

THE AGE-FRIENDLY COMMUNITY

South St. Vital Neighbourhood Assessment

University of Manitoba | Department of City Planning
December 2011



All content and layout by Jillian Geen, Krysti Horton, Aaron Leckie and Dylan Harris (unless otherwise noted).

This report was completed for the City Planning Studio 1 at the University of Manitoba.



**UNIVERSITY
OF MANITOBA**



ACKNOWLEDGEMENTS

First and foremost, many thanks to our group for putting in hard work, extra time and effort.

Thank you to Richard Milgrom and Scott McCullough for their help and encouragement, especially with the content and design.

We would also like to acknowledge the City of Winnipeg for providing the maps and Gary Strike for statistics information.

Special thanks goes to Karen and the Boni Vital seniors group at the Dakota Community Centre. We appreciate your time and constructive feedback. Ultimately, this report is for you.

EXECUTIVE SUMMARY

This report will examine the neighbourhood of South St. Vital and its capacity as an age friendly community. In conducting our age friendly analysis we utilized two documents to better frame our research. The City of Winnipeg's Complete Communities document was used to understand the City's vision for future development of the South St Vital area. The World Health Organization's Global Age Friendly Cities: A Guide provides global context examples to build the criteria of age friendly cities.

The W.H.O. identifies the topic areas of outdoor spaces, housing, transportation and social participation as being especially relevant when analyzing the age friendliness of a community. Through community visits, observations were made in regards to specific improvements that will make South St. Vital more age friendly.

Design recommendations for improvements to buildings and outdoor spaces include the addition of a crosswalk at St. Mary's and Gleendell, a traffic light on Dakota Street near the Dakota Community Centre and increased signage and raised intersections along the Dakota Street multi use path aim to improve neighbourhood walkability.

The redevelopment of a centralized transit station at St. Vital Centre offers accessible, high frequency transit service, increasing transportation opportunities regardless of mobility needs. The centralization of this transit station also provides opportunity for densification and redevelopment, in alignment with transit oriented development principles.

The need for diverse and affordable older adult housing opportunities was identified in community conversations as being an area for improvement. By supporting the implementation of secondary suites there is an opportunity to age in place with family support, as an alternative to assisted living facilities. Supporting the development and tenure of mobile home parks has also been identified as a flexible and affordable housing option for older adults in South St. Vital.

By implementing the proposed design and policy recommendations, we believe there is increased opportunity to age in place, move efficiently in one's environment regardless of mobility needs while having access to safe and affordable housing. By taking a holistic approach to neighbourhood improvements, the ultimate goal is to provide an environment that is inclusive in nature, encouraging community ties and social participation.

TABLE OF CONTENTS

List of Figures	2
List of Maps	3
Background Information (Introduction, Study Area, Demographics, & Project Overview)	5
Outdoor Spaces & Buildings (Observations, Opportunities, & Designs)	13
Transportation & Mobility (Observations, Opportunities & Recommendations)	19
Housing (Observations, & Recommendations)	31
Social Participation (Observations, & Recommendations)	43
Conclusion	48
References	49

LIST OF FIGURES

Figure #	Description	Page #
1	WHO categories for age friendly cities.	5
2	Population pyramid for South St. Vital 2006.	7
3	Population pyramid cluster 1981-2006 South St. Vital.	8
4	Streetsection drawing of Dakota Crossing strip mall.	13
5	The redevelopment project of Belmar Mall in Denver.	17
6	Transportation mode choice in South St. Vital, 2006.	19
7	Types of homes available in South St. Vital, 2006.	31
8	Housing condition in South St. Vital, 2006.	32
9	A secondary suite within an existing home.	34
10	A garage converted into a secondary suite.	34
11	A stand-alone secondary suite in a backyard.	34
12	Secondary suite floor plan option 1.	37
13	Secondary suite floor plan option 2.	39

LIST OF MAPS

Map #	Description	Page #
1	Complete Communities designation - South St. Vital.	5
2	South St. Vital in relation to Winnipeg municipal boundaries.	6
3	Area of study within South St. Vital.	6
4	Population concentration of 65+ residents in South St. Vital.	9
5	Locations of proposals in South St. Vital.	10
6	Locations of crosswalks within South St. Vital.	14
7	400 Meter walking distance from seniors specific housing.	33
8	Possible locations of future secondary suite construction.	37

I.

Background Information



INTRODUCTION

This report presents the initial observations and neighbourhood analysis of the condition of the South St. Vital area. The objective of the document is to provide an overview and preliminary evaluations in order to consider how age-friendly the area is. By compiling information on South St. Vital's demographics, physical characteristics, inventory of services and amenities, the overall patterns of development including housing and transportation options, as well as the opportunities for senior social participation this report will provide an understanding and the background information required to aid further research.

In effort to direct further age-friendly analysis the City of Winnipeg's *Complete Communities An Our Winnipeg Directions Strategy* along with the World Health Organization's *Global Age-Friendly Cities: A Guide* were used as guides for this investigation. The recommendations from the Complete Communities strategy and the age-friendly criteria set by the World Health Organization were taken into consideration when setting the parameters of study.

The South St. Vital area contains three different designations under the Complete Communities strategy.

Regional Mixed Use Centre

The St. Vital Centre, although predominantly single use, is considered a mixed use centre as it shows opportunity for mixed use development. This area could serve as a key transition node using 'density graduation' (p. 48), to create a pattern of high density around the Centre. The area contains specialized employment sectors as well as having diverse commercial services. There are frequent and accessible transit options. It is considered a destination connected by main corridors and could support expansion as the area has good infrastructure and a large land base.

Regional Mixed Use Corridor

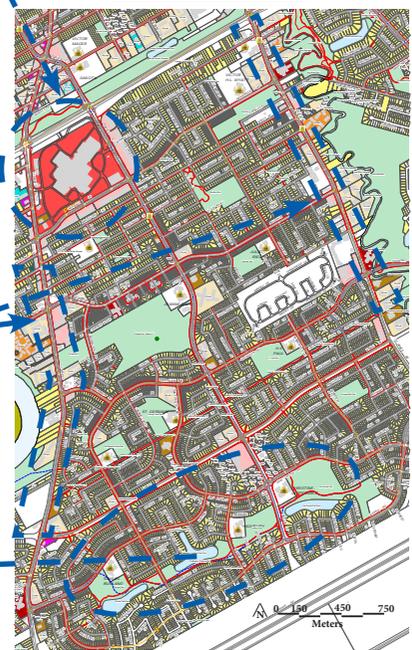
St. Mary's Road and St. Anne's Road are the major arterial s running through the area. They are designated as regional mixed use corridors as they feed areas of higher activity by linking down town through South St. Vital all the way to the Perimeter Highway. There is a mix of residential and commercial development along these corridors.

Recent Community

South St. Vital is not specifically listed as a recent community in the City's direction strategy but it does fit much of the criteria. The area was built mainly after 1970 with lower and medium density residential options. The road systems include grid/semi-grid patterns and in the newer southern neighbourhoods the streets are curvilinear with limited sidewalks and no backlanes.

The World Health Organization's *Global Age-Friendly Cities: A Guide* (2007), describes an age-friendly community as a place that enables people to actively age while supporting their quality of life including health concerns, ability for social participation and security. A community that "adapts its structures and services to be accessible to and inclusive of older people with varying needs and capabilities". (page1)

South St. Vital



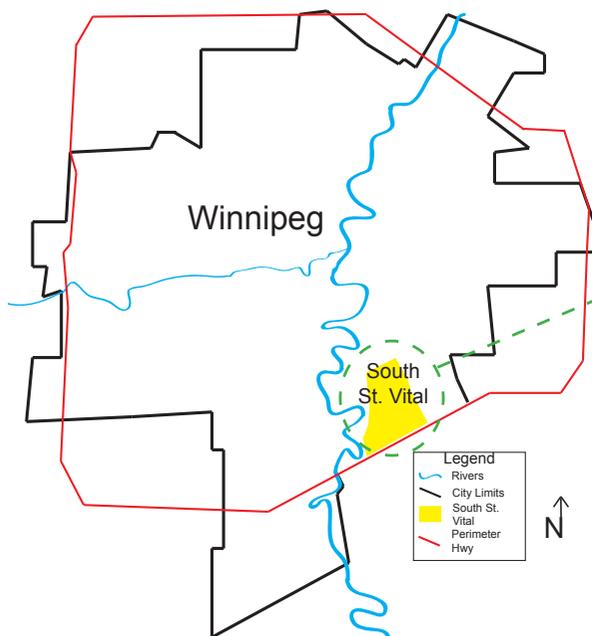
Map 1: Complete Communities Designation.



Figure 1: WHO Categories for age friendly cities.
Credit: WHO, 2007.

STUDY AREA

Winnipeg, Manitoba



Map 2: South St. Vital.
Credit: Krysti Horton

South St. Vital neighbourhood cluster



Map 3: Area of study.
Credit: City of Winnipeg, 2006.

Since the South St. Vital neighbourhood clusters occupy such a large area, in effort to deliver a more thorough analysis, this study will concentrate on four central neighbourhoods highlighted in yellow on the above map:

- Vista
- Meadowood
- River Park South
- Dakota Crossing

The area of study is defined by four major roadways. Bishop Grandin is to the North, St. Anne's Road to the East, St. Mary's Road to the West, and Perimeter Highway on the South. It occupies 2.2% of the City of Winnipeg's land mass.



Louis Riel Public Library.



Meadowood Drive and Dakota Street.



Bus on Burland Avenue.

DEMOGRAPHICS

Our demographic research utilized Statistics Canada census information as the primary source of data. Initial observations and analysis of our area of study was drawn from City of Winnipeg neighbourhood profiles (City of Winnipeg, 2006). The neighbourhood profile data was helpful in establishing a basic understanding of the four neighbourhoods that make up our study area.

