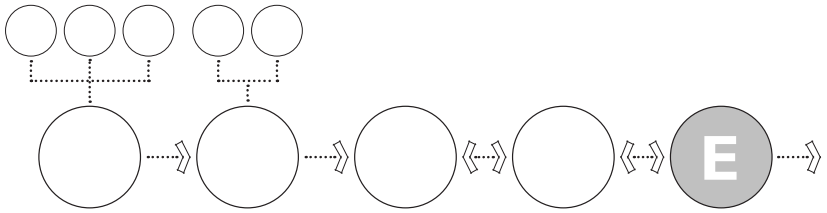
3 intensify transit oriented node [before]



3.33 existing panoramic view of University Downs Plaza (UDP)


3
intensify transit oriented node
[after]
GRT

3.34 proposed visualization of UDP as intensified transit oriented development (TOD)



STEP E community presentation & education

drawing connections to future initiatives...

As previously mentioned, it is critical that each of the strategies proposed in this application be presented by the architect to the appropriate ownership group as well as the community as a whole. These presentations should specifically address the interests of the group they are being presented to with a focus on educating the group of how their support, investment, and collaboration can improve their own well being along with the well being of the community as a whole.

The more strategies that are successfully executed and supported by the community at large, the more they will be repeated by a given ownership group. By looking for the best social, ecological and economic fit for a given strategy on a specific site, a community is not only increasing the chances of success on that particular initiative but also promoting the repetition of the strategy on other sites of varying scales.

An architect involved in this process needs to visualize how the successful implementation of an initiatives could produce further revitalization attempts. As shown in figure 3.35, the six specific site strategies applied in this thesis can be used as ignitors for future redevelopment and intensification of this particular suburban study area.

[primary applications]

1. **The successful implementation of this infill project will encourage other single use residential property owners to infill their lots after they become educated on the type of rental revenue and increased property values they could benefit from.**

2. **This type of public initiative to appropriate land and connect isolated areas with programmed, pedestrian friendly public space will be repeated at different locations and begin to create a new level of community connection and pedestrian permeability.**