In order to conduct a more thorough analysis with specific attention to age, Winnipeg census tracts were used to extract in-depth information. In addition to using census tracts, dissemination areas for the year 2006 were utilized in determining relative geographic concentrations of older adults within the study area. A disclaimer that should accompany this demographic analysis is the slight disparity between census tract boundaries and neighbourhood geographic boundaries. The population figures are not exactly representative of our area of study, but offer a close estimate.

For the purpose of this study the term older adult refers to individuals who are 65 years of age and older

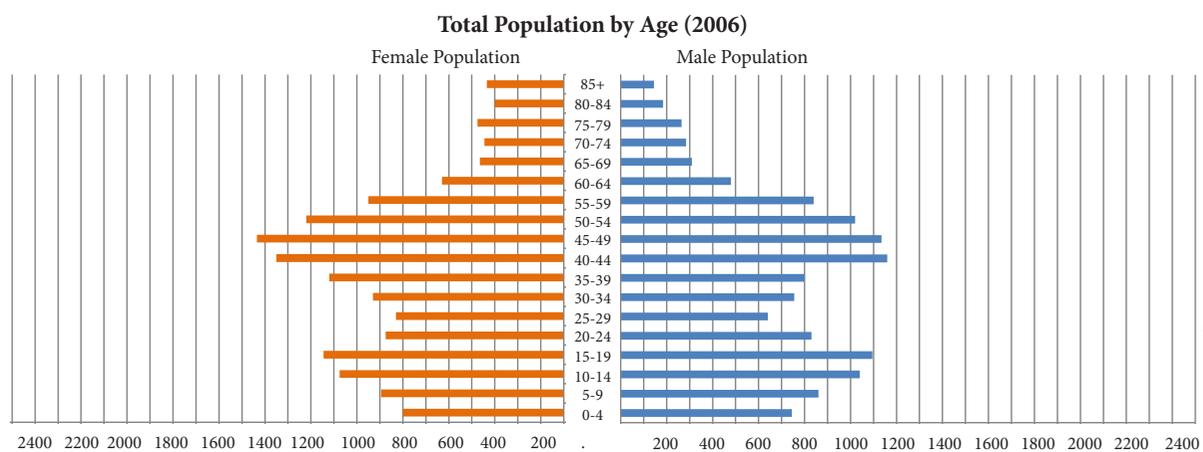


Figure 2: 2006 population pyramid provides most recent population distribution

Our area of study has shown significant growth in total population from 10 465 residents in 1981 to 26 260 residents in 2006 (Statistics Canada, 2011). This type of growth pattern is consistent with the emergence of a new community such as South St. Vital.

Older adult populations have also increased in number. Populations of residents 65 years and older have grown every census year from 440 residents in 1981 to 2910 residents in 2006.

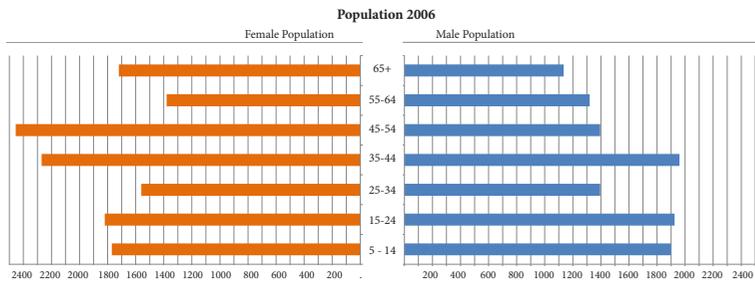
When observing the population pyramids from 1981 through 2006 there is a noticeable increase in population among age categories over the age of 45. The population in our area of study has evolved to become more age representative; from a very young population in 1981 to a more evenly distributed population in 2006.

An interesting observation shows the largest increase in older adult population percentage from 1996 to 2001, growing from 5.8% to 9.48 % of the area population. This comparatively large increase follows the only observable decrease in older adult population percentage that occurred from 1991 to 1996.

DEMOGRAPHICS

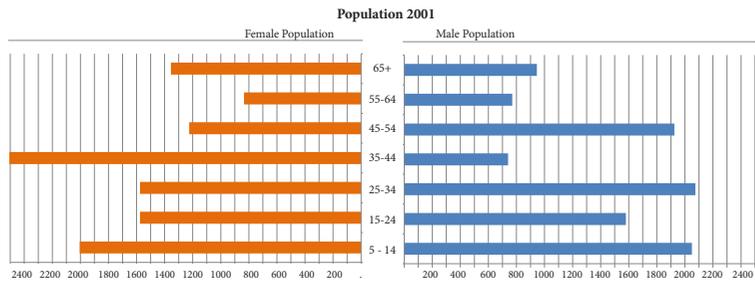
2006

Total population	26 260
Total population 65+	2910
% of population 65+	11.1



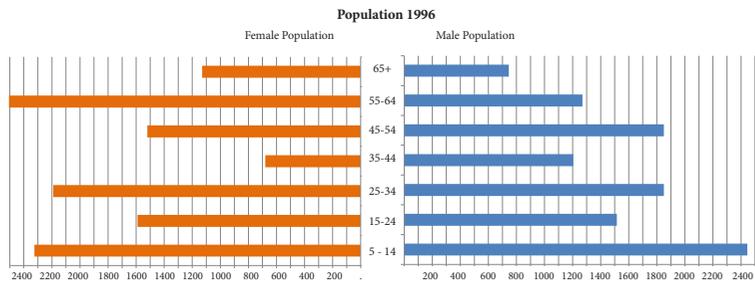
2001

Total population	24 250
Total population 65+	2300
% of population 65+	9.48



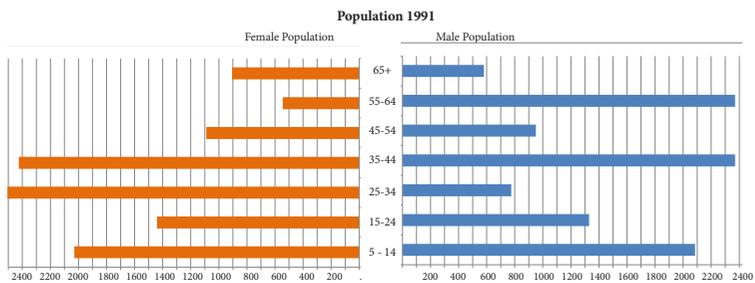
1996

Total population	25 900
Total population 65+	1500
% of population 65+	5.8



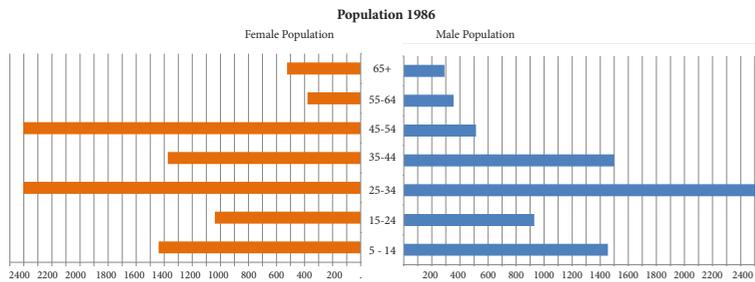
1991

Total population	23 990
Total population 65+	1485
% of population 65+	6.2



1986

Total population	16 600
Total population 65+	815
% of population 65+	4.9



1981

Total population	10 465
Total population 65+	440
% of population 65+	4.2

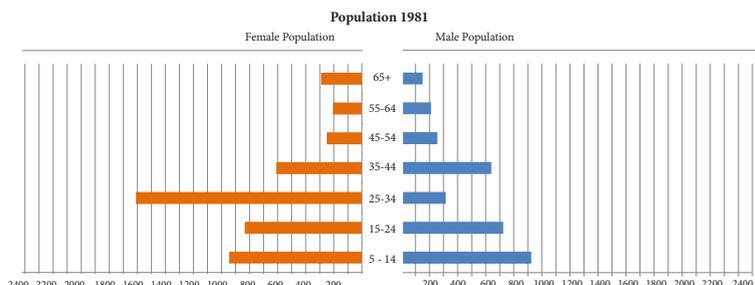
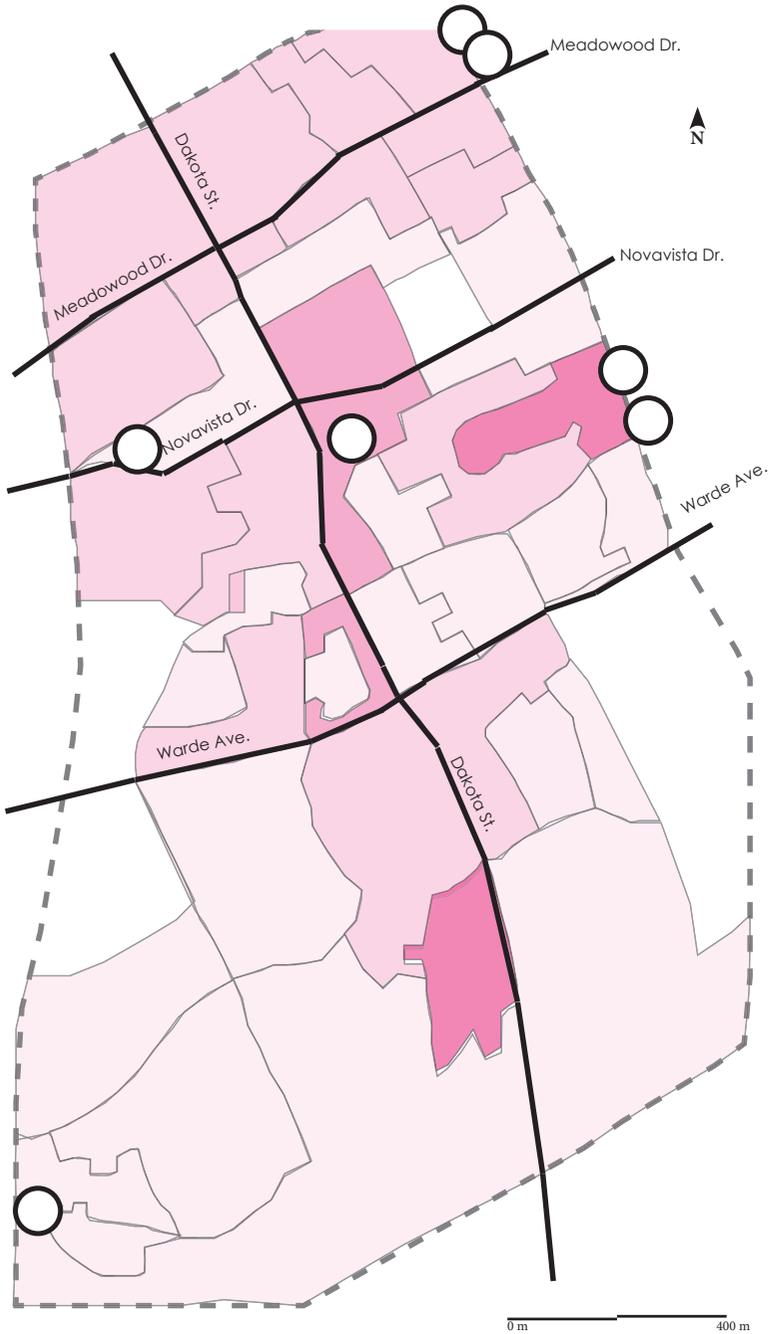