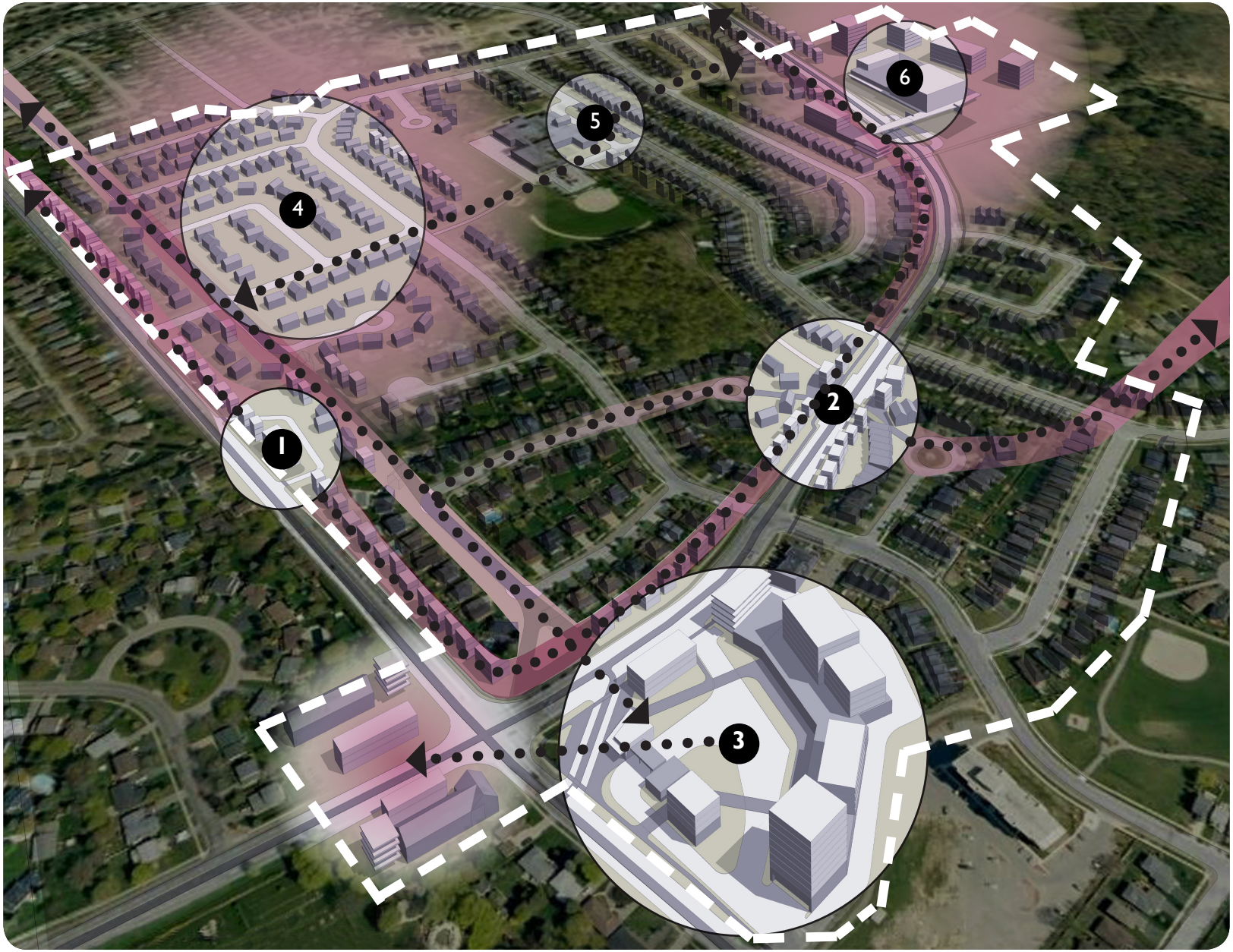
3. **This intensification, mix of uses, and non-conventional way to deal with vehicular and pedestrian movement could educate other owners of single use commercial properties of the increased marketability and use of mixed use developments.**

[other possible applications]

4. The conversion of this hypothetical brownfield site would provide a valuable community amenity and attract further intensification.

5. Similar to the connect the cul-de-sac proposal, this strategy to create a programmed pedestrian zone along a conventional roadway will begin to enhance community connectivity and pedestrian movement

6. The successful completion of resource saving retrofits, which take advantage of government incentives, will encourage more home owners to invest in improving the efficiency of their homes.



3.35 aerial perspective showing how each site responsive application strategey can promote future revitalization initiatives

conclusions

conclusions & future directions...

The fossil fuel dependent, unsustainable nature of sprawling, homogenous, low density suburban style developments has been well documented over the past decade (Dunham Jones & Williamson, 2009; Kuntsler, 1993). This, combined with the recent economic downturn and decreased value and suburban housing market in the United States, could have one wondering whether the suburbs of today will become the slums of tomorrow. Before acting on these criticisms and concerns, one must first attempt to understand the viewpoints of suburbia's supporters (which consists of a large majority of its residents). After one attains this perspective, a comprehensive and collaborative process can be outlined for existing suburban revitalization that doesn't only focus on the apocalyptic need for change, but also on the exciting potential for creating more vibrant and livable suburban communities.

Currently, many smart growth movements are attempting to curb the development of more inefficient greenfield suburbs by increasing density requirements on new developments and/or directing new growth towards defined urban areas within the downtown and inner city areas. Despite these best intentions, existing suburban areas are largely being ignored as 'established neighbourhoods'. This thesis sought to address this oversight by developing a process that would allow these suburban areas to be engaged and revitalized.