Figure 3: Population pyramid cluster from 1981-2006 illustrates changing population trends in South St. Vital

DEMOGRAPHICS

Population Distribution



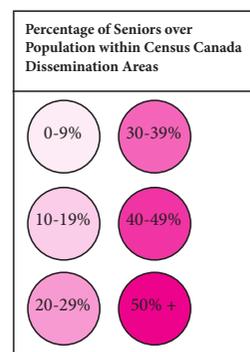
Map 4 : Population concentration of 65+ residents by Statistics Canada dissemination areas

The map on the left represents the percentage of older adults per dissemination area within our area of study. Dissemination areas were utilized to provide a more detailed analysis of where older adults were living in South St. Vital. The dark pink spaces represent a higher proportion of older adults living in a specific area.

Although the proportion of older adults appears evenly distributed, there are areas in the community where the older adult population exceeds 30%.

The highest concentrations of older adults are located along established streets (Dakota, Warde, Nova Vista).

The circles on the map represent older adult housing options. The spatial analysis shows our most densely populated dissemination area (St. Anne's between Novavista and Warde) is home to two oldest adult housing complexes.



PROJECT OVERVIEW

Outdoor Spaces and Buildings

- A crosswalk added on St. Mary's Road at Greendell Avenue.
- Traffic light and crosswalk added to Dakota Street at the exit of the Louis Riel Library and Dakota Community Centre.
- Multi use pathway along Dakota upgrade: including raised crossings and new signage.
- Parking lot redevelopment: green and more pedestrian friendly.

Transportation

- Transit terminal revitalization and expansion at St. Vital Centre.

Housing

- Introduce secondary suites as another housing option.
- Promote mobile home community and improve age-friendly designs.
- Mixed use housing options around St. Vital Centre.

Social Participation

- Designing spaces that encourage and help improve social participation of all ages.



Crosswalk on St. Mary's Road at Greendell Avenue.



Traffic light at the exit of the Louis Riel Library and Dakota Community Centre and raised multi use path.

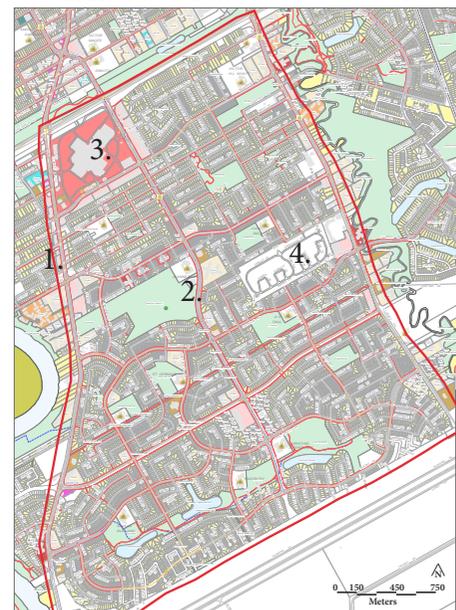


Transit terminal at St. Vital Centre.



Mobile home with ramp and secondary suite.

South St. Vital:



Map 5: Locations of proposals.
Credit: City of Winnipeg, 2011.

IV.

Outdoor Spaces & Buildings



OBSERVATIONS

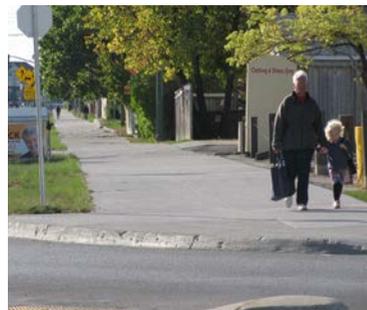
The neighbourhood of South St. Vital has been developed over several decades. The areas of Vista and Meadowood were completed between the mid 1950s and 1970s. From the late 1980s to present day, River Park South and Dakota Crossing were completed. The condition of roads and sidewalks in newer neighbourhoods are notably better than older neighbourhoods, and the community is generally in better condition than many other parts of Winnipeg.

Strengths

- The area has a wide variety of greenspaces including linear greenways, natural and manicured parks, playing fields associated with school grounds, and tot lots.
- Manicured green spaces feature excellent access including paved trails and benches, while areas such as the naturalized spaces in Dakota Park are not as accessible, but provide opportunities to see a variety of wildlife.
- A new pathway; completed in Summer 2011; provides excellent pedestrian access along Dakota and links to the Bishop Grandin Greenway paths, the Dunkirk Avenue path, and many of the transit lines serving the community.
- Amenities are found at a number of small nodes spread throughout the community.
- Many of the nursing and retirement residences are within a 400m walking distance of one or more of these nodes.



Greenwood Park.



Dakota Pathway looking south.

Areas for Improvement

A major barrier to accessibility for people of all ages is the tendency for commercial centres to include large surface parking lots and buildings set back from the street.

- Thoroughfares have long distances between controlled crossings and because they are multi-lane roads, they can be difficult to cross in the time permitted.

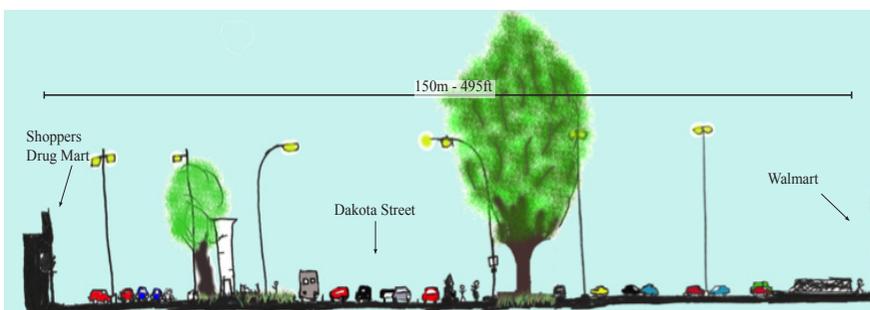


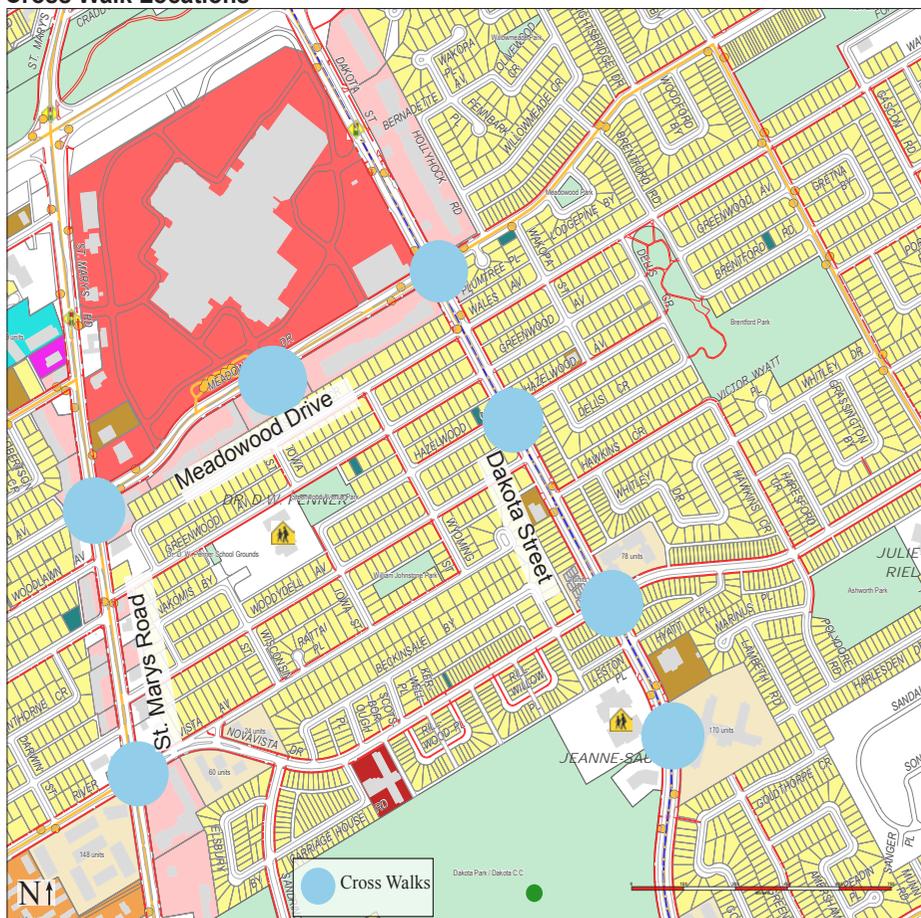
Figure 4: Dakota Crossing mall parking lot.



Dakota Street looking north.

OPPORTUNITIES

Cross Walk Locations



Map 6: Locations of crosswalks near St. Vital Centre.
Credit: City of Winnipeg, 2011.

Consultation

During our first and second community consultations, challenges were brought up concerning outdoor spaces and buildings. Traffic lights, the new Dakota Pathway system, and large parking lots were challenges brought up or discussed during the meetings.

Through consultation as well as using our observations and analysis, we have come up with four recommendations to meet the outdoor spaces and buildings challenges.

1. Adding a pedestrian crossing light on St. Mary's Road.
2. Installing a traffic light at the exit at Dakota Community Centre and Louis Riel Library on Dakota Street.
3. Improving signage on the Dakota pathway and create an environment that gives pedestrians and cyclists priority over vehicles.
4. Making large parking lots more pedestrian friendly. As buildings reach the end of their life span rebuild them closer to the street.



Consultation at Dakota Centre.

Recommendations

Precedents were found for each recommendation to gain a better understanding as to what has been successful in other places and what could be used to meet the challenges identified in South St. Vital.

1) Traffic lights and pedestrian lights on St. Mary's and Dakota street do not have any associated precedence; however, the issue was clear. For St. Mary's the distance between crossing locations was more than 500 meters which does not allow for easy pedestrian access from both the west and east side of this busy 4 lane street. Benefits:

- Allows pedestrians to access both sides of St. Mary's Road safely.
- Slows down traffic on St. Mary's Road making the entire street safer.



Models of pedestrian crossing light at south of Greendell Avenue.



2) Exiting the Dakota Community Centre and Louis Riel library parking lot was identified as a major concern - especially during large events such as hockey games, socials, weddings and other community events. Pedestrians and cyclist using these facilities also do not have a safe or direct route to cross Dakota Street. Many seniors in the warmer months walk to the community centre and crossing Dakota at the current marked crosswalk is difficult.



Traffic light at the exit of Dakota Community Centre.

DESIGNS

3) Recommendation: Make the Dakota Pathway more user-friendly. The pathway is seen as a great asset to the South St. Vital's existing network of sidewalks and active transports routes. However, the limited signage fails to present clear information for use of the path. In fact most people we talked to did not realize that the large path was not exclusively for pedestrian but for cyclists as well. We recommend;

- Better signage allows users and vehicles to understand the use of the pathway.
- Emphasize pedestrian and cyclist priority over that of vehicles by adding paint and a raised continuous pathway cross at intersections.



Standard multi use path signage in Germany.



Copenhagen bike path with raised crosswalk.



Painted crossing on a bike path in Vienna, Austria.

In the short term painting the intersections can indicate a continuation of the pathway which gives a visual cue for both drivers and multi use path users that the pathway has priority. Precedents can be seen from Vienna, Austria. The midterm recommendation is to build raised bump-up across the intersections to allow continuous pathway use while indicating that path users have priority not the vehicles. This approach has been quite successful in areas such as Copenhagen.



Models of what the pathway on Dakota Street could look like.





Chico, California.

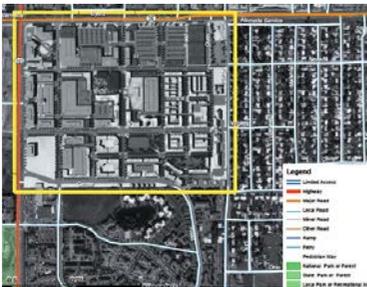


Figure 5: Redevelopment of the Belmar site.

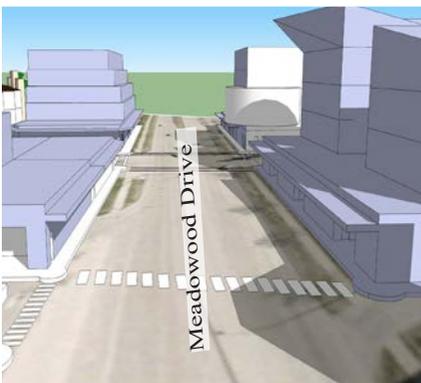
4) Recommendation: Make parking lots more pedestrian friendly and plan for long term building with minimal set back requirements.

The large parking lots in front of strip malls make it difficult for pedestrians to cross and access the shops. Therefore a safe pedestrian parking lot is important for the neighbourhood.

Precedents: Belmar Mall

When a mall in Lakewood Colorado reached the end of its life the entire site was redeveloped and revitalized. The asphalt and buildings were demolished, a grid street system was created, and new buildings, stores and apartments were built to create a new village centre. The redevelopment allowed for an area that was becoming barren and unused to come back to life. This type of redevelopment could be possible in South St. Vital as the buildings age and requires major repair.

In the long term for South St. Vital we recommend new commercial development close to the street and move parking lots to the rear of the buildings. This would increase the pedestrian nature of the area by allowing users to better access the buildings on foot. However, this would only work if the parking lots at the rear are still pedestrian friendly and employ the recommendations and best practices learned



Model of commercial development at St. Vital Centre.

Final Consultation

In December we met with seniors once again from the community to discuss our recommendations for an age friendly South St. Vital. For outdoor spaces the recommendations set forth were well received with the light exiting Dakota Community Centre and the Louis Riel library parking lot found to be especially desirable.

III.

Transportation & Mobility



OBSERVATIONS

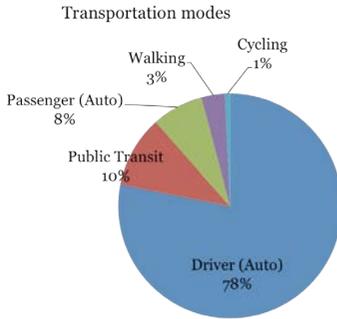


Figure 6: Transportation statistics for South St. Vital.

The World Health Organization has identified adequate transportation as essential to the everyday lives and mobility of citizens within cities. Transportation is intertwined with outdoor space and buildings, housing, and social participation. If transportation routes are not well connected, access to services and events may be limited to those who own private vehicles, or physically fit individuals. The image to the left shows the breakdown of transportation mode use in South St. Vital. As with the rest of Winnipeg, most people choose to use a private vehicle as their main source of transportation.

Strengths

Traffic & Parking

- Most businesses in South St. Vital are located within large strip malls with plenty of available parking.
- Drop-off zones and handicapped spots are large, and located within close proximity to the entrances of buildings.
- Traffic volumes appear moderate.

Surfaces

- The road surfaces on Dakota Street and in the new suburbs are in good condition having been built or resurfaced in recent years.
- Most of the infrastructure on St. Mary's Road and St. Anne's Road also appears in good condition.

Walking & Cycling

- Multi use paths such as the South St. Vital Pathway provide a connection to areas within the neighbourhood for active transportation.
- In many cases the suburbs in South St. Vital are connected to parkways running behind houses.



Handicapped Parking - YouVille Centre.



Dakota multi-use pathway.



The South St. Vital Pathway.

OPPORTUNITIES

Public Transportation

- Buses service most areas of South St. Vital and run at appropriate times.
- The area surrounding St. Vital Centre and Meadowood Drive are well serviced with multiple routes connecting to key city destinations.
- Most buses on weekdays and all buses on weekends have age-friendly features such as priority seating, destination alerts, low-floors, and ramps.
- On St. Mary's Road, St. Anne's Road, and Dakota Street bus shelters are located at key intersections and near retirement residences.



One of the newer bus styles in Winnipeg.
Credit: Winnipeg Transit.

Other Transportation Options

- The publically funded Handi-Transit and DART transportation systems are available in South St. Vital.
- The private sector offers transportation services for seniors such as Gullwing Transit Services, Handi-Helper, and Vital Transit.
- Volunteer services also exist in South St. Vital. The Personal Driving Assistance Program and Golden Retriever are two examples.



Most routes require a transfer at the St. Vital Centre.

Areas for Improvement

Buses & Connections

- Getting from South St. Vital to other city destinations usually requires a transfer at St. Vital Centre. Bus ridership has been shown to decrease if a transfer is required.
- The Vista Park & Ride facility is lacking handicapped stall.
- Buses during the morning and evening commute are overcrowded.



The Vista Park & Ride lacks handicapped stalls.

Private Transportation

- Improve services that offer information to seniors about driving conditions.
- For winter, identify which routes will be cleared first to better facilitate the movement of vehicles.

Walking & Cycling

- For pedestrians, crossing St. Mary's between Meadowood Drive and Nova Vista Drive is challenging.
- Although active transportation routes exist in South St. Vital, more connections are needed.



A crosswalk is needed between Nova Drive and Meadowood Drive.

RECOMMENDATIONS

Short Term Recommendations

Short term recommendations are categorized as improvements that are attainable between now and two years. The short term recommendations for transportation include:

1. Relocating the main bus terminal from Meadowood Drive to a location closer to St. Vital Centre.
2. Realigning roadways within the St. Vital Centre parking lot to prepare the site for infill development.
3. Creating new public greenspaces in high-traffic pedestrian areas surrounding the transit terminal.

1. Transit Terminal

Precedents

- In Brampton, Ontario, Brampton Transit recently relocated and upgraded the transit terminal to provide better service for commuters and access to the regional mall.
- The location of the new terminal was between the parking lot and the mall, signaling that priority is given to transit users over drivers.



The new Brampton Terminal with the mall parking lot in the background.
Credit: Brampton Transit.