In attempting to develop such a process, a clear understanding of all the challenges associated needed to be attained. Dealing with the ownership of land within the suburban housing fabric and along the arterial and collector roads quickly crystallized as the most significant of all the challenges. Other defined issues included: redefining the roles of the parties involved in greenfield development; diversifying the homogenous building type and use; manipulating inflexible street layout patterns; overcoming vehicle dominance; improving building performance; managing gentrification; and finally time and money restrictions. Although it was very important to understand these challenges and conceive of ways to overcome them, this thesis also wanted to cite some of the opportunities associated with suburban revitalization. These opportunities were categorized within the three fundamental components of sustainability (environment, economy and society).

The greenfield suburban development process is by no means a suitable fit for the revitalization of existing suburban areas, however, it did provide some valuable insights into what drives suburban development. For example, greenfield developments are responsive first and foremost to the demands of current markets and economies. This same type of responsiveness was incorporated into this revitalization process, however, it did not just involve economic drivers but also ecological, and social. This adaptable nature was achieved by stipulating that step one's list of revitalization strategies, principles and case studies be continually revised and updated. Also, the process allows for revisions and re-directions to take place between steps three, four, and five of the process.

As is the case with any community development project, the definition of roles is crucial. The municipal government will act as administrators, other levels of government as supporters, private and public land owners as investors, residents as stakeholders, and perhaps most importantly, architects as visionaries and educators

Although the suburban revitalization process defined in this thesis is meant to be inclusive of the expertise of all design professionals and input of community stakeholders, the unconventional role of the architect is somewhat set apart. As site analysts, visionaries, and educators, architects will bring a omniscient presence that has been void from post-war suburban development. It may seem like a daunting and somewhat overbearing task, however, holistic suburban design problems require a holistic perspective. Architects more than any other professional discipline, government body, or community stakeholder are equipped to look at design issues within a broad scope and not get tied down by one particular objective. It is important to note that the proposed role for architects within this suburban revitalization process does not negate the need for architects in more conventional roles (i.e. residential, commercial or institution building design). It is the proposal of this thesis that architects begin to engage with suburban environments by taking on a new and exciting role within the framework of this collaborative revitalization process.

As mentioned in the introduction, this thesis chose to focus on mid-sized cities. Although the application of the process outlined in this thesis was limited to the city of Waterloo, it is designed to be transferable to other North American mid-sized cities.

Due to various time and resource restraints the suburban revitalization process was only applied to one suburban study area and the resident feedback portion of step two was not completed. The successful implementation of such a process will therefore require further testing, assessment, and discourse.

Throughout the course of this thesis, many future research directions became apparent. After researching the history of postwar suburbia and understanding the dramatic effect that the automobile has had on the built landscape, one can only begin to imagine how telecommunications may effect our urban environments in the coming decades. An investigation into how non-conventional, public engagement initiatives such as web-based surveys, message boards, or chat rooms could increase the level of community involvement and interaction in suburban areas could prove very useful. Also, despite the fact that this thesis required a general understanding of the social, ecological, and economic realms effecting existing suburban communities, a more detailed analysis of these factors could produce more specific, responsive strategies for sustainable change and growth.

Throughout my undergraduate and graduate education here at the University of Waterloo School of Architecture, I have been taught not only how to design a beautiful building but also how to analyze the culture and environment where that building will be located. Fundamentally, I have been taught to weigh the overall environmental, economic, and social sustainability of all my projects. As I now reflect on these skills and the needs of existing suburban environments, I see that there is a definite place for architects in suburbia. One such place is within the framework of the suburban revitalization process outlined in this thesis. By engaging architects in this process, clear visions of better designed suburban environments will entice the investment, support, and participation of developers, policy-makers, decision-makers and community residents.

bibliography

bibliography - literature

Betancur, John. 2002. The Politics of Gentrification: The Case of West Town in Chicago. Urban Affairs Review, July 2002, Vol. 37, No. 6: 780-814. Sage Publications.

Brown, Alex, Diane Bell, Jane Neath, & Rosemary Smith. 2007. Waterloo region's vital signs. Region of Waterloo.