The new terminal includes indoor space for small shops and a transit information centre.
Credit: Brampton Transit.

Best Practices

- Transit should be reliable and frequent. Buses should be added during peak commute times, evenings, and weekends.
- Transit terminals have the opportunity to be places that draw in activity and commercial development that in turn enhance the transit terminals and makes them a more enjoyable place.

Challenges and Limitations

- Providing efficient public transportation without compromising pedestrian connections between Meadowood Drive and The St. Vital Centre.

Design

- Information should be located in places that are easy to access and it should convey relevant transit information in a manner that is easy to understand.
- Universal Design building codes should be followed; the use of ramps, textured sidewalks, non-slip pads, and covered shelters should be standard practice .

RECOMMENDATIONS

2. Roadway Realignment

Precedents

- The streetscape enhancements in St. Catharines and the Niagara Region in general have improved the walkability of the community and areas surrounding main malls by redesignating road space for pedestrians.

Best Practices

- Roadway realignment should concentrate on four underlying principles: providing good public spaces, creating large sidewalks, improving safety, and improving neighbourhood connections.

Challenges and Limitations

- Streetscape improvements that slow traffic may also slow the response time of emergency crews. Careful consideration needs to be taken into account in consultation with first responders to ensure that access for emergency vehicles is not inadvertently restricted.

Design

- Sidewalks should be wide enough to accommodate wheelchairs.
- Corners should be bulbed-out to create safer roadway crossing environments for seniors.
- Uniquely textured materials are encouraged for crosswalks to better define the boundaries of vehicle and pedestrian traffic.



Small public spaces provide an extra buffer between pedestrians and vehicles in St. Catharines, Ontario.
Credit: Regional Municipality of Niagara.



A model of what the new St. Vital transit terminal could look like.

RECOMMENDATIONS

3. Greenspaces

Precedence

- In Philadelphia, Pennsylvania, and Manhattan, New York, small parks have been created in urban environments to provide refuge from the bustle of surrounding life, add 'green vitality' to a neighbourhood, and provide places of relaxation.



Pocket Park, New York City.
Credit: MD New York.

Best Practices

- Pocket parks should be used frequently near transit stops.
- Neighbourhood identity can be enhanced through the proper use of small greenspaces.

Challenges and Limitations

- Pocket parks are isolated and are rarely connected to larger neighbourhood parks.

Design

- Pocket parks should include or are close to amenities like benches, trees, public toilets, and recycling/garbage disposal facilities.
- The location near high traffic areas is key to the success of a pocket park. Three green spaces are planned within the immediate area of the transit terminal.



A model of how public space surrounding the transit terminal at The St. Vital Centre could appear.



Pocket Park in Philadelphia.
Credit: PlanPhilly

RECOMMENDATIONS

Medium Term Recommendations

Medium term opportunities are improvements that are attainable within two to ten years. The medium term proposals for transportation in South St. Vital include:

1. Realigning and redesignating the use of the parking lot in front of the west entrance of The Bay.
2. Creating a parking garage with opportunities for at-grade retail, and adding pedestrian amenities to the area.
3. Developing some small-scale commercial sites near the new transit terminal.

1. The Bay Parking Lot

Precedents

- In Boulder, Colorado, and Portland, Oregon, raised crosswalks and shortcuts across parking lots are commonly used traffic calming devices that contribute to a safe environment for pedestrians.

Best Practices

- Shortcuts across parking lots should follow the desire lines of pedestrian traffic.
- Special consideration and dedicated priority parking should be given to seniors and the disabled.
- A raised crosswalk intervention makes pedestrians more visible and calms traffic.

Challenges and Limitations

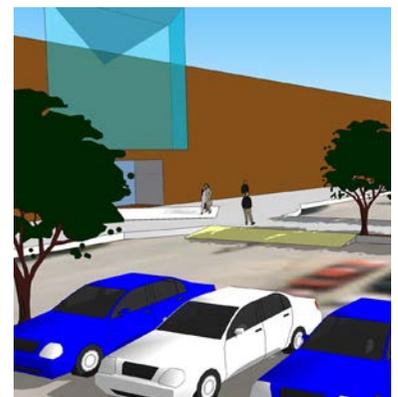
- Finding the appropriate balance between safe pedestrian access and number of priority parking stalls.

Design

- A raised crosswalk is proposed to join The Bay's west entrance with the proposed parking structure.
- The section of the parking lot that is not redesignated as a parkade will be used exclusively for handicapped and senior priority parking.



Pedestrian pathways do not always require eliminating large chunks of parking stalls. This pathway is effective and only removes one stall per row.
Credit: ICON Consultants.



A possible model of a raised crosswalk in the St. Vital Centre parking lot.

RECOMMENDATIONS

2. Parking Structure

Precedents

- A LEED Certified parking garage in Santa Monica, California, is the most sustainable parking garage in North America.
- Landscaping the area surrounding the parking structure; as they did in Bellevue, Washington; helps to hide the structure and provides future opportunities for urban backfill.

Best Practices

- The structure should contain flexible space at-grade to include the opportunity for retail space.
- Creating parking garages that blend with the urban environment as in the picture to the left.

Challenges and Limitations

- Determining the most effective way to divide part of the parking structure into retail space without compromising the efficiency of the parking structure.

Design

- Although priority parking is located closer to The St. Vital Centre, the parking structure should still be equipped with elevators, and age-friendly features to lessen negative impacts between vehicles and pedestrians.
- Landscaping the area surrounding the parking garage will limit the parking structure's visual impact on the community.



A parking garage in Denver, Colorado that blends in well with its surroundings. The parking garage also contains retail space.

Credit: Skyscrapers Forum.



A model of what a three-storey parkade in St. Vital Centre could look like.

RECOMMENDATIONS

3. Commercial Infill

Precedents

- Small-scale commercial development is often incorporated into the design and redevelopment of transit terminals.
- In Brampton, Ontario, the redevelopment of the transit terminal has included commercial development.

Best Practices

- Adding awnings and providing seating are viewed as the two most successful streetscape enhancements that promote business.
- Reducing speed to 30 km/h on roadways near transit terminals creates a more pedestrian oriented environment.



Challenges and Limitations

- The commercial development should be 'flexible space' until sufficient demand exists for commercial development.

The Brampton Terminal included room for commercial development to provide a safe environment for commuters.
Credit: Brampton Transit.

Design

- To make the buildings more age-friendly entrances should be at-grade and doorways should be larger than standard..
- On-street parking should be permitted in front of commercial development to entice customers.
- The commercial developments and activities within the buildings should be oriented towards the transit terminal to provide a sense of safety and security for commuters.



A model of what commercial development could look like surrounding the St. Vital Centre transit terminal.

RECOMMENDATIONS

Long-term Recommendations

Long term opportunities are improvements that are possible after 10 years. The long term possibilities for transportation in South St. Vital include:

1. Creating residential developments near the South St. Vital Centre.
2. Continuing to fulfill the goals outlined in OurWinnipeg Complete Communities for a regional mixed-use centre.

1. Residential Development

Precedents

- In Lakewood, Colorado; a suburb of Denver; the city has decided to completely redeveloped the Belmar Mall site and included 70% residential development. (See section on outdoor spaces for more information).

Best Practices

- Changing from segregated land-use policy to one that allows the mixing of uses creates opportunities for more community connections, intergenerational activities, and a sense of community.
- There should be a variety of housing options available including social housing, and market value housing.

Challenges and Limitations

- Overcoming the perception that residential and commercial should be zoned separately.

Design

- Mixed use development makes sense for a site like St. Vital Centre. It is convenient for people to shop where they change modes of transportation.
- Mixed use adds vitality, economic stability, and even safety to the community.
- Residential developments should be constructed with Universal Design policy in mind.



The redevelopment of Belmar Mall in Lakewood, Colorado.
Credit: Denver Metro.



A street view shot of the Belmar Mall property as it appears redeveloped in 2009.
Credit: Denver Metro.

RECOMMENDATIONS

2. Regional Mixed-use Centre

Precedents

- The Oakridge Centre in Vancouver has recently undergone major redevelopment as the skytrain now passes the mall (picture).

Best Practices

- Service buildings should be appropriately located near the community.
- Features should be incorporated into design that help to define the community.

Design

- Continue to follow the policy of density gradation as outlined in OurWinnipeg Complete Communities.
- Locate parking below or behind mixed-use buildings.
- Large building complexes should be setback from the commercial base on which they stand.



The completed section of the new Oakridge Centre.
Credit: City of Vancouver.



A vertical view showing the opportunities at the St. Vital Centre.

II.

Housing



OBSERVATIONS

Strengths

Variety

The South St. Vital area offers a variety of housing options. Housing primarily consists of single family detached homes, but there are a number of apartments, duplexes, townhouses, as well as a mobile home park and senior specific housing.

Type of homes

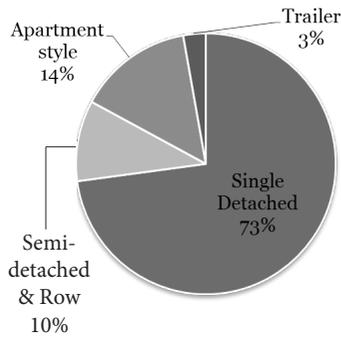


Figure 7: Information for graphic by City of Winnipeg (2006)



Single-family homes on Kamberwell Bay.



Single-family homes on Hazelwood Crescent.



Side-by-side homes on Paddington Rd.



Kirchoff Gardens Seniors Home on Dakota Street.



Seine River Haven Seniors Homes on St. Anne's Rd.