Bunting, T., Filion, P., Seasons, M., Lederer, J., & Hoernig, H. 2007, "Density, Size, Dispersion: Towards Understanding the Structural Dynamics of Mid-Size Cities", Canadian Journal of Urban Research, vol. 16, no. 2, pp. 27-52.

Burby, R. 2003, "Making Plans that Matter: Citizen Involvement and Government Action", Journal of the American Planning Profession, vol. 69, no. 1: 33+.

Calthorpe, Peter, & William B. Fulton. 2001. Regional city : Planning for the end of sprawl. Washington, DC ; London: Island Press.

Calthorpe, Peter, Lars Lerup, & Robert Fishman. 2005. New urbanism : Peter calthorpe vs. lars lerup. Michigan debates on urbanism ; v. 2. Ann Arbor, Mich. : New York: University of Michigan. A. Alfred Taubman College of Architecture ; Distributed by Arts Press.

Campoli, Julie, & Alex S. MacLean. 2007. Visualizing density. Cambridge, Mass.: Lincoln Institute of Land Policy.

Dobbins, Michael. 2009. Urban design and people. Hoboken, N.J.: Wiley.

Downs, Anthony. 2004. Growth management and affordable housing : Do they conflict?. Brookings metro series. Washington, D.C.: Brookings Institution Press.

Duany, Andres, Elizabeth Plater-Zyberk & Jeff Speck. 2001. Suburban nation : The rise of sprawl and the decline of the american dream. 1st paperback ed ed. New York: North Point Press.

Dunham-Jones, Ellen, & June Williamson. 2009. Retrofitting suburbia : Urban design solutions for redesigning suburbs. Hoboken, N.J.: John Wiley & Sons.

Filion, Pierre. 2007. The Urban Growth Centres Strategy in the Greater Golden Horseshoe: Lessons from Downtowns, Nodes, and Corridors. Toronto, ON. Neptis Foundation.

Fischel, W. 1999, "Does the American Way of Zoning Cause the Suburbs of Metropolitan Areas to be Too Spread Out"?, A. Altschuler, et al. (eds.), Governance and opportunity in metropolitan America, Washington, D.C.: National Academy Press, pp. 151-191.

Fulton, William B. 1996. New urbanism : Hope or hype for american communities?. Policy focus series (lincoln institute of land policy. Cambridge, MA: Lincoln Institute of Land Policy.

Garde, Ajay M. 2008. Innovations in urban design and urban form: The making of paradigms and the implications for public policy. Journal of Planning Education and Research 28, (1) (September): 61-72.

———. 2004. New Urbanism as Sustainable Growth? A Supply Side Story and Its Implications for Public Policy. Journal of Planning Education and Research 24: 154-170.

Government of Ontario. February 2005. Places to Grow: Draft Growth Plan for the Greater Golden Horseshoe. Queen's Printer for Ontario.

Harris, Richard, & P. J. (Peter J.). Larkham. 1999. Changing suburbs : Foundation, form and function. Studies in history, planning, and the environment ; 2. London : New York: E & FN Spon ; Routledge.

Horne, Rob, & Ken Seiling. 2007. Visualizing densities part II: Future possibilitiesRegion of Waterloo.

———. 2006. Visualizing densities part I: Existing conditionsRegion of Waterloo.

Jacobs, Jane, & William Dendy, 1948-,former owner. 1961. Death and life of great american cities. New York: Vintage Books.

Jenks, M. Michael, Elizabeth Burton, & Katie Williams. 1998. Compact city : A sustainable urban form?. 1st ed ed. London ; New York: E & FN Spon.

Kenworthy, Jeffrey. 2006. The eco-city: ten key transport and planning dimensions for sustainable city development. Environment & Urbanization, 2006 April, v.18, n.1, p.67-85.

Knaap, G. & Talen, E. 2005, "New Urbanism and Smart Growth: A Few Words from the Academy", International Regional Science Review, vol. 28, no. 2, pp. 107-118.

Kostof, Spiro, & Greg Castillo. 1995. History of architecture : Settings and rituals. 2nd ed. / revisions by Greg Castillo ed. New York: Oxford University Press.