Southglen Mobile Home Community

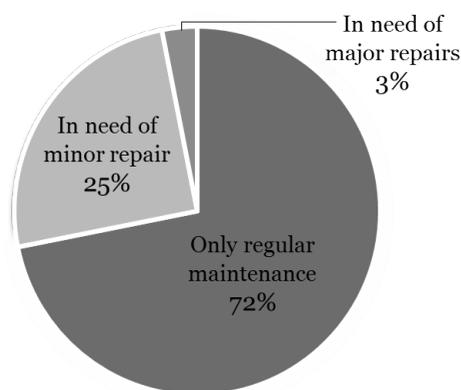
OBSERVATIONS

Housing Stock Condition

Overall, the housing stock is in good shape as most homes were built after 1970. Most homes in the northern area of South St. Vital were built between 1971 and 1980. From the 1980s to early 1990s more two level homes and different types of multi-family residences were built. Since the mid 2000s there have been more townhouses; a few apartments; and many two story single family homes built in the southern area. Presently, construction continues in the south and east of South St. Vital.

Housing Condition 2006

Figure 8: Information for graphic by City of Winnipeg (2006)



Ageing in Place

There are options for aging in place in South St. Vital. People have the option of staying in their homes and in the neighbourhood of their choice as long as they want to. Many houses in the area are one storey bungalows; small modifications can be made to create age-friendly features. There is also the opportunity for single family homes to be converted to accommodate multiple households. Many homes have large backyards and back lane ways which could allow accessory dwelling units to be built.



Home with ramp on Hazelwood Crescent.

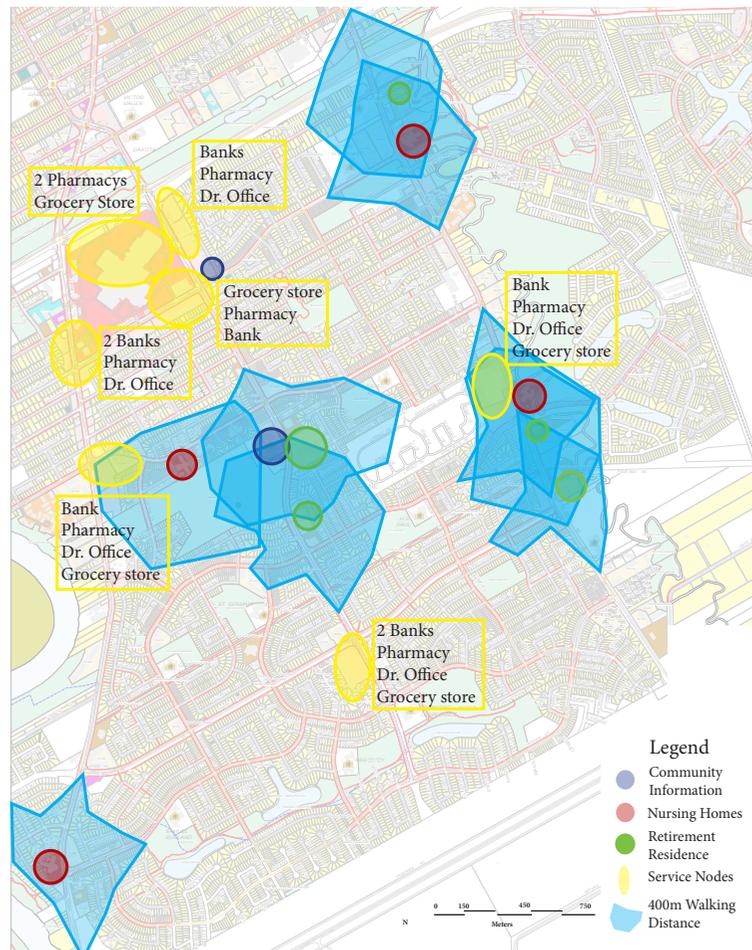
OBSERVATIONS

Areas for Improvement

- Although there are a number of housing options in the area, availability and affordability is an issue.
- The design of newer homes in southern neighbourhoods often lack age-friendly features. Many of them are two storey, which is not ideal for those with mobility limitations. New construction should be regulated to meet Universal Design standards.
- There are numerous amenities and services available in the area but they are clustered along the main three corridors. There is not usually easy access by foot. Most are designed to be accessed by vehicles as they have large parking lots between the store fronts and the street/sidewalk.

The map below shows where the area amenities are located in relation to the senior specific housing options. The blue areas show a 400 meter walking distance from the housing.

400 meter Walking Distance



Map 7: Map from City of Winnipeg 2011

RECOMMENDATIONS

In order to provide housing that meets the growing and diverse needs of aging populations in South St. Vital, City policies that expand the range of housing options is required. The provision of mobile home communities and secondary suites can improve affordability and choice while supporting aging in place. The result is that citizens from a range of ages and incomes have the opportunity to live in the same neighbourhood.

We recommend that the mobile home community be tailored to senior`s needs and that secondary suites should not be restricted by city by-laws.

Benefits of Mobile home and Secondary Suites

- Affordable housing is a less expensive option than building or buying seniors specific housing. This allows seniors to downsize from the financial burden of a larger home.
- Secondary suites could be rented out for extra income.
- Improve housing choice in South St. Vital. This can be a rental opportunity to live in a low-density neighbourhood with access to a yard.
- Allow for aging-in-place: support seniors in maintaining their independence and privacy while remaining in a neighbourhood of their choice.
- Contribute to safer living conditions - regulating secondary suites helps ensure that units are built to code.
- More efficient use of municipal infrastructure such as transit, utilities, roads, recreation centres and parks. By increasing the population of the neighborhood the viability of schools, shops, businesses and the community centre is increased.

Challenges of Mobile home and Secondary Suites

- Policy barriers that restrict secondary suites and that seek to phase out mobile home communities. There are complex land tenure regulations that should to be reviewed.
- Provide clear information on by-laws, regulations, and the permits process (Building and Fire Code requirements).
- Reduce Parking requirements – Off-street parking requirements are restrictive and may impede secondary suite construction.
- Provide clear information on financial models - renovating or modifications to add age-friendly features.
- Inform and engage public to clear up misconceptions and stigma associated with rental properties and mobile homes.

Mobile home with ramp



Types of secondary suites

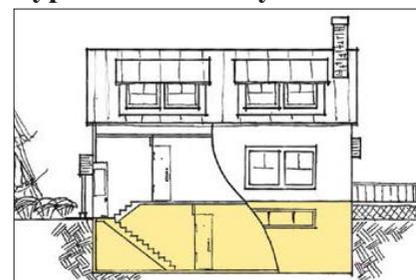


Figure 9: Basement Suite:

Dwelling located inside a single detached house. The suite can have an entrance from the main house directly from the exterior.

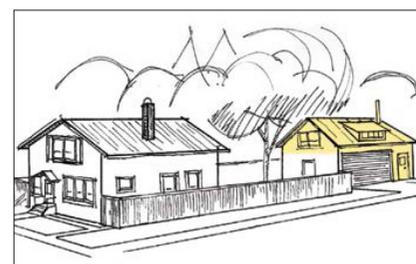


Figure 10: Garage Suite (also called Coach House): Dwelling build above or attached to a detached garage. The suite has an entrance separated from the main garage entrance.

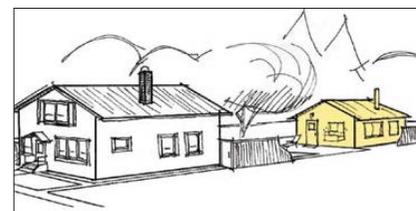


Figure 11: Garden Suite (also called Granny Flat): Self-contained dwelling unit detached from the primary single detached home.

Photos credit:

Government of Manitoba (2011)

RECOMMENDATIONS

Short Term Proposals

1. By-law review to allow secondary suites detached and above garages.
2. Build secondary suites on larger lots with back lanes for modest and managed change.
3. Grants and financial incentives for modifying homes to have age-friendly features as well as for building secondary suites.

Precedent for recommendation 1 and 2:

In 2006, The City of Edmonton's two phase program allowed the development of secondary suites within single detached residence in or above garages in some areas. The second phase removed location restrictions and allowed detached units.

There are still restrictions such as:

- Minimum lot size of 5650 square feet
- 3 site parking spot requirements
- Maximum size and height restrictions

Precedent for recommendation 3:

The City of Edmonton offers the Cornerstone Grant, paying up to 75% of eligible construction costs (maximum \$24 000), to those who rent their suite to low income tenants.

Edmonton has an 'enforcement team', funded by the Alberta Funding Program, to assist home owners by providing education on compliance and building code and permit requirements. It is also a resource for funding and building information.



Backyard cottage in Sanra Cruz
Photo: Santa Cruz Sunset Magazine



Backlane house in Vancouver
Photo: www.grist.org



Backlane house in Vancouver
Photo: www.hoodsurf.com

RECOMMENDATIONS

Incentives already available to South St. Vital residents:

The Manitoba government offers a forgivable loan for 50% of the cost for a secondary suite (up to \$ 35,000) if leased to low income tenants.

The Canada Mortgage and Housing Corporation (CMHC) offers financial assistance to build a secondary suite, basement, garage or garden suite, for a low-income senior or adult with a disability. The assistance is in the form of a forgivable loan up to the maximum of \$24,000.

Best Practices:

- The precedent shows that some form of grants or financial incentives should be used to promote building suites.
- Having available help and information, such as Edmonton's 'enforcement team', could allow more seniors to take advantage of secondary suite opportunities.

Challenges and Limitations:

- By-law regulations impede the building of secondary suites.

Regulations include: - minimum lot size;

- parking requirements;

- maximum size and height restrictions.

- For senior homeowners there is a gap between interest in building a suite and being capable of taking on the project. They may lack the capital or are not interested in dealing with the finances due to difficult application processes.



Garage suite in Seattle
Photo: The City of Seattle



Backyard Cottage in Seattle
Photo: The City of Seattle

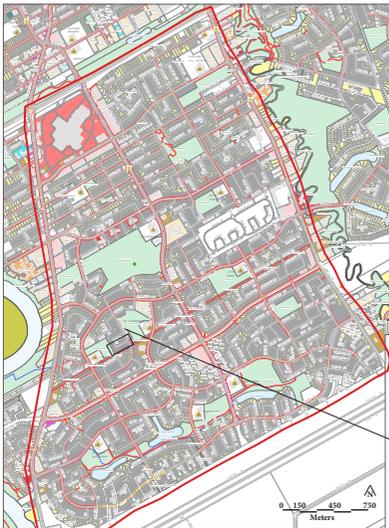
RECOMMENDATIONS

Design:

- Build secondary suites within the general restrictions and requirements often found in cities' by-laws.
- Build on lots larger than 5650 square feet with back lanes. Many already have large two car garages that can be modified to fit one vehicle and a small secondary suite.

Model of existing properties. The yellow buildings below show examples of how secondary suite could fit on lots larger than 5650 square feet. Some lots have space for a second off-street parking spot beside the garage.

South St. Vital:



Map 8: Map from City of Winnipeg 2011



Aerial View of existent homes in South St. Vital with examples of secondary suite proposals shown in yellow.

Examples of properties where a garage could be modified to fit one vehicle and a secondary suite.

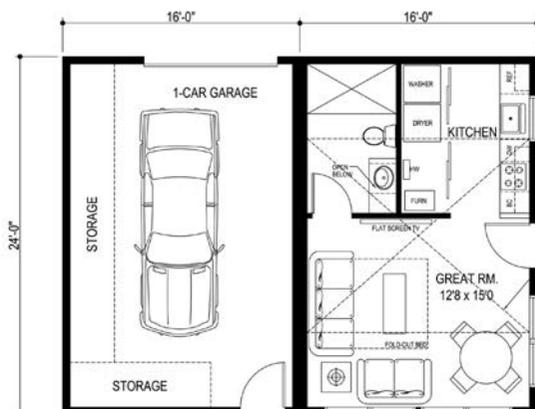


Figure 12: Secondary suites floor plan. Sidekick Homes 2011



Secondary suite floor plan option: 384 square feet

This floor plan fits in the purposed garage suites. Many would have additional space for variations in the design where desired.

RECOMMENDATIONS

Medium Term Proposals

1. Reduce infill housing restrictions including parking requirements and lot size minimums. Build secondary suites on smaller lots with fewer City policy restrictions.
2. Provide reliable information on the importance of rental property with the goal of working towards changing the perception of renting.

Precedent for recommendation 1:

The City of Ottawa changed their by-law in September 2005 to permit secondary suites in almost all areas of the city.

The City of Winnipeg has allowed four 'pocket house' models to be built. This model fits a multi-family dwelling onto an infill lot at a scale consistent with adjacent single family homes. The model on the bottom left of the previous page shows how single person dwellings can be designed with all the basic necessities in a small space. Many 'pocket house' designs are wheelchair accessible.

Precedent for recommendation 2:

In Edmonton a well-developed public consultation strategy along with a phased approach enabled the City officials to address concerns and address misconceptions from the start of the process. Feedback was received from the public and information was gathered through constant monitoring. The results of the first phase was used to help refine regulations and correct any problems before implementing phase two.

Best Practices:

- Well-developed consultation strategy
- Phased approach to allow for monitoring and time to address residences concerns
- Limit restrictive regulations and change by-laws to promote secondary suite creation.

Challenges and Limitations:

- Secondary suites only provide a minimal amount of additional housing and increase density. The precedence shows that some form of grants or financial incentives should be used to promote building suites.
- For seniors homeowners there is a gap between interest in building a suite and being capable of taking on the project. They may lack the capital or are not interested in dealing with the finances due to difficult application process. The responsibility of the renovations or being a landlord may not be appealing.

RECOMMENDATIONS

Design:

- Build additional secondary suites on smaller lots with less restrictions and regulations.

The yellow buildings show examples of how a one car garage, often found on the lots smaller than 5650 square feet, can be turned into a secondary suite.



An example where a single car garage could be modified to be a secondary suite. The outdoor parking space would remain.



Aerial View of existent houses in Sout St. Vital with examples of secondary suites in yellow.

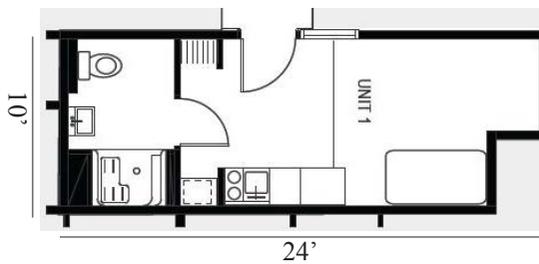
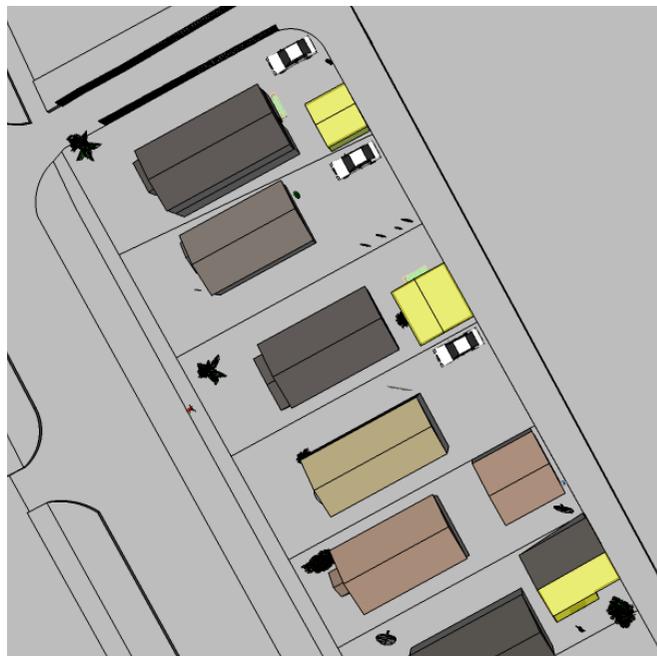


Figure 13: Secondary suite floor plan option: 240 Square feet (Sidekick Homes, 2011).



RECOMMENDATIONS

The model to the right shows how the addition of secondary suites does not change the character of the neighbourhood.



Long Term Proposals

1. Build secondary suites on single-family property.
2. Encourage infill housing to increase density.
3. Ensure a variety of housing options exist, especially mixed used development around St. Vital Centre.

Best Practices:

- Well-developed consultation strategy to address residents' concerns and provide information.
- Ensure Universal Design is used for new housing units.

Challenges and Limitations:

- Affordability of homes in new mixed-use buildings

Design:

- Continue building secondary suites in South St. Vital.
- Build mixed use including housing around St. Vital Centre.

The image below shows the proposed St. Vital Centre redevelopment. The mixed used housing option in circled.

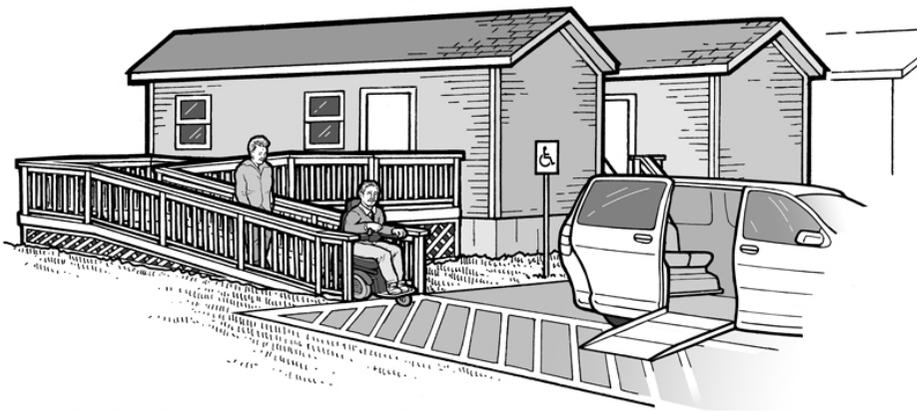


RECOMMENDATIONS

Mobile Homes

Short Term Proposals

- Communicate the benefits of mobile homes as affordable, comfortable and flexible housing opportunities.
- Provide information on modifying mobile homes to have age-friendly features and promote the use of Universal Design while building new mobile homes.
- Describe the opportunity of downsizing and flexibility associated with mobile homes as a type of lifestyle choice.



Example of mobile home that is wheelchair accessible.

Credit: Department of Justice, 2008.

Medium Term Proposals

- Remove policy / legislative barriers that prevent, restrict or seek to phase out mobile home communities.
- Explore the possibility of 55+ specific mobile home parks as another option for senior housing.
- Create specific zoning / building code regulations that establish a place for mobile homes in City bylaws.



An example of an attractive mobile home.
Credit: photo home site 2011.

Long Term Proposals

- Inform and engage public to clear up misconceptions and stigma associated with mobile home.
- Create mechanisms for home ownership and land tenure in regards to mobile homes and the area they occupy.
- Support the development of new 55+ mobile home communities in meeting the demand for truly affordable senior housing.

V.

Social Participation



OBSERVATIONS

The importance of social participation:

“Social participation and social support are strongly connected to good health and well-being throughout life. Participating in leisure, social, cultural and spiritual activities in the community, as well as with the family, allows older people to continue to exercise their competence, to enjoy respect and esteem, and to maintain or establish supportive and caring relationships.”

-World Health Organization, 2007, p.38

In our area of study we have observed a number of community groups, recreational facilities, health organizations, retail spaces, and places of worship that facilitate social participation and community interaction for older adults.



Two people walking on the Dakota active transportation pathway



The Youville Community Health Resource Centre

OBSERVATIONS

Strengths:

Boni Vital Council for Seniors

- Committed to working with seniors in the community to maintain their independence.
- Created a manual and set of informational brochures compiling resources and services for seniors in the St. Vital and St. Boniface area.