Kunstler, James Howard. 2006. Long emergency : Surviving the end of oil, climate change , and other converging catastrophes of the twenty-first century. New York : [Berkley]: Grove Press, ; Distributed by Publishers Group West.

———. 1993. Geography of nowhere : The rise and decline of america's man-made landscape. New York: Simon & Schuster.

Langdon, Philip. 1994. Better place to live : Reshaping the american suburb. Amherst: University of Massachusetts.

Lee, Barrett, Gregory Lipton & Bruce London, 2002. The Deterninants of Gentrification in the United States: A City-Level Analysis. Urban Affairs Quarterly, March 1986, Vol. 21, No. 3: 369-387. Sage Publications.

Lilley, Brian. 2007. On the road to 2030. Canadian Architect, 2007 June, v.52, n.6 52, (6) (p.23-24): 23-4.

Lukez, Paul. 2007. Suburban transformations. 1st ed ed. New York: Princeton Architectural Press.

Macdonald, E. 2008, "The Efficacy of Long-Range Physical Planning: The Case of Vancouver", Journal Of Planning History, vol. 7, no. 3, pp. 175-213.

McLaughlin, & Richard Pearce. 2007. Waterloo : An illustrated history. [Waterloo, Ont.]: Windsor Publications (Canada).

Metropolitan Knowledge International, The Logit Group, GLPi 2005. Reurbanization market analysis and feasibility study.

Newman, Oscar. 1995. Defensible space - A new physical planning tool for urban revitalization. American Planning Association. Journal of the American Planning Association; Spring 1995; 61, 2; ABI/INFORM Global

Newman, Peter, Dr., & Isabella Jennings. 2008. Cities as sustainable ecosystems : Principles and practices. Washington, D.C.: Island Press.

Palen, J. John. 1995. Suburbs. New York: McGraw-Hill.

Parsons, Kermit C. (Kermit Carlyle), & David Schuyler. 2002. From garden city to green city : The legacy of ebenezer howard. Center books on contemporary landscape desig. Baltimore, Md. ; London: Johns Hopkins University Press.

Perry, Stewart E. & Michelle Marie Colussi. 2000, Tools & Techniques for Community Recovery & Renewal, 1st ed. Port Alberni, B.C.: Centre for Community Enterprise

Region of Waterloo. 2008. First draft regional official plan, 2008 Sept.

———. 2006. Regional offical policies plan september 2006 consolidation, 2006 Sept.

Reurbanization Working Group, & IBI Group. 2008. The station area plan pilot project. Region of Waterloo.

Saab, John A. 2007. Historical Amnesia: New Urbanism and the City of Tommorow. Journal of Planning History, 2007 August, v.6, n.3. Sage Publications.

Talen, Emily. 2008. Design for diversity : Exploring socially mixed neighborhoods. 1st ed ed. Amsterdam ; Boston ; London: Architectural Press.

———. 2008. Beyond the Front Porch: Regionalist Ideals in the New Urbanist Movement. Journal of Planning History, 2008 Feb., v.7, n.1. Sage Publications.

———. 2005. New urbanism and american planning : The conflict of cultures. Planning, history, and the environment serie; planning, history, and the environment series. New York: Routledge.

Van der Ryn, Sim, & Peter Calthorpe. 1986. Sustainable communities : A new design synthesis for cities, suburbs, and towns. San Francisco: Sierra Club Books.

bibliography - websites

Canadian Mortgage and Housing Corporation (CMHC)
www. cmhc.ca

Congress for New Urbanism
www.cnu.org

City of Cambridge, Ontario
www.cambridge.ca

City of Kitchener, Ontario
www.kitchener.ca.ca

City of Waterloo, Ontario
www.city.waterloo.on.ca

Places to Grow - Ontario
www.placestogrow.ca

Province of Ontario
www.ontario.ca

Regional Municipality of Waterloo
www.region.waterloo.on.ca

Statistics Canada
www.statcan.gc.ca