Dakota 55+ Lazars Program

- Promotion of aging in place with hopes of increasing connections between sports, recreation and health services.
- Provide opportunities for older adults to become more aware of resources that are available in their community.

The St. Vital Center

- Free daily mall walking programs.
- Discounts for seniors are offered.
- Buildings and washrooms are wheelchair accessible with complimentary wheelchairs and scooters available.

The Youville Centre

- Community health resource center.
- Offers a variety of senior specific information such as brochures and magazines as well as free internet access.

Louis Riel Public Library

- Located next to the Dakota Community Centre.
- Wheelchair accessible.
- Wide loading zones and handicap parking spots are in close proximity to the entrance.
- Bulletin boards provide information on community activities and library programming.

Places of Worship

- Churches, a temple and a mosque within the community.



Advertisement for the *Dakota Lazars 55+* drop in program (Dakota St.).



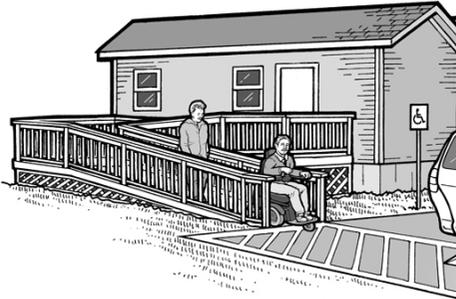
The Louis Riel Library on Dakota St. offers community activities and resource information for all ages.



The Dr. Raj Pandey Hindu centre (St. Annes Rd.).

OBSERVATIONS

Areas for Improvement:



Retrofitted mobile home, exemplifies flexible housing options.
Credit: Department of Justice, (2008).



At grade, wheelchair accessible transit stop. Credit: Engeli Sitesi (2011).



Adaptive use of unfriendly pedestrian environments (Dakota St.).



A characteristic single family detached home retrofitted to improve accessibility, facilitating aging in place.

- Expand opportunities to age in place:
 - Provide diverse residential options on a neighbourhood scale, other than single family detached homes.
 - Capitalize on retrofit opportunities of the area housing stock.
- Design with accessibility in mind when planning residential developments:
 - Include Universal Design principles in new construction, focusing on accessibility and visitability, anticipating the needs of aging populations.
 - Consider alternative forms of transportation when designing new developments (adequate sidewalks, covered bus shelters), encouraging transportation other than driving.
- Improve neighbourhood walkability:
 - Design with specific attention to the special requirements of Manitoba winters and the risks they pose to older pedestrians.
- Improve access to transportation modes.
- All with the intention of maintaining community ties and preserving independence.

OBSERVATIONS

Short Term

- Provide further education on the components of age- friendly communities.
- Describe the purpose of age friendly design features (curb cuts, textured pavement etc.)
- Explain the types of building features that improve access for all levels of mobility.
- Identify barriers that prevent community interaction or lifestyle choice.
- Communicate the importance of age-friendly urban design and its impact on quality of life.
- Inclusive urban design increases social participation by encouraging aging in place, in turn maintaining community ties.

Medium Term

- Increase opportunities to accessible and diverse transportation modes.
- The ability to move efficiently in ones environment regardless of ability is essential in maintaining social connections.
- Improve transportation systems that enable people of all abilities to interact with their neighbourhood, community and city, independently.
- Enhance transportation opportunities that enable independent lifestyles if driving is no longer possible.

Long Term

- Redefine the image of aging.
- Change perceptions of what aging looks like.
- Communicate the idea that healthy communities accommodate the needs of all ages.



Non slip pavement at a Dakota St. intersection.



Textured pavement provides direction to boarding location, (Dakota St.).



Figure 5: Seniors housing option with close transit service and pedestrian corridor (Dakota St.).

RECOMMENDATIONS



A transit station aligned with CPTED principles. Credit: San Bernadeno State University (2010).

Bus Station Redevelopment

- Centralized transit station provides frequent service, making car free transportation efficient.
- Specific attention to barrier free design makes access to transit more feasible for diverse mobility needs.
- Creating a transit station that is a “vibrant place” makes transit use more enjoyable.
- Crime Prevention Through Environmental Design (CPTED) principles improve safety by building visible and permeable spaces.

Alternative Housing Options

- Secondary suites enable aging in place by offering local adaptations as housing needs change.
- Changing perceptions and reducing barriers to mobile home parks creates affordable and flexible housing opportunities within the community.
- Mixed use development at St.Vital Centre offers dense living opportunities with amenities and transit services within short walking distances.



An example of a visually appealing, accessible mobile home. Credit: Shomera, (2010).

Outdoor Space Improvements

- Adding a cross walk at St. Mary’s Road and Glendell Avenue reduces a barrier to pedestrians, encouraging walking as a safe mode of transportation.
- Dakota pathway improvements improve pedestrian and cyclist safety, supporting active transportation modes.
- Installation of traffic lights on Dakota Street improves access to social programming offered at the Louis Riel Public Library and the Dakota Community Centre.
- The greening and reorganization of St. Vital Centre parking improves parking lot efficiency, offers priority handicapped parking spaces while creating a more enjoyable human scaled environments.



A well signed active transportation path. Credit: 365 Bike Space (n/d).

CONCLUSION

In conclusion, by applying the principles of the World Health Organization's Global Age Friendly Cities: a Guide and the City of Winnipeg's Complete Communities we were able to conduct an age friendly assessment of South St. Vital. By targeting criteria of outdoor spaces, housing, transportation and social participation, a holistic analysis was conducted with recommendations made to improve South St. Vital as an age friendly community. Design recommendations include additional crosswalks, street lights and traffic calming measures along the Dakota Street active transportation to improve neighbourhood walkability, the redevelopment and expansion of a centralized, high frequency transit station at St. Vital Centre and the diversification of neighbourhood housing stock through promotion of secondary suites and mobile home parks. By making these proposed recommendations we feel that opportunities for efficient transportation and increased opportunity to age in place can help to maintain social connections and community ties regardless of age.

REFERENCES

BoniVital Council for Seniors (2011). Welcome to the Seniors Resource Network. Retrieved October 12, 2011 from: <http://seniors.cimnet.ca/cim/19C44.dhtm>

Brampton Guardian (2010, 5, 15). New bramalea bus terminal. Retrieved from: <http://www.bramptonguardian.com/news/cityhall/article/817204>

Canadian Mortgage and Housing Corporation. (2008). Secondary suites & flex housing. Retrieved December 2011, from: http://www.cmhcschl.gc.ca/en/co/renoho/refash/refash_040.cfm

CHASS (2010). Canadian Census Analyzer. Faculty of Arts and Sciences. University of Toronto. Retrieved from <http://datacentre.chass.utoronto.ca.proxy2.lib.umanitoba.ca/census/>

City of Edmonton. (2009). Dwelling units by type. Retrieved December 2011, from <http://www.edmonton.ca/>

City of Ottawa. (2010). Secondary Dwelling Unit. Retrieved December 2011, from http://ottawa.ca/residents/building_code/s_dwelling/index_en.html

City of Victoria. (2010). Crime Prevention Through Environmental Design – Guidelines. Retrieved from: http://www.victoria.ca/common/pdfs/planning_cepted.pdf

City of Winnipeg. (2011). TeleBus. Retrieved September 30, 2011, from <http://winnipegtransit.com/en/transittools/telebus/>

City of Winnipeg. (2011). Transit Fares. Retrieved September 30, 2011, from <http://winnipegtransit.com/en/special/park-and-rides/13>

City of Winnipeg – Planning, Land-use, and Development. (2011). Received air photo copy on September 23, 2011.

City of Winnipeg. (2010). Complete Communities: An OurWinnipeg Direction Strategy. <http://www.winnipeg.ca/ppd/OurWinnipeg/pdf/CompleteCommunities.Jul26.2010.pdf>

City of Winnipeg. (2009). 2009 Traffic Flow Map. Retrieved September 30, 2011, from http://www.winnipeg.ca/publicworks/transportation/traffic_count_program.asp

Government of Manitoba. (2009). Municipal Guidelines for Secondary Suites. Retrieved December 2011, from <http://www.gov.mb.ca/housing/ssp.html>

Greco, JoAnn. (2010). TLC for a unique center city ‘pocket park.’ PlanPhilly. Retrieved from: <http://planphilly.com/tlc-unique-center-city-pocket-park>

REFERENCES CONT.

Hooker, S., Cirill, L., & Wicks, L. (2007). Experience walkable neighborhoods for seniors: The Alameda County. *Journal of Applied Gerontology*, 26, pp. 157-181.

ICON Consultant Group. (2001). Raised crosswalks and traffic calming improvement zones. Partnership for a walkable America pedestrian project. Retrieved from: http://www.ite.org/activeliving/files/C-2-C_ppa013.pdf

Jackson Free Press (2011, 9, 14). From vacant to vibrant. Retrieved from: http://www.jacksonfreepress.com/index.php/site/comments/from_vacant_to_vibrant_091411/

ND LEA and Cohlemyer Architects. Pocket Houses. (2003) Retrieved December 2011, from <http://www.sam.mb.ca/pockethouses/index.html>

Toronto Star (1993, 11, 28). Walkers are taking back the streets - Traffic calming techniques are catching on in North America. Toronto Star. Retrieved from Proquest on October 16, 2011.

Victoria Transport Policy Institute. (2011). Streetscape improvements: Enhancing urban roadway design. Retrieved from: <http://www.vtpi.org/tdm/tdm122.htm>

Winnipeg Chamber of Commerce. (November 2004). Policy/Initiatives. City of Winnipeg residential land supply. Retrieved from <http://www.winnipeg-chamber.com/>

World Health Organization. (2007). Global Age friendly Cities: A Guide. {PDF document}.